Ford Motor Company
Kingsford Products Company

Disclaimer:" This document has not received approval from the Michigan Department of Environmental Quality (MDEQ). This document was prepared pursuant to a Judicial Consent Judgment. The opinions, findings, and conclusions expressed are those of the authors and not those of the MDEQ.

Remedial Investigation Report

Ford-Kingsford Products Facility
(Court Case Number 04-1427-CE)
Kingsford, Michigan

November 2010

ARCADIS

ARCADIS
Infrastructure, environment, buildings

Imagine the result

Ford Motor Company
Kingsford Products Company

Disclaimer: This document has not received approval from the Michigan Department of Environmental Quality (MDEQ). This document was prepared pursuant to a Judicial Consent Judgment. The opinions, findings, and conclusions expressed are those of the authors and not those of the MDEQ.

Remedial Investigation Report

Ford-Kingsford Products Facility
Kingsford, Michigan

2010

ARCADIS

THIS PAGE INTENTIONALLY LEFT BLANK

Bruce W. Evans, PG
Project Geologist

Richard L. Studebacker Jr., PE
Principal Engineer/Project Manager

Peter L. Palmer, PE
Senior Vice President/Project Officer

Remedial Investigation Report

Ford-Kingsford Products Facility,
Kingsford, Michigan

Prepared for:
Ford Motor Company
Kingsford Products Company

Prepared by:
ARCADIS U.S., Inc.
126 North Jefferson Street
Suite 400
Milwaukee
Wisconsin 53202
Tel 414.276.7742
Fax 414.276.7603

Our Ref.:
Wi0012500015.00001

Date:
2010

ARCADIS

Tables

Figures

ARCADIS

Appendices

Abbreviations and Acronyms

3-D	Three Dimensional
µg/Kg	Micrograms per Kilogram
µg/L	Micrograms per Liter
µm	Micrometer
AOC	Area Of Concern
APEA	Applicant-Prepared Environmental Assessment
ASTM	American Society for Testing Materials
BCC	Bioaccumulative Chemicals of Concern
BFI	Browning-Ferris Industries
BMR	Bentonite Mud Removal
BOD	Biochemical Oxygen Demand
BTFD	Breitung Townsihp Fire Department
$CaCO_3$	Calcium Carbonate
cfm	Cubic feet per Minute
cfs	Cubic Feet per Second
CJ	Consent Judgment
CLP	Contract Laboratory Program
Cm/sec	Centimeters per Second
CMD	Commercial Methane Detector
CMP	Commercial Methane Program
CO_2	Carbon Dioxide
COD	Chemical Oxygen Demand
DCC	Direct Contact Criteria
DO	Dissolved Oxygen
DWC	Drinking Water Criteria
DWPC	Drinking Water Protection Criteria
E&E	Ecology and Environment, Inc.
EA	EA Environmental Science and Technology
EE/CA	Engineering Evaluation/Cost Analysis
EM	Electro-magnetic
EP TOX	Extraction Procedure Toxicity
EDTA	Ethylenediaminetetraacetate
EPT	Ephemeroptera, Plecopterea, Trichloptera (mayflies, stoneflies, and caddisflies)
ERP	Emergency Response Plan
EVS	Environmental Visualization System
EWA	Environmental and Water Resources Management
EWA	Earth, Water and Air Resources, Inc.
^{o}F	Degrees Fahrenheit
ft^2	Square Feet
ft bls	Feet below land surface
Ft/ft	Feet per foot
ft msl	Feet Mean Sea Level

FAV	Final Acute Value
FCV	Final Chronic Value
Fe	Iron
FESL	Flammability Explosivity Screening Level
FID	Flame-Ionization Detector
FPS	Former Plant Site
FVSIC	Finite Volatile Soil Inhalation Criteria
GAD	Great American Disposal
Gal	Gallon
GCC	Groundwater Contract Criteria
GC/MS	Chromatograph/Mass Spectrometer
Gpd/ft	Gallons per Day per Foot
Gpm	Gallons Per Minute
GPR	Ground Penetrating Radar
GPS	Global Positioning System
GSI	Groundwater/Surface Water Interface
GSIPC	Groundwater Surface Water Interface Protection Criteria
GSLIB	Geostatistical Software Library
GVIAIC	Groundwater Volatilization to Indoor Air Inhalation Criteria
H_2S	Hydrogen Sulfide
HD	Hester-Dendy
HDPE	High Density Polyethylene
Hp	Horsepower
Hz	Hertz
I.D.	Inside Diameter
Lb/day	Pounds per Day
IM/K WWTP	Iron Mountain/Kingsford Waste Water Treatment
IRAP	Interim Response Action Plan
ISVSIC	Infinite Source Volatile Soil Inhalation Criteria
KCC/KC	Kingsford Chemical Company and Kingsford Company
KPC	Kingsford Products Company
KPSD	Kingsford Public Safety Department
lbs	Pounds
L	Liter
LEL	Lower Explosive Limit
m	Meter
MAAG	Multi-Agency Advisory Group
MDEP	Methane Detector Enhancement Program
MDEQ	Michigan Department of Environmental Quality
MDNR	Michigan Department of Natural Resources
MDPH	Michigan Department of Public Health
µg/Kg	Micrograms per kilogram
µg/L	Micrograms per liter
µm	Micrometer
MEK	2-butanone
MHz	Megahertz
Mg/L	Milligrams per Liter
MGP	Manufactured Gas Plant

ml	Milliliter
N_2	Nitrogen
NH_4+	Ammonia
NE Pit	Former Northeast Pit
NO_3	Nitrate
NO_2	Nitrite
NO	Nitric Oxide
NPDES	National Pollutant Discharge Elimination System
ns	Nanosecond
O&M	Operation and Maintenance
O_2	Oxygen
OSWER	Office of Solid Waste and Emergency Responses
OVA	Organic Vapor Analyzer
PCB	Polychlorinated Biphenyls
PID	Photoionization Detector
pMC	Percent Modern Carbon
ppm	Parts per Million
PSIC	Particulate Soil Inhalation Criteria
PVC	Polyvinyl Chloride
QAPP	Quality Assurance Project Plan
RAP	Remedial Action Plan
RAS	Return Activation Sludge
RDA	Riverside Disposal Area
RI	Remediation Investigation
RMP	Residential Methane Program
RRD	Remediation Redevelopment Divison
SCA	Smith Castings Area
SCS	Soil Conservation Service
SO_4	Sulfate
SPLP	Synthetic Precipitation Leaching Procedures
STL	STL Savannah Laboratories
SVE	Soil Vapor Extraction
SVIAIC	Soil Volatilization to Indoor Air Inhalation Criteria
SVOC	Semi-Volatile Organic Compounds
SW Pit	Former Southwest Pit
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxic characteristic leaching procedures
TIC	Tentatively Identified Compounds
TIE	Toxicity Identification Evaluation
TKN	Traveling Kicknet
TOC	Total Organic Carbon
TU_a	Acute Toxic Unit
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geologic Survey
VCS	Vapor Control System
VOC	Volatile Organic Compounds
WAS	Waste Activated Sludge

WBADA	West Breen Avenue Disposal Area
WDNR	Wisconsin Department of Natural Resources
WEPCO	Wisconsin Electric Power Company
WET	Whole Effluent Toxicity

THIS PAGE INTENTIONALLY LEFT BLANK

1. Executive Summary

1.1 Introduction

On behalf of Ford Motor Company (Ford) and The Kingsford Products Company (KPC), ARCADIS has prepared this remedial investigation (RI) report to describe the nature and extent of affected soil, groundwater, and methane associated with the Ford/Kingsford Site in Kingsford, Michigan.

On October 26, 2004, Ford, KPC, and the State of Michigan entered into a Consent Judgment (CJ), Court Case No. 04-1427-CE, which defined the Ford/Kingsford Site as the Ford-Kingsford Product Facility (Site). Ford and KPC had previously been party to an Administrative Order by Consent with the United States Environmental Protection Agency (U.S. EPA) to perform an Engineering Evaluation/Cost Analysis (EE/CA). Data collected during the EE/CA is also included as part of the RI report.

The RI activities were completed consistent with the requirements of the Michigan Natural Resources and Environmental Protection Act, P. A. 1994, No 451, as amended (Michigan Administrative Code) Part 201, (hereinafter Part 201) and the rules under Part 201, as well as the requirements of the CJ. The data collected during the RI, along with additional data and information obtained through implementation of interim response activities has been incorporated into this RI. Two draft versions of the RI report have been previously submitted to the Michigan Department of Environmental Quality (MDEQ) for review, on May 25, 2000 and July 17, 2002.

The primary areas of investigation, identified in the original RI Work Plans, included the former Northeast Disposal Pit (NE Pit), the former Southwest Disposal Pit (SW Pit), the former Riverside Disposal Area (RDA), the former Plant Site (FPS), the former West Breen Avenue Disposal Area (WBADA), residential areas to the south and west of the former disposal pits and FPS, and the Menominee River.

1.2 Background

The City of Kingsford is located in southwestern Dickinson County in the Upper Peninsula of Michigan. The Site is located within a residential, commercial, and industrial area of the City of Kingsford. The Site, a portion of the City of Kingsford, and a portion of Breitung Township that is west of Highway M-95 (Carpenter Avenue) are included in the area defined for investigation and evaluation that has been designated as the Study Area. A smaller area within the Study Area was defined as the Area of

Concern (AOC) by the MDEQ in the CJ. The AOC is generally the same as the Study Area to the north, west and south, but is bounded to the east by a combination of Hooper Street, East Boulevard, Pyle Drive, and Balsam Street.

Three landform terraces dominate the topography within the Study Area and the principal drainage feature in the Kingsford area is the Menominee River. A number of surface water bodies are located north, northwest and northeast of the City of Kingsford, including Crystal Lake, Cowboy Lake and former iron mines in the adjacent City of Iron Mountain that have been abandoned and flooded.

Land use in the Kingsford area has changed significantly over the past century. The City of Kingsford was incorporated in the 1920s and the land, which was primarily agricultural, was developed into industrial and residential property. Current land use within the Study Area is a mixture of industrial, commercial and residential. Past industrial activities included Ford's auto parts manufacturing and charcoal production facility (from approximately 1925 to 1951) and charcoal production by Kingsford Chemical Company and Kingsford Company (from approximately 1951 to 1961). Many other industries, including manufactured gas plants, foundries, mining, and timber processing, have historically operated in the area.

1.3 Investigation Activities

The investigations for the EE/CA and RI were primarily completed in two major phases between April 1997 and January 2001, in accordance with U.S. EPA and MDEQ approved work plans. Additional Site activities completed through December 2007 are also included in this RI report. An extensive amount of information was collected during the investigations. A total of 965 soil borings were completed by ARCADIS for the evaluation of the geology and hydrogeology of the Site, delineation of waste and contamination, installation of groundwater monitoring wells, collection of soil and groundwater samples, and installation of vapor monitoring points. A total of 226 surface and subsurface soil samples, and 680 groundwater samples were collected for field and laboratory testing. In addition, hundreds of soil samples were analyzed for gas-phase methane and other constituents during the drilling and sampling activities. Laboratory testing performed during the investigation included analysis of volatile organic compounds, semi-volatile organic compounds, pesticides, polychlorinated biphenyls, inorganics, aldehydes, alcohols, volatile organic acids, biogeochemical indicator parameters, total organic carbon, methane and other gases. Groundwater samples from monitoring wells along the Menominee River were also tested for whole effluent toxicity.

The EE/CA field activities were generally completed between April 1997 and March 1998. RI field activities were performed between March 1998 and January 2001, and additional investigation activities were performed through December 2007. Collectively, the investigations include:

- Completion of soil borings; direct push borings; collection of subsurface soil, waste, and sediment samples for visual observation and laboratory analyses; collection of surface soil samples for visual observation and laboratory analyses; and completion and visual observation of test pits.

- Installation of groundwater monitoring wells; collection of groundwater level measurements; collection of groundwater samples from monitoring wells and monitoring well boreholes for field parameters and laboratory analyses; collection of surface water and seep samples and laboratory analyses; completion of short-term aquifer tests; laboratory treatability and microbiological tests; abandonment of residential wells; completion of a Menominee River biological survey: and groundwater/surface water interface evaluations.

- Installation of soil vapor monitoring and venting probes; collection of soil vapor samples for laboratory analysis; and field monitoring of soil vapor.

- Completion of geophysical surveys; Study Area mapping and surveying; sub-bottom profiling of the Menominee River; and three dimensional (3-D) modeling of the subsurface geology and constituents in the groundwater.

In addition, extensive interim response actions were implemented. These response actions provided additional information and data that was also incorporated into this RI. The response actions include:

- Completion of pilot soil vapor extraction (SVE) tests; installation of SVE systems; operation and maintenance of SVE systems; implementation of a residential methane program that includes inspection for methane, providing methane detectors, sealing cracks in lower levels of homes, and installation of vapor control systems; and a commercial methane program that includes inspections for methane, sealing building floor cracks, installation of vapor control systems, and installation of soil vapor probes.

- Pilot testing of groundwater extraction and treatment methodologies; installation of a groundwater extraction and treatment system; and operation and maintenance of a groundwater extraction and treatment system.

- Completion of waste excavation and removal and/or consolidation activities; installation of engineered cover systems; and maintenance and monitoring of the engineered cover systems.

1.4 Investigation Findings

The local geologic system is comprised of glacially derived unconsolidated deposits consisting of clay, silt, sand, and gravel that overlie bedrock. This geologic system is complex, with the deposits having lateral and vertical spatial variability. This variability is consistent with the glacial depositional environments that formed these deposits. The depth to the bedrock (or the thickness of the unconsolidated deposits) ranges from 0 to over 363 feet. The bedrock forms an elliptical basin trending east-west, with steep bedrock rises on the north and southeast, and a mound in roughly the center of the deepest part of the basin. The various lithologic units, deposited under glaciolacustrine and glaciofluvial conditions, can be characterized by three composite units, which represent depositional units and hydrogeologic units. These three units were used to construct a 3-D geologic model for the Study Area. The three units are categorized as Unit 1 (fine-grain to coarse-grain sand and gravel), Unit 2 (silty sand and very fine-grain sand), and Unit 3 (clay and silt).

The groundwater system in the Study Area is also complex. Different zones within the groundwater system are hydraulically connected; however, the varying hydraulic properties of the different zones result in preferred pathways for groundwater movement. Groundwater flow within the system is from areas of higher groundwater elevations to areas of lower groundwater elevations, with groundwater moving along the preferred pathways. These preferred pathways in the groundwater flow system consist of the higher permeability Unit 1 (sand and gravel) that are sandwiched between lower permeability Units 2 and 3 (silt, very fine-grain sand, and clay). Groundwater flow in the deeper geologic deposits is generally to the southwest. The bedrock basin beneath the Site influences groundwater flow by imparting a westerly component to groundwater flow in the deeper portion of the system.

A downward hydraulic gradient exists throughout most of the Study Area; however, in the vicinity of the Menominee River, the hydraulic gradient is reversed and groundwater flow is upward into the river. In general, the depth to groundwater ranges from approximately 10 feet below land surface (ft bls) near the Menominee River to over 50 ft bls on the Upper Terrace. Groundwater levels fluctuated from a low of 0.05 to as much as 6 feet from May 1997 through December 2007, with the highest levels recorded in spring 1997. The hydraulic conductivities for Unit 1 materials generally range from 10^{-1} to 10^{-3} centimeters per second (cm/sec), while Unit 2 materials generally range from 10^{-4} to 10^{-6} cm/sec and the Unit 3 materials are less than 10^{-6} cm/sec.

Within the unconsolidated deposits, natural and manmade organic constituents have impacted the groundwater. Much of the organic material present is the result of historic releases of organic liquids that then migrated into the deeper portions of the groundwater system. The distribution of these organic materials is related to many factors, including the groundwater flow system, the subsurface geology, the depositional environments, the historical releases, and biodegradation.

A total of 142 constituents have been detected in the groundwater by laboratory analysis. The concentrations of these constituents detected in the groundwater have been compared to the State of Michigan Generic Residential and Commercial I groundwater criteria as defined in MDEQ Remediation and Redevelopment Divison Operational Memorandum #1 (January 23, 2006) Part 201 Generic Cleanup Criteria and Screening Levels; State of Michigan Part 4 Water Quality Standards for final acute values (FAV) and final chronic values (FCV) as defined in Rule 323.1057 (December 11, 2006); and the Groundwater Flammability and Explosivity Screening Level (FESL) as defined in the MDEQ Rule 299.5744.

Of the constituents detected in the groundwater, 67 constituents were present at concentrations above the generic Residential Drinking Water criteria within the Study Area/AOC. One constituent concentration was above the generic Residential Groundwater Volatilization to Indoor Air Inhalation criteria, and 10 constituents had concentrations above the generic Residential Groundwater Direct Contact criteria. Dissolved methane was also found in the groundwater at a concentration above the FESL criteria. Comparison of the constituents in the groundwater from monitoring wells along the Menominee River to the generic FAV and FCV showed six constituents at a concentration above the generic FAV criteria and 21 constituents at a concentration above the generic FCV criteria.

The results of the groundwater sampling were used to determine the distribution of constituents with the groundwater system. The majority of the higher concentrations of the organic constituents in the groundwater system were present in the deep portion of the system (below 1,000 feet mean sea level [ft msl]) in the center of the Study Area/AOC. Several isolated areas near the Menominee River had elevated constituent concentrations in the shallow groundwater system (above 1,000 ft msl), where the upward movement of the groundwater transported concentrations of more recalcitrant (i.e., slowly degraded) constituents from the deep portion of the groundwater system to shallower depths. The distribution of the constituents was strongly influenced by their susceptibility or resistance to anaerobic degradation and the resistance to groundwater flow of the less permeable Unit 2 and Unit 3 materials.

Bioscreen model simulations for the Site suggest that historic organic material released into groundwater in the more permeable Unit 1 material have largely migrated away from the Study Area/AOC. Organic material is still present within the groundwater system, primarily within the deeper portions, and occurs mostly within the less permeable Unit 2 and Unit 3 materials, which restrict their movement. Anaerobic biodegradation, as well as dilution and physical effects, is reducing the volume of the organic material remaining in the groundwater system and venting to the Menominee River.

The City of Kingsford obtains its community water supply from a well field that is located near the Ford Airport. This well field is located both upgradient and side gradient from the historical Site operations and is outside the Study Area/AOC. The City of Kingsford water supply wells are not impacted or threatened by the Site groundwater. All the residential wells located within the Study Area/AOC have been abandoned.

Results from analyses performed on waste, soil, and groundwater samples indicated that the NE Pit had some potential to be a source of continuing migration of constituents to groundwater. However, this potential was related to only the wood sludge and wood tar material, which was approximately 50 percent of the volume of material in the NE Pit. The mass of the material that could potentially be leached from the NE Pit, however, is insignificant compared to the mass of the material already present in the groundwater system. The density and low permeability of the wood sludge and wood tar tend to retard leaching of waste constituents by infiltrating water. An interim response action consisting of waste removal and/or consolidation and installation of a cover system was implemented for the NE Pit, so as to reduce and/or eliminate the NE Pit as a continuous source of migrating constituents.

Analytical results from waste, soil, and groundwater samples indicated that the RDA was not a potential source of continuing migration to the groundwater. Similarly, analytical results from waste, soil, and groundwater samples indicated that the SW Pit has an insignificant potential to be a source of continuing migration to the groundwater. Additionally, data collected from the FPS indicated that it was unlikely that this area was a source of significant historic releases, and that the FPS is not a continuing source of migration to the groundwater. However, interim response actions consisting of waste removal and/or consolidation were implemented for each of these areas and cover systems were installed at the RDA and SW Pit.

The WBADA contained some waste material with constituent concentrations above the Part 201 residential direct contact criteria; however, analytical results indicated that the waste material is not a potential source for continuing migration to groundwater. Based on construction of improvements at the WBADA, it is unlikely that direct contact is a complete pathway risk.

Gas-phase methane has been identified and had historically accumulated at locations within the Study Area/AOC. The historical areas where gas-phase methane accumulations were identified are referred to as the Notch area, the RDA area, the FPS area, the Lodal Park area (SW Pit), the Upper Terrace/Breen Avenue area, the Emmet area, the GM-2A area, the Pyle area, the GM-82 area, and the Menominee River area.

The historical gas-phase methane accumulations were generally adjacent to, or linked through underground permeable flow pathways, to an area where the vertical groundwater gradient is upward. Gas-phase methane exists in these areas under different conditions. The generation of the gas-phase methane is primarily from biodegradation of organic material, now deep within the groundwater system. The solubility of methane in groundwater increases with pressure, so greater amounts of the methane produced by degradation are contained within the groundwater at depth as dissolved-phase methane. As the groundwater moves upward, due to the upward vertical groundwater gradient near the Menominee River, the decrease in the pressure on the groundwater results in dissolved-phase methane coming out of solution as gas-phase. This gas-phase methane can migrate independent of groundwater flow. Undulations in the bottom of the silt and clay layers at the top of more permeable material (i.e., sand) forms traps in some areas for gas-phase methane. This mechanism has resulted in accumulations of gas-phase methane in sand below the water table, where it is “trapped” in the sand between the groundwater and the base of the silt and clay layers in certain areas.

Where silt and clay layers are absent or thin, gas-phase methane can migrate into shallower sand zones (preferential pathways) and potentially migrate upwards into the vadose zone (the zone of unsaturated geologic material above the groundwater table). Once in the vadose zone, gas-phase methane can be trapped by silt or other less permeable layers or it can continue to migrate through permeable sand layers. As the gas-phase methane continues to move, it may degrade naturally in the vadose zone and never reach near surface soils, or it may reach the near surface soil and eventually vent to the atmosphere. Where the silt and clay layers are continuous, gas-phase methane cannot migrate upwards. SVE testing and pilot studies conducted throughout the Site indicated that the gas-phase methane had generated and accumulated over long periods of time.

Interim response actions were implemented to address the accumulations of gas-phase methane, both below the water table and within the vadose zone. These response actions consisted of both passive and active SVE which have either eliminated the gas-phase methane accumulation, or is removing /controlling gas-phase methane. Passive venting and active SVE have removed approximately 3,900,000 pounds of methane from the subsurface from 1998 through December 2007.

1.5 Conclusions

RI activities have been completed for the Site per provisions prescribed in Part 201 and the CJ to adequately define the source areas, the nature and extent of any impacts to the soil, sediment, groundwater, surface water, and indoor air, and the risks to the public health, safety, and welfare at the Site. Activities conducted for a Site EE/CA and in conjunction with interim response actions have also been used to define the conditions at the Site.

The impacts to the soil at the Site are restricted to the former disposal areas discussed above. Any impacts to the groundwater at the Site from the former disposal areas have been fully delineated. Results from the Menominee River biological survey and other RI activities indicate that there is no impact from the Site to the sediment and surface water of the Menominee River. The boundaries of methane concentrations above 0.5 parts per million in the groundwater and above 1.25 percent by volume in soil gas have been delineated for the Site. Based on the results from this RI, the Site conditions have been fully assessed in order to select and implement the appropriate remedy for the Site.

2. Introduction

On behalf of the Ford Motor Company (Ford) and The Kingsford Products Company (KPC), ARCADIS has prepared this remedial investigation (RI) report to summarize results of RI activities, as well as additional Site activities, conducted from 1997 through December 2007 at the Ford/Kingsford Site in Kingsford, Michigan. This RI was conducted in cooperation with the Michigan Department of Environmental Quality (MDEQ) and in accordance with the technical approach and procedures outlined in the MDEQ-approved RI Work Plan (ARCADIS Geraghty & Miller, Inc., July 1998a, and subsequent modifications agreed to by the MDEQ.

The primary goal of the RI was to determine the nature and extent of affected soil and groundwater associated with the Ford/Kingsford Site. In addition, the RI was intended to address gas-phase methane in the subsurface of the Ford/Kingsford Site. Specific objectives of the RI are summarized in the following section.

Ford and KPC had previously entered into an Administrative Order by Consent with the United States Environmental Protection Agency (U.S. EPA) to perform an Engineering Evaluation/Cost Analysis (EE/CA). The focus of the EE/CA, performed during 1997 and 1998, was to understand the formation, transport, and fate of methane in the subsurface within the Ford/Kingsford Site. An EE/CA report was submitted to the U.S. EPA in July 1998, and the U.S. EPA approved the EE/CA report on August 1, 2000. The investigation activities and data collected to evaluate the distribution and types of organic material in the subsurface and the formation, transport, and fate of methane from the EE/CA work are incorporated into this RI report.

On October 26, 2004, Ford, KPC, and the State of Michigan entered into a Consent Judgment (CJ), Court Case No. 04-1427-CE. The CJ defined the Ford/Kingsford Site as the Ford-Kingsford Product Facility (Site). Pursuant to Section 7.1(c) of the CJ, a work plan to conduct a RI was to be prepared, the work performed, and an RI report submitted to the MDEQ. On December 21, 2004, a second RI Work Plan entitled, "*Work Plan for Supplemental Remedial Investigation, Ford-Kingsford Products Facility, Court Case No. 04-1427-CE,*" was submitted to the MDEQ, pursuant to Section 7.7(a) of the CJ.

The RI activities were completed consistent with the requirements of the Part 201 rules of the Michigan Natural Resources and Environmental Protection Act, P. A. 1994, No 451, as amended (Michigan Administrative Code) Rules Part 201 (hereinafter Part 201), as well as pursuant to the requirements of the CJ. The data collected during the

RI will be used, along with previous and supplemental investigation data, to determine a remedy for the Facility. Two draft versions of the RI report have been submitted by ARCADIS to the MDEQ for review, on May 25, 2000 and July 17, 2002.

The RI activities completed through December 2007 have addressed areas as outlined in the RI Work Plans. Ongoing review of RI results, in cooperation with the MDEQ, has led to additional investigation work completed beyond the scope of the original RIs. The primary areas of investigation identified in the original RI Work Plans included the former Northeast Disposal Pit (NE Pit), the former Southwest Disposal Pit (SW Pit), the former Riverside Disposal Area (RDA), the former Plant Site (FPS), residential areas to the south and west of the former disposal pits and FPS, and the Menominee River.

In addition, the MDEQ had requested an investigation of the Cowboy Lake fill area and a fill area at the west end of West Breen Avenue, denoted as the former West Breen Avenue Disposal Area (WBADA). The results of the investigation of the Cowboy Lake fill area are not included in this RI report. These results were presented in a separate report to the MDEQ entitled, "*Investigation of the Former Charcoal Disposal Area, Ford/Kingsford Site, Kingsford, Michigan,*" dated October 24, 2001. The results of the investigation of the WBADA are included in this RI report, as well as several separate reports that are referenced in the section addressing the WBADA.

One particular area where additional investigation was performed is near the Menominee River. The expanded investigation near the Menominee River resulted in several pilot groundwater extraction and treatment systems, as well as the construction of a full-scale groundwater extraction and treatment system, which is currently operating. The results of the Menominee River investigations are included in this RI report.

2.1 RI Objectives

The specific objectives of the RI were to assess Site conditions in order to select an appropriate remedial action that adequately addresses the provisions prescribed in Part 201, specifically:

- Definition of the source or sources of any contamination at the Site, including the saturated zone beneath and/or directly downgradient of the disposal areas, and definition of the nature and extent of contamination originating from that source or sources that may be present in soil, soil-gas, indoor air, groundwater, surface water, and sediments, including the three dimensional extent of methane, as defined by the boundaries of methane concentrations at 0.5 parts per million (ppm) in groundwater or other MDEQ-approved site specific background concentration, if appropriate, and a 1.25 percent by volume in soil gas.

- Definition of the risks to the public health, safety, and welfare as well as the environment and natural resources, including, but not limited to, the identification of any water wells and well head protection zones in the vicinity of the Site and an evaluation of the impact of the Site on any such wells or zones, and identification and evaluation of aboveground and underground structures where methane could accumulate.

- Definition of the amount, concentration, hazardous properties, environmental fate, bioaccumulative properties, persistence, location, mobility and physical state of the hazardous substances, including methane and methane-generating contamination, at the Site.

- Definition of the extent to which hazardous substances, including methane, have migrated or are expected to migrate from the area of release, including the potential for hazardous substances to migrate along preferential pathways, including storm drains and sewer systems.

- Definition of the geology, hydrogeology, groundwater flow, and gradients at the Site. This includes, but is not limited to, groundwater flow and gradients into and under the Menominee River.

2.2 Organization of Document

This report is organized into 11 sections of text and references plus tables, figures, and appendices. A brief description of each section follows.

Section 1.0 - Executive Summary - Provides an overview of this RI report.

Section 2.0 - Introduction - Presents the purpose, objectives, and organization of this RI report.

Section 3.0 - Site Background - Describes the Site location, physical setting, Site history and previous investigations.

Section 4.0 - Investigation Scope - Describes the technical approach of the EE/CA and RI activities within the Study Area.

Section 5.0 - Investigation Methods - Describes the methods and procedures implemented during the EE/CA and RI to achieve the investigation objectives.

Section 6.0 - Investigation Results - Presents the data collected during the EE/CA and RI, and summarizes the data with respect to Site-wide physical characteristics, source area characteristics, Site-wide groundwater characteristics, methane occurrence, and groundwater migrating to the Menominee River, and compares the data to relevant Part 201 Criteria.

Section 7.0 - Fate and Transport of Organic Material - Presents the origin, fate and transport of the organic material in the groundwater system and methane generation, fate, and transport. Several Bioscreen model scenarios of the current and future Site conditions are also included in Section 7.

Section 8.0 - Exposure Pathways and Transport Routes – Discusses the exposure pathways and transportation routes for the constituents detected at the Site, which may pose potential concerns based on comparison to relevant Part 201 Criteria.

Section 9.0 - Interim Response Actions - Discusses the interim response activities and pilot tests conducted through January 2008.

Section 10.0 - Conclusions - Provides conclusions regarding the investigation results.

Section 11.0 - References - Lists the reports, guidance documents, and data that were cited during preparation of this RI report.

3. Site Background

Prior to completion of EE/CA investigation activities in 1997 and 1998, and submittal of the EE/CA report (ARCADIS G&M, July 1998), dissolved methane was detected in groundwater in the residential areas south and west of the former disposal pits and FPS in addition to the gas-phase methane focused on during the EE/CA Investigation activities. EE/CA investigation activities were initiated with the primary goal of evaluating methane generation, fate, and transport in the subsurface. In the spring of 1998, the MDEQ assumed oversight authority from the U.S. EPA and the investigation was expanded to include the additional investigation of potential source areas, to fill data gaps from the EE/CA, and to evaluate groundwater migrating to the Menominee River. The potential source areas for impacts to groundwater include the former waste disposal pits known as the NE Pit and SW Pit, the former disposal area known as the RDA, the FPS, and the WBADA.

3.1 Site Setting

The City of Kingsford is located in southwestern Dickinson County, in the south-central part of Michigan's Upper Peninsula (Figure 3-1). The City of Kingsford is bounded by the Menominee River on the west and south, by Breitung Township on the southeast, and by the City of Iron Mountain on the north and east.

The Site is located within a light industrial, commercial, and residential area of the City of Kingsford, and includes the FPS, the NE and SW pits, the RDA, and the WBADA. The Study Area was primarily defined by the Menominee River to the west and south, Michigan State Highway 95 (Carpenter Avenue) to the east, and Woodward Avenue to the north. The Study Area is mostly within Sections 1, 2, 11, and 12 of Township 39 North, Range 31 West of Dickinson County, and encompasses the potential source areas (i.e., the FPS, NE Pit and SW Pit, RDA, and WBADA), the residential areas that had been the focus of the EE/CA, and the land near to portions of the Menominee River.

Based on the results of the EE/CA and initial RI, a smaller area within the Study Area was defined as an Area of Concern (AOC) by the MDEQ in the CJ. The AOC is generally the same as the Study Area to the north, west and south, but is bounded to the east by a combination of Hooper Street, East Boulevard, Pyle Drive, and Balsam Street. The Site, Study Area, and AOC are presented on Figure 3-2.

3.2 Topography

A topographic basemap of the Kingsford area was prepared as part of the Study Area mapping and is presented on Figure 3-3. The land surface immediately north of the City of Kingsford is dominated by Pine Mountain with an elevation over 1,500 feet above mean sea level (ft msl). South of Pine Mountain to Woodward Avenue in the City of Kingsford, the topography is irregular and contains numerous hills and hollows which are between 1,120 and 1,140 ft msl.

Three landform terraces dominate the topography, from Woodward Avenue south to the Menominee River (Figure 3-3). The uppermost terrace (Upper Terrace) consists of a large tract of land with a flat surface at an elevation of approximately 1,120 ft msl, which extends across most of the City of Kingsford. This terrace contains occasional isolated, enclosed depressions up to 40-ft deep that are glacial kettle landforms. These kettles are natural features formed by blocks of ice that broke off receding continental glaciers and subsequently melted. Several of the glacial kettle features have been filled in and are no longer visible in the topographic surface (NE and SW Pits). The glacial kettles are highlighted on Figure 3-3.

The Upper Terrace is separated from a second terrace (Lower Terrace) by a steep northwest-southeast downward trending slope in the topography. The Lower Terrace occupies the southern and southwestern portions of the Study Area. The topography on the Lower Terrace is more irregular than the Upper Terrace, with the exception of the kettle features. From the Upper Terrace, the ground surface on the Lower Terrace slopes gradually downward to the south to approximately 1,080 ft msl, before rising gradually to an elevation of approximately 1,110 ft msl. The southern edge of the Lower Terrace slopes steeply down to a third terrace (Riverside Terrace), which occurs along the banks of the Menominee River at an elevation of approximately 1,045 ft msl. The Riverside Terrace is found along the south and western sides of the City of Kingsford and Breitung Township. Further north and west, the Upper Terrace directly abuts the Menominee River (Figure 3-3).

3.3 Regional Geologic Setting

Precambrian metamorphosed igneous and sedimentary rocks make up the bedrock that underlies the City of Kingsford and Breitung Township (Milstein, 1987). Two bedrock formations are present in the area; the Lower Precambrian Quinnesec consisting of altered volcanic rocks, and the Middle Precambrian Michigamme Slate, consisting of primarily slate. A major east-west striking fault, downthrown to the north, has been documented by the United States Geological Survey (USGS) (Bayley, Dutton, and Lamey, 1966) to exist within the Study Area, south of the FPS. The fault separates the Quinnesec and Michigamme Formations, as well as Green Schist and Oligoclase-Amphibole regional metamorphic isofacies.

Bedrock is overlain by glacially derived unconsolidated deposits, except at locations south of the Ford Airport and close to the Menominee River, where bedrock is occasionally exposed. Examination of the bedrock outcrops reveals that apart from a few insiginificant fractures, the bedrock is massive and therefore unlikely to transmit any significant volumes of groundwater. The bedrock forms a depression beneath the central portion of the Study Area, with a monadnock located within the depression.

The unconsolidated deposits in the area include glacial moraines, present south (Menominee Moraine) and north (Marenisco Moraine) of the area (Westjohn et. al., 1996; Martin, 1995), and glaciofluvial (glacial river) deposits that form the uppermost glacial deposits in the area. These deposits may be pro-graded outwash that was deposited during formation of the Marenisco Moraine. A morphologic feature of the outwash is the presence of glacial kettles.

The unconsolidated deposits that overlie the bedrock consist of a complex sequence of interbedded gravel, sand, silt and clay, with significant variations both vertically and laterally over short distances. These deposits are consistent with a glaciolacustrine (glacial lake) depositional environment. In some areas of the Study Area, a dense, silt/clay till unit, known as Lodgement Till, is present on top of the bedrock. Overall, coarser grain deposits appear to be more abundant in the eastern part of the Study Area and the unconsolidated deposits generally become increasingly finer grain to the south and west.

Finer grain silt and clay deposits are locally absent in some areas immediately adjacent to the banks of the Menominee River. In these areas, if bedrock is not exposed, a succession of gravel and coarse grain to medium grain sand rests on top of bedrock.

The principal soil in the Kingsford area is the Pence sandy loam (Soil Conservation Service [SCS], 1989). The unit is nearly level, well drained, and is typically found on flats and knolls in upland areas. The Channing fine sand loam and Zimmerman fine sand also occur along the Menominee River drainage ways and ridges, respectively (SCS, 1989).

3.4 Regional Hydrogeology

Groundwater flowing through the unconsolidated deposits beneath the Kingsford area migrates to the Menominee River. Due to its dense nature, the bedrock is the base of the groundwater flow in the overlying unconsolidated deposits. The hydraulic conductivity of the unconsolidated deposits is variable and corresponds to grain size. Finer grain sand, silt and clay have low hydraulic conductivities and hinder groundwater flow. In contrast, coarser grain sand and gravel have higher hydraulic conductivity and allow groundwater to move more easily through them. The coarser grain sand and gravel are preferential pathways for transmitting groundwater in the area.

The physical characteristics of the unconsolidated glacial deposits (glaciofluvial and glaciolacustrine depositional environments) cause the groundwater to flow beneath the Study Area along irregular flow paths. Groundwater flow is in part controlled by the variable thickness and hydraulic conductivity of the saturated deposits. Saturated thickness is strongly influenced by bedrock topography and the water table configuration, both of which vary significantly beneath the Study Area.

In general, groundwater flows laterally from areas of higher elevation to lower elevations along these preferential pathways. Furthermore, groundwater level measurements at paired wells indicate that a downward vertical component of the hydraulic gradient is present throughout most of the Study Area, except near the Menominee River where the vertical component of the hydraulic gradient has always been observed as an upward flow condition. Except during unusually high water events in the river, the groundwater would always vent into the Menominee River, because the pressure head of the groundwater is greater than the surface water of the Menominee River.

3.5 Hydrology

The Menominee River is the principal hydrologic feature in the Kingsford area. The river flows to the southeast and forms the southern and western boundaries of the Study Area. Year-round flow and surface water level in the Menominee River is regulated by a number of dams, including a dam operated by Wisconsin Electric Power Company (WEPCO) that is located northwest of the City of Kingsford (The Old Ford Dam) and the Big Quinnesec Dam downriver of the City. No other surface water features are currently present south of Woodward Avenue.

A southerly flowing creek, known as Sewer Creek, once flowed across the area from Crystal Lake to the Menominee River (Figure 3-2). Historic records indicate that this creek was used as an open sewer. The open sewer carried sewage from Iron Mountain, the City of Kingsford and Breitung Township, flowing south a short distance west of the current route of Highway M-95. This open sewer has long since been contained in subsurface concrete piping that terminates at the Iron Mountain/Kingsford Waste Water Treatment Plant (IM/K WWTP).

In addition to Crystal Lake, there are a number of surface water features in the Kingsford area north and northeast of the city. Some of the lakes, such as Chapin Pit, are former iron mines that were subsequently abandoned and flooded.

3.6 Climate

The Upper Peninsula of Michigan is located between Lake Superior and Lake Michigan and has a variable climate. The south-central portion of the Upper Peninsula, where Kingsford is located, has relatively temperate conditions. Climatological data are available for Iron Mountain, Michigan adjacent to Kingsford. Review of these data indicates that the daily mean temperature at Iron Mountain ranges from 12 degrees Fahrenheit (^{o}F) in January to 68 ^{o}F in July. The average annual temperature for the Iron Mountain station is 41 ^{o}F. The average number of days of frost is 124 days, and the average deepest frost depth is 19.3 inches. In the Kingsford area, the range of barometric pressure is from 29.04 to 30.72 inches of mercury.

The area receives approximately 29 inches of precipitation annually, most of which occurs in the summer and early fall. The average annual snowfall is 63.3 inches (5.3 ft).

Wind data, monitored at Ford Airport (in Kingsford) indicate a predominant wind direction from the northwest, with the broadest wind speed class in the 7 to 12 miles per hour range. A windrose of the wind data from 1997 to 2002 is presented on Figure 3-4.

3.7 Groundwater Use

The City of Kingsford supplies water to both residents and industry for drinking, household, and industrial uses. The source of the municipal water is groundwater located outside of the Study Area and AOC. The forecasted water use within the AOC is continued residential, municipal, commercial, and industrial, with the groundwater supply solely from the city wells outside of the Study Area/AOC and not from private wells.

The City of Kingsford supplies groundwater pumped from deep within the unconsolidated sand and gravel, north and east of Ford Airport, as the source of the city water supply. The locations of active municipal wells are shown on Figure 3-1. These city water supply well locations are upgradient of the Study Area/AOC. Based on groundwater models by Earth, Water, and Air Resources, Inc. (EWA, 1987) and the USGS (USGS, 2001) the municipal wells do not influence the groundwater within the Study Area/AOC and vice versa.

Wastewater that is discharged from residential, commercial, and industrial entities is collected through the City of Kingsford sewer lines and treated at the IM/K WWTP. The treated water is ultimately discharged from the IM/K WWTP to the Menominee River.

Residential wells were historically used within the Study Area/AOC and surrounding areas for consumption purposes. A survey was conducted to identify any existing residential wells. The survey identified 16 possible residential well locations. Of these 16 residential wells, four were locations that did not exist. All of the identified residential wells were properly abandoned during the RI activities. There are also no commercial or industrial wells within the Study Area/AOC.

3.8 Methane Sources and Occurrence

Methane has been detected in soil and groundwater at various locations across the Study Area. Methane primarily occurs from the bacterial biological degradation of organic material, both naturally occurring carbon and anthropogenic (derived from human activities) products. Nyer, et. al. (1999) found that elevated levels of methane occur at numerous locations across the United States, indicating that the methane detected in Kingsford is not a unique occurrence. The methane occurrences at these other locations across the United States provide examples of how methane occurrence can be controlled.

Methane in the subsurface at Kingsford, Michigan is the result of natural degradation of organic constituents in the subsurface. The organic constituents have originated from a number of natural and anthropogenic sources.

3.9 Historic Land Use

3.9.1 Land Use and Populations

Based on newspaper articles and published databases from the Kingsford area, it is apparent that land use around Kingsford has changed significantly over the past century. Up until the early 1920s, the area currently occupied by the City was used primarily for agriculture, timber processing and iron ore mining (within Iron Mountain). The original forest in the area was substantially cleared over the 50 years prior to 1920. During the 1920s, the City of Kingsford was incorporated and much of the agricultural land was developed into industrial and residential property.

Industrial activity in Kingsford focused on the Ford Motor Company's wooden auto-parts manufacturing Facility (also defined as the FPS) situated in an area bounded to the north by Pyle Drive, to the south by Breitung Avenue, to the east by Hooper Street, and to the west by Westwood Avenue. Activities at the FPS included the manufacture of wooden automobile parts, assembly of automobile bodies, production of charcoal, and wood product distillation activities.

Coincident with the FPS development, Ford commissioned the Ford Dam (which is now referred to as the WEPCO Dam) on the Menominee River on the northwest side of Kingsford to supply electricity to the plant. Residential development at this time occurred south of Breitung Avenue to the Menominee River and also in an area north of Woodward Avenue.

As Kingsford developed during the 1920s and the City of Iron Mountain continued to grow, the populations of both cities soon grew to all-time highs. From a population of 3,500 in 1885, the U.S. Census Bureau recorded the number of people living in Iron Mountain in 1930 to be 12,740. The same 1930 survey reported that the new City of Kingsford's population was 5,526. In response to the growth in population, a number of ancillary industries developed or continued to expand around Iron Mountain and Kingsford. These commercial facilities included stores, gas stations and a manufactured gas plant (MGP), which was located on the northeast border of Kingsford. During the same period, existing industries in the area, such as timber processing and iron ore mining continued to operate.

Aerial photographs taken between 1950 and 1970 indicate that little to no additional property development occurred around Kingsford during this timeframe. Moreover, Kingsford's population remained relatively constant at approximately 5,000 people.

During this time, much of the land on the western side of Kingsford was turned over to forestry, recreation, and residential uses from those associated with the plant operations.

By 1990, the population of Iron Mountain was 8,525 people, while Kingsford's was 5,480 people. Additional residential property development occurred on the western side of Kingsford during this interval and continued into the 1990s.

3.9.2 Former Plant History

Ford and KPC have conducted several exhaustive searches through company files to determine a detailed history of the FPS during the years of operation by Ford and KPC. However, their collective searches have yielded little regarding specific operations at the former plant by Ford and KPC. The following summary, which is limited to the period 1920 to 1961, has been comprised based on a detailed evaluation of an existing plant layout graphic and several published papers on manufacturing processes that are known to have been used at the plant.

Facilities at the FPS included a sawmill, three body plants, drying kilns, and a wood carbonization and distillation Facility to fully utilize all the wood by-products. Activities conducted at the facilities included the manufacture of wooden automobile parts, assembly of automobiles bodies and gliders, production of charcoal, and wood product distillation.

Construction of the Ford plants began in July 1920 and the sawmill was the first to begin operation in July 1921. The construction of the body plants and kilns followed. In August 1924, the distillation plants began operation.

The plant layout during the 1920s is shown on Figures 3-5 and 3-6. The original body plant, completed in 1921, dominated the southern area of the FPS. Construction of two additional body shops were begun in 1922 and lasted through March of 1924. All three plants measured 640 by 120 ft and were divided into two main sections.

The western portion of the FPS housed the 52 kilns where the timber was dried and the moisture content decreased from approximately 40 to 7 percent. The northern area of the FPS contained the wood by-product recovery operations, including the distillation and carbonization buildings. The sawmill was centrally located, just south of the carbonization building. The eastern area of the FPS included the automobile assembly stations and the shipping department where the parts were prepared for transport.

Due to the large amount of wood waste and wood by-products generated at the Facility, an important aspect of the operations included by-product recovery. This recovery utilized wood pyrolysis by the Badger-Stafford Process. Pyrolysis is a destructive distillation process in which organic substances such as wood are decomposed by heat in the absence of oxygen (O_2) to produce charcoal and other wood by-products. The process began in the carbonization building. Scrap wood was initially heated to around 300 degrees ^{0}F in rotary driers to further reduce the moisture content and then passed through a magnetic separator in order to remove any tramp iron in the wood. The wood was then delivered into the Badger-Stafford retorts, which are sealed vessels stretching 40-ft high and 10 ft in diameter with a heat-insulating wall 18-inches thick. To initiate pyrolysis, the wood was heated to about 1,000 ^{0}F in the absence of air.

This process generated charcoal, pyroligneous acid, and non-condensable gases as direct products. The charcoal is a solid product and was emptied from the bottom of the retorts in the carbonization building. It was then further processed into charcoal briquettes. Excess charcoal was primarily burned in the powerhouse as fuel. The other products were gaseous and passed through a condenser. The non-condensable fraction was burned in the powerhouse while the condensable fraction, known as pyroligneous acid was transferred to the distillation building for further processing. The non-condensable gases included carbon monoxide, carbon dioxide (CO_2), methane, and nitrogen (N_2) in substantial quantities with minor amounts of hydrogen, O_2 and ethane.

Suspended wood tar was first separated from the pyroligneous acid in copper settling tanks. The settled wood tar was distilled to produce creosote oil that was returned to the powerhouse as fuel and pitch. The pyroligneous acid was distilled to produce substances such as methyl alcohol, methyl acetate, methyl acetone, allyl alcohol, ketones, ethyl acetate, and ethyl formate. This process was generally accomplished through fractional distillation, where substances are removed from the mixture by increasing the temperature incrementally until each substance, with a different boiling point, volatizes from the mixture. However, the production of ethyl acetate and ethyl formate was through a direct chemical reaction of acetic acid distilled from the pyroligneous acid with ethanol and sulfuric acid (Nelson, 1930).

Most of the waste produced through these various processes was utilized and not disposed. Charcoal and non-condensable gas, distilled wood tars and creosote oil, along with sawdust and shaving by-products were returned to the powerhouse to be burned for fuel. Waste material that could not be recycled or transformed into usable products, primarily wastewater, was conveyed and deposited in two connected waste ponds (the former northeast and southwest pits) located west of the plant.

According to Nelson (1930), the Facility produced approximately 400 tons of scrap wood each day. From each ton of scrap wood, 600 pounds (lbs) of charcoal, 5,000 cubic ft of non-condensable gas, 22 gallons (gal) of pitch (wood tar), and 111 gal of pyroligneous acid were generated as by-products. A daily estimate made in 1924 shows that the chemical plant was producing 210,000 lbs of charcoal, 25,000 lbs of pitch (wood tar), 1,200 gal of both light and heavy oils, 2,100 gal of methyl alcohol and methyl acetone, and 2,100,000 cubic feet of fuel gas (Cummings, 1998).

By December 1941, most of the production of automobiles had stopped due to the war. In 1942, the body plants were converted to produce wooden gliders for the government. The bulk of the glider fabrication was done in Building Three. Building Two was used for assembly of shipping crates, and Building One was where the glider fabric was doped and painted, and final assembly completed. The plant layout during the 1940s is shown on Figure 3-7. Following the war, automobile production resumed at the Ford Plant.

In December 1951, Kingsford Chemical Company purchased the former Ford Motor Company Plant and continued the woodworking activities, wood product distillation, and charcoal production until 1957, when it became Kingsford Company and continued operations until 1961. Thereafter, Kingsford Company discontinued its production activities and leased the three body plant buildings to other industries.

Initial tenants included the Aluminum Specialty Company that manufactured projectiles for 105 millimeter (ml) artillery shells in the former location of body Plant Number 3; and the Prefex Corporation of Milwaukee (later General Controls) that manufactured automatic temperature controls for aviation use and aircraft instruments for the Armed Forces in the former location of the body plant. Kingsford Company used part of the old body Plant 2 for storage and leased the remainder to Fontana Aviation who refurbished aircraft for the United States Air Force.

Subsequent to the discontinuance of the Kingsford Company operations in 1961, Lodal, Inc. purchased the major remaining portions of the land (240 acres) and buildings that were formerly the Ford-Kingsford Products Facility operations. Lodal, Inc. manufactures garbage handling truck units, truck loaders, and equipment for handling containerized garbage.

3.9.3 Historical Industrial Activities in Kingsford

Kingsford has historically been, and continues to be, home to several major industries. As previously mentioned, MGPs were located in the Kingsford area. Manufactured gas is produced by the pyrolysis of coal and coke. The Citizens Gas Company, which was previously owned by the Iron Mountain Light & Fuel Company, operated a plant on River Avenue. The Iron Mountain Gas Company purchased the Citizen Gas Company, and the old plant was dismantled and a new plant was located near Carpenter Avenue. This plant consumed 1.5 tons of coal per day and 2 tons of coke. A tar pit was located behind the plant. In 1947, the Iron Mountain Gas Company erected a propane gas bottling plant near its MGP. It leased property on the east end of Hamilton Avenue.

Other major industries in the area prior to 1961 included Grede Foundries (established in 1947 and still in operation), which was located east of the FPS on Carpenter Avenue. Grede produced molten iron for castings that were machined in the adjoining facilities of Lake Shore Engineering. Prior to 1946, Lake Shore Engineering was located on South Stephenson Avenue in Kingsford. After Kingsford Company discontinued operation, Grede Foundries purchased the former body Plant Number 3. Lake Shore Engineering moved its facilities to this location and Grede expanded its Carpenter Avenue facilities. Grede Foundries disposed of waste from its operations in at least two gravel pits north of its Carpenter Avenue plant. One is located on the northeast side of the cemetery and the other was on the southeast side of the cemetery. The Grede plant also used retention ponds.

In addition to the industries mentioned above, many other businesses have operated in and around the FPS subsequent to the cessation of the Ford-Kingsford Products Facility operations, including among others: Aluminum Specialty Co., Colonial Broach and Manufacturing, Custom Metal Fabricators, Inc., Delta Do-It Center, Dickinson Homes, Foley-Martens, Frank Smith Castings, Fontana Aviation, General Controls Company, Hancock Wood Products, Jacklin Steel Supply Inc., Kingsford Broach & Tool, Klatzky Brothers, Smeester Bros. Trucking, Super Tool and Engineering, Wittock Supply, Wisconsin Michigan Power Company, and Zam's Auto Shop.

The Nelson Paint Company has had operations in Kingsford from 1955 to present. A major scrap metal business began operations in 1959 and continues operations in the area.

3.10 Primary RI Investigation Areas

While the RI activities addressed the entire Study Area, the NE Pit, SW Pit, the RDA, the FPS, the WBADA, and areas along the Menominee River were focused on as primary areas of investigation. The setting of each of these primary areas is discussed below.

3.10.1 NE Pit

The NE Pit is located within the southeastern quarter of the northeastern quarter of Section 2, Township 39 North, Range 31 West, in the City of Kingsford in southwestern Dickinson County, Michigan (south-central part of the Upper Peninsula). The NE Pit (center point) is approximately 1,500-ft north of Breitung Avenue and approximately 600-ft west of Balsam Street (Figure 3-2).

The NE Pit is interpreted as a former glacial kettle that was used for historic disposal, and has become a leveled, sparsely vegetated vacant parcel of property. The NE Pit is located in a relatively flat upland area of a topographic feature identified as the Upper Terrace. The NE Pit area includes the former elliptically shaped pit, approximately 30 ft deep, a former channel that connected the NE Pit to a second pit to the southwest, and a portion of an enlarged area of this channel. The NE Pit is approximately 3 acres in size and lies in an area zoned for industrial use. The land containing the NE Pit is currently owned by MADKEN, INC.

Two surface water bodies are located within 1 mile of the NE Pit (Figure 3-2). These include the Menominee River and Crystal Lake/Mud Lake. The Menominee River is located approximately 4,000 ft to the west and is hydraulically down gradient of the NE Pit. Crystal Lake/Mud Lake is located approximately 0.7 miles to the northeast and hydraulically upgradient from the NE Pit. Three other surface water bodies are also present in the vicinity of the NE Pit. Cowboy Lake is located 1.6 miles to the northwest, the water filled Chapin Mine is located 2.0 miles to the northeast, and Lake Antoine is located 3.2 miles to the northeast of the NE Pit. Chapin Mine and Lake Antoine are upgradient from the NE Pit and Cowboy Lake is at approximately the same hydraulic elevation as (sidegradient of) the NE Pit.

The nearest public water supply wells (located near the Ford Airport, approximately 1.3 miles northwest of the NE Pit) are hydraulically cross-gradient from the NE Pit. However, based on the presence of a bedrock ridge just north of the NE Pit that trends east-west, as well as a groundwater divide that exists between the City of Kingsford water supply wells and the NE Pit (as shown by the groundwater elevations at Monitoring Wells MW-8 and GM-60), there is no groundwater communication between the NE Pit area and the area where the city wells are located.

Aerial photographs and historic records indicate that waste disposal at the NE Pit began in the 1920s. Wood pieces, wood sawdust, wood bark chips, and charcoal were reportedly disposed in the NE Pit along with wastewater containing dissolved organic material from wood pyrolysis processes. Aerial photographs show continued disturbances to the surface of the area after 1961, despite suspension of operations in the area by Kingsford Chemical Company and Kingsford Company (KCC/KC) in 1961.

The NE Pit was vacant land that was sparsely vegetated, with several areas where wood tar would occasionally seep to the land surface. In accordance with a plan approved by the MDEQ, ARCADIS personnel periodically removed the surface wood tar for off-site non-hazardous disposal.

Land use near the NE Pit is primarily industrial/commercial. There exists a wooded and cleared area to the west. Lodal Park is to the southwest and the industrial businesses Khoury, Inc. and Dickinson Homes are located to the south. Balsam Street and the former plant area are on the east side. A new City of Kingsford Department of Public Works building, housing city equipment and offices, was constructed in 1998 and 1999 immediately north of the area. Several small businesses have also recently been built north of the area. Dickinson Homes periodically had used the NE Pit property for materials storage.

There are no residences at the NE Pit. There are however, residences downgradient of the NE Pit, approximately 2,000 ft to the west and southwest. None of the downgradient residences have private wells, so the receptor in the area for groundwater is the Menominee River, approximately 4,000 ft to the west. Gas-phase methane is generated in the groundwater system and released from the groundwater to the vadose zone in areas where the vertical component of the groundwater gradient is upward. The areas of upward vertical groundwater gradient are approximately 3,000 ft to the west and southwest of the NE Pit.

3.10.2 SW Pit

The SW Pit was another glacial kettle that was used for historical disposal and has been redeveloped into a city park. The center point of the SW Pit is located approximately 1,100-ft north of Breitung Avenue and approximately 1,500-ft west of

Balsam Street (Figure 3-2). The SW Pit, approximately 1.5 acres in size, lays approximately 3,000-ft east of the Menominee River in a relatively flat upland area of the Upper Terrace topographic feature. Two surface water bodies are located within 1 mile of the SW Pit. These include the Menominee River and Crystal Lake/Mud Lake. Crystal Lake/Mud Lake is located approximately 1-mile northeast and hydraulically upgradient from the SW Pit (Figure 3-2).

In addition, three other surface water bodies are present in the vicinity of the SW Pit. Cowboy Lake is located 1.5 miles to the northwest, the water-filled Chapin Mine is located 2.2 miles to the northeast, and Lake Antoine is located 3.3 miles to the northeast of the SW Pit. Chapin Mine and Lake Antoine are upgradient from the SW Pit and Cowboy Lake is at approximately the same hydraulic elevation as (sidegradient of) the SW Pit. The nearest public water supply wells (located near the Ford Airport, approximately 1.2-miles northwest of the SW Pit) are at the same hydraulic elevation as (sidegradient of) the SW Pit. Based on the presence of a bedrock ridge north of the SW Pit that trends east-west and a groundwater divide that exists between the City water supply wells and the SW Pit (shown by the groundwater elevations in Monitoring Wells MW-8 and GM-60) there is no groundwater communication between the two areas.

Aerial photographs and historic records indicate that waste disposal at the SW Pit began in the 1920s. Wood pieces, wood sawdust, wood bark chips, and charcoal were reportedly disposed in the SW Pit along with industrial waste and wastewater containing dissolved organics from pyrolysis processes. Aerial photographs show continued disturbances to the surface of the area and disposal of solid waste from unidentified sources after 1961 to at least 1981.

Land use near the SW Pit is a mix of commercial and residential and the SW Pit is currently zoned as residential. The City of Kingsford residential zoning includes recreational uses. The SW Pit was bordered by partly wooded areas to the west and north, Balsam Street and the former plant area to the east, and Breitung Avenue to the south. The SW Pit was covered with clean fill material, ranging in thickness from 0.5 to 15 ft, in the late 1970s by the City of Kingsford.

The SW Pit is located within Lodak Park, which is currently owned by the City of Kingsford and is used for recreational purposes. A baseball field currently is located east of the area known as the SW Pit and a football field has been constructed to the west.

There are no residences on or at the SW Pit. There are however, residences downgradient of the SW Pit, approximately 1,200 ft to the south and west. None of the downgradient residences have private wells, so the receptor in the area for groundwater is the Menominee River, approximately 3,000 ft to the west. Gas-phase methane is generated in the groundwater system and released from the groundwater to the vadose zone in areas where the vertical component of the groundwater gradient is upward. The areas of upward vertical groundwater gradient are approximately 2,000 ft to the west and southwest of the SW Pit. Gas-phase methane has also been identified within the waste material in the SW Pit.

3.10.3 RDA

The RDA was a historic disposal area for industrial and municipal material that became a vegetated vacant parcel of property. The center point of the RDA is located approximately 500 ft south of the western end of Pyle Drive and approximately 1,400 ft west of Westwood Avenue (Figure 3-2). The RDA is located on the Upper Terrace topographic feature, at an elevation of approximately 1,120 ft msl. The size of the RDA, which was historically a depression, is approximately 4 acres.

Two surface water bodies are located within 1 mile of the RDA. These include the Menominee River, approximately 600 ft to the southwest, and Cowboy Lake, approximately 0.9 miles to the northwest (Figure 3-2). Hydraulically, the Menominee River is downgradient of the RDA and Cowboy Lake is neither upgradient nor downgradient of the RDA, having approximately the same hydraulic elevation as (sigegradient of) the RDA.

In addition, three other surface water bodies are present in the vicinity of the RDA. Crystal Lake/Mud Lake is located 1.3 miles to the northeast, the water-filled Chapin Mine is located 2.4 miles to the northeast, and Lake Antoine is located 3.5-miles northeast of the RDA. Each of these three surface water bodies is upgradient from the RDA. The nearest public water supply wells (located near the Ford Airport, approximately 0.7 miles north of the RDA) are hydraulically upgradient from the RDA (Figure 3-1).

Aerial photographs indicate that the area was being used for sand/gravel borrow in 1938 and that waste disposal occurred at the RDA through at least the mid 1970s. Household and industrial wastes were disposed in the RDA, by various members of the community.

Land use near the RDA is a mix of residential, commercial, and open space. The RDA is bordered by a heavily wooded area along the Menominee River to the west, Pyle Drive and the Woodland Elementary School to the north, Freeman Convalescent Home to the east and residential developments to the south. The RDA is vacant land that is vegetated with the exception of a steep slope embankment on the northwest side that has eroded, partially exposing waste. The RDA is currently owned by the City of Kingsford and is zoned residential.

There are no residences at or downgradient of the RDA. The Menominee River, approximately 600 ft to the southwest, is the receptor for groundwater in the area.

3.10.4 Former Plant Site

The FPS was the main manufacturing area for the Ford and KPC operations, and has been sold to other companies or demolished. The center point of the FPS is located approximately 1,400-ft north of Breitung Avenue and approximately 400-ft east of Balsam Street (Figure 3-2). The FPS, approximately 25 acres in size, lies in a relatively flat upland area of the Upper Terrace topographic feature.

Two surface water bodies are located within 1 mile of the FPS. These include the Menominee River (5,000-ft west) and Crystal Lake/Mud Lake (Figure 3-2). Crystal Lake/Mud Lake is located 0.6-miles northeast and hydraulically upgradient from the FPS.

In addition, three other surface water bodies are present in the vicinity of the FPS. Cowboy Lake is located 1.9 miles to the northwest, the water filled Chapin Mine is located 1.9 miles to the northeast, and Lake Antoine is located 3.1 miles to the northeast of the FPS. Chapin Mine and Lake Antoine are upgradient from the FPS and Cowboy Lake is at approximately the same hydraulic elevation as (sidegradient of) the FPS. The nearest public water supply wells (located near the Ford Airport, approximately 1.5-miles northwest of the FPS, Figure 3-1) are also approximately at the same hydraulic elevation as (sidegradient of) the FPS. Based on the presence of a bedrock ridge just north of the FPS that trends east-west and a groundwater divide that exists between the City water supply wells and the FPS (shown by the groundwater elevations in Monitoring Wells MW-8 and GM-60) there is no groundwater communication between the two areas.

Aerial photographs and historic records indicate that the FPS area was used by Ford Motor Company from the 1920s until 1951 and later by Kingsford Chemical Company from 1951 to 1957 and Kingsford Company from 1957 until 1961.

Land use at and near the FPS is primarily commercial and industrial, and the FPS is currently zoned as industrial. The FPS is bordered by Balsam Street and a vacant field containing the NE Pit to the west, Lodal Inc. and vacant fields to the east, various small businesses along Pyle Drive to the north, and along Breitung Avenue to the south. The FPS includes remnants of the old Ford Motor Company/Kingsford Chemical Company/Kingsford Company plant.

Portions of the FPS are still in use by commercial and industrial owners and operators. The area is currently used by Lodal Inc., Smith Castings Inc., Smith Steel Company, and Zam's Autobody to house their respective activities. Prior to 2005, the Delta Do-It Center was also operated from a FPS building. Records indicate that additional industrial and manufacturing activities at the FPS were conducted by Aluminum Specialty Co., Fontana Aviation, General Controls, Grede Foundries, Inc., Jacklin Steel Supply, Inc., Kingsford Broach & Tool, Klatzky Brothers, Lake Shore, Inc., Perfex Corporation, Wittock Supply, and Wisconsin Michigan Power Company.

There are no residences at the FPS. There are however, residences downgradient of the FPS, approximately 1,200 ft to the south and 2,000 ft to the southwest. None of the downgradient residences (or the businesses currently operating in the area) have private wells, so the receptor in the area for groundwater is the Menominee River, approximately 5,000 ft to the southwest. Gas-phase methane is generated in the groundwater system and released from the groundwater to the vadose zone in areas where the vertical component of the groundwater gradient is upward. The areas of upward vertical groundwater gradient are approximately 4,000 ft to the west and southwest.

3.10.5 WBADA

The WBADA is located in the southwestern ¼ of Section 2 and the northwestern ¼ of Section 11, Township 39N, Range 31W, in southwestern Dickinson County, in the south-central part of Michigan's Upper Peninsula. The WBADA is located east of the Menominee River, bordered by private properties to the north and the east, and City of Kingsford property to the south and the west (Figure 3-2). The topography of the area is at approximately 1,090 ft msl.

One surface water body is located within 1 mile of the WBADA. This is the Menominee River, approximately 400 ft to the west (Figure 3-2). An additional surface water body, Crystal Lake/Mud Lake, is located 1.5-miles northeast and is hydraulically upgradient from the WDADA.

Richard and Linda Maule currently own a portion of and reside at the WBADA. Mr. Maule is a builder whose company constructed many of the homes in the adjoining Easton Estates development. Some of the WBADA is on City of Kingsford property, which adjoins the Maule property on the west. Several additional residents own small portions of the east side of the WBADA.

The WBADA encompasses an area approximately 250 by 300 ft in lateral extent. Based on previous investigations and aerial photos, the area appears to have been used as a historical disposal area for general refuse from as early as 1931 through at least 1981. Ford ceased operations in Kingsford in 1951 and KCC/KC ceased operations in the area in 1961.

The area is presently graded flat and the Maule residence has been built on a portion of the WBADA. The residential construction includes a retaining wall, a house with a three-car garage, a gazebo, a swimming pool with concrete apron, a second garage/storage building, and extensive landscaping including a sprinkler system. Outside of the landscaped portions of the residential property, household wastes such as bottles, cans, grass cuttings, and appliances, as well as concrete debris are visible protruding from the soil along the western and southern edges of the former disposal area, which forms a terrace between the top and base of the fill.

The closest potential receptor of any constituents that could theoretically be released from the WBADA is the house built on the property, as well as several houses on the eastern edge of the WBADA. In addition, the Menominee River is approximately 400 ft to the southwest. There are no private residential water supply wells in the area, and residences in the area receive the water for residential use from the City of Kingsford. The closest public water supply well for the City of Kingsford is located approximately 7,500 ft to the north-northwest, hydraulically up-gradient of the WBADA.

3.10.6 Menominee River

The Menominee River is the principal hydrologic feature in the Kingsford area (Figures 3-1 and 3-2). The river, which flows to the southeast, comprises the southern and western boundaries of the Study Area/AOC. The water depth in the Menominee River ranges from less than a foot to approximately 15 ft. The water flow and water level within the segment of the Menominee River adjacent to the Study Area is controlled by the old Ford Dam (now operated by WEPCO), approximately 0.5-miles upriver of the Study Area, and the Big Quinnesec Dam, approximately 2-miles downriver of the Study Area.

The Menominee River is a gaining river (or groundwater sink) within the Study Area, which means that the groundwater moves from the subsurface into the surface water of the river, rather than moving from the river into the subsurface. This is because the hydraulic pressure of the groundwater is greater that the hydraulic pressure of the surface water, except possibly during unusual high water conditions in the river. The general movement of groundwater beneath the Study Area is from the northeast to the southwest, where it migrates into the Menominee River.

The Michigan side of the Menominee River generally has steep banks, which rise from 5- to 15-ft above the average water level. However, there are several low-lying areas adjacent to the Menominee River, where the rise above the river is only 1- to 5-ft above the average water level. The Menominee River flood plain elevation is 1,051 ft msl, while the average surface water elevation is approximately 1,038 ft msl. In one of the low-lying areas adjacent to the Menominee River, several groundwater seeps (or springs), are present where the groundwater first rises to the ground surface before moving to enter the river.

In several areas of the Menominee River on the west side of Kingsford, bubbles are visible at times rising to the water surface in the river, if the river surface is calm. These bubbles are comprised mainly of gas-phase methane that has been released from the groundwater, although other natural occurring gases, such as CO_2, are also present. The apparent release of the gases as bubbles in the Menominee River is discussed further in Section 7.1.

3.11 Previous Investigations

A number of investigations have been completed to determine sources and the nature and extent of chemical constituents in the subsurface in the Study Area. A list of historic investigations and removal actions is presented below. Titles of the specific investigation documents are included in Section 11, References.

- Investigations were completed by EWA, on behalf of Ford between 1986 and 1987 (EWA, 1986; 1987). These investigations culminated in the removal of wood tar material from the NE Pit area between November 30, 1987 and March 2, 1988. A total of approximately 27,000 cubic yards of material was removed and transported off Site by EWA during the 1987 to 1988 activities (EWA, 1988).

- Three drums labeled “carbide barrel” were removed from the RDA by the City of Kingsford in August 1988 following an inspection of the area by the MDEQ in May 1987.

- A methane survey and investigation was conducted by Coleman Engineering Company (Coleman Engineering) of Iron Mountain, Michigan on behalf of the City of Kingsford (Coleman Engineering, 1995).

- A Site Assessment Fund Investigation was completed in June 1996 by BLDI on a parcel of land that encompasses a small portion of the NE Pit. The investigation included soil borings, groundwater monitoring wells, soil samples, and groundwater samples (BLDI, 1996).

- A multi-agency advisory group (MAAG) conducted a study to determine the origin of dissolved methane in groundwater in the Kingsford, Michigan area. Organizations in MAAG include U.S. EPA’s Emergency Response Group and their contractors, USGS, MDEQ, Michigan Public Service Commission, City of Kingsford, Michigan State University, and Michigan Technological University (Westjohn, et. al. 1996).

- Additional sampling was conducted by MAAG, including collection of soil and groundwater samples from existing monitoring wells, monitoring wells installed by the USGS and temporary monitoring wells installed by MDEQ. Work performed as part of the investigations also included surface and borehole geophysical surveys, and shallow and deep soil vapor surveys (Westjohn, et. al. 1996).

- Methane monitoring in approximately 300 homes and other structures was performed during 1996 and 1997 by the U.S. EPA and their contractors.

- A soil vapor extraction (SVE) system was installed near a residence located at 2104 Breen Avenue in response to an explosion at the home on July 12, 1995. The SVE system, constructed by Stearns, Conrad and Schmidt Engineers and Coleman Engineering, was comprised of nine extraction wells and five condensate traps connected to a single 7.5 horsepower (hp) blower (SCS Engineers and Environmental Quality Management, Inc., 1996). The wells were generally positioned on the property at 2104 Breen Avenue and the adjacent residence to the west, with the blower housed in a shed on the northern side of the property at 2104 Breen Avenue. The SVE system began operation on February 21, 1996 and is presently operating. Since 1998, the SVE system has had several modifications, which have optimized the SVE system performance.

- A SVE system was installed near a residence located at 2001 North Emmet Street in response to the detected presence of shallow subsurface methane. The SVE system, constructed by Civil & Environmental Consultants and Coleman Engineering, was comprised of a single extraction well and a 0.25 hp blower housed in a small shed on the property (Civil & Environmental Consultants and Environmental Quality Management, Inc., 1997). The SVE system began operation on April 22, 1997 and is presently operating. Since 1998, the SVE system has had several modifications, which have optimized the SVE system performance.

- Methane detectors were made available to the residents of Kingsford and Breitung Township beginning in fall 1997 through the Kingsford Public Safety Department (KPSD). As of February 1998, approximately 1,300 methane detectors had been placed in residences and other structures within the Study Area.

- Wood tar was removed from the surface of the NE Pit during November 1997. Approximately 35 cubic yards were removed and subsequently transported to a Waste Management Facility in South Elgin, Illinois for disposal.

- An EE/CA was performed by ARCADIS on behalf of Ford and KPC. Work performed as part of the EE/CA included installation of monitoring wells, collection of soil and groundwater samples, installation and monitoring of vapor monitoring points, performance of geophysical surveys, and evaluation of the geology and hydrogeology (ARCADIS G&M, 1998b).

More detailed discussion of the previous investigations at the NE Pit, SW Pit, FPS, RDA and Menominee River are in the following subsections.

3.11.1 NE Pit Area

Numerous investigations have been completed in the vicinity of the NE Pit and SW Pit since 1985 to investigate the nature and extent of constituents associated with these former pits and to characterize the soil and groundwater quality adjacent to the pits. ARCADIS performed additional investigations at the NE Pit from 1997 to 2001 that included the completion of soil borings and test pits, installation of monitoring wells, collection of groundwater samples, and the collection of surface and subsurface soil and waste samples.

A brief description of investigations and field actions completed during investigations listed above and of the chemical analysis conducted during each investigation is discussed below.

3.11.1.1 EWA 1985

The initial Phase I Site investigation was conducted by EWA from June through August 1985 (EWA, 1986). As part of the initial field investigation, nine soil borings (SB-1 through SB-9) were completed in or adjacent to the NE Pit Area. In addition, two soil borings (SB-1B and SB-2B) were also completed for soil sampling. Monitoring Well MW-3 was also installed during Phase I activities. A total of 22 subsurface soil and waste samples from these borings were submitted for laboratory analysis of most U.S. EPA Priority Pollutants, including select volatile organic compounds (VOCs) and metals.

The analytical results for the 22 soil samples indicate that VOCs were detected in eight of the 22 samples. Acetone, benzene, ethylbenzene, and xylenes (total) were detected above the generic Part 201 Drinking Water Protection Criteria (DWPC) in Soil Boring SB-5 at various depths. Inorganics, including common soil constituents with concentrations indicative of background conditions, were detected in all of the subsurface material samples. Chromium was the only inorganic constituent present that was above the generic Part 201 DWPC (Soil Boring SB-7).

3.11.1.2 EWA 1986-1987

The Phase II Site investigation was conducted by EWA from June 1986 to February 1987 (EWA, 1987a). Two soil borings (SB-22 and SB-23) were completed within and adjacent to the NE Pit area during Phase II field activities. A total of 14 subsurface material samples were collected during advancement of these borings. The soil samples were analyzed for VOCs, barium, copper, lead and chromium.

The analytical results for the 14 samples indicated that only one VOC, toluene, was detected in only one sample from Soil Boring SB-23 at a depth of 40 feet below land surface (ft bls). There were detections of all the inorganic constituents (barium, chromium, copper, and lead) but only chromium was detected above the generic Part 201 DWPC in Soil Boring SB-23.

3.11.1.3 Waste Removal 1987-1988

In February 1987, two surficial wood tar samples were collected from and adjacent to the NE Pit area (EWA, 1987b). The samples were analyzed using Extraction Procedure Toxicity (EP TOX) tests for metals and toxic characteristic leaching procedures (TCLP) for metals and volatile and extractable organics. The wood tar sample results indicated that the wood tar was not EP TOX and was not classified as a hazardous waste. Between August 4 and 10, 1987, 62 shallow (5 to 15 ft bls) soil borings were completed in the vicinity of the NE Pit to determine an approximate waste volume. Laboratory analyses were not performed on these samples.

Surficial wood tar removal from the NE Pit area was conducted between November 30, 1987 and March 2, 1988 (EWA, 1988). A total of 40,697 cubic yards of material was excavated with 26,949 cubic yards of wood tar transported to Wayne Disposal, Inc. landfill in Belleville, Michigan for disposal. Of the excavated material, 17,200 cubic yards of screened soil and overburden soil was replaced as backfill in the excavated areas. To verify the quality of the replaced soil, a grab sample of the screened soil material obtained from the shaker screen used to separate the wood tar from the soil was submitted for chemical analysis on January 5, 1988. The sample was analyzed for TCLP constituents. The sample results indicated no detection of any constituents associated with the wood tar material.

To replace the excavated wood tar material and restore the surface topography, clean borrow material was brought to the Site. The backfill soil material was obtained from a location east of the City of Kingsford. To verify the quality of the backfill material, two composite soil samples were collected from the fill and submitted for analysis of VOCs, semi-volatile organic compounds (SVOCs), and metals. The analytical results of the two soil samples indicated that the material used for backfill was clean material and suitable to use.

3.11.1.4 Ecology and Environment, Inc. (E&E) 1988

E&E performed a Site Screening Inspection in the area of the NE Pit in May 1988. Five surface soil and waste samples (S-1 through S-5) were collected inside and outside of the backfilled area and submitted for chemical analyses to determine the concentrations of U.S. EPA target compound list (TCL), VOCs, polychlorinated biphenyls (PCBs), and target analyte list (TAL) metals present in the vicinity of the pit (E&E, 1989). Each soil or waste sample was collected from a depth of approximately 6 inches.

The surface samples generally showed detections of VOCs and SVOCs. However, the samples had only one VOC (methylene chloride), which is a known laboratory contaminant, and one SVOC (pentachlorophenol), which were detected above the Part 201 DWPC. There were detections of all the inorganic constituents, but only aluminum, antimony, cobalt, iron, and manganese were detected above the DWPC. There was one PCB, Aroclor 1242, detected in the samples below all of the Part 201 criteria.

3.11.1.5 BLDI 1996

Between June 10 and 14, 1996, a Site Assessment Fund Investigation was completed on "*The 500 Balsam Street Property*" (BLDI, 1996). This parcel encompasses a small portion of the NE Pit. As part of this project, nine soil borings (SB-96-1 through SB-96-9) were completed to a depth of 26 ft bls and four groundwater monitoring wells (MW96-1 through MW96-4) were installed. During advancement of these borings, samples were also collected and submitted for laboratory analysis. A total of 20 subsurface soil samples were collected (18 from soil borings and two from monitoring well borings) and submitted for chemical analysis of VOCs, SVOCs, and select metals (lead, barium, chromium, copper and zinc).

The analytical results show that VOCs were detected in six of the 20 samples and SVOCs were detected in two of the 20 samples. There were no VOCs detected above any Part 201 criteria. However, three SVOCs (2,4-dimethylphenol, 2-methylphenol, and 4-methylphenol), were detected in the soil at concentrations above the DWPC, in samples from Monitoring Well MW96-3 and Soil Boring SB-96-1 at depths between 4 to 6 ft and 14 to 16 ft, respectively. All inorganic constituents were detected at levels lower than all the Part 201 criteria. The BLDI report concluded that the land could be redeveloped for industrial and commercial use.

3.11.1.6 MDEQ 1996

The MDEQ portion of the Integrated Assessment fieldwork was completed on May 6 through 17, and June 3 through 7, 1996. The Integrated Assessment included interviews with Site representatives, a reconnaissance Site inspection, installation and sampling of temporary Geoprobe monitoring wells, and collection and submittal of soil, groundwater and air samples for Contract Laboratory Program (CLP) organic and inorganic chemical analyses (MDEQ, 1997). Three soil borings (PB-2, PB-5 and PB-6) were completed in the vicinity of the NE Pit area. Four subsurface soil samples were collected and submitted for laboratory analysis from two of the borings. The boring number and representative soil samples that were collected are as follows: PB2 (SS3, SS4 and SS5); and PB5 (SS13). One additional waste sample was collected from PB5 (SS-12).

The analytical results show that VOCs were detected in all five samples, and SVOCs were detected in three of the five samples. SVOCs were not detected above any Part 201 criteria, and one VOC (methylene chloride), was found above the DWPC in the waste sample from Soil Boring PB-5. Several inorganics including aluminum, antimony, cobalt, iron, manganese, and nickel were detected at concentrations above the generic DWPC. Two pesticides/PCBs were detected, including chlordane (gamma) and endosulfan I, but at concentrations below all the Part 201 criteria.

3.11.2 SW Pit Area

Four of the investigations within the Study Area have included the SW Pit. These investigations included the sampling of subsurface material by EWA from 1985 through 1987, surface soil sampling by E&E in 1988, and the completion of soil borings and material sampling by the MDEQ in 1996.

A brief description of the field actions completed during the investigations listed above and of the chemical analysis conducted during each investigation is discussed below.

3.11.2.1 EWA 1985

The initial Phase I Site investigations were conducted by EWA from June through August 1985. As part of the initial field investigation, four soil borings (SB-10 through SB-13) were completed in or adjacent to the SW Pit. In addition, two soil borings (SB-10B and SB-11B) were completed for additional soil sampling. A total of 17 subsurface samples from these borings were submitted for laboratory analysis of most U.S. EPA Priority Pollutants, including select VOCs and metals.

The analytical results for the 17 soil samples indicated that VOCs were detected in nine of the 17 samples. Acetone and methylene chloride were detected above the Part 201 DWPC. Acetone was also detected above the generic Groundwater/Surface Water Interface Protection Criteria (GSIPC) in only one sample from Soil Boring SB-12. Inorganics, including common soil constituents at concentrations indicative of background conditions, were detected in all of the subsurface samples. Chromium was the only constituent present above both the DWPC and generic GSIPC, while mercury and selenium were above the generic GSIPC in one sample from Soil Boring SB-12.

3.11.2.2 EWA 1986-1987

The Phase II Site investigation was conducted by EWA from June 1986 to February 1987. One soil boring (SB-21) was completed to 120 ft bls within the SW Pit area during Phase II field activities. A total of seven subsurface soil samples were collected during advancement of the boring. The soil samples were analyzed for select VOCs, barium, chromium, copper, and lead.

The analytical results for the seven subsurface samples indicated that VOCs were not detected in any of the samples. Chromium was the only inorganic constituent detected above the generic GSIPC.

3.11.2.3 E&E 1988

E&E performed a Screening Site Inspection in the area of the SW Pit in May 1988. One surface soil sample (S-6) was collected and submitted for chemical analyses to determine the concentrations of U.S. EPA TCL, VOCs, SVOCs, and TAL metals present in the vicinity of the SW Pit.

Surface Sample S-6 showed one detection of VOCs (2-butanone) and SVOCs (bis(2-ethylhexyl)phthalate). Inorganics, including common soil constituents, were also detected. Aluminum, cobalt, iron, and manganese were detected above the DWPC, while chromium, cobalt, and selenium were detected above the generic GSIPC.

3.11.2.4 MDEQ 1996

The MDEQ completed two soil borings (PB-4 and PB-6) and collected two surface soil samples (SS-32 and SS-33) in the SW Pit as part of the Integrated Assessment Report. A total of seven samples (two surface materials and five subsurface materials) were collected between May 6 through 17, and June 3 through 7, 1996 and submitted for laboratory analysis.

The analytical results for the five subsurface samples showed that several VOCs were detected with only one constituent, methylene chloride, detected above the DWPC. However, detections of methylene chloride are known to be present as the result of laboratory contamination. Several SVOCs, including 2,4-dimethylphenol, 2-methylphenol, and 4-methylphenol, were detected at concentrations above the DWPC. The SVOCs detected above the generic GSIPC included 2,4-dimethylphenol, 2-methylphenol, and 4-methylphenol, dibenzofuran, naphthalene, and phenanthrene. Inorganics including aluminum, antimony, chromium, cobalt, iron, manganese, mercury, nickel, and selenium had concentrations above either the DWPC or generic GSIPC, while arsenic was detected above the Direct Contact Criteria (DCC) in PB4, at a depth of 8 to 12 ft bls. Several pesticides/PCBs were detected, but not at concentrations above the Part 201 Criteria.

The analytical results for the surface samples showed that VOCs and SVOCs were detected, but no constituents were above any Part 201 residential soil criteria. Several inorganics, including aluminum, cobalt, iron, and manganese was detected at concentrations above the Part 201 DWPC, while chromium, cobalt, and mercury were above the generic GSIPC.

3.11.3 RDA

Two previous investigations within the Study Area have included the RDA. These investigations included the sampling of surface material by the MDEQ in 1988, and the completion of soil borings and material sampling by the MDEQ in 1996.

1. In August 1988, The Michigan Department of Natural Resources (MDNR) collected nine surface samples in a grid-like pattern. In addition, the contents of a drum that was present at the RDA was sampled (Sample #11). One of the surface samples (Sample #9) was from a paint-like substance that was removed from the RDA subsequent to the sample collection. The drum and the contents that were sampled were also removed from the RDA.

   The analytical results for the eight surface samples (excluding the sample from the drum and the sample of the material removed from the RDA) indicate that chromium, mercury, and naphthalene were the only constituents present in these surface samples at concentrations that were above some of the generic Part 201 residential soil criteria. The concentrations of these constituents were not above the Residential DCC.

2. In 1996 the MDEQ completed 10 borings, designated as the “SDB” series, within and near the RDA, as part of an Integrated Assessment Report. A total of 20 samples (two surface materials and 18 subsurface materials) were collected and submitted for laboratory analysis. Samples were not collected from Soil Borings SDB-2, SDB-5, or SDB-9.

   The analytical results indicated that some of the sample constituents detected were present at concentrations above some generic Part 201 residential soil criteria. The VOCs with concentrations above a criterion include: 1,1,1,2-tetrachloroethane, ethylbenzene, methylene chloride, toluene, and xylenes (total). With the exception of methylene chloride, all the VOCs that were above a generic Part 201 criterion were encountered in one of the 20 samples (SDB-6).

   SVOCs were detected in 10 samples from five of the sampling locations at concentrations above a soil criterion, including: 1,2,4-trichlorobenzene, 2,4-dimethylphenol, 2-methylphenol, 4-methylphenol, benzo[a]pyrene, dibenzofuran, fluorene, naphthalene, phenol, and phenanthrene. Only one SVOC, benzo[a]pyrene, from a subsurface sample (SDB-8) collected at a depth of 14 ft bls was detected at a concentration that was above the generic Residential DCC for soil.

   The metals detected at concentrations above a generic soil criterion included: aluminum, arsenic, antimony, barium, cadmium, chromium, cobalt, copper, cyanide, iron, lead, magnesium, manganese, mercury, nickel, selenium, silver, thallium, vanadium, and zinc. Four of these metals were detected at concentrations above the generic Residential DCC for soil, including, antimony, arsenic, copper, and lead.

Pesticides/PCBs were detected in 12 of the 20 samples; however, none of the constituents were present at concentrations above any generic Part 201 criterion.

3.11.4 Menominee River

Previous investigations within or in the vicinity of the Menominee River include surface water and sediment samples collected by the MDEQ in May 1996, and groundwater samples collected by the U.S. EPA from temporary Geoprobe monitoring well points advanced by the MDEQ in May and June of 1996. The collected samples were subjected to organic and inorganic laboratory analyses.

In 1998, WEPCO produced an Applicant-Prepared Environmental Assessment (APEA) for the Menominee River related to a license application for the former Ford Dam. The WEPCO APEA contains pertinent information on the condition and quality of the Menominee River, as well as information concerning the area watershed. The Wisconsin Department of Natural Resources (WDNR) also conducted a multi-year investigation in the area of the effects on the structure of fish and invertebrate communities of flow regulation and restriction of passage due to hydroelectric project operations.

3.11.4.1 MDEQ 1996

The MDEQ collected five surface water samples (SW-1 to SW-5) and five sediment samples (SD-1 to SD-5) from the Menominee River in May 1996. The samples were analyzed for VOCs, SVOCs, and inorganics.

The chemical data from the surface water collected from the Menominee River reported only one VOC concentration (acetone at 6 micrograms per liter [µg/L]) and two SVOC concentrations (bis 2-ethylhexyl phthalate at 10 µg/L and di-n-butylphthalate at 1 µg/L). The concentrations of acetone and di-n-butylphthalate were reported as estimated values by the laboratory, since they were found below the laboratory quantitation limit. Various naturally occurring inorganic constituents were also detectable in the surface water samples. No constituents were detected in the water at concentrations above any Michigan standards.

The chemical data for the Menominee River sediments reported only two VOCs (acetone at 10 to 44 micrograms per kilogram [µg/kg] and methylene chloride at 6 to 7 µg/kg). The sediments also reported two SVOCs (4-methylphenol at 120 to 720 µg/kg and bis-2-ethylhexyl phthalate at 81 µg/kg). The concentrations of these SVOCs and one of the acetone concentrations are also reported by the laboratory as estimated concentrations. Naturally occurring inorganic constituents are also present in the river sediments.

3.11.4.2 U.S. EPA

Under the direction of the U.S. EPA, the MDEQ advanced 13 temporary probes (TMW1 to TMW13) in May 1996 and nine temporary probes (TMW14 to TMW22) in June 1996 along the Menominee River to collect water and air samples. Twenty of these probes were installed on the Michigan side of the river and two probes were installed in Wisconsin (TMW21 and TMW22). Sample depths ranged from 3 to 56 ft bls. Gas samples were analyzed for VOCs in the field using an on-site gas chromatograph/mass spectrometer (GC/MS). Groundwater samples were analyzed for VOCs, SVOC, inorganics, and pesticides.

A total of 17 VOCs, five SVOCs, and inorganics were detected in the groundwater samples. Benzene, 2-methylphenol, 4-methylphenol, and 2,4-dimethylphenol were detected in the groundwater at concentrations above the Part 201 generic Residential Drinking Water Criteria (DWC) at several of the locations from the Michigan side of the Menominee River.

4. **Investigation Scope**

Based on the results from the previous work and in accordance with the RI work plan, specific investigations were completed in several relatively distinct portions of the Study Area. These included:

- Five historic potential source areas (the NE Pit, the SW Pit, the RDA, the FPS, and the WBADA).
- The residential area south and west of the former disposal pits and FPS.
- Area near the Menominee River.

Activities completed in the five historic potential source areas identify the constituents that may have been released to the soil and groundwater. The activities completed in the residential area and near the Menominee River investigate the quality of the environment in areas that are potential receptors of the constituents released from the historic potential source areas. Activities completed during the EE/CA investigated the Study Area as a whole, as well as the distinct portions identified.

Each of the seven distinct portions of the Study Area will be discussed separately, although there is some overlap in the results and conclusions as they relate to the Study Area as a whole. A general discussion of the scope of work completed for each area follows.

4.1 NE Pit

The scope of work completed for the RI in the NE Pit included completion of soil borings, installation of monitoring wells, and collection of surface soil and waste samples, subsurface soil and waste samples, and groundwater samples for laboratory analysis. Backhoe test pits were also completed in the NE Pit to determine the extent of wood tar. The wood tar that accumulated on the ground surface was collected (when necessary) and properly disposed by ARCADIS personnel.

4.2 SW Pit

The scope of work completed in the SW Pit included completion of soil borings, installation of monitoring wells, installation of soil vapor probes, and collection of surface soil and waste samples, subsurface soil and waste samples, and groundwater samples for laboratory analyses.

4.3 RDA

RI activities completed in the RDA included completion of soil borings, installation of monitoring wells and soil vapor probes, collection of surface soil and groundwater samples for laboratory analyses, and pilot methane venting studies. Test pits were completed throughout the area to determine the extent of waste disposed at the RDA. A fence was constructed around the perimeter of the RDA during spring 1999.

4.4 FPS

RI activities completed at the FPS included completion of soil borings, installation of monitoring wells and soil vapor probes, test pits, and collection of subsurface waste, soil, and groundwater samples for laboratory analyses. Subsurface tunnels associated with operations at the FPS were also located and field screened for the presence of gas-phase methane. Methane detectors were installed at the entrance to the tunnels, where appropriate.

4.5 WBADA

RI activities completed at the WBADA included completion of soil borings, installation of monitoring wells and soil vapor probes, and collection of surface soil, subsurface soil, and groundwater samples for laboratory analyses. In addition, the construction improvements on the Maule property, volumes of fill required for construction, retaining wall for stabilization, and vegetative cover were evaluated for evidence of potential direct contact concerns on the Maule property portion of the WBADA.

4.6 Residential Area

The scope of work in the Residential Area (south of Breitung Avenue and west of Carpenter Avenue, and south of Woodward Avenue and west of Westwood Avenue) included completion of soil borings, installation of monitoring wells and soil vapor probes, and collection of subsurface soil and groundwater samples for treatability and laboratory analyses. In addition, geophysical seismic reflection and ground penetrating radar (GPR) surveys were completed during the EE/CA investigation. Passive and active gas-phase methane venting has been, and continues to be, performed in several areas where gas-phase methane was found to have accumulated in the subsurface within the Residential Area. The results from activities performed in the Residential Area and the other areas, with the exception of venting activities, were incorporated into three-dimensional (3-D) modeling and visualization of the geology and chemical distributions within the Study Area.

4.7 Menominee River

Activities completed near and within the Menominee River included completion of soil borings, installation of monitoring wells, collection of subsurface soil and groundwater samples from the monitoring wells for laboratory testing and laboratory toxicity testing, measurements of the river stage, and collection of surface water samples. Activities also included a bioassessment of the Menominee River.

The Menominee River has been the focus of ongoing activities. These activities included Phase I and Phase II groundwater treatment studies and construction/operation of a full-scale groundwater extraction and treatment system. The results from the RI investigation through December 2007 are summarized in this report as well as separate reports that were submitted to the MDEQ. These reports are referenced in the appropriate sections.

THIS PAGE INTENTIONALLY LEFT BLANK

5. Investigation Methods

The scope of work for the RI included the collection of information to supplement previous data collected in the Study Area. Data collected during the EE/CA and RI activities incorporated a variety of tasks with specific methodologies.

As of December 2007, 965 soil borings (84 soil borings during the EE/CA investigation and 881 soil borings during the RI and additional investigations) were completed for the collection of soil and groundwater samples, installation of groundwater monitoring wells, installation of groundwater extraction and SVE wells, and installation of soil vapor monitoring probes, as well as evaluation of the geology and hydrogeology of the Study Area. In addition, 55 test pits and 10 staff gauges were installed during the RI activities. The locations of the soil borings, monitoring wells, extraction wells, and soil vapor probes are shown on Figure 5-1 and summarized in Table 5-1.

As of December 2007, 92 surface soil samples, 134 subsurface soil samples, and 680 groundwater samples were collected by ARCADIS for field and laboratory testing. In addition, hundreds of soil samples were screened for methane and other volatile constituents during the drilling and sampling activities.

The tasks completed during the EE/CA, RI, and additional investigations to collect these data included:

- Completion of soil borings.
- Completion of direct-push borings.
- Completion of hand-auger borings.
- Collection of subsurface soil and waste samples for visual observation and laboratory analyses.
- Collection of surface soil samples for visual observation and laboratory analyses.
- Installation of monitoring wells.
- Installation of groundwater extraction wells.

- Installation of soil vapor monitoring probes.
- Installation of SVE wells (both passive and active).
- Collection of groundwater level measurements.
- Collection of groundwater samples from monitoring wells and monitoring well boreholes for field parameters and laboratory analyses.

Collection of surface water samples for field parameters and laboratory analyses.

- Completion of short-term aquifer tests.
- Completion of geophysical surveys.
- Soil vapor field monitoring and collection of vapor samples for laboratory analysis.
- Completion and visual observation of test pits.
- Study Area mapping and surveying.
- Laboratory treatability and microbiological tests.
- Residential well abandonment.
- 3-D modeling/visualization of the subsurface geology and constituents in the groundwater.
- Groundwater flow modeling.
- Completion of pilot SVE tests.
- Completion of pilot groundwater extraction and treatment systems.
- Installation of SVE systems.
- Construction of a full scale groundwater extraction and treatment system.

- Operation and maintenance of SVE systems.

- Completion of a Menominee River biological survey.

The remainder of this section presents the methodology and procedures used for the collection of the EE/CA and RI data.

5.1 Soil Boring Completion

Soil borings were completed using a variety of techniques, often dependent on the intended purpose of the soil boring, as well as subsurface conditions and planned total depth of completion for the soil boring. The various methods used to complete soil borings included rotasonic drilling, rotary hollow-stem auger drilling, mud rotary drilling, direct push (Geoprobe), and hand augering. Each of these methods used to complete soil borings is discussed in the following sections.

The locations of the soil borings completed are shown on Figure 5-1 and details summarized in Table 5-1.

Prior to drilling at each location, the soil boring equipment used for soil boring advancement was steam-cleaned to reduce the potential for cross-contamination of the boreholes. The water for decontamination was obtained from the City of Kingsford water supply through a fire hydrant at the KPSD. The water used for decontamination was collected from decontamination pads constructed to contain the water and placed in 55 gal drums. The decontamination water was subsequently transported to a Waste Management Facility in Milwaukee, Wisconsin for proper disposal.

Soil cuttings generated during the drilling of the soil borings completed during the EE/CA, RI, and additional investigations were stored in roll-off boxes on Site and subsequently transported to a Waste Management Facility in Milwaukee, Wisconsin for proper disposal.

All soil borings that were not used for installation of a well or probe, were abandoned in accordance with MDEQ guidelines when completed. The soil boring abandonment used either bentonite chips placed into the borehole down the inside of the casing or augers and subsequently hydrated, or a bentonite powder/cement and water mixture placed into the borehole with a tremie pipe.

5.1.1 Rotasonic Drilling

Rotasonic drilling was used to complete soil borings, collect subsurface soil and waste samples, collect grab groundwater samples, install monitoring wells and extraction wells, and install soil vapor probes. Rotasonic drilling was accomplished by imparting high-frequency vibrations from a sonic drill head to a dual string of drill pipe. The dual-pipe drill string consisted of a 4-inch internal-diameter (I.D.) pipe and sampling tube inside of a 6-inch I.D. drive casing. The drive casing was advanced to ensure that the borehole remained open upon extraction of the sampling pipe and closed off any communication with overlying zones. Rotasonic drilling was conducted as follows:

1. Vibrating the inner sampling string into place.
2. Advancing the 6-inch outer casing over the sampling string to the same depth.
3. Retrieving the inner pipe string and sample barrel with the sample inside while the outer casing remained in place.
4. Retrieving the cored sample from the sampling barrel.
5. Adding another length of pipe to the sampling string.
6. Advancing the sampling string to a depth 10 or 20 ft beyond the end of the outer casing.

This process was repeated until the total depth of the soil boring was reached. During drilling, air quality conditions near the drill floor were continuously monitored with a Neotronics explosimeter, Model 50 or a Bacharach explosimeter, Model Sentinel 44T for O_2, lower explosive limit, and hydrogen sulfide (O_2/LEL/H_2S).

At times, water was added to the soil boring during drilling to reduce friction and to control head pressure resulting from heaving sand. The water was obtained from the City of Kingsford water supply. Excess drilling fluids were containerized in 55 gal drums or poly tanks and subsequently transported to a Waste Management Facility in Milwaukee, Wisconsin for proper disposal.

5.1.2 Rotary Hollow-Stem Auger Drilling

Rotary hollow-stem auger drilling was used to complete soil borings, collect subsurface soil samples, and install monitoring wells and soil vapor probes. Hollow-stem auger drilling was accomplished by rotating a hollow auger into the subsurface. The stem of the auger had a 4.25-inch I.D., which allowed for the employment of a split-spoon device for collection of soil samples. The split-spoon device was driven into the substrate ahead of the auger through the use of a cylindrical drive hammer. The auger was advanced to ensure that the borehole remained open upon extraction of the sampling pipe. Hollow-stem auger drilling was conducted as follows:

1. Driving the split-spoon device into place.

2. Advancing the hollow-stem auger over the split-spoon device to the same depth.

3. Retrieving the split-spoon device with the sample inside, while the auger remained in place.

4. Retrieving the cored sample from the split-spoon device.

5. Adding another length of rod to the split-spoon device (cleaned and replaced) sampling string.

6. Advancing the split-spoon device 2 ft beyond the end of the auger.

This process was repeated until the total depth of the soil boring was reached. During drilling, air quality conditions near the drill floor were continuously monitored for O_2/LEL/H_2S.

5.1.3 Mud Rotary Drilling

Mud rotary drilling was used in several instances to complete soil borings and install monitoring and extraction wells. Mud rotary drilling is accomplished by using a drill bit to cut the formation material and advance the borehole. The drill bit is attached to hollow drilling rods that are turned by a rotary table (kelly) on the drill rig, also rotating the drilling bit. Mud (a drilling fluid usually consisting of a mixture of water and powdered bentonite) is circulated in the borehole by being pumped through the rotating kelly, down the inside of the drilling rods, out the bit, and back up the annulus of the borehole to the surface. As the mud is circulated, cuttings from the formation are removed from the drill bit and also pumped up the borehole to the surface.

At the surface, the mud is directed into a mud pit where the cuttings settle out and the mud is then pumped back down the drill rods. In addition to removing the formation cuttings, the mud also cools the drill bit and prevents the borehole from collapsing. As the rotating kelly advances a section of drilling pipe, more pipe is added until the borehole is completed to the final depth. During drilling, air quality conditions near the drill floor were continuously monitored for O_2/LEL/H_2S.

Some soil sampling was completed by collecting the soil cuttings from the mud, segregating them from the mud using a sieve or wire strainer and water, and describing the remaining native material. In addition, soil sampling was also completed by use of a split-spoon, similar to the method described for rotary hollow-stem auger sampling. The split-spoon was either advanced through the inside of the drill pipe and bit where the center opening of the bit was big enough to allow passage of the coring tube, or the drill pipe and bit were removed from the borehole and the split-spoon was advanced in the borehole downwards from the bottom of the borehole.

The drilling mud consisted of water obtained from the City of Kingsford water supply and Baroid powdered bentonite. Excess drilling mud was contained in 55 gal drums or poly tanks at the completion of the borehole drilling and subsequently transported to a Waste Management Facility in Milwaukee, Wisconsin for proper disposal.

5.1.4 Direct Push Soil Borings

During the EE/CA, RI, and additional activities, 26 soil borings were advanced using an environmental soil probe direct-push soil sampler or a Geoprobe direct-push unit (designated as “GP” in Table 5-1).

The soil samples obtained from the direct-push borings used a sampler mounted on a truck. The soil sampler was driven to the desired sampling depth using the hydraulic ram and hammer on the probe. Once the sampler reached the desired depth, the sampler was opened by removing the stop pin in the sampler. The drive point piston was free to move up the sampler, and the sampler was then driven an additional 2 ft to push a soil sample into the sampler. The soil sample was preserved in a 1-inch diameter by 2-ft long acetate liner inside the sampler, which was pulled back to the ground surface.

This process was repeated until the total depth of the soil boring was reached. During drilling, air quality conditions near the borehole were continuously monitored as described above.

5.1.5 Hand Auger Borings

In some instances, a hand auger was used to complete shallow borings for near-surface soil sampling or the placement of shallow soil vapor probes. The hand augers consisted of a steel tube with two auger bits that form a “bucket” attached to a steel rod with a “T” shaped handle. The auger bucket was generally 3-1/4 inches in diameter and 6-inches long. The auger bucket was advanced approximately 6 inches at a time by manually pushing the steel tube downward and rotating, allowing the formation to be cut by the auger bits. After pulling the auger bucket from the borehole, the auger bucket was emptied from the top by hand using a stainless steel rod or spoon. If a sample interval was designated for laboratory analysis, the auger bucket was emptied into a stainless steel bowl for compositing and soil sample collection. Air quality conditions near the hand auger boreholes were not monitored during augering due to the shallow depths of the hand auger boreholes.

5.2 Soil and Waste Sampling

5.2.1 Subsurface Soil and Waste Sampling

Subsurface soil and waste samples were collected using each of the techniques described above. For subsurface sampling conducted using rotasonic drilling techniques the following procedures were used. Upon retrieval of the core barrel, the soil sample was extruded into plastic sheathing and sealed. The plastic sheathing was punctured at approximately 1-ft intervals (maximum) and any vapors released from the soil samples were screened with a portable flame-ionization detector (FID) and a photoionization detector (PID) to determine if ionizable organics were present. The highest and lowest readings were recorded.

The FID used was a Foxboro organic vapor analyzer (OVA), Model Century 108 and the PID used was a Rae organic vapor monitor, Model Mini-Rae Plus or a Thermo organic vapor monitor, Model OVM 580. Later investigations used a Foxboro 1000B OVA, a combined FID and PID unit. The FID is sensitive to hydrocarbons including light molecular organic constituents such as methane. The PID has a lower range of sensitivity and responds to heavier molecular organic compounds; however, the PID will not detect lighter molecular organic compounds such as methane. The difference between FID and PID readings identifies concentrations of light organic compounds, assumed to be generally methane. The calibration of the field screening and air quality monitoring equipment was checked daily with gas standards according to each manufacturer's specifications.

Upon completion of the organic vapor screening, the plastic sheathing was opened and the field geologist described the soil samples. The descriptions included estimated grain size and grain size distribution, approximate degree of sorting, color, apparent moisture, and other characteristics as appropriate. Each sample was classified in the field on a sample/core log, which is included in Appendix A for each soil boring. Each log includes sample descriptions, FID/PID readings, and depth to water. Sample/core logs were used to construct stratigraphic columns for the soil borings, which are included in Appendix B. These stratigraphic columns also include sample descriptions and FID values. Disposable vinyl gloves were worn by sampling personnel during the collection of samples.

For subsurface sampling conducted using hollow-stem auger drilling techniques, the following procedures were used. Upon retrieval and opening of the split-spoon sampler, each soil sample was field screened with a FID to determine if flame-ionizable organics were present. A fraction of the soil sample was placed in a plastic bag and sealed for a headspace screening of organic vapors. After the bagged soil sample had equilibrated, the headspace above the soil was monitored by piercing the bag with the tip of the FID. The maximum FID value was recorded. Upon completion of the organic vapor screening, the soil samples were described by the field geologist as detailed above for soil sampling.

For subsurface sampling conducted using mud rotary drilling techniques, a split spoon was used to collect the soil samples. The procedures used with the split spoon were the same as those described above for subsurface sampling using hollow-stem auger drilling techniques.

For subsurface sampling conducted using the direct push boring techniques, the procedures used were the same as those described above for subsurface sampling using hollow-stem auger drilling techniques, with the exception an acrylic liner inside a direct push sampler was retrieved and opened instead of a split-spoon sampler.

For subsurface sampling conducted using hand augering techniques, the following procedures were used. Upon removal of the soil from the auger bucket the soil samples were described by the field geologist, as detailed above for soil sampling by rotasonic drilling. However, the soil samples were not field screened with an FID or PID.

Selected soil and waste samples collected by ARCADIS were submitted for laboratory analyses. A summary of the EE/CA, RI, and additional investigation waste samples submitted for laboratory analyses is presented in Table 5-2. A summary of the EE/CA, RI, and additional investigation subsurface soil samples submitted for laboratory analyses is presented in Table 5-3. The locations from which the selected soil and waste samples were collected are also summarized in Tables 5-2 and 5-3 and are shown on Figure 5-1.

FID/PID readings were considered when selecting the sample to be submitted for laboratory analyses. Generally, the samples exhibiting the highest FID/PID readings were selected to yield the most conservative results. However, additional visual soil characteristics, such as staining, were also considered when selecting a sample to be submitted for laboratory analyses.

The soil samples for laboratory analyses were collected after the soil had been extracted from the sampling device and screened for the presence of organic vapors using the FID/PID. If VOC analysis was to be performed on a soil sample, the VOC container was filled first to minimize constituent loss due to volatilization. The remaining sample containers were then filled in order of decreasing volatization potential. The sample containers were provided by the project laboratory and meet the criteria identified in the U.S. EPA "*Specifications and Guidance for Obtaining Contaminant-Free Sample Containers,"* April 1992, Office of Solid Waste and Emergency Responses (OSWER) Directive 9240.0-05A.

Decontaminated stainless steel trowels or spoons were used to place the soil samples into the containers. Disposable vinyl gloves were worn by sampling personnel during the collection of samples and were discarded between collection of each soil sample. Upon collection, soil samples subject to laboratory analyses were placed on ice in a cooler and submitted under chain-of-custody protocol to the appropriate project laboratory for the analytical testing required.

The selected subsurface soil and waste samples were submitted to the project analytical laboratories, either ENCOTEC of Ann Arbor, Michigan or STL Savannah Laboratories (STL Savannah) of Savannah, Georgia for laboratory analyses. The closing of ENCOTEC in June 1999 necessitated the selection of STL Savannah as the project laboratory.

The subsurface soil samples were generally analyzed for TCL VOCs and SVOCs, total organic carbon (TOC), PCBs, and select metals. However, during the additional investigations, not all of the analyses listed may have been completed due to the purpose for which the sample was collected (Table 5-3). The waste samples were analyzed for TCL VOCs and SVOCs, TOC, alcohols, aldehydes, organic volatile acids, and select metals. In addition, the waste samples were analyzed by TCLP extraction and Synthetic Precipitation Leaching Procedures (SPLP) extraction. The TCLP extract was analyzed for TCL VOCs and SVOCs, alcohols, aldehydes, and select metals, while the SPLP extract was analyzed for TCL VOCs and SVOCs, alcohols, aldehydes, organic volatile acids, TOC, and select metals. Several of the waste samples were also analyzed for uranium and radium.

Additional selected subsurface soil samples were collected for treatability and bacterial count studies. These soil samples were submitted to Acurex Environmental of Raleigh, North Carolina, the project treatability laboratory. The USGS in Menlo Park, California requested and was supplied subsurface soil samples for treatability studies, during the EE/CA studies.

Several subsurface soil samples were analyzed for geotechnical parameters, which included bulk density, porosity, and grain size, as well as hydraulic conductivity, permeability, and TOC. These subsurface soil samples were submitted either to Giles Engineering of Waukesha, Wisconsin or CQM, Inc. of Green Bay, Wisconsin. The geotechnical samples along with grain size analyses and soil classification data are summarized in Table 5-4. Additional geotechnical data such as porosity and bulk density are presented in Table 5-5.

5.2.2 Surface Soil Sampling

Surface soil samples were collected during the RI from the NE Pit area, the SW Pit area, the RDA, the WBADA, and a quarry northwest of the intersection of West Breen Avenue and Garfield Street. The locations of the surface samples are shown on Figure 5-2. At each identified sampling location, the surface soil sample was collected from the upper 12 inches of soil, starting at the surface and digging downward until a sufficient volume of soil was removed. If grass or vegetation was present at the ground surface, it was first removed to access the soil. Following screening of the exposed surface soil with a PID, the sample matrix for VOCs analysis was collected and transferred into 40-ml vials containing a premeasured quantity of methanol. The remaining soil sample was then placed into a stainless steel bowl, uniformly blended using a clean, stainless steel trowel or scoop, and transferred into the appropriate sample containers.

The sample containers were provided by the project laboratory and meet the criteria identified in the U.S. EPA *"Specifications and Guidance for Obtaining Contaminant-Free Sample Containers,"* April 1992, OSWER Directive 9240.0-05A. The sample collection point was monitored with a FID. Upon collection, the surface soil samples were placed on ice in a cooler and submitted under chain-of-custody protocol to the appropriate project laboratory for the analytical testing required. A summary of the surface soil samples submitted for laboratory analysis is presented in Table 5-6.

Sampling equipment and the mixing container used for collecting the surface soil samples were decontaminated between each sample using a laboratory-grade detergent solution wash, tap water rinse, and distilled water rinse. Disposable vinyl gloves were worn by sampling personnel and discarded between each sampling location.

The surface soil samples were generally analyzed for TCL VOCs and SVOCs, and select metals. In addition, surface soil samples collected from the NE Pit area were also analyzed for PCBs and alcohols.

5.3 Monitoring Well/Piezometer Installation

A total of 190 monitoring wells and piezometers (25 during the EE/CA and 165 during the RI and additional investigations) have been installed for the Study Area or AOC by ARCADIS as of December 2007. The locations of the monitoring wells are shown on Figure 5-1. A summary of the monitoring wells/piezometers installed during the EE/CA, RI, and additional investigations, including the total depth of the soil boring used for installation of the well/piezometer and the interval of the well screen, is presented in Table 5-1. Soil borings were completed as monitoring wells/piezometers once the borehole total depth below land surface had been reached, as determined by the field geologist. The monitoring wells/piezometers were completed to depths ranging from 15 to 338 ft bls. The screened intervals for monitoring wells were selected, depending on purpose, based on the presence of a water-bearing unit or the most permeable unit near the bedrock interface.

In general, where multiple (nested) wells were installed in a particular area, the shallowest well was designated with the suffix “A” and the deeper wells were designated with the Suffix “B”, “C”, and “D”. Separate soil borings were completed for each well installation.

When the total depth of a soil boring had been reached and the borehole completed, each monitoring well was constructed inside of the rotasonic outer casing or the hollow-stem auger. In some cases, the soil boring completion was deeper than the desired well screen depth (e.g. where the soil boring extended to bedrock, but the well screen was placed above that depth). In those cases, the bottom of the soil boring was filled to 5-ft below the desired depth of the screen using bentonite chips. Approximately 5 ft of sand was added on top of the bentonite, which was allowed to hydrate, and then the well screen was installed on top of the sand layer.

Each monitoring well/piezometer installed during the EE/CA and RI was generally constructed of 2-inch I.D., Schedule 80 polyvinyl chloride (PVC) casing and a 5- to 20-ft long, factory cut PVC well screen with 0.010- or 0.020-inch slot size. Some subsequent investigation monitoring wells/piezometers were constructed with Schedule 40 PVC. The PVC met American Society for Testing Materials (ASTM) D1785 specifications.

Following placement of the monitoring well screen and casing in the soil boring, a filter pack of clean, graded silica sand was placed in the annular space between the well screen and the soil boring wall to a level at least 2-ft above the top of the well screen. In some instances fine silica sand, up to a 2-ft thickness, was placed on top of the filter pack. A filter pack seal of approximately 10 ft of bentonite chips was added above the filter pack sand and hydrated. An annular space seal consisting of a bentonite-cement grout was placed on the filter pack seal and extended to a depth approximately 1-ft below the frost zone. Depending on the location conditions, a concrete cap was installed sloping away from the well casing or additional bentonite chips and native soil were used to construct a surface cap. To protect the PVC well casing, either 4-inch diameter steel “stick-up” casings or 12-inch diameter aluminum or steel flushmount vaults were placed around the PVC well casing prior to the concrete or native soil cap. All monitoring wells were fitted with a sealable, locking cap and pad-lock. Well construction details are provided in Table 5-1 and well construction forms for each monitoring well/piezometer installed are included in Appendix C**.**

Each monitoring well/piezometer was developed no sooner than 24 hours after installation to allow for collection of sediment-free samples. The monitoring wells/piezometers were developed using a submersible pump and plastic tubing. Development continued until each monitoring well/piezometer produced visually clear, sediment-free water to the extent possible. In addition, pH, temperature, and specific conductivity measurements were monitored from groundwater samples collected during development. Monitoring well/piezometer development continued until pH, temperature, and specific conductivity values were stable. The water produced during development of the wells was containerized in polyethylene tanks for transport to a central staging area, where it was stored until it was subsequently discharged to the IM/K WWTP.

5.4 Extraction Well Installation

From June through October 2004, 43 extraction wells were installed for the groundwater extraction system along the Menominee River. In April 2006, five more extraction wells for the groundwater extraction system were completed. In addition, prior to 2004, 10 extraction wells were installed as part of the pilot studies for the groundwater extraction system. A summary of the extraction wells is included in Table 5-1 (designated as “EW”).

The original extraction wells installed as part of the pilot studies for the groundwater extraction system were 4 inches in diameter. All the new extraction wells installed as part of the groundwater extraction system were 6 inches in diameter. The wells were constructed with wire wrapped stainless steel high flow design screens and Schedule 80 PVC well risers. A closed-bottom stainless steel sump (generally 5 ft in length) was attached to the base of the extraction well screen.

Based on the formation materials previously encountered within the targeted extraction zones, a guide for selecting the filter pack sand and well screen size for the extraction wells was developed. In almost all cases, the well screen selected for the extraction wells was a 0.020-inch slot stainless steel well screen with a filter pack consisting of a 6065 (#20) Red Flint silica sand.

The final well screen interval, slot size, and gravel pack for the extraction wells were determined on an individual well-specific basis based on the results of field classification. In several extraction wells, multiple screened intervals were installed using blanks of Schedule 80 PVC riser placed between the screened intervals to block movement of fine grain material from the silt/clay layers. The Well Construction Logs for the extraction wells are included in Appendix C.

Rotasonic drilling techniques were used to complete all of the extraction wells for the groundwater extraction system. Boart Longyear of Schofield, Wisconsin conducted the drilling and well installation activities. At the locations of each of the proposed extraction wells, a 6-inch diameter pilot soil boring was drilled to the base of the targeted extraction zone. After the pilot soil boring had reached the bottom of the targeted screened interval, as determined by the field geologist, the geologic materials were evaluated to determine the optimum interval to be screened. The sand interval(s) selected for screening were those which had the largest grain size and least amount of silt, if present. The soil boring was then advanced at least 5 ft below the desired base of the well screen to accommodate the 5-ft long sump attached to the base of the well screen.

After the soil boring had been advanced to the final depth for the extraction well installation, the soil boring was enlarged to 12 inches in diameter to allow for a minimum thickness of 3 inches of annular space around the well for the filter pack material. The sump with stabilizer, well screen, and riser pipe were then gently lowered inside the outer casing until the well was positioned at the desired depth, as determined by the field geologist.

The selected filter pack sand was introduced into the soil boring annular space, inside the outer casing. The filter pack material extended from below the base of the well screen (surrounding the sump), to a height of approximately 5-ft above the top of the well screen, dependent on geologic conditions. The filter pack sand was installed around the well screen by pouring the sand from the top of the outer casing. After the filter pack sand had sufficient time to settle through the water column, the elevation to the top of the filter pack was measured to ensure ample filter pack was in place above the top of the well screen to prevent intrusion of the filter pack seal into the well screen. The outer casing was then slowly withdrawn to ensure proper placement of the filter pack without formation collapse. The elevation to the top of the filter pack was then measured again to ensure ample filter pack placement above the top of the well screen.

Coarse-grade bentonite chips were then added into the casing on top of the filter pack sand to provide a filter pack seal of bentonite. The outer casing was then slowly withdrawn again to ensure placement of the filter pack seal without formation collapse. Approximately 10 ft of bentonite filter pack seal was placed on top of the filter pack sand, except as noted below.

The remainder of the soil boring annular space, above the bentonite filter pack seal, was filled with a bentonite/cement grout mixture to a depth of approximately 8 ft bls. Grouting of the well did not take place until a sufficient amount of time had passed to allow the bentonite chips (filter pack seal) to fully hydrate (approximately 2 hours). For well locations where the top of the filter pack bentonite seal was less than 18 ft bls, the remaining open soil boring annular space was filled with additional bentonite chips or pellets up to 8 ft bls that were also allowed to fully hydrate, rather than bentonite/cement grout.

At the majority of the extraction well locations, the bentonite/cement grout was placed into the soil boring from bottom to top through a tremie pipe placed to a depth just above the filter pack bentonite seal. The bentonite/cement grout was mixed using a Moyno pump affixed on the rotasonic rig platform. A typical batch of grout mix consisted of Portland cement, powdered bentonite (Baroid Aquagel), and water. The approximate mix ratio for a batch of grout was 5 - 94 pound bags of Portland cement, 0.5 - 50 pound bag of powdered bentonite, and 30 gal of water. The water used to mix the bentonite/cement grout was obtained from the City of Kingsford water supply. Once the grout contents were mixed thoroughly, the grout mix was pumped into the tremie pipes and added to the borehole using the Moyno pump.

After the bentonite/cement grout was allowed to settle, the borehole was topped off, if necessary. The final 8 ft of soil boring annular space was then backfilled with sand or native material to allow for access to the well casing for the addition of transfer piping and subsequent connection to the groundwater treatment system.

Three general methods were used singularly or in combination for development of extraction wells at the Ford-Kingsford Products Facility Site. These methods consisted of air lifting, water jetting, and mechanical surging. Air lifting was used to “pump” the well or for surging. In both cases, compressed air was injected through a line placed into the well to lift water and sediment from the well. For pumping, air was introduced into the well on a continuous basis. For surging, air was injected into the well to lift the water to the surface and when it reached the surface the air supply was shut off, allowing the aerated water column to fall. Water jetting involved pumping water through a pipe and out a jetting tool at high velocities with nozzles positioned within the well screen. The high velocity jets forced the water outward through the well screen openings to agitate the formation particles surrounding the well screen. Mechanical surging involved inserting a tight fitting surge block into the well and moving the block upwards and downwards inside of the well casing to agitate the formation particles surrounding the well screen.

A combination of the methods was used during well development. Development did not proceed until at least 24 hours after placement of the cement grout to allow it to set.

The initial well development process typically began with air lifting to determine that groundwater could flow freely into the well screen and remove any residual sediment from the well installation. Once the well was initially cleaned, water jetting was added to the air lifting development procedure, if necessary. Thereafter, surging using the air lift or surge block method was phased in and alternated with water jetting and air lifting.

Periodic checks on the effectiveness of the development were conducted. Each check was conducted with the same air flow rate, the same submergence, and the same duration for each test. Tests were conducted on a well to well basis. The test usually lasted for 15 minutes and consisted only of airlifting. At the end of the 15 minutes of airlifting, the volume of water pumped was determined. This volume was compared to each progressive test to see if the well produced more water (increase in specific capacity) as the development process continued. Measurements of the amount and type of sediment being pumped were also taken, and the general grain size of sediment that had settled out (i.e., 50 percent silt, 30 percent fine sand, 20 percent coarse sand, etc.) was recorded.

After it appeared that the extraction well was sufficiently developed based on the periodic flow checks and clarity of the water, a 30-minute specific capacity test was conducted on each of the extraction wells to obtain a preliminary determination if the well had sufficient specific yield or required additional development. The test was conducted by using a Grundfos electric submersible pump and by metering the rate and volume of water produced compared to the water level drawdown in the well. The water level drawdown was measured using hand held water level indicators.

In addition to air lifting and jetting, Bentonite Mud Removal (BMR) chemical was used to assist in clay removal during the development. The BMR treatment was usually applied during the first day of development after initially cleaning out the well. In some cases, multiple BMR treatments were applied if abundant suspended sediment and lower well yield was present after the first BMR injection.

BMR is a surfactant chemical primarily composed of organic acids used in the breakdown and dissolution of clay or clay-sized particles smeared on the outer wall of the borehole. After the BMR has been introduced to the screened interval it was mechanically forced into the filter pack and out into the formation using mechanical or air surging methods. The mechanical surge method involved lowering a hollow surge block to 10- to 15-ft below the water level in the well and surging up and down repeatedly for approximately 20 to 30 minutes. The air surge method involved lowering an air line 10- to 25-ft below the water level in the well and alternately turning the air supply on and off for a period of approximately 20 to 30 minutes. The BMR was allowed to sit in the well for a minimum of 12 hours and then airlifted out of the well.

All development water was initially containerized in poly tanks at the well head. The development water was then transferred to the Ford-Kingsford Products Facility Phase II groundwater pretreatment system via high-density polyethylene (HDPE) lines, initially depositing the development water into a 20,000-gal storage tank for sediment settling. After the sediment had settled, the development water was slowly pumped into the treatment system along with the groundwater produced from the Phase II extraction wells.

5.5 Soil Vapor Probe Installation

A total of 476 soil vapor probes (19 during the EE/CA and 457 during the RI and additional activities) have been installed for the Study Area/AOC by ARCADIS as of December 2007. The locations of the soil vapor probes, along with select monitoring wells that are capable of also being used to monitor soil vapor, are shown on Figures 5-1, 5-3, and 5-4. Soil vapor probes are denoted as “GMSG”. A summary of the soil vapor probes, including the depth of the soil boring used to install the soil vapor probe and the interval of the probe screen, is presented in Table 5-1 (designated as “SG”). Most of the soil vapor probes, installed since 2003, are currently used as part of the commercial methane program, which are shown on Figure 5-4.

Designated soil borings were completed as soil vapor probes once the soil boring total depth below land surface had been reached, as determined by the field geologist. The soil vapor probes were completed to depths ranging from 0.9 to 88 ft bls. The screened intervals for the soil vapor probes were selected based on the field measurements of soil vapor identified during the drilling of the soil boring.

In general, each soil vapor probe was constructed inside of hollow-stem augers used to drill the soil boring. Soil vapor probes installed at shallow depths were often constructed inside of soil borings completed by hand augering. In some cases, the soil boring completion was deeper than the desired probe screen depth. In those cases, the bottom of the soil boring was filled to approximately 2-ft below the desired depth of the screen using bentonite chips, which were hydrated, and sand added on top of the bentonite prior to installation of the probe screen.

Soil vapor probes were generally constructed of 0.75 to 1-inch diameter Schedule 40 PVC. Screened intervals for the soil vapor probes ranged from 1- to 10-ft long and were factory cut similar to the screens used in the monitoring wells, generally 0.010-inch slot. In some instances where the soil vapor probe could also be used to vent methane, the soil vapor probe was constructed with 2-inch diameter Schedule 40 PVC. The PVC met ASTM D1785 specifications.

Following placement of the soil vapor probe screen and casing in the soil boring, a filter pack of clean, graded silica sand was placed in the annular space between the well and the borehole to a level at least 2 ft above the top of the well screen, and fine silica sand, up to 2 ft in thickness, was placed on the filter pack. A filter pack seal of approximately 10 ft of bentonite chips was added above the filter sand pack. An annular space seal consisting of a bentonite-cement grout was placed on the filter pack seal and extended to a depth approximately 1-ft below the frost zone. In soil vapor probes that were too shallow to accommodate 10 ft of bentonite chips and grout, a layer of bentonite chips was used to seal the soil boring annular space, and was immediately hydrated with water obtained from the City of Kingsford water supply.

At the surface, a concrete cap sloping away from the probe casing was installed in some instances, while additional bentonite chips and native soil were used in others. To protect the PVC well casing, either 4-inch diameter steel “stick-up” casings or 12-inch diameter aluminum or steel flushmount vaults were placed around the PVC probe casing prior to the concrete or native soil cap. Soil vapor probes were initially fitted with a sealable, locking cap and pad-lock. Later the soil vapor probes were fitted with a butterfly valve to ease monitoring activities and allow for pressure measurements without having to remove the caps. Soil vapor probe construction details are provided in Table 5-1 and a probe construction form for each soil vapor probe is included in Appendix C**.**

5.6 Water Level Monitoring

Water levels were measured and recorded numerous times from monitoring wells and piezometers during the investigations within the Study Area/AOC. Water levels were also measured from staff gauges installed in the Menominee River. The locations of the monitoring wells, piezometers, and staff gauges are shown on Figure 5-1. The purpose of these measurements was to determine groundwater flow directions and gradients, and fluctuations in the water levels within the Study Area/AOC. The water level measurements were used to calculate water elevations and construct hydrographs, which are discussed in Section 6.1.2.

Water levels were consistently measured from the north side top of each monitoring well casing using a clean water level measuring tape (manufactured by Solinst, Inc.) or recorded from a graduated face on the staff gauge. Water levels were measured to an accuracy of 0.01 ft. Prior to collection of the groundwater level measurements, monitoring wells were allowed to stabilize to static conditions. The water level measuring tape was cleaned with a laboratory detergent solution and distilled water rinse prior to each measurement from a well location.

5.7 Groundwater Sampling

The groundwater sampling conducted during the EE/CA, RI, and additional investigations included the collection of groundwater grab samples during the drilling of select soil borings and the collection of groundwater samples from installed and developed monitoring wells. Groundwater grab samples were selected as a method to characterize the groundwater quality at multiple depths at a single location, without requiring the installation of nested wells.

A total of 78 groundwater grab samples and duplicate quality control samples for laboratory analyses were collected from 41 soil borings completed during the EE/CA, RI, and additional investigations. Through December 2007, a total of 602 groundwater samples and duplicate quality control samples for laboratory analyses were collected from existing monitoring wells and from new monitoring wells installed during the EE/CA, RI, and additional investigations. In addition, over 450 samples were analyzed for quality control purposed such as matrix spike duplicate and trip blanks.

In general, groundwater samples from the monitoring wells were collected during two sampling events, October-November 1998 and April-May 1999, although many monitoring wells have been sampled individually for various purposes throughout the investigations. The groundwater grab samples and groundwater samples collected from the monitoring wells during the EE/CA, RI, and additional investigations are summarized in Tables 5-7 and 5-8, and the locations are shown on Figure 5-1.

The groundwater grab samples collected were analyzed for TCL VOCs and SVOCs, TOC, alcohols, methane, and other dissolved gases. The dissolved gases included: argon, CO_2, carbon monoxide, ethane, ethene, helium, hexanes, hydrogen, butanes, pentanes, methane, ammonia, oxygen, and propane.

Laboratory analyses of the groundwater samples collected from the monitoring wells included TCL VOCs and SVOCs, TOC, alcohols, aldehydes, organic volatile acids, dissolved TAL metals, methane, other dissolved gases (as listed above), PCBs, toxicity testing, and biogeochemical parameters. The biogeochemical parameters include: alkalinity, sulfide, sulfate, nitrate, nitrite, ammonia, chloride, silica, biochemical oxygen demand (BOD), chemical oxygen demand (COD), phosphate, and phosphorus. Groundwater samples were also collected from selected locations for treatability studies.

Groundwater analyses for TCL VOCs and SVOCs, TOC, TAL metals, and biogeochemical parameters were performed by ENCOTEC or STL Savannah. The closing of ENCOTEC in 1999 required the selection of STL Savannah as a second project laboratory. Dissolved gases were submitted to Isotech Laboratories, Inc. of Champaign, Illinois. Groundwater samples for treatability testing were submitted to Acurex Environmental.

The following procedure was used to collect a groundwater grab sample during the drilling of a soil boring. When the geologist identified an interval for collection of a grab sample, drilling was discontinued and the sample barrel and inner drill rod were withdrawn from the outer casing. A downhole assembly consisting of a 5-ft long by 2-inch diameter stainless steel well screen and O-ring packer was placed into the outer casing, positioned at the interval to be sampled, and the outer casing pulled back to expose the well screen to the formation. A Grundfos stainless steel 2-inch diameter submersible pump and plastic tubing was positioned on top of the downhole assembly and groundwater was purged from the interval to ensure a representative sample was collected.

During purging, the water level within the outer casing, temperature, pH, and specific conductance were monitored and allowed to stabilize. The stabilized field parameters taken prior to commencing collection of the groundwater grab samples are provided in Table 5-9. Note that some of the field parameters, most notably temperature, may not be representative of conditions in the subsurface. This is because the sampling procedure required the field parameters to be measured at the surface. Once purging was complete, the groundwater grab sample was obtained through the tubing and placed into the sample container.

The sample containers were provided by the project laboratory and met the criteria identified in the U.S. EPA *"Specifications and Guidance for Obtaining Contaminant-Free Sample Containers,"* April 1992, OSWER Directive 9240.0-05A. Samples for dissolved metals analyses were filtered in the field prior to being placed in the acidified sample containers. Upon collection, the groundwater grab samples were placed on ice in a cooler and submitted under chain-of-custody protocol to the appropriate project laboratory for the analytical testing required. The downhole assembly, pump, and tubing were steam cleaned prior to and between each sampling use. The sampling pump and tubing were also decontaminated with a detergent solution and distilled water rinse between each sampling use.

The groundwater samples were collected from the monitoring wells using low-flow purging and sampling techniques. A Bennet air-piston positive displacement pump (Model 1800), a Keck variable speed progressive gravity pump (Model SP-84), or a Masterflex peristaltic pump (Model L/S 7570-10) were used to achieve the low-flow purging and sampling. Hydrolab (Model Surveyor 4) or YSI (Model 610 XL) water probes were placed down the well casing or in flow-through cells, to monitor temperature, pH, specific conductance, dissolved oxygen (DO), and redox potential during purging. Water levels were also monitored during purging to ensure unacceptable drawdown within the monitoring well did not occur.

The monitoring wells were purged at a rate between 100 and 500 ml per minute. Once the field parameters stabilized, the monitoring well was sampled by continuing the low flow and filling the sample containers directly from the pump tubing. The field parameters at the time of groundwater sample collection from the monitoring wells are provided in Table 5-10. Some of the field parameters, most notably temperature, may not be representative of conditions in the subsurface, due to the low flow of groundwater through the cell where the field parameters were measured at the surface. Upon collection, the groundwater samples were placed on ice in a cooler and submitted under chain-of custody protocol to the appropriate project laboratory for the analytical testing required. Ferrous iron in the groundwater sample was measured in the field using a Hach ferrous iron test kit, Model IR-18A.

The pumps and tubing were decontaminated with detergent solution wash and distilled water prior to and between each sampling use. New silicone and polyethylene tubing were used with the peristaltic pump for each monitoring well sampling and discarded after each sampling event. Vinyl gloves were worn by the sampling personnel and discarded after each sampling. The water collected during the monitoring well purging and sampling was contained in plastic buckets or steel drums and transported to a central staging area, where it was stored until it was subsequently discharged to the IMK WWTP.

5.8 Surface Water Sampling

Surface water samples were collected during the RI from the Menominee River to determine water quality in the river relative to constituents with concentrations above certain Michigan final chronic value (FCV) criteria in monitoring wells located near the river. The surface water samples were collected on August 5 and 6, 1999 along three traverses perpendicular to the Menominee River. The 15 surface water samples collected from the Menominee River are summarized in Table 5-11. The locations of the surface water samples are shown on Figure 5-5.

A pontoon boat was used to facilitate surface water sampling in the river. Once the boat was anchored into position at the selected sampling point, the water depth at the sampling point was measured with a weighted measuring tape. Water samples were collected at two depths in the water column, one at 24-inches below the water surface and one at 6-inches above the river bottom. In instances where the water depth of the river was less than 30-inches deep only one surface water sample was collected, at a depth of 24-inches below the river surface.

The surface water samples were collected using a Masterflex peristaltic pump (Model L/S 7570-10) and new silicone tubing and polyethylene tubing, which were discarded after each sampling point. The tubing was positioned at the appropriate depth by attaching the tubing to a weighted rope. Surface water was purged through the sampling tubing for 2 to 3 minutes prior to sampling. The surface water was sampled at a flow rate of approximately 500 ml per minute directly into the sample containers. The sample containers were provided by the project laboratory and met the criteria identified in the U.S. EPA *"Specifications and Guidance for Obtaining Contaminant-Free Sample Containers,"* April 1992, OSWER Directive 9240.0-05A. Vinyl gloves were worn by the sampling personnel and were discarded after each sample collection. The temperature, pH, and specific conductance of the surface water were recorded after each sample was collected using Cole Palmer pH Tester 2 and TDS Tester 20 probes.

Following collection, the surface water samples were placed on ice in a cooler and submitted under chain-of custody protocol to STL Savannah for the analysis of 2,4-dimethylphenol, 2-methylphenol, phenol, formaldehyde, organic volatile acids, barium, vanadium, hardness, and suspended solids. Several surface water samples were also submitted for silica and select anion analysis. These analytical parameters were selected based on the results of the previous sampling completed by the MDEQ in the Menominee River, which are discussed in Section 3.11.4.

5.9 Specific Capacity Testing

Specific capacity tests were performed in conjunction with the monitoring well development activities for select monitoring wells installed during the EE/CA and RI. The purpose of the specific capacity tests was to determine the hydraulic properties of the deposits beneath the Study Area/AOC. The groundwater level responses to pumping in the monitoring wells were analyzed to estimate the specific capacity of the monitoring wells and the resultant transmissivity and hydraulic conductivity of the deposits surrounding the well screen.

In addition to the specific capacity tests conducted during the monitoring well development, 6-hour pump tests were completed on two extraction wells (GMEW-1 and GMEW-2) from August 1 to 4, 2000. Data collected during these pump tests were used to verify the hydraulic properties of the deposits beneath the Study Area/AOC.

The methodology used to calculate the transmissivity and hydraulic conductivity using the specific capacity data is described in Appendix D. The input parameters used and the results of the calculations for the monitoring wells that were analyzed are shown in Table 5-12. The aquifer thickness and screen length values determined from the monitoring well logs are also shown in Table 5-12. Details of the equipment and procedures used during the specific capacity tests and the 6-hour pump tests are also included in Appendix D.

5.10 Geophysical Surveys

During the EE/CA investigations, several geophysical surveys were conducted which used seismic reflection and GPR methodologies to assist in the study of the subsurface geology.

The seismic reflection geophysical survey was performed within the Study Area/AOC to evaluate the depth to bedrock and profile of the bedrock surface. The information from the seismic reflection survey supplemented the depth to bedrock measured at soil borings.

The GPR geophysical surveys were performed as part of the unsaturated zone studies. The first goal of the GPR surveys was to determine if this technology could be used as a tool to locate the presence of silt units in the unsaturated zone. The presence of shallow silt units can act as a barrier, which may prevent the release of gas-phase methane from the deeper unsaturated zone to migrate to shallower depths in those areas where there are either upward gradients and/or methane above the solubility limit in the groundwater. A second goal of the GPR surveys was to determine if the technology would reveal the potential location of gas-phase methane accumulations in the unsaturated zone.

5.10.1 Seismic Reflection

Fromm Applied Technologies of Mequon, Wisconsin conducted the seismic reflection survey from September 15 through October 1, 1997, with the assistance of ARCADIS. The seismic reflection survey consisted of three seismic lines totaling approximately 20,000 linear feet (3.8 miles). The locations of the seismic reflection lines are shown on Figure 5-6. The lines are referenced as:

1. Balsam line.

2. East to west line.

3. Menominee River line.

The Balsam line trended north to south across the Study Area along Balsam Street. That line was split into two sections at Breitung Avenue. The east to west line trended from Westwood Avenue to Balsam Street in the vicinity of the pit areas. The Menominee River line paralleled the Menominee River on the western and southern sides of the Study Area (Figure 5-6).

The seismic reflection survey consisted of establishing sensors (known as geophones) at a regular spacing along the survey line, then using a mobile impact device to create the pressure wave (shotpoint) that is monitored at the sensors. The seismic reflection survey utilized a Geometerics 48 channel floating point seismograph, a Bison elastic wave generator pulled by a Ford diesel tractor, and Mark 40 hertz (Hz) geophones connected to cables with swamp connectors and 10 ft take-out spacings. Fromm Applied Technologies processed the reflection data on Eavesdropper software, licensed by the Kansas Geological Survey.

After processing, the data was filtered with a bandpass of 25 to 150 megahertz (MHz), edited, muted, sorted, and corrected for surface elevations. A velocity scan was then completed on the sorted and corrected data. From the velocity scan a set of stacking velocities was chosen to provide the best interpretive results and a filtered and automatic gain controlled stacked section was generated from the selected stacking velocities. Additional details of the data collection, data processing, and theory of the geophysical seismic reflection survey are also presented in the Fromm geophysical report, included as Appendix E. The Fromm geophysical report, including all geophysical data, was submitted separately to the MDEQ on February 7, 2001.

5.10.2 GPR

The GPR program within the Study Area consisted of a pilot GPR survey and a second expanded GPR survey in the vicinity of Monitoring Well GM-2A. Fromm Applied Technologies conducted the GPR surveys with assistance provided by ARCADIS. A total of 29 GPR lines were recorded. The locations of the GPR lines are shown on Figure 5-6.

The pilot GPR survey was conducted in the Study Area from August 6 through 8, 1997. A total of 14 lines were recorded in conjunction with the pilot test. The pilot test included an electro-magnetic (EM) survey to determine if data acquisition would be possible with GPR. Based on the results from the EM, the GPR pilot test was initiated. This pilot consisted of five test lines, six production lines, and three duplicated lines using different collection parameters. The 14 lines covered approximately 30,000 linear feet (5.7 miles).

An expanded GPR survey was conducted in the vicinity of Monitoring Well GM-2A from October 29 through November 2, 1997. A total of 15 GPR lines were recorded as part of the expanded survey, which covered approximately 30,500 linear feet (5.8 miles).

The GPR surveys utilized a pulse EKKO IV GPR system manufactured by Sensors & Software, Inc. The data acquisition, field output, processing, and data storage used a laptop computer. The GPR surveys were digitally recorded along transect lines. An approximate 3 to 4 ft step size (station spacing), a 1,000 volt pulser voltage, a 128 stack record, and a reflection survey mode were used for each transect line. The collection antennas ranged from 50 to 200 MHz. The 100 MHz antenna was determined to be the best frequency to collect data. The antenna coil spacing for the 50 MHz acquisition was approximately 7.5 ft, the 100 MHz acquisition was approximately 3.75 ft, and the 200 MHz acquisition was approximately 2 ft. Each trace recorded had a 500 nanoseconds (ns) total time window assuming an average velocity of 0.492 feet per nanosecond. The GPR lines were corrected for the variations in elevation. Additional details of the collection, processing, and theory of the GPR survey are presented in the Fromm Applied Technologies geophysical report, included as Appendix E.

5.11 Soil Vapor Monitoring and Sampling

During the EE/CA, RI, and additional investigations, soil vapor was monitored in the soil vapor probes and select monitoring wells through field measurements, and samples of the soil vapor in the unsaturated zone were collected for laboratory analysis. The locations of the soil vapor probes and monitoring wells used for monitoring are shown on Figures 5-3 and 5-4. The field measurements monitored the pressure/vacuum of the soil vapor and determined a limited composition that included methane, CO_2 and O_2. In addition, several field measurements were performed for H_2S.

The laboratory soil vapor samples were submitted for analysis of argon, CO_2, carbon monoxide, ethane, ethene, helium, hexanes, hydrogen, butanes, pentanes, methane, N_2, O_2, and propane. Several samples of soil vapor were submitted for VOC analysis, including samples from the discharge line of the Emmet and Breen SVE systems and several passive vents. A summary of the soil vapor samples submitted for laboratory analyses is presented in Table 5-13. In addition, three soil vapor samples were collected for carbon age dating.

The field measurements of the pressure/vacuum at each soil vapor probe were collected using a magnehelic pressure gauge or a digital manometer (Dwyer Instruments). Composition of the soil vapor was determined in the field using a gas meter, Landtec Model GA-90. During the measurements, silicone tubing was placed onto a stop valve on each of the soil vapor probes, connected to the pressure gauge or Landtec, and the probe valve opened. The Landtec is equipped with an internal pump that was used to evacuate the soil vapor from the probes until soil vapor levels had stabilized (typically from between 3 to 5 minutes). The Landtec measured the percent methane, CO_2, and O_2 in the soil vapor. Atmospheric pressure data, corresponding to the date and time of the field measurements, was obtained from the weather station at the Ford Airport.

The soil vapor samples for laboratory analyses of gases were collected using a hand held bladder pump and silicone tubing. The probe or well to be sampled was opened and allowed to vent or was actively purged by the use of a NuTech air pump (Model 218). The tubing and pump were then attached to the probe/well riser and the vapor was purged through the sampling equipment with the bladder pump. Once purging was complete, the vapor sample was obtained through the pump and tubing and directly placed into clean (Cali-5 bond) bags supplied by the laboratory. Following collection, the vapor samples were submitted under chain-of-custody protocol to

Isotech Laboratories Inc. of Champaign, Illinois for analysis. Disposable vinyl gloves were worn by sampling personnel and discarded between each sampling location.

The soil vapor samples for laboratory analysis of VOCs were collected using silicone tubing. The soil vapor probe to be sampled was opened and allowed to purge, then the silicone tubing was attached. In the case of the SVE systems, the tubing was attached to the discharge line of the system through a sample port. A composite vapor sample for the Breen SVE system from Extraction Wells EW-1 through EW-9 was collected from a sampling port in the system's shed. To collect the soil vapor sample, the tubing was connected to a 1-L steel summa canister that was supplied by the laboratory. The sealed summa canister was provided under a vacuum and when the soil vapor sample was to be collected, the valve of the canister was opened and the vacuum of the canister pulled the soil vapor sample into the container until it was properly filled. Following collection, the vapor samples were submitted under chain-of custody protocol to STL Savannah for VOC analysis. Disposable vinyl gloves were worn by the sampling personnel and discarded between each sampling location.

5.12 Test Pit Completion

Test pits were completed during the RI at the RDA, in the areas of the NE Pit and SW Pit, and at the FPS to determine the presence and extent of waste material. The locations of test pits are shown on Figure 5-7 and summarized in Table 5-1. The pits were also used to observe the makeup of the remaining waste material. The test pits were completed by Bacco Construction Company of Iron Mountain. ARCADIS field representatives conducted visual inspections of the test pits from the ground surface, without entering into the test pit. Air monitoring was conducted at the test pit opening during the excavations, generally using a Neotronics or Bacharach explosimeter and a FID.

At the RDA, 16 test pits were completed on June 25, 1998 and July 12, 1999. A typical test pit dimension was 12- to 13-ft long by 5- to 6-ft wide by 10- to 14-ft deep. Upon completion of a test pit, the soil and fill material were returned to the excavation. Subsequently, the surface areas of the former test pits were covered with clean bank sand and graded comparable to the original surface. Analytical samples were not collected from these test pits, since the test pits were used to visually define the extent of the fill material, not to supply samples for chemical analysis.

In the areas of the NE Pit and SW Pit, ten test pits were completed on October 21, 1998 and two test pits were completed on November 2 through 6, 1999. The objective of these test pits was to delineate the vertical extent of subsurface wood tar at locations where wood tar had been previously observed at the surface. An additional 20 test pits were completed on August 21 and 22, 2000 at the NE Pit to delineate the horizontal extent of the waste material. Two additional test pits were completed at the NE Pit on March 6, 2002.

The test pit dimensions were variable, but generally ranged from approximately 10- to 20-ft long, by 5- to 16-ft wide, by 8- to 11-ft deep; however, two test pits completed in the vicinity of the northeast corner of Lodal Park were significantly larger, approximately 60-ft long by 15-ft wide by 12 ft-deep.

Upon completion of the test pits, the soil and fill material were returned to the excavation and the surface was graded comparable to the original surface, where waste material was not encountered in the test pit. Where waste was encountered in the test pit, the waste material was segregated to the extent practical, and either loaded into a dump trailer or stockpiled on site. Test pits, where wood tar and fill material were removed, were also graded similar to original land surface with clean surficial soil from a gravel pit located to the west of the NE Pit. Great American Disposal (GAD) of Kingsford, Michigan transported the waste material and wood tar that were removed from the test pits to the Browning-Ferris Industries (BFI) Lake Area Landfill in Sarona, Wisconsin for disposal.

At the FPS, four test pits were completed on January 8, 2002, and two additional test pits were completed on April 16, and May 7, 2002. The objective of these test pits was to delineate concrete troughs associated with the former distillation building, as well as a concrete culvert that ran to the NE Pit. Some areas of the troughs and culvert contained wood tar with other fill material. The concrete, wood tar, and fill material were removed from the test pits and the test pits were graded similar to original land surface with clean surficial soil from a gravel pit located to the west of the NE Pit. GAD of Kingsford, Michigan transported the material that was removed from the test pits to the BFI Lake Area Landfill in Sarona, Wisconsin for disposal.

5.13 Site Mapping and Surveying

A detailed topographic and cultural base map with a designated coordinate system had been prepared by photogrammetric methods during the EE/CA activities. The maps for the Study Area/AOC were produced by Abrams Aerial Survey Corporation of Lansing, Michigan from an aerial survey conducted over the Study Area on May 4, 1997. During the RI activities, additional data from the aerial survey from areas west and south of the

Menominee River were incorporated into the topographic and cultural base map. On May 4, 2005, an additional aerial survey was completed by Abrams, which updated the cultural features of the Study Area and allowed the topography to be viewed in greater detail.

The base map features are posted in the Michigan State Plane coordinate system. The elevations on the topographic map are referenced to the National Geodetic Vertical Datum of 1988 (ft msl). The topography is contoured at 5.0-ft intervals. However, the topography is available in 2.0-ft intervals from the additional mapping that took place in 2005. A copy of the topographic map is provided on Figure 3-3.

The locations and elevations of the new soil borings, monitoring wells, piezometers, soil vapor probes, surface soil samples, and test pits were surveyed by Sundberg, Carlson, and Associates, Inc. of Marquette, Michigan and added to the basemap. Multiple surveying events have occurred since August 1998 through December 2007, generally as new locations are completed.

Three survey measurements were collected at each new monitoring well, piezometer, and soil vapor probe: the Michigan State Plane Coordinates, land surface elevation at the north side of the protective casing, and the riser pipe elevation at the north side top of casing. Many of the initial soil vapor probes were also measured with these three measurements, but soil vapor probes associated with the commercial methane program often were only surveyed for Michigan State Plane Coordinates and the land surface elevation at the north side of the protective casing. Survey measurements at the soil borings, surface soil sampling points, and test pits included Michigan State Plane Coordinates and land surface elevation. Michigan State Plane Coordinates were surveyed to the nearest $\pm$0.10 ft and elevation measurements were surveyed to the nearest $\pm$0.01 ft. Survey data for the soil borings, monitoring wells, soil vapor probes, etc. are summarized in Table 5-1, and their locations are plotted on the base map shown on Figure 5-1.

5.14 Laboratory Analytical Testing

The EE/CA, RI, and additional investigation activities included laboratory analysis of surface and subsurface soil samples, waste samples, surface water and groundwater samples, and soil vapor samples. The ENCOTEC, STL Savannah, Acurex, and Isotech laboratory operations managers coordinated laboratory analyses, supervised in-house chain-of-custody, scheduled sample analyses, oversaw data review, and oversaw preparation of analytical reports.

The specific analytical parameters, the laboratory analytical methods used, and the laboratory quantitation limits for soil and groundwater samples used for the EE/CA and RI are indicated in Table 5-14. The sample parameters that were analyzed were those established by the U.S. EPA during the EE/CA investigations and the parameters designated by the MDEQ in the RI Work Plan during the RI. Standard operating procedures used by the laboratory are based on analytical methods published in SW-846 and U.S. EPA Methods for Chemical Analysis of Water and Wastes or standardized laboratory procedures.

The subsurface soil samples were analyzed for TCL VOCs and SVOCs, TOC, PCBs, and select metals. Additionally, selected subsurface soil samples were collected for treatability studies and bacteria count, and several subsurface soil samples were analyzed for geotechnical parameters that included hydraulic conductivity, bulk density, porosity, permeability, TOC, and grain size.

The surface soil samples were analyzed for TCL VOCs and SVOCs, and select metals. In addition, surface soil samples collected from the NE Pit area were also analyzed for PCBs and alcohols.

The waste samples were analyzed for TCL VOCs and SVOCs, TOC, alcohols, aldehydes, organic volatile acids, and select metals. In addition, the waste samples were analyzed using TCLP and SPLP methods. The TCLP analyses included TCL VOCs and SVOCs, alcohols, aldehydes, and select metals. The SPLP analyses included TCL VOCs, and SVOCs, alcohols, aldehydes, organic volatile acids, TOC, and select metals. Several waste samples were also analyzed for isotopes that included Actinium-228, Uranium 234-235-238, and Radium-226.

The groundwater grab samples were generally analyzed for TCL VOCs and SVOCs, TOC, alcohols, methane, and other dissolved gases. The dissolved gases included: argon, CO_2, carbon monoxide, ethane, ethene, helium, hexanes, hydrogen, butanes, pentanes, methane, N_2, O_2, and propane. Several of the groundwater grab samples were also analyzed for COD, BOD, sulfate, and specific gravity.

Laboratory analyses of the monitoring well groundwater samples included: TCL VOCs and SVOCs, TOC, alcohols, aldehydes, organic volatile acids, dissolved TAL metals, methane, other dissolved gases (as listed above), and biogeochemical parameters. The biogeochemical parameters included: alkalinity, sulfide, sulfate, nitrate, nitrite, ammonia, chloride, silica, BOD, COD, phosphate, and phosphorus. Groundwater samples were also collected from select monitoring wells for treatability studies and bacteria count. In addition to the parameters listed, several of the groundwater samples collected from monitoring wells along the Menominee River were subjected to Whole Effluent Toxicity (WET) testing.

The surface water samples were analyzed for 2,4-dimethylphenol, 2-methylphenol, phenol, formaldehyde, organic volatile acids, barium, vanadium, hardness, and suspended solids. Several surface water samples were also analyzed for silica, select anions, and WET testing.

Laboratory analysis of soil vapor samples included: argon, CO_2, carbon monoxide, ethane, ethene, helium, hexanes, hydrogen, butanes, pentanes, methane, N_2, O_2, and propane. Several of the soil vapor samples were also analyzed for VOCs. The analytical parameters for the soil vapor VOC analysis and quantitation limits differ from those for soil and water and are included in Table 5-15. In addition, two soil vapor samples were submitted for carbon age dating, from the USGS probe in the quarry and Monitoring Well GM-2A.

Due to the closing of ENCOTEC in 1999, STL Savannah was selected as the project laboratory. The original analytical parameters remained unchanged; however, several quantitation limits changed. Specifically, most of the quantitation limits provided by STL Savannah Laboratories were lower than those provided by ENCOTEC. However, there was an increase in the quantitation limits for VOCs for the soil samples collected in 1999. This increase was due to an MDEQ-requested sampling method change, which included field methanol preservation of soil during sample collection.

5.15 Data Validation

The validation of laboratory results from samples analyzed for this investigation included an evaluation of the holding times, blank constituents, and surrogate recoveries. Qualification of the data was performed following the quality assurance/quality control criteria set forth in the Quality Assurance Project Plan (QAPP), and the U.S. EPA CLP National Functional Guidelines for Organic Data Review, revised February 1993, and U.S. EPA CLP National Functional Guidelines for Inorganic Data Review, revised February 1994.

Results were qualified as “not detected” if a constituent was reported in an associated blank at an equivalent level (i.e. the sample concentration was within 5 to 10 times the blank concentration). Results were qualified as “estimated” and flagged with a “J” if the concentration detected was greater than the method detection limit but less than the practical quantitation limit, or if holding times were out of control limits.

In some instances laboratory results were found to be unusable. If the surrogate recoveries or holding times for a constituent were severely exceeded or out of control limits (surrogate recoveries less than 10 percent or holding times over 14 days out of control limits) the results for that constituent were qualified as "unusable" and replaced with an "R" for rejected. Specific constituents have differing surrogate recoveries or hold times; therefore, a recovery out of the control limit or hold time for a specific constituent does not necessarily result in the rejection of the entire analytical list, only the constituents in question. The limits for rejection and hold times are those defined in the RI Sampling and QAPP.

Additional qualifiers provided by the laboratories are defined in the data tables in this report. The overall quality of the data collected was considered acceptable including sample duplicate and trip blank results.

5.16 Laboratory Treatability and Microbiological Tests

Laboratory treatability tests were performed on select soil and groundwater samples by the ARCADIS laboratory in Research Triangle Park, North Carolina.

The material and methods used during the treatability tests are presented in Appendix F. Two treatability tests were performed that included:

- Alternate terminal electron acceptor evaluation.
- Anaerobic and aerobic toxicity study.

The purpose of the alternate terminal acceptor evaluation was to determine whether the addition of the alternate electron acceptors O_2 (as H_2O_2), NO_3^-, and SO_4^{2+} would promote biodegradation of carbon, without the production of methane. This was accomplished by encouraging bacterial competition between bacteria that use O_2, NO_3^-, and SO_4^{2+} to degrade organic material, and bacteria that generate methane during the degradation of organic material.

The soil sample used for the alternate terminal electron acceptor evaluation was collected from Soil Boring GMSB-1 from a depth of 307 to 317 ft bls. After being removed from the borehole, the soil was placed in a 5-gal bucket, covered with distilled water and shipped via overnight carrier to the laboratory. Groundwater for the alternate terminal electron acceptor evaluation was collected from Soil Boring GMSB-1 from a depth of 307 ft bls.

The purpose of the anaerobic and aerobic toxicity study was to evaluate the toxicity of groundwater collected from Monitoring Well GM-2B to active anaerobic and aerobic bacterial systems. The groundwater was collected using low-flow methods, as previously described in this document.

5.17 Residential Well Abandonment

To eliminate the potential use of or contact with impacted groundwater, ARCADIS conducted a residential well survey in 1999 to identify and abandon residential water wells within the Study Area. The locations of 16 residential wells were provided by representatives of the City of Kingsford and from citizen responses to a Study Area-wide mailing of a residential well questionnaire. Efforts to locate all 16 wells and obtain permission for abandonment were implemented; however, four wells did not exist. Figure 5-8 shows the locations of the 12 residential water wells that were abandoned.

In September 1999, Klieman Pump & Well Drilling, Inc. (Klieman) of Iron Mountain, Michigan was retained by ARCADIS to properly abandon the residential water wells. The well abandonment was done in accordance with the Michigan Department of Public Health (MDPH) Code, Act 368, P. A. of 1978, Part 127, known as the Groundwater Quality Control Act, and its Administrative Rules. An ARCADIS geologist supervised the well abandonment activities.

Upon arrival at each residential water well location, representatives from Klieman removed all pumping equipment from the well, measured the depth to water, and measured the total depth of the well. After the pumping equipment was removed, any debris remaining in the well was removed to the extent possible. Neat cement grout was then mixed in a ratio of 6 gal of water to one 94-lb bag of Portland cement and tremied down a pipe into the water well. The cement grout was left for 48 hours to settle and harden. If the cement grout settled during this time, additional cement grout was added to top off the well. Each well casing was cut off at 2 ft bls after the grout hardened, and the ground surface was then restored to its prior condition. A MDPH Abandoned Well Plugging Record log was completed for each residential well abandonment and submitted to the MDPH and MDEQ. A copy of each log is included in Appendix G.

5.18 3-D Modeling/Visualization

Three dimensional (3-D) models were developed using data collected from the Study Area to present the subsurface geology within the Study Area/AOC and the distribution of several of the signature chemical constituents present in the groundwater. The purpose of the geologic model is to provide a better understanding of the subsurface geology than when viewed in 2-dimension and give a better indication of the distribution of the geologic units. The purposes of the chemical models are to aid in understanding the chemical distribution within the groundwater system and define areas where chemical concentration values may be above the generic Part 201 criteria and warrant attention.

Hydrogeologic data (boring data collected from the field) and a synoptic set of groundwater quality data were modeled using the Geostatistical Software Library (GSLIB, Deutsch and Journal, 1997) and the Environmental Visualization System (C Tech Development Corp., 1999). GSLIB, developed at Stanford University, is a well-documented geostatistical software library package. Numerous FORTRAN programs were included for analysis of geological and chemical data. Environmental Visualization System (EVS), developed by C Tech Development Corporation, is a modeling and visualization/animation package, which includes numerous tools for analysis and visualization of environmental data and systems. The EVS window-based graphical user interface, integrated with hundreds of modular analysis and graphics routines, provides users an easy and concise way to customize their analysis and visualization applications.

The hydrogeologic model was completed in three steps. First, the site-wide hydrogeologic data collected from the boreholes in the Study Area were analyzed using the variogram analysis program of GSLIB. The variogram analysis provided the statistical information on Site-specific hydrogeologic characteristics. Second, the statistical information was incorporated in the sequential indicator simulation program of GSLIB to generate a series of randomly distributed hydrogeologic scenarios. From these simulated scenarios, one was selected that most-closely replicated the conceptualized hydrogeologic setting based on boring data, geologic cross sections, and isopach maps. Then the chosen scenario was adjusted to account for bedrock and land surface elevations. The model-simulated land and bedrock surfaces were generated separately using a 2-dimensional kriging program that incorporates pertinent surveyed information. The resulting model was subsequently followed by 3-D visualization/animation using EVS.

The modeled plumes for methane and TOC were completed in two steps. First, the groundwater quality data for methane and TOC were analyzed using the variogram analysis program of GSLIB. The variogram analysis provided the statistical information on the Site-specific methane and TOC plume.

A representative chemical concentration was used for the groundwater quality data where multiple chemical concentrations were available from a monitoring well. To be conservative, the representative chemical concentration value from the groundwater quality data that was used to construct the chemical model was the highest value of that chemical concentration measured from the laboratory analysis. In cases where the highest chemical concentration value was not substantiated by the results of multiple sampling of a well, the value of the second highest chemical concentration was used. Otherwise, the highest value of the chemical concentration was always selected as the representative chemical concentration. Tables with the chemical concentration values used to construct the chemical models will be included in Appendix H. Non-detectable chemical concentrations from a monitoring well were assigned a value of 0.001 mg/L or μg/L dependent upon units, in order to construct the extent of the detectable levels of the chemical plumes.

Second, the statistical information and parameters were incorporated into EVS to generate the most-likely methane and TOC plumes using the 3-D kriging module of EVS. The methane and TOC plumes were generated within a 3-D domain delineated by the modeled land surface and bedrock surface (using the 2-dimensional kriging module of EVS based on pertinent surveyed information). Using this integrated method, the modeled methane and TOC plumes accounted for the Site-specific variations of land surface and bedrock topography.

Similar to methane and TOC, the modeled plumes for 2,4-dimethylphenol, 2-methylphenol, 4-methylphenol, 2-butanone, acetone, and acetic acid were completed in two steps: variogram analysis and modeling/visualization. The groundwater quality data for each of these constituents were analyzed using the variogram analysis module of EVS for Site-specific statistical information. This information was then used to generate the most-likely 3-D plume using the 3-D kriging module of EVS. Because the land surface and bedrock topography were incorporated in the kriging process, the simulated plumes accounted for Site-specific variations of land surface and bedrock surface.

Several additional control points were applied to the chemical model construction based on the results of the groundwater quality data obtained from the monitoring wells and to account for the upward vertical component of the groundwater gradient along the Menominee River. After the first construction of a chemical model, the results were quality checked with the results from the groundwater quality data. If there was a discrepancy between the known results of the groundwater data and the results of the model, an additional control point was assigned to that area to make a match between the model and the known groundwater data. An additional control point was used only in an instance where there was a difference between the model results and known groundwater data points. A list of the location and value assigned to the additional control points for each of the chemical constituents that was modeled is included in Appendix H for reference.

Discussion of the simulated hydrogeologic system and the contaminant distributions are included in Section 6.2, of this report. Animation files of the topographic surface, bedrock topographic surface, soil boring control points, the geologic model, the chemical plumes, and various sectional cuts across the Study Area are included on a CD in Appendix H.

5.19 Soil Vapor Pilot Evacuation Tests

During the RI activities, soil vapor has been extracted from the subsurface within the Study Area/AOC, using pilot evacuation tests. Passive venting and active venting were used to remove the soil vapor. Details of the procedures used for the venting activities are discussed below.

5.19.1 Passive Venting Tests

Several pilot passive venting tests were conducted in selected portions of the Study Area during the period from June 15 through July 27, 1999. These tests had several objectives including the following:

- Reducing the mass of methane currently in the area.
- Determining if gas-phase methane pockets identified were a result of long-term accumulation that is no longer occurring or ongoing methane generation.
- Determining the connectivity of the geology in the area and the pathways of gas-phase methane migration.

- Determining if passive venting could effectively mitigate the gas-phase methane.

The following soil vapor probes were included in the passive venting program. These vapor probes are shown on Figures 5-1 and 5-3 (GM-24B, GM-30, GM-33, GM-43, GM-45, GM-46, GM-48, GM-50, GM-52, GM-100, GMSG-109, GMSG-112, GMSG-116, GMSG-117, GMSG-128, GMSG-215:

The passive vents were configured in one of the two following ways:

1. The soil vapor probe was extended to a height of at least 10-ft above ground surface using PVC riser and then a 3 3/8-inch diameter, 10-ft tall, iron casing pipe was installed over the PVC riser to protect it from damage. The 10-ft protective casing pipe was secured to the standard 3-ft protective casing with a padlock. Monitoring Wells GM-30, GM-43, GM-45, GM-46, GM-48, GM-52, and GM-100, which were used as soil vapor probes, were retrofitted with this vent configuration.

2. A 3-inch diameter PVC sleeve, approximately 1.5- to 2-ft long, was driven into the soil surrounding the probe. A plexiglass well cover was constructed for use with the vents. A 3-inch diameter hole was cut in the plexiglass. A flagpole, with a 3-inch diameter base and 20-ft tall, was placed through the hole in the plexiglass and into the PVC sleeve. The flagpole acted as the vent for the probe. The gold anodized ball was left off of the top of the flagpole and a 1-inch diameter hole was bored through the pulley system assembly to allow the methane to vent. The one exception to this configuration was that the flagpole used for the vent at GMSG-112 was 2 inches in diameter. As such, the plexiglass had a 2-inch diameter hole. Additionally, the PVC anchor sleeve had a 2-inch outer diameter and slid inside of the flagpole. Monitoring Wells GM-24B, GM-33, and GM-50 and Soil Vapor Probes GMSG-109, GMSG-112, GMSG-116, GMSG-117, GMSG-128, and GMSG-215 were retrofitted with this vent configuration.

For both configurations, two flammable warning signs were attached to each passive vent.

To monitor the first type of vents, personnel used a ladder to access the top of the vent and then followed the same methodology used to monitor the soil vapor probes, previously described in Section 5.10. To monitor the second type of vents, personnel removed the flagpole from the PVC sleeve, set the pole on the ground, and then used the same methodology to monitor the vents as was performed with the soil vapor probes.

To prevent the passive vents from freezing shut during winter venting, several of the flagpole configurations were fitted with heat tracing, fixed flowmeters, and sample ports so that the field screening measurements could be made without removing the flagpole. The following monitoring wells and soil vapor probes have been fitted for winter venting: GM-24B, GM-33, GM-50, GMSG-116, GMSG-117, GMSG-128, and GMSG-215.

During the passive venting, other probes that were not used for venting around a passive vent were also monitored. These probes were monitored in the same manner as the routine soil vapor monitoring.

All of the probes in the RDA were monitored. The following is a list of monitoring wells monitored as soil probes in the RDA (not including the passive vents): GM-44, GM-47, GM-49, GM-51, GM-54, GM-55, GM-57, and GM-58 (Figures 5-1 and 5-3).

The passive venting pilot test for the rest of the Study Area was broken up into segments. Below is a list of the vents and the probes that were monitored during the passive venting in the remainder of the Study Area for each segment:

Segment 1 (June 15 to July 13, 1999):

Vent	Monitoring Points
Breen Area • GMSG-112 • GMSG-128	• GM-100 • GMSG-108 • GMSG-109 • GMSG-130 • GMSG-131 • Breen SVE system influent
Upper Terrace • GM-50 • GM-52 • GMSG-117	• BR-4 • GM-33 • GMSG-116 • GMSG-118B • GMSG-118C • GMSG-123 • GMSG-124 • GMSG-125B

Vent	Monitoring Points
Emmet Area • GM-24B	• GM-24A • GMSG-202 • GMSG-214 • GMSG-215 • Emmet SVE system influent

Segment 2 (July 13 to July 27, 1999):

Vent	Monitoring Points
Breen Area • GMSG-109 • GMSG-128	• GM-100 • GMSG-112 • GMSG-130 • GMSG-131 • Breen SVE system influent
Upper Terrace • GM-33 • GM-52 • GMSG-116	• GMSG-124
Emmet Area • GMSG-215	• GMSG-214 • Emmet SVE system influent

It should be noted that although several of the vapor probes had water levels higher than the screened interval they still were utilized as passive vents. These vapor probes are screened in a sand unit beneath an overlying silt unit. Even though the potentiometric surface is in the silt unit, the gas-phase methane is trapped at the base of the silt, below the water table. When the vapor probe is allowed to vent, gas-phase methane that is at a pressure greater than the potentiometric surface of the water can escape from the trap in the sand unit and flows out through the water column in the vapor probe into the atmosphere. This process continues until the pressures are equalized.

The trapped gas-phase methane is sometimes under considerable pressure, which can force the water level below the silt downwards to create, in effect, a bubble or pocket of gas-phase methane below the silt. This bubble of gas-phase methane allows the gas-phase methane to readily flow beneath the silt layer to the vapor probe, which makes the passive vent effective. The data representing the pressures and flows for the passive vents are described in Section 6.5.2.5.4.

Following an evaluation of the pilot passive venting results, a longer-term passive venting program was initiated on December 15, 1999, using the same procedures described above.

5.19.2 Active Venting Tests

Several active SVE tests were conducted in selected portions of the Study Area/AOC. The active SVE tests had several objectives including:

- Reducing the mass of methane currently in an area.
- Determining the connectivity of the geologic deposits in an area that could result in pathways of gas-phase methane migration.
- Determining if an identified gas-phase methane pocket was the result of long-term accumulation that is no longer occurring or ongoing methane generation.

Active SVE tests were conducted in the following areas:

- Monitoring Well GM-2A in August 1998.
- Breen SVE system in September 1998.
- Emmet SVE system in November 1998.
- Near the RDA in November 1998 and August 1999.
- Notch Area in May and June 2000.
- SW Pit (Lodal Park) in June and July 2000.
- FPS in June, July, and September 2000.

The active SVE tests at Monitoring Well GM-2A, near the Emmet SVE system, near the RDA, at the Notch, at the SW Pit, and at the FPS were conducted using a mobile SVE trailer. This SVE trailer was equipped with two explosion-proof, 1-hp regenerative blowers that could be operated individually or in combination (either parallel or series operation), to provide a range of flow rate and vacuum conditions. The SVE test at the

Breen SVE was conducted using the existing system blower, which had sufficient operational flexibility to perform the SVE test.

5.19.2.1 GM-2A Area Venting Tests

Methane was evacuated from the GM-2A Area during a pilot test from August 5 to 26, 1998, using the SVE trailer described above (Section 5.19.2). The GM-2A Area is located on the southwest corner of Breen Avenue and Beech Street. Monitoring Well GM-2A, which is screened from 40 to 50 ft bls with a 2-inch diameter PVC well screen, was used as the extraction point for the SVE test. Prior to initiating testing procedures, background measurements were obtained at selected monitoring points. Following collection of the background monitoring parameters, the SVE system was started. During the initial startup operation, the following parameters were measured at Monitoring Well GM-2A, where the extraction was occurring:

- Vacuum/pressure at the wellhead
- Methane concentration
- CO_2 concentration
- O_2 concentration
- Flow rate

With the exception of the flow rate, these same parameters were monitored on a daily basis during the SVE system operation from selected probes to determine when background or asymptotic conditions were reached. The probes were also monitored to aid in determining the rate of the decrease in concentrations with time as the SVE system operated. Along with the SVE system, the following selected probes were monitored: GMSG-1, GMSG-2A, GMSG-2B, GMSG-3A, GMSG-3B, GMSG-4A, GMSG-4B, GMSG-5A, GMSG-7A, GMSG-7B, GMSG-7C, GMSG-12, GMSG-13, GMSG-17, GMSG-18, GMSG-19, and GMSG-20 (Figures 5-1 and 5-3).

The concentrations of methane, CO_2, and O_2 present in the soil vapor were measured using a Landtec GA-90 or GEM 500 portable gas analyzer. The air flow rate at the extraction well head was measured using a thermal anemometer. Vacuum/pressure measurements were taken with magnehelic gauges. These procedures were previously discussed in Section 5.11.

After the initial start-up, the SVE system was allowed to operate for a given period of time. The surrounding probes completed below the silt layer in the area were then opened to the atmosphere and the test proceeded until the methane concentrations in the subsurface declined to background levels. It took approximately 3 weeks to reach background levels. Once the methane levels reached background concentrations, the blowers were shut off and the rate of recovery was monitored.

5.19.2.2 Breen SVE System Tests

In September 1998, a series of 2- to 3-hour extraction tests were performed on nine extraction wells of the existing Breen SVE system. Rather than extract soil vapor from all nine points at once, the available vacuum was applied to a single extraction well and the resulting induced vacuum was monitored at several surrounding soil vapor probes and the eight other extraction wells not in use. This sequence was repeated for each of the nine extraction wells.

Prior to initiating testing and at least every 30 minutes during each test of a single extraction well, the following parameters were measured at the well where the extraction was occurring:

- Vacuum/pressure at the well head
- Methane concentration
- CO_2 concentration
- O_2 concentration
- Flow rate

Additionally, the vacuum was measured at several surrounding soil vapor probes and the eight other extraction wells both prior to and after extracting for a minimum of 2 hours. Soil vapor concentrations were measured once during the second hour of extraction.

The soil vapor probes monitored throughout the test included the following: GMSG-100, GMSG-102, GMSG-106, GMSG-107, GMSG-109, GP-1C, GP-2B, GP-3, GP-5, GP-6, GP-7, GP-8, GP-12B, GP-13B, and GP-18B (Figures 5-1 and 5-3).

The concentrations of methane, CO_2, and O_2 present in the soil vapor were measured using a Landtec GA-90 or GEM 500 portable gas analyzer. The air flow rate at the extraction well head was measured using a thermal anemometer. Vacuum/pressure measurements were taken with magnehelic gauges. These procedures were previously discussed in Section 5.11.

5.19.2.3 Emmet SVE System Tests

In November 1998, a series of 2 to 3- hour extraction tests were performed on four soil vapor probes in the vicinity of the Emmet SVE system. The maximum available vacuum was applied to a single extraction well by operating the two trailer-mounted blowers in series. During operation, several soil vapor probes and the extraction well were monitored to determine the zone of influence. This sequence was repeated for each test setup.

Vacuum measurements, soil vapor composition monitoring, and extraction system monitoring followed the same protocol described previously for the monitoring conducted at the Breen SVE System (Section 5.19.2.2).

The soil vapor probes where extraction testing was conducted and the accompanying monitoring points are listed in the following table. The locations of the soil vapor probes are shown on Figures 5-1 and 5-3.

Extraction Point	Monitoring Points
GMSG-202	EW-2, GMSG-200, GMSG-204, GMSG-205, GMSG-207, GMSG-208, GMSG-209, GMSG-210, GMSG-211, GMSG-212, GMSG-213, GMSG-214, GMSG-216, GM-24A, GM-24B
GMSG-200	EW-2, GMSG-202, GMSG-204, GMSG-205, GMSG-206, GMSG-207, GMSG-208, GMSG-209, GMSG-210, GMSG-211, GMSG-212, GMSG-213, GMSG-214, GMSG-216, GM-24A, GM-24B
GMSG-214	EW-2, GMSG-200, GMSG-202, GMSG-204, GMSG-210, GMSG-211, GMSG-212, GMSG-213, GMSG-215, GMSG-216, GM-24A, GM-24B
GMSG-215	GMSG-202, GMSG-210, GMSG-211, GMSG-212, GMSG-213, GMSG-214, GMSG-216, GM-24A, GM-24B

5.19.2.4 RDA Area Venting Tests

Active venting tests were conducted near the RDA in November 1998, August 1999, and May 2000. All of the passive vents near the RDA were sealed with expandable well plugs before the active venting began.

In November 1998, a series of 2- to 3-hour extraction tests were performed on four of the soil vapor probes near the RDA. The maximum available vacuum was applied to a single extraction well by operating the two trailer-mounted blowers in series. During operation, several soil vapor probes and the extraction well were monitored to determine the zone of influence. This sequence was repeated for each of the four soil vapor probes.

Vacuum measurements, soil vapor composition monitoring, and extraction system monitoring followed the same protocol described previously for the monitoring conducted at the Breen SVE System (Section 5.19.2.2).

The soil vapor probes where extraction testing was conducted and the accompanying monitoring points are listed in the following table (see Figures 5-1 and 5-3):

Extraction Point	Monitoring Points
GM-47	GM-30, GM-43, GM-44, GM-45, GM-46, GM-48, GM-49, GM-51, GM-54, GM-55
GM-48	GM-30, GM-43, GM-44, GM-45, GM-46, GM-47, GM-49, GM-51, GM-54, GM-55
GM-43	GM-30, GM-44, GM-45, GM-46, GM-47, GM-48, GM-49, GM-51, GM-54, GM-55
GM-45	GM-30, GM-43, GM-44, GM-46, GM-47, GM-48, GM-49, GM-51, GM-54, GM-55

In August 1999, an extended pilot venting test, approximately 1 month long, was conducted near the RDA. Existing Monitoring Wells GM-30 and GM-46 were used as extraction points for this test. These wells were screened above the water table at depths from 75 to 85 ft bls and 65 to 75 ft bls, respectively. These two monitoring wells were connected to the SVE trailer with 3-inch PVC piping. The pilot test trailer was set up next to Monitoring Well GM-46.

Monitoring Well GM-30 was connected to Monitoring Well GM-46 with 3-inch diameter PVC piping, buried approximately 1.5 ft underground. A “T”-connection was installed and the piping was connected to the SVE trailer. Two ball valves were installed so that either one or both of the monitoring wells could be used as extraction points. Sample ports were installed to measure flow, vacuum/pressure, methane, CO_2, and O_2 from the individual extraction points, the influent line, and the effluent line. To measure the flow at each extraction point and at the influent and effluent ports, a thermal anemometer was used. For all other field measurements, the same instrumentation and parameters were measured as used for soil vapor monitoring (Section 5.11).

To determine when asymptotic or background concentrations were reached, the following monitoring wells were monitored during the SVE test: GM-44, GM-45, GM-47, GM-48, GM-49, GM-51, GM-54, GM-55, GM-57, and GM-58, as well as the two extraction points, influent line, and the effluent line. During the SVE test at the RDA, the surrounding probes were not opened to the atmosphere, so dilution of the soil vapors from the atmosphere through these probes would not occur.

Due to the amount of methane discharged from the SVE test, the MDEQ required that the SVE test be shut down before the asymptotic or background methane conditions were reached. The continuation of the SVE program in the area near the RDA, which is now being conducted in accordance with an air permit approved by the MDEQ, is providing the data to determine the asymptotic/background methane conditions.

In May 2000, additional 24-hour SVE tests were performed on two of the monitoring wells located near the RDA, using the SVE trailer described above (Section 5.18.2). The SVE tests were completed using Monitoring Wells GM-57 and GM-58. Both of these monitoring wells existed and were screened in a sand layer beneath the silt/clay confining layer that is present at and near the RDA. Vacuum measurements, soil vapor composition monitoring, and extraction system monitoring followed the same protocol described previously for the monitoring conducted at the Breen SVE System (Section 5.19.2.2).

Both monitoring wells are completed with 2-inch diameter PVC casing and a 2-inch diameter slotted PVC well screen. Monitoring Well GM-57 is screened from 76 to 86 ft bls and Monitoring Well GM-58 is screened from 75 to 85 ft bls. Along with the SVE system influent and effluent air flow, the following monitoring wells and soil vapor probes were monitored periodically during the SVE tests: GM-47, GM-48, GM-57, GM-58, GM-60, GMSG-300, GMSG-301, GMSG-302, GMSG-303, GMSG-304, GMSG-305, GMSG-306, GMSG-307, GMSG-308, GMSG-309, and GMSG-301. These monitoring wells and soil vapor probes were monitored to determine the zone of influence for each SVE test.

5.19.2.5 Notch Area Venting Tests

Methane was evacuated from the Notch Area during two SVE tests in 2000, using the SVE trailer described above (Section 5.19.2). The portion of the Notch Area where the SVE tests took place was on the southwest corner of the intersection of Westwood Avenue and Woodward Avenue. The SVE tests were completed using one existing soil gas probe and one existing monitoring well, GMSG-301 and GM-60, respectively. Soil Vapor Probe GMSG-301 is screened in the vadose zone, while Monitoring Well GM-60 is screened across the water table. Prior to initiating the SVE test, background measurements were obtained at the selected monitoring points. Following collection of the background monitoring parameters, the SVE test was started. During the initial startup of operation, the induced vacuum and flow were monitored. Vacuum measurements, soil vapor composition monitoring, and extraction system monitoring followed the same protocol described previously for the monitoring conducted at the Breen SVE System (Section 5.19.2.2).

A 24-hour SVE test was completed at Monitoring Well GM-60 on May 31, 2000, and at Soil Vapor Probe GMSG-301 on June 1, 2000. Monitoring Well GM-60 is screened from 102 to 107 ft bls and Soil Vapor Probe GMSG-301 is screened from 73 to 83 ft bls. Both the monitoring well and soil gas probe are completed with 2-inch diameter PVC casing and a 2-inch diameter slotted PVC well screen.

To aid in determining the radius of influence and the rate of the decrease in methane concentration over time for the monitoring well and the soil vapor probe used for extraction, periodic monitoring of select soil vapor probes was completed during the SVE tests. The selected monitoring wells and soil vapor probes were monitored periodically for the first 8 hours and then again at the end of the SVE test. Along with the extraction point (Soil Vapor Probe GMSG-301 and Monitoring Well GM-60), the following list contains the soil vapor probes and monitoring wells that were monitored during the SVE test: GM-48, GM-57, GM-58, GMSG-300, GMSG-302, GMSG-304, GMSG-605, GMSG-306, GMSG-307, GMSG-308, GMSG-309, and GMSG-310 (Figures 5-1 and 5-3).

5.19.2.6 SW Pit Venting Tests

During June and July 2000, five 24-hour SVE tests were completed at the SW Pit, using the SVE trailer described above (Section 5.19.2). The portion of the SW Pit where the SVE tests took place was in an area between the northern baseball diamond and western fence line, and north of Lodal Park Drive. The pilot tests were completed using five existing soil vapor probes (GMSG-29, GMSG-30, GMSG-31, GMSG-32, and GMSG-33), which are screened in the fill material and native soil vadose zone (Figures 5-1 and 5-3). Prior to initiating testing procedures, background measurements were obtained at the selected monitoring points. Following collection of the background monitoring parameters, the SVE test was initiated. During the initial test startup, the induced vacuum and flow were monitored. Vacuum measurements, soil vapor composition monitoring, and extraction system monitoring followed the same protocol described previously for the monitoring conducted at the Breen SVE System (Section 5.19.2.2).

The 24-hour SVE tests were conducted on Soil Vapor Probes GMSG-29, GMSG-30, GMSG-31, GMSG-32, and GMSG-33. All of these soil vapor probes are completed with 2-inch diameter PVC casing and a 2-inch diameter slotted PVC well screen. Soil Vapor Probe GMSG-29 is screened from 15 to 25 ft bls, Soil Vapor Probe GMSG-30 is screened from 20 to 30 ft bls, Soil Vapor Probe GMSG-31 is screened from 6 to 21 ft bls, Soil Vapor Probe GMSG-32 is screened from 6.5 to 21.5 ft bls, and Soil Vapor Probe GMSG-33 is screened from 5 to 20 ft bls.

To aid in determining the radius of influence and the rate of the decrease in methane concentration with time for each of the soil vapor probes used for extraction, periodic monitoring of select soil vapor probes was done during the SVE tests. During the operation of the first SVE test on Soil Vapor Probe GMSG-29, monitoring was conducted hourly for the first 8 hours and then again at the end of the SVE test. During the subsequent SVE tests on Soil Vapor Probes GMSG-30, GMSG-31, GMSG-32, and GMSG-33, the monitoring was periodic throughout the first 9 hours and again at the end of the SVE tests. Soil Vapor Probes GMSG-14, GMSG-15, and GMSG-16 were monitored during all the SVE tests, and the additional soil vapor probes listed above were included in the monitoring based on the location of the SVE test.

5.19.2.7 FPS Venting Tests

Methane was evacuated from the FPS area during three SVE tests in 2000, using the SVE trailer described above (Section 5.19.2). The portion of the FPS where the SVE tests took place was east of Balsam Avenue in an area between the former plant building and Smith Castings. The SVE tests were completed using two existing monitoring wells, GM-41 and GM-35, which are screened across the water table. Prior to initiating testing procedures, background measurements were obtained at selected monitoring points. Following collection of the background monitoring parameters, the SVE test was initiated. During the initial phase of operation, the induced vacuum and flow were monitored. Vacuum measurements, soil vapor composition monitoring, and extraction system monitoring followed the same protocol described previously for the monitoring conducted at the Breen SVE System (Section 5.19.2.2).

A 24-hour SVE test and a 7-day SVE test were completed on Monitoring Well GM-41. The 24-hour SVE test was conducted in June 2000, while the 7-day SVE test occurred from July 6 to 12, 2000. Monitoring Well GM-41 is located east of Monitoring Wells GM-35 and GM-12, and north-northeast of Soil Vapor Probe GMSG-34 (Figures 5-1 and 5-3). Monitoring Well GM-41 is screened from 40 to 50 ft bls with a 2-inch diameter slotted PVC well screen.

When the SVE tests were conducted, selected soil vapor probes were monitored to aid in determining the radius of influence, the rate of the decrease in methane concentrations over time, and when background or asymptotic conditions were reached. During the 24-hour SVE test on Monitoring Well GM-41, selected soil vapor probes were monitored hourly for the first 8 hours and at the end of the SVE test. During the 7-day SVE test on Monitoring Well GM-41, selected soil vapor probes were monitored on a daily basis at the end of the SVE test. Along with the extraction point at Monitoring Well GM-41, the following list contains the selected monitoring wells and soil vapor probes monitored: GM-35, GM-40A, GM-42, GM-56, and GMSG-21.

A series of 5-day SVE tests were completed on Monitoring Well GM-35 from September 6 to 11, 2000 and from September 18 to 22, 2000. Monitoring Well GM-35 is located next to Monitoring Well GM-12, west of GM-41, and north of Soil Vapor Probe GMSG-34 (Figures 5-1 and 5-3). Monitoring Well GM-35 is screened from 40 to 50 ft bls with a 2-inch diameter slotted PVC well screen. During the SVE test operation, selected probes were monitored on a daily basis to determine when background or asymptotic conditions were reached. The monitoring wells and soil vapor probes that were monitored included: GM-12, GM-41, GM-42, GM-56, and GMSG-21.

5.20 Active SVE Systems

As of December 2007, seven fixed active SVE systems were being operated to control gas-phase methane within the AOC. These non-mobile active SVE systems are the “Breen” SVE system, the “Emmet/GMSG-214R” SVE system, the “RDA” SVE system, the “Lodal/GMSG-96A” SVE system, the “Pyle” SVE system, the “GM-41” SVE system, and the “GMSG-123” SVE system. The locations of non-mobile SVE systems are shown on Figure 5-9.

In addition to the fixed SVE systems, portable SVE systems have also been used periodically to control gas-phase methane at several additional locations within the AOC where methane can accumulate over time, but only requires extraction on a periodic basis. The areas where periodic venting is conducted are “GM-2A”, “Delta Do-It”, “GMSG-135”, and the “Notch”. The locations where periodic SVE is conducted are also shown on Figure 5-9.

The Breen SVE system is located at the northwest corner of the intersection of Breen Avenue and Garfield Street. The Breen SVE system, which was originally installed by the U.S. EPA to collect gas-phase methane that was present at the shallow subsurface and prevent gas-phase methane migration into residences, commenced operation on February 21, 1996. Details of the Breen SVE system are discussed below in Section 5.20.2.

The Emmet SVE system is located at the southwest corner of the intersection of Emmet Avenue and Grant Street. The Emmet SVE system, which was also originally installed by the U.S. EPA to collect gas-phase methane that was present at the shallow subsurface and prevent gas-phase methane migration into residences, commenced operation on April 2, 1997. Details of the Emmet SVE system are discussed below in Section 5.20.3.

The RDA SVE system is located south of Pyle Drive and northeast of the RDA. The RDA SVE system was installed by ARCADIS and commenced operation on July 18, 2000 to extract gas-phase methane trapped beneath a silt layer near the RDA. Details of the RDA SVE system are discussed below in Section 5.20.4.

The Lodal SVE system is located north of Breitung Avenue on the western end of the northern boundary of Lodal Park. The Lodal SVE system was originally installed by ARCADIS and commenced operation on February 6, 2001 to extract gas-phase methane present within the SW Pit. The GMSG-96 SVE system was added to the

Lodal SVE system by ARCADIS and commenced operation on June 21, 2005 to address gas-phase methane that was present in shallow subsurface soil in the southern area of Lodal Park in the vicinity of Soil Vapor Probe GMSG-14. Details of the Lodal and GMSG-96 SVE systems are discussed below in Section 5.20.5.

The Pyle SVE system is located at the southeast corner of the intersection of Pyle Drive and Knudsen Drive, south of the Universal Plumbing building. The Pyle SVE system was installed by ARCADIS and commenced operation in May 2004 to extract gas-phase methane discovered in the shallow subsurface soil along the eastern and southern sides of the Universal Plumbing building. Prior to installation of the Pyle SVE system, active venting was conducted in the Pyle area from October 17, 2003 to May 2004 using a portable SVE system. Details of the Pyle SVE system are discussed below in Section 5.20.6.

The GM-41 SVE system is located on the east side of Balsam Street to the north of the former Delta Do-It building. The GM-41 SVE system was installed by ARCADIS and commenced operation on December 10, 2004 to extract gas-phase methane in the subsurface soil. Prior to the installation of the GM-41 SVE system and after several pilot SVE tests, active venting in the GM-41 area had commenced on a periodic basis on October 28, 2003, using a portable SVE system. Details of the GM-41 SVE system are discussed below in Section 5.20.7.

The GMSG-123 SVE system is located on the east side of an alleyway between Case Street and Lawrence Street, to the south of Breitung Avenue. The GMSG-123 SVE system was installed by ARCADIS and commenced operation on September 22, 2005 to extract gas-phase methane in the subsurface soil. Prior to the construction of the GMSG-123 SVE system, SVE activities were conducted in the area with a portable SVE system, starting in April 2005. Details of the GMSG-123 SVE system are discussed below in Section 5.20.8.

Periodic venting in the GM-2A area has been conducted at the southwestern corner of the intersection of West Breen Avenue and Beech Street. The GM-2A SVE system has been operated on four occasions to extract gas-phase methane encountered during the drilling of Monitoring Well GM-2B, including: August 5 to 26, 1998, September 21 to October 23, 2001, June 5 to 28, 2004, and January 14 to April 13, 2005. Details of the GM-2A SVE system are discussed below in Section 5.20.9, Temporary Mobile SVE Systems.

Periodic venting in the Delta Do-It area has been conducted at the southwest corner of the former Delta Do-It building on the east side of Balsam Street midway between West Breitung Avenue and Pyle Drive. The Delta Do-It SVE system has been operated on five occasions to extract gas-phase methane encountered during the shallow subsurface soil, including: July 10 to August 10, 2001, July 11 to October 18, 2002, October 28 to November 7, 2003, September 24, 2004 to March 8, 2005, and February 13 to August 9, 2006. Details of the Delta Do-It SVE system are discussed below in Section 5.20.9.

Periodic venting in the GMSG-135 area has been conducted on the east side of an alleyway between Case Street and Grant Street, to the south of Breitung Avenue. The GMSG-135 SVE system has been operated on five occasions to extract gas-phase methane encountered during the drilling of Soil Vapor Probes GMSG-118A/B/C, including: June 12 to August 23, 2004, September 3 to 24, 2004, February 3 to June 15, 2005, June 4 to November 8, 2006, and October 29 through December 2007. Prior to the start-up of the GMSG-135 SVE system, pilot SVE activities were conducted in April 2005. Details of the GMSG-135 SVE system are discussed below in Section 5.20.9.

Periodic venting in the Notch area has been conducted at the southwestern corner of the intersection on Woodward Avenue and Westwood Avenue. The Notch SVE system was operated once, from January 23, 2001 to November 12, 2001, to extract gas-phase methane encountered during the drilling of Monitoring Well GM-60. Details of the Notch SVE system are discussed below in Section 5.20.9.

5.20.1 Operation and Maintenance (O&M) of SVE Systems

O&M of the SVE systems is required to ensure appropriate system performance. Prior to May 1998, the U.S. EPA and the MDEQ had been responsible for O&M of the Breen and Emmet SVE systems. In May 1998, Ford and KPC assumed responsibility for O&M of these systems. All other SVE systems (either permanent or temporary/periodic) have been installed, operated, and maintained by ARCADIS.

An O&M manual entitled "*Soil Vapor Extraction Operation and Maintenance Manual, Ford-Kingsford Products Facility, Court Case No. 04-1427-CE, Kingsford, Michigan,*" dated November 3, 2005 was prepared by ARCADIS to encompass all of the SVE systems. Currently the SVE systems are inspected on a monthly basis. These inspections consist of visual observation of the condition of the SVE system and operating components, measurement of the influent and effluent methane concentrations, measurement of the flow/pressure/vacuum of the system, and reading of hourly meters that verify the time of operation for the SVE system since the last monthly reading. If maintenance is required for any of the operating components of the SVE system it is scheduled and/or completed, as well as any adjustments or modifications that may be warranted. Discussions of the results of the SVE system O&M are presented in Section 6.5.

5.20.2 Breen SVE System

After Ford and KPC assumed responsibility for the O&M of the Breen SVE system, one of the initial maintenance items undertaken was a modification to the SVE system components. In September 1998, small aboveground shelters that contained surface piping for the extraction wells were removed, and the surface piping buried underground. A tank was also added to the system to prevent condensation drainage within the piping, and a new autodialing system shutdown alarm was installed. After the new autodialing alarm was installed, monitoring of the SVE system was reduced to monthly.

In July 1999, modifications were made to the system discharge line to reduce the noise generated by the system. On July 22, 1999, the number of extraction wells for the system was reduced by closing five of the extraction wells (Extraction Wells EW-1 through EW-5), thus reducing the volume of flow through the SVE system to approximately 200 cubic feet per minute (cfm). The system was placed in a monitoring mode until it was determined that the reduced number of extraction wells and flow rate did not affect the effectiveness of the system in appropriately controlling methane.

The current Breen SVE system consists of a 4-hp three-phase blower, knock-out tank with solenoid valve and dry well, flow meter, timer, and autodialer housed in the original shed. The system now operates with four extraction wells (SVE Wells EW-6, EW-7, EW-8, and EW-9) with a flow rate of approximately 190 cfm. A layout of the system is shown on Figure 5-10 and the configuration of SVE Wells EW-6, EW-7, EW-8, and EW-9 is shown on Figure 5-11.

The Breen SVE system currently operates 23.5 hours per day, 7 days per week. During the daily half hour shutdown, the knock-out tank drains automatically.

5.20.3 Emmet/GMSG-214R SVE Systems

After Ford and KPC assumed responsibility for the O&M, one of the initial maintenance items undertaken was a modification to the system. In August 1998, a tank was added to the system to prevent condensation drainage within the piping and a new autodialing alarm was installed to monitor unscheduled shut downs of the system. In January 2005, the system was retrofitted with two new 1-hp blowers, resulting in a significant increase in the flow rate to as high as 125 cfm, that then stabilized at approximately 40 cfm after several months of operation.

The current Emmet SVE system consists of a 1-horsepower (hp) single-phase blower, knock-out tank, dry well, flow meter, and timer housed in the original wooden shed, operating at a flow rate of approximately 45 cfm. The system continues to operate using Extraction Well EPA-2, located beneath the system. A layout of the system is shown on Figure 5-12, and the configuration of Extraction Well EPA-2 is shown on Figure 5-13.

Also housed within the Emmet SVE building is the GMSG-214R SVE system, which began full time operation on September 9, 2005. The GMSG-214R SVE system consists of one 0.5-hp single-phase blower, knock-out tank, flow meter, and timer, operating at a flow rate of approximately 12 cfm. The system currently extracts from SVE Well GMSG-214R located approximately 400 ft to the east of the Emmet SVE building. A layout of the system is shown on Figure 5-14, and the configuration of SVE Well GMSG 214R is shown on Figure 5-13.

SVE Well GMSG-214R was installed on August 1, 2005 and connected to the Emmet SVE system by underground piping. Extraction Well GMSG-214R is constructed with 2-inch diameter Schedule 40 PVC and screened with 0.010-inch slot screen between 40 and 45 ft bls.

Both the Emmet SVE system and the GMSG-214R SVE system currently operate 23.5 hours per day, 7 days per week. During the daily half hour shutdown, the knock-out tanks drain automatically.

5.20.4 RDA SVE System

Based on the results of the SVE testing, a longer-term SVE program was proposed for the area near the RDA. The purpose of the program was to evacuate gas-phase methane that had been found beneath a silt layer at a depth of approximately 70 ft bls. The MDEQ approved this SVE program in a letter dated May 3, 2000. During June 2000, Site preparation and construction of a SVE system and flaring unit was undertaken. Stevens Drilling and Environmental Services, Inc. of Maple Plain, Minnesota conducted the construction and installation of the RDA system, along with ARCADIS personnel.

The RDA SVE system was purchased from Tornado Technologies, Inc. of Alleyton, Texas. The RDA SVE system consisted of two separate skid units, a blower unit and a flare unit. The blower skid unit consisted of one 16-inch diameter by 48-inch tall stainless steel knock-out tank, one motor and blower assembly, and associated piping. The flare skid unit consisted of one 42-inch diameter by 30-ft high flare stack, one 3-inch Tornado Standard Crimped Ribbon Flame Arrestor, one piping rack, control panel, electrically actuated dampener, and an electrical air compressor.

The SVE system was designed for a maximum of 100 cfm of airflow and 33 percent (and above) methane. The blower was manufactured by Paxton Products and has a 3-phase, 2-hp motor. The blower was rated for 100 cfm at 30 inches of water vacuum.

The influent line from the extraction wells is connected to a knock-out tank, where condensation from the wells will drop out. The knock-out tank is heat traced and insulated to prevent freezing during winter months. Air flow follows the piping through the knock-out tank and into the blower. The effluent piping from the blower is then routed to the flame arrestor, which is located on the flare skid.

The flare stack also has an electrically actuated dampener. The purpose of the dampener is to control the temperature inside the stack so the system can maintain a steady temperature. Normal operating temperature of the flare is 1,650 ^{o} F. If a shutdown condition occurs, the system automatically stops the blower and alarms are sent out via an autodialer through a phone line.

The above ground piping is used for monitoring the system influent. “Quick Connects” and sample ports were installed to measure flow, vacuum, methane, CO_2, and O_2. Thermal field measurements were collected using, the same instrumentation and parameters are used as for soil vapor monitoring (Section 5.19.2.2).

Two monitoring wells, GM-30 and GM-46 were initially used as extraction points for the system. Both wells were piped to the gravel pad with 3-inch diameter PVC piping and buried approximately 5 ft below ground surface. At each well, a 6-ft horizontal section of PVC piping was installed approximately 2.5 to 3 ft above ground surface. The above ground piping is used for monitoring each extraction well. Sample ports were installed to measure flow, vacuum, methane, CO_2, and O_2.

The RDA SVE system was initially started on July 18, 2000, began full-time operation on August 8, 2000, and has been running a relatively constant 24-hours per day since that time.

In October 2000, Monitoring Wells GM-43, GM-44, and GM-47 (screened from 64 to 74 ft bls, 60 to 80 ft bls, and 69 to 84 ft bls, respectively) were added to the system. In October 2001, in response to the long-term reduction in air flow due to a lack of atmospheric recharge, the 2-hp blower was replaced with two 7.5-hp blowers, connected in series.

The extracted vapors from the wells are brought through the common header where a flow meter measures the air flow rate of the system. The soil vapor stream then enters the 42-gal stainless steel moisture separator tank to remove entrained moisture and condensate. The tank is constructed with a 2-inch drain and ball valve to empty accumulated water from the tank.

Prior to October 23, 2002, the extracted vapor from the blower entered the flare. On October 23, 2002, in accordance with the air permit, the flare was shut down (as methane levels had decreased to below 33 percent by volume) and the methane was vented directly to the atmosphere. The flare stack was removed on February 17, 2004, and the system was reconfigured to vent the soil vapor to the atmosphere a minimum of 15 ft above the ground level.

During July 2003, a 5-hp blower was installed as a replacement for the RDA SVE system and modifications were made to place the SVE system extraction piping underground and heat trace the header piping.

In July 2004, seven new wells (SVE Well GM-30A, GM-43A, GM-44A, GM-45A, GM-47A, GMSG-137, and GMSG-138) were installed to replace existing extraction wells that were no longer efficiently extracting and/or had plugged screens. Each extraction well was constructed of 2-inch diameter Schedule 80 PVC, with 0.010-inch slot screens over the following intervals: GM-30A between 56 and 76 ft bls, GM-43A between 65 and 72 ft bls, GM-44A between 59 and 72 ft bls, GM-45A between 67 and 80 ft bls, GM-47A between 69 and 81 ft bls, GMSG-137 between 60 and 70 ft bls, and GMSG-138 between 57 and 72 ft bls.

The current RDA SVE system contains a 5-hp, three-phase blower, knock-out tank, and flow meters. The RDA SVE system operates using the seven extraction wells described above. A layout of the RDA SVE system is shown on Figure 5-15, and the

ARCADIS

configuration of SVE Wells GM-30A, GM-43A, GM-44A, GM-45A, GM-47A, GMSG-137, and GMSG-138 is shown on Figure 5-16.

The RDA SVE system currently operates 23.5 hours per day, 7 days per week. During the daily half hour shutdown, the knock-out tank drains automatically.

5.20.5 Lodal/GMSG-96 SVE Systems

The Lodal Park SVE system was constructed by Stevens Drilling and Environmental Services, Inc., along with ARCADIS personnel, and began operation in February 2001. The current SVE system consists of a 10-hp three-phase blower, knock-out tank, flow meter, and timer housed in an 8- by 10-ft wooden shed, operating at a flow rate of 210 cfm. There are four extraction wells (GMSG-29, GMSG-31, GMSG-32, and GMSG-33), each constructed of 2-inch diameter Schedule 80 PVC with a 0.010-inch slot screen. The extraction wells are screened in the following intervals: GMSG-29 between 15 and 25 ft bls, GMSG-31 between 6 and 21 ft bls, GMSG-32 between 6.5 and 21.5 ft bls, and GMSG-33 between 5 and 20 ft bls. A layout of the Lodal SVE system is shown on Figure 5-17, and the configuration of SVE Wells GMSG-29, GMSG-31, GMSG-32, and GMSG-33 is shown on Figure 5-18.

The Lodal SVE system originally operated for 23.5 hours per day, 7 days a week with a half hour shutdown period to drain the knock-out tank. In response to reduced concentrations of gas-phase methane from the SVE system operation, beginning on June 31, 2002, the Lodal SVE system operation was reduced to 12 hours per day, 7 days a week. On July 9, 2003, the Lodal SVE system operating time was reduced to 6 hours per day, 7 days per week, and on April 20, 2004 the SVE system operation was further reduced to 24 hours per day, 2 days per week. Currently, the Lodal Park SVE system operates for one 24-hour period per week and drains automatically while not in operation.

The GMSG-96 SVE system was added to the Lodal SVE system in May 2005 by ARCADIS. Prior to the GMSG-96A SVE system, SVE activities were conducted from April 4, 2004 to May 2005 in the area of Soil Vapor Probe GMSG-14 using a portable SVE system extracting from either SVE Well GMSG-96 or GMSG-96A. The GMSG-96 SVE system currently consists of a 2-hp single-phase blower, knock-out tank, flow meter, and timer housed in the Lodal SVE shed, operating at a flow rate of approximately 90 cfm.

The GMSG-96 SVE system is connected to two extraction wells (GMSG-96 and GMSG-96A), although the SVE system is configured to extract from either well individually or both as conditions warrant. The GMSG-96 SVE system generally extracts from SVE Well GMSG-96. Both of the extraction wells are constructed of 2-inch diameter Schedule 40 PVC with a 0.010-inch slot screen. SVE Well GMSG-96 is screened from 36 to 46 ft bls, and SVE Well GMSG-96A is screened from 15 to 25 ft bls. The layout of the GMSG-96 SVE system is shown on Figure 5-19, and the configuration of SVE Wells GMSG-96/96A is shown on Figure 5-18.

The GMSG-96 SVE system operates for 23.5 hours per day, 7 days a week with a half hour shutdown period to drain the knock-out tank.

5.20.6 Pyle SVE System

Active SVE activities began in the Pyle Area in October 2003. SVE activities were initially completed using a mobile SVE system extracting at first from Soil Vapor Probe GMSG-417B and then from Soil Vapor Probe GMSG-417C.

On October 28, 2003, SVE was discontinued at Soil Vapor Probe GMSG-417C and initiated using SVE Well GMSG-120. On October 29, 2003, the mobile SVE system was configured to extract from both SVE Well GMSG-120 and Soil Vapor Probe GMSG-431 and SVE was reinitiated.

The non-mobile Pyle SVE system was constructed by ARCADIS and began operation in May 2004. The Pyle SVE system currently consists of a 1-hp single-phase blower, moisture separator tank, dry well, flow meter, and timer housed in an 8- by 10-ft wooden shed, operating at a flow rate of 57 cfm. The Pyle SVE system extracts from one SVE well (GMSG-120). SVE Well GMSG-120 is constructed of 2-inch diameter Schedule 40 PVC with a 0.010-inch slot screen positioned between 14 and 34 ft bls. A layout of the Pyle SVE system is shown on Figure 5-20, and the location of SVE Well GMSG-120 is shown on Figure 5-21.

The Pyle SVE system initially operated 23.5 hours per day, 7 days per week to address gas-phase methane. During the daily half hour shutdown, the knock-out tank would drain automatically. As of July 19, 2006, the operation of the Pyle SVE system was reduced to 12 hours per day, 7 days per week, due to reduced gas-phase methane concentrations in the shallow subsurface soil.

5.20.7 GM-41 SVE System

The GM-41 SVE system was constructed by ARCADIS and began operation in December 2004. The current SVE system contains a 3-hp single-phase blower, knock-out tank, flow meter, and timer housed in an 8- by 10-ft wooden shed, operating at a flow rate of 55 cfm. The SVE system has one extraction well (GMSG-127). SVE Well GMSG-127 is constructed of 2-inch diameter Schedule 40 PVC with a 0.010-inch slot screen positioned between 30 and 40 ft bls. A layout of the GM-41 SVE system is shown on Figure 5-22, and the location of SVE Well GMSG-127 is shown on Figure 5-23.

The GM-41 SVE system originally operated 23.5 hours per day, 7 days per week to address gas-phase methane. During the daily half hour shutdown the knock-out tank drains automatically. As of July 14, 2008, the GM-41 SVE system operation was reduced to 24 hours per day, one day per week, and is currently operating on this schedule.

5.20.8 GMSG-123 SVE System

The GMSG-123 SVE system was constructed by ARCADIS, and began operation on September 22, 2005. Prior to the construction of the GMSG-123 SVE system, SVE activities were conducted in the area with a portable SVE system, starting in April 2005. The GMSG-123 SVE system consists of one 0.5-hp single-phase blower, knock-out tank, flow meter, and timer housed in an 8- by 10-ft wooden shed, operating at a flow rate of 5 cfm. The SVE system has one extraction well (GMSG-123), which is constructed of 1-inch Schedule 40 PVC and 0.010-inch slot PVC screen positioned between 49 and 54 ft bls. A layout of the GMSG-123 SVE system is shown on Figure 5-24, and the location of SVE Well GMSG-123 is shown on Figure 5-25.

The GMSG-123 SVE system currently operates 23.5 hours per day, 7 days per week. During the daily half hour shutdown, the knock-out tank drains automatically.

5.20.9 Portable SVE Systems

Four portable trailer-mounted SVE systems have been constructed by ARCADIS. These SVE systems are designed to operate on a temporary basis as needed at various locations throughout the Study Area/AOC (GM-2A SVE system, the Delta Do-It SVE system, the GMSG-135 SVE system, and the Notch SVE system). Each portable SVE system consists of two 1-hp single-phase blowers configured to operate in parallel, series, or individually; a knock-out tank with a check valve; a flow meter; and a timer, contained within an enclosed trailer. A control panel is mounted to the exterior of the trailer. The portable SVE systems are typically powered by a 240-volt single phase power drop provided by the local power company. Alternatively, the SVE system can be powered by gasoline or propane fueled generators. Layouts of the portable SVE systems are shown on Figures 5-26 through 5-29.

The portable SVE systems operate by drawing in soil vapor that passes through the knock-out tank to remove entrained moisture and condensate and then flows through the flow meter. The soil vapor is then drawn through the blowers and is discharged to the atmosphere. The portable SVE systems are designed to operate at vacuums of less than 50 inches of water for one blower or both blowers in parallel, and 100 inches of water with the blowers in series, dependent on the geology of the subsurface soils.

Two portable trailer-mounted mini-SVE systems have also been constructed by ARCADIS. These SVE systems are designed to operate on extraction wells that have short lengths of open screen available above the groundwater level, thereby requiring low flow rates and vacuum. Each portable mini-SVE system consists of one 0.5-hp single-phase blower, knock-out tank, flow meter, and timer housed in a trailer. These portable mini-SVE systems are smaller, quieter, and weigh less to provide minimal impact if conducting SVE activities in residential areas. Layouts of the mini-SVE systems are shown on Figures 5-30 and 5-31.

The venting activities historically conduced in the GM-2A area used the standard portable SVE system connected to one extraction point. The venting activities in August 1998 and September 2001 used Monitoring Well GM-2A as the extraction point. The venting activities in June 2004 and January 2005 used SVE Well GMSG-126 as the extraction point. Monitoring Well GM-2A is constructed of 2-inch diameter Schedule 80 PVC with a 0.010-inch slot screen positioned from 40 to 50 ft bls. SVE Well GMSG-126 is constructed of 2-inch diameter Schedule 40 PVC with a 0.010-inch slot screen positioned from 39 to 49 ft bls. Underground piping was installed to connect SVE Well GMSG-126 to the portable SVE system that was located in the vicinity of Monitoring Well GM-2A to allow for less disruption to the neighborhood during venting activities.

The venting activities periodically conducted in the Delta Do-It area using the standard portable SVE system, as well as the portable mini-SVE system, connected to one extraction point. The venting activities use Soil Vapor Probe GMSG-37 as the extraction location. Soil Vapor Probe GMSG-37 is constructed of 2-inch diameter Schedule 40 PVC with a 0.010-inch slot screen positioned from 5 to 40 ft bls.

The venting activities periodically conducted in the GMSG-135 area use the standard portable SVE system connected to one extraction point. The venting activities use Soil Vapor Probe GMSG-135 as the extraction location. Soil Vapor Probe GMSG-135 is constructed of 2-inch diameter Schedule 40 PVC with a 0.010-inch slot screen positioned from 28 to 43 ft bls.

The venting activities historically conducted in the Notch Area used the standard portable SVE system connected to one extraction point. The venting activities used Soil Vapor Probe GMSG-301 as the extraction location. Soil Vapor Probe GMSG-301 is constructed of 2-inch diameter Schedule 40 PVC with a 0.010-inch slot screen positioned from 73 to 83 ft bls.

5.21 Passive SVE Systems

In addition to the active SVE systems and portable/temporary SVE systems described above, passive SVE systems are also being used to control gas-phase methane within the AOC. These passive SVE systems were generally installed when a soil boring that was being completed for a monitoring well or soil vapor probe location encountered an accumulation of gas-phase methane below the water table that was under enough pressure to flow naturally and allow the location to be converted to a passive vent.

Based on the results of pilot venting tests, 16 locations were selected for passive vents. Passive vents that are currently venting are located at GM-24B, GM-33R, GM-50, GM-82A, GM-82B, GMPZB-1, GMSG-117, GMSG-128, GMSG-136, and GMSG-215. Passive vents that have been abandoned or are currently closed off and monitored for methane are located at GM-33, GM-52, GM-100, GMSG-109, GMSG-112, and GMSG-116. The locations of the passive vents are shown on Figure 5-9.

A typical passive vent consists of a monitoring well or soil vapor probe constructed of either 1-inch diameter or 2-inch diameter Schedule 40 or 80 PVC well screen and riser (although 2-inch diameter well screen and riser is preferred and generally used). The well screen is factory cut 0.010-inch slot, ranging in length from 5 to over 20 ft, dependent on the interval to be vented.

Following installation of the well screen and riser, a 3-inch diameter PVC sleeve, approximately 1.5- to 2-ft long is driven into the soil surrounding the installed well or probe. A 2-inch diameter to 1-inch diameter Schedule 40 PVC reducer is placed on the well/probe to attach the sampling port and flow meter setup. This setup consists of a 1-inch diameter bushing reduced to ¼-inch diameter galvanized pipe nipple connected to a ¼-inch diameter sampling plug and ball valve. A flow meter is then attached above the ball valve. Above the flow meter a ¼-inch galvanized pipe nipple approximately 6-inches long with a ¼-inch tee at the top is attached. An aluminum (in some cases fiberglass) flagpole, with a 3-inch diameter base and 20 ft in length, is placed over the flow meter setup and into the 3-inch PVC sleeve. An area in front of the flow meter, approximately 1.5 ft in length, is cut out of the aluminum to allow for sampling and maintenance. A 1-inch diameter hole is bored through the pulley system assembly at the top of the pole to allow the methane to vent. An illustration of a typical passive vent layout is shown on Figure 5-32.

The following is a list of the casing diameter, well screen interval, and dates of operation for the passive vents in the Study Area:

- GM-24B: 2 inch, screened 104 to 114 ft bls, vented June 15, 1999 to December 3, 2007.

- GM-33: 2 inch, screened 74 to 89 ft bls, vented July 13, 1999 to May 26, 2005.

- GM-33R: 2 inch, screened 75 to 90 ft bls, vented June 16, 2005 to December 31, 2007.

- GM-50: 2 inch, screened 80.5 to 95.5 ft bls, vented June 15, 1999 to December 31, 2007.

- GM-52: 2 inch, screened 75 to 95 ft bls, vented June 15, 1999 to January 1, 2001.

- GM-100: 2 inch, screened 65.5 to 70.5 ft bls, vented December 15, 1998 to October 17, 1999.

- GM-82A: 2 inch, screened 82 to 92 ft bls, vented July 12, 2004 to December 31, 2007.

- GM-82B: 2 inch, screened 151.7 to 156.7 ft bls, vented November 12, 2004 to December 31, 2007.

- GMPZB-1: 2 inch, screened 95 to 105 ft bls, vented May 24, 2005 to December 31, 2007.
- GMSG-109: 1 inch, screened 57 to 62 ft bls, vented July 14 to July 20, 1999.
- GMSG-112: 1 inch, screened 58 to 63 ft bls, vented June 15 to July 20, 1999.
- GMSG-116: 1 inch, screened 74.8 to 79.8 ft bls, vented July 13, 1999 to June 13, 2003.
- GMSG-117: 1 inch, screened 75 to 85 ft bls, vented June 15, 1999 to December 31, 2007.
- GMSG-128: 1 inch, screened 57 to 62 ft bls, vented June 15, 1999 to December 31, 2007.
- GMSG-136: 2 inch, screened 110 to 115 ft bls, vented June 27, 2004 to December 31, 2007.
- GMSG-215: 1 inch, screened 50 to 55 ft bls, vented June 30, 1999 to December 31, 2007.

5.22 Menominee River Bioassessment Study

A study of the Menominee River was conducted by ARCADIS to determine whether the Menominee River has been impacted by groundwater migrating from the Study Area. The study included bioassessment field activities that were conducted from July 23 to 27, 2000 and from September 5 to 8, 2000. The major elements of the bioassessment study were as follows:

- Habitat-based identification of sample locations.
- Benthic macroinvertebrate community survey.
- Physical habitat evaluation.
- Sediment chemistry analyses.
- Fish community survey.

The bioassessment evaluation area extended from below the Ford Dam to the Route 95 bridge in Aurora, Wisconsin. Twenty-five locations in the bioassessment area were evaluated for benthic macroinvertebrate community quality, habitat characteristics, and sediment chemistry. Fish community quality was also assessed for ten sampling zones.

Procedures employed for each study element are summarized below and described in detail in the bioassessment report included as Appendix H.

5.22.1 Habitat Sampling Identification

The habitat-based identification of sample locations for the benthic macroinvertebrate sampling event was based on data obtained through multi-beam and side-scan sonar surveys and concurrent sediment grain size analyses, as well as information on Site features along the Menominee River. Superior Special Services conducted the sonar surveys during June 5 to 9, 2000, under the supervision of ARCADIS. Multi-beam sonar provided detailed bathymetric data for the bioassessment area and side-scan sonar provided an image of the substrate.

Fifteen wadeable locations were selected for the benthic macroinvertebrate sampling, including two locations on the Wisconsin shoreline and 13 locations along the Michigan shoreline. There were also ten non-wadeable sampling locations.

The study design includes several reference locations which are known to be unaffected by the Site. Multiple reference locations are included in the study design because the use of a reference envelope provides a more accurate characterization of reference conditions than a single reference location.

The habitat-based identification for fish sampling established five areas within the bioassessment area including an upstream reference area, three areas in the vicinity of the plume, and a downstream reference area. Within each area, sampling was conducted in two 500-meter (m) zones, one on each side of the river, for a total of 10 sampling zones.

5.22.2 Benthic Macroinvertebrate Survey

EA Environmental Science & Technology (EA) conducted the benthic macroinvertebrate sampling, under the supervision of ARCADIS. Two separate sampling methods were employed to characterize benthic invertebrate community quality: (1) direct sampling of natural substrates in wadeable areas (water depths less than 1 m), and (2) use of artificial substrate samplers in deep waters (water depths greater than 1 m). The benthic macroinvertebrate sampling methods are based on the following:

- U.S. EPA's Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers (Barbour et. al., 1999).

- U.S. EPA's Environmental Monitoring and Assessment Program Methods for Measuring the Ecological Condition of Wadeable Streams (Lazorchak et. al., 1998).

- Bioassessment Methods Developed for New York State Streams and Rivers (Bode et. al., 1991).

- Benthic invertebrate sampling methods used by WDNR in surveys of the Menominee River (WDNR, 1997; 1998; R. Lillie, personal communication).

Wadeable sampling zones were 50 m in length, and non-wadeable sampling zones were 100 m in length. Replicate sample locations within each zone were, as best as possible, evenly spaced from upstream to downstream and were selected to maximize consistency of habitat characteristics among replicates. Coordinates were recorded using the Global Positioning System (GPS) unit at the beginning and end of each zone and at the locations of replicate samples within each zone.

Macroinvertebrates were collected qualitatively at 15 locations using a triangular dip/sweep net (800 to 900 micrometer [μm] mesh) and sampling all available habitats (e.g., rocks, sand, snags, macrophytes, etc.). For each habitat, the collector would disturb the substrate and then repeatedly sweep through the area with the net to collect invertebrates that have been dislodged. In addition, the collector examined large substrates (e.g., logs and boulders) as well as the surrounding area for taxa that may have been missed (e.g., crayfish, mussels, and cased caddisflies).

Semi-quantitative sampling was conducted in conjunction with the qualitative multi-habitat collections, using the traveling kicknet (TKN) method. The TKN method uses a rectangular box-type kicknet (800 to 900 μm mesh). The net is placed on the substrate approximately 0.5 m downstream of the collector. The collector proceeds to disturb the substrate while moving in an upstream direction bringing the net along the bottom so that dislodged organisms will be washed into the net. Sampling was conducted for a distance of 5 meters and for 2 to 5 minutes.

Quantitative sampling was conducted using modified Hester-Dendy (HD) artificial substrates (Ohio Environmental Protection Agency, 1987). Each HD is comprised of eight 3 by 3 by 1/8-inch hardboard plates variably spaced along a 4-inch eyebolt. The total surface area of one sampler is approximately 1-square ft. The HD samplers were deployed from a boat at each of the ten non-wadeable locations during the July 2000 sampling event. The HD samplers were fixed to cinder blocks and set on the river bottom. After a 6-week colonization period, the HD samplers were retrieved.

Each cinder block was lifted close to the water surface. Prior to breaking the water surface, each HD was placed in a fine mesh bag. The cinder block and HD samplers were then removed from the water and placed immediately into a bucket where the HD samplers were cut from the block. The HD samplers were retrieved concurrently with the September 2000 fish survey. All benthic macro-invertebrate samples were preserved in the field with a 10 percent formalin solution and transported to EA's laboratory for processing and analysis.

Parameters that were summarized for each location include total taxa richness, Ephemeroptera, Plecopterea, Trichloptera (mayflies, stoneflies, and caddisflies) (EPT) taxa richness, density/total number, relative abundance, Hilsenhoff Biotic Index, and habitat scores.

5.22.3 Physical Habitat Assessment

EA and ARCADIS collected physical habitat data for the benthic macro-invertebrate survey as part of the Menominee River study. A visual-based, qualitative habitat assessment was conducted at each of the 15 wadeable locations using Michigan's Great Lakes & Environmental Assessment Section 51 habitat survey protocol. This protocol involves the determination of habitat quality scores for nine macro-habitat characteristics. Additionally, a description of substrate characteristics (grain size, embeddedness), submerged vegetation and other instream cover (type and extent), and any other notable habitat features was recorded.

During the fish sampling, the physical habitat assessment included water temperature, conductivity, pH, DO, and water clarity (i.e., Secchi disk depth) measurements at all electrofishing locations. Secchi depth was measured using a standard Secchi disk.

Macro-habitat features were identified from the data collected during the benthic macro-invertebrate sampling event.

5.22.4 Sediment Analysis

Surface sediment samples (top 10 to 15 centimeter) were collected for chemical analysis using an Arts Manufacturing Supply split-core sampler with a stainless steel or acrylic liner and sample catcher. The core sampler was pounded or augered into place, depending on substrate characteristics.

Approximately 2.5 liter (L) of sediment was collected at each location. Individual grab samples were placed in a stainless steel container and minimally homogenized, and were then distributed to sample jars (no headspace) and placed on ice in a cooler. Sediment sample locations generally corresponded to TKN and HD replicate sample locations.

Chemical analyses were performed on both whole sediment and sediment porewater. The sediment samples for chemical analyses were transported under chain-of-custody protocol to STL Savannah Laboratories in Savannah, Georgia (whole sediment analyses) and Columbia Analytical Services in Kelso, Washington (porewater extraction and analyses). The whole sediment samples (which includes sediment solids and porewater) were analyzed for phenolic constituents (phenol, monomethylphenols, and dimethylphenols), TOC, and moisture. The porewater samples were analyzed for select dissolved metals (calcium, magnesium, iron, potassium, sodium, manganese, barium, vanadium), chloride, SO_4^{2+}, bicarbonate, NH_4+, pH, and sulfide.

Sediment porewater was extracted at the Columbia Analytical Services laboratory according to the U.S. Army Corps of Engineers Dredged Material Management Program protocol (Hoffman, 1998). This protocol employs centrifugation under an anaerobic atmosphere. Porewater was filtered (0.45 micron filter) prior to metals analysis.

5.22.5 Fish Survey

Fish sampling was conducted from September 5 to 8, 2000 concurrent with the retrieval of HD samplers. Fish sampling was conducted by EA under the supervision of ARCADIS. Fish were collected by boat electrofishing, which involved shocking the water and collecting the stunned fish by net. The electrofishing was conducted at night, within the relatively shallow area between the shoreline and the deep river channel. These methods are consistent with recommendations for fish sampling in large rivers (Simon and Sanders, 1999). All sampling zones were 500 m in length and coordinates were recorded using a GPS unit at the beginning and end of each zone.

Fish were sampled using a pulsed direct current boat electrofishing technique at each of the 10 designated zones. The electro shocker was powered by a 5,000-watt generator with output controlled by a Coffelt Model VVP-15 pulser. Output settings generally were maintained at 60 pulses per second and 60 to 80 percent pulse width. The sampling crew consisted of one driver and one dipper. A 3/16 inch mesh dip net was used to collect stunned fish. Electrofishing proceeded in a downstream direction within each zone.

All fish collected within each zone were identified (typically to species), counted, checked for anomalies, and then batch weighed by species. Adult fish and juvenile fish were processed in the field and returned to the water alive.

6. Investigation Results and Comparison to Part 201 Criteria

6.1 Site-Wide Physical Characteristics

The current and past investigations in the Kingsford area have provided a good understanding of the geology and hydrogeology beneath the City of Kingsford. Subsurface geologic materials beneath Kingsford consist of a complex sequence of unconsolidated materials that overlie bedrock. The unconsolidated deposits encountered in the majority of the drilled locations consisted of a succession of bedrock overlain by clay, silt, sand and gravel and subsequently overlain by a coarser layer of gravel and coarse to fine grain sand. The geologic materials encountered provide insight into the depositional conditions under which they were deposited. However, due to the complex nature of these deposits and extent of the Study Area/AOC, correlation of geologic units between soil borings (boreholes) is sometimes difficult.

To better understand the geologic units, their distribution, and interrelationship, a 3-D geologic model of the Study Area/AOC was developed. The geologic units and sequences identified and described in over 100 shallow and deep boreholes throughout the Study Area were used as the basis for the 3-D geologic model (as described in Section 5.18, 3-D Modeling/Visualization). The locations of these boreholes are shown on Figure 5-1. The geologic succession in each of the boreholes is summarized in the borehole stratigraphic logs in Appendix B and detailed in the borehole soil boring/ sample core logs in Appendix A. In addition to the borehole data, seismic reflection data was used to determine the configuration of the bedrock surface.

Up to 13 different lithologic units, ranging from gravel to sand to clay, were characterized in each of the boreholes along with the thickness of each lithologic unit. These 13 units were then grouped into three composite lithologic units representative of depositional environments and hydrogeologic units. The three composite lithologic units have been designated as “Unit 1”, “Unit 2”, and “Unit 3”. The lithologic units included in Unit 1 are gravels and fine to coarse grain sands; geologic materials representative of the highest porosity and permeability. Unit 2 includes lithologic units consisting of very fine grain sands and silty sands, and Unit 3 includes lithologic units consisting of silts and clays. The geologic materials in Unit 2 and Unit 3 are representative of lesser porosity and permeability.

The association of the three hydrogeologic units in the 3-D geologic model to the lithologies and their depositional environments is shown on Figure 6-1, which is an example of a geologic cross-section produced from the 3-D geologic model. The 3-D geologic model allows the ability to study the geologic units (representative of the coarser gravel and sand, finer silty sand, and silt/clay) from various directions to determine distribution of lithologic units and also interpret geologic barriers and pathways for groundwater flow.

Six visualizations from the 3-D geologic model have been prepared to aid in the presentation of the Site-specific geology and hydrology. These files are included on a CD disk in Appendix H, along with a public domain computer program (HAVP 090.exe) to display these files. The six files are named as follows: Bedrock.HAV, Topobedrock.HAV, Boreholes.HAV, EWxsection.HAV, NSxsection.HAV, and Planexsection.HAV. These files are an integral part of the presentation and understanding of the Site geology. The Bedrock and Topobedrock files illustrate the bedrock surface, while the EWxsection, NSxsection, and Planexsection files show east-west vertical cross sections, north-south vertical cross sections, and plainer horizontal slice sections, respectively, across the Study Area. The Boreholes file shows the geologic units characterized in each of the boreholes that were used for the construction of the 3-D geologic model.

6.1.1 Site-Specific Geology

In general, three hydrogeologic units of unconsolidated deposits are encountered within the Study Area. The lowest or basal unit is successions of clays, silts, , sands and gravels that overlie bedrock. This unit is interpreted to have been deposited in a glaciolacustrine environment. Overlying the glaciolacustrine unit is a unit consisting of successions of fine to coarse grain sands and gravels that are representative of material deposited during glaciofluvial conditions. The third hydrogeologic unit, located adjacent to the Menominee River, consists of sands which are representative of an alluvial depositional environment. At some locations within the Study Area, a dense clay till, referred to as the Lodgement Till, overlies the bedrock surface.

The bedrock recovered from the boreholes is a metamorphosed gray, slightly fissile slate, with the exception of the bedrock encountered in Soil Borings GM-2B and GM-8 that is a metabasic igneous rock. The slate bedrock unit is locally known as the Michigamme Slate of Middle Precambrian age. The bedrock material observed exposed at the ground surface (outcrop) and recovered from boreholes is massive and very dense; therefore, it would tend to transmit very little water.

The paleo-surface of the bedrock determined during the investigations is shown on Figure 6-2 and can be viewed in the Bedrock.HAV and Topobedrock.HAV files included on the CD in Appendix H. Bedrock outcrop is present along the side of Highway M-95 in Michigan adjacent to the Menominee River, to the south of the Ford Airport and approximately 700-ft north of Menominee River, and to the east of the intersection of Riverview Drive and Beech Street, along the south side of Riverview Drive. In addition, bedrock is exposed on the Wisconsin side of the Menominee River. Elsewhere, the bedrock surface is covered by unconsolidated deposits. The maximum observed depth to bedrock of 363 ft was found at Soil Boring GMSB-2 (former SW Pit), which corresponds to the lowest bedrock elevation of 754 ft msl. The highest bedrock elevation of 1,135 ft msl is located at the bedrock outcrop south of the Ford Airport.

Review of the bedrock elevation data indicate that the surface of the bedrock forms a roughly elliptical basin which trends west-east in a band centered under Lodal Park (Figure 6-2). A mound in the bedrock surface is present within the basin at the location of Monitoring Well GM-33. Several mounds in the bedrock are also present along the Menominee River in the vicinity of Soil Boring GMSB-132 and groundwater Extraction Well GMEWA-11. The north side of the basin is characterized by a steep upward slope to the north with an average rise of 200 ft over a distance of approximately 1,500 ft. The bedrock in the southeastern portion of the basin has an equally steep upward slope to the southeast. These steep slopes may be related to old faults in the bedrock and erosion on the downthrown side of the fault. The steep faces of the bedrock basin play an important role in directing the flow of groundwater and chemical compounds in the subsurface.

The Lodgement Till overlies the bedrock at various locations throughout the Study Area. The till is an extremely dense and compacted silty clay with varying amounts of sand, gravel, and weathered bedrock fragments, ranging from dark reddish brown to dark bluish grey. The variable distribution of the till is the result of glacial erosion of the paleo-surface. Where present, the till ranges in thickness from a few ft to approximately 20 ft.

The deposits of glaciolacustrine and glaciofluvial clays, silts, sands and gravels that overlie the bedrock, or Lodgement Till, within the Study Area can be reviewed in the EWxsection.HAV, NSxsection.HAV, and Planexsection.HAV files on the CD. As previously discussed, these deposits have been characterized and placed into three composite hydrogeologic units representing gravel to fine grain sand (Unit 1), very fine grain sand and sandy silt (Unit 2), and silt and clay (Unit 3). The bedrock represents the basal boundary for the unconsolidated deposits. The association of the 3-D geologic model units to the lithologies and their depositional environments is shown on Figure 6-1; an example of a geologic cross section from the 3-D geologic model.

Boreholes drilled during the investigation activities revealed that the subsurface deposits are dominated by silts and a smaller number of clay layers, generally reddish brown; lenses of sand and gravel are present in lesser quantities. The glaciolacustrine sequence is thickest in the central portion of the Study Area around Lodal Park, which corresponds to the deepest portion of the bedrock basin.

The silt deposits occur over a wide area and are believed to be derived from weathered rock that originated on the Canadian Shield and deposited in a glacial moraine-dammed lake under low energy conditions. The thin layers of red clay, which are frequently interbedded with the silts are also deposited over a wide area. However, the clays are compositionally different from the silts. Field testing with hydrochloric acid during the investigation activities indicated that the red clays contained abundant calcium carbonate, a material which was not observed in coarser grained deposits. Despite their wide distribution, the layers of silt and clay do not always correlate well, either vertically or horizontally. Silts and clays deposited during a period of time could often be eroded during subsequent more energetic depositional events that scoured the lake bed, leaving discontinuities in the layers and creating groundwater pathways between different sand units.

Examination of the lower sands and gravels encountered within the glaciolacustrine succession indicates that, like the silts, they are derived from glacially eroded igneous and metamorphic rocks of the Canadian Shield. The deposits are believed to reflect energetic depositional conditions that occur during high discharge glacial melting events. The higher-energy deposits tend to have a more restricted distribution (less lateral continuity) than finer grain units, since more energy is required to transport them. The sands and gravels within the glaciolacustrine succession are most commonly associated with the bedrock interface and edges of the bedrock basin. However, certain sand zones appear more extensive within the glaciolacustrine succession. Particularly notable is a sand layer deposited on the western side of the Study Area along the east bank of the Menominee River. This north-south trending sand layer, which disappears to the east, maintains a thickness of approximately 25 ft at an elevation of approximately 1,040 ft msl. This sand layer is shown in geologic cross sections, which are at the locations indicated on Figure 6-3 and shown on Figures 6-4 through 6-7. This sand has been found to serve locally as a pathway and reservoir for the accumulation of gas-phase methane.

Overlying the deposits of glaciolacustrine clays, silts, sands and gravels are glaciofluvial deposits dominated by fine to coarse grain sands and gravels, generally yellowish brown to brown in color. Distribution and correlation of the glaciofluvial units can be reviewed in the EWxsection.HAV, NSxsection.HAV, and Planexsection.HAV files on the CD. Finer grain deposits are less common, but not completely absent, within this upper glaciofluvial unit. The presence of sands and gravels and their distribution in this upper unit suggest that it was deposited under high energy glaciofluvial conditions. Such conditions could occur during an event such as a breach in a moraine dam. Under these conditions, the sands and gravels would have been deposited as a sheet over a large area. Depositional conditions appear to have been particularly energetic on the eastern side of the Study Area, where borehole logs from the investigation indicate that sands and gravels are coarser and thicker. In addition, review of a 1936 aerial photograph shows that numerous lineaments are apparent in the eastern portion of the Study Area near Monitoring Wells UG-4, UG-5, GM-15 and the historic Sewer Creek (Figure 3-2), indicative of very energetic braided fluvial systems in the shallow deposits. The glaciofluvial deposits are sometimes absent and range in thickness up to 70 ft. The thickest glaciofluvial deposits were generally encountered in the eastern portion of the Study Area near the historic Sewer Creek (Figure 3-2).

The depositional model for the upper sands and gravels is consistent with the flat topography present over much of the northern part of the Study Area that corresponds to the Upper Terrace. Glacial kettles that are found in the upper sands and gravels (such as the former NE and SW Pits) are attributed to ice which was deposited prior to and concurrently with the glaciofluvial deposits. When the ice was deposited, it was surrounded and covered by sands and gravels. However, the ice subsequently melted, producing kettles. The bottom of the kettles occasionally have thin layers of very poorly sorted mixtures of sands, silts and clays which were contained in the ice prior to melting, but was subsequently compacted to form a basal layer in the kettle after the ice melted.

The most recent deposits in the Kingsford area occur along the banks of the Menominee River. Subsequent to the deposition of the glaciolacustrine and glaciofluvial sediments, the Menominee River flowed to the south of the Study Area. The river eroded the glacial sediments and cut the River Terrace adjacent to the Menominee River, upon which it deposited coarse grain alluvial deposits. These recent, coarse grain alluvial deposits were encountered at Monitoring Well GM-8 where they appear to overlie the bedrock. Glaciolacustrine and glaciofluvial deposits, which may have been previously present in the area, have since been eroded by the

Menominee River. At Monitoring Well GM-9, the alluvial deposits are present, but they overlie glaciolacustrine materials.

6.1.2 Site-Specific Hydrogeology

Information from the soil borings indicate that the unsaturated deposits within the Study Area are interbedded sands and gravels, which generally overlie less permeable deposits of silts and clays. Since water cannot percolate as easily through finer grain deposits that underlie the sands and gravels, infiltrating water can accumulate as a localized perched zone over finer grain layers, where present, above the water table. Data collected during the investigations indicate that the groundwater system is complex and different zones within the groundwater system are hydraulically poorly connected.

In general, the depth to groundwater in the upper saturated groundwater system ranges from approximately 10 ft bls near the Menominee River to over 50 ft bls on the Upper Terrace. Groundwater levels collected during the investigations have been used to ascertain the groundwater flow regime in the unconsolidated deposits underlying the Study Area. Groundwater elevations calculated from the groundwater level measurements collected from wells and staff gauges are included in Table J-1 in Appendix J. Potentiometric heads from wells have been used to determine magnitudes and directions of the vertical and horizontal components of the hydraulic gradients.

Hydrographs of the groundwater levels measured in each well were generated to reflect the variation in the groundwater level over the duration of the investigations through December 2007. The hydrographs are contained in Appendix J. The hydrographs for the wells show that groundwater levels fluctuated between May 1997 and December 2007 from as little as 0.5 ft to as much as 8 ft. The highest measured groundwater levels during the monitoring period were recorded in the springs of 1997, 2001, and 2003.

As would be expected, the shallower groundwater showed more frequent and larger variations in water level elevations than the deeper groundwater. The shallow groundwater displayed a general 1 to 3 ft decrease throughout 1997 and 1998, with a rebound in water levels during 1999, followed by marked increases in water levels in 2001 and 2005. Overall, groundwater levels have steadily declined since 2005.

The deep groundwater levels displayed an overall decrease of 2-ft from spring 1997 through winter 1998. During 1999 a deep groundwater level increase of approximately 1 ft occurred, followed by additional deep groundwater level increases in 2001 and 2005. As in the shallow groundwater, there have been steady decreases in the deep groundwater levels since 2005. Overall, deep groundwater water elevations followed the same trend as shallow groundwater.

Groundwater levels at intermediate depths responded similar to either the shallow or deep groundwater. The actual response was dependent upon the location and the geologic conditions present in the vicinity of where the well was completed. Groundwater levels in the wells along the Menominee River have shown similar patterns of change, regardless of the depth of the groundwater. The groundwater levels in these wells along the Menominee River fluctuated approximately 6 ft over a 10-year monitoring period, without a significant drop in overall groundwater levels for the period. These wells showed a spike in the groundwater levels in 2001, corresponding to a similar change in the surface water elevation of the Menominee River for the same period.

As noted on the hydrographs, certain wells are under the influence of trapped gas-phase methane. Erratic or suspect groundwater levels were observed in these wells (Appendix J).

The groundwater levels measured in the wells display some similar variations in elevations over time. These groundwater elevation changes can be grouped into four basic patterns, independent of groundwater depth. These patterns can be seen in the hydrographs for the wells included in Appendix J. The patterns range from relatively uniform with small elevation changes of less than 2 ft to decreasing with elevation changes of greater than 2 ft. The other two groups show seasonal variations through 2001, which is where differences occur. In one of these groups, the 2001 data, shows a distinct upward spike in groundwater elevation followed by an immediate drop-off, and then an additional water level elevation increase in 2002. The other group shows a smaller rise in 2001 and an additional rise in 2004 or 2005. Both groups show decreasing groundwater elevations after 2005. A fifth group consisting of the methane-influenced wells shows random groundwater elevations with no apparent trends.

Groundwater levels collected from select monitoring wells were used to generate deep-well and shallow-well groundwater potentiometric surface maps. Four sets of groundwater level data over a year long period were used to show any effects seasonal fluctuations of the groundwater levels may have on groundwater gradients and flow directions. The dates of the groundwater data sets used to construct the groundwater potentiometric surface maps included: August 21, 1999, December 31, 1999, and March 18 and June 17, 2000. In addition, a deep-well and a shallow-well groundwater potentiometric surface map were prepared from the groundwater data set collected from November 28, 2006 to demonstrate the lack of fluctuation in the groundwater gradients and flow directions over time.

Significant head differences in the groundwater can exist between shallow and deep nested wells. The differences reflect the vertical component of the hydraulic gradients in the recharge areas, away from the Menominee River. Based on the vertical component of the hydraulic gradients, only selected wells screened at similar levels in hydrogeologic succession were used to generate the deep groundwater system and shallow groundwater system potentiometric surface maps presented on Figures 6-8 through 6-17. Monitoring wells where the measured groundwater level is potentially influenced by gas-phase methane were not used to construct the groundwater potentiometric surface maps.

The deep groundwater system potentiometric surface indicates that groundwater within the deeper portions of the groundwater system flows generally southwestward toward the Menominee River, under a horizontal hydraulic gradient that ranges from 0.003 feet per foot (ft/ft) to 0.04 ft/ft. As shown on Figures 6-8 through Figure 6-12, lower horizontal hydraulic gradients are more characteristic across the Study Area, and the steeper horizontal hydraulic gradients are associated with the bedrock highs along the northern portion of the Study Area. The deep potentiometric surface maps indicate no seasonal changes in the groundwater gradient and flow direction.

It is important to keep in mind that in a complex geologic setting such as within the Study Area, groundwater flow is a complex 3-D system and flow directions are dictated by both geology and groundwater levels. Although the groundwater level data confirms that groundwater flow is toward the Menominee River, the exact pathway that groundwater uses to get to the river is highly dependent on geology, with groundwater moving preferentially through the coarser grain deposits. The geologic visualization files EWxsection.HAV, NSxsection.HAV, and Planexsection.HAV on the CD included in Appendix H illustrate the complex pathways that exist through different sand layers that are often interconnected in an irregular manner.

In addition, bedrock exerts an influence on both the vertical and horizontal components of the groundwater flow. Bedrock acts as a hydraulic barrier restricting vertical movement downward, but more importantly, the steep bedrock rises on the northern and southeastern sides of the bedrock basin also exert a westerly component to the horizontal groundwater flow direction.

The shallow groundwater system potentiometric surface (Figures 6-13 through 6-17) indicates that groundwater within the shallower portions of the groundwater system also flows generally southwest toward the Menominee River, under a horizontal component of the hydraulic gradient that ranges from 0.004 to 0.03 ft/ft. Anomalies in the shallow groundwater potentiometric surface represent various perched water zones and the influence of localized sources, notably a storm sewer discharge that is present at the western end of Breen Avenue. The shallow potentiometric surface maps again indicate no seasonal changes in the shallow groundwater gradient and flow direction.

Groundwater level measurements collected on August 21, 1999 from monitoring well nests were used to prepare a map of the vertical component of the hydraulic gradients, which is included on Figure 6-18. The groundwater elevations in the lowest and upper-most well screen in the well nest were used to calculate the vertical gradient. The influence of the Menominee River on the groundwater flow regime is notable in the distribution of the vertical gradient values. Groundwater levels in the monitoring wells adjacent to the Menominee River are often above the surface water level of the Menominee River, indicating that groundwater has an upward vertical component to the hydraulic gradient in this area. This contrasts with the vertical components of the hydraulic gradient observed through most of the Study Area, which are downward. The additional groundwater data collected through December 2007 confirms the pattern of the vertical component of the hydraulic gradients shown by the August 21, 1999 groundwater data.

The largest downward component of the hydraulic gradient is located in the area of Monitoring Well MW-2A/B (+0.863 ft/ft) and the largest upward component of the hydraulic gradient is located in the area of Monitoring Wells GM-25A/B/C (-0.012 ft/ft) and GM-38A/B/C (-0.014 ft/ft). The reversal in the vertical component of the hydraulic gradient is observed along the “0” contour line, where the vertical component changes from downward “positive values” to upward “negative values” (Figure 6-18).

Generally, all the vertical components of the hydraulic gradient along the Menominee River are upward, with the exception of those at Monitoring Well Nest GM-28A/B. At this location, the groundwater elevation in Monitoring Well GM-28B is above the surface water elevation of the Menominee River, indicating groundwater migrates to the Menominee River from the zone where Monitoring Well GM-28B is completed. However, the shallow zone, where Monitoring Well GM-28A is completed, has a higher groundwater elevation than the groundwater elevation in Monitoring Well GM-28B. This anomaly may reflect artificial recharge of water resulting from a storm water discharge point at the west end of Breen Avenue, or may be due to the location of the Monitoring Well GM-28 well nest, further away from the Menominee River than the other wells along the river.

Hydraulic conductivities determined from specific capacity tests performed on monitoring wells provide an indication of the ability of the coarser grain units in the unconsolidated deposits to transmit groundwater. The hydraulic conductivity values calculated from the wells where specific capacity tests were completed are shown in Table 5-12.

The calculated hydraulic conductivities have been categorized by the three composite geologic units which were defined for the geologic model. These geologic units, designated as Unit 1, Unit 2, and Unit 3, are independent of depth. The hydraulic conductivities are categorized as one of the three units based upon the lithology of the materials in which the well screen is completed. This information is also found in Table 5-12.

The hydraulic conductivities in the coarser grain sand units (Unit 1) generally range from 10^{-3} centimeters per second (cm/sec) to 10^{-1} cm/sec. Well development records show that most of the monitoring wells completed in these units produce sediment free groundwater and can sustain flow rates over 1 gallon per minute (gpm) without water level drawdown. Several monitoring wells, although characterized as representative of Unit 1, contain some fraction of very fine sand and silt characteristic of Unit 2. These wells have hydraulic conductivities around 10^{-4} cm/sec.

The hydraulic conductivities in Unit 2, which is characterized by very fine grain sands and sandy silt, range from 1.03×10^{-3} to 3.94×10^{-5} cm/sec. As a result of the hydraulic conditions, only five monitoring wells were screened in this type of unit because of the difficulty in producing groundwater. Monitoring wells completed in this unit can be purged dry, and produce significant amounts of silt even after these wells are developed. These monitoring wells are difficult to sample and require an overhaul of the pump, due to the silty conditions, once the sampling process is complete.

No data are available for the hydraulic properties of the clays and silts, which are considered Unit 3, but they are expected to have hydraulic conductivities that are several orders of magnitude lower than those determined for the Unit 2 deposits. The typical hydraulic conductivity for a clay ranges from 10^{-9} to 10^{-6} cm/sec, and for silt 10^{-6}

to 10^{-4} cm/sec (Fetter, C.W., 1994). The hydraulic conductivity data calculated for the very fine grain sands and sandy silts (Unit 2) also support the lower hydraulic conductivities expected in the clays and silts (Unit 3).

Based on the values of the hydraulic conductivities representative of the geologic units, the majority of the groundwater flow occurs in Unit 1 (sand/gravel), with limited movement through Unit 2 (very fine grain sand/sandy silt) and essentially no movement through the Unit 3 (silt/clay). Whatever movement of groundwater that does occur in Unit 2 and Unit 3 would take a substantially longer period of time than for movement in Unit 1.

6.2 Site-Wide Groundwater Characteristics

Groundwater characteristics throughout the Study Area and AOC have been evaluated through the collection of groundwater samples by ARCADIS from 124 monitoring wells and five residential water supply wells during the EE/CA, RI, and additional investigation activities through December 2007. In addition to the groundwater samples collected from the monitoring and residential wells, groundwater grab samples were collected from soil borings at selected intervals to evaluate vertical variation in the groundwater conditions. Several water samples were also collected from groundwater seep areas adjacent to the Menominee River. The groundwater samples that have been collected through December 2007 are summarized in Tables 5-8 through 5-11.

Throughout the RI and additional investigations, two complete site-wide rounds of groundwater samples have been collected, along with multiple additional sampling of individual monitoring wells, which represent 552 groundwater samples through December 2007. In addition, 50 groundwater samples were collected during the EE/CA investigation and incorporated in the characterization of site-wide groundwater. Groundwater data that were designated as estimated concentrations by the laboratory were included in the groundwater characteristics evaluation, although these estimated values were often below the method quantitation limits and may not be accurate. Groundwater data that were rejected during the data validation process were not used. The locations of the monitoring wells where the groundwater samples were collected are shown on Figure 5-1.

The groundwater samples evaluated site-wide include samples throughout the Study Area and AOC, including the residential areas and the potential source areas. The list of analytical parameters for the groundwater is included in Table 5-14. However, this list does not necessarily coincide for every groundwater sample due to the variation in the constituent list between the initial EE/CA investigation and subsequent RI and additional investigations, as well as the purpose for which some of the groundwater samples were collected. The constituent list was specified by the governing regulatory agencies at the time of the sampling events.

In a general TCL analysis by the laboratory, 195 constituents and groundwater parameters were analyzed. These included 60 VOCs, 75 SVOCs, 14 aldehydes, 11 alcohols, 25 metals (each for total and dissolved), and 10 inorganic parameters.

6.2.1 Site-Wide Groundwater Quality

A total of 142 constituents have been detected above the laboratory method detection limits in the groundwater samples collected from the Study Area. The detected constituents included 37 VOCs, 35 SVOCs, 11 alcohols, 14 aldehydes, 25 metals, 15 inorganics, 2 organic acids, and dissolved methane. The list of constituents detected in the groundwater is provided in Table 6-1, and measured concentrations of the constituents are listed by chemical category in Tables 6-2 through 6-7 for the groundwater grab samples, and Tables 6-8 through 6-14 for groundwater samples collected from monitoring wells. These tables contain only constituents that were detected in the groundwater, and do not include the constituents that were analyzed but not detected. The list of all the constituents analyzed is shown in Table 5-14.

Detected constituent concentrations that were estimated by the laboratory to be below the method quantitation limits are included in the tables, but detected constituent concentrations rejected during the data validation process are not included. Detectable tentatively identified compounds (TICs) from the groundwater samples are included in summary tables in Appendix K. The analysis of TICs for site-wide groundwater samples was discontinued after January 2001.

6.2.1.1 Comparison to Michigan Part 201 Generic Cleanup Criteria and Screening Levels

The groundwater sampling results from the Study Area and AOC were compared to: State of Michigan Generic Residential and Commercial I groundwater criteria as defined in MDEQ Remediation and Redevelopment Divison (RRD) Operational Memorandum #1 (January 23, 2006) Part 201 Generic Cleanup Criteria and Screening Levels; MDEQ Part 4 Water Quality Standards for final acute values (FAV) and FCV as defined in Rule 323.1057 (December 11, 2006); and the Groundwater Flammability and Explosivity Screening Level as defined in MDEQ Rule 299.5744. The specific generic groundwater criteria used for the purpose of this evaluation include the following:

1. DWC

2. Groundwater Volatilization to Indoor Air Inhalation Criteria (GVIAIC)

3. Groundwater Contact Criteria (GCC)

4. FAV

5. FCV

6. Groundwater Flammability and Explosivity Screening Level (FESL)

The groundwater samples collected from the Study Area and AOC have not been compared to the Part 201 Generic Groundwater/Surface Water Interface (GSI) criteria in this section, as the compliance point for groundwater discharges to a surface water body is at the GSI (Menominee River). The majority of the Study Area monitoring wells and the analytical data for groundwater collected from them are not at or near the GSI, and are not considered to be representative of the conditions of the GSI, nor do they form a complete pathway throughout the Facility.

The groundwater analytical data collected from the monitoring wells near the Menominee River is discussed in Section 6.3. Comparison of the applicable groundwater analytical data to the GSI criteria, the FAV criteria, the FCV criteria, and WET testing criteria are also discussed in Section 6.3.

The State of Michigan generic criteria used for comparison to constituent concentrations in the groundwater here and in the soil described in subsequent sections may or may not necessarily apply to the Site, but are used as an initial screening to determine Site conditions. Pathway analysis, site-specific conditions, the mixing zone for the Menominee River, and other factors will ultimately determine the applicable criteria for the Site. In some instances, naturally occurring constituent concentrations representative of background conditions may be above the generic criterion.

Only a portion of the constituents detected in the groundwater were above certain generic Part 201 groundwater criteria. A comparison of the groundwater quality to the generic criteria is shown in Tables 6-2 through 6-14. Generally, the constituent concentrations display some variability between sampling rounds. The variability between concentrations from different collection dates for a well is shown in the groundwater results tables (Tables 6-2 through 6-7 for groundwater grab samples, and Tables 6-8 through 6-14 for groundwater samples from monitoring wells). A constituent concentration that is above a certain generic groundwater criterion from one round of groundwater sampling may or may not be above the generic groundwater criterion from another round of groundwater sampling.

6.2.1.1.1 DWC

Comparison of the 142 constituents detected in the groundwater within the Study Area and AOC to the generic DWC shows that 67 constituents were present at a concentration above the generic DWC. These constituents are identified with their respective concentrations in Tables 6-2 through 6-14. As of December 2006, there were no generic DWC established for 28 of the detected constituents that include four VOCs, two SVOCs, three metals, two alcohols, 11 aldehydes, and six inorganics. These constituents are identified under the DWC listed for comparison at the ends of the respective data tables. Also, several of the criterion values listed as DWC are based on the aesthetic drinking water value (notably iron and manganese), as required by section 20120a(5) of the act.

A summary of the 67 constituents present at concentrations above the generic DWC, along with the range of the concentrations measured above the generic DWC, and the monitoring well where the highest concentration occurred, is shown in Table 6-15. Of these 67 constituents, nine were VOCs, 28 were SVOCs, seven were alcohols, one was an aldehyde, 17 were metals, four were inorganics, and one was an organic acid.

While the 67 constituents identified were present at concentrations above the generic DWC, none of these constituents affect or will affect the City of Kingsford potable water supply, which also supplies public water for the portion of Breitung Township that is included in the AOC. The potable water in Kingsford is supplied from municipal wells northwest of the city, away from the areas where the DWC were exceeded. All of the residential water supply wells identified within the Study Area and AOC have been abandoned.

The nine VOCs that were detected at concentrations above the generic DWC include: acetone, acrylonitrile, benzene, cis-1,2-dichloroethene, diethyl ether, methylene chloride, tetrachloroethene, tetrahydrofuran, and trichloroethene. The concentrations of the VOCs are listed in Table 6-2 for the grab samples, and Table 6-8 for the monitoring well samples. The number of grab sample and monitoring well locations with VOC concentrations above the generic DWC are summarized below:

- Benzene - 52 locations
- Diethyl ether - 25 locations
- Tetrachloroethene - 11 locations
- Acetone - 12 locations
- Trichloroethene - 8 locations
- Methylene chloride - 3 locations
- Tetrahydrofuran - 2 locations
- Acrylonitrile and cis-1,2-dichloroethene - 1 location

Many of the VOCs detected above the generic DWC from a location could not be confirmed by additional samples collected from that location. With the exception of benzene, diethyl ether, tetrachloroethene, and acetone, the occurrence of the VOCs that had concentrations above the generic DWC was very limited. The distribution of the VOCs in the groundwater is discussed further in Section 6.2.2.

The 28 SVOCs that were detected at concentrations above the generic DWC include: 1,4-dioxane, 2,4-dimethylphenol, 2,4-dimethylphenol/2,5-dimethylphenol, 2,6-dimethylphenol, 2-methylphenol, 2-nitrophenol, 3,4-dimethylphenol, 3-methylphenol, 3-methylphenol/4-methylphenol, 4-methylphenol, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, carbazole, chrysene, dibenzo(a,h)anthracene, di-n-butylphthalate, di-n-octylphthalate, fluoranthene, hexachlorobenzene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, and phenol. The concentrations of the SVOCs are identified in Table 6-3 for the grab samples, and Table 6-9 for the monitoring well samples. The number of grab sample and monitoring well locations with SVOC concentrations above the generic DWC are summarized below:

- 2,6-dimethylphenol - 48 locations

- 2,4-dimethylphenol - 31 locations
- 2,4-dimethylphenol/2,5-dimethylphenol - 32 locations
- Bis(2-ethylhexyl)phthalate - 30 locations
- 3,4-dimethylphenol - 22 locations
- 2-methylphenol - 27 locations
- Benzo(g,h,i)perylene - 18 locations
- 3-methylphenol/4-methylphenol (m&p cresol) - 18 locations
- 4-methylphenol - 15 locations
- Indeno(1,2,3-c,d)pyrene - 14 locations
- Dibenzo(a,h)anthracene - 13 locations
- 3-methylphenol - 8 locations
- Phenol - 7 locations
- Benzo(a)pyrene - 6 locations
- Benzo(k)fluoranthene - 5 locations
- Benzo(b)fluoranthene - 3 locations
- Benzo(a)anthracene and Chrysene - 2 locations
- 1,4-dioxane, 2-nitrophenol, anthracene, carbazole, di-n-octylphthalate, hexachlorobenzene, and phenanthrene - 1 location

As with the VOCs, many of the SVOCs detected above the generic DWC from a location could not be confirmed by additional samples collected from that location. Overall, the occurrence of the SVOCs that had concentrations above the generic DWC is greater than that displayed by the VOCs. The distribution of the SVOCs in the groundwater is discussed further in Section 6.2.2.

The 17 metals that were present at concentrations above the generic DWC include: aluminum, antimony, arsenic, barium, cadmium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, sodium, thallium, and vanadium. The concentrations of the metals are identified in Table 6-4 for the grab samples, and Table 6-10 for the monitoring well samples. The number of grab sample and monitoring well locations with metal concentrations above the generic DWC are summarized below:

- Manganese - 131 locations
- Iron - 115 locations
- Arsenic - 71 locations
- Aluminum - 59 locations
- Vanadium - 35 locations
- Lead - 8 locations
- Magnesium - 6 locations
- Antimony - 5 locations
- Cadmium - 4 locations
- Sodium - 3 locations
- Chromium, nickel, and thallium - 2 locations
- Barium, cobalt, copper, and mercury - 1 location

It should be noted that the manganese and iron locations outlined above are based on the MDEQ aesthetic criteria of 50 µg/L and 300 µg/L, respectively. The footnoted health-based drinking water values for manganese and iron are 860 µg/L and 2,000 µg/L, respectively. If the manganese and iron concentrations detected in the groundwater from the grab sample and monitoring well locations are compared to the health-based drinking water value for each, then the concentrations of manganese were above this value at 37 locations and iron concentrations above this value at 88 locations.

Some metals were detected at concentrations above the generic DWC in a large number of groundwater samples collected from locations across the Study Area. Some of these locations are in areas considered as background locations, and the concentrations of the metals detected in groundwater are considered representative of concentrations that occur naturally in the groundwater, even though they were above the generic DWC. The sample of groundwater in which the mercury concentration was above the generic criteria was collected from Monitoring Well GM-36. Groundwater collected from subsequent sampling rounds at Monitoring Well GM-36 did not detect mercury in the groundwater, suggesting the presence of mercury initially reported by the laboratory is not a representative concentration for the groundwater.

The four non-metal inorganic constituents that were detected above the generic DWC include: NH_4+, chloride, NO_3^-, and SO_4^{2+}. The concentrations of these inorganics are identified in Table 6-5 for the grab samples, and Table 6-11 for the monitoring well samples. The SO_4^{2+} concentrations were above the generic DWC in groundwater collected from nine locations, the chloride concentrations were above the generic DWC in groundwater from two locations (similar to manganese and iron, the criterion for chloride is based on an aesthetic drinking water value), and the NH_4+and NO_3^- concentrations were above the generic DWC in groundwater at one location.

Acetaldehyde was the only aldehyde detected in the groundwater at concentrations above the generic DWC. The concentrations of acetaldehyde are identified in Table 6-5 for the grab samples, and Table 6-11 for the monitoring well samples. The concentration of acetaldehyde was above the generic DWC at seven locations.

The seven alcohols that were present in groundwater collected in concentrations above the generic DWC include: 1,4-dioxane, acetonitrile, ethylene glycol, isobutanol, isopropanol, methanol, and n-butanol. The concentrations of the alcohols are listed in Table 6-5 for the grab samples, and Table 6-12 for the monitoring well samples. The number of grab sample and monitoring well locations with alcohol concentrations above the generic DWC are summarized below:

- n-Butanol - 23 locations

- Ethylene glycol - 9 locations

- Isopropanol - 7 locations
- Methanol - 3 locations
- Isobutanol - 2 locations
- 1,4-Dioxane and acetonitrile - 1 location

Acetic acid, as reported by the laboratory, was the only organic acid that was detected above the generic DWC. The concentrations for acetic acid are listed in Table 6-5 for the grab samples, and Table 6-12 for the monitoring well samples. The concentrations reported as acetic acid in groundwater were shown to be above the generic DWC at 19 monitoring well locations. Although comparisons were made for the acetic acid concentrations to the generic Part 201 criteria, these comparisons are not valid. The reason that the comparisons are not valid is that the analytical method currently used by laboratories measures acetate as well as acetic acid. The method employed by Trimatrix's subcontractor (Water Resources Institute at Grand Valley State University) is ion chromatography. Sodium hydroxide is used to convert all undissociated acetic acid to acetate, and the acetate concentration is then measured. Therefore, the analytical results reported represent acetic acid plus acetate, not solely the concentration of acetic acid.

An example of this is the analytical results for Monitoring Well GM-25B, which had a laboratory-reported acetic acid concentration of 3,700 mg/L. This concentration, if solely acetic acid, would result in a groundwater pH of approximately 3 standard units (highly acidic), but in fact the pH of the groundwater from Monitoring Well GM-25B was measured as 6.0 standard units (near neutral). Also, a rather high concentration of bicarbonate was measured. The only reasonable explanation for these results is that most of the constituent reported by the laboratory as "acetic acid" in the groundwater has actually been neutralized through a chemical reaction with carbonate-containing mineral (buffering), resulting in the formation of bicarbonate and acetate anions. Therefore, the combined acetic acid/acetate concentrations that are currently reported as acetic acid concentrations above the generic DWC for acetic acid may not actually be above this DWC.

It should be noted that MDEQ has recognized this analytical issue and has appropriately modified the criterion for FAV and FCV to compensate for the actual pH of the sample and reflect the actual ions present.

6.2.1.1.2 GVIAIC

Groundwater quality data collected within the Study Area and AOC was compared to the generic GVIAIC as shown in Tables 6-2 through 6-14. The groundwater results show that only one SVOC constituent, anthracene, was detected in the groundwater at a concentration above the generic GVIAIC. However, it should be noted that anthracene was detected at a concentration above the GVIAIC in groundwater collected from one location (Monitoring Well GM-2B) and the concentration is reported by the laboratory as an estimated concentration below the method quantitation limit (Table 6-9).

6.2.1.1.3 GCC

Groundwater quality data collected within the Study Area and AOC was compared to the generic GCC as shown in Tables 6-2 through 6-14. The groundwater analytical results show that only SVOCs were detected in the groundwater at concentrations above the generic GCC. The 10 SVOCs present in the groundwater in concentrations above the generic GCC included: anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h,)anthracene, indeno(1,2,3-c,d)pyrene, and hexachlorobenzene. The concentrations of the SVOCs are identified in Table 6-3 for the grab samples, and Table 6-9 for the monitoring well samples. The number of grab sample and monitoring well locations with SVOC concentrations above the generic GCC are summarized below:

- Benzo(g,h,i)perylene - 18 locations
- Indeno(1,2,3-c,d)pyrene - 14 locations
- Dibenzo(a,h)anthracene - 13 locations
- Benzo(a)pyrene - 10 locations
- Benzo(k)fluoranthene - 5 locations
- Benzo(b)fluoranthene - 3 locations
- Chrysene - 2 locations
- Anthracene and hexachlorobenzene - 1 location

The SVOC concentrations detected above the generic GCC in groundwater collected from Monitoring Wells GM-2B, GM-23, GM-25C, GM-27B, GM-27C, GM-32, GM-37A, GM-62C, GM-63B, GM-64A, GM-71, and GM-79 were only present once in one sample; additional groundwater samples collected from these monitoring wells did not confirm the one time results or detect the SVOCs present above the laboratory method detection limit. The concentrations of the SVOCs found above the generic GCC in the groundwater collected from Monitoring Wells GM-2B, GM-26C, GM-32, GM-37A, GM-62C, GM-63B, and GM-71 were all estimated values reported below the laboratory method quantification limit.

6.2.1.1.4 FAV

The FAV criteria should not be considered relevant since there is not a complete pathway for many sampling locations throughout the Study Area due to distance and lack of direct communication of the groundwater from the locations to the surface waters of the Menominee River. The FAV criteria are also subject to adjustment and replacement due to pathway evaluation and site-specific criteria development.

However, to conduct a generic comparison to identify where constituents above the generic FAV occur, and to determine if there is a relevant pathway, all of the groundwater quality data collected within the Study Area and AOC were compared to the generic FAV criteria, as shown in Tables 6-2 through 6-14. Results of the comparison indicate that, of the 142 constituents detected in the groundwater within the Study Area and AOC, 18 constituents were present at concentrations above the generic FAV criteria. Ten of the 18 constituents were SVOCs, one was an aldehyde, and seven were metals. There were no VOCs detected in the groundwater collected from the Study Area and AOC at a concentration above the generic FAV criteria.

The 10 SVOCs that were detected at concentrations above the generic FAV criteria include: 2-methylphenol, 3-methylphenol, 4-methylphenol, 3-methylphenol/4-methylphenol (m&p-cresol), 2,4-dimethylphenol, 2,4-dimethylphenol/2,5-dimethylphenol, carbazole, fluoranthene, phenanthrene, and phenol. The concentrations of these SVOCs are identified in Tables 6-3 and 6-9. The number of grab sample and monitoring well locations with SVOC concentrations above the generic FAV criteria are summarized below:

- 3-methylphenol/4-methylphenol (m&p-cresol) - 15 locations
- 2-methylphenol - 14 locations

- 4-methylphenol - 13 locations
- 2,4-dimethylphenol - 11 locations
- 2,4-dimethylphenol/2,5-dimethylphenol, 3-methylphenol, and phenol - 6 locations
- Carbazole, fluoranthene, and phenanthrene – 1 location

The seven metals that were detected above the generic FAV criteria include: barium, cadmium, chromium, copper, manganese, mercury, and zinc. The concentrations of the metals are identified in Tables 6-4 and 6-10. The number of grab sample and monitoring well locations with metal concentrations above the generic FAV criteria are summarized below:

- Copper - 19 locations
- Chromium - 6 locations
- Cadmium and zinc - 3 locations
- Barium, manganese, and mercury - 1 location

The groundwater sample containing the mercury concentration above the generic FAV criteria was collected from Monitoring Well GM-36. Groundwater collected from subsequent sampling rounds from Monitoring Well GM-36 did not contain detectable concentrations of mercury above the laboratory method detection limit, suggesting the presence of mercury initially reported is not representative nor present in the groundwater.

Acetaldehyde was the only aldehyde that was detected in the groundwater at concentrations above the generic FAV criteria. As shown in Table 6-12, the concentrations of acetaldehyde detected above the FAV criteria were only present in the groundwater collected from Monitoring Well GM-32, and detected above the generic FAV criteria in only 2 of the four groundwater samples collected from this monitoring well. Concentrations of acetaldehyde above the generic FAV criteria have not been detected in any of the groundwater collected from the Study Area/AOC after 2000.

6.2.1.1.5 FCV

The FCV criteria also should not be considered relevant since there is not a complete pathway for many sampling locations throughout the Study Area, due to distance and lack of direct communication of the groundwater from the locations to the surface waters of the Menominee River. The FCV criteria are also subject to adjustment and replacement due to pathway evaluation and site-specific criteria development.

However, to conduct a generic comparison to identify where constituents above the generic FCV criteria occur, all of the groundwater quality data collected within the Study Area and AOC were compared to the generic FCV criteria, as shown in Tables 6-2 through 6-14. Results of the comparison indicate that, of the 142 constituents detected in the groundwater within the Study Area and AOC, 35 constituents were present at concentrations above the generic FCV criteria. Four of the 35 constituents were VOCs, 12 were SVOCs, two were alcohols and aldehydes, and 15 were metals. The four VOCs that were detected at concentrations above the generic FCV criteria include: 1,2,4-trimethylbenzene, ethylbenzene, acetone, and total xylene. The concentrations of the VOCs are identified in Tables 6-2 and 6-8. Total xylene and acetone were detected above the generic FCV criteria at four locations. 1,2,4-trimethylbenzene was detected above the FCV criteria at only one location, Monitoring Well GM-72, and only in one groundwater sample of four collected from this location. Ethylbenzene was also detected above the generic FCV criteria only once and from only one location, the groundwater grab sample from the soil boring for Monitoring Well GM-12.

The 12 SVOCs that were detected above the generic FCV criteria include: 2-methylphenol, 3-methylphenol, 4-methylphenol, 3-methylphenol/4-methylphenol (m&p-cresol), 2,4-dimethylphenol, 2,4-dimethylphenol/2,5-dimethylphenol, carbazole, di-n-butylphthalate, fluoranthene, naphthalene, phenanthrene, and phenol. The concentrations of the SVOCs are identified in Tables 6-3 and 6-9. The number of grab sample and monitoring well locations with SVOC concentrations above the generic FCV criteria is summarized below:

- 2,4-dimethylphenol/2,5-dimethylphenol - 32 locations
- 2,4-dimethylphenol - 31 locations
- 2-methylphenol - 23 locations

- 3-methylphenol/4-methylphenol (m&p cresol) - 22 locations
- Phenol - 17 locations
- 4-methylphenol - 14 locations
- 3-methylphenol - 8 locations
- Naphthalene and Di-n-butylphthalate - 3 locations
- Carbazole, fluoranthene, and phenanthrene - 1 location

The 15 metals that were detected above the generic FCV criteria include: arsenic, barium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, vanadium, and zinc. The concentrations of the metals are identified in Tables 6-4 and 6-10. The number of grab sample and monitoring well locations with constituent concentrations above the generic FCV criteria is summarized below:

- Barium - 28 locations
- Copper - 22 locations
- Silver - 21 locations
- Chromium - 20 locations
- Vanadium - 18 locations
- Manganese - 11 locations
- Selenium - 8 locations
- Zinc - 7 locations
- Cadmium and lead - 5 locations
- Nickel - 4 locations

- Thallium and mercury - 2 locations
- Arsenic and cobalt - 1 location

The groundwater samples in which a mercury concentration was detected above the generic FCV criteria were collected from Monitoring Wells GM-36 and GM-72. Groundwater collected during subsequent sampling rounds from these wells did not contain detectable concentrations of mercury above the laboratory method detection limit, suggesting the presence of mercury initially reported is not representative.

The two aldehydes detected in the groundwater at concentrations above the generic FCV criteria include acetaldehyde and formaldehyde. The concentrations of acetaldehyde and formaldehyde were above the generic FCV criteria in the groundwater from 19 and nine locations, respectively. The summary of these aldehyde results is presented in Table 6-12.

Ethylene glycol was the only alcohol that was detected in the groundwater at a concentration above the generic FCV criteria. As shown in Table 6-12, ethylene glycol was detected at a concentration above the FCV criteria in the groundwater from only one location, Monitoring Well GM-25B, and in only one groundwater sample. Three groundwater samples subsequently collected from Monitoring Well GM-25B did not contain ethylene glycol at concentrations above the generic FCV criteria.

6.2.1.1.6 FESL

Groundwater analytical results for dissolved methane were compared to the generic FESL criteria for methane as shown in Table 6-7 for the groundwater grab samples and Table 6-14 for the groundwater samples from monitoring wells. Dissolved methane was detected in the groundwater collected from 158 locations. Dissolved methane was found in the groundwater at concentrations above the FESL criteria at 97 of the locations. The distribution of the dissolved methane in groundwater is discussed further in Section 6.2.2.8.

6.2.1.2 Seep Water

In addition to the groundwater grab samples and the groundwater samples collected from monitoring and residential wells, 15 samples of water were collected by ARCADIS from five seep locations near the Menominee River. The analytical results for the seep water samples are summarized in Table 6-16.

The seep water analytical results show that 75 constituents were detected in the seep water above the laboratory method detection limit for that constituent, established by the RI Work Plan. The 75 constituents detected in the seep water included 14 VOCs, 17 SVOCs, 32 metals (total and dissolved), three aldehydes, two alcohols, five inorganics, acetic acid/acetate, and dissolved methane.

Comparison of the 75 constituents detected in the seep water to the generic DWC (Table 6-16) shows that 16 constituents were present in concentrations above the generic DWC including, two VOCs (benzene and diethylether), nine SVOCs (2,4-dimethylphenol, 2,6-dimethylphenol, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-c,d)pyrene, benzo(b)fluoranthene, bis(2-ethylhexyl)phthalate, and chrysene), and five metals (aluminum, arsenic, iron, manganese, and vanadium). For the SVOCs, with the exception of 2,4-dimethylphenol, the concentrations above the DWC were only detected once and most were below the laboratory quantitation limit. Seep water is not a relevant pathway for drinking water.

Comparison of the 75 constituents detected in the seep water to the generic GCC shows that only SVOCs were present at concentrations above the generic GCC (Table 6-16). These included the following seven SVOCs: benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-c,d)pyrene. All of the SVOC concentrations above the GCC were only detected once out of 15 samples and most were below the laboratory quantitation limit.

The constituents in the seep water detected at concentrations above the generic GCC were all found in the seep water collected from the Seep 2 location. This is the seep location that was enclosed with a berm and fence by ARCADIS, and currently is an area that is within the hydraulic capture zone of the groundwater extraction and treatment system.

At the request of the MDEQ some of the seep water samples were also submitted for toxicity testing, in addition to the chemical analyses. The results of the toxicity testing are discussed in Section 6.3.4.

6.2.2 Groundwater 3-D Model and Chemical Distribution

Various chemical constituents are present in the groundwater system within the Study Area and AOC. In most locations, constituents that are not naturally occurring and those that are above the generic DWC are restricted to discrete areas within the unconsolidated glacial deposits. Variations in the constituent concentrations are controlled by the nature of the geologic units, which also affect groundwater movement and constituent distribution.

To gain a better understanding of the distribution and movement of the chemical constituents in the groundwater system, 3-D modeling was completed using the visualization model previously discussed in Section 5.18. Several VOCs and SVOCs were selected as "signature" constituents representative of the Facility sources to delineate the distribution of the constituent plume in the groundwater. The constituents that were selected as signature constituents include: 2,4-dimethylphenol, 2-methylphenol, 4-methylphenol, 2-butanone (MEK), acetone, and acetic acid/acetate. In addition to these VOCs and SVOCs, TOC and dissolved methane were also modeled. TOC was selected because it is a general indicator parameter that measures the portion of the substrate that could biodegrade to form methane.

The purpose of the chemical 3-D models was to aid in understanding the chemical distribution within the groundwater system and define areas of detectable chemical concentrations. Constituent concentrations selected as being representative of the groundwater collected from monitoring wells, as well as groundwater grab samples collected from soil borings, were used to construct the 3-D models of the plumes. The chemical concentration value chosen as representative of the groundwater quality collected from a location was generally the highest value of that chemical concentration measured by the laboratory analysis for the location, allowing for a conservative or worst case interpretation. Estimated constituent concentrations were also used in the modeling; however, rejected groundwater data were not used. A constituent non-detection was assigned a value of 0.001 (μg/L or mg/L, dependent on the constituent units) to avoid assigning a questionable chemical constituent value in an area where a constituent was not detected and to determine the extent of the locations where detectable levels of the constituents are present in the chemical plumes.

Twenty-four files are included on a CD disk in Appendix H, three files for each of the signature constituents modeled (2,4-dimethylphenol, 2-methylphenol, 4-methylphenol, MEK, acetone, and acetic acid/acetate, as well as TOC and dissolved-phase methane). The files can be viewed using a public domain computer program (HAVP090.exe) that is also included on the CD disk. The files for the constituents are named as follows:

24DMP1.HAV	24DMP2.HAV	24DMP3.HAV
2MP1.HAV	2MP2.HAV	2MP3.HAV
4MP1.HAV	4MP2.HAV	4MP3.HAV
MEK1.HAV	MEK2.HAV	MEK3.HAV
Acetone1.HAV	Acetone2.HAV	Acetone3.HAV
Acetic1.HAV	Acetic2.HAV	Acetic3.HAV
TOC1.HAV	TOC2.HAV	TOC3.HAV
Methane1.HAV	Methane2.HAV	Methane3.HAV

The first constituent file (designated with a “1”) is a visualization that represents the control points, or chemical concentration used from a groundwater sampling location. The second file (designated with a “2”) is a visualization that represents the distribution of the constituent plume from an “outside” view. The third file (designated with a “3”) is a visualization that represents horizontal views of the distribution of the constituent plume as slices through the constituent plume cut at various elevations.

6.2.2.1 2,4-dimethylphenol

An example of the control points (or actual chemical data) used to construct the 3-D plumes is shown on Figure 6-19. The concentrations of the constituent in groundwater samples, in this case 2,4-dimethylphenol, are illustrated by the color of a sphere located at the appropriate elevation on a monitoring well or soil boring, which extends from ground surface to the total depth of the monitoring well/soil boring. The approximate value of the constituent concentration is indicated by the color in the legend.

Figure 6-20 shows the lateral distribution of the 2,4-dimethylphenol plume as viewed from the ground surface downward, incorporating all the data regardless of elevation. Figures 6-21 and 6-22 show the lateral distribution of the 2,4-dimethylphenol plume at elevations of 1,000 ft msl and 840 ft msl, respectively. These elevations were selected from the visualization to demonstrate the heterogeneity in the distribution of 2,4-dimethylphenol at different elevations within the subsurface. The visualization file for 2,4-dimethylphenol (24DMP3.HAV) shows the distribution of the constituent at more frequent elevations in the subsurface (every 10 ft from bedrock to ground surface) than what is shown on Figures 6-21 and 6-22.

The control points and 3-D distribution of the plume for 2,4-dimethylphenol can be viewed in files 24DMP1.HAV, 24DMP2.HAV, and 24DMP3.HAV on the CD disc in Appendix H. Figure 6-20 shows the overall areal distribution of 2,4-dimethylphenol laterally (at all elevations) as viewed from the ground surface downward. Each detectable concentration of 2,4-dimethylphenol in the groundwater is included in Tables 6-3 and 6-9.

The 3-D plume model for 2,4-dimethylphenol shows that generally, this constituent is distributed in the central and western portions of the Study Area. Since 2,4-dimetheylphenol is a constituent that degrades slowly under the anaerobic conditions (found in the majority of the groundwater system), its distribution is expected to be more widespread and is expected to be present at higher concentrations than other more anaerobically degradable constituents. The plume model shows the majority of the 2,4-dimethylphenol present in the subsurface at depths below 1,000 ft msl (approximately 100 ft bls in the central area of the Study Area).

There are three locations where 2,4-dimethylphenol is present above 1,000 ft msl (generally a depth less than 100 ft bls). These areas include an area in the vicinity of the NE Pit and SW Pit, an area near the east bank of the Menominee River generally between Monitoring Wells GM-25 and GM-27, and near the RDA (GM-55). The location near the RDA may not exist as the only concentration of 2,4-dimethylphenol detected in the groundwater from Monitoring Well GM-55 was estimated (13 μg/L) and subsequent groundwater sampling and analysis from Monitoring Well GM-55 did not detect any additional concentrations of 2,4-dimethylphenol. If the area of 2,4-dimethylphenol at the RDA does exist it is very localized and disconnected from the general body of the 2,4-dimethylphenol plume.

The highest concentrations of 2,4-dimethylphenol are present at depth in the central portion of the Study Area where the elevation of the bedrock is lowest and in the vicinity of Monitoring Well GM-25B near the Menominee River. The highest concentrations of 2,4-dimethylphenol at shallow elevations are present for the most part between Monitoring Wells GM-25A and GM-27A near the Menominee River. Concentrations of 2,4-dimethylphenol were not detected above the laboratory detection limit (generally 5 μg/L) in the groundwater collected from the monitoring wells outside of the edges of the 2,4-dimethylphenol plume displayed on Figure 6-20 and the visualization files for 2,4-dimethylphenol.

The distribution of 2,4-dimethylphenol is related to the groundwater flow system and the subsurface geology. The main source of the 2,4-dimethylphenol appears to have been the historic releases from the NE Pit. The downward vertical component of the hydraulic gradient of groundwater across most of the Study Area has caused 2,4-dimethylphenol to migrate into the deeper portions of the groundwater system. Slightly dense liquids with wood sugars that were released into the NE Pit may have also aided in the movement of 2,4-dimethylphenol into the deeper portions of the groundwater system. The direction of groundwater flow, to the southwest, moves the 2,4-dimethylphenol dissolved in the groundwater in that direction. However, during the historic disposal practices in the NE Pit, it was likely that the groundwater flow direction in the vicinity of the NE Pit was altered and more radial, due to hydraulic loading from discharge water. At distances further away from the NE Pit (as well as after disposal to the NE Pit had ceased) the regional direction of groundwater flow (southwest) would predominate, as they do today.

The upward vertical component of the hydraulic gradient of the groundwater system along the Menominee River results in the upward migration of 2,4-dimethylphenol to shallower elevations, as evidenced by the higher concentrations of 2,4-dimethylphenol at shallow depths near portions of the Menominee River between Monitoring Wells GM-25A and GM-27A.

In addition to the groundwater flow direction, the subsurface geology also controls the 2,4-dimethylphenol (as well as other constituents) distribution, movement, and concentrations. The steep bedrock rises to the north and southeast of the Study Area, have restricted the movement of 2,4-dimethylphenol in these directions. The coarser subsurface deposits such as sand and gravel, which were characterized as Unit 1 in the visualization model, allow the least restrictive movement of constituents, or provide a preferential pathway. The fine subsurface deposits such as very fine grain sand and silty sand, characterized as Unit 2 of the visualization model, significantly restrict the movement of constituents due to lesser porosity and permeability than Unit 1. However, Unit 2 can act as a storage area for constituents that diffuse from Unit 1 into Unit 2. The dense and tight subsurface deposits such as silt and clay, characterized as Unit 3 of the geologic model, also act as hydraulic barriers that restrict the movement of constituents and generally result in migration of constituents around this unit and into the materials comprising Units 1 and 2. However, like Unit 2, Unit 3 can also serve as a storage area for constituents that diffuse into Unit 3 from Units 1 and/or Unit 2.

The control the geologic units have on the movement and concentrations of 2,4-dimethylphenol are evident within the plume. The higher concentrations of 2,4-dimethylphenol appear to be present in the very fine grain material of Unit 2 of the geologic model, which is typical for a mature groundwater plume. Concentrations of 2,4-dimethylphenol from 2,000 to 3,000 µg/L are representative of groundwater samples collected from Monitoring Wells GM-2B and GM-3B, completed in geologic material characterized as Unit 2, and Soil Borings GMSB-1 and GMSB-2. Monitoring wells completed in coarser grain material, characterized as Unit 1, generally tend to have 2,4-dimethylphenol concentrations less than 1,000 µg/L. As 2,4-dimethylphenol is slow to degrade anaerobically, this indicates that the higher hydraulic conductivities associated with the geologic material comprising Unit 1 have allowed faster migration of constituents from this unit, which lowers the concentrations within Unit 1 as compared to the finer grain material associated with Unit 2. Locations representing Unit 1 with faster migration include Monitoring Wells GM-1, GM-5, GM-25A, GM-26A, GM-29, and MW-8. The lowering of the concentrations within Unit 1 can result in diffusion of constituents from Units 2 and 3 back into Unit 1.

The groundwater interval monitored at Monitoring Well GM-32 contains the highest concentration of 2,4-dimethylphenol (9,200 µg/L) within the Study Area, at a depth of 130 ft bls. However, the 2,4-dimethylphenol concentrations decrease dramatically to the east and southeast. This can be explained because the area to the east is upgradient of the horizontal groundwater flow direction and the area to the southeast exhibits a change in the stratigraphy of the units (as indicated by the sample/core logs in Appendix A).

Monitoring Wells GM-32 and GM-40B (which also contains higher concentrations of 2,4-dimethylphenol) are completed in fine grain sand, which is characteristic of Unit 1. These sands should represent a preferential pathway for 2,4-dimethylphenol. Groundwater movement sourced from the NE Pit during disposal activities most likely acted as a driving factor for the movement of 2,4-dimethylphenol into this area. As illustrated by the 3-D geological model and the soil borings logs in the area, these sands grade into Unit 2 silts to the southwest and southeast and disappear, consistent with a facies change. The absence of Unit 1 sands combined with a horizontal groundwater flow direction to the southwest is believed to restrict and stagnate the movement of 2,4-dimethylphenol. The forced movement of the 2,4-dimethylphenol due to the groundwater flow is to the southwest. As a result, less migration of 2,4-dimethylphenol has occurred from this area, as compared to Unit 1 in other areas of the Study Area, and higher concentrations of 2,4-dimethylphenol have stagnated and remain present.

A similar situation may occur in the zones in which Monitoring Wells GM-25B and GM-26C are completed. The zones are representative of Unit 1 material; however, they are overlain by silt and clay representative of Unit 2 and Unit 3 material. The strong upward vertical component of the groundwater flow to the Menominee River would tend to trap or retard constituents in the groundwater below the base of the silt and clay units, as the groundwater flow rate is reduced passing through these units. The hydraulic conductivity of the zone where Monitoring Well GM-25B is completed (1.32 x

10^{-3} cm/sec) indicates that this zone has less permeability compared to other Unit 1 material.

6.2.2.2 2-methylphenol and 4-methylphenol

The distribution of the chemical plumes for the SVOCs 2-methylphenol and 4-methylphenol are very similar. The control points and 3-D distribution of the plumes for 2-methylphenol and 4-methylphenol can be viewed in files 2MP1.HAV, 2MP2.HAV, and 2MP3.HAV; and 4MP1.HAV, 4MP2.HAV and 4MP3.HAV, respectively, on the CD disk in Appendix H. Figures 6-23 and 6-24 also show the lateral extent of 2-methylphenol and 4-methylphenol in the Study Area (at all elevations) looking downward from the ground surface. The concentrations of 2-methylphenol and 4-methylphenol detected in the groundwater are included in Tables 6-3 and 6-9.

As with 2,4-dimethylphenol, the concentrations of 2-methylphenol and 4-methylphenol are present in the central and western portions of the Study Area. The extent of 4-methylphenol is slightly less than 2-methylphenol, as indicated by the absence of 4-methylphenol in the groundwater at Monitoring Well MW-8. Similar to 2,4-dimethylphenol, most of the 2-methylphenol and 4-methylphenol mass, as well as the highest concentrations, are located below 1,000 ft msl in the central portion of the Study Area, which corresponds to the lowest point of the bedrock basin. The deep portions of the bedrock basin are generally characterized by the presence of Unit 2 and Unit 3 materials. Both 2-methylphenol and 4-methylphenol are present at shallower elevations (above 1,000 ft msl) only in the area of the NE Pit and a small section near the eastern bank of the Menominee River between Monitoring Wells GM-26A and GM-27A (2MP3.HAV and 4MP3.HAV).

The 2-methylphenol and 4-methylphenol distributions in the groundwater are again controlled by a combination of groundwater flow and subsurface geology. However, since these constituents are anaerobically biodegradable, natural attenuation also is a factor. The highest concentrations of 2-methylphenol occur at Monitoring Wells GM-32 (11,000 µg/L) and GM-25B (6,800 µg/L), both more than 2,000 ft away from the area of the NE Pit. Although Monitoring Well GM-32 is completed in sand, which would be considered a preferential pathway for movement of 2-methylphenol, as discussed previously, the highest concentration of 2-methylphenol is present at a zone where the sand changes into silt (vertical and lateral facies change), and constituent migration is slowed by these denser, lower permeability materials. Likewise, at the location of Monitoring Well GM-25B, the 2-methylphenol is found in some of the Unit 1 material with less permeability, based on the hydraulic conductivity from Monitoring Well GM-25B.

The highest concentrations of 4-methylphenol occur at Monitoring Wells GM-2B (22,000 µg/L), GM-32 (15,000 µg/L), and GM-25B (14,000 µg/L), again removed from the area of the NE Pit. The highest concentration of 4-methylphenol at Monitoring Well GM-2B, downgradient from Monitoring Well GM-32, represents the movement/diffusion of constituents from coarser grain Unit 1 sands (GM-32) into finer grain Unit 2 sandy silt (GM-2B).

The significant decrease in 2-methylphenol and 4-methylphenol concentrations (compared to 2,4-dimethylphenol) near portions of the Menominee River is a function of biodegradation. That is in contrast to concentrations of 2,4-dimethylphenol, which is not as subject to anaerobic biodegradation. This was demonstrated in the laboratory investigations by Godsy (1999), and is evident in Monitoring Wells GM-5, GM-6, GM-25A, GM-26C, GM-27A, and GM-29. The constituent characteristics and degradation rates for 2-methlphenol, 4-methylphenol, and 2,4-dimethylphenol are shown in Table 6-17.

The absence of 2-methylphenol and 4-methylphenol in Monitoring Wells GM-38C, GM-24C, and GM-53B downgradient from the plume in contrast to Monitoring Wells GM-2B and GM-3B may be attributed to both the biodegradation of 2-methylphenol and 4-methylphenol and the retarded constituent movement in the very fine grain sand and silt at Monitoring Wells GM-2B and GM-3B.

6.2.2.3 MEK

The control points and chemical plume for the VOC MEK can be viewed in files MEK1.HAV, MEK2.HAV and MEK3.HAV on the CD disk in Appendix H. Figure 6-25 also shows the lateral extent of MEK within the Study Area (for all elevations) looking downward from the ground surface. The detected groundwater concentrations of MEK are included in Tables 6-2 and 6-8.

Concentrations of MEK are present in the central and western portions of the Study Area. Like the SVOCs previously discussed, the highest MEK concentrations occur at depth in the central portion of the Study Area, below 1,000 ft msl. Concentrations of MEK in the shallow subsurface (above 1,000 ft msl) are present in the area of the NE Pit and a small section near the eastern bank of the Menominee River generally between Monitoring Wells GM-26A and GM-25A. With the exception of a localized area near Monitoring Well GM-25B, concentrations of MEK in the shallow subsurface are much lower near the Menominee River than in the area of the NE Pit.

The groundwater flow system and subsurface geology again control the location and concentration of MEK. However, anaerobic degradation plays a larger role for MEK than for 2-methylphenol and 4-methylphenol because it anaerobically degrades more readily than these constituents. The areal extent and concentrations of MEK in the groundwater are smaller than those of the SVOCs. Attenuation of MEK is reflected in the absence of MEK concentrations in the groundwater at Monitoring Wells MW-8, GM-5, GM-27, GM-29, and GM-53. None of the concentrations of MEK detected in the groundwater are above any Michigan generic groundwater criteria.

6.2.2.4 Acetone

The control points and chemical plume for acetone can be viewed in files Acetone1.HAV, Acetone2.HAV, and Acetone3.HAV on the CD disk in Appendix H. Figure 6-26 also shows the lateral extent of acetone in the Study Area (for all elevations) looking downward from the ground surface. The detected groundwater concentrations of acetone are included in Tables 6-2 and 6-8.

The distribution of acetone is almost identical to the distribution of MEK since it is similarly anaerobically biodegradable (Table 6-17). Concentrations of acetone are present in the groundwater in the central and western portions of the Study Area. Like MEK, the highest concentrations of acetone are below 1,000 ft msl. The highest concentration of acetone occurs at the location of Monitoring Well GM-32 (2,900 µg/L) and the acetone concentrations at Monitoring Wells GM-25B (1,400 µg/L), GM-37B (1,200 µg/L), and GM-2B (1,200 µg/L) are nearly identical. The concentrations of acetone rapidly dissipate at the edges of the plume, as indicated by the absence of acetone at the locations of Monitoring Wells GM-34, GM-38, GM-24, GM-53, and GM-27.

The presence of acetone in the shallow groundwater system (e.g. above 1,000 ft msl) is restricted to three locations: Monitoring Wells GM-2A, GM-26A, and Soil Boring GMSB-1. The presence of acetone in the area of Monitoring Well GM-2A may be questionable because subsequent groundwater sampling and laboratory analysis of the groundwater collected from Monitoring Wells GM-2A and GM-2C (completed in the same sand layer) did not detect acetone. Unlike MEK, the concentrations of acetone in the area of the NE Pit are higher at shallower elevations than at depth. This along with the absence of acetone at the location of Monitoring Well GM-27 (near the Menominee

River) and overall lower concentrations of acetone verses MEK indicates a more rapid biodegradation for acetone.

6.2.2.5 Acetic Acid/Acetate

The control points and chemical plume for acetic acid/acetate can be viewed in files Acetic1.HAV, Acetic2.HAV, and Acetic3.HAV on the CD disk in Appendix H. Figure 6-27 also shows the lateral extent of acetic acid/acetate in the Study Area (for all elevations) looking from the ground surface downward. The detected groundwater concentrations of acetic acid/acetate are included in Table 6-12.

The 3-D plume model for acetic acid/acetate shows that this constituent is generally distributed in the central and western portions of the Study Area. The present distribution of acetic acid/acetate is the result of a very complex combination of the groundwater flow system, the subsurface geology, historical releases to groundwater, biodegradation of historical acetic acid, and generation of acetic acid by biodegradation of historic organic material. Overall, the presence of acetic acid/acetate is more widespread than the VOCs and SVOCs.

The highest concentrations of acetic acid/acetate are present at Monitoring Wells GM-37B (15,000 mg/L) and GM-40B (14,600 mg/L), in the deeper portion of the groundwater system (generally below 1,000 ft msl) and tend to form a southeast-northwest band through the central portion of the Study Area. Concentrations of acetic acid/acetate in the shallower groundwater system (generally above 1,000 ft msl) are generally less than 2 mg/L, and are mostly present in disconnected pockets.

The distribution of acetic acid/acetate, historical and present day, is related to the groundwater flow system and the subsurface geology as previously described. However, it appears that anaerobic biodegradation processes have more of an impact on the acetic acid/acetate distribution than on the VOCs and SVOCs. Acetic acid was a part of dense liquids with wood sugars that would be typical of material historically present in the former disposal pits. The downward vertical gradient of the groundwater across most of the Study Area has caused acetic acid/acetate to migrate into the deeper portions of the groundwater system. As the historic fluids were also slightly denser than water, this would have aided the movement of the acetic acid/acetate mass into the deeper portions of the groundwater system. Additionally though, acetic acid/acetate is a product of anaerobic biodegradation of other organic constituents present in the groundwater system.

The generally southwestern horizontal component of the hydraulic gradient in the deep (below 1,000 ft msl) and shallow (above 1,000 ft msl) groundwater systems across the Study Area controls the movement of the acetic acid/acetate to the southwest and also prevents the movement of acetic acid/acetate to the east and northeast. Along with the groundwater flow, steep bedrock rises to the north and southeast of the Study Area restrict the movement of acetic acid/acetate, as well as the other constituents in the groundwater, in these directions. The upward vertical component of the hydraulic gradient of the groundwater system along the Menominee River results in the upward migration of acetic acid/acetate into shallower elevations.

As with the VOCs and SVOCs, the subsurface geology controls acetic acid/acetate distribution, movement, and concentrations. However, the distribution of acetic acid/acetate is also controlled in part by biodegradation of the historic organic material, which included acetic acid. Once in place in the deeper portion of the groundwater system, the historic acetic acid/acetate mass tended to stagnate due to the complexity of the geologic units and degrade anaerobically. The constituent characteristics and degradation rates for acetic acid, as well as other constituents in the Study Area, are shown in Table 6-17. With a groundwater anaerobic half-life of 9 to 976 days, the historic acetic acid would have started to degrade soon after its placement into the groundwater system.

Laboratory investigations were conducted by M. Godsy and I. Warren of the USGS to better understand the biodegradation of dissolved organic constituents in groundwater in the Study Area and to confirm the degradation of organic material and acetic acid. A soil sample from Soil Boring GMSB-2B collected from a depth of 245 ft bls was evaluated for the presence of microbes. The soil sample was found to contain 10^5 or greater total microorganisms/gram of dry weight. Godsy concluded that the microorganisms were anaerobic.

However, this work by Godsy also shows that concentrations greater than 2,500 mg/L of organic material may actually be toxic to anaerobic bacteria and biodegradation of historic organic material could be retarded in locations with organic material concentrations above this level. Areas where acetic acid/acetate is generated by biodegradation of the original liquids in the pits can occur when concentrations of organic material are below 2,500 mg/L. A draft copy of the laboratory investigations report by Godsy is included in Appendix L.

The control that the geology has on the movement and concentrations of acetic acid/acetate is evident within the plume. Monitoring wells completed in coarser grain material (characterized as Unit 1) generally tend to have acetic acid/acetate concentrations less than 1,000 mg/L. This indicates that the higher hydraulic conductivities associated with material comprising Unit 1 have allowed faster migration of constituents from this material as compared to the finer grain material associated with Units 2 and 3. The materials present where Monitoring Wells GM-1, GM-5, GM-25A, GM-26A, GM-27C, GM-29, GM-53B, and MW-8 are completed would be representative of faster constituent migration, based upon the lithology of the zone where the monitoring well is completed and results from the hydraulic conductivity testing.

The higher concentrations of acetic acid/acetate tend to be present in many of the very fine grain materials of Unit 2, identified and depicted in the 3-D geologic model. An example of this is the acetic acid/acetate concentration of 2,600 mg/L that is representative of the groundwater sample collected from Monitoring Well GM-2B, which is completed in geologic material characterized as Unit 2. The higher acetic acid/acetate concentrations from Monitoring Well GM-2B may reflect the restricted movement of the historically released acetic acid in the Unit 2 material and/or production by biodegradation of organic constituents in the deep groundwater system, as acetic acid/acetate is an end product of anaerobic digestion of higher molecular weight organic constituents.

An exception to the general distribution of higher concentrations of acetic acid/acetate in Unit 2 material in the deep groundwater system (below 1,000 ft msl) is in the vicinity of Monitoring Well GM-37B. The groundwater monitored at this well contains one of the highest concentrations of acetic acid/acetate (15,000 mg/L) within the Study Area. Monitoring Well GM-37B is completed in sand and gravel, which is characteristic of Unit 1. These Unit 1 sands should represent a preferential pathway that would characteristically contain lower concentrations of acetic acid/acetate due to dilution from higher flows. However, although completed in Unit 1 material, the sand at Monitoring Well GM-37B is a basal unit within one of the deepest areas of the bedrock basin that appear to lack hydraulic communication with other Unit 1 material. Due to a very thick unit of Unit 2 material that overlies the basal sand unit in Monitoring Well GM-37B, the acetic acid/acetate could be stagnated by lack of communication with other Unit 1 preferential pathways.

Another exception to the general distribution of higher concentrations of acetic acid/acetate in Unit 2 material in the deep groundwater system (below 1,000 ft msl) is in the vicinity of Monitoring Well GM-40B, which is completed in fine grain sand characteristic of Unit 1. The groundwater monitored by this well also contains one of the highest concentrations of acetic acid/acetate (14,600 mg/L) in the Study Area. However, the acetic acid/acetate concentrations decrease dramatically to the north, east and south. The area to the east is upgradient of the horizontal groundwater flow direction and the area to the southeast exhibits a change in the stratigraphy of the geologic materials. This again suggests that the acetic acid/acetate has stagnated in this area at concentrations resistive to degradation, due to a trap formed by a combination of the groundwater flow direction and a permeability change.

As illustrated by the 3-D geological model and soil boring logs, these sands disappear in a facies change, grading into Unit 2 silt to the southwest. The absence of Unit 1 sand combined with a horizontal groundwater flow direction to the southwest is believed to restrict the movement of acetic acid/acetate in this area.

The shallow groundwater system (above 1,000 ft msl) is characterized by low concentrations of acetic acid/acetate, even near the Menominee River where higher concentrations could be expected due to the upward movement from the deep groundwater system. The low concentrations of acetic acid/acetate are evident in the groundwater collected from Monitoring Wells GM-25A (less than 1 mg/L), GM-26A (16 mg/L), and GM-21 (less than 0.2 mg/L) near the Menominee River. The absence of acetic acid/acetate in the shallow groundwater, especially near the Menominee River, is consistent with the biodegradation of acetic acid/acetate as it moves through Unit 1 material.

6.2.2.6 Metals

A 3-D chemical plume model was not constructed for any of the metals. The distribution of the metals in the groundwater system appears much more random than those of the VOCs and SVOCs. Many of the metals detected were within the general area of the VOC and SVOC plumes. However, the elevations within the groundwater system at which metals occurred was more variable than for VOCs and SVOCs. The wide distribution of metals appears to reflect their natural occurrence in groundwater and often represent the normal background concentration found in groundwater. The detected groundwater concentrations of the metals are identified in Table 6-4 for the grab samples, and Table 6-10 for the monitoring well samples.

Monitoring Well GM-20 had the most occurrences (and often the highest concentrations of detected metals), with eight of the detected metals (aluminum, cadmium, chromium, cobalt, copper, lead, nickel, and vanadium) at the highest measured concentrations in the shallow groundwater system. However, groundwater from the surrounding wells completed at approximately the same elevation did not detect these same metals, or the concentrations detected were much lower, indicating the lack of mobility of metals within the groundwater system or localized natural conditions.

Higher concentrations for several metals were also detected in the shallow groundwater system at Monitoring Well GM-23. Similar to Monitoring Well GM-20, the areal extent of the detected metals in the groundwater is limited based on the analytical results from the surrounding wells.

Some of the highest concentrations of metals that were detected within the deep groundwater system (below 1,000 ft msl) were present in samples from Monitoring Wells GM-25B, GM-37B, GM-62C, GM-2B, and GM-32, and were present at concentrations well above those representative of background concentrations.

The highest concentrations for cadmium, lead, and thallium were present at an upgradient well location, Monitoring Well UG-4, away from the central portion of the Study Area and the predominant area of occurrence for VOCs and SVOCs. Monitoring Well UG-4 is located next to the old drainage area historically known as Sewer Creek.

The highest concentration of iron (617 mg/L) was reported from Monitoring Well BR-2. Only two detections of mercury were reported in the groundwater, from Monitoring Wells GM-36 (14 µg/L) and GM-25A (0.2 µg/L, the laboratory detection limit). Subsequent sampling from Monitoring Wells GM-36 and GM-25A did not detect the presence of mercury, indicating the detected mercury concentrations were questionable and not reproducible.

6.2.2.7 TOC

In order to better evaluate the mass of constituents present in the subsurface, a 3-D model of the TOC in groundwater was constructed. The mass of TOC includes the VOC and SVOC constituents previously identified, and represents the organic material that has the potential to generate methane. The TOC control points and plume can be viewed in files TOC1.HAV, TOC2.HAV, and TOC3.HAV on the CD disk in Appendix H. Figure 6-28 also shows the lateral extent of TOC within the Study Area (for all elevations) looking downward from the ground surface. The detected groundwater concentrations of TOC are included in Tables 6-6 and 6-13. To better understand where the majority of the TOC mass is distributed, the TOC plume was truncated at a value of 50 mg/L.

The majority of the TOC mass was concentrated in the deeper portion of the groundwater system (below 1,000 ft msl) in the vicinity of Soil Boring GMSB-2, and Monitoring Wells GM-37B and GM-62C. However, the highest TOC concentration was present at Monitoring Well GM-32. As discussed earlier, at the location of Monitoring Well GM-32, a stagnant zone is believed to exist, where movement of the dissolved organics in groundwater have been retarded and slowly migrate into denser, less permeable geologic material. The highest concentrations of TOC in the shallow groundwater system (above 1,000 ft msl) were present in the area of the NE Pit and near the eastern bank of the Menominee River between Monitoring Wells GM-25 and GM-27.

The distribution of TOC in Units 1 through 3 was determined from the 3-D model using the groundwater data collected. The distribution is based on the percentage of occurrence of each of the three modeled units within the TOC plume, the average porosity and density represented by each unit, and the concentrations of TOC detected within the chemical plume. The results show that 19 percent of the TOC mass was in Unit 1, 46 percent of the TOC mass was in Unit 2, and 35 percent of the TOC mass was in Unit 3.

6.2.2.8 Dissolved Methane

A 3-D model of the dissolved methane plume was also constructed to aid in understanding the distribution of the concentrations of dissolved methane in the groundwater and its potential for releasing gas-phase methane. The control points and plume model for dissolved methane can be viewed in files Methane1.HAV, Methane2.HAV, and Methane3.HAV on the CD disk in Appendix H. The lateral extent of the dissolved methane concentrations above 30 mg/L (for all elevations) as viewed from the ground surface downward, is also shown on Figure 6-29. The detected groundwater concentrations of dissolved methane are included in Tables 6-7 and 6-14. The background concentrations of dissolved methane in the groundwater are at or very close to 0.0 mg/L.

The dissolved methane plume was truncated at 30 mg/L, since this is the approximate saturation point of methane dissolved in water at the water table. This value is based on methane solubility calculated from the CRC Handbook of Chemistry and Physics at 8 degrees centigrade and atmospheric pressure. The saturation point for methane increases with depth, which allows concentrations of methane greater than 30 mg/L to be present in the groundwater system (this is discussed in more detail in Section 6.5). In addition to the dissolved methane concentrations collected from the groundwater, PID values collected from the field screening of saturated soils were also used to construct the dissolved methane 3-D model. The PID values are included on the soil boring logs and stratigraphic columns in Appendices A and B, respectively.

In addition to the 3-D model for dissolved methane, a figure was prepared showing the most recent dissolved methane concentrations collected from the sampling locations prior to December 2007 (Figure 6-30). The lateral extent of dissolved methane above 0.5 mg/L (as of December 2007) is also shown on Figure 6-30. The concentration of 0.5 mg/L was selected as it is the State of Michigan FESL criteria for dissolved methane.

The extent of dissolved methane in the groundwater above 0.5 mg/L shown on Figure 6-30 is very similar to and encompasses the lateral extent of dissolved methane indicated by the 3-D model of the groundwater plume, although slightly larger in extent at some locations. Any vertical variations in the dissolved methane concentrations in the groundwater that are above 0.5 mg/L are within the lateral footprint of the dissolved methane above 0.5 mg/L shown on Figure 6-30. As of December 2007, the lateral extent of dissolved methane above 0.5 mg/L in the groundwater was contained within the AOC, with two minor exceptions where the 0.5 mg/L concentration line was slightly outside of the AOC boundary at the northeastern and southeastern edges of the plume (see Figure 6-30).

The concentrations of dissolved methane were more widely distributed than the TOC. The deep groundwater system (below 1,000 ft msl) contained the highest dissolved methane values since greater pressures allow higher concentrations of dissolved methane to exist. The highest concentration of dissolved methane in the deeper groundwater system was located in the central portion of the Study Area at Monitoring Wells GM-2B (460-70 mg/L), GM-62C (298 mg/L), GM-1 (165-74 mg/L) and GM-53B (147-131 mg/L). The higher concentrations of dissolved methane tend to form a southeast-northwest trending band between Monitoring Wells GM-2B and GM-37B. The southwestern edge of this band appears to coincide with the change in vertical groundwater gradients from downward to upward near the Menominee River. The highest concentrations of dissolved methane near the Menominee River in the deep groundwater system occurred in the area of Monitoring Wells GM-26C (134 mg/L) and GM-25B (112 mg/L).

The highest concentrations of dissolved methane in the shallow groundwater system occurred on the western side of the Study Area near the east bank of the Menominee River in Monitoring Wells GM-26A (59 mg/L), GM-27A (48 mg/L), GM-25A (39 mg/L), and GM-28A (38 mg/L). The higher concentrations of dissolved methane in the shallow groundwater system again coincided with the change in vertical groundwater gradient from downward across most of the Study Area to upward near the Menominee River. The concentrations of dissolved methane in the shallow groundwater system were significantly less than those encountered in the deep groundwater system (e.g. 38 mg/L at Monitoring Well GM-28A versus 165 mg/L at Monitoring Well GM-1), indicating off-gassing of methane as the groundwater moves upward toward the Menominee River.

The method by which methane is released as free-phase gas, is through pressure releases as the groundwater containing dissolved methane moves from the deep groundwater system upwards to the Menominee River. This method of methane release from the groundwater is discussed further in the following section and Section 6.5.

6.2.3 Natural Attenuation Characterization

In order to understand the origin, fate, and transport of organic and inorganic constituents found within the Study Area and AOC, the biogeochemical reactions that are occurring in the ground must be understood. Many aspects of these reactions are important (i.e. biodegradation and by-product production); however, the basic reactions are all due to natural bacteria staying alive and reproducing. These bacteria are part of the natural carbon cycle.

Carbon is the backbone of all living organisms. It forms the basic building block of every organic molecule and is part of the main energy supply for most living tissue. Since carbon is not created or destroyed, the existing carbon in the environment is constantly recycled. This recycling is called the carbon cycle. The carbon cycle starts with the plant life of the earth using various energy sources (mainly sunlight) to incorporate CO_2 into the plant through photosynthesis. This plant material is then available for animal consumption, providing all animals their primary food source for energy and reproduction. Both the animals and the unused portion of the plants go through a death stage after which various microorganisms “break down” the complex organic material into simple carbon molecules.

Under aerobic conditions these organic materials ultimately revert directly back to primarily CO_2. Under anaerobic conditions these complex organic materials become a series of petroleum hydrocarbons or “fossil fuels”. The simplest of these fossil fuels is methane or natural gas. The carbon cycle is complete when these petroleum hydrocarbons are oxidized biologically by microorganisms or chemically used as fuel by humans, and the carbon returns to CO_2.

The “break down” of organic molecules in nature occurs because various microorganisms in the environment use natural or anthropogenic organics as an energy source and as building blocks for new bacteria. This “break down” is referred to as natural biodegradation. In natural biodegradation, the organic material is converted to simpler organic constituents and ultimately to new bacteria, CO_2 or methane, and water. The microbes derive energy from these reactions when the electrons from the energy source (the organic material, referred to as the electron donor) are transferred to elements (such as O_2, iron, manganese, and sulfur), which are electron acceptors (Nyer, et. al., 1996). Biodegradation of dissolved organic constituents in groundwater results in a reduction in organic concentration and mass.

The natural biodegradation process requires a consortium of microorganisms working together. Microorganisms indigenous to a groundwater system utilize O_2 as the preferred electron acceptor to support their metabolic activity. This demand on O_2 can result in its depletion, resulting in the establishment of anaerobic environments within the groundwater system. When O_2 becomes depleted, microorganisms that utilize electron acceptors other than O_2 (referred to as alternative electron acceptors) continue the biodegradation process.

The order of utilization of the electron acceptors is based on a complex number of biochemical energy states. The usual preference of electron acceptors starts with O_2 under aerobic conditions. During aerobic respiration, O_2 is reduced to produce water and CO_2. Under these conditions, DO concentrations will decrease. Under anaerobic conditions (DO less than 0.5 mg/L), in order of their reduction-oxidation (redox) potential, the preferred biodegradation pathways are:

- <u>Denitrification:</u> NO_3^- occurs in groundwater under oxygenated conditions and is depleted under anaerobic conditions. In anaerobic systems where NO_3^- is an electron acceptor, the NO_3^- is reduced to NO_2^-, nitrous oxide, nitric oxide (NO), NH_4+, or N_2. The reaction can be traced by measuring the decrease in NO_3^- concentrations.

- <u>Manganese (Mn) reduction:</u> In anaerobic systems where Mn^{4+} is used as the electron acceptor, Mn^{2+} is produced. The reaction can be traced by measuring the increase in dissolved manganese concentrations.

- Iron reduction: In anaerobic systems where ferric iron (Fe^{3+}) is the electron acceptor, it is reduced to ferrous iron (Fe^{2+}), which is soluble in water. The reaction can be traced by measuring the increase in dissolved iron (Fe^{2+}) concentrations.

- SO_4^{2+} Reduction: In anaerobic systems where SO_4^{2+} is the electron acceptor, it is reduced to H_2S, and SO_4^{2+} concentrations decrease. H_2S will react with metals (Fe ($^{2+}$), Mn^{2+}, and others) to form metal sulfides (Nyer et. al., 1996). Therefore, H_2S in groundwater may not be present at measurable levels. The reaction can be traced by measuring the decrease in SO_4^{2+} concentration.

- Fermentation: In anaerobic systems where acetic acid and other fatty acids are the electron acceptors, they are reduced by bacteria and produce methane. The reaction can be traced by measuring the increase in methane concentrations. One limitation in measuring methane concentrations is that it also biodegrades under aerobic conditions. Methane can act as the electron donor in the presence of O_2 and degrade to CO_2.

- Methanogenesis: A second process under which methane can be produced under anaerobic conditions is methanogenesis. CO_2 can be used as an electron acceptor. It is reduced by methanogenic bacteria and methane is produced. The reactions can be traced by measuring the increase in methane. Again, methane can act as the electron donor in the presence of O_2 and degrade to CO_2.

In all groundwater systems, multiple environmental conditions and diverse microorganisms exist. These different environments are present in an aquifer due to changes in geology and hydrogeology within the aquifer. High flow areas will have a natural replacement of electron acceptors as degradation occurs. Low flow areas may use up the supply of electron acceptors, and have different biological reactions occurring as described above. Therefore, within a complex groundwater system like the Study Area, aerobic and anaerobic conditions can exist in close proximity.

6.2.3.1 Biogeochemical Evaluation of Data

Biodegradation causes measurable changes in groundwater chemistry. By evaluating biogeochemical data, insight into which metabolic processes are occurring can be obtained. The food source (electron donor) for the microorganisms is the natural and anthropogenic dissolved organic carbon in groundwater. TOC is a good indicator of the total mass of organic constituents in groundwater and is a general indicator of the distribution of organic mass available for biodegradation. Therefore, the distribution of TOC has been used, along with the distribution of electron acceptors and/or their by-products from the biological reactions, to understand how and where this mass can potentially be degraded.

Based on an understanding of the biogeochemical processes described above, data collected within the Study Area were analyzed to ascertain what biodegradation processes were occurring at different locations throughout the Study Area and where these processes were most active. Analyzing O_2, SO_4^{2+}, NO_3^-, Fe^{2+}, and methane can determine which biological pathways which are active within that area of the aquifer. The results of the analyses for many of the biogeochemical parameters are summarized in Tables 5-8, 6-11, 6-12, and 6-13.

In addition to the biodegradation of organic constituents (the electron donor), it is important to understand the generation and distribution of several of the by-products or end products from the use of the electron acceptors. In the Study Area, the main by-product is methane. All of the methane found in the groundwater in the Study Area is the result of anaerobic biodegradation of organic material, either naturally occurring or man-made. Dissolved manganese and iron are also increased as part of the anaerobic biodegradation of organics. Metals are present in a non-soluble form in the subsurface geologic material. The biological reactions produced a soluble form of the metals, which increases their dissolved concentrations. To understand the fate and transport of all of the Study Area constituents, an evaluation was made of the original constituents, the electron acceptors, and the by-products or end products of the biological reactions.

As discussed in Section 6.1 the complex stratigraphy of the subsurface geology within the Study Area does not allow for easy separation of the saturated materials into distinct groundwater systems. A downward vertical hydraulic gradient exists within the Study Area, except in the vicinity of the Menominee River, where the vertical component of the hydraulic gradient is upward. In addition, while methane can form in the shallow or deep areas of the aquifer, the groundwater capacity for “storing” dissolved methane increases with depth, as discussed further in Section 6.5.

Because of these reasons, the groundwater system was divided vertically into two zones for the purpose of the biodegradation evaluation: the shallow groundwater system (groundwater samples collected above 1,000 ft msl), and the deep groundwater system (groundwater samples collected below 1,000 ft msl). An elevation of 1,000 ft msl correlates to depths of 40 ft bls near the river and 140 ft bls near the FPS. A more complete evaluation of the distribution of the organic material in the groundwater system present in the Study Area is available from the visualization files that have been included on a CD disk in Appendix H. Those visualizations provide a 3-D view of TOC concentrations in groundwater, as well as the dissolved methane concentrations (TOC1.HAV, TOC2.HAV, TOC3.HAV, Methane1.HAV, Methane2.HAV, and Methane3.HAV).

6.2.3.2 Shallow Groundwater System

The primary source of recharge within the Study Area to the shallow groundwater system is precipitation/infiltration. Precipitation is saturated with respect to gases in the atmosphere, including O_2. As precipitation infiltrates through the soil, some of the natural components of the soil dissolve into the water, including the anions NO_3^- and SO_4^{2+}, if present. This can result in the groundwater having a supply of electron acceptors. As the water continues to travel through the soil, DO can be consumed by chemical reactions within the groundwater system and biological reactions with organic material. Once again, as the O_2 is depleted, the biological reactions will continue with the other electron acceptors. Bacteria present in the shallow groundwater can use all of the naturally occurring electron acceptors (except the iron and manganese which are part of the soil matrix), degrading organics that are present in shallow groundwater. If the electron acceptors are depleted in shallow groundwater, then these will not be available for degradation of organics in deeper groundwater. Both aerobic (DO greater than 0.5 mg/L) and anaerobic (DO less than 0.5 mg/L) conditions are present in the shallow groundwater system with no distinct pattern (Table 5-14). In areas where DO concentrations are above 0.5 mg/L, biodegradation of organics will occur under aerobic conditions precluding the formation of methane which requires strongly reducing (anaerobic) conditions.

6.2.3.3 Deep Groundwater System

There is a downward component to the hydraulic gradient in the groundwater system throughout much of the Study Area, except for areas near the Menominee River (a groundwater sink). Thus, recharge to the deep groundwater system throughout much of the Study Area is principally from the shallow groundwater system. The source liquid materials released from the Facility reportedly contained as much as 10 to 12 percent organic material (Godsy et. al., 1999). At these concentrations, the liquid mixture would have been slightly heavier than water and the mixture would have traveled downward into the deep groundwater system, driven by the density difference as well as the vertical groundwater gradient. Some lateral migration would have also occurred due to the presence of clay layers that would restrict the downward migration of the groundwater, as well as the continued waste source at the NE and SW Pits. Concentrations of organic material analyzed from the groundwater collected from the monitoring wells show that organic material with concentrations greater than 1,000 mg/L still exist at depth in the vicinity of the SW Pit and NE Pit areas.

6.2.3.4 O_2 Analysis

O_2 is depleted throughout most of the shallow and deep groundwater system within the Study Area suggesting that O_2 has been used as an electron acceptor during aerobic biodegradation or has been depleted due to chemical reactions within the groundwater system matrix (Table 5-10). As a result, anaerobic conditions are present throughout the deep groundwater system, indicating that alternate electron acceptors are the primary mechanism for biodegradation in deep groundwater.

6.2.3.5 NO_3^- Analysis

Very little NO_3^- is present in the shallow groundwater system; therefore little is available for biodegradation in the deep groundwater (Table 6-11). NO_3^- reduction is not a current significant pathway for biodegradation within the Study Area. As little NO_3^- is present, the biodegradation proceeds to the next step in the biodegradation pathway.

6.2.3.6 Iron Analysis

The next preferred electron acceptors for biodegradation would be Mn^{4+} and Fe^{3+}. The iron acceptor will be used for this analysis. The biodegradation pathway referred to as iron reduction results in the solubilizing of Fe^{3+} to Fe^{2+}. Concentrations above 1 mg/L Fe^{2+} indicate the Fe^{3+} reductive pathway is possible (Wiedemeier et. al., 1996). While 1 mg/L represents the conditions where iron reduction is possible, the evaluation focused on areas where iron reduction is a significant factor (above 10 mg/L) in understanding the reactions that are occurring in the Study Area.

The distribution of dissolved iron in shallow groundwater is depicted on Figure 6-31. The three areas where significant concentrations of iron were found are in the SW Pit area around Monitoring Well GM-62A (63 mg/L); near the Menominee River near Monitoring Wells GM-27A (36 mg/L) and GM-25A (28 mg/L); and a localized area near the FPS at Monitoring Well GM-41 (14 mg/L). The area near the Menominee River is most likely the result of reactions that occurred deeper in the groundwater system, with the dissolved iron transported in the groundwater towards the Menominee River.

Dissolved iron concentrations above 10 mg/L were detected in the deeper portions of the groundwater system in the central portion of the Study Area (Figure 6-32). This area generally coincides with the area of higher TOC concentrations that are shown in the TOC3.HAV visualization. Godsy and Warren (1999) concluded that iron reduction was the main degradation pathway in this area. However, as will be discussed below, methane was found in all areas where iron was found. In particular, dissolved iron occurs in significant concentrations along with methane south of the FPS (Monitoring Well GM-32 - 230 mg/L dissolved iron and 33 mg/L dissolved methane) and near the SW Pit (Monitoring Well GM-37B, 100 mg/L dissolved iron and 121 mg/L dissolved methane). A less significant area of dissolved iron also occurs near the Menominee River in the vicinity of Monitoring Wells GM-25B (120 mg/L dissolved iron and 112 mg/L dissolved methane) and GM-6 (12 mg/L dissolved iron and 25 mg/L dissolved methane). Due to the heterogeneous nature of the subsurface material, various micro-environments are likely present in the same area since both iron reduction and methane production are occurring in the same area of the groundwater system. Since every mg of iron only represents degradation of about 0.045 mg of organic material, and every mg of methane represents degradation of about 1.3 mg of organic material (Nyer, E.K., et. al., 2001), the methane concentrations indicate that while both degradation reactions are occurring, the methane pathway represents the majority of the degradation occurring in the aquifer.

6.2.3.7 SO_4^{2+} Analysis

SO_4^{2+} is another electron acceptor that is usually found at Sites where organic material in groundwater is being degraded. Studies performed by Beeman, *et. al.* (1987), found that in groundwater where SO_4^{2+} concentrations were high, little methane was found, and in areas where SO_4^{2+} was depleted, the biodegradation pathway shifted toward methanogenesis. This concurs with the findings of Wiedemeier *et. al*. (1996) who indicates that CO_2 can be used as an electron acceptor by methanogenic bacteria when SO_4^{2+} concentrations are below 20 mg/L. Background shallow wells (e.g. Monitoring Wells MW-5 and UG-4, both with 7.8 mg/L dissolved SO_4^{2+}) show that SO_4^{2+} is not a significant anion in the shallow groundwater (Figure 6-33) except in several isolated areas. SO_4^{2+} is also not a significant anion in the deep groundwater system as shown on Figure 6-34. Since SO_4^{2+} is not wide spread in the Study Area, it can be concluded that it is not significant in the biogeochemical reactions within the Study Area/AOC.

6.2.3.8 Methane Analysis

Biogeochemical conditions are suitable for the biodegradation of organic material in groundwater to produce methane within most of the Study Area/AOC. Since the highest concentrations of TOC are in the deeper portion of the groundwater system, methane is primarily formed at these deeper depths. This is depicted by the distribution of dissolved methane in the groundwater in the 3-D visualizations Methane 2.HAV and Methane 3.HAV. The maximum concentration of dissolved methane at the water table is about 30 mg/L; however, the solubility of methane increases by about 30 mg/L for every 33 ft of water column. Thus, methane may reach higher concentrations well above 30 mg/L at depth and still remain dissolved in groundwater. Increased depth increases the “storage capacity” for dissolved methane in groundwater. However, as deep groundwater rises towards the ground surface near the Menominee River, its “storage capacity” for methane is reduced and it can become supersaturated and release gas-phase methane.

The main areas of dissolved methane occur in the deep groundwater system and correspond to the areas of high TOC. There is little evidence of dissolved methane at high concentrations in shallow groundwater overlying areas of higher dissolved methane in the deep aquifer, except in areas near the Menominee River. For example, Monitoring Wells GM-62A and GM-2C (the upper aquifer wells at those locations) contain 8 and 5 mg/L of dissolved methane, respectively, whereas deep groundwater at these locations contains greater than 100 mg/L of dissolved methane.

6.3 Menominee River Investigation Results

The Menominee River is the groundwater migration boundary for the Study Area. Groundwater within the Study Area moves from hydraulically upgradient areas and migrates into the river. This is because the hydraulic pressure of the groundwater is always higher than that of the surface water in the river, except during unusually high water conditions in the river. The old Ford Dam and the Big Quinnesec Dam regulate the surface water level in the river and the river flow.

The drainage area for the Menominee River upgradient of the Study Area has been determined by the Water Management Section of MDEQ to be 2,438 square miles. The monthly 95 percent exceedance flows vary from a low of 860 cubic feet per second (cfs) in August to a high of 1,440 cfs in April. As determined by the MDEQ, the lowest monthly 95 percent exceedance flow is 860 cfs, the harmonic mean flow is 960 cfs, and the 90-day, 10-year flow is 1,650 cfs.

6.3.1 Comparison to Michigan Part 4 Water Quality Standards

As discussed previously in Section 6.2, groundwater quality on the east side of, and adjacent to, a portion of the Menominee River has been impacted. Monitoring wells were installed in the vicinity of the east bank of the Menominee River in order to determine the horizontal and vertical extent of impacted groundwater migrating to the Menominee River. The locations of these monitoring wells are shown on Figures 5-1 and 6-35. Monitoring wells installed in the vicinity of the Menominee River include GM-5, GM-6, GM-9, GM-25A, GM-25B, GM-25C, GM-26A, GM-26B, GM-26C, GM-27A, GM-27B, GM-27 C, GM-28A, GM-28B, GM-29, GM-31, GM- 63, GM-64A, GM-64B, GM-77, GM-78, GM-79, GM-84, GM-87A, and GM-87B.

Because the groundwater in this area is migrating to the Menominee River, a different set of criteria are involved than those previously described in Section 6.2.1.1. The data from the monitoring well network listed above were evaluated in comparison to Michigan criteria which apply only in surface water and at the GSI, including:

- Final Acute Values: The FAV is a surface water standard defined by the State of Michigan in Rule 323.1057 as the level of a substance or mixture of substances that does not allow the mortality or other specified response in aquatic organisms to exceed 50 percent when exposed for 96 hours, except where a shorter time period is appropriate for certain species.

- Final Chronic Values: The FCV is a surface water standard defined by the State of Michigan in Rule 323.1057 as the level of a substance or mixture of substances that does not allow injurious or debilitating effects in aquatic organisms resulting from repeated long-term exposure to a substance(s) relative to the organism's lifespan.

These criteria are calculated using the methodology specified in Rule 323.1057 (Toxic Substances). These criteria are applicable to the Great Lakes, the connecting waters, and all other surface waters of the State of Michigan. These standards apply only in surface water and at the GSI. The FAV and the FCV may be adjusted for mixing in the surface water before the criteria to be used are determined, and site-specific criteria may also be developed and applied in lieu of the generic FAV and FCV.

6.3.1.1 FAV

The groundwater data from the monitoring well network was compared to the generic Michigan FAV criteria. These groundwater results are included in Table 6-18. Comparison of the generic FAV criteria to groundwater data from the monitoring well network indicate that only one monitoring well, GM-25B, had constituent concentrations consistently above the generic FAV criteria for the following constituents: 2,4-dimethylphenol, 2-methylphenol, 3-methylphenol/4-methylphenol, and phenol. Monitoring Well GM-25B also had a concentration of barium and copper above the generic FAV criteria (one out of five samples).

There were five other monitoring wells where the groundwater sample contained constituents with concentrations above the generic FAV criteria; however, the results of multiple sampling events were not consistent, with some concentrations below generic FAV criteria.

- One concentration of copper was above the generic FAV criteria in one of six samples collected from Monitoring Well GM-5.

- One concentration of 3-methylphenol/4-methylphenol was above the generic FAV criteria in one of six groundwater samples collected from Monitoring Well GM-26A.

- Concentrations of 2,4-dimethylphenol (or or 2,4-dimethylphenol/2,5-dimethylphenol) were above the generic FAV criteria in two of seven groundwater samples collected from Monitoring Well GM-26C. One concentration of copper was above the generic FAV criteria in one of five groundwater samples collected from Monitoring Well GM-26C.

- One concentration of 3-methylphenol/4-methylphenol was above the generic FAV criteria in two of five groundwater samples collected from Monitoring Well GM-27A.

- One concentration of copper was above the generic FAV criteria in one of 12 groundwater samples collected from Monitoring Well GM-28B.

In addition to the five wells discussed above, N_2 (as NH_4+) was present at concentrations above the generic FAV criteria in at least one groundwater sample collected from Monitoring Wells GM-9, GM-25B, GM-27B, GM-28A, GM-28B, GM-29, GM-79, and GM-84. However, the analytical results collected to date for N_2 have indicated a high degree of variability in the concentrations and so do not replicate each other. Therefore, the detections of N_2 at concentrations above the generic FAV criteria were suspect and most likely inaccurate. Currently, the method approved by the MDEQ for the Facility is the U.S. EPA Method 350.1, which is a colorimetric method that is prone to variability. It is well documented in the method description that the concentration analysis can be affected by variables in the groundwater, such as calcium, magnesium, turbidity, and sample color.

Although constituent concentrations were identified above the generic FAV criteria, these constituents were present in groundwater collected from monitoring wells along the Menominee River, not in the surface water of the Menominee River. The generic FAV only applies in surface water and at the GSI. The mixing zone for FAVs and monitoring locations will be evaluated further in the remedial action plan (RAP).

6.3.1.2 FCV

Comparison of the groundwater data from the monitoring well network along the Menominee River to the generic Michigan FCV criteria indicated that the concentrations of 21 constituents were above the generic FCV criteria without a mixing zone adjustment. The groundwater results of this comparison are included in Table 6-18. A number of monitoring wells contained constituent concentrations that were consistently above the generic generic FCV criteria, including:

- Monitoring Well GM-5 (2,4-dimethylphenol, acetaldehyde)
- Monitoring Well GM-25A (2,4-dimethylphenol, 2,4-dimethylphenol/2,5-dimethylphenol, and barium).
- Monitoring Well GM-25B (2,4-dimethylphenol, 2,4-dimethylphenol/2,5-dimethylphenol, 2-methylphenol, 3-methylphenol, 4-methylphenol, 3-methylphenol/4-methylphenol, phenol, barium, nickel, and vanadium).
- Monitoring Well GM-26A (2,4-dimethylphenol, 2,4-dimethylphenol/2,5-dimethylphenol, barium, and acetaldehyde).
- Monitoring Well GM-26C (2,4-dimethyphenol, 2,4-dimethylphenol/2,5-dimethylphenol, and N_2 as NH_4+).

- Monitoring Well GM-27A (2,4-dimethylphenol, 2,4-dimethylphenol/2,5-dimethylphenol, and barium).

- Monitoring Well GM-27B (N_2 as NH_4+).

- Monitoring Well GM-28A (manganese).

- Monitoring Well GM-63A (barium).

- Monitoring Well GM-63B (N_2 as NH_4+).

- Monitoring Well GM-64A (barium).

- Monitoring Well GM-64B (2,4-dimethylphenol, and barium).

- Monitoring Well GM-66B (N_2 as NH_4+).

- Monitoring Well GM-87A (N_2 as NH_4+).

Groundwater samples that were collected from each of the monitoring wells in the network also contained constituent concentrations above the generic FCV criteria that were inconsistent when compared to the results of additional groundwater samples collected from the monitoring well, as follows:

- Monitoring Well GM-5 groundwater samples contained copper concentrations above the generic FCV criteria in one of three samples. However, this sample was qualified by the laboratory as an estimated result. The other two copper concentrations were below the laboratory method detection limit of 25 µg/L.

- Monitoring Well GM-9 groundwater samples contained N_2 (as NH_4+) concentrations above the generic FCV criteria in four of six samples. The other two samples were below the laboratory detection limit of 200 µg/L.

- Monitoring Well GM-25B groundwater sample concentrations were above the generic generic FCV criteria for selenium in one sample, but four additional sample concentrations were less than 5 µg/L for selenium, which was the laboratory detection limit. The sample concentrations were above the generic FCV criteria for copper in one sample, but four additional samples were less than 25 µg/L, which is the laboratory detection limit. The sample concentrations were above the generic FCV criteria for chromium in three samples, but two additional samples were less than 50 µg/L, which is the laboratory detection limit. One sample concentration was also above the generic FCV criteria for formaldehyde, but five additional sample concentrations were non-detect at less than 500 µg/L or less than 100 µg/L, which were the laboratory detection limits. One sample concentration was above the generic FCV criteria for ethylene glycol, but was below the generic FCV criteria in three additional samples. One sample concentration was above the generic FCV criteria for isopropanol, but three additional samples were below the generic FCV criteria. Four sample concentrations were above the generic FCV criteria for acetaldehyde, but one other additional sample was below the generic FCV criteria. This sample was below the laboratory detection limit of less than 100 µg/L. Sample concentrations were also above generic FAV criteria for NH_4+ in two of four samples. The other two samples were below the laboratory detection limits of less than 200 µg/L or less than 1,500 µg/L.

- Monitoring Well GM-25C groundwater sample concentrations were above the generic FCV criteria for 3-methylphenol/4-methylphenol in one sample, but was below the criteria in four additional samples. Four of seven samples also contained N_2 (as NH_4+) above the generic FCV criteria.

- Monitoring Well GM-26A groundwater sample concentrations were above the generic FCV criteria for 2-methylphenol, 3-methylphenol, 4-methylphenol, and 3-methylphenol/4-methylphenol each in one of six samples. The sample concentrations were also above the generic FCV criteria for acetaldehyde in two of five samples and above the generic FCV criteria for NH_4+ in one of four samples.

- Monitoring Well GM-26B groundwater sample concentrations were above the generic FCV criteria for N_2 (as NH_4+) in four of six samples; however, N_2 was below the laboratory detection limits of 200 µg/L in the two remaining samples.

- Monitoring Well GM-26C groundwater sample concentrations were above the generic FCV criteria for copper in one sample; however, four additional samples were less than 25 µg/L, which was the laboratory detection limit. Four sample concentrations were also above the generic FCV criteria for barium; however, barium was below the generic FCV criteria in two additional samples. Two sample concentrations were above the generic FCV criteria for vanadium;

however, vanadium was below generic FCV criteria in four additional samples. One sample concentration of acetaldehyde was above the generic FCV criteria for acetaldehyde; however, five additional samples were below the generic FCV criteria.

- Monitoring Well GM-27A groundwater sample concentrations were above the generic FCV criteria for 3-methylphenol/4-methylphenol in two samples, but was less than 50 µg/L in one additional sample, which was the laboratory detection limit. Sample concentrations were also above the generic FCV criteria for acetaldehyde and NH_4+, which were present in one of five and one of four samples, respectively.

- Monitoring Well GM-27C groundwater sample concentrations were above the generic FCV criteria for formaldehyde in one sample, but six additional sample concentrations were less than 100 µg/L, which was the laboratory detection limit. Sample concentrations were also above the generic FCV criteria for NH_4+, in four of seven samples.

- Monitoring Well GM-28A groundwater sample concentrations were above the generic FCV criteria for NH_4+in five of 11 samples. Sample concentrations were above the generic FCV criteria for silver in one of eleven samples; however, this concentration was qualified by the laboratory as an estimated value.

- Monitoring Well GM-28B groundwater sample concentrations were above the generic FCV criteria for NH_4+ in eight of 12 samples.

- Monitoring Well GM-29 groundwater sample concentrations were above the generic FCV criteria for di-n-butylphthalate in one sample; however, eleven additional sample concentrations from this well contained less than the method detection limits of 10 µg/L or 5 µg/L. Chromium was also present above the generic FCV criteria in one of 12 samples, and silver was present above the generic FCV criteria in two of 12 samples. Groundwater sample concentrations of NH_4+ were above the generic FCV criteria in nine of twelve samples.

- Monitoring Well GM-31 groundwater sample concentrations were above the generic FCV criteria for acetaldehyde in one sample; however, two additional sample concentrations from this well were below criteria.

- Monitoring Well GM-63A groundwater sample concentrations were above the generic FCV criteria for 2,4-dimethylphenol in one sample; however, concentrations in five additional samples were below criteria. Sample concentrations of acetaldehyde were above the generic FCV criteria in two of four samples; however, the concentrations of the other two samples were below laboratory detection limits.

- Monitoring Well GM-64A groundwater sample concentrations were above the generic FCV criteria for N_2 (NH_4+) in one sample; however, three additional samples were below criteria.

- Monitoring Well GM-66B groundwater sample concentrations were above the generic FCV criteria for acetaldehyde in one sample; however, concentrations in ten additional samples were below criteria.

- Monitoring Well GM-77 groundwater sample concentrations were above the generic FCV criteria for 2,4-dimethylphenol/2,5-dimethylphenol in one sample; however, concentrations in two additional samples were below criteria. N_2 (NH_4+) was also present above the generic FCV criteria in one of three samples.

- Monitoring Well GM-78 groundwater sample concentrations were above the generic FCV criteria for manganese in one sample; however, concentrations in nine additional samples were below criteria. N_2 (NH_4+) was present at concentrations exceeding the generic FCV criteria in eight of ten samples.

- Monitoring Well GM-79 groundwater sample concentrations were above the generic FCV criteria for N_2 (NH_4+) in seven samples; however, two additional samples were below criteria.

- Monitoring Well GM-84 groundwater sample concentrations were above the generic FCV criteria for N_2 (NH_4+) in five of seven samples.

- Monitoring Well GM-87B groundwater sample concentrations were above the generic FCV criteria for N_2 (NH_4+) in four of five samples.

These comparisons of the sample concentrations to the generic Michigan FCV criteria were applied to groundwater samples collected from monitoring wells as a first screening step. However, a mixing zone adjusted FCV groundwater/surface water interface criteria is applied in lieu of the generic FCV criteria. Additionally, except for groundwater samples collected from Monitoring Well GM-25B, the generic FAV criteria are not exceeded on a consistent basis. Although constituent concentrations were identified above the generic FCV criteria, these constituents were present in groundwater collected from monitoring wells along the Menominee River, not in the surface water of the Menominee River. The generic FCV only applies in surface water and at the GSI. The mixing zone for FCVs and monitoring locations will be evaluated further in the RAP.

In developing a site-specific mixing zone based FCV criteria, the MDEQ uses the lowest monthly 95 percent low flow exceedence value and a 25 percent factor is applied. The lowest monthly 95 percent exceedence flow applicable to this area of the Menominee River, as determined by the MDEQ Water Management Section, is 860 cfs. This number is then compared to the groundwater migration into the river for the portion of a plume where constituent concentrations are higher than the adjusted FCV criteria, which for the Site is calculated at approximately 0.33 cfs in the area with constituent concentrations above the generic FCV criteria. At this rate, the groundwater migration rate represents a contribution of only 0.15 percent [(0.33/{0.25*860})*100]. This almost certainly overstates the plume since data at the monitoring wells rather than the groundwater/surface water interface were used for the calculations.

6.3.1.3 Bioaccumulative Chemicals of Concern (BCCs)

BCCs were originally identified in the MDEQ Environmental Response Division Operational Memorandum #17, which has now been recinded. The BCCs were applicable to surface waters and were chemicals that upon entering the surface water, by themselves or as toxic transformation products, accumulate in aquatic organisms by a bioaccumulation factor of more than 1,000 after considering metabolism and other physiochemical properties that might enhance or inhibit bioaccumulation.

The groundwater database from the appropriate monitoring points along the Menominee River was screened for the presence of BCCs in the monitoring well network. The groundwater results of this screening are included in Table 6-18.

Groundwater samples from several wells contained mercury at or below the laboratory quantitation limit (0.2 µg/L). In most cases, the reported value was qualified as an estimated value or that the laboratory blank also contained mercury. In each case, mercury was only detected on one sampling date and was not repeated in subsequent sampling. Only one groundwater sample, from Monitoring Well GM-25A, detected mercury at the laboratory quantitation limit without a qualifier. However, since all of the mercury detections could not be duplicated in multiple samples, the detection of mercury is questionable and is believed to be a laboratory error.

Analyses have also been performed for polychlorinated dibenzo-p-dioxins (dioxins) and dibenzofurans (furans). Using the U.S. EPA Method 8290 for analysis several dioxins/furans were detected. However, none of these constituents were detected using the U.S. EPA Method 1613, Revision B, which is now the approved method under the Clean Water Act for analysis of dioxins/furans. The “detections” found using the U.S. EPA Method 8290 were all subject to qualifiers and none were found above target detection levels.

Additional sampling and analysis of groundwater for dioxins/furans in support of a National Pollutant Discharge Elimination System (NPDES) permit application for the full scale groundwater extraction and treatment system at the Site confirmed that dioxins/furans are not present in the groundwater associated with the Menominee River. In fact, no BCCs could be confirmed to be present in the groundwater associated with the Study Area/AOC. The dioxin/furan samples and results are summarized in Table 6-19. Documentation related to the dioxin/furan sampling and complete results is included in Appendix M.

6.3.2 Groundwater Toxicity Testing Results

ARCADIS conducted toxicity testing of groundwater samples collected from wells located near the Menominee River during the RI, at the request of MDEQ. The toxicity tests were performed using standard methods developed for WET testing. A total of 53 toxicity tests were conducted with two test species (fathead minnows and cladocerans, respectively, *Pimephales promelas* and *Daphnia magna*) on the groundwater collected from 24 wells and three seep locations. In addition, the MDEQ directly conducted several toxicity tests on the groundwater. The results of the toxicity testing of the groundwater are summarized in Table 6-20.

ARCADIS also performed standard Toxicity Identification Evaluation (TIE) procedures on seven water samples (six groundwater samples and one seep sample) to identify chemicals contributing to toxicity. A detailed discussion of the WET and TIE testing methods and results is included as Appendix N.

WET testing was originally developed for monitoring of point-source NPDES effluent discharges for the purpose of protecting biological community quality in the receiving surface waters. Scientific literature provides little precedent to establish the ecological relevance of toxicity test results for groundwater. During the past several years, the U.S. EPA and others have embarked on a mid-course review of WET testing (Ausley, 2000). Due to factors such as the inability to reliably predict in-stream biological conditions from WET testing results (Diamond and Daley, 2000), variability of test results (Warren-Hicks et al., 2000; Moore et al., 2000a), and the likelihood of false positives (Moore et al., 2000b), WET testing does not provide a definitive determination of ecological impact (Chapman, 2000). The ability to predict surface water impacts based on WET testing results is lower for groundwater toxicity tests than for whole effluent tests, because of the diffuse nature of groundwater venting plumes, inherent differences in the geochemistry of groundwater versus surface water, and various attenuation processes that occur before groundwater becomes surface water. Based on a technical review of the merits and limitations of WET testing, the only appropriate use of this type of information is as an indicator of the need for further evaluation of risks to aquatic life (Chapman, 2000).

The results of the groundwater toxicity investigation for the Menominee River were used to focus the scope of a bioassessment study for the Menominee River, which directly evaluated whether river water quality and resident river benthic organisms had been adversely affected by venting groundwater. The Menominee River bioassessment study report is included as Appendix I, and the results of the bioassessment study are discussed in Section 6.3.6.

The groundwater toxicity test results for wells located near the Menominee River are summarized in Table 6-20. For each sample that was sufficiently toxic, the groundwater concentration associated with 50 percent mortality (LC50) was calculated based on test organism survival in whole groundwater samples (unfiltered) and groundwater samples (unfiltered) that were diluted with laboratory water. To facilitate comparisons among samples, acute toxic units (TU_A values) were calculated as the inverse of the LC50. A TU_A of less than 1.0 indicates 51 to 100 percent survival in whole groundwater. For certain samples, TU_A values were also calculated for 50 percent *Daphnia magna* immobilization (where this response was observed). Daphnid immobilization is considered by the U.S. EPA to be equivalent to mortality for the purpose of calculating acute water quality criteria (Stephan et. al., 1985).

Unfiltered groundwater samples collected from Monitoring Wells GM-5, GM-25A, GM-25B, GM-26A, GM-26C, GM-27A, and GMEW-3 were each consistently toxic to at least one of two test species (TU_A greater than 1.0). In general, two-fold dilution or less was required to reduce the toxicity to a TU_A of less than 1.0. Greater dilution was required for groundwater from Monitoring Well GM-25B and Extraction Well GMEW-3. The TU_A for groundwater collected from one seep location (SP-2) was equal to 1.0.

Split sampling and/or repeated toxicity testing was implemented for nine groundwater wells and one seep location. The TU_A values for mortality and immobilization varied considerably among tests, and in several cases the classification of samples as toxic (TU_A greater than 1.0) or nontoxic (TU_A less than 1.0) varied among tests (Table 6-20). One factor contributing to the observed variation was the implementation in later tests of test organism acclimation, which reduces stress related to water hardness and provides a result that is more indicative of the toxicity of constituents of interest in the water sample. Additionally, groundwater collected from one of two uncontaminated reference wells (Monitoring Well GM-26B) initially produced a TU_A of greater than 1.0, although this result could not be reproduced. This underscores the limitations and unreliability of WET testing methodologies that have been identified by others, as well as the additional uncertainty associated with groundwater toxicity testing.

The TIE results for seven groundwater samples are described in Appendix N. In general, toxicity was eliminated by the removal of organic chemicals from the sample (solid phase extraction procedure) combined with a measure to reduce the toxicity of metals (addition of the chelating agent ethylenediaminetetraacetic [EDTA]). Thus, toxicity to the test organisms was apparently due to a combination of organic constituents and metals. For the Seep Sample SP-2, toxicity during the TIE tests was only marginal (i.e., TIE results were interpreted based on behavioral endpoints due to high survival) and was eliminated by EDTA addition alone, indicating toxicity due to metals.

Chemicals identified as possible contributors to the observed toxicity include phenolic constituents, iron, and major ions (particularly bicarbonate). Conclusions from the analysis include: (1) the measured concentrations of phenolic constituents in most samples were not sufficient to cause acute toxicity but rather acted as co-stressors, (2) iron concentrations may have been sufficient to cause acute toxicity, and (3) major ions probably served as an important co-stressor. These constituents are not present at the same concentrations in the surface water or at the GSI, as in the groundwater. These constituents were further evaluated as part of the bioassessment study conducted for the Menominee River, which directly assessed whether water quality and resident biota have been adversely affected by venting groundwater (Section 6.3.6 and Appendix I).

6.3.3 Zone of "Impacted" Groundwater Migrating to the Menominee River

An evaluation was first performed to delineate preferential pathways through which the majority of groundwater adjacent to the Menominee River would flow prior to migrating into the river. As discussed in detail in Section 6.1 the preferential groundwater pathways are comprised of the more permeable sediments throughout the Study Area. To determine the horizontal and vertical distribution of these preferential pathways on the east side of, and adjacent to the Menominee River, a geologic cross section was prepared using the data contained in the stratigraphic columns presented in Appendix B. A geologic cross section evaluating the preferential pathways was also prepared perpendicular to the Menominee River. The locations of these cross sections are shown on Figure 6-36, and the cross sections are shown on Figures 6-37 and 6-38.

Results of hydraulic testing performed on monitoring wells throughout the Study Area were used to determine which geologic strata would likely comprise the preferential pathways. The hydraulic tests, as discussed in Section 5.8, show that the preferential pathways for groundwater flow within the Study Area are the fine to coarse grain sands and gravels referred to as Unit 1 in 6.1.2. Little groundwater flow occurs through the very fine grain sands, silty sands, silts, and clays referred to as Units 2 and 3. The cross section on Figure 6-37 identifies these preferential pathways (Unit 1).

Wells that showed consistently higher concentrations than the first screening for the generic Michigan FCV criteria for at least one constituent were then used to define the lateral extent of "impacted" groundwater migrating to the Menominee River. If adjacent wells (parallel to the river) in the same zone indicated a constituent concentration above the generic FCV criteria, then it was assumed that groundwater within the zone between these wells contains constituent concentrations above those criteria.

For adjacent wells where one well indicated constituent concentrations above the generic FCV criteria and the other well indicated no constituent concentrations above criteria, then it was also generally assumed that groundwater in the area between these wells has constituent concentrations above criteria. Exceptions were in locations where structural bedrock highs were present between two wells, where one well contained constituent concentrations above the generic FCV criteria and the other well did not. In these cases, the plume discharge rate was estimated based on the distance between the well with constituent concentrations above the generic FCV criteria and the structural bedrock high.

The areas along the Menominee River assumed to contain groundwater with constituent concentrations above the generic FCV criteria are shown as shaded areas in the hydrogeologic cross section illustrated on Figure 6-39. The areas where the groundwater contains constituent concentrations above both the generic FCV and the generic FAV criteria are also shown on Figure 6-39. Table 6-18 summarizes the information used in preparing Figure 6-39. Chloride concentrations above the generic FCV criteria were detected in the groundwater collected from Monitoring Wells GM-8 and GM-66A. As no constituents related to the Site were detected in the groundwater collected from Monitoring Wells GM-8 and GM-66A, the areas where the chloride concentrations were above the generic FCV criteria have not been included on Figure 6-39.

The areas containing groundwater with Site constituent concentrations above the generic FCV criteria are:

- Zone A sands – The area between Monitoring Wells GM-78 and GM-29. It is assumed that Monitoring Well GM-29 represents the southern extent of the plume since there was only one occurrence of a constituent concentration above the generic FCV criteria (di-n-butylphthalate) in the five groundwater samples collected from this location.

- Zone B sands – These sands are localized in the immediate vicinity of Monitoring Well GM-25B. North of Monitoring Well GM-25B the Zone B sands are not present as is evidenced by the boring log for Soil Boring GMEWC-9. South of Monitoring Well GM-25B, boring logs show that the sands thin to approximately 3 ft at Soil Borings GMSB-112 and GMSB-133. Outside of the Monitoring Well GM25B area, where present, the Zone B sands are hydraulically connected to the Zone C sands and these areas are included in the discussion of Zone C sands presented below.

- Zone C sands – There are two areas where groundwater contains constituent concentrations above the generic FCV criteria within Zone C sands. The first area is bounded on the south by the structural bedrock high encountered at the location of Monitoring Well GM-63B, and on the north by Monitoring Well GM-84. The second area is between the bedrock high north of Monitoring Well GM-27B and Monitoring Well GM-28B.

- Zone D sands – No areas within Zone D sands have groundwater with constituent concentrations above the generic FCV criteria on a consistent basis. Groundwater from Monitoring Well GM-25C contained one constituent concentration above generic criteria for 2-methylphenol and 3-methylphenol/4-methylphenol. However, four additional samples collected from the location were all below the detection levels for these constituents.

6.3.4 Groundwater Migration Rate to the Menominee River

For each of the preferential pathways identified above where constituent concentrations are above the unadjusted FCV criteria, calculations were performed to estimate the amount of groundwater migrating to the river. To assist in the calculations, the preferential pathways were labeled as Zones A, B, C, and D on Figure 6-37.

The best and most reliable hydrogeologic data was used to determine the rate of groundwater venting to the Menominee River. The groundwater migration rate to the river was estimated by summing the individual migration rates from Zones A, B, C, and D. These rates were determined by using Darcy's law to calculate the groundwater migration rate for each zone. The equation for Darcy's law can be written as follows:

$$Q = TIL$$

where,

Q = migration rate, in gpd

T = transmissivity, in gallons per day per foot (gpd/ft)

I = horizontal gradient, in ft/ft

L = length, in ft

For Zones A, B, and C on Figure 6-37, the transmissivity of each zone was calculated by multiplying the hydraulic conductivity determined for individual wells completed within the zone by the thickness of the impacted portion of the zone at the location of each monitoring well. The data used for the transmissivity calculations are shown in Table 6-21. If data from more than one monitoring well were available for a zone, then an average hydraulic conductivity or thickness value was calculated. This is a reasonable method considering the deposits are heterogeneous. In addition, data from the short-term pumping tests on Extraction Wells GMEW-1 and GMEW-2 were used to verify the hydraulic conductivity and transmissivity values calculated from the individual wells. Zone A is the biggest volume contributor of the groundwater that vents to the Menominee River.

Data applicable to Zone A was compiled from Monitoring Wells GM-25A, GM-26A, and GM-27A. Data applicable to Zone B was compiled from Monitoring Well GM-25B. Data applicable to Zone C was compiled from Monitoring Well GM-26C. For Zone D, the approach was modified slightly, as outlined below.

For Zone D, the thickness of the zone impacted was derived from the data from Monitoring Well GM-5; however, the hydraulic conductivity data was derived from Monitoring Wells GM-5 and GM-25A. Hydraulic conductivity data for Monitoring Well GM-25A was selected as being representative of hydraulic conductivity at Monitoring Well GM-5 between depths of 215 to 240 ft and hydraulic conductivity data for Monitoring Well GM-5 was selected as being representative between depths of 250 to 260 ft. These depths were selected based on the characteristics of the stratigraphy shown on the stratigraphic column for Monitoring Well GM-5 (Appendix B).

The transmissivities for Zones A, B, C, and D were determined to be 17,000 gpd/ft, 700 gpd/ft, 6,200 gpd/ft, and 12,100 gpd/ft, respectively.

Horizontal hydraulic gradients were calculated using water level data collected from monitoring wells within the Study Area. Two calculations were performed, one representing groundwater flow in the “upper” portion of Unit 1 (Zone A) and one representing flow in the “lower” portion of Unit 1 (Zones B, C, and D). The “upper” portion of Unit 1 (Zone A sands) is shown on Figure 6-37. Water level data from monitoring wells screened within Zone A along the river were compared to water level data from wells further upgradient. Specifically, horizontal gradients were calculated from the following monitoring well pairs: GM-50 and GM-27A, and GM-49 and GM-25A. The horizontal hydraulic gradients calculated ranged from 0.0027 to 0.0029 ft/ft.

An average horizontal hydraulic gradient of 0.0028 ft/ft was used to determine the groundwater migration rate from Zone A to the Menominee River. Additional data from the pumping tests on Extraction Wells GMEW-1 and GMEW-2 was also used to verify the hydraulic conductivity value used. A gradient of 0.00221 to 0.00236 ft/ft was calculated between Extraction Wells GMEW-1 and GMEW-2, which are next to the Menominee River, approximately 400 ft apart, and completed in the same sand unit. This data supports the gradient of 0.0028 ft/ft, which was used to determine the rate of groundwater venting to the Menominee River for Zone A.

To determine the horizontal hydraulic gradient for the "lower" portion of Unit 1 sands (Zones B, C, and D), water level data from the deeper wells along the river were compared to water level data from deeper wells further upgradient. Specifically, horizontal gradients were calculated from the following pairs of monitoring wells: GM-37B and GM-26C, and GM-62C and GM-25C. The horizontal hydraulic gradients calculated ranged from 0.0026 to 0.0045 ft/ft. An average horizontal hydraulic gradient of 0.0036 ft/ft was used in determining the groundwater migration rate from Zones B, C, and D to the Menominee River.

The groundwater migration rate to the Menominee River was calculated by multiplying the transmissivities, horizontal hydraulic gradients, and widths of each zone parallel to the river. For Zones A, B, C, and D the widths were determined to be 2,700 ft, 1,700 ft, 2,200 ft, and 700 ft, respectively. The migration rates for Zones A, B, C, and D, which were calculated using Darcy's Law, were determined to be 128,500 gpd, 4,300 gpd, 49,100 gpd, and 30,500 gpd, respectively. The sum of these migration rates produces a cumulative groundwater migration rate of 212,400 gpd or 0.33 cfs, from the four zones to the Menominee River. The cumulative groundwater migration value calculated for the Menominee River compares favorably with the average runoff (approximately 12 inches/year per MDEQ) for the watershed, indicating the results are a conservative determination of the groundwater migrating into the Menominee River.

A Site-wide groundwater flow model was developed by ARCADIS and reviewed by the MDEQ. The purposes of the Site-wide groundwater flow model were to achieve a more complete understanding of the hydrogeologic framework of the Study Area, more accurately reflect the hydrogeologic conditions, simulate the groundwater flow system, and simulate/evaluate the potential effects of the installation of a groundwater extraction system using different scenarios. Details of the groundwater flow model can be found in the ARCADIS reports submitted to the MDEQ entitled, "*Numerical Groundwater Flow Model, Kingsford, Michigan*" and "*Addendum To Numerical Groundwater Flow Model, Ford/Kingsford Site, Kingsford, Michigan*," dated May 28, 2004 and January 24, 2005, respectively. These reports are included in this report in Appendix O. The Site-wide groundwater flow model confirmed the rate of groundwater that may be venting to the Menominee River with constituent concentrations above the generic FCV criteria.

In developing the groundwater flow model, ARCADIS used data collected from pumping tests that were performed prior to construction of the extraction well system as initial input values for the hydraulic properties of the groundwater system in the vicinity of the Menominee River. The results of pumping tests performed prior to installation of the extraction wells are presented in Table 6-22. As can be seen in Table 6-22, five pumping tests were performed on wells installed into the Zone A sands, two pumping tests were performed on wells installed into the Zone B sands, and five pumping tests were performed on wells installed into the Zone C sands. Water level data collected during the drawdown and recovery phases of the pumping tests were used to create “best fit” type curves, which provide aquifer parameters. The “best fit’ type curves from the pumping tests are included in Appendix D.

During the groundwater flow model development, water level data collected from the Site were used to calibrate the groundwater flow model. Minor adjustments were made to the hydraulic input values for the Zone A, B, and C sands adjacent to the river during the groundwater flow model calibration process. The groundwater flow model was used to design the locations and pumping rates for the extraction wells that were installed for the interim response action for groundwater. These extraction wells were installed to provide hydraulic containment of groundwater venting to the Menominee River that may contain constituent concentrations above the generic FAV criteria. Figure 6-39 shows the location of this area, as well as areas where groundwater constituent concentrations are extrapolated to be above both the generic FCV and FAV criteria.

After installation of the groundwater extraction wells, short-term hydraulic testing was performed on all of the extraction wells to provide additional data on the hydraulic properties of the Zone A, B, and C sands. The results of the pumping tests performed on the groundwater extraction wells are presented in Table 6-23. These data, along with changes in the configuration of the bedrock surface, were used to re-calibrate and improve the accuracy of the groundwater flow model.

At the request of the MDEQ, a conservative pumping simulation for the groundwater flow model was performed to identify portions of the groundwater extraction system most sensitive to higher hydraulic conductivity. To accomplish the conservative pumping simulation, the calibrated groundwater flow model hydraulic conductivity values used for each of the different model layers were assumed to be 50 percent higher than what was determined from the groundwater flow model calibration process. The results of the conservative pumping simulation showed that hydraulic containment was effectively achieved even at the assumed hydraulic conductivity values, significantly higher than those obtained from the pumping tests and significantly higher than those determined by the calibrated groundwater flow model.

6.3.5 Surface Water

ARCADIS and the MDEQ measured the chemical concentrations in Menominee River surface water within the Study Area during two sampling events. The MDEQ collected six surface water samples from five sample locations in May 1996. The locations of the surface water samples are shown on Figure 5-5. Detected chemicals in the surface water samples collected by the MDEQ were limited to acetone, bis(2-ethylhexyl)phthalate, di-n-butylphthalate, and several metals. All detected constituent concentrations were below water quality standards for the protection of human health (generic direct contact) and aquatic life (generic FCV and FAV). No constituent concentrations in the surface water are above the generic Residential DWC and the Menominee River is not used as a source of drinking water.

Analytical results for Menominee River surface water samples collected by ARCADIS are summarized in Table 6-24. The only detected constituents were barium and silica. Barium concentrations ranged from 8.6 to 15 µg/L, with an average concentration of 9.3 µg/L. These concentrations are well below water quality standards for barium for the protection of human health (generic DCC of 14,000 mg/L) and aquatic life (generic FCV of 400 µg/L and FAV of 2,300 µg/L). These concentrations are also not above any of the State of Michigan Part 201 generic criteria. Silica (dissolved) concentrations ranged from 8.7 to 9.3 mg/L, with an average concentration of 9.1 mg/L. There are no water quality standards for the protection of human health (generic direct contact) and aquatic life (generic FCV and FAV) for silica.

Hardness was also measured for the surface water. The hardness concentrations ranged from 51 to 100 mg/L as calcium carbonate ($CaCO_3$), with an average concentration of 92 mg/L as $CaCO_3$.

Based on the results of the surface water sampling, there are no impacts to the surface water of the Menominee River from Site constituents. The concentrations of the metals detected are representative of naturally occurring background conditions.

6.3.6 Biological Surveys

Several biological studies of the Menominee River have been conducted. These include an ongoing project since 1996 by the WDNR and a study by ARCADIS in 2000. The results of these surveys and the information they provide on the quality of the Menominee River are discussed below.

6.3.6.1 WDNR

The WDNR is conducting a multi-year investigation of the effects of flow regulation and restriction of passage due to hydroelectric project operation on the structure of fish and invertebrate communities in Wisconsin's large river systems. Phase I of the study is associated with the mussel communities and Phase II is associated with the fish and invertebrate communities. The biological sampling effort has characterized the communities at several locations in the Menominee River, including an area downstream of the Ford dam. Progress reports for the study that were issued in May 1997, June 1998, and August 2000 (WDNR, 1997; 1998; 2000) provided a description of the condition of fish and invertebrate communities. The final report for Phase II of the study was issued in March 2004. These WDNR progress reports and final report cited for the Menominee River are included as Appendix P.

Comparisons among various sampling zones in the river indicate decreased fish and mussel diversity in the upstream areas of the river (including the Kingsford area), apparently due to barriers to fish migration (dams and waterfalls) which are unrelated to venting groundwater. Aquatic insects do not show this trend, due to their ability as adults to disperse by flying. Mayflies, which are considered indicators of clean conditions, were abundant in the Kingsford sampling area, including the plume venting area. Although precise sample locations are not provided in the progress reports, approximate locations are identified in the ARCADIS bioassessment report (Section 4.1), based on the progress reports and communications with the authors. The results of the studies available through December 2007 show that the groundwater has had no impact to the surface water and river communities. These results are representative of conditions prior to the startup of the groundwater extraction system by Ford/KPC.

6.3.6.2 ARCADIS

A biological community assessment (bioassessment) was conducted by ARCADIS for the Menominee River in the vicinity of the Study Area prior to the startup of the groundwater extraction system, in order to determine whether aquatic biota or the river have been adversely impacted by groundwater migrating from the Study Area. The bioassessment specifically addressed the numbers and types of sediment-dwelling (benthic) macroinvertebrates and fish at locations upstream, adjacent to, and downstream from the Study Area. Physical habitat and chemistry data were also collected to help distinguish the cause of any differences in the macroinvertebrate and fish communities between locations, if they were found to exist. Bioassessment results are provided in Appendix I and are summarized below.

Overall, the benthic macroinvertebrate community in the entire Study Area, as well as upstream and downstream, was of high quality. Sensitive species were observed at all sample locations. Benthic community characteristics were not consistent with a “biological response signature” associated with chemical toxicity. Differences among locations were associated with natural physical habitat characteristics and were consistent with the differing biology of taxa that inhabit embedded fine grain sediments versus coarser gravel substrates.

Fish community composition was strongly correlated with water depth. Shallower locations supported more fish of smaller size, including more species and higher diversity than deeper locations. This is consistent with the fact that fish tend to congregate in the shallows at night, and shallow backwaters tend to serve as “nursery” areas for many fish species. The sampling zones adjacent to the Study Area actually exhibited the highest number and diversity of fish, because these were the shallowest areas sampled. The fish were visually observed to be plump and healthy, and external anomalies were very uncommon.

The biological community survey results provide no evidence of adverse impacts related to groundwater migrating from the Study Area, based on the following findings:

- Measures of biological community quality within the Study Area were similar to those at reference locations that had similar habitat characteristics.

- Biological community metrics were generally closely correlated with natural physical habitat characteristics and were not correlated with chemical concentrations.

- Sample locations immediately adjacent to the area of affected groundwater did not deviate from the biological community characteristics that were predicted based on natural habitat conditions.

- These results are in agreement with biological survey data collected by the WDNR from additional Study Area locations during the period from 1996 through 1999.

These findings are based on extensive sampling efforts, such that impacts occurring at an ecologically relevant scale would have been detected. The sampling locations included anticipated “hot spots” of groundwater upwelling, and subsurface temperature results confirm that groundwater upwelling was occurring. Thus, it is apparent that constituents in groundwater are being sufficiently attenuated prior to venting to prevent toxicity to the fish and benthic macroinvertebrate communities.

These conclusions also have implications for other components of the Menominee River ecosystem. Based on the high quality of the macroinvertebrate and fish communities, as well as the non-bioaccumulative nature of the chemicals of interest, the river should provide an excellent prey base for aquatic-feeding wildlife. At the opposite end of the food chain, the high quality of the benthic macroinvertebrate and fish communities indicates that important ecological functions of the GSI are not impaired. The zone of groundwater at the GSI provides important habitat, enhanced degradation of contaminants, enhanced nutrient and carbon cycling, and production of a food source (microbial biofilms) for benthic macroinvertebrates. If these functions were impaired by groundwater venting from the Study Area, then negative effects on the benthic macroinvertebrate community would have been observed. No such negative effects were observed.

6.4 Source Area Investigation Results

The RI and additional investigations for the Site investigated five potential source areas. These source areas included the NE Pit, the SW Pit, the RDA, the FPS, and the WBADA. Findings of the EE/CA, RI activities, and any additional investigation activities in each of the source areas are described in the following five subsections. The analytical results from soil and waste material were compared to several Part 201 Generic Cleanup Criteria and Screening Levels (MDEQ RRD Operational Memorandum #1, January 23, 2006) for soil (herein referred to as the Part 201 Soil Criteria). The results from the comparisons are summarized below and are included in the tables identified in each of the following potential source area subsections.

The analytical results from the groundwater sampling and comparison to Part 201 groundwater criteria were discussed previously across the entire Study Area in Section 6.2. Some discussion of the groundwater data is provided in the following sections to provide insight into whether the waste/fill material in these areas represents a continuing release to groundwater. Similarly, the discussion on the occurrence, fate, and transport of methane is presented in Section 6.5, which addresses the entire Study Area.

6.4.1 NE Pit

The NE Pit area is located on land currently owned by Madken, Inc., west of Balsam Road and located approximately midway between Breitung Avenue and Pyle Drive. Details of the NE Pit area were described in Section 3.10.2. The area is undeveloped and zoned by the City of Kingsford as industrial.

As depicted on Figure 6-40, this area includes a former elliptically shaped pit, approximately 30 ft deep, a former channel that connected the NE Pit to a second pit to the southwest, and a portion of an enlarged area of this channel. The area is separated from the SW Pit by a fence that encloses the north and east boundaries of Lodal Park. For the purposes of this report, only the area of the former channel that is outside of the fence surrounding Lodal Park is considered part of the NE Pit area. The area inside of the fence is discussed as part of the SW Pit. The EE/CA and RI activities completed at the NE Pit included source delineation by soil borings and test pits, waste characterization sampling and analysis, and soil and groundwater sampling.

The primary objectives of the activities at the NE Pit included:

- Delineation and characterization of subsurface waste/fill material.

- Characterize the nature and thickness of surface soils overlying the waste material.

- Evaluate the potential of waste in the NE Pit and channel to leach to groundwater.

6.4.1.1 Investigative Activities and Removals

Six previous investigations of the Ford-Kingsford Products Facility Site have included the NE Pit. These investigations included subsurface soil and waste sampling by Environment & Water Resources Management, Inc. (EWA) for Phase I and Phase II investigations from 1985 through 1987. Based on the findings of these studies, a removal program was implemented in 1987 and 1988 by Ford, which consisted of excavation and off-site disposal of approximately 40,697 cubic yards of material, including 26,949 cubic yards of wood tar. Additional investigations of the NE Pit included surface material sampling by E&E in 1988, subsurface material sampling by BLDI in 1996, and the completion of soil borings and material sampling by the MDEQ in 1996. ARCADIS performed additional investigations at the NE Pit from 1997 to 2001 that included the completion of soil borings and test pits, installation of monitoring wells, collection of groundwater samples, and the collection of surface and subsurface material samples.

To date, 40 soil borings, 11 monitoring wells, and 32 test pits have been completed in the area of the NE Pit. These soil borings, monitoring wells, and test pits are summarized in Table 6-25, and their locations are shown on Figure 6-40. The soil and waste samples that have been collected and submitted for laboratory analyses from the area of the NE Pit are provided in Table 6-26. The groundwater samples from the NE Pit area, including those collected from soil borings (groundwater grab samples), are summarized in Table 6-27. The analytical results discussed in the following investigations are included in Tables 6-28, 6-29, 6-30, and 6-31.

6.4.1.1.1 EWA 1985

The initial Phase I Site investigation was conducted by EWA from June through August 1985 (EWA, 1986). As part of the initial field investigation, nine soil borings (SB-1 through SB-9) were completed in or adjacent to the NE Pit Area (Figure 6-41). In addition, two soil borings (SB-1B and SB-2B) were completed for additional soil sampling. One monitoring well, Monitoring Well MW-3, was also installed during the Phase I activities. A total of 22 subsurface soil and waste samples from these borings were submitted for laboratory analysis of most U.S. EPA Priority Pollutants, including select VOCs and metals.

The analytical results for the 22 samples indicate that VOCs were detected in eight of the 22 samples. Acetone, benzene, ethylbenzene, and xylenes (total) were detected above the Michigan Part 201 DWPC in Soil Boring SB-5 at various depths. Inorganics, including common soil constituents, were detected in all of the subsurface material samples. Chromium was the only inorganic constituent present that was above the DWPC, collected from Soil Boring SB-7.

6.4.1.1.2 EWA 1986-1987

The Phase II Site investigation was conducted by EWA from June 1986 to February 1987 (EWA, 1987). Two soil borings (SB-22 and SB-23) were completed within and adjacent to the NE Pit area during the Phase II field activities. A total of 14 subsurface material samples were collected during advancement of these soil borings. The samples were analyzed for VOCs, barium, copper, lead and chromium.

The analytical results for the 14 subsurface material samples indicated that only one VOC, toluene, was detected in only one sample from Soil Boring SB-23 at a depth of 40 ft bls. There were detections of all the inorganic constituents that were analyzed, but only chromium was detected above the DWPC, in Soil Boring SB-23.

6.4.1.1.3 Waste Removal 1987-1988

In February 1987, two surficial wood tar samples were collected from and adjacent to the NE Pit area (EWA, 1987). The samples were analyzed using the EP TOX tests for metals and TCLP for metals and volatile and extractable organics. The wood tar sample results indicated that the wood tar was not EP-toxic and not classified as a hazardous waste. Between August 4 and 10, 1987, 62 shallow (5 to 15 ft bls) soil borings were completed in the vicinity of the NE Pit to determine an approximate waste volume; laboratory analyses were not performed on samples collected from these soil borings.

Surficial wood tar removal from the NE Pit area was conducted between November 30, 1987 and March 2, 1988 (EWA, 1988). Subsurface wood tar was also removed from the northern and central portion of the NE Pit, with the exception of a rim on the southern and western side of the historic NE Pit outline. A total of 40,697 cubic yards of material was excavated at the Site, with 26,949 cubic yards of wood tar removed by truck to the Wayne Disposal Landfill. Of the excavated material, 17,200 cubic yards of screened and overburden soil were replaced as backfill in the excavated areas. To verify the quality of the replaced soil, a grab sample of the screened soil to be used as backfill material was obtained from the shaker screen used to separate the wood tar from the soil, and submitted for chemical analysis on January 5, 1988. The soil sample was analyzed for TCLP list constituents.

To replace the wood tar transported from the Site and restore the surface topography, clean borrow material was imported. The backfill soil material was obtained from a location east of the City of Kingsford. To verify the quality of the backfill material, two composite soil samples were collected from the imported backfill and submitted for analysis of VOCs, SVOCs, and metals. The analytical results of the soil samples indicated that the material used for backfill was clean material and suitable to use.

6.4.1.1.4 E&E 1988

E&E performed a Site Screening Inspection in the area of the NE Pit in May 1988. Five surface soil or waste samples (S-1 through S-5) were collected and submitted for chemical analyses to determine the concentrations of U.S. EPA TCL, VOCs, PCBs, and TAL metals present in the vicinity of the pit (E&E, 1989). Each soil or waste sample was collected from a depth of approximately 6 inches.

The surface samples generally showed detections of both VOCs and SVOCs, but the samples only had one VOC, methylene chloride (which is a known laboratory contaminant) and one SVOC (pentachlorophenol) that were detected above the DWPC. There were detections of all the inorganic constituents analyzed, but only aluminum, antimony, cobalt, iron, and manganese were detected above the DWPC. There was only one pesticide/PCB (Aroclor 1242), detected in any of the surface samples, and it was below the Michigan Part 201 criteria.

6.4.1.1.5 BLDI 1996

Between June 10 and 14, 1996, a Site Assessment Fund Investigation was completed for “The 500 Balsam Street Property” (Phase I Site Investigation Report, BLDI, 1996). This parcel encompasses a small portion of the NE Pit. As part of this project, nine soil borings (SB-96-1 through SB-96-9) were completed to a depth of 26 ft bls. Four groundwater monitoring wells (MW96-1 through MW96-4) were also installed. During advancement of these soil borings, soil samples were collected and submitted for laboratory analysis. A total of 20 subsurface soil samples were collected (18 from soil borings and two from monitoring well borings) and submitted for chemical analysis of VOCs, SVOCs, and select metals (lead, barium, chromium, copper and zinc).

The analytical results show that VOCs were detected in six of the 20 soil samples and SVOCs were detected in two of the 20 soil samples. There were no VOCs detected above any Michigan Part 201 criteria. However, three SVOCs (2,4-dimethylphenol, 2-methylphenol, and 4-methylphenol), were detected in the soil at concentrations above the DWPC, in soil samples collected from Monitoring Well MW96-3 and Soil Boring SB-96-1, at depth intervals of 4 to 6 and 14 to 16 ft bls, respectively. All inorganic constituents were detected at levels below Michigan Part 201 criteria. The BLDI report concluded that the land investigated could be redeveloped for industrial and commercial use.

6.4.1.1.6 MDEQ 1996

The MDEQ portion of the Integrated Assessment fieldwork was completed on May 6 through 17, and June 3 through 7, 1996. The Integrated Assessment included interviews with Site representatives, a Site reconnaissance inspection, installation and sampling of temporary Geoprobe monitoring wells, and collection and submittal of soil, groundwater, and air samples for CLP organic and inorganic chemical analyses

(MDEQ, 1997). Three soil borings (PB-2, PB-5 and PB-6) were completed in the vicinity of the NE Pit. A total of four subsurface soil samples were collected and submitted for laboratory analysis from the two soil borings. The soil boring number and representative soil samples that were collected are as follows: Soil Boring PB-2 (SS3, SS4 and SS5); and Soil Boring PB-5 (SS13). One waste sample was also collected from Soil Boring PB-5 (SS-12).

The analytical results show that VOCs were detected in all five samples, while SVOCs were detected in three of the five samples. No SVOCs were detected at concentrations above any Michigan Part 201 criteria, while one VOC, (methylene chloride), was detected above the DWPC in a re-extraction of the waste sample from Soil Boring PB-5. Several inorganics including aluminum, antimony, cobalt, iron, manganese, and nickel were detected at concentrations above the DWPC. Two pesticides were also detected, including endosulfan I and chlordane (gamma), but were found at concentrations below any Michigan Part 201 criteria.

6.4.1.1.7 ARCADIS 1997 to 2007

Investigations conducted by ARCADIS since 1997 focused on surface and subsurface soils, delineation and characterization of the remaining waste material, the potential for the waste material to be the source of a continuing release to groundwater, and occasional waste removal activities. These investigations included the following:

- The installation and sampling of one deep soil boring (GMSB-1) to bedrock within the NE Pit. One composite waste sample, 11 subsurface soil samples, and four groundwater grab samples were collected and submitted for laboratory analyses. Waste samples were analyzed for VOCs, SVOCs, TOC, metals, PCBs, pesticides, and TCLP analyses. Subsurface soil samples were analyzed for VOCs, SVOCs, TOC, TCLP, select metals, PCBs, and pesticides. The groundwater grab samples were analyzed for VOCs, SVOCs, TOC, COD, dissolved gases, and several for BOD/ SO_4^{2+} analyses.

- The excavation of 34 test pits. Nine of the test pits were completed on October 21, 1998, and three test pits were completed on November 2 through November 6, 1999, during the RI. Test pit dimensions ranged from 5- to 16-ft wide, 10- to 20-ft long, and 8- to 11-ft deep. An additional 20 test pits (TP-12 through TP-30, and TP-27A) were completed on August 21 and 22, 2000, during a supplemental investigation. Two test pits (TP-31 and TP-32) were also completed on March 6, 2002.

- The completion of 13 soil borings (GMSB-30 through GMSB-42), which included the collection of 14 waste samples. The soil borings were drilled to depths between 20 and 45 ft bls, and were continuously sampled.

- The collection of 11 surface soil samples (SSNE-1, SSNE-2, and SSNE-4 through SSNE-12) for analysis of VOCs, SVOCs, and select metals.

- The installation of three wells, Monitoring Wells GM-70, GM-71, and GM-72, on July 8 and 9, 2000 as part of a supplemental investigation. The total depth of the boreholes used to install the monitoring wells ranged from 51 to 55 ft bls, and the well screens were installed from a maximum depth of 53 ft bls to as shallow as 39 ft bls. Groundwater samples from these wells were collected on August 17, 21, and 22, 2000, and analyzed for TCL VOCs and SVOCs, dissolved TAL metals, alcohols, aldehydes, organic volatile acids, methane, and biogeochemical parameters.

- The periodic collection and disposal of wood tar that seeps to the ground surface. Approximately 2,365 gal of wood tar were removed between 1997 and November 2002.

The analytical results of the material sampling by ARCADIS, as well as the historical samples, are discussed in detail below in the NE Pit Source Delineation Section.

6.4.1.2 Source Delineation

The areal extent of the NE Pit, based on historic aerial photographs, was approximately 120,000 square feet (ft^2). However, only a portion of the fill material within the areal extent of the NE Pit is waste. The data collected during the investigations were used to construct an isopach map of the thickness of only the waste material within the areal extent of the NE Pit that is shown on Figure 6-41. The remainder of the fill material within the NE Pit consists of imported sand, with some silt. A portion of the imported sand was placed in the NE Pit area during the waste removal activity in 1987 and 1988. Aerial photographs indicate that other fill materials were placed at the NE Pit at various times since 1961.

The waste material encountered ranged from 4 to 19 ft in thickness and is underlain by native silt and sand. A contour map that shows the depth to the base of the fill or waste material is shown on Figure 6-42. The depth to the base of the fill and waste material at the NE pit ranges from 1.5 to 35 ft bls.

As seen on Figures 6-41 and 6-42, the thickness of the waste material and depth to the base of the waste material was greater in the central and eastern portions of the NE Pit outline as defined by historic aerial photographs. The deepest portion of the NE Pit was in an area approximately between Soil Borings GMSB-40 and GMSB-36, and Monitoring Well GM-72. It appears that the main depression of the NE Pit was originally centered in this area, which encompassed approximately 70,000 ft^2. The base of the fill material is much shallower to the west of this main depression (Figure 6-42).

The material within the NE Pit remaining after the 1987/1988 tar removal was covered by fine to coarse sand ranging from 2- to 16-ft thick. Figure 6-43 shows an isopach map of the thickness of the sand covering the waste/fill material within the NE Pit (or a depth below the ground surface to the top of the waste/fill material). The sand cover is greatest at Soil Boring GMSB-1 and thinnest to the south. Areas outside of the historic areal extent of the NE Pit also have a sand cover over native soil. Figure 6-43 also shows the locations of the historic wood tar seeps at the NE Pit (TS-2 and TS-3).

The waste remaining within the NE Pit is a combination of various types of material. The wastes were grouped into several categories, based upon the types of waste described in the samples from the soil borings. These categories include solely wood products (wood pieces, wood chips, bark, sawdust), wood products mixed with charcoal fragments and carbonized wood, wood tar (similar to the material observed seeping to the surface), and a combination of wood sludge, wood products, charcoal fragments, and carbon fragments. The wood sludge is likely the solid component of wastewater formerly placed in the NE Pit that had settled from the wastewater. In addition, construction debris was observed in several of the test pits. The wastes form zones or layers within the NE Pit, most likely resulting from the historic disposal practices for the different materials. Also, the waste material is interlayered with fill material consisting of sand or silt.

The data collected during the NE Pit investigations was used to construct several cross sections through the NE Pit. The locations of the cross sections are shown on Figure 6-44 and the cross sections are shown on Figures 6-45 through 6-48. The wood products are the predominant material at the base, the northern side, and western side of the NE Pit. A mixture of wood products with charcoal was present in a thin layer in the central and eastern portion of the former pit. The majority of the wood tar material was present in a 5-ft thick layer around the location of Soil Boring GMSB-37, and in a thin 1-ft layer in the central area and southern side of the NE Pit. The combination of wood sludge, wood, charcoal, and carbon was predominant in the eastern and southern portions of the NE Pit. This combined wood sludge-wood unit appears to be inter-layered with the wood products and wood tar, and also appears to have filled the deeper portions of the NE Pit. The zone of construction debris was observed in an area between Test Pits TP-18 and TP-26, and consisted of rebar in concrete, bricks, wood, concrete pieces, and metal bands.

Based upon thickness and extent, the wood product and combined wood sludge-charcoal-wood product units make up the majority of the waste remaining within the NE Pit. Approximately 35 percent of the remaining waste is wood products, 55 percent of the waste is a combination of wood sludge-wood-charcoal, and 10 percent of the waste is wood tar. Calculations of the remaining waste volume, based on data collected to date, indicate that the total remaining waste volume in the NE Pit is approximately 50,000 cubic yards, of which the volume of the wood tar material is estimated to be approximately 5,000 cubic yards. The volume of sand fill above the waste is approximately 30,000 cubic yards.

In addition to the NE Pit, the channel connecting the NE Pit to the SW Pit area also contained sand and waste fill material. The distribution and thickness of only the waste material is shown on Figure 6-41. The waste material thickness remaining in the channel area ranges from 0.5 ft to a maximum of 4 ft near Soil Borings GMSB-41 and GMSB-42. The maximum depth to the base of the remaining fill or waste material in the channel was 11 to 12 ft bls near Soil Boring GMSB-41 and Test Pits TP-10 and TP-11 (Figure 6-42). The maximum thickness of sand cover encountered within the channel was 7 ft near Soil Boring GMSB-42 and Test Pit TP-29 (Figure 6-43).

As within the NE Pit, the majority of the remaining waste material was wood products, consisting of wood pieces, bark, sawdust, and tree trunks and branches. A small amount of wood tar mixed in with the wood products was observed in Test Pits TP-25 and TP-29. The volume of waste material within the channel area was calculated to be approximately 3,000 cubic yards. Based on observations, the wood tar material remaining within the channel makes up less than 20 percent of the total waste volume remaining within the channel.

The depth to groundwater in the area of the NE Pit ranges from approximately 39 to 50 ft bls. Perched water was also present in the NE Pit, as indicated by the discovery of water in certain test pits. The limited water that was observed in Test Pits TP-13, TP-16, TP-21, and TP-28 is water that has migrated vertically downward through the porous sand, and has perched at an interface between higher and lower permeability material within the fill. The observed water was always associated with fill material, as described in the core logs for the test pits. The fact that the water identified in the four test pits was perched is confirmed by the depth to the water table, which was measured at 39 to 50 ft bls in the monitoring wells installed in the area of the NE Pit. The absence of water present above the measured water table in the test pits outside of the NE Pit footprint (TP-16, TP-17, TP-22, TP-23, TP-24, TP-25, and TP-27) and the monitoring wells and soil borings installed outside of the historic footprint of the NE Pit (Monitoring Wells GM-70, GM-71, and GMSB-33) verify that the perched water is not moving horizontally into or out of the NE Pit.

The groundwater has a general westward flow direction with a horizontal component of the groundwater gradient of approximately 0.009 to 0.02 ft/ft. Based on groundwater data collected during the RI from Monitoring Wells GM-62 and BR-5, the vertical component of the groundwater gradient is downward in direction, ranging from approximately 0.086 to 0.162 ft/ft, respectively.

6.4.1.3 Comparison to Part 201 Criteria

As previously noted, the NE Pit is zoned industrial. Current and future uses are restricted by a declaration of restrictive covenant to Industrial and Commercial II, III, and IV uses. As part of the NE Pit characterization, exposure pathways were identified and a comparison of the Site data to Michigan criteria was completed, resulting in a complete characterization of Site issues. Potential exposure pathways are discussed in detail later in this document.

Specific criteria used for comparison for the purpose of this evaluation, regardless of applicability of the criteria or relevancy of the exposure pathway, are State of Michigan soil standards as defined in the MDEQ RRD Operational Memorandum #1 (January 23, 2006) Part 201 Generic Cleanup Criteria for the following five categories:

1. DCC

2. DWPC

3. Soil Volatilization to Indoor Air Inhalation Criteria (SVIAIC)

4. Industrial and Commercial II Ambient Air, Particulate Soil Inhalation Criteria (PSIC) and Infinite Source Volatile Soil Inhalation Criteria (ISVSIC)

5. GSIPC

6.4.1.3.1 Surface Soil

A total of 14 surface soil samples have been collected in the area of the NE Pit. During the RI, 11 surface soil samples (SSNE-1, SSNE-2, and SSNE-4 through SSNE-12) were collected from the NE Pit area and analyzed for VOCs, SVOCs, PCBs, and alcohols. The three additional surface soil samples were collected during previous investigations by E&E in 1988. The locations of the RI surface soil samples are shown on Figure 5-2 and all the surface soil samples are shown on Figure 6-40. Results of these analyses are provided in Table 6-28. Samples of wood tar, which occasionally seeped to the land surface, have also been collected. The results of the wood tar samples are discussed separately in the following surface waste section, as the surface wood tar material was removed and disposed when this material appeared at the surface.

Results from previous laboratory analyses of all the surface soil samples collected from the NE Pit area indicate detectable concentrations of seven VOCs, seven SVOCs, metals, and PCBs. However, the surface samples collected during the RI did not confirm the results of the historic samples collected, as the RI surface soil samples did not detect concentrations of VOCs, SVOCs, or PCBs. Only one alcohol, 1-propanol, was detected (SSNE-10) in the surface samples (from the RI).

6.4.1.3.1.1 DCC

The analytical results from the surface soil samples indicate there was one PCB constituent, Aroclor 1242, present in the surface soil at concentrations above the Industrial/Commercial II DCC, at two locations (S-2 and S-4). The constituent concentrations above the DCC were found in the historic surface soil samples collected by E&E that could not be replicated by the surface soil samples collected during subsequent investigations.

6.4.1.3.1.2 DWPC

Surface soil constituent concentrations were found above the Residential and Commercial I DWPC for the following constituents at the sample locations shown in parentheses: methylene chloride (S-2), pentachlorophenol (S-2), aluminum (S-1, S-2, and S-4), antimony (S-4), cobalt (S-1, S-2, and S-4), iron (S-1, S-2, and S-4), and manganese (S-1, S-2, and S-4). The constituent concentrations above the DWPC were found in the historic surface soil samples collected by E&E that could not be replicated by the surface soil samples collected during subsequent investigations.

6.4.1.3.1.3 SVIAIC

The analytical results from the surface soil samples indicate there are no constituents in the surface soil present at concentrations above the Industrial/Commercial II SVIAIC.

6.4.1.3.1.4 Ambient Air PSIC

The analytical results from the surface soil samples indicate there are no constituents in the surface soil present at concentrations above the Industrial/Commercial II PSIC.

6.4.1.3.1.5 GSIPC

Surface soil constituent concentrations were found above the GSIPC for the following constituents and sample locations in parentheses: 2-methylphenol and 4-methylphenol (S-4), naphthalene (S-4), chromium (S-1, S-2, and S-4), cobalt (S-1, S-2, and S-4), manganese (S-1, S-2, and S-4), selenium (S-4), and silver (S-4). The constituent concentrations above the GSIPC were found in the historic surface soil samples collected by E&E that could not be replicated by the surface soil samples collected during subsequent investigations.

6.4.1.3.2 Surface Waste Material

During the summer months, wood tar would occasionally seep to the land surface within the NE Pit. From 1998 through 2003, ARCADIS personnel routinely removed surface wood tar from several areas within the NE Pit. The locations of former wood tar seeps within the NE Pit are shown on Figure 6-43.

A total of six wood tar samples were collected in the NE Pit area, at the ground surface and varying depths. ARCADIS collected four wood tar samples from near the land surface in the NE Pit area. These wood tar samples were collected from the test pits, three in 1998 (TP-3, TP-5, and TP-7) and one in 1999 (TP-5A). Test Pit TP-7 was also denoted as the “shingle pile” during the wood tar sampling. A fifth wood tar sample was collected from Soil Boring GMSB-37 at a depth of 10 ft bls in 1999. In addition, a surface tar sample was collected in 1997 for tar characterization.

These wood tar samples are summarized in Table 6-26, and the results of the analyses of the wood tar are provided in Table 6-29. In addition to the laboratory analyses of the wood tar material, all of the wood tar samples from the RI were submitted for TCLP extraction analysis, and two were also submitted for SPLP extraction analyses.

These samples were used to determine if any constituents are present at concentrations above the soil standards. These wood tars were removed from the Site for appropriate disposal subsequent to the sampling, therefore eliminating any of the exposure pathways noted below.

6.4.1.3.2.1 DCC

The analytical results of the wood tar samples indicate concentrations of 1,2,4-trimethylbenzene, diethylphthalate, Aroclor 1242 PCB, and xylenes (total) were above the Industrial and Commercial II DCC in the wood tar samples, prior to their removal from the Site.

6.4.1.3.2.2 DWPC

The analytical results for the surface waste samples indicate 37 constituents were detected in the wood tar samples at concentrations above the Residential and Commercial I DWPC, including: 1,1,2,2-tetrachloroethane, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 2-hexanone, acetone, benzene, ethylbenzene, methylene chloride, n-butylbenzene, n-propylbenzene, sec-butylbenzene, styrene, toluene, trichloroethene, xylenes (total), 2,4-dimethylphenol, 2-methylnaphthalene, 2-methylphenol, 4-methylphenol, 2-nitrophenol, 3-methylphenol/4-methylphenol, naphthalene, diethylphthalate, phenol, acetaldehyde, methanol, acetic acid, BHC, aluminum, antimony, arsenic, cobalt, iron, manganese, selenium, and sodium.

6.4.1.3.2.3 SVIAIC

The analytical results for the surface waste samples indicate 1,2,4-trimethylbenzene, benzene, trichloroethene, and xylenes (total) are present at concentrations above the Industrial/Commercial II SVIAIC in the waste samples collected from the test pits and soil borings.

6.4.1.3.2.4 Ambient Air PSIC

The analytical results for the surface waste samples indicate only naphthalene was present in the samples from three locations (TP-3, TP-5, and GMSB-36) at a concentration above the Industrial/Commercial II PSIC.

6.4.1.3.2.5 GSIPC

The analytical results for the surface waste samples indicate 39 constituents were detected in the wood tar samples at concentrations above the GSIPC, including: 1,1,2,2-tetrachloroethane, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, chlorobenzene, 2-butanone, acetone, benzene, ethylbenzene, styrene, toluene, trichloroethene, xylene, 2,4-dimethylphenol, 2-methylphenol, 4-methylphenol, 3-methylphenol/4-methylphenol, dibenzofuran, diethylphthalate, di-n-butylphthalate, fluorene, acenaphthalene, naphthalene, phenanthrene, phenol, methanol, formaldehyde, acetic acid/acetate, acetaldehyde, BHC, chromium, cobalt, cyanide, copper, barium, manganese, mercury, selenium, silver, and zinc.

6.4.1.3.3 Subsurface Soil

The analytical results for 91 subsurface soil samples collected in the area of the NE Pit (historic and ARCADIS) are provided in Table 6-30. Eighteen of the subsurface soil samples were collected during the EE/CA investigation by ARCADIS and the MDEQ, and analyzed for VOCs, SVOCs, inorganics, TOC, and pesticides. However, as denoted in Table 6-25, not all the samples collected were analyzed for all the constituents, dependent upon the purpose of the sample. Many of the historic subsurface soil samples, collected by multiple organizations, were often analyzed for VOCs and inorganics only. The depths at which the soil samples were collected are also provided in Table 6-30.

6.4.1.3.3.1 DCC

The analytical results for the subsurface soil samples indicate there are no constituents present in the subsurface soil at concentrations above the Industrial/Commercial II DCC.

6.4.1.3.3.2 DWPC

The analytical results for the subsurface soil samples indicate 17 constituents where the analytical results from the subsurface soil were above the Residential DWPC, including: acetone, benzene, ethylbenzene, xylenes, 2,4-dimethylphenol, 2,6-dimethylphenol, 2-methylphenol, 4-methylphenol, diethylether, aluminum, arsenic, chromium, cobalt, iron, magnesium, manganese, and nickel.

6.4.1.3.3.3 SVIAIC

The analytical results for the subsurface soil samples indicate there are no constituents present in the subsurface soil at concentrations above the Industrial/Commercial II SVIAIC.

6.4.1.3.3.4 Ambient Air ISVSIC

The analytical results for the subsurface soil samples indicate there are no constituents present in the subsurface soil at concentrations above the Industrial/Commercial II ISVSIC.

6.4.1.3.3.5 GSIPC

The analytical results for the subsurface soil samples indicate 17 constituents where the analytical results from the subsurface soil were above the GSIPC, including: acetone, ethylbenzene, xylenes, 2,4-dimethylphenol, 2-methylphenol, 4-methylphenol, naphthalene, phenol, chromium, cobalt, copper, cyanide, manganese, mercury, nickel silver, and selenium. Some of these constituents were detected only once in one subsurface soil sample or from only one location.

6.4.1.3.4 Subsurface Waste Material

A total of 20 subsurface waste samples, were collected to characterize the type of waste present within the NE Pit. The subsurface waste samples were collected from the soil borings and test pits at depths ranging from 2 to 31 ft bls. The subsurface waste samples were selected to represent not only the type of waste, but also the approximate percentage of the waste type present within the former pit. A summary of the results of the laboratory analyses of the subsurface waste samples, along with the depths from which they were collected, is shown in Table 6-29. The depths at which the subsurface waste samples were collected are also provided in Table 6-26. In addition to the laboratory analyses of the subsurface waste material, all of the subsurface waste samples were submitted for TCLP extraction analysis and several were also submitted for SPLP extraction analyses (Table 6-26).

Select subsurface waste samples were also analyzed for the presence of radioactive isotopes. The results of analysis are summarized in Table 6-31. The results indicate that the radioactive isotopes detected are representative of isotopes which occur naturally in the bedrock and geologic deposits. The values of the radioactive isotopes detected are all below U.S. EPA clean up levels for soil. In addition, the radioactive isotope values detected are less than or similar to isotope values measured as background values by the U.S. EPA throughout the United States and in Michigan, as referenced in Table 6-31.

A total of 87 constituents were detected in the subsurface waste samples analyzed from all the investigations including, 23 VOCs, 15 SVOCs, 26 inorganics/metals, 14 alcohols/aldehydes, eight PCBs/Pesticides, and acetic acid/acetate. The majority of the PCBs/Pesticide concentrations are estimated.

6.4.1.3.4.1 DCC

Comparison of the concentrations of the constituents detected in the subsurface waste samples from the NE Pit to the Industrial/Commercial II DCC shows that three constituents in the subsurface waste samples; diethylphthalate, xylenes (total), and 1,2,4-trimethylbenzene are present above the Industrial/Commercial II DCC. The subsurface waste sample from Soil Boring GMSB-1 (SB1-SS2) from a depth of 12.5 ft bls was above the Industrial/Commercial II DCC for diethylphthalate. The waste sample from Soil Boring GMSB-37, at 10 ft bls, and Test Pits TP-3, TP-5, and TP-7 (also identified as the Shingle Pile), ranging from approximately 1 to 5 ft bls, contained xylenes (total) concentrations above the Industrial/Commercial II DCC. Wood tar samples collected from three test pits (TP-3, TP-5, and TP-7 or Shingle Pile) contained 1,2,4-trimethylbenzene concentrations above the Industrial/Commercial II DCC. The wood tar sampled in the three test pits was removed subsequent to sample collection.

6.4.1.3.4.2 DWPC

Subsurface waste sample analytical results were above the Residential and Commercial I DWPC for 36 constituents for: 1,1,2,2-tetrachloroethane, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 2-hexanone, acetone, benzene, ethylbenzene, n-butylbenzene, n-propylbenzene, methylene chloride, phenol, sec-butylbenzene, styrene, toluene, trichloroethene, xylenes, 2,4-dimethylphenol, 2-methylnaphthalene, 2-methylphenol, 2-nitrophenol, 3-methylphenol/4-methylphenol, 4-methylphenol, diethylphthalate, naphthalene, methanol, n-butanol, acetaldehyde, acetic acid/acetate, lindane, aluminum, antimony, cobalt, iron, manganese, molybdenum, selenium, and sodium. Samples from Soil Borings GMSB-1, MW-96-3, SB-23, SB-1, SB-5, SB-7, S-3, S-4, S-5, and S-13 contained concentrations above the DWPC for at least one constituent.

6.4.1.3.4.3 SVIAIC

Comparison of the detected concentrations in the subsurface waste samples from the NE Pit to the Industrial SVIAIC indicates that benzene, total xylene, trichloroethene, and 1,2,4-trimethylbenzene are above the Industrial/Commercial II SVIAIC.

The benzene above the Industrial/Commercial II SVIAIC was present in five samples; the subsurface waste samples from Soil Borings GMSB-36 and GMSB-37, at 12 and 10 ft bls respectively, and the wood tar samples from the three test pits (TP-3, TP-5, and TP-7), at depths ranging from approximately 1 to 5 ft bls. The total xylene above the Industrial/Commercial II SVIAIC was only present in the waste sample from GMSB-37 at 10 ft bls. The 1,2,4-trimethylbenzene was above the Industrial/Commercial II SVIAIC in the 3 wood tar samples from the three test pits (TP-3, TP-5, and TP-7, at approximately 1 to 5 ft bls). Trichloroethene was also above the Industrial/Commercial II SVIAIC in two wood tar samples from two of the test pits (TP-5 and TP-7, approximately 1 to 5 ft bls).

6.4.1.3.4.4 Ambient Air ISVSIC

Naphthalene was the only constituent with concentrations above the Industrial/Commercial II ISVSIC in the subsurface waste samples from the NE Pit. Naphthalene was above the Industrial/Commercial II ISVSIC in the subsurface waste sample from GMSB-36 (12 ft bls) and the wood tar sample from TP-3 and TP-5 (1 to 5 ft bls).

6.4.1.3.4.5 GSIPC

Comparing subsurface waste sample analytical results to the GSIPC indicated that 32 constituents were present at concentrations above the criteria as follows: 1,1,2,2-tetrachloroethane, 2-butanone, acetone, benzene, ethylbenzene, chlorobenzene, styrene, toluene, trichloroethene, xylenes, 2,4-dimethylphenol, 2-methylphenol, 3-methylphenol/4-methylphenol, 4-methylphenol, acenaphthene, dibenzofuran, di-n-butylphthalate, diethylphthalate, fluorine, naphthalene, phenol, phenanthrene, methanol, acetic acid/acetate, formaldehyde, lindane, cobalt, chromium, cyanide, lithium, mercury, selenium, and silver.

6.4.1.4 TCLP/SPLP Analyses

A TCLP test was performed on a composite waste sample collected from Soil Boring GMSB-1 from a depth of 0 to 31.5 ft bls. The extract from the TCLP test was analyzed for TOC, COD, and limited SVOCs. The results of the TCLP test are shown in Table 6-32. The extract from the TCLP test contained 2.8 mg/L of 2-methylphenol, 3.3 mg/L of 4-methylphenol, 720 mg/L of TOC, and 800 mg/L of COD.

TCLP tests were performed on three samples of the wood waste materials collected from Soil Borings GMSB-34 (6 ft bls), GMSB-38 (7 ft bls) and GMSB-41 (8 ft bls).

In addition, SPLP tests were also performed on samples collected from Soil Borings GMSB-34 and GMSB-38. The extracts from the TCLP tests were analyzed for VOCs, SVOCs, metals, alcohols, and aldehydes. The extracts from the SPLP tests were analyzed for VOCs, SVOCs, metals, alcohols, aldehydes, acetic acid/acetate, and TOC. The results of these analyses are shown in Table 6-32. The data indicate that the wood extracts generally contained low concentrations of nine constituents, including several VOCs, SVOCs, and aldehydes. A variety of naturally occurring metals were also detected. The constituent with the highest concentration was methanol, which was detected in the sample from Soil Boring GMSB-34 at estimated concentrations between 4.3 and 7.1 mg/L in the SPLP and TCLP analyses, respectively.

TCLP tests were performed on three samples of the wood sludge material collected from Soil Borings GMSB-35 (22 ft bls), GMSB-36 (12 ft bls), and GMSB-40 (12 ft bls). In addition, a SPLP test was also performed on the sample collected from Soil Borings GMSB-35, GMSB-36, and GMSB-37 for acetic acid/acetate only. The extracts from the TCLP extracts were analyzed for VOCs, SVOCs, metals, alcohols, and aldehydes. The SPLP analyses included VOCs, SVOCs, metals, alcohols, aldehydes, acetic acid/acetate, and TOC. The results of the analyses are shown in Table 6-32. The concentrations shown from the data included VOCs: MEK, 2-hexanone, and acetone; SVOCs: 2,4-dimethylphenol, 2-methylphenol, 2-nitroaniline, 3-methylphenol/4-methylphenol, and phenol; alcohols: 1-propanol, ethanol, ethyl acetate, and methanol; aldehydes: acetaldehyde; and acetic acid/acetate. In addition traces of 11 VOCs and three SVOCs were also detected.

TCLP and SPLP tests were performed on two samples of wood tar collected from Soil Boring GMSB-37 (10 ft bls) and Test Pit TP-5A (2 ft bls). The extracts from TCLP tests were analyzed for VOCs, SVOCs, metals, alcohols, and aldehydes, while the SPLP tests were additionally analyzed for TOC and acetic acid/acetate. The results of the analyses are shown in Table 6-32, and were similar to the results found for the wood sludge material. The data show concentrations of VOCs including: MEK, 2-hexanone, and acetone; SVOCs including: 2,4-dimethylphenol, 2-methylphenol, 2-nitroaniline, 3-

methylphenol/4-methylphenol, and phenol; alcohols including: ethanol, ethyl acetate, and methanol; aldehydes primarily acetaldehyde and m-tolualdehyde; and acetic acid/acetate. An additional 12 VOCs and five aldehydes were also detected.

A comparison of TCLP results with Federal Standards found in 40 CFR Part 261.30, which identifies maximum concentrations of constituents for the toxicity characteristic for hazardous waste, indicates that the levels of the analyzed constituents present in the extract of the waste material are not above the levels for defining the material as a hazardous waste.

6.4.1.5 Potential for Continuing Releases to Groundwater

Assessment of the potential for continuing releases to groundwater in the NE Pit area was completed through collection and analyses of:

- Leaching tests performed on a composite waste sample from Soil Boring GMSB-1.

- Leaching tests performed on waste samples collected from the three types of waste material including wood (Soil Borings GMSB-34, GMSB-38, GMSB-41 and Test Pit TP-10); wood sludge (Soil Borings GMSB-35, GMSB-36, and GMSB-40) and wood tar (Soil Boring GMSB-37 and Test Pit TP-5A).

- Five groundwater grab samples collected during the drilling of Soil Boring GMSB-1.

- Three groundwater samples collected from monitoring wells installed through and adjacent to the NE Pit waste material (Monitoring Wells GM-70, GM-71, and GM-72).

The results from the TCLP and SPLP tests, for the different material identified in the NE Pit discussed above, were compared to groundwater data collected during the installation of Soil Boring GMSB-1, as well as the groundwater sampled from Monitoring Well GM-72. These groundwater grab samples were analyzed for TOC, COD, BOD, VOCs, SVOCs, and methane.

Groundwater grab samples from Soil Boring GMSB-1 were collected at depths of 85, 135, 215, 275, and 325 ft bls. The groundwater grab samples collected from 85 and 275 ft bls were from zones of very fine or silty sand, typical of Unit 2 material. The groundwater samples collected from 135, 215, and 325 ft bls were from zones of coarser sand, typical of Unit 1 material.

To make a comparison between the leachable constituents from the waste material and the groundwater beneath the NE Pit, several VOCs and SVOCs were selected to represent a “signature” of the groundwater beneath the NE Pit. These “signature” constituents included: MEK, 2-hexanone, acetone, 2,4-dimethlyphenol, 2-methylphenol, 4-methylphenol, and phenol.

Table 6-33 summarizes the comparison of the leaching data for the wood material to groundwater for these “signature” constituents. For VOCs, the leaching data for the wood samples indicate that VOCs were generally not detected. The only VOC detected was MEK, at an estimated concentration of 26 µg/L (below the laboratory quantitation limit) in the extract from the SPLP test performed on the waste sample from Soil Boring GMSB-34. By comparison, the groundwater sample collected at a depth of 85 ft bls contained 1,600 µg/L of MEK and 2,000 µg/L of acetone. For SVOCs, the leaching data for the wood samples indicate that the SVOCs were also generally non-detect in the sample extracts. The exceptions were 11 µg/L of 2,4-dimethylphenol and 9.3 µg/L of 2-methylphenol in Soil Boring GMSB-34, 170 µg/L of phenol in Soil Boring GMSB-38 (in the SPLP extract from this sample the phenol was less than 5 µg/L), and 210 µg/L of 2,4-dimethylphenol in Soil Boring GMSB-41. By comparison, the groundwater sample collected at 85 ft bls from Soil Boring GMSB-1 contained significantly higher concentrations of the four “signature” SVOCs, ranging from 1,100 µg/L of 2,4-dimethylphenol to 5,600 µg/L of 4-methylphenol.

Table 6-34 summarizes the comparison of the leaching data for the wood sludge material to groundwater data for the “signature” constituents. For VOCs, the leaching data for the wood sludge material indicate that higher concentrations were measured in the extracts for all three of the “signature” VOCs. The concentrations ranged from a low of 230 µg/L of 2-hexanone in the samples from Soil Borings GMSB-36 and GMSB-40, to a high of 12,000 µg/L of MEK measured in the TCLP extract of the sample from Soil Boring GMSB-35. For SVOCs, the leaching data for the wood sludge material indicate that higher concentrations of all four of the “signature” SVOCs were also measured in the extracts. The concentrations ranged from a low of 190 µg/L of 2,4-dimethylphenol in the SPLP extract from the sample from Soil Boring GMSB-35 to a high of 9,300 µg/L of phenol measured in the TCLP extract from Soil Boring GMSB-36. These concentrations are similar to, and in some cases higher than, the concentrations of these constituents in the groundwater grab sample collected at 85 ft bls from Soil Boring GMSB-1.

Table 6-35 summarizes the comparison of the leaching data for the wood tar material to groundwater data for the “signature” constituents. For VOCs, the leaching data for the wood tar material indicate that VOC concentrations were present in the extracts for all three of the “signature” VOCs. The concentrations ranged from a low of 110 µg/L of 2-hexanone in the SPLP sample from Test Pit 5A, to a high of 2,200 µg/L of MEK measured in the SPLP extract of the sample from Soil Boring GMSB-37 (the TCLP extract for this sample contained 850 µg/L of MEK). For SVOCs, the leaching data for the wood tar material indicate that higher concentrations were measured in the extracts of all four of the “signature” SVOCs. The concentrations ranged from a low of 450 µg/L of 2,4-dimethylphenol in the SPLP extract from the sample from Test Pit TP-5A, to a high of 11,000 µg/L of phenol and 4-methylphenol measured in the TCLP extract from Soil Boring GMSB-37 (the SPLP extract for this sample contained 1,900 µg/L of each of these constituents). These concentrations are similar to, or in some cases higher than, the concentrations of these constituents in the groundwater grab sample collected at 85 ft bls from Soil Boring GMSB-1.

The TCLP and SPLP data show that the wood material and charcoal in the NE Pit have a low potential to leach, while the wood sludge material and wood tar have a greater potential to leach than the wood and charcoal material. The volume of wood tar represents about 10 percent of the waste material and the wood sludge is approximately 50 percent of the waste material.

Deep groundwater samples, collected from beneath the waste material during the drilling of Soil Boring GMSB-1 at depths from 85 to 325 ft bls, show that the concentrations of these “signature” constituents vary with depth. The data for groundwater samples collected at depths of 85 and 215 ft bls (Unit 2 materials) show higher concentrations of both VOCs and SVOCs, while intermediate depth (Unit 1 materials) groundwater samples show little or no detection for these same constituents. As was discussed in Section 6.2.2, chemical constituents migrating into Unit 2 material tend to stagnate there due to the low hydraulic conductivities of the Unit 2 material. Conversely, chemical constituents in Unit 1 materials tend to be transported out of the area more rapidly by the faster movement of groundwater through the Unit 1 material.

The results from the TCLP tests for the different material identified in the NE Pit, wood tar samples (GMSB-37), wood sludge samples (GMSB-36), and wood samples (GMSB-38), were compared to the groundwater data collected from Monitoring Well GM-72 (Tables 6-8 through 6-14), which is screened beneath the waste material. For the “signature” VOCs, the leaching data for each of these materials show that the

VOCs detected in the waste samples are much higher than those found in the groundwater from Monitoring Well GM-72.

Two of the VOCs, MEK and acetone, were detected in the groundwater sample from Monitoring Well GM-72 at concentrations lower than 30 percent of the maximum leaching capability from the TCLP wood tar and wood sludge extracts. While the wood tar and wood sludge sample extracts contained detections of 2-hexanone, 120 µg/L and 230 µg/L respectively, 2-hexanone was not detected in groundwater from Monitoring Well GM-72. No VOCs were detected in the wood waste sample extract, since the wood waste has a much lower ability to leach constituents into the groundwater.

For "signature" SVOCs, the groundwater data from Monitoring Well GM-72 again shows SVOC concentrations much lower than in the waste sample TCLP extracts. "Signature" SVOCs in the groundwater from Monitoring Well GM-72 were less than 10 percent of the maximum leaching capability of both the wood tar and wood sludge material. For instance, 2-methylphenol was detected at 180 µg/L in groundwater at Monitoring Well GM-72, but was reported as 7,400 µg/L and 6,800 µg/L in wood tar and wood sludge TCLP extract, respectively. There was one SVOC, 2,4-dimethylphenol, which was found at comparable concentrations in both the groundwater and TCLP extracts (2,000 µg/L compared to 5,300 µg/L and 4,200 µg/L).

The concentrations of the "signature" constituents in the shallow groundwater system suggest that the wood tar and wood sludge material has some capacity to leach to the groundwater. The "signature" constituents present in the deep groundwater system are present at concentrations much higher than the ability of the waste samples to leach these constituents, indicating that the source of the constituents in the deep groundwater system was primarily from the historic liquids placed within the NE Pit.

6.4.1.6 Interim Response Actions

During summer/fall 2004, interim response actions were completed at the NE Pit. Details of the interim response action are provided in "*Former Northeast Pit Interim Response Action Plan (IRAP), Ford/Kingsford Site, Kingsford, Michigan,*" dated January 8, 2003, and subsequent "*Addendum for the Former Northeast Pit Interim Response Action plan, Ford/Kingsford Site, Kingsford, Michigan,*" dated May 14, 2003. The MDEQ approved the interim response actions for the NE Pit in a letter dated, August 25, 2003.

A low-permeability cover system and restrictive covenant were selected by Ford and KPC as the interim response action for the NE Pit due to minimization of waste disturbance, ease of implementation, and less impact on the community and adjacent communities by confining the response action activities to the NE Pit. A comparison of the potential response action costs indicated a low-permeability cover system was also the most cost effective option, and achieves the response objectives for the NE Pit. Future use of the NE Pit for Industrial or Commercial II, III, and IV purposes was integrated into the cover design, which provides a benefit to the community.

The low-permeability cover encompasses an area of approximately 2.7 acres centered over the NE Pit. The NE Pit and surrounding area was first cleared, and wood sludge material and wood tar located outside of the cover system footprint (including the channel area) was removed and consolidated beneath the proposed cover system. During these activities, care was taken to minimize the generation of airborne particles.

The cover system serves to minimize the migration of waste constituents to groundwater, prevents the migration of wood tar to the ground surface, and controls the potential migration of methane and/or vapors to the surface. It includes a combination of 40- and 60-mil HDPE liners, a geocomposite drainage layer, a protective soil layer above the geocomposite, and an asphalt layer at surface level. A venting system was installed beneath the liners for management of vapor by-products generated by decomposition of the waste material.

The final grade of the cover system was designed to prevent erosion and surface-water ponding. Drainage from the liner and geocomposite layer is collected at the edges of the low-permeability cover system and is then directed to a storm water conveyance system, which is composed of a retention pond, ditches, and drainage pipes. The design of the permanent storm water management system prevents infiltration of surface water through waste material located beneath the cover system.

A restrictive covenant was executed and recorded as an institutional control for the NE Pit. The restrictive covenant limits the property to commercial or industrial use, restricts the weight of vehicles allowed on the parking lot, maintains the current cover system in place, prohibits excavation or penetration through the existing barrier (except as specified in the Waste Management and Operation and Maintenance Plans), requires repair of the barrier if breeched, and prohibits the use of groundwater beneath the property. Appropriate health and safety guidelines and material handling procedures were established in the event that waste is encountered in the future. Survey reference markers, installed at the corners of the cover system, are used to both delineate the extent of the cover system, as well as provide reference points to monitor any settling. Permanent markers were installed at locations approved by the MDEQ to describe the restricted areas of the NE Pit and the nature of the restrictions. The survey reference markers and permanent markers are inspected at least annually.

6.4.2 SW Pit

The SW Pit area is the current Site of Lodal Park, a recreational area immediately west of the Khoury, Inc. property and north of Breitung Avenue. Based upon investigations completed through January 2004, the area contained an elliptical shaped pit, believed to have been approximately 30 ft deep, and a portion of a channel that connected to the NE Pit (Figure 6-40). For purposes of this report, the SW Pit area includes the small portion of the channel contained within the fence that surrounds the east, north and west sides of the Lodal Park area. The area north of the fence is considered to be part of the NE Pit area. This property is owned by the City of Kingsford and is zoned for single-family residential. Zoning in the City of Kingsford for single-family residential includes publicly owned and operated parks and recreational facilities.

The RI activities completed at the SW Pit included the completion of soil borings and a test pit, soil and groundwater sampling, soil vapor monitoring, and waste characterization sampling and analysis. The primary objectives of the RI activities at the SW Pit were:

- Delineate and characterize subsurface waste/fill material.

- Characterize the nature and thickness of surface soils overlying the waste material.

- Evaluate the presence of gas-phase methane in the vadose zone.

- Evaluate the potential for the waste material in the SW Pit to leach to the groundwater.

Four previous investigations in the Study Area have included the SW Pit. These investigations included the sampling of subsurface material by EWA in 1985, 1986 and 1987, surface soil sampling by E&E in 1988, and the completion of soil borings and material sampling by the MDEQ in 1996. Discussion of these historic investigative activities at the SW Pit was presented in Section 3.11.

Investigations conducted by ARCADIS, since 1997, included the following:

- The installation and sampling of one deep soil boring, GMSB-2, to bedrock within the SW Pit area. One composite waste sample, 21 subsurface material samples, and three groundwater-grab samples were collected and submitted for laboratory analyses. Samples from the soil boring were collected at various depths from 5 to 355 ft bls and analyzed for VOCs, SVOCs, TOC, select metals, pesticides, PCBs, as well as the ability of these material to leach constituents through TCLP/SPLP extraction analyses. The groundwater grab samples were analyzed for VOCs, SVOCs, TOC, COD, dissolved gases, and BOD.

- The excavation of one test pit, TP-11 (October 1999), through the channel that connected the SW Pit to the NE Pit to delineate the extent of the channel and to characterize the material present.

- The completion and sampling of six soil borings (GMSB-43 through GMSB-48) in the SW Pit in order to determine the extent and thickness of waste material.

- Installation of eight soil vapor probes (GMSG-14 through GMSG-16 and GMSG-29 through GMSG-33) to monitor gas-phase methane present in the vicinity of the SW Pit.

- The collection and analysis of 14 surface soil samples (SSLP-1 through SSLP-13 and SSNE-3) for VOCs, SVOCs, and select metals.

The locations at the SW Pit discussed above are shown on Figure 6-40 and a summary of the laboratory analytical results for the SW Pit is provided in Tables 6-36 and 6-37. A discussion of the analytical results for the samples collected by ARCADIS, as well as historical sample results, is provided in the following sections. The presence of gas-phase methane in the vadose zone will be discussed in detail in Section 6.5. Impacts to groundwater in the vicinity of the SW Pit were discussed in Section 6.2.1.

6.4.2.1 Source Delineation

As discussed above, EE/CA and RI investigative activities included completion of seven soil borings within the historic limits of fill, excavation of a test pit installation of eight soil vapor probes, collection and analysis of the waste or fill samples for waste characterization and vapor monitoring.

Soil Boring GMSB-43 and Test Pit TP-11 evaluated the enlarged area of the channel connecting the NE Pit and SW Pit. Test Pit TP-11 was excavated across the southwest end of the former middle channel, northeast of the backstop at the baseball field in Lodal Park, and was approximately 42.5-ft long by 4-ft wide and approximately 11 ft at its deepest point, oriented in a northwest-southeast direction. All other soil borings were drilled within the SW Pit. Detailed description of the soil borings, sample core logs, and borehole stratigraphic logs are provided in Appendices A and B.

Based on the results of the investigation activities, the waste material is characterized as predominately wood, wood products, sawdust, charred wood fragments, fibrous wood pieces, and charcoal fragments. Grass clippings and shrub/tree trimmings are also abundant above the previously described waste material. As opposed to the NE Pit, no wood tar or wood sludge material was encountered in the soil borings or in the test pit completed in or around the SW Pit. The waste material had been covered with a surface unit of fill comprised of fine grain to coarse grain sand with some silt that ranges from 0.2 to 15 ft in thickness. The underlying waste material ranges from 4- to 25-ft thick, where encountered within the SW Pit, and is underlain by native silt and sand. The data collected during the investigations were used to construct isopach maps of the thickness of waste/fill material shown on Figure 6-49.

Cross sections of the SW Pit were prepared from soil boring data to illustrate the surface cover and estimated subsurface extent of waste/fill material. The inferred depth of groundwater (based on data collected in June 1999 from Monitoring Well GM-19) underlying the wastes in this area is also shown. The locations of the cross sections are shown on Figure 6-44, and the cross sections are shown on Figures 6-50 and 6-51. Based on these cross sections and the isopach map of the thickness of waste/fill material (Figure 3), the estimated total volume of waste/fill material in the SW Pit is approximately 34,000 cubic yards. Of this total volume, approximately 70 percent is wood material and 30 percent is a combination of wood and charcoal fragments.

The base of the SW Pit is approximately 30 ft bls. Groundwater in the area of the SW Pit ranges from approximately 40 to 55 ft bls, well below the base of the SW Pit. Based on the groundwater elevation data, the horizontal component of groundwater flow in the vicinity of the SW Pit is generally to the west, towards the Menominee River. The westward groundwater flow has a horizontal gradient ranging from approximately 0.009 to 0.02 ft/ft. The groundwater data collected during the RI, from Monitoring Well GM-62, indicates that the vertical component of the groundwater gradient is downward, at approximately 0.086 ft/ft.

6.4.2.2 Comparison to Part 201 Criteria

The analytical results for the soil and waste samples were compared to the Part 201 Criteria, regardless of the applicability of the criteria or relevancy of the exposure pathway, to determine what potential impact to the environment the remaining waste material at the SW Pit may have, and if the soil at the SW Pit has been affected. The SW Pit is zoned residential and future use of the area will be restricted to recreational use by a declaration of restrictive covenant. For the purpose of this evaluation, Residential and Commercial I soil criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006) Part 201 Generic Cleanup Criteria and Screening Levels) were used under the following five categories:

1. Residential and Commercial I DCC.
2. Residential and Commercial I DWPC.
3. Residential and Commercial I, Indoor Air, SVIAIC.
4. Residential and Commercial I, Ambient Air, PSIC for surface material and ISVSIC for subsurface material.
5. Generic GSIPC.

6.4.2.2.1 Surface Soil

The SW Pit was covered by a layer of fine grain to coarse grain sand with some silt. This layer of sandy soil and some silt was present from the ground surface to a depth of approximately 2 to 3 ft bls, across much of the SW Pit. A total of 17 surface soil samples have been collected in the area of the SW Pit. Fourteen surface soil samples (SSLP-1 through SSLP –13, and SSNE-3) were collected by ARCADIS during the RI and analyzed for VOCs, SVOCs, and select metals. E&E and the MDEQ collected the three additional surface samples during previous investigations in 1988 and 1996, respectively. These three surface samples were analyzed for VOCs, SVOCs, and select metals. The locations of the surface samples collected during the RI are shown on Figure 5-2 and the locations of all the surface soil samples are shown on Figure 6-40. Summaries of the results from the laboratory analyses for surface soil are shown in Table 6-36.

A total of 38 constituents were detected in the surface soil samples, including three VOCs, 12 SVOCs, and 23 inorganics/metals. Of the samples collected during the RI, Surface Soil Sample SSLP-8 was the only sample to contain a detectable concentration of VOCs, and the Surface Soil Samples SSLP-5, SSLP-8 and SSLP-9 were the only samples to contain detectable SVOCs. Inorganics/metals consistent with those naturally occurring were detected in all the surface soil samples analyzed.

The analytical results of the surface samples are compared to the Part 201 Residential and Commercial I Generic Cleanup Criteria and Screening Levels for soil in Table 6-36 and discussed in the following sections.

6.4.2.2.1.1 DCC

The analytical results for the surface soil samples indicate there are no constituents in the surface material with concentrations above the Residential and Commercial I DCC.

6.4.2.2.1.2 DWPC

The analytical results for the surface soil samples indicate concentrations of seven constituents were above the Residential and Commercial I DWPC in the surface material, including: aluminum, cobalt, iron, manganese, magnesium, molybdenum and silver. All of the surface samples contained concentrations of aluminum, cobalt, iron, and manganese that were above the DWPC. Molybdenum was detected at concentrations above the Residential and Commercial DWPC in Surface Soil Samples SSLP-8 and SSLP-9. Magnesium and silver were present at concentrations above the Residential and Commercial DWPC in Surface Soil Samples SSLP-11 and SSLP-9, respectively.

While the concentrations of the metals detected in the surface soil samples were above the Residential and Commercial I DWPC, it should be noted that with the exception of the one silver concentration detected, all the concentrations of the metals detected in the surface material samples are near or below the Michigan state default background concentrations for the metals (as defined by Part 201). Except for Surface Soil Sample S-6, all of the surface soil sample material are representative of clean local native material, imported to the area for cover.

6.4.2.2.1.3 Indoor Air SVIAIC

The analytical results for the surface soil samples indicate there are no constituents in the surface material with concentrations above the Residential and Commercial I SVIAIC.

6.4.2.2.1.4 Ambient Air PSIC

The analytical results for the surface soil samples indicate there are no constituents in the surface soil with concentrations above the Residential and Commercial I PSIC.

6.4.2.2.1.5 Generic GSIPC

Eight constituents were detected at concentrations above the GSIPC, including chromium, cobalt, copper, manganese, mercury, selenium, silver, and zinc. All of the surface soil samples contained concentrations of chromium, cobalt, and manganese above the GSIPC. Mercury was detected at concentrations above the GSIPC in Surface Soil Samples SS-33, SSLP-5, SSLP-8, SSLP-9, and SSLP-13, and silver was also detected at concentrations above the GSIPC in Surface Soil Samples SSLP-3, SSLP-5, SSLP-8, SSLP-9, and SSLP-13. Copper and zinc were detected at concentrations above the GSIPC in Surface Soil Samples S-6 and SSPL-9. Selenium was present at a concentration above the GSIPC in only Surface Soil Sample S-6.

Comparison of the soil results for inorganics/metals indicate that most of the constituent concentrations, including aluminum, cobalt, iron, lead, manganese, mercury, molybdenum, and silver, are similar to or below the state default background level concentration (as defined by Part 201). This would suggest that the metal concentrations are naturally occurring metal concentrations in the soil. The SW Pit is located more than 3,000 ft upgradient of the closest groundwater/surface water interface that occurs at the Menominee River, indicating that the generic Residential and Commercial I soil GSIPC are not a relevant pathway for the surface material at the SW Pit.

6.4.2.2.2 Subsurface Waste and Soil

A total of 69 subsurface soil and waste samples were collected in the SW Pit. The locations of the soil borings from which the subsurface samples were taken are shown on Figure 6-40. ARCADIS collected five subsurface waste samples during the RI in 1998, and 21 subsurface soil samples and one waste sample during the EE/CA in 1997. The RI samples were analyzed for VOCs, SVOCs, TOC, acetic acid, alcohols, aldehydes, and select metals, and the EE/CA samples were analyzed for VOCs, SVOCs, select metals, pesticides, and PCBs. A waste sample from Soil Boring GMSB-48 was also analyzed for the presence of radioactive isotopes (Table 6-31). In addition to the laboratory analyses of the waste material, all of the waste samples collected by ARCADIS were subjected to TCLP extraction analysis and several were also subjected to SPLP extraction analyses. These results are summarized in Table 6-37.

The additional 35 subsurface soil and waste samples were collected by other agencies (including EWA, E&E, and the MDEQ), during previous investigations from 1985 through 1996. These historical samples were analyzed for VOCs, SVOCs, select metals, pesticides, and PCBs. A summary of the results of the laboratory analyses of the subsurface samples, along with the depths from which they were collected, is shown in Table 6-37.

Six of the samples of waste material were collected in 1999 to characterize the type of waste present within the SW Pit. These samples were collected from depths ranging from 3 to 22 ft bls. The waste samples were selected to represent not only the type of waste, but also the approximate percentage of the waste type present within the former pit.

A total of 92 constituents were detected in the waste samples, including: 18 VOCs, 28 SVOCs, 26 inorganics/metals, six alcohols/aldehydes, and acetic acid (Table 6-37). The results from the radioactive isotope analysis did not detect radioactive isotopes other than those occurring naturally in the bedrock and geologic deposits within Michigan and many parts of the United States.

The analytical results from the subsurface material samples are compared to the Part 201 Residential and Commercial I Generic Cleanup Criteria and Screening Levels for soil, regardless of the applicability of the criteria or relevancy of the exposure pathway, in Table 6-35 and discussed in the following sections.

6.4.2.2.2.1 DCC

Arsenic and lead were detected in the subsurface samples at concentrations above the Residential and Commercial I DCC at the SW Pit. One waste sample collected from Soil Boring PB4 (Sample SS-9 collected from 8 to 12 ft bls) had a concentration of arsenic above the DCC. One waste sample from Soil Boring GMSB-2 (Sample SS11 collected from 13 to 14.5 ft bls) contained a concentration of lead above the Residential and Commercial I DCC.

6.4.2.2.2.2 DWPC

A total of 24 constituents were detected at concentrations above of the DWPC, including: acetone, benzene, ethylbenzene, methylene chloride, xylenes (total), 2,4-dimethylphenol, 2-methylphenol, 3-methylphenol/4-methylphenol, 4-methylphenol, n-nitrosodimethylamine, acetaldehyde, formaldehyde, aluminum, antimony, arsenic, chromium, cobalt, iron, lead, magnesium, manganese, molybdenum, nickel, and acetic acid. VOCs were only detected at concentrations above the DWPC in subsurface soil samples collected from Soil Borings GMSB-2, PB-6 and SB-12. Samples collected from Soil Borings GMSB-47, GMSB-2, PB-4, and PB-6 contained all of the concentrations of SVOCs above the DWPC.

Metals were present at concentrations above the DWPC in one or more of Soil Borings GMSB-2, GMSB-43, GMSB-44, GMSB-45, GMSB-47, GMSB-48, PB-3, PB-4, PB-6, SB-11, SB-11B, and SB-12. Aluminum, iron, and manganese were most commonly present at concentrations above the DWPC, followed by antimony, chromium, cobalt, and molybdenum. Lead was present in only two of the soil borings (GMSB-2 and GMSB-47) at concentrations above the DWPC. Magnesium and nickel each were present at a concentration above the DWPC in only one location (Soil Boring GMSB-2 and Soil Boring PB-4, respectively). Even though some of the metal concentrations above the DWPC were found in waste material samples, the metal concentrations were similar to or below the Michigan state default background concentration representative of natural occurring background conditions.

Two aldehydes (acetaldehyde and formaldehyde) were detected at a concentration above the DWPC in Soil Borings GMSB-45 and GMSB-48.

The subsurface samples from Soil Borings GMSB-2, GMSB-43, GMSB-44, GMSB-45, GMSB-47, and GMSB-48 contained the highest number of constituents detected above the Residential and Commercial I DWPC.

6.4.2.2.2.3 Indoor Air SVIAIC

Only one constituent, formaldehyde, was detected in the subsurface samples at a concentration above the Residential and Commercial I SVIAIC in two waste samples, collected from Soil Borings GMSB-43 and GMSB-48.

6.4.2.2.2.4 Ambient Air ISVSIC

One constituent, formaldehyde, was detected at a concentration above the ISVSIC in the waste samples collected from Soil Borings GMSB-43 and GMSB-48. There are additional "Finite" Volatile Soil Inhalation Criteria (FVSIC) that can be used when the thickness of impacted material is known. Two sets of FVSIC exist, for a 2 (6.56 ft) or 5 meter (16.4 ft) source thickness. Depending on the waste/fill material thickness, either the 2 or the 5 m FVSIC were used to screen the detections of the constituents.

The soil analytical results presented in Table 6-37 indicate a concentration of 14,000 µg/kg for formaldehyde at a depth of 3 ft in Soil Boring GMSB-43, which is above the ISVSIC criteria. The Sample/Core Log for Soil Boring GMSB-43 indicates approximately 2.5 ft of waste is present at this depth; therefore, the FVSIC for a 2 meter source thickness should be applied. The detected concentration of formaldehyde using this criterion is below the 2 m FVSIC. Table 6-37 is footnoted to indicate this evaluation.

Soil Boring GMSB-48 also contained formaldehyde at a concentration of 50,000 µg/kg at a depth of 22 ft bls, which is above the ISVSIC. The Sample/Core Log for this boring indicates that approximately 4 ft of sawdust and/or charcoal are present at this depth; therefore, the 2 meter source thickness FVSIC should again be applied. The detected concentration of formaldehyde in Soil Boring GMSB-48 is below the 2 meter FVSIC. Table 6-37 is footnoted to indicate this evaluation.

6.4.2.2.2.5 Generic GSIPC

A total of 32 constituents were detected in the subsurface material samples at concentrations above the GSIPC, including: 1,2,4-trimethylbenzene, acetone, ethylbenzene, naphthalene, toluene, xylenes (total) 2,4-dimethylphenol, 2-methylphenol, 3-methylphenol/4-methylphenol, 4-methylphenol, carbazole, diethylphthalate, dibenzofuran, fluoranthene, fluorene, phenanthrene, phenol, acetaldehyde, formaldehyde, methanol, barium, cadmium, chromium, cobalt, copper, cyanide, nickel, manganese, mercury, selenium, silver, and zinc (Table 6-37).

Eight of the constituents (1,2,4-trimethylbenzene, ethylbenzene, carbazole, diethylphthalate, fluoranthene, fluorene, methanol, and cadmium) were detected only once at a concentration above the GSIPC. The most common constituents that were detected at concentrations above the GSIPC were chromium, cobalt, copper, manganese, and selenium. The subsurface samples collected from Soil Borings

GMSB-2, GMSB-45, GMSB-47, PB-4, and PB-6 contained the highest number of constituents with concentrations above the GSIPC.

Although there were 32 constituents with concentrations above the generic GSIPC in the subsurface samples, the nearest surface water body, the Menominee River, is over 3,000 ft away from the SW Pit, indicating that the generic GSIPC is not an applicable pathway for the subsurface soil. In addition, many of the metal concentrations detected were similar to or below the Michigan state default background concentration representative of naturally occurring background conditions. The depths at which the soil samples were collected are included in Table 6-37.

6.4.2.3 TCLP/SPLP Analysis

A composite sample of waste material was collected from Soil Boring GMSB-2, in the depth interval from 5 to 25 ft bls, and was submitted for TCLP extraction analysis to evaluate the potential for the waste material to leach constituents. Waste samples from Soil Borings GMSB-43, GMSB-44, GMSB-45, GMSB-47, and GMSB-48, representative of the various types of waste material found, were also submitted for TCLP and SPLP extraction analysis. The results of the TCLP and SPLP analyses are summarized in Table 6-38, along with the depths from where the samples were collected.

A comparison of the TCLP results with Federal Standards found in 40 CFR Part 261.30 (which identifies maximum concentrations of constituents for the toxicity characteristics of a hazardous waste) was performed. This comparison indicates that the constituent concentrations detected in the extract of the waste material are not above the levels for defining the material as a hazardous waste.

6.4.2.4 Potential for Continuing Releases to Groundwater

An assessment of the potential for leaching constituents to groundwater from the waste/fill materials in the SW Pit was completed through the following sample collection and analysis:

- Leaching tests performed on a composite waste sample from Soil Boring GMSB-2.

- Leaching tests performed on samples collected from representative waste materials including sawdust (Soil Boring GMSB-43), wood (Soil Borings

GMSB-44 and GMSB-47), and wood/charcoal (Soil Borings GMSB-45 and GMSB-48).

- Shallow and deep groundwater grab samples collected during the drilling of Soil Boring GMSB-2.

- Subsurface soil samples collected from Soil Borings GMSB-2 and SB-21.

A TCLP test was performed on a waste sample collected from Soil Boring GMSB-2 from a depth of 5 to 25 ft bls (Table 6-38). The extract from the TCLP test was analyzed for TOC, COD, and limited SVOCs. The extract from the TCLP test contained 7.8 μg/L of 2-methylphenol, 26 mg/L of TOC, and 34 mg/L of COD.

TCLP tests were also performed on waste samples collected from Soil Borings GMSB-43, GMSB-44, GMSB-45, GMSB-47, and GMSB-48. The extracts from these TCLP tests were analyzed for VOCs, SVOCs, select metals, alcohols, and aldehydes. In addition to the TCLP tests, SPLP tests were performed on waste samples collected from Soil Borings GMSB-45 and GMSB-48. The extracts from the SPLP tests were analyzed for VOCs, SVOCs, select metals, alcohols, aldehydes, TOC, COD, and acetic acid. The results of the laboratory analyses of the TCLP and SPLP extracts of the waste samples are presented in Table 6-38.

The results of the TCLP test performed on a sample of the sawdust collected from Soil Boring GMSB-43 (3 ft bls) indicates that VOCs or SVOCs were not detected in the extract. Formaldehyde was detected in the extract at a concentration of 370 µg/L.

The results of the TCLP tests performed on two samples of the wood material collected from Soil Borings GMSB-44 (15 ft bls) and GMSB-47 (15 ft bls) show that only low, estimated VOC concentrations were detected in either sample (2.2 μg/L chloromethane in Soil Boring GMSB-44 and 3.0 μg/L carbon disulfide in Soil Boring GMSB-47). No SVOCs or aldehydes were detected in the sample from Soil Boring GMSB-44. Several SVOCs and aldehydes were detected in the sample from Soil Boring GMSB-47, including 2,4-dimethylphenol (80 µg/L), 2-methylphenol (49 µg/L), 2-picoline (8.9 μg/L, estimated), 3-methylphenol/4-methylphenol (180 µg/L), acetaldehyde (250 μg/L), and formaldehyde (220 μg/L).

The results from the TCLP and SPLP tests performed on two samples of the wood/charcoal materials collected from Soil Borings GMSB-45 (10 ft bls) and GMSB-48 (22 ft bls) indicate that VOCs were not detected, with the exception of 1,2,4-

trimethylbenzene estimated at 0.57 µg/L in the Soil Boring GMSB-45 sample. SVOCs were detected in both samples at low concentrations including 2,4-dimethylphenol (20 and 12 µg/L), 2-methylphenol (35 and 6.4 µg/L), 3-methylphenol/4-methylphenol (50 and 11 µg/L) and phenol (74 and 20 µg/L). One alcohol, methanol, was detected in the sample from Soil Boring GMSB-45, at an estimated concentration of 3,200 µg/L. Aldehydes were detected in both samples, including acetaldehyde (480 and 160 µg/L) and formaldehyde (120 and 970 µg/L). Acetic acid/acetate was also detected in both samples at concentrations ranging from 2.6 to 39 mg/L. As discussed previously in this RI Report (Section 6.2.1.1), the analytical results for acetic acid represent acetic acid plus acetate, so therefore overstate the acetic acid present.

The results from the TCLP and SPLP tests for the different materials identified in the SW Pit showed that the potential for these materials to leach constituents is low. In order to understand any impacts to shallow groundwater due to leaching of constituents from the SW Pit material, groundwater data collected during the installation of Soil Boring GMSB-2 was used for comparison to the waste extract data. The results of this comparison are summarized in Table 6-39. The groundwater grab sample was collected from Soil Boring GMSB-2 at a depth of 93 ft bls, from a coarse sand that is the predominant geologic material from the base of the SW Pit down to 93 ft bls. This groundwater grab sample was analyzed for VOCs, SVOCs, TOC, COD, BOD, and methane. The sample contained very low concentrations of VOCs (highest concentration detected, 2.9 µg/L of carbon disulfide) and SVOCs (highest concentration detected, 18 µg/L of 2,4-dimethylphenol). The TOC concentration in the sample 93 ft bls was 14 mg/L.

In comparison, a groundwater sample collected from Soil Boring GMSB-2 from a depth of 265 ft bls contained SVOC concentrations ranging from a low of 3,900 µg/L for 2,4-dimethylphenol to a high of 13,000 µg/L for 4-methylphenol, and a groundwater sample collected from a depth of 345 ft bls contained SVOC concentrations ranging from a low of 3,000 µg/L for 2,4-dimethylphenol to a high of 14,000 µg/L for 4-methylphenol. Comparison of this groundwater data to the above-referenced concentrations in the TCLP and SPLP extracts shows that the concentrations of SVOCs in the deep groundwater system beneath the SW Pit are much higher than could possibly be produced by leaching from the SW Pit waste material. This also indicates that the constituents in the deeper groundwater beneath the SW Pit are the result of historic liquid disposal in the upgradient NE Pit.

In addition to the groundwater data, a review of subsurface soil data from soil borings completed through the SW Pit indicates that any constituents potentially leached from the material within the SW Pit (minimal, if at all) are not migrating beyond the material within the SW Pit. Concentrations of VOCs and SVOCs are higher within the waste material and in the soil immediately below the SW Pit to a depth of 35 to 40 ft bls than in the deeper soil. These concentrations decrease (and eventually reach nondetect) below 40 ft to a depth of approximately 150 ft bls. At depths greater than 150 ft bls, constituent concentrations are again higher than those between 40 to 150 ft bls. The subsurface soil data is presented in Table 6-37. The transition from higher constituent concentrations within the SW Pit material to minimal concentrations immediately beneath the SW Pit (35 to 40 ft bls) is specifically supported by subsurface soil data from Soil Borings SB-10B, SB-11B, SB-13, and SB-21.

The screening data from Soil Boring GMSB-2 also indicate that the material in the SW Pit is not significantly leaching constituents to groundwater. OVA readings (often greater than 10,000 ppm) from Soil Boring GMSG-2 from within and immediately beneath the SW Pit material decrease dramatically at the water table and generally remain below 1,000 ppm until depths greater than 150 ft bls. If the material within the SW Pit were leaching any significant amount of constituents to shallow groundwater, continuous OVA readings well above 1,000 ppm would be expected in the shallow groundwater, which is not the case. The leachability data from the waste and fill material within the SW Pit indicates that there is a potential for insignificant leaching of constituents from some of the SW Pit material. However, subsurface soil samples, OVA readings, and shallow groundwater data collected at 93 ft bls from Soil Boring GMSB-2 indicate that any minimal leaching that is occurring is not affecting groundwater immediately beneath the SW Pit. Concentrations of organic material found in the deeper groundwater beneath the SW Pit (i.e. below 150 ft bls) are from historic liquid releases to the NE Pit, rather than leaching from the waste material currently within the SW Pit.

6.4.2.5 Interim Response Actions

During fall 2004, interim response actions were completed at the SW Pit. Details of the evaluation of the appropriate interim response action are provided in a document prepared by ARCADIS entitled, "*Former Southwest Pit Area Interim Response Action Plan (IRAP), Ford/Kingsford Site, Kingsford, Michigan,*" dated July 18, 2003. The MDEQ approved the interim response actions for the SW Pit in a letter dated October 16, 2003.

A permeable cover, SVE system, and restrictive covenant were selected by Ford and KPC as the appropriate interim response action for the SW Pit due to effectiveness, minimization of disturbance to waste material, ease of implementation, and minimal impacts to the community. This response option was the most cost-effective option and achieved the response action objectives for the SW Pit by addressing relevant exposure pathways. Future use of the SW Pit for recreational purposes was integrated into the cover system design, which provides a benefit to the community.

The SW Pit cover system encompasses an area of approximately 1.5 acres. This area was first cleared and rough graded. During these activities, care was taken to minimize the generation of airborne particles. Clean common fill was added to the target area to achieve at least a 24-inch new layer. Additional common fill material was placed as necessary to promote proper drainage. Topsoil or a topsoil/sand mixture was placed over the common fill layer at a minimum thickness of six inches. Therefore, a minimum of 30 inches of cover material (common fill layer and topsoil layer) was installed over the entire SW Pit providing a direct contact barrier. The final grade of the cover system was designed to prevent erosion and surface water ponding. Additionally, the existing SVE system was expanded to extract from Soil Vapor Extraction Wells GMSG-96/96A to address methane present in the area around Soil Vapor Probe GMSG-14.

A restrictive covenant will be executed and recorded as an institutional control for the SW Pit. The restrictive covenant maintains the current barrier in place, prohibits excavation or penetration through the existing barrier (except as specified in the Waste Management and Operation and Maintenance Plans), requires repair of the barrier if breeched, requires vapor barrier construction on any future confined structures installed, and prohibits the use of groundwater beneath the property. Appropriate health and safety guidelines and material handling procedures were established in the event that waste is encountered in the future. Survey reference markers, installed at the corners of the cover system, are used to delineate the extent of the cover system, as well as provide reference points to monitor any settling. Permanent markers were installed at locations approved by the MDEQ to describe the restricted areas of the SW Pit and the nature of the restrictions. The survey reference markers and permanent markers are inspected at least annually.

6.4.3 RDA

The RDA is located approximately 500 ft south of the western end of Pyle Drive and approximately 1,400 ft west of Westwood Avenue. The location of the RDA with respect to other area features, such as surface water bodies, is shown on Figure 3-2. The waste/fill material appears to have been placed into a portion of a historical borrow pit and natural ravine so that the current surface of the RDA is consistent with the current topography (Figure 3-3). There is a storm water retention basin, constructed by the City of Kingsford, located on the northeastern side on the RDA. The RDA is contained within property owned by the City of Kingsford. Although the RDA is zoned for residential use, as of January 2001 it was an open field with no structures on the property. A temporary fence was installed in the spring of 1999 that encircled the area where industrial wastes were disposed. This fence was inspected on a routine basis.

The primary investigation activities at the RDA included source delineation and collection of soil and groundwater samples through the completion of soil borings and installation of monitoring wells. These data were collected to supplement previous work completed at the RDA as discussed in Section 3.11. The previous work performed at the RDA provided a good characterization of the waste/fill material deposited at the RDA. Thus, the focus of the EE/CA and RI investigations was on further characterization of the surface soil and the collection of data to evaluate the potential for waste/fill material to provide a continuing release to groundwater. Findings of the source delineation activities, as well as the historic investigation activities, are provided in the following subsections.

6.4.3.1 Source Delineation and Waste Characterization

Source delineation and waste characterization at the RDA included the following activities:

- The installation and sampling of one deep soil boring, GMSB-4 in June 1997, near the center of the RDA. The soil boring was completed to bedrock at 212 ft bls. Soil samples were collected from Soil Boring GMSB-4 at various depths from 5 to 205 ft bls, and were submitted for laboratory analysis of VOCs, SVOCs, metals, TOC, COD, and TCLP. Two groundwater grab samples were also collected from Soil Boring GMSB-4 at 115 and 183.5 ft bls, and were submitted for analysis of VOCs, SVOCs, TOC, COD, BOD, and dissolved gasses.

- The installation of shallow Monitoring Well GM-31 and deep Monitoring Well GM-5, located immediately downgradient of the RDA.

- The excavation of 16 test pits (June 1998 and July 1999) around and within the RDA to delineate the extent of the waste disposal.

- The collection and analysis of 13 surface soil samples for VOCs, SVOCs, and select metals.

The test pit, soil boring, monitoring well, and surface soil sample locations are shown on Figure 6-52.

The 16 test pits (identified as RTP-1 through RTP-16) were completed in June 1998 and July 1999, within an area approximately 650 by 800 ft. Findings from the test pits indicate the presence of waste/fill material in eight of the 16 test pits. Typical waste/fill material encountered in Test Pits RTP-1, RTP-5, RTP-6, RTP-7, RTP-11, RTP-12, and RTP-13 included beige, tan, and red bricks and brick fragments, wood fragments, charred wood and coal fragments, metal fragments, broken glass, and occasional inclusions and layers of black organic, carbonized material. The waste/fill material encountered in the test pits, typically ranged from a depth of approximately 3.5 ft bls to the maximum excavation depth of 13.5 ft bls in RTP-13. All other test pit excavations encountered native clay or sand. Sample logs for Test Pits RTP-1 through RTP-16 are included in Appendix A.

One test pit (RTP-3) located east of the storm water retention basin, encountered material typical of household/miscellaneous wastes, including plastic trash bags, shingles, railroad ties, cloth debris, metal debris, glass bottles, vinyl flooring, and plastic.

Results of the source delineation activities at the RDA indicate that the extent of fill is approximately 300 by 550 ft. Based on the test pit and soil boring findings, the depth of waste/fill material ranged from 3.5 to 22 ft bls, the base of the waste/fill encountered in Soil Boring GMSB-4. Cover soil overlying the waste at the RDA consisted of topsoil and sand. Based on field observations, soil borings, and the test pits in the RDA, the cover material was present over the entire RDA with a thickness that generally ranged from 1 to 2 ft in thickness, except along the northwest part of the RDA. There the cover material had eroded along a steep embankment. The lateral extent of the fill material is illustrated by the disposal boundary on Figure 6-52.

Previous results from data collected by MDEQ indicated that waste/fill material deposited at the RDA had constituent concentrations above the Part 201 Soil Criteria for Residential Direct Contact for arsenic, antimony, copper, and lead. Soil Boring GMSB-4 was advanced to determine the thickness of waste/fill and to allow the collection and analysis of a composite sample for comparison to historical waste characterization analyses.

Soil Boring GMSB-4 encountered waste/fill material from a depth of 2 to approximately 22 ft. The waste/fill material encountered in Soil Boring GMSB-4 included primarily wood chips, wood fragments, charred organic material, coal, broken glass, and brick, coal, metal, and steel fragments. The sample log for Soil Boring GMSB-4 is provided in Appendix A. The composite sample from Soil Boring GMSB-4 was labeled as GMSB-4/5-25 to represent the base of the drilling interval that had extended to 25 ft bls; however, the composite sample was collected only from the observed waste/fill material in the interval from 2 to 22 ft bls. A geologic cross section was constructed for the RDA. The location of the cross section is shown on Figure 6-52, and the cross section is included on Figure 6-53.

The depth to groundwater in the area of the RDA is approximately 80 ft bls. Groundwater is present approximately 50 ft below the base of the waste in the RDA. Based on the groundwater elevation, the groundwater flow is to the southwest towards the Menominee River in the vicinity of the RDA. The horizontal component of the hydraulic gradient was calculated for the shallow aquifer, which represents the zone that the monitoring wells are screened in at the RDA. The southwestern flow direction has a horizontal component gradient from approximately 0.0027 to 0.0029 ft/ft.

The groundwater elevation data from Monitoring Wells GM-5 and GM-31, which were installed as a well nest, were used to calculate the vertical component of the groundwater gradient at the RDA. The vertical component of the groundwater gradient ranges from even at 0.0 ft/ft to very slightly upward in direction, based on the data collected from the area.

6.4.3.2 Comparison to Part 201 Criteria

As part of the RDA characterization, a comparison of the RDA chemical data to the Part 201 criteria was made for the soil and remaining waste, regardless of the applicability of the criteria or relevancy of the exposure pathway,. The RDA is zoned residential, therefore specific criteria used for the purpose of this evaluation are State of Michigan Residential and Commercial I soil standards as defined in the MDEQ RRD Operational Memorandum #1 (January 23, 2006) Part 201 Generic Cleanup Criteria and Screening Levels under the following categories:

- Residential and Commercial I DCC.
- Residential and Commercial I DWPC.

- Residential and Commercial I SVIAIC.

- Residential and Commercial I, PSIC for surface material and ISVSIC for subsurface material.

- Residential and Commercial I Generic GSIPC.

6.4.3.2.1 Surface Material

A total of 24 surface material samples have been collected in the area of the RDA to confirm the current surface soil quality. Of the samples collected, 21 were from surface soil and three represented waste material at the surface. Based on file information from the RDA, one of the previous surface waste samples collected in 1988 by MDEQ was from a paint-like substance that was subsequently removed from the RDA. In addition, a sample of material from a drum was collected along with the surface soil samples. The analytical results from the removed surface material and the drum material will not be used in this evaluation of the surface material, since they are not representative of current conditions. Results of these two samples are included in Table 6-40.

A summary of all the surface samples collected and the analytical results of these surface samples are provided in Table 6-41. The locations of the surface samples are shown on Figure 6-52. Thirteen surface soil samples (SSRIV-1 through SSRIV-13) were collected during the RI and analyzed for VOCs, SVOCs, and select metals. The additional 11 surface soil and waste samples were collected by the MDNR/MDEQ during previous investigations in August 1988 and May 1996. These 11 surface samples were analyzed for VOCs, SVOCs, metals, pesticides, and PCBs.

The analytical results of the surface samples are compared to the Part 201 Residential and Commercial I Generic Cleanup Criteria and Screening Levels for soil in Table 6-41, and discussed in the following sections.

6.4.3.2.1.1 DCC

Comparison of the concentrations of the constituents detected in the surface samples from the RDA to the Residential and Commercial I DCC indicates that arsenic, copper, and lead were above the DCC. The surface material at SDB-3, SDB-4, and SSRIV-10 had concentrations of lead above the Residential and Commercial I DCC. The surface material at SDB-3, SSRIV-1, and SSRIV-7 had concentrations of arsenic above the

Residential and Commercial I DCC. Also, the surface sample at SDB-3 had a concentration of copper above the Residential and Commercial I DCC.

Since the property was not used for residential purposes as of the date of the report, an exposure assessment was performed for direct contact with the surface soil at RDA, using a trespasser scenario by a child. This exposure assessment was conducted in response to concerns raised by area residents. The results from the exposure assessment are summarized in Appendix Q. Based on reasonable assumptions for a child trespasser, the exposure assessment indicated that the risk associated with a child having periodic direct contact with surface soils at the RDA was low, and therefore was acceptable (Appendix Q).

6.4.3.2.1.2 DWPC

When comparing the analytical results to the Residential and Commercial IDWPC, the concentrations of 21 constituents were above criteria DWPC, including: tetrachloroethene, 2,4-dimethylphenol, 2-methylphenol, 4-methylphenol, aluminum, antimony, arsenic, barium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, selenium, silver, thallium, and zinc.

Eleven of the constituents (arsenic, barium, copper, mercury, selenium, silver, thallium, zinc, 2,4-dimethylphenol, 2-methylphenol, and 4-methylphenol) were only detected once at a concentration that was above the Residential and Commercial I DWPC, in the sample collected from SDB-3. Lead was detected twice, and antimony and chromium were detected three times at concentrations that were above the Residential and Commercial I DWPC and normally occurring background concentrations.

Aluminum, cobalt, iron, and manganese were the constituents that most often had concentrations that were above the Residential and Commercial I DWPC. The surface sample of waste collected from the SDB-3 location had the most constituents that were above the Residential and Commercial I DWPC.

6.4.3.2.1.3 Indoor Air SVIAIC

The analytical results indicate there are no constituents present in the surface material at concentrations above the Residential and Commercial I SVIAIC.

6.4.3.2.1.4 Ambient Air PSIC

The analytical results indicate manganese was the only constituent present with a concentration above the Residential and Commercial I PSIC, in one surface sample from one location (SSRIV-1).

6.4.3.2.1.5 Generic GSIPC

The analytical results indicate that concentrations of 12 constituents were above the generic GSIPC, including: 2,4-dimethylphenol, 2-methylphenol, 4-methylphenol, dibenzofuran, naphthalene, phenanthrene, chromium, cobalt, cyanide, mercury, selenium, and silver.

Seven of the constituents (2,4-dimethylphenol, 2-methylphenol, 4-methylphenol, dibenzofuran, naphthalene, phenanthrene, and cyanide) were only detected once at a concentration that was above the generic GSIPC, in the sample collected from SDB-3. Selenium was detected twice at a concentration that was above the generic GSIPC. The constituents that were most frequently above the generic GSIPC were chromium, cobalt, and mercury. The metal concentrations were above those normally found as naturally occurring background concentrations.

6.4.3.2.2 Subsurface Soil and Waste Material

A total of 21 unsaturated subsurface soil and waste samples were collected from the RDA. The analytical results for the unsaturated subsurface soil and waste material are summarized in Table 6-42. The locations of the subsurface samples are shown on Figure 6-50. Three of the 21 subsurface samples were collected during the RI. Two of these three samples were analyzed for VOCs, SVOCs, select metals, pesticides/PCBs, and TOC, while the other sample was only analyzed for TOC. The additional 18 subsurface soil and waste samples were collected by the MDNR, during previous investigations in May 1996. These MDNR subsurface samples were analyzed for VOCs, SVOCs, metals, pesticides, and PCBs. The depths at which the samples were collected are also provided in Table 6-42.

As previously discussed, the waste samples collected during the RI were taken to characterize the type of waste present within the RDA. In addition to the laboratory analysis of the subsurface material, several of the subsurface samples collected during the RI were subjected to TCLP analysis. These results are discussed in Section 6.4.1.4.

The analytical results of the subsurface samples are compared to the Part 201 Residential and Commercial I Generic Cleanup Criteria and Screening Levels for soil in Table 6-42, regardless of the applicability of the criteria or relevancy of the exposure pathway, and discussed in the following sections.

6.4.3.2.2.1 DCC

Comparison of constituents detected in subsurface samples from the RDA to the Residential and Commercial I DCC indicates that five constituents had concentrations that were above the criteria, including: benzo (a) pyrene, antimony, arsenic, copper, and lead. Three constituents, benzo (a) pyrene (SDB-8), antimony (SDB-3), and copper (SDB-3), had only one concentration that was above the Residential and Commercial I DCC. The samples from SDB-3, SDB-6, and SDB-8 had concentrations of arsenic above the Residential and Commercial I DCC. The samples from SDB-3, SDB-8, and SDB-10 had concentrations of lead that were above the Residential and Commercial I DCC.

6.4.3.2.2.2 DWPC

The subsurface analytical sample results indicate that concentrations of 27 constituents were above the Residential and Commercial I DWPC, including: 1,1,2,2-tetrachloroethane, ethylbenzene, naphthalene, methylene chloride, xylenes (total), 2,4-dimethylphenol, 2-methylphenol, 4-methylphenol, aluminum, antimony, arsenic, barium, cadmium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, selenium, silver, thallium, vanadium, and zinc.

Ten of the constituents (1,1,2,2-tetrachloroethane, ethylbenzene, naphthalene, methylene chloride, xylenes (total), arsenic, magnesium, selenium, vanadium, and zinc) were detected above the Residential and Commercial I DWPC in only one sample from one location. The constituents most frequently present at concentrations above the Residential and Commercial I DWPC were aluminum, cobalt, iron, and manganese. These metal concentrations were above those normally representative of background conditions. The samples from SDB-3 and SDB-8 contained the highest number of constituents that were above the Residential and Commercial I DWPC.

6.4.3.2.2.3 SVIAIC

One constituent, 1,1,2,2-tetrachloroethane, was present at a concentration above the Residential and Commercial I SVIAIC in one sample from SDB-6.

6.4.3.2.2.4 Ambient Air ISVSIC

One constituent, 1,1,2,2-tetrachloroethane, was present at a concentration above the Residential and Commercial I ISVSIC in one sample from SDB-6.

6.4.3.2.2.5 Generic GSIPC

When comparing the subsurface sample analytical results to the generic GSIPC, concentrations of 21 constituents were above the generic GSIPC, including: 1,1,2,2-tetrachloroethane, ethylbenzene, toluene, xylenes (total), 1,2,4-trichlorobenzene, 2,4-dimethylphenol, 2-methylphenol, 4-methylphenol, dibenzofuran, fluorene, naphthalene, phenanthrene, phenol, chromium, cobalt, cyanide, mercury, selenium, silver, thallium, and vanadium.

Seven of the constituents (1,1,2,2-tetrachloroethane, ethylbenzene, toluene, xylenes (total), 1,2,4-trichlorobenzene, fluorene, and vanadium) were detected in one concentration from one location above the generic GSIPC. The most common constituents that were present at concentrations above the generic GSIPC were chromium, cobalt, silver, and mercury. The samples from SDB-3 and SDB-8 contained the highest number of constituents that were above the generic GSIPC.

6.4.3.3 TCLP Analyses

A waste sample (GMSB-4/5-25) and several subsurface soil samples were submitted for TCLP extraction analysis for a limited list of analytes. The results of the TCLP analysis are summarized in Table 6-43 and are discussed in Section 6.4.1.4. A comparison of TCLP results with Federal Standards found in 40 CFR Part 261.30, which identifies maximum concentrations for contaminants for the toxicity characteristic for hazardous waste, indicates that the levels of the analyzed constituents present in the extract of the waste material do not define the material as a hazardous waste.

6.4.3.4 Potential for Continuing Releases to Groundwater

An evaluation was made to determine whether constituents in the waste/fill material leach to groundwater. The evaluation included data collected from: (1) the composite sample of waste/fill material from Soil Boring GMSB-4, (2) groundwater grab samples collected from Soil Boring GMSB-4, and (3) groundwater samples collected from Monitoring Wells GM-5 and GM-31, located hydraulically downgradient from the RDA.

As discussed in Section 6.4.1.1, a composite waste sample was collected from Soil Boring GMSB-4 (Sample GMSB4/5-25) and submitted for laboratory analysis. A TCLP extraction was also performed on this sample and the extract analyzed for SVOCs, COD, and TOC. A limited SVOCs analysis was performed on the extract, because previous groundwater data, as discussed in Section 6.2, indicated that select SVOCs provided a "signature" for the groundwater related to the Study Area. The laboratory results from the TCLP analyses performed on Sample GMSB4/5-25 are presented in Table 6-43. No SVOCs (that were analyzed) were detected in the extract of the sample. TOC and COD were detected in the extract at concentrations of 7 and 30 mg/L, respectively.

Groundwater grab samples were also collected during the completion of Soil Boring GMSB-4, which was drilled through the waste/fill material at the RDA and terminated at bedrock. These groundwater samples were collected from two depth intervals, 115 and 183.5 ft bls, and analyzed for VOCs, SVOCs, TOC, COD, BOD, dissolved gases, and specific gravity. A comparison has been made between the chemical analyses for the TCLP extract from the waste sample and the chemical analyses for the groundwater grab samples. The groundwater grab samples were both collected from sand characteristic of Unit 1 material. This comparison is shown in Table 6-44.

Examination of the groundwater grab sample results shows that for VOCs the concentrations in the groundwater from both the shallow and deep intervals were generally low for all constituents, except carbon disulfide. Carbon disulfide was detected at significantly higher concentrations in the deep groundwater sample (640 µg/L) than in the shallow groundwater sample (0.196 µg/L). The findings for SVOCs were similar in that concentrations of SVOCs were low for all constituents, except for 2,4-dimethylphenol. The concentration of 2,4-dimethylphenol was significantly higher in the deep groundwater sample (390 µg/L) than in the shallow groundwater sample (4.9 µg/L).

Groundwater quality hydraulically downgradient from the RDA was determined using the chemical analyses of groundwater collected from Monitoring Wells GM-5 and GM-31. Monitoring Well GM-31 is screened in the interval between 105 and 115 ft bls, which is representative of shallow groundwater conditions. Monitoring Well GM-5 is screened in the interval between 250 and 260 ft bls, which is representative of deep groundwater conditions. A comparison between the shallow (Monitoring Well GM-31) and deep (Monitoring Well GM-5) groundwater samples for VOCs indicates low concentrations of VOCs were present in both samples. Review of the groundwater samples for the SVOCs results indicated that no SVOCs were detectable in shallow groundwater, whereas the deep groundwater contained concentrations of 2,4-dimethylphenol ranging from 870 to 910 µg/L.

The results from these analyses show that waste/fill material in the RDA is not leaching to groundwater. Groundwater samples collected from the RDA show that the water deeper in the groundwater system contains concentrations of VOCs, SVOCs, TOC, and COD (Table 6-8, Table 6-9, and Table 6-13). A thick unit of clay and silt separates the waste material in the RDA from the shallow groundwater, at approximately 80 ft bls. There is no measurable groundwater encountered above this silt/clay unit. The absence of impacted shallow groundwater, along with the chemical analyses of the TCLP extraction of the composite waste/fill material, indicate constituents associated with the deep groundwater are associated with sources hydraulically upgradient of the RDA, notably the NE Pit.

6.4.3.5 Interim Response Actions

From July 2001 through August 2003, interim response actions were completed at the RDA. Details of the evaluation of the appropriate interim response action are provided in a document prepared by ARCADIS entitled, "*Riverside Disposal Area Interim Response Action Plan (IRAP), Ford/Kingsford Site, Kingsford, Michigan*," dated October 31, 2002, and subsequent "*Addendum for the Former Riverside Disposal Area Interim Response Action Plan, Ford/Kingsford Site, Kingsford, Michigan,*" dated August 15, 2003. The MDEQ approved the interim response actions for the RDA in a letter dated February 26, 2004.

A permeable cover system and restrictive covenant were selected as the interim response action for the RDA to provide maximum future usefulness and achieve response action objectives in a cost-effective manner.

Cover layer fill depths and suitable compaction standards were used to provide sufficient strength for compaction and load bearing. The RDA was first cleared and rough graded. During these activities, care was taken to minimize the generation of airborne particles. The common fill layer was at least 18 to 24 inches in thickness, depending on the location within the RDA. Additional common fill material was placed as necessary to promote proper drainage. Twelve inches of topsoil/sand mixture was placed on the cover area surface and 6 inches of topsoil was placed over the remaining portion of the RDA. Therefore, a minimum of 30 inches of cover material (common fill layer and topsoil layer) was maintained over the entire RDA. Following final grading of the surface layer to blend in with the surrounding area, surface vegetation was established to control surface water runoff, erosion, and ponding. The topsoil was then seeded, fertilized/mulched, and completed as a soccer field. Significant soccer infrastructure improvements were completed.

A restrictive covenant was executed and recorded for the RDA. The restrictive covenant maintains the current barrier in place, prohibits excavation or penetration through the existing barrier (except as specified in the Waste Management and Operation and Maintenance Plans), requires repair of the barrier if breeched, and prohibits the use of groundwater beneath the property. Appropriate health and safety guidelines and material handling procedures were established in the event that waste is encountered in the future. Survey reference markers were placed at the corners of the permeable cover system. The survey reference markers are used to both delineate the areal extent of the RDA and as reference points for any potential settling of the permeable cover system. Permanent markers were installed at locations approved by the MDEQ to describe the restricted areas of the RDA and the nature of the restrictions. The survey reference markers and permanent markers are inspected at least annually.

6.4.4 Former Plant Site

The FPS, currently located in the City of Kingsford industrial park, was investigated to determine if constituents associated with previous plant operations were present in soil or groundwater. The FPS area covers an approximate 1/2 square mile area that is bounded by Breitung Avenue to the south, Balsam Street to the west, Pyle Drive to the north, and Hooper Street to the east (Figure 3-2). Many of the buildings from the FPS remain and are used as part of the city industrial park by companies with operations involving manufacturing, distribution, retail, and repair services. The areas along Pyle Drive and Breitung Avenue have also been developed by small businesses. The FPS is zoned industrial.

Prior to and during the EE/CA investigation, groundwater hydraulically upgradient and downgradient of the FPS was investigated. The intent of RI activities at the FPS was to evaluate soil and groundwater associated with several specific potential (historical) source areas. These potential source areas, identified in cooperation with the MDEQ and investigated at their request, included the following:

- The former distillation building.
- Former sulfuric acid tanks located northwest of the distillation building.

- A former oil tank west of the Power Plant No. 1 smoke stacks.

- A former oil storage area west of the water tower.

- A former “vault for foaming agents” east of Body Plant No. 1.

The location of the former plant area is shown on Figures 3-2 and 5-1.

The RI field activities in the former plant area included installation of soil borings, collection of soil and groundwater samples and soil vapor monitoring.

6.4.4.1 Source Delineation

During performance of the EE/CA and RI, 11 soil borings were advanced within the FPS area to address the specific potential source areas listed above and further evaluate impacted groundwater identified during the EE/CA investigation. Evaluation of impacted groundwater at the FPS was discussed in Section 6.2. Discussion of groundwater impacts in this section is limited to the specific source areas identified. The results from the soil boring for the installation of Monitoring Well GM-12, completed during the EE/CA, will also be discussed in this section.

Of the 11 soil borings, seven were completed as groundwater monitoring wells (GM-32, GM-35, GM-40A, GM-40B, GM-41, GM-42, and GM-56) and one was completed as a soil vapor monitoring probe (GMSG-21). The soil borings at the FPS were advanced to depths ranging from 45 (Soil Vapor Probe GMSG-21) to 155 ft bls (Monitoring Wells GM-40 and GM-41). The locations of these soil borings, monitoring wells, and gas probe are shown on Figure 6-54. The rationale for the soil boring and monitoring well locations is presented below:

- The boring for Monitoring Well GM-35 was completed to the west of the power plant smoke stacks to evaluate the approximate location of a former oil storage area. Soil Vapor Probe GMSG-21 was also completed in this area to evaluate FID readings encountered in the vadose zone during the drilling of Monitoring Wells GM-12 and GM-35.

- The boring for Monitoring Well GM-41 was completed to the northwest of the former distillation building at the location of the former sulfuric acid tanks. This monitoring well addressed potential impacts from the distillation Facility and the former sulfuric acid tanks.

- The boring for Monitoring Well GM-42 was completed adjacent to the power plant smoke stacks to evaluate potential releases from the former power plant, the sawmill, and the carbonization Facility. The well was also used to evaluate the area of FID readings encountered in the vadose zone at the location of Monitoring Wells GM-12 and GM-35.

- The boring for Monitoring Well GM-56 was completed northeast of the distillation building to evaluate potential releases from this building, the carbonization building, and FID readings encountered in the vadose zone at the location of Monitoring Wells GM-12 and GM-35.

- Soil Boring GMSB-23 addressed FID readings encountered in the vadose zone at the location of Monitoring Wells GM-12 and GM-35 and the area adjacent to the water tower.

- Soil Boring GMSB-22 evaluated the former vault for foaming agents east of Body Plant No. 1.

- The borings for Monitoring Wells GM-32, GM-40A, and GM-40B further evaluated the results of Monitoring Well GM-13.

Continuous soil samples were collected during drilling of the soil borings. The descriptions of the soil samples are included on the soil boring logs in Appendix A, and the stratigraphic columns of the soil borings are included in Appendix B. The sample descriptions indicated tar or fill material were not identified except in the soil boring completed for Monitoring Well GM-42. The fill material in Monitoring Well GM-42 consisted of some red brick and sand found to a depth of approximately 12 ft bls.

Based upon the presence of staining or FID readings observed during the drilling of the soil borings, five subsurface soil samples were collected for laboratory analysis.

In addition to activities performed for the EE/CA and RI, further investigation activities were conducted in the Smith Castings Area (SCA) to evaluate the source and extent of wood tar observed at the ground surface. Further subsurface investigation has been conducted across the FPS in conjunction with the installation of soil vapor probes for the Commercial Methane Detection (CMD) program, and in response to methane detected in subsurface soils in the vicinity of the former Delta Do-It Center. The results of these activities are discussed below.

6.4.4.1.1 SCA

In addition to the installation of five monitoring wells (GM-12, GM-35, GM-41, GM-42 and GM-56) and a soil vapor probe (GMSG-21) in 1997 and 1998; seven soil borings (GMSB-87, GMSB-89, GMSB-90, GMSB-91, GMSB-92, GMSB-93, and GMSB-94), seven soil vapor probes (GMSG-21, GMSG-65, GMSG-76, GMSG-127, GMSG-433, GMSG-434, and GMSG-436), and six test pit excavations (SCTP-1, SCTP-2, SCTP-3, SCTP-4, SCTP-5 and SCTP-6) were completed in the SCA in 2001 and 2002. Figure 6-55 shows the approximate location of the monitoring wells, soil borings, soil vapor probes and test pits.

During December 2001, ARCADIS completed seven soil borings (GMSB-87 and GMSB-89 through GMSB-94) in the SCA to delineate the extent of tar observed at the ground surface. The borings were completed to depths ranging from 15 to 16 ft bls. The locations of these soil borings are shown on Figure 6-55. Evaluation of the soil boring information indicated that the areal extent of the tar material was limited, and that the tar appeared to be confined within a concrete trough structure. Fill or waste material was observed at discreet intervals in the following borings:

- Soil Boring GMSB-87. During completion of the soil boring tar, sludge, and concrete was found from ground surface to a depth of 2 ft bls.
- Soil Boring GMSB-91. Wood particles and coal were observed from 1 to 1.5 ft bls.
- Soil Boring GMSB-94. Black sand and trace coal were observed from 4 to 8 ft bls.

The tar material encountered in Soil Boring GMSG-87 was removed by the excavation activities discussed below. FID readings above background concentrations were not identified during the drilling of these soil borings.

During January 2002, ARCADIS completed four test pit excavations at the SCA to further investigate the concrete trough structures and the potential extent of tar/waste material. The test pit investigations confirmed the presence of two concrete trough structures and that a limited quantity of tar material was confined within the concrete troughs. The location of Test Pits SCTP-1, SCTP-2, SCTP-3, and SCTP-4 are shown on Figure 6-55.

The test pit investigation activities identified a concrete trough structure running east-west across the SCA (identified as the northern trough on Figure 6-56). The concrete trough structure measured approximately 2-ft deep by 2-ft wide, with an average depth of approximately 3 to 5 ft bls. The trough generally contained soil fill, construction debris (e.g. bricks, wood pieces, etc.), and a limited amount of tar material. Following completion of the test pit excavations, approximately 15 tons of excavated material from the test pits was transported to the Allied Waste Industries, Inc. Facility in Sarona, Wisconsin for disposal. The test pit excavations were then backfilled with imported clean fill material, and restored to original grade.

In February 2002, Soil Vapor Probe GMSG-65 was installed adjacent to the Smith Castings building. This soil vapor probe was installed as part of the ongoing implementation of the CMD program. No tar, waste or fill material was observed during the installation of Soil Vapor Probe GMSG-65.

During the test pit excavation activities three tar samples were collected from the SCA: Tar Samples SCTAR-1 and SCTAR-2 were collected from the northern conveyance trough, and Tar Sample SCTE-7 was collected from a former process pipe located within the foundation of the former Distillation building (Figure 6-56). The process pipe and associated tar/waste materials were removed during excavation activities.

In July 2002, a second soil vapor probe was installed adjacent to the Smith Castings building. Soil Vapor Probe GMSG-76 was installed as part of the ongoing implementation of the CMD program (Figure 6-55). Fill material consisting of brick/concrete and rebar was observed during installation; however, no stained soil, waste, or tar was observed at this location.

Activities in 2004 included the installation of SVE Well GMSG-127 (adjacent to Monitoring Well GM-41), and removal of tar materials located adjacent to the former Power House building.

On June 1, 2004, a small quantity of tar located southeast of the former Power House building was removed. The excavation consisted of the removal of approximately 10 cubic yards of tar and soil that was located near the ground surface. The excavated material was transported off Site for disposal. Confirmation Soil Sample (Plant CS-1) was collected from the base of the excavation. Clean imported fill was backfilled into the excavation upon completion.

6.4.4.1.2 Delta Do-It/East Area

In addition to the two monitoring wells (GM-40A/B), and two soil borings (GMSB-22 and 23) installed during the EE/CA and RI, eight additional soil borings (GMSB-65, GMSB-66, GMSB-67, GMSB-68, GMSB-69, GMSB-70, GMSB-71, and GMSB-72), 14 soil vapor probes (GMSG-34, GMSG-37, GMSG-54, GMSG-73, GMSG-74, GMSG-75, GMSG-77, GMSG-79, GMSG-80, GMSG-81, GMSG-82, GMSG-83, GMSG-84, and GMSG-87), and three Geoprobe-installed soil vapor probes (GMGP-13, GMGP-14, and GMGP-15) were completed in the Delta Do-It Center/East Area. The locations of the soil borings, monitoring wells, and soil vapor probes are shown on Figure 6-54.

During 2001, focused investigations were conducted in response to methane detected in the subsurface in the vicinity of the Delta Do-It building. Thirteen soil borings (GMSB-65 through GMSB-72, GMGP-13, GMGP-14, GMGP-15, GMSG-34 and GMSG-37) were installed in the vicinity of the Delta Do-It Center. No fill material or soil staining was observed in any of these borings with the exception of Soil Boring GMSG-34, in which cinders and brick fragments were observed from ground surface to 5 ft bls. No tar or waste material was observed in any of the borings.

Soil Vapor Probe GMSG-54 was installed adjacent to the Lakeshore Engineering building that is located within the boundaries of the FPS. The soil vapor probe was installed as part of the ongoing implementation of the CMD program. Fill material consisting of concrete, brick, and glass fragments mixed with soil were observed from ground surface to 10 ft bls; however, no tar or waste material was observed during the installation of the soil vapor probe.

In July 2002, soil vapor probes were installed in the vicinity of the Delta Do-It Center, Zam's Auto Body, Great American Disposal, Northwoods Manufacturing, and Lakeshore Engineering. These probes were installed as part of the ongoing CMD program being implemented at the Site. Soil Vapor Probes GMSG-73, GMSG-74, GMSG-75, GMSG-77, GMSG-79, GMSG-80, GMSG-81, GMSG-82, GMSG-83, GMSG-84, and GMSG-87 were installed in July 2002 (Figure 6-54) in the subsurface soil adjacent to the above-referenced buildings. The soil vapor probes were installed via hand auger to 10 ft bls. No tar or waste material was observed during the installation of these probes.

6.4.4.1.3 Waste Material

Extensive investigation activities have been conducted at the FPS, with particular attention given to manufacturing areas that may have been potential sources for impacts to the soil. The lateral and vertical extent of those source areas discovered during the investigation have been delineated. Gas-phase methane was encountered in the vadose zone at some locations. Details of the gas-phase methane accumulation at the FPS are discussed in Section 6.5.

Based on the results of the soil borings and test pit excavations, a limited quantity of wood tar material was located within the FPS, primarily confined within the concrete troughs that had served as conveyance structures for waste stream material between the former carbonization building, the former distillation building, and the NE Pit. The locations of the concrete troughs that contained the wood tar material are shown on Figure 6-56.

The troughs generally contained soil fill, construction debris (e.g. bricks, wood pieces, etc.), and a limited amount of tar material. The culvert was approximately seventy-five percent full of solidified tar material.

In addition to the trough structures, a small quantity of tar was present southeast of the former Power House building, consisting of approximately 10 cubic yards of tar located near the ground surface.

In addition to the waste material, fill material was found in Monitoring Well GM-42 that consisted of some red brick and sand, found down to a depth of about 12 ft bls on the west side of the Smith Castings Building. Fill material was also encountered in Soil Vapor Probe GMSG-54 that consisted of concrete, brick, and glass fragments mixed with soil to a depth of 10 ft bls, on the west side of the Lakeshore Engineering Building (Figure 6-54). No wood tar material, sawdust, charcoal, or other waste material was observed with the fill material, or in any other area of the FPS.

As outlined later in this report, the concrete trough and culvert structures were removed including any associated wood tar or sludge material. Upon completion of this removal activity, all known waste material present within the FPS, with the exception of a portion of a trough still present beneath the Smith Castings building, has been removed.

6.4.4.2 Comparison to Part 201 Criteria

The analytical results for the waste and soil samples in the FPS were compared to the Part 201 Criteria, regardless of the applicability of the criteria or relevancy of the exposure pathway, to determine if the soil at the FPS has been affected. As previously noted, the FPS is zoned industrial. Current and future use is restricted to Industrial and Commercial II, III, and IV uses by a declaration of restrictive covenant. Therefore, the criteria used for the purpose of this evaluation are the State of Michigan Industrial/Commercial II soil standards as defined in the MDEQ RRD Operational Memorandum #1 (January 23, 2006) Part 201 Generic Cleanup Criteria and Screening Levels under the following four categories:

1. Industrial/Commercial II DC.

2. Residential and Commercial I DWPC.

3. Industrial/Commercial II SVIAIC.

4. Industrial/Commercial II Ambient Air ISVSIC.

The generic soil GSIPC is not a relevant pathway at the FPS, since it is located approximately 5,000 ft upgradient of the closest GSI, which occurs at the Menominee River.

6.4.4.2.1 Subsurface Waste Material

Three tar samples were collected from the FPS to characterize the subsurface waste material. Two of the samples were collected from the troughs and the third was collected from a pipe located in the former distillation building. The waste material represented by the tar samples has been removed from the Site, with the exception of the portion of a trough that was left in place below the Smith Castings building. Tar Sample SCTAR-2 is representative of this remaining subsurface waste material. Analytical results for this sample are shown in Table 6-45. The locations of the waste samples are shown on Figure 6-56.

6.4.4.2.1.1 DCC

The analytical results indicate there were five constituents (four VOCs and one metal) detected at concentrations above the Industrial/Commercial II DCC, only in Tar Sample SCTE-7. The constituents include the following: 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dibromoethane, xylenes (total), and lead. As noted above, the tar material representative of this sample has been removed from the Site and transported to an off-site Facility for disposal.

6.4.4.2.1.2 DWPC

The analytical results indicate there were 25 constituents present in the subsurface waste material at concentrations above the Industrial/Commercial II DWPC. These constituents included 10 VOCs, four SVOC, and 11 metals as follows: (VOCs) 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dibromoethane, acetone, benzene, ethylbenzene, n-propylbenzene, styrene, toluene, and xylenes (total); (SVOCs) 2,4-dimethylphenol/2,5-dimethylphenol, 2,6-dimethylphenol, 2-methylphenol, and naphthalene; (metals) aluminum, antimony, barium, cadmium, chromium, cobalt, iron, lead, manganese, molybdenum, and zinc. The majority of these constituents were detected only in Tar Sample SCTE-7. The tar material representative of this sample has been removed from the Site and transported to an off-site Facility for disposal.

6.4.4.2.1.3 SVIAIC

The analytical results indicate there were five VOCs present in the subsurface waste material at concentrations above the Industrial/Commercial II SVIAIC. The VOCs included 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dibromoethane, benzene, and xylenes (total), detected only in Tar Sample SCTE-7. The tar material representative of this sample has been removed from the Site and transported to an off-site Facility for disposal.

6.4.4.2.1.4 Ambient Air ISVSIC

The analytical results indicate that only one constituent, 1,2-dibromoethene was present in the subsurface waste material at a concentration above the Industrial/Commercial II ISVSIC, from only one location (SCTE-7). The tar material representative of this sample has been removed from the Site and transported to an off-site Facility for disposal.

6.4.4.2.2 Subsurface Soil

A total of six subsurface soil samples were collected from the FPS during the investigation activities. The subsurface soil samples were collected from the locations of Monitoring Wells GM-12, GM-35, GM-40B, GM-41, GM-42, and GM-56 at depths ranging from 1.5 to 50 ft bls. A summary of the results of the analyses of these subsurface soil samples collected from the FPS, along with the depth from which the sample was collected, are provided in Table 6-46.

In addition to the six subsurface soil samples discussed above, confirmation soil samples were collected for approximately every 50 ft of concrete trough excavated to verify that activities adequately removed the waste material and that the remaining soil achieved the cleanup criteria. A total of 19 confirmation subsurface soil samples were collected at the locations shown on Figure 6-56. The confirmation soil samples were not analyzed for metals.

6.4.4.2.2.1 DCC

The analytical results indicate there are no constituents present in the subsurface soil at concentrations above the Industrial/Commercial II DCC.

6.4.4.2.2.2 DWPC

The analytical results indicate four VOCs and four metals were detected in the subsurface soil at concentrations above the Industrial/Commercial II DWPC. These constituents include: 1,2,4-trimethylbenzene, toluene, trichloroethane, styrene, aluminum, iron, lead, and manganese. The VOCs were all detected only once in the 25 subsurface soil samples at a concentration above the Industrial/Commercial II DWPC. In all cases, the metals detected at concentrations above the Industrial/Commercial II DWPC were below the state default background level concentration for that constituent. This suggests that the inorganic constituent concentrations detected in the subsurface soil are naturally occurring levels representative of background conditions, and not the result of a release from one of the potential sources at the FPS.

6.4.4.2.2.3 SVIAIC

The analytical results indicate there are no constituents present in the subsurface soil at concentrations above the Industrial/Commercial II SVIAIC.

6.4.4.2.2.4 Ambient Air ISVSIC

The analytical results indicate there are no constituents present in the subsurface soil at concentrations above the Industrial/Commercial II ISVSIC.

6.4.4.3 Potential for Continuing Releases to Groundwater

All the waste material associated with wood tar or wood sludge material encountered in the FPS has been removed, with the exception of a portion of a concrete trough still present beneath the Smith Castings building. The concrete floor of the Smith Castings building acts as a physical barrier to prevent human contact or water infiltration into the concrete trough and potential waste material located within it. The surface and subsurface soils do not contain constituents at concentrations that would allow leached constituents to provide concentrations to the groundwater that would be above groundwater standards. Therefore, the FPS has no potential for any continuing releases to groundwater.

6.4.4.4 Interim Response Actions

Between April 2002 and May 2005, interim response actions were completed at the FPS. Details of the interim response actions are provided in a document prepared by ARCADIS entitled, "*FPS Interim Response Action Plan and Construction Documentation Report, Ford-Kingsford Products Facility, Court Case No. 04-1427-CE,*" dated October 12, 2007, and subsequent "*Addendum to the FPS Interim Response Action Plan and Construction Documentation Report, Ford-Kingsford Products Facility, Court Case No. 04-1427-CE,*" dated June 24, 2008. The MDEQ approved the interim response actions for the FPS in a letter dated March 25, 2008.

Waste removal and a combination of physical barrier and institutional controls/restrictive covenant were selected as the most appropriate interim response action for FPS. The remedy was selected as it achieved response action objectives, was feasible to implement, and resulted in minimal impacts to the community.

Excavation and disposal of the waste material was completed between April 2002 and September 2004. The scope of the excavation activities consisted of removal of the concrete trough structures, including a concrete culvert containing tar material which ran from the former Distillation building to the former NE Pit. A small portion of a trough beneath the Smith Castings building was left in place. Associated piping, including that portion found beneath the foundation of the former Distillation building was also removed. The depth of the excavation varied between 2 to 7 ft bgs depending on the depth of fill covering the concrete structures. The excavated material was initially loaded into roll-off containers and then transported to the Allied Waste Facility in Rice Lake, Wisconsin for disposal. For the remainder of the project, the excavated material was stockpiled in a designated staging area at the SCA, and then transferred to dump trucks for transportation to the Allied Waste Facility for disposal.

The concrete waste conveyance structure that passes beneath the Smith Castings building was left in place so as not to damage the building or interrupt business.

However, waste/tar materials from an apparent floor drain and sump located adjacent to the west wall of the southern portion of the Smith Castings building and within the footprint of the former Distillation building (Figure 6-56) were removed and disposed with the other waste material. The concrete floor of the Smith Castings building is utilized as a barrier to direct contact with any materials that may potentially remain within the structure left in place.

Following excavation, confirmation samples (SCTE-1 through SCTE-6, and SCTE-8 through SCTE-21) were collected from the base of the excavation and submitted for laboratory analysis of VOCs and SVOCs. The sample locations are shown on Figure 6-56.

Because the Site is an active manufacturing site, backfilling the excavation took place immediately following the collection of the confirmation samples. The trench was backfilled with clean imported fill to original grade and compacted in place. The Site was next graded to match pre-construction conditions. Approximately 1,250 cubic yards of clean fill material was imported for use during restoration activities.

A vapor control system (VCS) was installed at the Smith Castings building in May 2005. The VCS was installed to prevent potential accumulation of vapors beneath the building floor slab or foundations and to safely vent any vapors to the atmosphere. The VCS design included the installation of extraction points throughout the structures. The number of extraction points was determined based on the size and layout of the structure. Three extraction points were installed for the Smith Castings building. From the extraction points, the piping was routed up through the structure and exits through the roof or side of the structure and is terminated above the roofline. A 4-inch wind turbine was placed on each extraction pipe. To complete the system, the pipe penetration and any accessible cracks or openings in the lowest level of the structure were sealed.

A Restrictive Covenant was executed and recorded for the Smith Castings property. The restrictive covenant limits the use of the property to commercial or industrial, maintains the current barrier in place within the Smith Castings building, prohibits excavation or penetration through the existing barrier (except as specified in the Waste Management and Operation and Maintenance Plans), requires repair of the barrier if breeched, and prohibits the use of groundwater beneath the property. Appropriate health and safety guidelines and material handling procedures were established in the event that waste is encountered in the future. Signage listing the details of the remedy in place and the existence of property restrictions was placed inside of the Smith Castings building.

6.4.5 WBADA

The WBADA is located east of the Menominee River, bordered by private properties to the north and the east, and City of Kingsford property to the south and the west (Figure 3-2). The topography of the area is at approximately 1,090 ft msl. A resident currently owns the property where the majority of the WBADA is located.

The WBADA encompasses an area approximately 250 by 300 ft in lateral extent. Based on previous investigations and aerial photos, the area appears to have been used as a historical disposal area for domestic refuse from as early as 1931 through at least 1981. Ford ceased operations in Kingsford in 1951 and KCC/KC ceased operations in the area in 1961. The area is presently graded flat and a private residence has been built on the Site. Household wastes such as bottles, cans, grass cuttings, and appliances, as well as concrete debris, are visible protruding from the soil along the western and southern edges of the former disposal area, which forms a terrace between the top and base of the fill.

6.4.5.1 Source Delineation

Previous investigation of the WBADA consisted of activities performed by the U.S. EPA and ARCADIS. In 1995, U.S. EPA was reported to have conducted a punch bar survey on the property, although no documentation of the event has been found. In November 1997, ARCADIS completed one soil boring (GMSB-5) and three monitoring wells (GM-21, GM-22, and GM-23) along the western and northwestern edges of the former fill area. Monitoring Wells GM-21, GM-22, and GM-23 were generally screened from 5 to 15 ft bls. In June 1998, two additional wells (GM-28A and GM-28B) were completed by ARCADIS northwest of the area as a well nest adjacent to Monitoring Well GM-22. Monitoring Wells GM-28A and GM-28B were completed from 40 to 50 ft bls and 125 to 135 ft bls, respectively. In July 1998, ARCADIS completed a soil vapor probe (GMSG-103) to the east of the former fill area, in West Breen Avenue that is screened from 7 to 12 ft bls.

ARCADIS also completed field activities at the WBADA during December 2000, January 2001, March 2001, and April 2002. Property access to the main portion of the WBADA was not granted during these investigations; therefore, the activities focused on the perimeter of the WBADA and on the shallow groundwater. These field activities included the completion of 19 soil borings (GMGP-1 through GMGP-12 and GMGP-16 through GMGP-21), installation of one monitoring well (GM-76), collection of three waste samples, and collection of four groundwater samples. The soil borings were generally completed to depths between 20 and 24 ft bls. Monitoring Well GM-76 is screened from 3 to 13 ft bls.

Additional activities were again conducted by ARCADIS for the WBADA in September 2005. Ford and KPC could not obtain access to the private property that is a portion of the WBADA; therefore, the activities that were conducted at the WBADA included collection of four surface soil samples from the sides of the terrace where waste material was exposed, collection of groundwater samples from each of four existing shallow monitoring wells along the western and southern perimeter of the WBADA, and an evaluation of the cover thickness on the private residential property. This evaluation was based on the construction improvements on the property, volumes of fill required for construction, retaining wall for stabilization, and vegetative cover.

The WBADA includes an area approximately 250 by 300 ft. The topography in the area is flat with a steep slope on the western side of the area. The topographic elevations range from approximately 1,090 ft msl across the flat of the area to 1,056 ft msl at the base of the slope to the west (Figure 6-57). Results of the investigation activities at the WBADA indicate that the fill material appears to cover an area of approximately 75,000 square feet (approximately 1.7 acres), in a somewhat circular shaped pattern filling a ravine in the original topography.

The data collected from the soil borings completed in the WBADA was used to construct an isopach map of the non-native fill thickness and two geologic cross sections. The isopach map of the non-native fill thickness is shown on Figure 6-57. The locations of the geologic cross sections are shown on Figure 6-57 and the cross sections are shown on Figures 6-58 and 6-59.

The majority of the fill appears to have been placed off a westward dipping topographic slope in the natural land surface, and to some degree on the land surface at the top of the slope. The thickness of the fill material, where observed, ranges from 2 to a maximum of 21 ft at Soil Boring GMGP-3. Based on the elevation difference from the base to the top of the topographic slope on the west side of the WBADA, fill material up to approximately 35 ft in thickness could be present in the western portion of the WBADA, but this has not been verified by a soil boring due to lack of access.

However, the fill material is made up of both disturbed native material and non-native material. The disturbed native material consists of yellowish brown silt with rootlets interlaid and sometimes mixed with dark yellowish brown sand, generally fine to very fine grain with some coarse grain. The non-native fill material consists of sand or silt with cinders, glass, metal, ceramic, wood, and charcoal. Additionally, household wastes including bottles, cans, appliances, grass clippings and tree branches, and concrete debris are visible protruding from the soil along the western and southern slope of the WBADA. These items were not encountered in the areas of the soil borings. A description of the disturbed native and non-native fill material is included on the sample/core logs in Appendix A.

Non-native fill material was found only in Soil Borings GMGP-1, GMGP-2, GMGP-3, GMGP-4, and GMGP-17. The fill material identified in all the remaining soil borings consisted of only disturbed native material (i.e. sand, silt, clay). The non-native fill material occurs as discontinuous layers and generally makes up a small percent of the total fill thickness (most often less than 1-ft thick where found). The thickness and distribution of the non-native material are demonstrated in the cross sections on Figures 6-58 and 6-59, as well as in the isopach map of the non-native fill material on Figure 6-57. The thickest layer of the non-native material observed occurs in the vicinity of Soil Borings GMGP-2 and GMGP-3 (approximately 8-ft thick). In the soil borings completed, the thickness of disturbed native fill overlying the waste material ranges from approximately 3 to 12 ft.

The fill material overlies native material, which consists of silt and variable sand, ranging from very fine to fine grain, with some very coarse grain (Figure 6-58). Data from the installation of the monitoring wells indicate that the native materials underlying the disposal area consist of approximately 30 ft of silt or very fine sand. Beneath the silt is approximately 20 ft of sand and gravel, which is again underlain by over 60 ft of silt and very fine sand. Bedrock is present at a depth of approximately 250 ft bls.

The depth to groundwater at the base of the western slope of the WBADA ranges from approximately 4 to 8 ft bls, or approximately 1,050 to 1,055 ft msl. Based on the projection of the water level from Monitoring Well GM-76, the depth to groundwater from the top of the WBADA would be approximately 35 ft bls. The groundwater flow is towards the Menominee River, with a horizontal component of the hydraulic gradient to the west at 0.056 ft/ft and an upwards vertical component of the hydraulic gradient.

The construction of improvements on the residential property and healthy vegetation covering the property indicate that it is unlikely a direct contact risk exists on the private property portion of the WBADA.

6.4.5.2 Comparison to Part 201 Criteria

As part of the WBADA characterization, a comparison of the WBADA chemical data to the Part 201 criteria was made for the soil and remaining waste, regardless of the applicability of the criteria or relevancy of the exposure pathway,. The WBDA is zoned residential, therefore specific criteria used for the purpose of this evaluation are State of Michigan Residential and Commercial I soil standards as defined in the MDEQ RRD Operational Memorandum #1 (January 23, 2006) Part 201 Generic Cleanup Criteria and Screening Levels under the following categories:

- Residential and Commercial I DCC.
- Residential and Commercial I DWPC.
- Residential and Commercial I, Indoor Air SVIAIC.
- Residential and Commercial I, Ambient Air PSIC and ISVSIC.
- Residential and Commercial I Generic GSIPC.

6.4.5.2.1 Subsurface Waste Material

Three samples of the subsurface waste material were collected from the soil borings completed at the WBADA for laboratory analyses. The depth from which the subsurface waste material samples were collected ranged from 2 to 18 ft bls. A summary of the analyses of the subsurface waste material samples, along with the depth at which they were collected, is presented in Table 6-47.

The constituents detected in the subsurface waste samples collected from the soil borings at the WBADA included 10 SVOCs and 22 metals. No VOCs were detected in the subsurface waste samples. Only metals were present at concentrations that were above any of the Michigan Part 201 generic Soil Criteria. Many of the metal concentrations in the subsurface waste were similar to or below the state background metal concentration levels identified in the Michigan Part 201 Soil Criteria, representative of normal background conditions for metals.

6.4.5.2.1.1 DCC

The analytical results indicate two metals were detected at a concentration above the Residential and Commercial I DCC, as well as naturally occurring background concentrations, in the subsurface waste material. Arsenic was detected at a concentration above the DCC for soil in one sample collected from Soil Boring GMGP-2; however, this waste sample was collected at a depth of 18 ft bls, so there is no reasonable possibility of direct contact. In addition, the arsenic concentration was an estimated value from the laboratory. Lead was also detected at a concentration above the DCC for soil in one sample (GMGP-17/2-4) collected at a depth of approximately 2.6 ft bls. The Core/Sample Log for Soil Boring GMGP-17 indicates that the 2.6 ft of material overlying the waste material consists of disturbed native fill. The lead concentration was flagged by the laboratory as a sample analysis not within control limits.

6.4.5.2.1.2 DWPC

The analytical results indicate nine metals including aluminum, antimony, arsenic, barium, cobalt, iron, lead, manganese, and molybdenum were detected in the subsurface waste material at concentrations above the Residential and Commercial I DWPC. These metals were generally present in the subsurface waste samples collected from Soil Borings GMGP-2 and GMGP-17 at depths of 18 ft bls and 2 to 4 ft bls, respectively. The subsurface waste samples from Soil Boring GMGP-3 at a depth of 18 ft bls had only concentrations of aluminum, iron, and manganese present above the DWPC. Antimony, arsenic, barium, cobalt, and molybdenum were generally not detected in the groundwater samples from the WBADA, with the exception of very low or estimated concentrations that were well below Michigan Part 201 Criteria and representative of naturally occurring background concentrations for groundwater.

6.4.5.2.1.3 Indoor Air SVIAIC

The analytical results indicate there are no constituents present in the subsurface waste material at concentrations above the Residential and Commercial I Indoor Air SVIAIC.

6.4.5.2.1.4 Ambient Air ISVSIC

The analytical results indicate there are no constituents present in the subsurface waste material at concentrations above the Residential and Commercial I Ambient Air ISVSIC.

6.4.5.2.1.5 Generic GSIPC

The analytical results indicate eight metals (barium, chromium, cobalt, copper, manganese, mercury, silver, and zinc) were detected in the waste material at concentrations above the Residential and Commercial I generic GSIC for soil, as well as naturally occurring background soil concentrations. The concentration of mercury that was above the generic GSIPC was present in the subsurface waste sample collected from Soil Boring GMGP-17 at a depth of 2 to 4 ft bls. Mercury was not detected in the groundwater samples collected at the WBADA.

6.4.5.2.2 Surface Soil

On September 7, 2005, ARCADIS collected four surface soil samples (SSWB-1 through SSWB-4) from the western and southern sides of the WBADA, where municipal type wastes were exposed. The locations of the surface soil samples are shown on Figures 5-2 and 6-57. The surface soil samples consisted of disturbed native fill material that was placed at the WBADA along with waste material.

Laboratory analytical results from the surface soil samples collected from the WBADA are shown in Table 6-48. The laboratory results indicate that there was one VOC, 12 SVOCs, and 19 metals detected in the surface soil collected from the WBADA. The results for the surface soil indicate that there were only metal concentrations detected above Michigan Part 201 Residential and Commercial I Criteria.

6.4.5.2.2.1 DCC

The analytical results indicate there are no constituents present in the surface soil at concentrations above the Residential and Commercial I DCC.

6.4.5.2.2.2 DWPC

The analytical results indicate five metals (aluminum, antimony, cobalt, iron, and manganese) were found at concentrations above the Residential and Commercial I DWPC. The metal concentrations above the DWPC found in the surface soil are very similar for the four different locations sampled. Although above the respective criteria, the metal concentrations are representative of naturally occurring background conditions for the disturbed native soil due to the similarity of the concentrations from random locations across the Site, and all the concentrations are below the background metal concentration levels identified in the Michigan Part 201 Soil Criteria.

6.4.5.2.2.3 Indoor Air SVIAIC

The analytical results indicate there are no constituents present in the surface soil at concentrations above the Residential and Commercial I Indoor Air SVIAIC.

6.4.5.2.2.4 Ambient Air PSIC

The analytical results indicate there are no constituents present in the surface soil at concentrations above the Residential and Commercial I Ambient Air PSIC.

6.4.5.2.2.5 Generic GSIPC

The analytical results indicate three metals (chromium, cobalt, and manganese) were found at concentrations above the Residential and Commercial I generic GSI criteria. The metal concentrations above generic GSIPC found in the surface soil are very similar for the four different locations sampled. Although above the respective criteria, the metal concentrations are representative of background conditions for the disturbed native soil due to the similarity of the concentrations from random locations and the concentrations are below the background metal concentration levels identified in the Michigan Part 201 Soil Criteria.

6.4.5.3 Potential for Continuing Releases to Groundwater

With several exceptions, the constituent concentrations present in the waste material at the WBADA are not found in the groundwater above the Michigan Part 201 criteria. Molybdenum was present in the waste material at a concentration above the GSI and DWP for soil, but was not detected in the groundwater samples. Antimony, arsenic, barium, and cobalt, also present in the waste material at concentrations above the DWP for soil, were generally not detected in the groundwater samples, with the exception of very low or estimated concentrations that were well below all Michigan Part 201 generic criteria. City storm water discharge at the WBADA is also likely contributing to the constituent concentrations in the shallow groundwater in the area.

6.4.5.4 Recommended Actions

In October 2005, ARCADIS submitted a report to the MDEQ entitled, "*Former West Breen Avenue Disposal Area Report, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case No. 04-1427-CE, October 25, 2005*. This report recommended that no further investigation or response actions were required at the WBADA. The results of the data collected from the WBADA indicate that the extent of the waste material has been delineated and constituents present in the waste material do not impact the local residential water supply or the Menominee River. The constituents detected at a concentration above the Michigan Part 201 Residential and Commercial I generic DCC for soil (arsenic and lead) were present below at least 30 inches of native fill material. The construction improvements on the residential property and healthy vegetation cover indicate that it is unlikely a direct contact risk exists on the private property portion of the WBADA.

No methane concentrations at or above 1.25 percent by volume were encountered in the vadose zone in the vicinity of the WBADA. Groundwater at the WBADA is not used for residential purposes, and the residences in the area are supplied water for residential use from the City of Kingsford. Therefore, it is recommended that no further investigation or response action be taken at the WBADA and that the monitoring wells associated with the WBADA be abandoned in accordance with MDEQ guidelines.

6.5 Methane Occurrence, Fate, and Transport

Methane has historically been identified in the gas-phase (as opposed to the dissolved phase in groundwater) at ten primary accumulation areas throughout the Study Area. The locations of these gas-phase methane accumulations are shown on Figure 6-60. Gas-phase methane has accumulated in these areas under different conditions and these conditions will be discussed individually for each area. The gas-phase methane accumulations shown on Figure 6-60 are referred to as the Notch area, the RDA area, the FPS area, the Lodal Park area (SW Pit), the Upper Terrace/Breen Avenue area, the Emmet area, the GM-2A area, the Pyle area, the GM-82 area, and the Menominee River area. Soil vapor probes and monitoring wells have been installed in each of the areas mentioned above, as well as elsewhere throughout the Study Area. The location of the soil vapor probes and monitoring wells routinely monitored for the presence of gas-phase methane are shown on Figures 5-3 and 5-4.

Active venting programs were initiated in eight areas including the Notch area, the RDA area, the FPS area, the Lodal Park area, the Upper Terrace/Breen Avenue area, the Emmet area, the GM-2A area, and the Pyle area. In addition, passive venting programs were also undertaken at the Upper Terrace/Breen Avenue area, the Emmet area, the RDA area, and the Pyle area, as well as at the GM-82 area and the Menominee River area. The passive venting program at the Upper Terrace/ Breen Avenue, and Emmet areas consisted of a 2- to 6-week initial test period followed by extended venting of those soil vapor probes that showed continuous gas-phase methane flow. The passive venting program at the RDA lasted approximately nine months until an active venting program was pilot tested and then initiated full scale.

6.5.1 Methane Generation and Transport

With several exceptions, the source of methane in the Study Area is understood to be biodegradation of organic material in the deep groundwater system. Section 6.2.3, of this report discussed the different pathways for biodegradation of organic material in the groundwater system. Two of these pathways are fermentation and methanogenesis, and the by-product of these reactions is methane.

As discussed in Section 6.2, most of the organic constituents in the groundwater system occur at depth (below 1,000 ft msl). Thus, the degradation reactions in groundwater that result in the formation of methane also occur primarily at depth in the central and western portions of the Study Area, where most of the organic mass is present. This is the only way the concentrations of dissolved methane observed at depth can be obtained. The organic mass at depth in the groundwater system is mostly the remnant of historic releases, primarily liquids from the NE Pit. The methane generation can continue as long as there is an organic source available.

The solubility of methane in groundwater increases with pressure, so the solubility of methane in groundwater increases with depth in the water column. At the top of the water table, where the pressure is one atmosphere, methane solubility is approximately 30 mg/L. For every increase of one atmosphere in pressure (about 33 ft of water) the solubility increases by about 30 mg/L (CRC Handbook of Chemistry and Physics). The solubility of methane in groundwater at the different depths and at the groundwater temperatures found in the Study Area is presented in the graph shown on Figure 6-61. Methane concentrations up to five times the solubility at standard atmospheric pressure (one atmosphere) have been measured in deep groundwater (Table 6-49).

As the groundwater migrates towards the Menominee River, the vertical gradient changes to upward, and groundwater begins moving to the surface. As the groundwater begins to move upward, the decrease in water pressure as it moves to higher elevations causes methane, which was in the dissolved phase at deeper elevations, to off-gas. This off-gassing results in gas-phase methane that can migrate independent of groundwater flow. As shown on Figure 6-61, the majority of the gas-phase methane accumulations are located along the area where the vertical groundwater gradient changes from downward to upward.

The gas-phase methane migration is controlled by the geology of the Study Area, which contains many interbedded layers of clay, silt, and sand. Gas-phase methane can migrate along the same preferential pathways as groundwater, or it can move along the top of the preferential pathway beneath a less permeable silt or clay layer that acts as a confining layer. Since gas-phase methane is lighter than air, if a confining layer is not present, the gas-phase methane is free to migrate to the ground surface or into the Menominee River, if the migration pathway is present beneath the river.

At limited locations in the Menominee River, gas-phase methane is being released as evidenced by the bubbles observed in the river, as discussed in Section 6.2. Methane off-gassing into the river is vented to the atmosphere. In some areas, the slope of the preferential pathways in which the gas-phase methane is migrating, is away from the Menominee River (see Section 6.1.1 for a more detailed discussion of the geology).

The result is some gas-phase methane migrates back eastward from the Menominee River. Undulations in the base of the silt/clay layers, positioned at the top of the preferential pathways, can form small traps for gas-phase methane as it migrates away from the river. This mechanism has resulted in accumulations of gas-phase methane below the water table, where it is "trapped" between the groundwater and the base of the confining silt and clay layers.

Where silt/clay layers are absent or thin, gas-phase methane can migrate into shallower sand zones (preferential pathways) and continue its eventual migration into the vadose zone (the zone of unsaturated material above the groundwater table). Once in the vadose zone, silt/clay layers can trap gas-phase methane or it can continue to migrate through more permeable sand layers. The gas-phase methane may degrade naturally in the vadose zone as it continues to move vertically and never reach near surface soils, or it may reach the near surface soil and eventually vent to the atmosphere. Where the silt/clay layers are continuous, gas-phase methane cannot migrate upwards beyond the silt/clay to vent into the atmosphere.

The exceptions to the generation of methane in the deep groundwater system include the NE Pit, SW Pit (Lodal Park), and the FPS. Here lower volumes and concentrations of methane, which are not under pressure, are from the degradation of localized solid waste sources.

6.5.2 Soil Vapor Results

Much of the understanding of methane occurrence, transport, and accumulation within the Study Area is directly related to the monitoring of soil vapor probes throughout the Study Area. The soil vapor probes have been monitored with field instruments on a routine basis from the time that they were installed, as described in Section 5.10. Field monitoring includes the following parameters:

- Wellhead pressure.
- Methane, CO_2, and O_2 concentrations.
- Instantaneous flow rate when probes are under pressurized conditions.
- Groundwater levels where groundwater is present within the soil vapor probe.

The field data collected during monitoring for the soil vapor probes is included in Appendix R.

In addition to the field monitoring, soil vapor samples have been collected from several of the soil vapor probes and the SVE systems for laboratory analyses. The purpose of these analyses was to determine whether gas-phase methane, being vented at different locations within the Study Area/AOC, contained other gases not found naturally in the atmosphere. Soil vapor samples were collected from the Breen and Emmet SVE systems, and from passive vents installed at Monitoring Wells GM-24B, GM-30, and GM-100. Savannah Laboratories analyzed the soil vapor samples for VOCs. Details of the soil vapor sample collection methods were presented in Section 5.10. The results of the soil vapor sample analyses are presented in Table 6-50. VOCs were not detected above the laboratory detection limits in any of the soil vapor samples.

Soil vapor samples have also been collected for laboratory analysis from the following soil vapor probes: GM-2A, GMSG-4B, GMSG-19, GMSG-20, GMSG-300, GMSG-301 GMSG-302, GMSG-118A, GMSG-118B, and GMSG-118C. These soil vapor samples were analyzed by Isotech Laboratories Inc. for carbon monoxide, helium, hydrogen, argon, O_2, N_2, CO_2, methane, ethane, ethylene, propane, isobutane, n-butane, and hexanes (+). The only constituents that were detected include helium, argon, O_2, N_2, CO_2, and methane. Helium was detected at extremely low volumes (0.01 percent and lower). Hexanes (+) was detected only once, on August 26, 1998, at a very low concentration (0.002 percent) at Monitoring Well GM-2A during the SVE venting test

(Appendix R). According to Isotech Laboratories, constituents with molecular structures larger than hexane, if present in the soil vapor, would be reported as hexanes. Based on these analyses, the soil vapor that is vented is comprised almost entirely of natural atmospheric gases and methane.

A detailed discussion of occurrence, fate, and transport of methane for each of the ten areas of gas-phase methane accumulation are discussed below.

6.5.2.1 Notch Area

The Notch area is located at the intersection of Westwood and Woodward Avenues in the northeast portion of the Study Area. Aerial photographs indicate that the portion of the Notch area located north of Woodward Avenue became a residential area prior to 1938. The portion of the area located south of Woodward Avenue was wooded in 1938 and became residential prior to 1967.

The Notch area originally contained untrapped gas-phase methane at the surface and at depth (Figures 6-60 and 6-62). The data collected during the SVE venting program near the RDA has confirmed that the Notch area is interconnected by some means with the gas-phase methane accumulation to the southwest near the RDA. The original lateral extent and the lateral extent as of December 2007 of the gas-phase methane accumulation in this area are shown on Figure 6-62. A cross section for the Notch area, which is located on Figure 6-62, is shown on Figure 6-63.

There were a total of 11 soil vapor probes (GMSG-300 through GMSG-310) and one monitoring well (GM-60) in the Notch area. The locations of the soil vapor probes and monitoring well are shown on Figures 5-3 and 6-62. The results of the soil vapor monitoring for the Notch area are included in Appendix R.

6.5.2.1.1 Methane Occurrence and Conditions

All of the soil vapor probes in the Notch area are 10-ft deep, with the exceptions of Monitoring Well GM-60 and Soil Vapor Probes GMSG-300 and GMSG-301 that are 107, 25 and 86 ft in depth, respectively. Gas-phase methane was found in Soil Vapor Probes GM-60, GMSG-300, GMSG-301, GMSG-302, GMSG-304, and GMSG-309. In the remaining soil vapor probes, GMSG-303, GMSG-305, GMSG-306, GMSG-307, GMSG-308, and GMSG-310. Methane was not detected with the Landtec monitoring instrument in the remaining soil vapor probes. The Landtec instrument measures methane concentrations as low as 0.1 percent. The results of the Notch area soil vapor monitoring are included in Appendix R.

Methane concentrations at the Notch area are generally greater at depth (Monitoring Wells GM-60 and GM-301) than near the surface. Methane concentrations as high as 71 percent have been observed at Monitoring Well GM-60, and methane concentrations at Soil Vapor Probe GM-301 generally range from 20 to 50 percent. The interval where Monitoring Well GM-60 is screened is partly or completely unsaturated, dependent upon seasonal variations in the groundwater level.

Methane concentrations at Soil Vapor Probe GMSG-300, an intermediate depth probe, and the near surface soil vapor probes are generally less than 5 percent. Additionally, the gas-phase methane observed in the Notch area is not present under significant pressure (i.e., pressures typically less than 1 or 2 inches of water column), so the methane does not readily generate a gas flow from the soil vapor probes. This suggests the gas-phase methane in the shallow subsurface is not trapped by silt/clay layers; however, the gas-phase methane at depth is trapped to some degree by silt/clay layers.

The significance of unsaturated silt/clay layers that impede the vertical migration of gas-phase methane is that the layers also impede the transfer of atmospheric pressure changes to deeper more permeable zones, where gas-phase methane is present. Soil vapor concentrations from soil vapor probes used to monitor the deeper zones (overlain by unsaturated silt/clay layers) are affected by changes in barometric pressure, because when opened the soil vapor probes serve as conduits for the transfer of soil gas or air in response to atmospheric changes. For example, if a low-pressure front moves through the Study Area, the deep soil vapor probes off-gas methane and other gases, because the vadose zone at depth is at a higher pressure than atmospheric pressure. This pressure difference causes soil vapors to move upward through the soil vapor probe, when it is open.

Conversely, a high-pressure front results in reversed conditions for the deep soil vapor probes; under high-pressure conditions atmospheric air would move down the probe and into the deep vadose zone, creating a measurable vacuum. When soil vapor probes are off-gassing, generally the methane concentrations are higher and O_2 concentrations are lower than when the soil vapor probes are under vacuum conditions. This phenomenon explains the variability in soil vapor readings from deeper soil vapor probes such as Monitoring Well GM-60 and Soil Vapor Probe GMSG-301 (Appendix R).

6.5.2.1.2 SVE Test Results

Two SVE tests were conducted at the Notch area. A 24-hour SVE test was completed on Soil Gas Probe GMSG-301 and on Monitoring Well GM-60, during May and June 2000 using a mobile SVE system. During the SVE test on Soil Gas Probe GMSG-301, the methane concentration in the SVE system influent increased from an initial concentration of 9.0 percent to a final concentration of 23.9 percent. The CO_2 concentration of the influent increased from 2.0 to 4.2 percent, while the O_2 concentration decreased from 12.1 to 4.1 percent.

During the SVE test on Monitoring Well GM-60, the methane concentration of the influent remained relatively stable, ranging from 59.1 to 66.8 percent. The CO_2 concentration of the influent increased from 0.1 to 1.1 percent, while the O_2 concentrations remained relatively stable, ranging from 0.0 to 1.4 percent.

Based on the results of the SVE tests and the continued presence of gas-phase methane in the subsurface, an active SVE venting program was conducted from January to November 2001 for the Notch area.

The Notch area SVE system produced the maximum amount of methane of 2,636 lbs in February 2001, followed by 1,466 lbs in March 2001. The methane then declined sharply after the initial production. The Notch SVE system was shut down on November 12, 2001, when the methane concentration was near zero percent by volume. A total of 6,700 lbs of methane were removed from the Notch area by the venting activities conducted there. Since active methane venting was initiated at the RDA, methane has not reoccurred in the Notch area. Data on the methane removal for the Notch area is included in Appendix R, and additional details are presented in several methane venting reports submitted by ARCADIS to the MDEQ (July 3, 2002 and December 18, 2003) and the Methane IRAP (October 31, 2007).

6.5.2.1.3 Origin and Transport of Methane

Although the lateral extent of gas-phase methane at the surface in the Notch area is limited to less than 1 acre, the data suggests that a subsurface pathway exists at depth which connects the gas-phase methane present in the deeper zones of the Notch area with the area near the RDA, located to the southwest. The Notch area is located at higher elevations than the area to the southwest, and groundwater levels in the Notch area are at or near bedrock (measured in Monitoring Well GM-60).

One groundwater sample was collected from Monitoring Well GM-60 and analyzed for VOCs and SVOCs. No organic constituents were detected in the groundwater. This groundwater analytical data collected from Monitoring Well GM-60 and from nearby monitoring wells illustrate that gas-phase methane found at the Notch area is not being generated by biodegradation of organic material in groundwater immediately beneath the Notch area, but is being transported into the Notch area from areas farther south and southwest.

6.5.2.2 RDA

Gas-phase methane in the subsurface near the RDA was first encountered in July 1998 during investigation of the former disposal area. The gas-phase methane is trapped at a depth of approximately 60 ft bls beneath an unsaturated silt/clay layer. The historical lateral extent of the gas-phase methane accumulation near the RDA was approximately 39 acres in an area roughly bounded by Woodward Avenue to the north, Westwood Avenue to the east, a residential development to the south, and a north-south line parallel to the elementary school to the west (Figures 6-60 and 6-62). The original lateral extent and lateral extent as of December 2007 of the gas-phase methane accumulation in this area are shown on Figure 6-62. Two cross sections for the RDA are shown on Figures 6-63 and 6-64 and located on Figure 6-62. The soil vapor monitoring results are provided in Appendix R.

The following monitoring wells have/had open screens above the water table and are/were used as soil vapor probes to monitor and sample soil vapor within the vadose zone: GM-30, GM-43, GM-44, GM-45, GM-46, GM-47, GM-48, GM-55, GM-57, and GM-58. Monitoring Wells GM-49, GM-51, and GM-54 were also located in this area, but each had a well screen completed below the groundwater table (i.e., submerged screens). Therefore, these monitoring wells were not suitable for monitoring soil vapor. However, field measurements of the air present within the well casing of the submerged screen monitoring wells can provide vapor concentrations representative of diffusion of dissolved methane from the groundwater. Monitoring Wells GM-49, GM-51, and GM-54 have been abandoned as they were no longer used for monitoring gas-phase methane near the RDA. Investigation data indicates that gas-phase methane in this area was the source of and associated with the gas-phase methane found at shallower depths in the Notch area to the north-northeast.

6.5.2.2.1 Methane Occurrence and Conditions

Gas-phase methane has been detected in all of the soil vapor probes near the RDA. Field measurements from the soil vapor probes in this area have ranged from 0 to 100 percent methane by volume, 0 to approximately 21 percent O_2 (natural atmospheric concentration), and 0 to approximately 6 percent CO_2. The soil vapor pressures at several monitoring wells were high enough to generate a natural flow out of the monitoring well, if left uncapped. However, like the deep monitoring wells and soil vapor probes in the Notch area discussed above, variations in well head pressure and the concentrations of O_2 and methane could be related to fluctuations in the barometric pressure.

A detailed examination of barometric pressure fluctuations over a 1-week time frame and the resulting positive or negative pressure condition created in the vadose zone, as measured at Monitoring Wells GM-30 and GM-43, is shown on Figures 6-65 through 6-68. The absolute barometric pressure is shown, along with the corresponding wellhead pressure at Monitoring Wells GM-30 and GM-43, respectively. The net change in barometric pressure is plotted against the observed pressure at Monitoring Wells GM-30 and GM-43, on Figures 6-67 and 6-68, respectively. As shown in these two figures, a barometric pressure change greater than 0.2 inches of water column will result in changing the pressure condition between positive and negative in the monitoring well, depending on the direction of the barometric pressure change. The barometric pressure at the time of each of the soil vapor measurements from the RDA is included in Appendix R.

6.5.2.2.2 Passive Venting Results

In December 1998, a passive venting program was conducted in the area near the RDA using Monitoring Wells GM-30, GM-43, GM-45, GM-46, and GM-48 as passive vents. During barometric lows, the monitoring wells would vent gas-phase methane to the atmosphere, but during barometric highs atmospheric gas would move down the monitoring well casings into the vadose zone. Because of this flow reversal through the monitoring well casings, the amount of methane mass that was vented from the vadose zone declined with time and the radius of influence around each monitoring well was limited (Appendix R).

6.5.2.2.3 SVE Test Results

In November 1998, several 2-hour pilot tests were conducted at four monitoring wells (GM-43, GM-45, GM-47, and GM-48). The purpose of the pilot tests was to determine the radius of influence of the probes selected for a larger scale SVE test. All four of these monitoring wells provided a substantial radius of influence of greater than 200 ft. The data collected from the 2-hour pilot tests is provided in Appendix R.

In August 1999, the passive venting program at the area near the RDA was terminated, and a SVE test was undertaken. A mobile SVE trailer was used to extract soil vapor from two extraction points, Monitoring Wells GM-30 and GM-46. Details of the SVE test were described in Section 5.19.

Initially, Monitoring Wells GM-30, GM-46, the SVE system influent, and the SVE system effluent were monitored along with the following monitoring wells: GM-43, GM-44, GM-45, GM-47, GM-48, GM-49, GM-51, GM-54, and GM-55. During the pilot test, Monitoring Wells GM-57 and GM-58 were added to the monitoring points, as the vacuum radius of influence appeared to extend to these locations.

During the SVE test, the methane concentrations at all of the monitoring points declined to 0 percent methane by volume, except for the monitoring wells with screens submerged below the groundwater table and Monitoring Well GM-58. This was expected because the monitoring wells (except for Monitoring Well GM-58) were within the vacuum influence of the SVE system. During the SVE test at the RDA, the monitoring wells were not opened to the atmosphere; therefore dilution of the soil vapors from the atmosphere through these monitoring wells would not have been possible. Methane concentrations at the extraction wells were initially 100 percent, when the SVE test started on August 4, 1999. When the pilot test was concluded on September 2, 1999, the methane concentration had steadily decreased to approximately 80 percent.

The flow rate for the SVE system varied between 60 and 110 cfm, and averaged approximately 80 cfm. The SVE test also showed a radius of influence greater than 400 ft, attesting to the integrity of the overlying silt/clay layer. During the pilot test, approximately 140,000 lbs of methane were extracted and vented to the atmosphere. The SVE test was concluded before background methane concentrations or asymptotic methane conditions were reached. Based on the decrease in methane concentrations observed at the extraction wells, from 100 to 80 percent in one month, the gas-phase methane present near the RDA is not generated at a rate as fast as it is removed by the extraction process and requires a longer period of time to accumulate.

During May 2000, two additional SVE tests were conducted in the area near the RDA. A 24-hour SVE test was completed on Monitoring Well GM-57 and on Monitoring Well

GM-58. The monitoring data for these SVE tests are included with the soil vapor monitoring data in Appendix R.

During the 24-hour SVE test on Monitoring Well GM-57, the methane concentration of the influent increased from an initial reading of 0.0 percent to a final reading of 33.5 percent. The CO_2 concentration of the influent remained relatively steady, ranging from 0.0 to 0.3 percent, while the O_2 concentration decreased from an initial 20.0 to 11.8 percent.

During the 24-hour SVE test on Monitoring Well GM-58, the methane concentration of the influent increased from an initial reading of 36.7 percent to a final reading of 46.5 percent. The CO_2 concentration of the influent remained relatively steady, ranging from 0.0 to 0.4 percent, while the O_2 concentration decreased from 10.6 to 7.1 percent.

6.5.2.2.4 SVE System Performance

After the SVE tests were completed, an active SVE system with a flare unit was installed near the RDA and operated to remove gas-phase methane trapped under the silt/clay layer, from July 2000 to October 2002, when the flare was deactivated as it was no longer necessary due to the decreased methane concentration. Details of the RDA SVE system were discussed in Section 5.20. In July 2004, seven SVE wells, GM-30A, GM-43A, GM-44A, GM-45A, GM-47A, GMSG-137, and GMSG-138, were installed to replace extraction wells that were no longer efficiently extracting due to their locations or plugged screens. The RDA SVE system is currently connected to and extracting from these seven wells.

The RDA SVE system produced the maximum amount of methane of 128,211 lbs in August 2000, followed by 82,733 lbs in October 2000. The system methane production has declined steadily throughout its use. As of December 2007, the RDA SVE system was producing approximately 5,750 lbs of methane per month and had removed approximately 1.4 million lbs of methane.

Originally, the removal rate was significantly above the gas-phase methane generation rate for this area, as indicated by an overall decline in the methane concentration in the RDA SVE system influent through 2003. The removal rate of approximately 5,000 lbs per month as of December 2007 may be close to the gas-phase methane generation rate for the RDA area. Data on the methane removal for the RDA area is included in Appendix R and additional details are presented in several methane venting reports submitted by ARCADIS to the MDEQ (July 3, 2002 and December 19, 2003), the

Methane IRAP (October 31, 2007), and progress update reports submitted quarterly to the MDEQ since April 2005.

6.5.2.2.5 Origin and Transport of Methane

The data collected prior to and during the SVE tests near the RDA were evaluated to determine the origin of the gas-phase methane found in the vadose zone in this area. Disposal practices at the nearby RDA are not considered a historic or continuing source of the gas-phase methane. This is because little gas-phase methane was found within the RDA waste/fill material and the RDA is not considered a source of organic material found in the deep groundwater system. Also, the depth of the gas-phase methane found in the area near the RDA, which is 60 ft bls or greater, is much deeper than the base of the RDA waste/fill material (approximately 25 ft bls). The gas-phase methane found near the RDA is separated from the RDA waste/fill material by a silt/clay barrier approximately 50 ft in thickness.

Biodegradation of organic material in the shallow groundwater that could produce methane as a by-product, is also not considered the source of gas-phase methane found near the RDA, since shallow groundwater contains only very low levels of organic material. VOCs were generally not detected in the groundwater samples collected from the shallow monitoring wells (Monitoring Wells GM-30, GM-49, GM-54, GM-55, GM-57 and GM-58). Only two SVOCs, 2,4-dimethylphenol and bis(2-ethtlhexyl)phthalate, were detected in the groundwater collected from three of the shallow monitoring wells (Monitoring Well GM-5S 2,4-dimethylphenol at 13 µg/L estimated; Monitoring Wells GM-30 and GM-54 bis(2-ethtlhexyl)phthalate at 5.6 and 9.6 µg/L, respectively). Bis(2-ethtlhexyl)phthalate is a common component of plastics and is frequently detected in environmental samples as the result of field investigation activities or laboratory procedures. Alcohols were detected in several of the groundwater samples collected from the monitoring wells at the RDA (Monitoring Wells GM-30, GM-54, and GM-55); however, subsequent groundwater samples collected from two of the same wells (Monitoring Wells GM-30 and GM-54) detected only n-butanol in the groundwater at concentrations estimated by the laboratory, suggesting that the initial alcohol groundwater detections are questionable.

The principal methanogenic source for the methane in the groundwater is the organic material in the deep groundwater beneath and to the east of the RDA. The groundwater chemical data and the venting data indicate the origin of the gas-phase methane in the area near the RDA is attributed to off-gassing from dissolved methane contained in the deep groundwater system. The organic material in the deep groundwater system appears to be the result of historic disposal practices upgradient of the RDA (notably at the NE Pit) and not the historic disposal practices at the RDA.

The RDA is near the Menominee River, in an area where the vertical groundwater flow is upward. Dissolved methane has been detected in deep groundwater samples collected from Monitoring Well GM-6 (25.2 to 64.8 mg/L) at levels that would off-gas due to decreasing pressure as groundwater moves upward. Therefore, off-gassing of methane from the groundwater would be expected, and serves as the source of the gas-phase methane found near the RDA.

6.5.2.3 FPS Area

The FPS area is located along the east side of Balsam Street and north of Breitung Avenue in the north-central portion of the Study Area (Figures 6-60 and 6-69).

Methane gas was first encountered at the FPS in October 1997 during the drilling of Monitoring Well GM-12. The methane gas, present at a depth of approximately 20 to 45 ft bls in medium to very fine grained sand, was confirmed during the drilling of Monitoring Well GM-41 in August 1998. Monitoring Well GM-41 is located approximately 300 ft east of Monitoring Well GM-12. The historical lateral extent of the gas-phase methane in this area of the FPS (designated as GM-41) was approximately 500 ft long by 200 ft wide in an elliptical shape surrounding Monitoring Wells GM-35 and GM-41. The original lateral extent and lateral extent as of December 2007 of the gas-phase methane accumulation in this area are shown on Figure 6-69. A cross section through the FPS area is shown on Figure 6-70 and located on Figure 6-69.

In March 2001, during an investigation conducted by the Michigan Consolidated Gas Company (MichCon) at the Delta Do-It Center, low concentrations of gas-phase methane were also encountered in the soil in the vadose zone (above the water table) in a small area on the west side of the building. The historical lateral extent of the gas-phase methane in this area of the FPS (designated as GMSG-37 or Delta Do-It) was a circular-shaped area approximately 100 ft in diameter at the southwestern corner of the former Delta Do-It building (Figure 6-69).

As a part of the initial RI investigations at the FPS, completed from September 1997 through August 1998, two soil borings, four monitoring wells, and one soil vapor probe have been installed in the vicinity of the FPS. These include Monitoring Wells GM-12, GM-35, GM-40A, GM-40B, and GM-41, Soil Borings GMSB-22 and GMSB-23, and

Soil Vapor Probe GMSG-21. The locations of these monitoring wells and soil vapor probes are shown on Figure 6-69.

In March 31, 2001, three shallow soil borings (GMGP-13, GMGP-14, and GMGP-15), and one soil vapor probe (GMSG-34) were advanced to investigate the methane discovered by MichCon near the entrance to the Delta Do-It Center. To further determine the vertical extent of subsurface methane, nine additional soil borings (Soil Borings GMSB-65 through GMSB-72, and GMSG-37) were completed to greater depths at the Delta Do-It Center in June 2001. During December 2001, eight shallow soil borings (GMSB-88 through 94) were completed to approximately 15 ft bls as part of investigation activities at the Smith Castings property.

In April 2004, one soil vapor extraction well was installed adjacent to Monitoring Well GM-41 to more efficiently extract gas-phase methane from the subsurface in that area. More recently, 19 shallow soil vapor probes (completed to approximately (5 to 10 ft bls) have been installed adjacent to many of the buildings at the FPS as part of the CMD Program.

6.5.2.3.1 Methane Occurrence and Conditions

6.5.2.3.1.1 GM-41 Area

The extent of the methane gas originally found in the GM-41 area appears to have covered an elliptical area, approximately 500 ft long by 200 ft wide and oriented in an east-west direction, surrounding Monitoring Wells GM-35 and GM-41 (Figure 6-69). Methane concentrations measured during 1998, prior to methane venting, were the highest recorded for the GM-41 area. Original methane concentrations within the GM-41 area ranged from 5.2 percent by volume in Monitoring Well GM-35 to 57.5 percent by volume in Monitoring Well GM-41. The methane distribution shows that the highest concentrations were present in the eastern side of the methane accumulation near Monitoring Well GM-41.

The distribution of the methane gas appears to have been controlled by the porosity of the sand and methane degradation/dispersion. There is no silt layer present at the GM-41 area to form a confining structural trap, and the methane gas is not under pressure. However, a layer of very fine to fine grain silty sand is present starting at approximately 13 ft bls, which may restrict the upward movement of methane gas. Based on FID instrument readings from shallower depths in the soil borings and monitoring wells, the methane gas does not appear to be present within 10 ft of the ground surface near Monitoring Wells GM-35 and GM-41. The distribution of the original methane gas accumulation suggests that the origin of the methane gas may be to the eastern side, near Monitoring Well GM-41. The CO_2 concentrations appear fairly consistent throughout the GM-41 area, ranging from approximately 6 to 9 percent by volume.

The original methane gas distribution to the south of the GM-41 area was defined by the absence of any FID readings in Soil Borings GMSB-65, GMSB-66, GMSB-67, and GMSB-68 (Figure 6-69). In Monitoring Well GM-42, located approximately 300 ft north of Soil Vapor Probe GMSG-21, there were no FID readings above background concentrations in the vadose zone sand down to 35 ft bls. There is also no indication of methane gas in seven soil borings completed on the east side of the Smith Castings building (Soil Borings GMSB-87 and GMSB-89 through GMSB-94) or in Monitoring Well GM-56. In Soil Boring GMSB-23, located east of Monitoring Well GM-41, there was no indication of methane gas. In addition, no methane gas has been found in the soil vapor probes installed adjacent to the buildings in the area of the FPS (Figure 6-69).

6.5.2.3.1.2 GMSG-37 Area

The results of the punch bar survey conducted by MichCon indicated the presence of methane in the shallow subsurface in a small area at the southwestern corner of the Delta Do-It Center (Figure 6-69). During the completion of the direct push soil borings, organic vapors above natural background levels were detected in only the soil boring that was completed as Soil Vapor Probe GMSG-34. Organic vapor levels detected in Soil Boring GMSG-34 ranged from 0 (0 to 4 ft bls) to 3.6 percent (8 to 12 ft bls) methane by volume. During the drilling of the remaining soil borings, organic vapors were detected in only the soil boring for Soil Vapor Probe GMSG-37. The organic vapor levels detected ranged from 0.015 percent methane by volume at a depth interval of 0 to 2 ft bls to 0.15 percent methane by volume at a depth interval of 36 to 38 ft bls.

The methane gas in Soil Vapor Probe GMSG-34 was initially measured at a concentration of 2.6 percent methane by volume. Continued monitoring of Soil Vapor Probe GMSG-34 indicated the presence of methane at concentrations ranging from 0.6 to 2.6 percent methane by volume. Methane gas concentrations measured in Soil Vapor Probe GMSG-37 prior to the SVE pilot test were 3.8 percent by volume.

The results of the drilling activities suggested that the methane in the vadose zone at the Delta Do-It Center was limited in extent and was confined to the southwest area of the property. Based on the punch bars and soil borings, the methane was present in an area approximately 100 ft in diameter. The methane was encountered to a depth of approximately 40 ft at only one location, Soil Vapor Probe GMSG-37. The absence of methane in the soil borings completed along the north side of the Delta Do-It Center suggest that the methane accumulation is unrelated to the methane previously found north of the Delta Do-It Center (in Monitoring Well GM-41), and is isolated in extent. Groundwater sampling conducted on several monitoring wells in the area of the Delta Do-It Center as a part of other site investigations shows that the shallow groundwater in the area does not contain methane or compounds capable of producing methane.

6.5.2.3.2 SVE Performance

6.5.2.3.2.1 GM-41 Area

During July 2000, a 7-day SVE test was completed on Monitoring Well GM-41 to monitor the decrease of methane concentrations in the area and the subsequent rebound of methane following the test. The purpose of the pilot test was to provide a rough estimate of the amount of methane in the area and to evaluate if it could be removed. Monitoring Well GM-41 is located approximately 200 ft north of the Delta Do-It Center, east of Monitoring Wells GM-35 and GM-12, and north-northeast of Soil Vapor Probe GMSG-34 (Figure 2), and is screened from 40 to 50 ft bls. During the SVE test on Monitoring Well GM-41, the methane concentration from the SVE system influent decreased from the initial reading of 23.6 percent methane by volume to a final reading of 0.5 percent methane by volume. The CO_2 concentration of the SVE influent remained steady at 7.0 percent CO_2 by volume, and the O_2 concentration slowly increased from 0 to 5.7 percent O_2 by volume. After completion of the SVE test at Monitoring Well GM-41, the methane concentrations in the well rebounded to 24.5 percent methane by volume by October 2000.

Two 36-hour SVE tests were completed on Monitoring Well GM-35 during September and October 2000. Monitoring Well GM-35, located approximately 150 ft north of the Delta Do-It Center, adjacent to Monitoring Well GM-12, west of Monitoring Well GM-41, and north of Soil Vapor Probe GMSG-34 (Figure 2), is screened from 40 to 50 ft bls. The methane readings from the SVE system influent at Monitoring Well GM-35 increased from 2.5 percent methane by volume at the start of the first SVE test to 4.0 percent methane by volume at the end of the SVE test. By the time the second SVE test was initiated, the methane concentration at Monitoring Well GM-35 had decreased to 2.9 percent methane by volume. During the second 36-hour SVE test, the methane readings remained relatively consistent, and were 2.7 percent methane by volume at the conclusion of the test. The CO_2 and O_2 readings remained stable at approximately 7.0 percent CO_2 by volume and 0.0 percent O_2 by volume during both of the SVE tests.

On October 28, 2003, SVE activities were again initiated at Monitoring Well GM-35, with an initial methane concentration of 1.9 percent by volume. On November 7, 2003, the portable SVE system was shut down at Monitoring Well GM-35 as the methane concentration had been reduced to 0.6 percent by volume. The SVE system was subsequently relocated to Monitoring Well GM-41 and extraction activities were initiated on November 10, 2003, with an initial methane concentration of 36.5 percent by volume and O_2 concentration of 0 percent by volume. The SVE activities were terminated on December 26, 2003 when the methane concentration reached sustainable low levels averaging approximately 0.4 percent by volume and the O_2 concentration increased to 12.5 percent by volume.

Weekly monitoring at Monitoring Wells GM-41 and GM-35 was then initiated to assess potential methane rebound in the GM-41 area. On March 19, 2004, the SVE activities were restarted on Monitoring Well GM-41, as the concentrations of methane in Monitoring Wells GM-41 and GM-35 had increased to 12.6 and 0.2 percent by volume, respectively. SVE activities continued until March 29, 2004 when the concentration of methane in Monitoring Wells GM-41 and GM-35 was 0.4 and 0 percent by volume, respectively. The O_2 concentration was 13.3 percent by volume in Monitoring Well GM-41, and 19.5 percent by volume in Monitoring Well GM-35.

SVE activities were initiated on Soil Vapor Probe GMSG-127 to test the effectiveness of the recently installed extraction point from April 22 through 28, 2004. Methane concentrations remained at 0 percent by volume at Monitoring Wells GM-41 and GM-35, and O_2 concentrations were 21.3 and 21.4 percent by volume, respectively. Initial concentrations at Soil Vapor Probe GMSG-127 were 1.9 percent methane by volume and 8.7 percent O_2 by volume. Weekly monitoring in the GM-41 area was completed following termination of the SVE activities.

On September 28, 2004, SVE activities were restarted on Soil Vapor Probe GMSG-127, and are currently ongoing. At start-up, the methane concentration in Monitoring Well GM-41 was 26.4 percent by volume and the concentration in Monitoring Well GM-35 remained at 0 percent by volume. In December 2004, a non-mobile SVE system was constructed to continue the venting activities in the GM-41 area. Details of the GM-41 SVE system were discussed in Section 5.20. As of December 31, 2007, Soil Vapor Probe GMSG-127 (connected to the GM-41 SVE system) had a methane concentration of 0.14 percent by volume and an O_2 concentration of 18.8 percent by volume.

The GM-41 SVE system produced the maximum methane of 3,366 lbs in November 2005, with the next highest removal of 2,610 lbs in May 2004. The SVE system steadily produced methane between 100 and 200 lbs per month with the exception of the May 2004 and November 2005 spikes. Through December 2007, the GMSG-41 SVE system (using GMGS-41 and then GMSG-127) has produced approximately 13,790 lbs of methane. The averaged monthly methane production for 2007 of approximately 140 lbs likely represent the current methane generation rate at this location. Data on the methane removal for the FPS area is included in Appendix R and additional details are presented in several methane venting reports submitted by ARCADIS to the MDEQ (July 3, 2002 and December 18, 2003), the Methane IRAP (October 31,2007), and progress update reports submitted quarterly to the MDEQ since April 2005.

6.5.2.3.2.2 GMSG-37 Area

Due to the presence of methane within Soil Vapor Probe GMSG-34 (adjacent to Soil Vapor Probe GMSG-37), a short-term SVE test was conducted at this location to determine if the methane was limited in volume and could be removed by short-term venting. Based on the results of the test on Soil Vapor Probe GMSG-34, a longer-term SVE test was conducted on Soil Vapor Probe GMSG-37.

On May 6, 2001, an 8-hour SVE test was completed on Soil Vapor Probe GMSG-34 (screened from 3 to 8 ft bls). At the beginning of the SVE test, the methane concentration in the system influent was 1.7 percent methane by volume. At the conclusion of the 8-hour test, the methane concentration from the influent air had increased to 2.7 percent methane by volume. The CO_2 and O_2 levels from the SVE system influent remained relatively constant at approximately 11.0 percent CO_2 and approximately 3.0 percent O_2 by volume.

In order to decrease the methane concentration present at the Delta Do-It Center, a longer-term (1 month) SVE test was conducted on Soil Vapor Probe GMSG-37 from July 10 to August 10, 2001. Methane concentrations in the SVE system influent decreased from 3.8 percent methane by volume at the start of the test to 0 percent methane by volume at the end of the test. The CO_2 readings also decreased from approximately 12.5 percent by volume at the start of the test to 1.5 percent by volume at the end of the test, and the O_2 readings increased from approximately 1.5 percent by volume at the beginning of the test to 18 percent by volume at the end of the test.

Periodically, a mobile SVE system is connected to Soil Vapor Probe GMSG-37 if the concentration of methane rebounds above 1.25 percent by volume (on average, at a frequency of once every 1 to 1.5 years). In general, the SVE system is operated for approximately 6 months during the periodic events.

The GMSG-37 SVE system produced the maximum amount of methane of 1,926 lbs in July 2001, followed by 520 lbs in July 2002. The system had several short, quickly declining spikes in methane production partly related to the amount of time the system operated. In August 2006, the SVE system was producing about 4.6 lbs of methane per month. Through December 2007, the SVE system at Soil Vapor Probe GMSG-37 has produced approximately 4,800 lbs of methane and was currently shut-in with no gas-phase methane being found at this location. Data on the methane removal for the FPS area is included in Appendix R and additional details are presented in several methane venting reports submitted to the MDEQ by ARCADIS (July 3, 2002, December 18, 2003), the Methane IRAP (October 31, 2007), and progress update reports submitted quarterly to the MDEQ since April 2005.

6.5.2.3.3 Origin and Transport of Methane

Groundwater samples collected from the shallow monitoring wells at the FPS area did not contain detectable concentrations of dissolved methane, with the exception of Monitoring Well GM-41. The concentration of methane in the groundwater collected from Monitoring Well GM-41 was 8 mg/L, which is well below the saturation point of methane in groundwater. This indicates that the shallow groundwater at the FPS area is not the likely source of the gas-phase methane observed in the vadose zone. Consequently, it is believed that the gas-phase methane at the FPS area had accumulated over a period of time, due to migration from deeper depths from impacted groundwater and or soil.

6.5.2.4 Lodal Park Area

The Lodal Park area is located north of Breitung Avenue in the central portion of the Study Area/AOC (Figures 6-60 and 6-71). Gas-phase methane in the Lodal Park area was first discovered in May 1997 during investigation of the former SW Pit, and was further delineated in June 1998 and May 2003. Aerial photographs and historic records indicate that a glacial kettle located in the northern part of the park, referred to as the former SW Pit, was used for historical disposal from the 1920s to approximately 1981. Wood pieces, wood sawdust, wood bark chips, and charcoal were reportedly disposed along with industrial waste and wastewater overflow.

The historical lateral extent of the gas-phase methane accumulation at the Lodal Park area was a somewhat circular-shaped area of approximately 20 acres. Currently, the gas-phase methane is found in the northern portion of the park in waste material within the former SW Pit and in the adjacent shallow vadose zone soils and in a separate area in the south-central portion of the park at SVE Wells GMSG-96/96A. The original lateral extent and lateral extent as of December 2007 of the gas-phase methane accumulation in this area are shown on Figure 6-69. A cross section through the Lodal Park area is shown on Figure 6-72 and located on Figure 6-71.

Ten soil vapor probes have been installed to monitor soil vapor conditions (GMSG-14, GMSG-15, and GMSG-16) and to extract shallow gas-phase methane (GMSG-29, GMSG-30, GMSG-31, GMSG-32, GMSG-33, GMSG-96, and GMSG-96A) as shown on Figure 6-71. The results of the soil vapor monitoring for the Lodal Park area are included in Appendix R.

6.5.2.4.1 Methane Occurrence and Conditions

The soil vapor probes in the Lodal Park area are completed to a depth of between 15 to 20 ft bls, which corresponds to the highest FID reading observed during the drilling of the soil borings for the probes. Based on soil conditions observed during the drilling of the soil vapor probes, gas-phase methane is absent within the upper 10 ft of soil, except for background methane concentrations below 10 ppm.

Methane concentrations at Soil Vapor Probe GMSG-14 generally ranged from 5 to 7 percent, O_2 concentrations range from 0 to 15 percent, and CO_2 concentrations generally range from 10 to 15 percent prior to venting activities. Methane concentrations at Soil Vapor Probe GMSG-15 range from 0 to 45 percent, O_2 concentrations range from 0 to 20 percent, and CO_2 concentrations range from 0 to 50 percent. Methane concentrations at Soil Vapor Probe GMSG-16 range from 0 to 10 percent, O_2 concentrations generally range from 0 to 1 percent, CO_2 concentrations generally range from 20 to 30 percent. The gas-phase methane observed in Lodal Park is not present under significant pressure (i.e., greater than 1 or 2 inches water column), so it does not readily generate a flow from the soil vapor probes.

6.5.2.4.2 SVE Test Results

Five SVE tests were conducted at the Lodal Park area. A 24-hour SVE test was completed on Soil Vapor Probes GMSG-29 and GMSG-30 during June 2000, and on Soil Vapor Probes GMSG-31, GMSG-32, and GMSG-33 during July 2000. The monitoring results for the SVE tests are included with the soil vapor monitoring data in Appendix O***.***

During the SVE test on Soil Vapor Probe GMSG-29, the methane concentration of the influent decreased from an initial concentration of 23.9 percent by volume to a final concentration of 19.3 percent, the CO_2 concentration of the influent decreased from 23.9 to 22.9 percent by volume, and the O_2 concentration decreased from 2.8 to 0 percent by volume.

During the SVE test on Soil Vapor Probe GMSG-30, the methane concentration of the influent increased from 0.1 to 1.2 percent, the CO_2 concentration remained relatively stable at 11.2 to 13.8 percent, and the O_2 concentration increased from 3.9 to 6.2 percent.

During the SVE test on Soil Vapor Probe GMSG-31, the methane concentration of the influent decreased from 8.0 to 5.3 percent, the CO_2 concentration decreased from 23.7 to 7.0 percent, and the O_2 concentration increased from 0.0 to 5.2 percent.

During the SVE test on Soil Vapor Probe GMSG-32, the methane concentration of the influent increased from 8.3 to 25.6 percent, and then decreased to 15.4 percent. The CO_2 and O_2 concentration both remained relatively stable at 22.6 to 27.6 percent, and 0.0 to 0.4 percent, respectively.

During the SVE test on Soil Vapor Probe GMSG-33, the methane concentration of the influent increased from 6.2 to 20.3 percent, and then decreased to 9.9 percent. The CO_2 concentration remained relatively stable at 19.9 to 22.1 percent, and the O_2 concentration slowly increased from 0.0 to 0.7 percent.

6.5.2.4.3 SVE System Performance

Based on the results of the SVE tests and the continued presence of gas-phase methane in the subsurface, a SVE program was designed for the Lodal Park area. Initially, a SVE system was installed at the Lodal Park area using four soil vapor probes as methane extraction points (GMSG-29, GMSG-31, GMSG-32, and GMSG-33). Details of the Lodal SVE system were discussed in Section 5.20.

The Lodal SVE system commenced operation on February 6, 2001 with a flow rate of approximately 250 cfm and an effluent methane concentration of approximately 3 percent by volume. However, by the second month of operation, the effluent methane concentration had decreased to less than 1 percent by volume. In response to the continued low concentrations of methane produced by the Lodal SVE system, operation of the SVE system was reduced to 12 hours per day in June 2002 and the flow was reduced to less than 200 cfm. Further reductions in operating time were implemented in July 2003 (6 hours of operation per day) and April 2004 (2 days per week). Since June 2004, the Lodal SVE system only operates 1 day per week.

The Lodal SVE system produced the maximum amount of methane of 6,208 lbs in February 2001 followed by 1,972 lbs in November 2002. The methane produced declined steadily after the beginning of system operation, with notable exceptions being individual months following restart after brief system shutdowns. As of December 2007, the Lodal SVE system was producing 124 lbs of methane per month, and had produced 20,090 lbs of methane since venting began in 2001.

In April 2004, SVE activities commenced in the area of Soil Vapor Probe GMSG-14 using a portable SVE system extracting from either SVE Well GMSG-96 or GMSG-96A. In May 2005, these two methane extraction points were connected to a SVE system inside the main Lodal SVE system shed.

During the first month of extraction from the GMSG-96/96A SVE system, methane production spiked at approximately 3,000 lbs of methane, but the production rate declined quickly and within five months of operation, the SVE system was not producing measurable methane. Methane production rebounded by the spring 2005, producing over 100 lbs of methane per month. Methane production again declined to a low of 6 lbs of methane in June 2006, apparently the result of decreasing flow. In July 2006, maintenance activities on the extraction wells and SVE system improved the flow to 100 cfm. Since that time, methane production has averaged near 200 lbs of methane per month.

Through December 2007, the GMSG-96/96A portion of the Lodal Park SVE system has produced approximately 4,900 lbs of additional methane from the Lodal Park area. Data on the methane removal for the Lodal Park area is included in Appendix R and additional details are presented in several methane venting reports submitted by ARCADIS to the MDEQ (July 3, 2002 and December 18, 2003), the Methane IRAP (October 31, 2007), and progress update reports submitted quarterly to the MDEQ since April 2005.

6.5.2.4.4 Origin and Transport of Methane

The origin of gas-phase methane at the Lodal Park area is mainly the result of biodegradation of the predominantly wood waste/fill material disposed in the SW Pit, rather than the organic material in the deep groundwater system. The relatively low concentrations of methane found at the Lodal Park area indicate that gas-phase methane in this area is slow to accumulate, allowing diffusion and degradation outside of the fill material. In addition, the higher concentrations of CO_2 and the ratio of methane to CO_2 are indicative of the degradation of landfill material, wood products, or yard wastes. The CO_2 concentrations and methane/CO_2 ratio at the Lodal Park area do not match the concentrations and ratio of the gas-phase methane accumulations that are present as a result of methane generation from organic material in the deep groundwater system. The CO_2 concentrations, representative of degradation of the organic material in the groundwater, are typically less than 5 percent and the methane concentrations are typically greater than 95 percent.

There is evidence that aerobic processes are degrading the gas-phase methane in the Lodal Park area associated with the SW Pit. The reduced concentrations of O_2 and the increased concentrations of CO_2 in the Lodal Park area indicate that bacteria use methane as a food source and O_2 as an electron acceptor, thus generating CO_2 as a waste product.

However, the gas-phase methane in the area of GMSG-14 (addressed by the GMSG-96/96A portion of the Lodal Park SVE system), may be from a different source. It appears that this gas-phase methane is the result of the degradation of organic material in the deep groundwater and release of the gas-phase methane from dissolved methane due to pressure releases in the migrating groundwater.

6.5.2.5 Upper Terrace/Breen Avenue Area

The Upper Terrace/Breen Avenue area is located primarily in an area bounded on the south by Breen Avenue, on the west by the Easton Estates subdivision, on the north by Breitung Avenue and on the east by Grant Street (Figures 6-60 and 6-73). As discussed in Section 3.11, an SVE system (Breen) was installed in this area in February 1996, prior to the EE/CA and RI investigations. The Breen SVE system controls gas-phase methane in shallow soil (to a depth of 40 ft) at the northwest corner of the intersection of Breen Avenue and Garfield Street.

In addition to the Breen SVE system, one non-mobile SVE system (GMSG-125) and one portable SVE system (GMSG-135) also operate to address gas-phase methane in shallow soil. Passive vents (GM-33R, GM-50, GMSG-117, and GMSG-128) are present in the Upper Terrace/Breen Avenue area to remove gas-phase methane trapped beneath silt/clay layers below the water table.

The historical lateral extent of the gas-phase methane accumulation at the Upper Terrace/Breen Avenue area was an irregular shaped area of approximately 50 acres. Within this area, the gas-phase methane is primarily trapped beneath silt/clay layers below the water table. However, in the area of the Breen SVE system, gas-phase methane was originally present in the shallow vadose zone soil at the ground surface. In the area of Soil Vapor Probes GMSG-118A/B/C and GMSG-125A/B gas-phase methane was originally present in the shallow vadose zone soil, but not at the ground surface. Currently, the area of gas-phase methane found beneath the silt/clay layers has been significantly reduced on the western side of the accumulation by the SVE activities. The area of gas-phase methane found in the shallow vadose zone soils is similar to the original extent, but the SVE activities address any gas-phase methane prior to it reaching the ground surface. The original lateral extent and lateral extent as of December 2007 of the gas-phase methane accumulation in this area are shown on Figure 6-73. A cross section through the Upper Terrace/Breen Avenue area is shown on Figures 6-74 and 6-75, and is located on Figure 6-73.

6.5.2.5.1 Methane Occurrence and Conditions

During the EE/CA and RI investigations, numerous soil borings, soil vapor probes, and monitoring wells were installed in the vicinity of the Breen SVE system to better understand the origin and transport of gas-phase methane, present in the area. These investigations resulted in the installation of one monitoring well and 19 soil vapor probes for monitoring soil vapor conditions (GM-100, GMSG-100, GMSG-101, GMSG-102, GMSG-103, GMSG-105, GMSG-106, GMSG-107, GMSG-108, GMSG-109, GMSG-110, GMSG-111, GMSG-112, GMSG-113, GMSG-122, GMSG-128, GMSG-129, GMSG-130, GMSG-131, and GMSG-132, Figure 5-3). In addition, numerous probes were installed during previous investigations to investigate the shallow gas occurrence and monitor the Breen SVE system. Some of these probes were abandoned during the RI.

The soil vapor probes in the Upper Terrace/Breen Avenue area have been monitored on numerous occasions, often monthly or daily, as described in Section 5.10. The measurements collected from the soil vapor probes for the Upper Terrace/Breen Avenue area are included in Appendix R.

Gas-phase methane has not been detected during monitoring of the following soil vapor probes: GMSG-103, GMSG-105, GMSG-110, GMSG-111, GMSG-113, or GMSG-132. There have been three monitoring events when methane was detected at Soil Vapor Probe GMSG-101, at concentrations of 0.1 to 0.2 percent; however, the well screen for this probe is generally submerged, so these concentrations are likely a measurement of methane that is released from the groundwater within the well casing.

Methane concentrations in the shallow soil vapor probes that are under the influence of the Breen SVE system (GMSG-102 and GMSG-129) are generally 0 percent. However, in January, February, and March of 1999, when the Breen SVE system was not operating due to repair work, methane concentrations at Soil Vapor Probe GMSG-102 ranged from 0 to 65 percent. Soil Vapor Probe GMSG-129 also had methane concentrations ranging from 0.5 to 8.7 percent during these three monitoring events.

Soil Vapor Probes GMSG-106, GMSG-107, GMSG-108, GMSG-112, GMSG-122, GMSG-130, and GMSG-131 are screened in a saturated sand unit (Unit 1 material), which is overlain by a silt/clay layer capable of trapping gas-phase methane. Soil Vapor Probes GMSG-106, GMSG-108, GMSG-112, GMSG-122, and GMSG-130 have exhibited methane concentrations ranging from 0 to 90 percent. The O_2 concentrations for these probes range from 0 percent to natural atmospheric concentrations. The CO_2 concentrations for these probes are essentially 0 percent. Soil Vapor Probes GMSG-107 and GMSG-131 have exhibited methane concentrations ranging from 70 to 100 percent. These seven soil vapor probes typically do not exhibit high wellhead pressures (less than 20-inches water column) and do not have a measurable methane flow when uncapped. Therefore, the gas-phase methane observed from these probes is likely an indication of methane that is released from the groundwater within the well casing, or migrating gas-phase methane following a path intercepted by the well screen.

Monitoring Well GM-100 and Soil Vapor Probes GMSG-100 and GMSG-128 have exhibited methane concentrations ranging from 70 to 100 percent. The O_2 concentrations are generally 0 percent, and the CO_2 concentrations range from 0 to 1.2 percent. These soil vapor probes are also screened in a saturated sand unit (Unit 1 material), which is overlain by silt/clay layers capable of trapping gas-phase methane. These soil vapor probes typically exhibit high wellhead pressures (greater than 20-inches water column) and have a measurable gas flow when uncapped. Therefore, these soil vapor probes are likely completed in pockets of gas-phase methane, which are trapped by localized structural high points (or domes) in the base of the saturated, silt/clay confining layer.

The geology of the Upper Terrace/Breen Avenue area indicates that the structural high points or domes are not laterally extensive. Migrating gas-phase methane can enter the structural high point, where the saturated confining layer can trap the gas-phase methane. This results in a displacement of groundwater and a gas pressure equal to the amount of water column displaced by the gas pocket. Once a pocket of trapped gas-phase methane overfills the edge or closure of the trapping structure, the gas-phase methane can migrate onward, until another trapping structure is encountered where gas-phase methane can again accumulate.

In addition to the 20 monitoring wells and soil vapor probes previously described, there are 15 soil vapor probes and monitoring wells used for monitoring soil vapor in the northeastern portion of the Upper Terrace/Breen Avenue area (GM-33, GM-50, GM-52, GMSG-104, GMSG-116, GMSG-117, GMSG-118A, GMSG-118B, GMSG-118C, GM-118D, GMSG-119, GMSG-123, GMSG-124, GMSG-125A, and GMSG-125B, Figure 6-73). Methane was not detected during the field measurements of Soil Vapor Probes GMSG-104 or GMSG-119.

The barometric pressure affects Soil Vapor Probes GMSG-123, GMSG-124, and GMSG-125B, where the methane concentrations range from 0 to 80 percent. Methane does not readily flow from these soil vapor probes, since the gas-phase methane is not under significant pressure (i.e., pressures typically less than 1- or 2-inches of water column).

Monitoring Wells GM-33, GM-50, and GM-52, and Soil Vapor Probes GMSG-116 and GMSG-117 have methane concentrations that range from approximately 80 to 100 percent. These monitoring wells and soil vapor probes are screened in a saturated sand unit (Unit 1 material) overlain by a silt/clay unit (Unit 3 material), which is trapping gas-phase methane and preventing the gas-phase methane from migrating to the ground surface. These monitoring wells and soil vapor probes typically exhibit high wellhead pressures (greater than 20-inches water column) and have a measurable gas flow when uncapped. These soil vapor probes are likely completed in pockets of gas-phase methane that are trapped by localized high points or domes in the saturated, silt/clay confining layer. The geology of the Upper Terrace/Breen Avenue area suggests that while the structural domes are not laterally extensive, they are interconnected within a sand unit, which grades into silt/clay to the north and east.

6.5.2.5.2 Breen SVE System Performance

The Breen SVE system is used to address gas-phase methane that was present in the shallow subsurface at the beginning of the Study Area investigations. The Breen SVE system was originally installed by the U.S. EPA and commenced operation on February 21, 1996. Details of the Breen SVE system were discussed in Section 5.20.

Initial flow rates for the Breen SVE system were approximately 268 to 285 cfm with all extraction wells in service. In May 1998, Ford and KPC took over the operation and maintenance of the system. The SVE system methane emission concentrations at that time were near 1 percent. Since May 1998, the effluent methane concentrations have declined to less than 0.5 percent. As a result, the methane emission from the Breen SVE system has declined from approximately 7,200 lbs per month in June 1998 to less than 500 lbs per month in December 2000 (Figure 6-49). By capturing and controlling the gas-phase methane prior to it reaching the shallow soil, the Breen SVE system has prevented any further migration of gas-phase methane. From June 1998 to January 2001 approximately 71,000 lbs of methane have been removed from the subsurface by the Breen SVE system.

In September 1998, a series of 2 to 3 hour SVE tests were performed on the nine extraction wells. Rather than extract soil vapor from all nine points at once, the available vacuum was sequentially applied to a single extraction well, and the resulting induced vacuum was monitored at several surrounding soil vapor probes and the eight other extraction wells not in use. The data generated during these tests is presented in Appendix R. During the testing, the only extraction wells that showed removal of measurable concentrations of methane were EW-6, EW-7, EW-8, and EW-9.

The data collected during the SVE tests, as well as geologic data from the area around the Breen SVE system, suggest that the migration of gas-phase methane into the shallow surface soil is from the north. This is further supported by the fact that when the Breen SVE system was shut down for maintenance, the first soil vapor probe to detect methane concentrations was Soil Vapor Probe GMSG-102 (Appendix R and Figure 6-73). However, the main source of the gas-phase methane in the shallow soils is the off-gassing of dissolved methane in the groundwater as it moves upward to the Menominee River.

In July 1999, following approval by the MDEQ, Extraction Wells EW-1 through EW-5 were closed off, leaving Extraction Wells EW-6 through EW-9 as the only wells operating for the Breen SVE system. At this time, the total Breen SVE system extraction rate of approximately 268 to 285 cfm decreased to approximately 160 cfm. This change has had the effect of increasing the quantity of soil vapor removed from each remaining extraction point, and flow rates from each extraction well increased to approximately 40 cfm per extraction point from approximately 30 cfm previously. As indicated by monitoring of the area soil vapor probes, the removal of some of the extraction points from the Breen SVE system did not result in the return of gas-phase methane to the shallow soil around the residential neighborhood.

Since Ford/KPC assumed O&M responsibilities for the Breen SVE system, it produced the maximum amount of methane of 7,510 lbs during the month of June 1998, followed by 7,181 lbs during January 2007. Methane production declined significantly in May 2000 (to less than 1,000 lbs of methane per month), and in January 2001, Extraction Well EW-7 was the only extraction well where gas-phase methane was still measurable using the Landtec monitoring instrument (i.e., greater than 0.1 percent). However, in September 2003, methane production rebounded (averaging slightly more than 1,000 lbs of methane per month), and in September 2005 methane production again increased to over 3,000 lbs per month of methane.

Since September 2005, the Breen SVE system has steadily produced a minimum of 2,500 lbs per month of methane and has averaged approximately 4,600 lbs per month. As of December 2007, the SVE system has removed approximately 253,000 lbs of methane. Data on the methane removal for the Upper Terrace/Breen Avenue area is included in Appendix R and additional details are presented in several methane venting reports submitted by ARCADIS to the MDEQ (July 3, 2002, December 18, 2003), the Methane IRAP (October 31, 2007), and progress update reports submitted quarterly to the MDEQ since April 2005.

6.5.2.5.3 GMSG-123 SVE System Performance

The GMSG-123 SVE system began operation on September 22, 2005. Details of the GMSG-123 SVE system were discussed in Section 5.20. Prior to construction of the GMSG-123 SVE system, SVE activities were conducted in the area with a portable SVE system, starting in April 2005. The influent methane concentrations during operation of the portable SVE system ranged from approximately 15 to 32 percent by volume. Once the GMSG-123 SVE system began operation, the influent methane concentration quickly declined to less than 1 percent by volume and remained there thorough June 2007, when methane concentrations rose to approximately 3.7 percent by volume when the flow rate for the GMSG-123 SVE system was reduced from 28 to

3 cfm. From June to December 2007, methane concentrations again declined to less than 1.0 percent by volume.

The portable SVE system produced the maximum amount of methane of 1,930 lbs during the month of July 2005. The GMSG-123 SVE system produced the maximum amount of methane of 663 lbs during the month of October 2005, followed by 433 lbs in January 2007. As of December 2007, the GMSG-123 SVE system was producing approximately 100 lbs of methane per month. The portable SVE system and the GMSG-123 SVE system have removed approximately 13,900 lbs of methane since venting was started in 2005. Data on the methane removal for the GMSG-123 SVE system is included in Appendix R.

6.5.2.5.4 GMSG-135 SVE System Performance

The portable GMSG-135 SVE system has been operated only when the methane concentration reached 1.25 percent by volume in either Soil Vapor Probes GMSG-125A/B or GMSG-135. Details of the GMSG-135 SVE system were discussed in Section 5.19. Venting activities using the GMSG-135 SVE system began on June 23, 2004 and operated on five occasions through December 2007.

The GMSG-135 SVE system produced the maximum amount of methane of 3,623 lbs during the month of June 2004, followed by 1,659 lbs in June 2006. When the GMSG-135 SVE system is turned on, the methane production generally follows a pattern of a short surge followed by a drop-off in lbs of methane produced. Since August 2006, methane production has averaged less than 250 lbs of methane per month. As of December 2007, the GMSG-135 SVE system has removed approximately 10,800 lbs of methane since venting began in 2004. Data on the methane removal for the GMSG-135 SVE system is included in Appendix R.

6.5.2.5.5 Results of Passive Venting

A decline in methane concentrations produced from the Breen SVE system from 1998 through 2002 appeared to coincide with the passive venting of soil vapor probes in the Upper Terrace/Breen Avenue area. The soil vapor probes used for passive venting are completed at deeper intervals than the Breen SVE system extraction wells, suggesting passive vents intercepted gas-phase methane at depth that had previously been extracted by the Breen SVE system from the shallower soils. The following soil vapor probes and monitoring wells were included in a short-term passive venting test that was performed between June 15 and July 27, 1999: GM-33, GM-50, GM-52, GM-100, GMSG-109, GMSG-112, GMSG-116, GMSG-117, and GMSG-128.

The following soil vapor probes and monitoring well, were monitored during the pilot test, although they were not passively vented: GMSG-100, GMSG-108, GMSG-109, GMSG-118B, GMSG-118C, GMSG-124, GMSG-125B, GMSG-128, GMSG-130, GMSG-131, and BR-4.

The performance of the passively vented soil vapor probes and monitoring wells in the Upper Terrace/Breen Avenue area is summarized in Table 6-51. This table indicates the dates of venting, the average methane concentration and flow rate of the vented methane, and a calculation of methane mass removed for each vent. Included in Appendix R are graphs of wellhead pressure and/or flow rate versus time for each of the passively vented probes.

While there was little noticeable effect on methane concentrations at any of the venting probes, there were notable decreases in flow rate and pressure with time. These decreases are shown below.

Probe	General Flow Rate Before Test (cfm)	General Pressure Prior to Test (in w.c.)	General Flow Rate During Test (cfm)	General Pressure At End of Test (in w.c.)
GM-33	3.5 to 6.5	80	1.5 to 2.0	75
GM-50	3.8	80	0.5 to 1.5	65
GM-52	3	65	2 to 4	28
GM-100	22 to 25	27	Less than 0.2 to 1.7	38
GMSG-109	Less than 0.2	Greater than 100	Less than 0.2	6
GMSG-112	Less than 0.2	5 to 20	Less than 0.2	Less than 3
GMSG-116	1.2 to 1.8	61	0.3 to 0.5	54
GMSG-117	6	75	1.5 to 3.5	56
GMSG-128	5 to 8	120	0.4 to 0.9	113

Based on these venting results, the following soil vapor probes and monitoring wells were selected for long-term passive venting, at the conclusion of the short-term tests: GM-33, GM-50, GM-52, GMSG-116, GMSG-117, and GMSG-128.

These soil vapor probes and monitoring wells were selected because they showed a sustained flow rate and methane removal. In addition, these soil vapor probes and monitoring wells are always noted to be under pressure, as they are completed under a silt/clay layer in a confined system. As a result of their location within this confined area, barometric pressure does not have a substantial influence on the methane venting. These passive vents always show a positive pressure and flow, regardless of the atmospheric conditions (Table Q-1).

No effect was noted in the surrounding soil vapor probes or monitoring wells that were monitored during the initial venting test period, with the possible exception of Monitoring Well GM-100 and Soil Vapor Probe GMSG-128. After Soil Vapor Probe GMSG-128 was converted into a venting point, flow measurements at Monitoring Well GM-100 dropped to non-detectable levels with the monitoring instruments. When Soil Vapor Probe GMSG-128 was shut-off following the initial venting test period, flow readings at Monitoring Well GM-100 ranged from non-detectable to 0.5 cfm.

One of the objectives of the passive venting test was to reduce the build-up (historical accumulation or “storage”) of gas-phase methane in the subsurface. As shown above, this was accomplished by the methane output at several of the vents shown in Table 6-40, and the corresponding reductions in flow rate and pressure due to the venting activities.

While the venting test showed a limited zone of influence, generally less than 100 ft for the passive vents during the initial short-term venting tests, there is a reduction in the mass of methane being removed by the active Breen SVE system since the onset of the passive venting program. Currently, Monitoring Wells GM-50, GMSG-117, and GMSG-128 are still fitted as passive vents and operating. Monitoring Well GM-33 (replaced by GM-33R in June 2005), is also still operating as a passive vent. Monitoring Well GM-52 (initially operated as a passive vent) was shut-off during September 2001, and subsequently abandoned as there was no measurable methane or pressure at the location. Monitoring Well GMSG-116 was also shut-off during June 2003, and has not had measurable methane or pressure since April 2002.

Through December 2007, the passive vents in the Upper Terrace/Breen Avenue area have removed approximately 1,090,000 lbs of methane in addition to the SVE systems. Data on the methane removal for the passive vents in the Upper Terrace/Breen Avenue area is included in Appendix R and additional details are presented in several methane venting reports submitted by ARCADIS to the MDEQ (July 3, 2002 and

December 18, 2003), the Methane IRAP (October 31, 2007), and progress update reports submitted quarterly to the MDEQ since April 2005.

6.5.2.5.6 Origin and Transport of Methane

A significant portion of the Upper Terrace/Breen Avenue area has gas-phase methane trapped under silt/clay layers. The preferential pathway for the gas-phase methane migration is a saturated sand layer (Unit 1 material) beneath these silt/clay layers, which is shown in geologic cross section B-B’ on Figure 6-75. As seen in the cross section, the sand layer, which is located at a depth of about 60 ft bls, begins near the Menominee River and slopes gradually upward toward the Upper Terrace/Breen Avenue area. This sand layer provides the pathway for gas-phase methane migration. Since methane is a lighter-than-air gas, it will migrate upward to the base of the next confining layer, where it can move in the direction of the slope in the base of the confining layer.

Dissolved methane in deep groundwater off-gases and becomes gas-phase methane as it moves upward in areas where the vertical component of the groundwater gradient is upward. The gas-phase methane is confined within the permeable sand layer (Unit 1 material) and migrates toward structurally higher elevations. The gas-phase methane remains trapped within the sand layer, except where there is break or breach of the silt/clay confining layer that allows upward vertical movement. This movement happens north of, and in the immediate vicinity of, the Breen SVE system. In addition, very minor vertical migration of gas-phase methane to shallower depths occurs at a localized area around Soil Vapor Probes GMSG-118A/118B/118C.

During the short-term passive venting program, Soil Vapor Probes GMSG-109 and GMSG-112, located in the southern portion of the Upper Terrace/Breen Avenue area, showed significant pressure dissipation. The pressure did not recover to near pre-passive venting test conditions in the several months following the venting test. Pressure diminished from 112 inches of water column to approximately 10 inches of water column and from 20 inches of water column to approximately 1 inch of water column in Soil Vapor Probes GMSG-109 and GMSG-112, respectively. Soil vapor probes or monitoring wells that have been passively vented over a period of time also show declines in flow rate over time. The flow rate measured during the venting period from Monitoring Well GM-33 and Soil Vapor Probes GMSG-116, GMSG-117, and GMSG-128 are examples of this, as described previously. This indicates that the removal rate for the gas-phase methane was greater than the migration of gas-phase methane into the area and that the accumulation of gas-phase methane occurred over time.

6.5.2.6 Emmet Avenue Area

The Emmet Avenue area is located south of Emmet Avenue, extending east to Lawrence Street and west past Grant Street, in the southern portion of the Study Area (Figures 6-60 and 6-76). The gas-phase methane in the Emmet area was first discovered by the U.S. EPA in March 1997. Initial methane investigations defined an area of gas-phase methane at land surface and in shallow vadose zone soils over a circular area approximately 100 ft in diameter at the southwest corner of Emmet Avenue and Grant Street.

Subsequent investigations determined that gas-phase methane had also accumulated in the deep vadose zone beneath a confining layer of silt/clay at a depth of approximately 20 to 50 ft bls, with a lateral extent of approximately 3 acres. This area is roughly bounded by Emmet Avenue to the north, Lawrence Street to the east, Hoadley Avenue to the south, and Grant Street to the west. The current extent of the gas-phase methane under the silt/clay layer at depth is similar to the historic extent, but the area of gas-phase methane at land surface and in shallow vadose zone soils has been eliminated by the Emmet SVE system. The original lateral extent and lateral extent as of December 2007 for the gas-phase methane accumulation in this area are shown on Figure 6-76. A cross section through the Emmet Avenue area is shown on Figure 6-77, and is located on Figure 6-76.

There were 16 soil vapor probes and monitoring wells used to monitor soil vapor in the Emmet Avenue area (GM-24A, GM-24B, GMSG-200, GMSG-202, GMSG-204, GMSG-205, GMSG-206, GMSG-207, GMSG-208, GMSG-209, GMSG-210, GMSG-211, GMSG-212, GMSG-214, GMSG-215, and GMSG-216, Figure 5-3). The measurements collected from the monitoring wells and soil vapor probes for the Emmet Avenue area are included in Appendix R.

A SVE system (Emmet) was installed at the intersection of Emmet Avenue and Grant Street in April 1997, to control the gas-phase methane that was present in the subsurface. In addition to the Emmet SVE system, a short-term passive venting program was conducted in June and July 1999 on Monitoring Well GM-24B. A long-term passive venting program was initiated for this well in July 1999.

In April 2005, a SVE test was conducted on Soil Vapor Probe GMSG-214 to address gas-phase methane present at depth in the subsurface soil in that area. Soil Vapor Probe GMSG-214 is located on the west side of Case Street south of the intersection with Emmet Avenue. Based on the results of the SVE test, Soil Vapor Probe GMSG-214R, which is screened from 40 to 45 ft bls, was installed adjacent to Soil Vapor Probe GMSG-214 and connected to the Emmet SVE system to facilitate extraction in this area, as necessary.

6.5.2.6.1 Methane Occurrence and Conditions

Soil vapor monitoring results for the Emmet Avenue area show no detected methane at the following soil vapor probes: GMSG-205, GMSG-207, GMSG-208, GMSG-209, GMSG-212, and GMSG-216. Methane was detected on one occasion at Soil Vapor Probes GMSG-206, GMSG-210, and GMSG-211. There were several low level detections of methane at Soil Vapor Probes GMSG-204 and GMSG-200, ranging from 0.1 to 0.6 percent, however, during all other monitoring events for these probes, methane has not been detected.

Soil Vapor Probe GMSG-215 and Monitoring Well GM-24B had methane concentrations ranging from 85 to 100 percent. Monitoring Well GM-24A had methane concentrations ranging from 10 to 90 percent. The O_2 concentrations range from 0 to 17 percent, and the CO_2 concentrations range from 0 to 0.1 percent for all the noted locations.

Soil Vapor Probe GMSG-215 and Monitoring Well GM-24B typically exhibit high wellhead pressures (greater than 20 inches water column) and have a measurable wellhead flow of gas-phase methane when uncapped. As previously discussed, this soil vapor probe and monitoring well are likely completed in pockets of gas-phase methane that are trapped by localized high points in the base of a saturated silt/clay confining layer. Based on the discontinuous nature of the geologic deposits of the Emmet Avenue area, it is unlikely that the pockets of gas-phase methane are laterally extensive.

Soil Vapor Probe GMSG-214, with a methane concentration ranging from 0 to 85 percent, is significantly influenced by barometric pressure fluctuations. As described previously, this phenomenon occurs where a silt/clay confining layer impedes gas-phase methane flow to the land surface. Because the area near Soil Vapor Probe GMSG-214 appears to be in the proximity of an escape point to the atmosphere for the gas-phase methane, the methane is under very little pressure (i.e., typically less than 1 or 2 inches water column), so it does not readily flow from the soil vapor probe.

Soil Vapor Probe GMSG-202 is generally within the radius of influence of the Emmet SVE system. The methane concentration at Soil Vapor Probe GMSG-202 does vary at times, from 0 to 17 percent. The presence of gas-phase methane at Soil Vapor Probe GMSG-202, located to the east of the Emmet SVE system, along with the general absence of methane in soil to the north, south, and west, suggests that the pathway for gas-phase methane migration into the near surface soil (20 to 40 ft bls) is from the east to the west. Extensive geologic investigation of the distribution of the sand and silt/clay units in the Emmet Avenue area confirms this finding.

In November 1998, a series of 2- to 3-hour SVE tests were performed on four soil vapor probes in the vicinity of the Emmet SVE system. The data generated during these tests is presented in Appendix R. When soil vapor was extracted from Soil Vapor Probe GMSG-202, the vacuum radius of influence extended to Soil Vapor Probes GMSG-210, GMSG-211, and GMSG-214. This extraction testing and subsequent monitoring has confirmed that gas-phase methane is migrating from deep sand layers into shallow sand layers in the vicinity of Soil Vapor Probe GMSG-215. The gas-phase methane moves westward under a silt/clay layer to the area of the Emmet SVE system.

6.5.2.6.2 SVE System Performance

6.5.2.6.2.1 Emmet SVE System

The Emmet SVE system is used to collect gas-phase methane that was initially present at the near surface soil at the southwest corner of the intersection of Emmet Avenue and Grant Street. The SVE system was originally installed by the U.S. EPA and commenced operation on April 22, 1997. Details of the Emmet SVE system were discussed in Section 5.20.

In May 1998, Ford and KPC assumed responsibility for the O&M of the Emmet SVE system. The flow rate measured at the Emmet SVE system was approximately 18 cfm. Methane concentrations at this time were approximately 0.7 percent, and decreased to non-detectable levels (less than 0.1 percent) through August 2002, as measured using a Landtec monitoring instrument. As a result, the methane removal declined from approximately 350 lbs per month in June 1998 to less than 50 lbs per month during 2000 through 2002 (Table Q-3). The methane decline from the Emmet SVE system appears to have coincided with the implementation of passive venting of soil vapor probes in the Emmet Avenue area. Since 2002, methane rebound has occurred, with removal varying from approximately 0 to 1,400 lbs per month.

In January 2005, the Emmet SVE system was retrofitted with two new 1-hp blowers. The result was an increase in flow rate to over 100 cfm. This flow rate was maintained for several months before declining to approximately 40 cfm, which has been maintained through December 2007.

The Emmett SVE system produced the maximum amount of methane of 1,438 lbs during the month of February 2005, followed by 872 lbs in January 2005. Since February 2007, the system has steadily produced a minimum of 180 lbs per month and has averaged 315 lbs per month. From May 1998 to December 2007, approximately 14,400 lbs of methane have been removed from the subsurface soil by the Emmet SVE system. Data on the methane removal for the Emmet Avenue area is included in Appendix Q, and additional details are presented in several methane venting reports submitted by ARCADIS to the MDEQ (July 3, 2002 and December 18, 2003), the Methane IRAP (October 31, 2007), and progress update reports submitted quarterly to the MDEQ since April 2005.

The operation of the Emmet SVE system has eliminated the gas-phase methane in the shallow soil around the residences. As will be discussed in the following section, it appears that the passive venting of soil vapor probes and monitoring wells, completed at depth intervals greater than the Emmet SVE system, now captures a portion of the gas-phase methane that was previously extracted from the shallow soil by the Emmet SVE system.

6.5.2.6.2.2 GMSG-214R

Soil Vapor Probe GMSG-214R is connected to the Emmet SVE system, which addresses gas-phase methane on the west side of Case Street south of the intersection with Emmet Avenue. Soil Vapor Probe GMSG-214R was installed on August 1, 2005, and full time extraction was implemented on September 9, 2005.

Prior to installation of Soil Vapor Probe GMSG-214R, a longer-term SVE test was conducted on Soil Vapor Probe GMSG-214. The SVE test began on April 15, 2005, using a small portable gas powered SVE system. To accommodate neighborhood activities the SVE system was run for 12 hour periods. Initial methane concentrations were approximately 81 percent by volume, with the SVE system producing a flow of 3 cfm. When the SVE test was concluded in August 2005, the methane concentration had declined to approximately 50 percent by volume.

Following implementation of full time SVE at Soil Vapor Probe GMSG-214R, the methane concentration was approximately 31 percent by volume. After a small increase to 44 percent by volume, the methane concentrations declined to 0.0 percent by volume in January 2006. On April 11, 2006, this portion of the Emmet SVE system was shut down due to the lack of measurable methane, and monthly monitoring of the soil vapor probe was initiated. In October 2007, methane concentrations measured at Soil Vapor Probe GMSG-214R rebounded to 81 percent by volume and SVE activities were restarted on the probe.

The GMSG-214R portion of the Emmet SVE system produced the maximum of methane of 2,108 lbs in October 2005, followed by 1,385 lbs in June 2005. As of December 2007, methane concentrations at Soil Vapor Probe GMSG-214R were approximately 2 percent by volume, with a flow rate of 12 cfm, producing approximately 450 lbs of methane per month. Through December 2007, the SVE test on Soil Vapor Probe GMSG-214 and the SVE activities on Soil Vapor Probe GMSG-214R have removed approximately 10,500 lbs of methane. Data on the methane removal for the GMSG-214R portion of the Emmet SVE system is included in Appendix R.

6.5.2.6.3 Results of Passive Venting

In June and July 1999, a short-term passive venting program was implemented in the Emmet Avenue area on Soil Vapor Probe GMSG-215 and Monitoring Well GM-24B. The data collected during the program showed that methane concentrations at Soil Vapor Probe GMSG-215 and Monitoring Well GM-24B exhibited little change; however, the wellhead pressure decreased (from 91 to 80 inches of water column in Soil Vapor Probe GMSG-215, and from 85 to 12 inches of water column in Monitoring Well GM-24B). In addition, during the venting of Monitoring Well GM-24B, the methane concentrations decreased at Monitoring Well GM-24A (34.3 to 12.4 percent methane), suggesting that the passive venting of Monitoring Well GM-24B was intercepting some of the gas-phase methane that would have migrated to Monitoring Well GM-24A.

As noted for the passive vents selected for the Upper Terrace/Breen Avenue area, the soil vapor probes and monitoring wells selected as passive venting locations at the Emmet Avenue area have always exhibited large positive pressures, greater than the natural atmospheric condition (Table R-1). Subsequently, fluctuations in atmospheric pressure does not significantly impact the passive venting.

Based on the short-term passive venting results, Soil Vapor Probe GMSG-215 and Monitoring Well GM-24B were incorporated into a long-term passive venting program. The performance of the passive vents in the Emmet Avenue area is summarized in Table 6-51. The table includes the dates of venting, the average methane concentration and flow rate, and a calculation of methane mass removed for each vent.

The passive venting data indicate that methane concentrations did not significantly change during initial stages of the program; however, wellhead pressures have decreased dramatically (from 140 to less than 20 inches of water column for Soil Vapor Probe GMSG-215 and from 150 to 13 inches of water column for Monitoring Well GM-24B). Methane concentrations have shown significant fluctuation over time with continued passive venting at Soil Vapor Probe GMSG-215. In February 2007, the pressure and methane concentration declined to 0.0 inches of water and 0.0 percent by volume methane, respectively but subsequently rebounded to 102.3 inches of water and 0.2 percent by volume methane at the end of 2007. Monitoring Well GM-24B has remained relatively consistent, and had a pressure of 150.2 inches of water and 100.0 percent by volume methane at the end of 2007. Through December 2007, Monitoring Well GM-24B and Soil Vapor Probe GMSG-215 have produced approximately 81,000 lbs of methane since passive venting began. Data on the methane removal for the passive vents for the Emmet Avenue area is included in Appendix R and additional details are presented in several methane venting reports submitted by ARCADIS to the MDEQ (July 3, 2002 and December 18, 2003), the Methane IRAP (October 31, 2007), and progress update reports submitted quarterly to the MDEQ since April 2005.

6.5.2.6.4 Origin and Transport of Methane

The majority of the Emmet Avenue area has gas-phase methane trapped under two silt/clay confining layers. The lateral extent and thickness of the sand layer (Unit 1 material), which is the preferential pathway for gas-phase methane migration beneath the silt/clay confining layers (Unit 3 material), is shown in the geologic cross section on Figure 6-77. The sand layers from which Monitoring Well GM-24B vent methane occur at a depth of 104 to 114 ft bls. Gas-phase methane enters the sand layers in an area where the vertical component of the groundwater gradient is upward, (near the Menominee River) and then migrates within the sand layers to the east. The geologic and methane data indicate that gas-phase methane migrates vertically upward at a location where the silt/clay confining layer is absent (a "discontinuity" in the silt/clay confining layer) in the vicinity of Soil Vapor Probes GMSG-214 and GMSG-215.

The methane concentration in the effluent of the Emmet SVE system declined through 2000, as the accumulation of methane (historical storage) was removed from the Emmet Avenue area. In addition, soil vapor probes and monitoring wells that have been passively vented generally showed a decline in wellhead pressure and flow rate over time. These observations indicate that the rate of methane withdrawal was greater than the ability of the gas-phase methane to accumulate.

Rebounds in the volume of methane produced by the Emmet/214R SVE system and passive vents in 2003 through 2005, and again in 2007, are likely due to fluctuations in methane migration rates or changes in the methane generation rates. Methane removal from the Emmet SVE system and Passive Vent GM-24R was relatively constant in 2007 at approximately 700 lbs of methane per month. Methane production from Passive Vent GMSG-215 declined dramatically at the end of 2005 and beginning of 2006 and has never rebounded to pre-venting conditions. This would indicate that while methane is still migrating into the Emmet Avenue area, the Emmet/214R SVE system and passive vent (Monitoring Well GM-24B) are intercepting the migration of gas-phase methane to the east.

6.5.2.7 GM-2A Area

The GM-2A area is located in the vicinity of Monitoring Well GM-2A, encompassing the intersections of Balsam Street and Breen Avenue, and Beech Street and Breen Avenue, in the south-central portion of the Study Area (Figures 6-60 and 6-78). In April 1997, a gas-phase methane accumulation was encountered during the drilling of Monitoring Well GM-2B. Gas-phase methane at the GM-2A area was trapped in a dome shaped structure beneath a laterally extensive silt/clay confining layer. The extent of the methane gas originally found at the GM-2A area covered a circular area approximately 500 ft in diameter, or 5 acres. Since April 2005, methane has not been detected in the GM-2A area. The original lateral extent and lateral extent as of December 2007 of the gas-phase methane accumulation in this area are shown on Figure 6-78. A cross section through the GM-2A area is shown on Figure 6-79 and is located on Figure 6-78.

Investigation of the area included the installation of 16 soil vapor probes (GMSG-1, GMSG-2A/B, GMSG-3A/B, GMSG-4A/B, GMSG-5A, GMSG-6A/B/C, GMSG-7A/B/C, and GMSG-8A/B) during September 1997, completed above and below the silt layer, and subsequent monitoring of the soil vapor probes for the presence of methane. In addition, 10 soil borings (GPR-8, through GPR-12, GPR-15, GPR-16, and GPR-18 through GPR-20) were completed in the GM-2A area in November 1997 as part of the ground-penetrating radar survey.

Also used for evaluation of the GM-2A area were six soil vapor probes (GMSG-12, GMSG-13, and GMSG-17 through GMSG-20), four monitoring wells (GM-2C, GM-3A/B, and GM-7), and one soil boring (GMSB-11) that were installed during investigation activities from 1998 to 2000.

In May 2004, two additional soil borings (GMSB-108 and GMSB-110) were completed northeast and east of Soil Vapor Probe GMSG-20 to further delineate gas-phase methane in the GM-2A area. No methane was encountered in either soil boring. In April 2004, Soil Vapor Probe GMSG-126 (adjacent to Soil Vapor Probe GMSG-20 and screened from 39 to 49 ft bls) was installed to provide an additional SVE point for the area. The locations of the soil borings and soil vapor probes are illustrated on Figure 6-79, and the soil boring logs are provided in Appendix A.

Eighteen of the original soil vapor probes and monitoring wells were used to monitor the soil vapor in the GM-2A area (GM-2A, GMSG-1, GMSG-2A, GMSG-2B, GMSG-3A, GMSG-3B, GMSG-4A, GMSG-4B, GMSG-5A, GMSG-7A, GMSG-7B, GMSG-7C, GMSG-12, GMSG-13, GMSG-17, GMSG-18, GMSG-19, and GMSG-20, Figure 6-79). The soil vapor probes and monitoring wells designated with an “A” qualifier are screened in a sand layer above the silt/clay confining layer, while the soil vapor probes and monitoring wells designated with a “B” or “C” qualifier, or no alphabetical qualifier, are screened in the sand layer below the silt/clay confining layer.

Soil Vapor Probes GMSG-6A/B/C and GMSG-8A/B were abandoned in November 1997 at the request of the City of Kingsford to accommodate their winter activities in the area. Additionally, thirteen soil vapor probes were evaluated as redundant or unnecessary in the ARCADIS report entitled, “*Methane Venting Results Report through June 2002*’, dated July 2002 and were subsequently abandoned in May 2003. The following soil vapor probes were abandoned: GMSG-1, GMSG-2A, GMSG-3A, GMSG-4A, GMSG-5A, GMSG-7A/B, GMSG-9, GMSG-10, GMSG-11, GMSG-12, GMSG-13, and GMSG-18.

6.5.2.7.1 Methane Occurrence and Conditions

Soil Vapor Probes GMSG-1, GMSG-2A, GMSG-3A, GMSG-4A, GMSG-5A, GMSG-7A, GMSG-7B, GMSG-12, and GMSG-13 generally had no or very low concentrations of methane detected, from 0.0 to 0.2 percent. Soil Vapor Probe GMSG-3A had numerous detections of 0.1 to 0.3 percent methane, and one detection of 7.6 percent.

Soil Vapor Probes GMSG-3B, GMSG-4B, and GMSG-7C had very low to non-detectable, except during SVE tests completed in the area, when methane was detected. Soil Vapor Probes GMSG-17, GMSG-18, GMSG-19, GMSG-20 and Monitoring Well GM-2A had a range of methane concentrations from 0 to 65 percent.

Soil Vapor Probe GMSG-2B had methane concentrations ranging from 0 to 40 percent, CO_2 concentrations ranging from 0 percent to approximately 1 percent, and O_2 concentrations ranging from 0 percent to natural atmospheric concentrations (approximately 21 percent).

In general, Monitoring Well GM-2A and Soil Vapor Probes GMSG-4B and GMSG-20 consistently exhibited the highest methane concentrations, while the soil vapor probes screened above the silt/clay confining layer generally exhibited no gas-phase methane. This demonstrates the ability of silt/clay confining layers to trap gas-phase methane and impede its migration to the land surface.

Some of the soil vapor probes monitoring results for the GM-2A area appear to have been affected by barometric pressure fluctuations; however, the soil vapor concentrations were not impacted as significantly by the atmospheric changes as elsewhere in the Study Area (i.e., the Notch area and the area near the RDA). This may be a result of the silt/clay confining layer being located in the vadose zone and more laterally extensive, as well as the structure of the dome trap.

From August 1998 through April 2005, four methane venting events were conducted to remove the gas-phase methane from the GM-2A area. Since April 2005, no gas-phase methane has been detected in the GM-2A area.

6.5.2.7.2 SVE Tests

To better understand the gas-phase methane accumulation at the GM-2A area and determine if the methane could be removed, a SVE test was conducted with the following objectives:

- Evacuate soil vapor from the unsaturated soil below the silt/clay confining layer and adjacent to Monitoring Well GM-2A, until background or asymptotic concentrations of gas-phase methane were achieved in the subsurface, and determine the corresponding radius of influence of the evacuated zone.

- Terminate the evacuation of soil vapor at Monitoring Well GM-2A and measure the methane concentrations at Monitoring Well GM-2A, and surrounding soil vapor probes, to determine the methane recovery rate and the changes in concentration of other gases over time.

The initial GM-2A area SVE test was started on August 5, 1998 and was completed on August 26, 1998. Using a portable SVE system, soil vapor was extracted from Monitoring Well GM-2A. The following soil vapor probes were monitored, along with the system, during the SVE test: GMSG-1, GMSG-2A, GMSG-2B, GMSG-3A, GMSG-3B, GMSG-4A, GMSG-4B, GMSG-5A, GMSG-7A, GMSG-7B, GMSG-7C, GMSG-12, GMSG-13, GMSG-17, GMSG-18, GMSG-19, and GMSG-20. Details of the SVE test were presented in Section 5.18.2.

In addition to monitoring of the soil vapor probes, soil vapor samples were collected for laboratory analyses to better characterize the pre-test and post-test soil vapor condition. Isotech Laboratories analyzed soil vapor samples from Monitoring Well GM-2A and Soil Vapor Probes GMSG-4B, GMSG-19, and GMSG-20 between August 1998 and January 2001. The results of the laboratory analyses of the soil vapor are summarized in Appendix R**.** The results of the laboratory analyses confirmed the field measurements of the methane concentrations during and after the SVE test.

Field measurements prior to initiating the SVE test showed gas-phase methane in seven of the soil vapor probes around the GM-2A area (GMSG-2B, GMSG-3B, GMSG-4B, GMSG-18, GMSG-19, and GMSG-20, and Monitoring Well GM-2A). The SVE test began on August 5 and by August 12, 1998, only Soil Vapor Probes GMSG-2B, GMSG-3B, and GMSG-4B had measurable concentrations of methane. By August 14, 1998, only Soil Vapor Probe GMSG-4B had a measurable concentration of methane remaining, which was eliminated by August 18, 1998.

Approximately 19,000 lbs of methane were removed from the subsurface soil during the GM-2A SVE test. Based on both the vacuum measurements observed in the soil vapor probes and the removal of methane from the soil vapor probe farthest from the extraction point (Soil Vapor Probe GMSG-20), the radius of influence of the SVE system was over 200 ft. Additionally, no induced vacuum was observed in the soil vapor probes with well screens in the sand layer above the silt/clay confining layer, which is further evidence of the competency of such silt/clay layers for impeding gas-phase methane migration to the land surface.

Concentrations of methane in the soil vapor probes prior to the SVE test were much greater than the methane concentrations from the soil vapor probes 1 year after completing the SVE test. The highest concentrations measured prior to, 1 year after, and 2 years after the SVE test are as follows:

Soil Vapor Probe	Original Methane Concentration (Percent)	1 Year Methane Concentration (Percent)	2 Year Methane Concentration (Percent)
GM-2A	55	0.2	1.5
GMSG-2B	40	0.5	0
GMSG-3B	50	2	3
GMSG-4B	60	4	5
GMSG-18	0.5	0	0
GMSG-19	20	0	0
GMSG-20	65	20	35

The SVE test conducted at the GM-2A area in August 1998 was effective in removing the trapped methane gas. Methane concentrations decreased from 61.5 percent by volume in Soil Vapor Probe GMSG-20 to 0 percent by volume in all the soil vapor probes. However, the methane concentration in Soil Vapor Probe GMSG-20 began to rebound shortly after the initial venting was complete, and reached 35 percent by volume after a two-year period. Comparatively, the methane concentrations in other GM-2A area soil vapor probes increased to less than 5 percent by volume during the same period.

In September 2001, with the methane concentration at 36 percent by volume in Soil Vapor Probe GMSG-20, and up to 6 percent by volume in Soil Vapor Probe GMSG-4B, a second SVE test was completed at the GM-2A area. Since that time, no methane gas has been detected in any of the soil vapor probes with the exception of Soil Vapor Probe GMSG-20. In January 2003, the methane concentration at Soil Vapor Probe GMSG-20 rebounded to 43 percent by volume.

Based on the methane monitoring data, the distribution of the methane gas at the GM-2A area appeared to be limited to the location of Soil Vapor Probe GMSG-20, and the methane gas has not migrated westward beneath the silt structure. Soil Vapor Extraction Well GMSG-126 was installed adjacent to this location to provide a more efficient extraction point on April 5, 2004.

On June 5, 2004, SVE activities were initiated on Soil Vapor Probe GMSG-126 and were continued until June 23, 2004. The methane concentration in Soil Vapor Probe GMSG-126 had an initial concentration of 24.4 percent methane by volume and an O_2 concentration of 0 percent by volume on April 20, 2004. Soil Vapor Probe GMSG-20 had a concentration of 28.1 percent methane by volume and 0 percent O_2 by volume. Following the SVE test, both soil vapor probes had a concentration of 0 percent methane by volume and O_2 concentrations greater than 19 percent by volume. Monitoring was implemented to measure the methane rebound, if any.

Methane remained at 0 percent by volume until November 2004, when a concentration of 0.3 percent methane was recorded from Soil Vapor Probe GMSG-126. Methane remained at 0 percent methane by volume in Soil Vapor Probe GMSG-20. In January 2005, the methane concentration in Soil Vapor Probe GMSG-126 had increased to 1.0 percent by volume, and SVE activities were resumed from Soil Vapor Probe GMSG-126 on January 14, 2005. Methane venting continued to April 13, 2005, when the system was shut down with the methane concentration at 0.0 percent by volume in Soil Vapor Probe GMSG-126.

Since April 2005, monitoring of the GM-2A area has not detected methane in any of the soil vapor probes, thus no rebound of methane has occurred. Through April 2005, approximately 21,500 lbs of methane had been removed from the GM-2A area.

6.5.2.7.3 Origin and Transport of Methane

Gas-phase methane was found in the GM-2A area trapped in a dome shaped structure beneath a laterally extensive silt/clay confining layer, which is present in the vadose zone. SVE testing resulted in the removal of the gas-phase methane.

Soil Vapor Probe GMSG-20 demonstrated some methane rebound, but only a small fraction of the original accumulation volume. Soil Vapor Probe GMSG-20, completed below the silt/clay confining layer on the eastern side of the GM-2A area, was the first soil vapor probe to detect methane after the initial removal event, indicating that the migration pathway for gas-phase methane entry into the dome trap may be from the east. The slow methane rebound suggests that the original methane accumulated over an extended period of time, possibly from the diffusion of dissolved methane in shallow groundwater. Subsequent SVE activities have eliminated methane from the area, and on-going monitoring confirms no rebound at this time.

6.5.2.8 Pyle Area

The Pyle area is located immediately south of Pyle Drive, approximately 650 ft east of Westwood Avenue and is bordered by commercial businesses to the east and south, and Knudsen Drive on the west (Figures 6-60 and 6-80). Gas-phase methane was discovered in the shallow subsurface vadose zone soil by ARCADIS personnel on October 14, 2003. The gas-phase methane was discovered during routine monitoring of a newly installed commercial soil vapor probe (Soil Vapor Probe GMSG-417) along the west side of the Universal Plumbing-Heating and Air Conditioning, Inc. (Universal) building. The discovery of gas-phase methane prompted a response by ARCADIS that included methane monitoring, SVE activities, and an investigation of the source and extent of the gas-phase methane.

The historical lateral extent of the shallow vadose zone methane accumulation at the Pyle area was a roughly circular-shaped area approximately 250 ft in diameter, or 1 acre, located on the southeast corner of intersection of Pyle Drive and Knudsen Drive. Currently no gas-phase methane is present in the shallow vadose zone.

During the investigation of the shallow gas-phase methane, an additional accumulation of gas-phase methane was detected at a depth of approximately 120 ft bls in a saturated sand trapped beneath a silty/clay layer. This gas-phase methane accumulation was under considerable pressure. The historical lateral extent of the deeper gas-phase methane accumulation trapped beneath the silt/clay layer at the Pyle area was also a roughly circular-shaped area approximately 250 ft in diameter, or 1 acre, centered approximately 200 ft south of the shallow vadose zone accumulation. The current extent of the deeper gas-phased accumulation remains similar to the historic extent.

The original lateral extent and lateral extent as of December 2007 of both the shallow and deep gas-phase methane accumulations in this area are shown on Figure 6-78. A cross section through the Pyle area is shown on Figure 6-81 and is located on Figure 6-80.

In addition to Soil Vapor Probe GMSG-117, installed as part of the commercial methane monitoring program, five additional soil vapor probes were installed for monitoring and/or SVE (GMSG-120, GMSG-136, GMSG-417B, GMSG-417C, and GMSG-431). Five soil borings were completed to delineate the lateral and vertical extent of the shallow vadose zone gas-phase methane (GM-83, GMSB-124, GMSB-129, GMSG-130, and GMSB-131). The locations of the soil borings, soil vapor probes, and monitoring wells are shown on Figure 6-80.

6.5.2.8.1 Methane Occurrence and Conditions

Gas-phase methane was encountered during the investigation in the shallow subsurface soils in the immediate vicinity of Universal in an area of approximately 250 ft in diameter. Results of punch bar borehole monitoring indicated the presence of gas-phase methane at concentrations ranging from 0.0 to 27 percent by volume methane. The highest methane concentration detected during the punch bar monitoring was found to the east of the Universal building.

The presence of gas-phase methane was also monitored in the soil vapor probes installed along the western and eastern sides of the Universal building. The following ranges of methane concentrations, in percent by volume, were measured in the following: Soil Vapor Probe GMSG-417, approximately 0.0 to 12.8 percent; Soil Vapor Probe GMSG-417B, approximately 5.9 to 7.1 percent; Soil Vapor Probe GMSG-417C, approximately 0.0 to 14.0 percent; Soil Vapor Probe GMSG-431, approximately 0.5 to 22.0 percent; Soil Vapor Probe GMSG-120, approximately 0.2 to 19.9 percent.

Soil Boring GMSB-124 was advanced on the east side of the Universal building to approximately 78 ft bls. The presence of gas-phase methane was detected from the ground surface to the water table. The methane concentrations ranged from approximately 0.01 to 1.7 percent by volume.

Four additional soil borings were completed to the north, south, east, and west of the shallow vadose zone gas-phase methane accumulation to delineate the lateral and vertical extent (GM-83, GMSB-129, GMSG-130, and GMSB-131). None of the additional soil borings encountered concentrations of gas-phase methane (above background levels), as was found in the punch bar boreholes, down to 45 ft bls (the highest gas-phase methane concentration was 70 ppm in Soil Boring GM-129). From 45 ft bls down to the water table (approximately 65 ft bls) methane concentrations ranging from 0.12 to 7.5 percent by volume were encountered in silt to very fine grain sand. The highest gas-phase methane concentrations were found in Soil Boring GM-83, to the south of Universal.

During the drilling of Soil Boring GM-83, an additional accumulation of gas-phase methane was found in a saturated sand trapped beneath a silty/clay layer at a depth of approximately 120 ft bls. Soil Boring GM-83 was drilled to bedrock which was encountered at a depth of approximately 127 ft bls. The borehole was advanced by collecting core samples on 10 ft intervals and then driving the working casing over the core barrel which was then retrieved. As described above, no gas-phase methane was found down to a depth of approximately 45 ft bls, and then gas-phase methane concentrations ranging from 2.8 to 7.5 percent by volume were found down to the water table at approximately 65 ft bls. From the water table down to the bedrock gas-phase methane concentrations ranged from 0.05 to 6.2 percent by volume.

Hard-drilling dry till was encountered in the interval from 115 to 120 ft bls; however, the drilling between 120 and 125 ft bls was relatively easy, and venting of gas-phase methane occurred from the drill casing during the drilling of this interval. When the casing was driven to a depth of 125 ft bls venting stopped. When the casing was pulled back to 120 ft bls no methane venting was observed; however, when the casing was pulled back to 115 ft bls gas-phase methane gas forced the water “head” off of the soil boring and gas-phase methane was released until there was an accumulation of soil within the casing. The casing was then driven back to bedrock to seal off the interval, and venting of gas-phase from the casing ceased.

Based on the observations from Soil Boring GM-83, procedures were developed to install a soil vapor probe approximately 30 ft south of Soil Boring GM-83 to monitor the methane gas at this location and to facilitate venting activities. Soil Vapor Probe GMSG-136 encountered the same pressurized accumulation of gas-phase methane at approximately 120 ft bls as was found in Soil Boring GM-83. Passive venting from Soil Vapor Probe GMSG-136 began on June 27, 2004.

6.5.2.8.2 SVE System Performance

In response to the discovery of gas-phase methane in shallow vadose zone soils, a portable SVE system was set up and began extracting soil vapor from Soil Vapor Probe GMSG-417B on October 17, 2003. SVE was discontinued during completion of the punch bar and soil boring activities and restarted each day upon completion of these activities. Based on punch bar survey results, on October 21, 2003, SVE was discontinued at Soil Vapor Probe GMSG-417B and initiated at Soil Vapor Probe

GMSG-417C, located east of the Universal building. Active venting continued with the construction of a non-mobile SVE system in May 2004, which extracts from Soil Vapor Extraction Well GMSG-120.

The portable SVE system produced approximately 1,200 lbs of methane during the first month of operation, but by March 2004 production had declined to 14 lbs of methane for the month. With the conversion to the non-mobile SVE system, the methane production significantly increased to approximately 4,500 lbs in June 2004, but again rapidly decreased to 1,000 lbs in August 2004. From September 2004 to January 2007, the production of methane has fluctuated slightly, but was generally below 500 lbs per month, and often below 100 lbs per month. Due to the very low levels of methane, operation of the Pyle SVE system was reduced to a 12 hour period per day in July 2006. Since April 2007, methane concentrations from the system have generally been below 0.1 percent by volume methane or at 0.0 percent by volume methane.

The Pyle SVE system produced a maximum amount of 5,692 lbs of methane in July 2004, followed by 4,489 lbs in June 2004. As of December 2007, the Pyle SVE system was producing approximately 1 lb of methane per month, and has produced a total of approximately 24,000 lbs of methane since venting began in 2003. Data on the methane removal for the Pyle area is included in Appendix R and additional details are presented in the Methane IRAP (October 2007) and progress update reports submitted quarterly to the MDEQ since April 2005.

6.5.2.8.3 Results of Passive Venting

Passive venting of the deeper gas-phase methane “trapped” below the water table by an overlying silt/clay confining unit was initiated in June 2004 in the Pyle area with Soil Vapor Probe GMSG-136. During the first month of venting, Soil Vapor Probe GMSG-136 produced at 52.5 percent by volume methane at a pressure of 6 psi, generating approximately 2,000 lbs of methane. Groundwater was also produced with the methane so the flow from Soil Vapor Probe GMSG-136 was directed through two poly tanks connected in line. During the first three months of venting, the methane concentrations and flow were erratic due to the production of groundwater with the methane. After September 2004, the flow of methane from Soil Vapor Probe GMSG-136 was controlled through the use of a valve, resulting in groundwater no longer being produced, and flow through the poly tanks was discontinued.

Soil Vapor Probe GMSG-136 produced a maximum amount of 10,300 lbs of methane in August 2004, followed by 6,000 lbs in July 2004. In September 2004, the flow was controlled at approximately 0.2 cfm, generally resulting in a monthly methane production ranging from 300 to 500 lbs, dependent on the fluctuation in methane concentration. Since August 2007, flow has been slowly increased, so that by December 31, 2007, Soil Vapor Probe GMSG-136 was flowing at a rate of 1.0 cfm of approximately 100 percent by volume methane, resulting in a monthly production of approximately 2,000 lbs of methane. As of December 2007, Soil Vapor Probe GMSG-136 has produced a total of approximately 37,000 lbs of methane since venting began in 2004. Data on the methane removal for the passive vent for the Pyle area is included in Appendix R and additional details are presented in the Methane IRAP (October 31, 2007) and progress update reports submitted quarterly to the MDEQ since April 2005.

6.5.2.8.4 Origin and Transport of Methane

Laboratory analyses for sulfur compounds (mercaptans) were conducted on a soil vapor sample collected from Soil Vapor Probe GMSG-417 to determine if the gas-phase methane may have been associated with a natural gas pipeline. The results of the analyses did not detect any sulfur compounds associated with the gas-phase methane. The absence of mercaptans indicates the gas-phase methane likely did not originate from a pipeline leak.

A Carbon 14 analysis was also completed on the soil vapor sample collected from Soil Vapor Probe GMSG-417. This analysis is a useful method to distinguish the relative age of carbon in methane gas. Carbon 14 dating is an especially effective method to determine if methane gas was formed prior to, or following, atmospheric nuclear testing in the 1950s and 1960s. Specifically, the atmospheric nuclear testing in the 1950s and 1960s elevated the levels of Carbon 14 to higher than natural levels. Therefore, vegetation growing after the 1950s until the present has a Carbon 14 level higher than 100 percent modern carbon (pMC).

The shallow methane sample collected from the Soil Vapor Probe GMSG-417 contained 91.7 pMC, indicating that the methane likely originated from a source formed prior to 1950. Based on a letter dated December 19, 2003, from Mr. Steven Pelphrey of Isotech, the pMC indicates an age of approximately 700 years for the methane; however, the vapor sample may be a mix of modern and older origin methane. Based on these results, the methane present along Pyle Drive does not appear to have been generated by degradation of organic material (formed after 1950) in the shallow soils.

Four soil samples were collected from Soil Boring GMSB-124 from 42, 60, 66, and 78 ft bls and submitted for total organic carbon analysis. The results of the laboratory analysis did not indicate the presence of total organic carbon above the method detection limit of 1,000 mg/kg, indicating the lack of organic materials in the subsurface soil capable of generating the gas-phase methane.

Based on the results of the investigations and SVE activities, it appears that the gas-phase methane present in the Pyle area is the result of the degradation of organic material in the deep groundwater and off-gasing of methane due to pressure releases in the migrating groundwater. The gas-phase methane then migrates back to this area through permeable pathways and is trapped beneath the silt/clay confining unit at approximately 120 ft bls. Gas-phase methane in the shallow vadose soil is the result of upwards migration of the gas-phase methane from the trap at depth where a breach of the trap occurs. Confirmation of this pathway is that since venting of the deeper trapped methane was implemented at Soil Vapor Probe GMSG-136, gas-phase methane in the shallow soils has diminished and the Pyle SVE system now produces little or no methane.

6.5.2.9 GM-82A/B Area

The gas-phase methane accumulation in the GM-82A area was encountered in June 2004, during the drilling of Monitoring Wells GM-82A/B. The GM-82A/B area is located on the northeast corner of the intersection of Westwood Avenue and Maule Drive (Figures 6-60 and 6-80). The gas-phase methane was found trapped in a saturated sand beneath a silt/clay layer at a depth of approximately 85 ft bls. The historical lateral extent of the gas-phase methane accumulation at the GM-82A area was a roughly circular-shaped area, approximately 150 feet in diameter, or 1.5 acres. The current extent of the gas-phase accumulation is similar to the original extent. The original lateral extent and lateral extent as of December 2007 of the gas-phase methane accumulation in this area are shown on Figure 6-80.

6.5.2.9.1 Methane Occurrence and Conditions

During the drilling of the borehole for Monitoring Well GM-82B, methane readings were recorded starting at a depth of 30 ft bls. No methane gas was detected in the shallow soil (from 0 to 20 ft bls). Initial readings from Monitoring Well GM-82A had methane concentrations ranging from 90 to 100 percent methane by volume and significant pressure ranging from 59 to 95.3 inches of water. Initial readings from Monitoring Well GM-82B had similar methane concentrations and a pressure of 59 inches of water that quickly declined to 5 inches of water once the well was opened. When venting began from Monitoring Well GM-82B, the pressure had built to approximately 140 inches of water, but decreased rapidly to 0.7 inches water once venting began. Because the accumulation of gas-phase methane is trapped beneath a silt/clay layer beneath the water table and remains pressurized at Monitoring Well GM-82A, it can be removed by passive venting.

6.5.2.9.2 Results of Passive Venting

Passive venting of the GM-82A/B area was initiated in July 2004 using Monitoring Well GM-82A, and Monitoring Well GM-82B was added as a second passive vent in November 2004. Monitoring Well GM-82A began methane venting at a flow rate of approximately 1.4 cfm, producing approximately 1,700 lbs of methane during its first month of operation. Even though the flow rate has slowly declined to approximately 0.8 cfm, the methane production from Monitoring Well GM-82 has been fairly constant through December 2007, ranging from the maximum amount of methane of 2,330 lbs in January 2006 to a minimum amount of 1,353 lbs in February 2005.

Monitoring Well GM-82B was converted to a passive vent based on methane detected during the drilling of the borehole but has never produced any significant flow of methane. Once venting began from Monitoring Well GM-82B the pressure decreased rapidly and the well has shown no methane production for the majority of the time it has been vented. Monitoring Well GM-82B produced the maximum amount of methane of 90.2 lbs in February 2006. Throughout the second half of 2007, Monitoring Well GM-82B had been producing methane at a constant rate of approximately 1.2 lbs per month.

Through December 2007, Monitoring Well GM-82A has removed approximately 72,000 lbs of methane and Monitoring Well GM-82B has removed approximately 130 lbs from the GM-82A/B area since passive venting began in 2004. Data on the passive vents for the GM-82A/B area is included in Appendix R and additional details are presented in the Methane IRAP (October 31, 2007) and progress update reports submitted quarterly to the MDEQ since April 2005.

6.5.2.9.3 Origin and Transport of Methane

The principal methanogenic source for the methane is the organic material in the deep groundwater. The origin of the gas-phase methane in the GM-82A/B area is attributed to the off-gassing from dissolved methane contained in the deep groundwater system and migration of gas-phased methane. The organic material in the deep groundwater system appears to be the result of historic disposal practices upgradient of the GM-82A/B area (notably, the NE Pit).

The GM-82A/B area is near the Menominee River, in an area where the vertical groundwater flow is upward. Dissolved methane has been detected in deep groundwater samples at levels that would off-gas due to decreasing pressure as groundwater moves upward towards the Menominee River. Therefore, a release of methane would be expected and migration eastward would account for the gas-phased methane in the GM-82A/B area. The approximately 1,500 to 1,600 lbs per month of methane produced by Monitoring Well GM-82-A through 2007 may indicate the volume of methane migrating to the GM-82A/B area.

6.5.2.10 Menominee River Area

The Menominee River area is in an undeveloped area that abuts the Menominee River in the vicinity of Monitoring Well GMPZB-1. This area is approximately 1,800 ft west-northwest of the intersection of Westwood Avenue and Moroni Drive (Figure 6-60). Gas-phase methane in the Menominee River area was encountered in May 2005, during the drilling of Monitoring Well GMPZB-1.

The area of the gas-phase methane is defined by Monitoring Well GMPZC-14 to the north, Monitoring Well GPMZC-15 to the south, and Soil Boring GMSB-133 to the east. The historical lateral extent of the gas-phase methane accumulation at the Menominee River area was a roughly circular-shaped area less than 100 ft in diameter centered on Monitoring Well GMPZB-1. Currently, the lateral extent of the gas-phase methane is similar to the historic extent. The original lateral extent and lateral extent as of December 2007 of the gas-phase methane accumulation in this area are shown on Figure 6-60.

6.5.2.10.1 Methane Occurrence and Conditions

During the drilling of Monitoring Well GMPZB-1, field screening of the soil with a FID indicated soil vapor readings ranging from 16 ppm to as high as 12 percent by volume. However, in the interval from 95 to 105 ft bls, FID readings increased, ranging from 20 to more than 40 percent by volume. Gas-phase methane had accumulated in a saturated sand at a depth of approximately 95 ft bls, trapped beneath an overlying silt/clay layer. The absence of this sand unit and gas-phase methane at this elevation in additional soil borings, piezometers, and extraction wells within 100 ft of Monitoring Well GMPZB-1 indicate the gas-phase methane accumulation is limited in areal extent.

6.5.2.10.2 Results of Passive Venting

Passive venting was initiated for the Menominee River area in May 2005, using Monitoring Well GMPZB-1. This monitoring well was originally installed on May 12, 2005 as part of the piezometer network for the groundwater extraction system, but converted to a passive vent after gas-phase methane was discovered during the installation of the monitoring well. Monitoring Well GMPZB-1 is screened from 95 to 105 ft bls.

Initially the gas-phase methane was vented through a 500-gal poly tank due to groundwater that was also produced during venting of the gas-phase methane. Subsequently, by controlling the flow rate of the venting methane, groundwater is no longer produced and the tank was removed.

Initially, gas-phase methane was vented at a flow rate of 11 cfm at a concentration of 47 percent by volume methane. Currently, the flow rate from Monitoring Well GMPZB-1 is controlled at 0.1 cfm, with a concentration of 94 percent by volume methane. Through December 2007, the passive vent for the Menominee River area has produced approximately 392,000 lbs of methane.

6.5.2.10.3 Origin and Transport of Methane

The source of the gas-phase methane in the Menominee River area is the biodegradation of organic material present in the groundwater from historic disposal (NE Pit). The gas-phase methane originates from dissolved methane in the deep groundwater by pressure release as the groundwater moves upwards to the Menominee River. The gas-phase methane then migrates through permeable pathways and accumulates in a structural trap created by the silt/clay layer that is pressurized by the groundwater. Other gas-phase methane that is not trapped by silt/clay layers ultimately vents into the atmosphere, as evidenced by the bubbles observed in the Menominee River.

6.5.3 Methane Degradation

The methane data collected during the EE/CA, RI, and subsequent investigations indicate that some portion of the methane in the shallow subsurface soil is degrading as it migrates to the ground surface. Several evaluations were undertaken to determine if the variations in methane concentrations spatially are the result of methane degradation.

One area that was evaluated for methane degradation was the GM-2A area (Figures 6-60 and 6-78). The soil vapor concentrations for Monitoring Well GM-2A and Soil Vapor Probes GMSG-4B, GMSG-19, and GMSG-20, as determined by Isotech Laboratories soil vapor analyses, are shown on Figures 6-82 through 6-85, respectively. To evaluate whether the gas-phase methane migrating into the GM-2A area is degrading naturally, the mass ratio of CO_2 to methane for Monitoring Well GM-2A and Soil Vapor Probes GMSG-4B and GMSG-20, which showed the greatest methane rebound, were compared to mass ratios calculated for typical anaerobic organic degradation processes occurring in landfills and wastewater treatment plants. As previously described, if methane degradation is occurring in the natural environment, additional CO_2 will be produced and the mass ratio of CO_2 to methane will be greater than for a typical landfill or wastewater treatment plant gas. The mass ratio calculations are presented in Appendix Q. Figures 6-86 through 6-88 present the mass ratio results for Monitoring Well GM-2A and Soil Vapor Probes GMSG-4B and GMSG-20, respectively.

As shown in these figures, the mass ratio of CO_2 to methane at Monitoring Well GM-2A and Soil Vapor Probe GMSG-4B is greater than for a typical landfill or wastewater treatment plant (Figures 6-86 and 6-87). The mass ratio at Soil Vapor Probe GMSG-4B was initially lower, but showed a steady and significant increase over time, as both methane and O_2 were depleted (Figure 6-87). Once the O_2 concentration dropped below 1 percent at Soil Vapor Probe GMSG-4B (July 1999), the mass ratio began to drop (Figure 6-87). This would be expected, as methane degradation is an aerobic process. Since the O_2 at Soil Vapor Probe GMSG-4B appears to be depleted, aerobic methane degradation has stopped, resulting in no additional CO_2 production. At Soil Vapor Probe GMSG-20, the mass ratio of CO_2 to methane is less than the ratio for a typical landfill or wastewater treatment plant. Because Soil Vapor Probe GMSG-20 was not initially selected as one of the soil vapor probes to be sampled for laboratory analysis, the methane concentration had already recovered to approximately 20 percent by the time sampling and analysis were done at this location (Figure 6-88).

In summary, the mass ratio data from Monitoring Well GM-2A and Soil Vapor Probes GMSG-4A and GMSG-20, demonstrate that it is possible for methane to degrade naturally as it migrates in the subsurface, as long as sufficient O_2 is present along with the methane. Methane concentrations approaching 3 to 4 percent were successfully reduced by natural biological degradation processes at Soil Vapor Probe GMSG-4B, while concentrations of 20 percent or greater at Soil Vapor Probe GMSG-20 have not been reduced.

Another area evaluated for evidence of methane degradation was the Breen/Upper Terrace area (Figures 6-60 and 6-73). Soil Vapor Probe GMSG-118A/B/C nest and Monitoring Well GM-118D are constructed in an area where gas-phase methane is present at depth and there is no confining layer to restrict the methane from rising to the surface. The soil vapor probes and monitoring well are labeled in alphabetical order from shallowest screen interval (Soil Vapor Probe GMSG-118A) to deepest screen interval (Monitoring Well GM-118D). The well screen for Monitoring Well GM-118D is completed below the water table to investigate groundwater quality. Soil Vapor Probe GMSG-118A and Monitoring Well GM-118D both had low concentrations of methane. Soil Vapor Probe GMSG-118A has methane concentrations that range from 0 percent to 0.6 percent and Monitoring Well GM-118D had methane concentrations ranging from 0 to 1 percent. The CO_2 concentrations for the same soil vapor probe and monitoring well ranged from 0 to 8.4 percent, while the O_2 concentrations ranged from 8 percent to natural atmospheric concentrations.

As shown on Figure 6-89, Soil Vapor Probes GMSG-118B and GMSG-118C had methane concentrations up to 11 percent, CO_2 concentrations up to 12 percent, and O_2 concentrations that ranged from 0 percent to natural atmospheric concentrations. CO_2 concentrations for these soil vapor probes are above those typically observed in the natural atmosphere (0.03 percent). Decreasing methane concentrations, along with increasing CO_2 concentrations at shallower depths, indicate that gas-phase methane is being degraded as it moves upward in the soil column (Figure 6-89).

To further evaluate the degradation of methane within this area, the mass ratio of CO_2 to methane for Soil Vapor Probes GMSG-118A, GMSG-118B, and GMSG-118C was compared to mass ratios calculated for typical anaerobic organic degradation processes occurring in landfills and wastewater treatment plants. The basis for this evaluation is that at the typical landfill and wastewater treatment plant, organic material is degraded anaerobically, producing methane and CO_2 gases. These gases are then recovered, so the methane does not have an opportunity to degrade aerobically, as may happen in the natural environment. If methane degradation is occurring in the natural environment, additional CO_2 will be produced, and thus the mass ratio of CO_2 to methane will be greater than for typical landfill or wastewater treatment plant gases.

The mass ratio calculations from Soil Vapor Probes GMSG-118A/118B/118C are presented in Appendix Q. Figure 6-90 presents the mass ratio calculation results for these probes. As shown on Figure 6-90, the mass ratio of CO_2 to methane for each of the three soil vapor probes is greater than that for a typical landfill or wastewater treatment plant, and the mass ratio also increases with increasing depth. This indicates that the methane is degrading naturally as it migrates vertically upward in the vicinity of Soil Vapor Probes GMSG-118A/118B/118C.

Venting of gas-phase methane accumulations can play an important role not only in removing methane from the subsurface (before it can migrate into the shallow surface soils) it can also provide O_2 that allows for natural biological degradation of methane prior to entry into the atmosphere.

6.5.4 Methane Risk Evaluation

A risk evaluation was performed to evaluate potential risks posed to human health by methane detected within the Study Area. Methane is readily metabolized by the mammalian system, but the majority of inhaled methane is quickly exhaled, thus chronic effects are not likely or known to occur. Consequently, toxicity information concerning methane is not available and the evaluation of potential risks associated with methane is qualitative.

6.5.4.1 Toxicity Profile of Methane

Methane is a colorless, odorless gas with a wide distribution in nature. It is the principal component of natural gas, a mixture containing approximately 85 percent methane (Hazardous Substances Database [HSDB], 1998). Methane may be released to the environment as emissions from automobile exhaust, manufacturing processes associated with petroleum and gas industries, volcanoes, animal wastes, and from anaerobic bacterial decomposition of plant and animal matter. Other sources include the rumen (the first stomach of cud chewing animals) of domestic animals, especially cattle, and the emission of methane from rice cultivation (HSDB, 1998). Under environmental conditions, methane is a gas; therefore, the principal route of exposure to methane is by inhalation.

Methane is a biologically inert gas that is not toxic and is not known to have systemic toxicological effects (Voltaix, 1994). The principle concerns with methane are its explosive and asphyxiant properties that can occur in confined situations with high concentrations of methane. Since methane is a simple asphyxiant, no threshold limit value, permissible exposure limit, or recommended exposure limit has been established. Since the concentrations at which flammable or explosive methane mixtures may form are much lower than the concentration at which risk of asphyxiation could occur, the primary concern associated with methane is explosion rather than asphyxiation. The flammability limit for methane is 5.3 to 15 percent volume in air

(Voltaix, 1994). As such, it is recommended that work place concentrations be controlled to remain below the lower flammable limit (Voltaix, 1994).

Methane is readily metabolized by the mammalian system and when inhaled, the main portion is exhaled in unchanged form (Clayton et. al., 1982). Small amounts of methane that are not exhaled undergo metabolism to methanol, and ultimately to CO_2. Methane is a simple asphyxiant, which means that air containing high levels of this gas does not contain sufficient O_2 to support respiration. Simple asphyxiants displace O_2 from the breathing atmosphere, primarily in enclosed spaces, and can result in hypoxia. The concentration of methane has to be quite high (greater than 80 percent) before asphyxiation occurs.

A concentration of 87 percent methane has been demonstrated to cause asphyxiation in mice and, at 90 percent methane, respiratory arrest was observed (Snyder, 1987). In humans, signs of asphyxiation can be noted at methane concentrations of 84 to 85 percent or more (corresponding to O_2 concentrations of 15 to 16 percent or less) (Hall and Rumack, 1997). Unconsciousness can occur when the atmospheric concentration is 92 to 94 percent methane (Hall and Rumack, 1988).

The literature reports that simple asphyxiants like methane produce no major adverse symptoms in humans at 0 to 33 percent. It is also reported that for acute exposures, there are four stages of hypoxia on arterial O_2 saturation. These are, indifferent stage, compensatory stage, disturbance stage, and critical stage. No such exposures have been reported in Kingsford or are expected.

THIS PAGE INTENTIONALLY LEFT BLANK

7. Fate and Transport of Organic Material

7.1 Site Conceptual Model

The previous sections of this RI report have discussed individually the geologic and hydrogeologic conditions in the Study Area along with the physical, chemical, and biochemical properties and distribution of the Study Area constituents. The purpose of this section is to integrate these components together to develop a Site Conceptual Model in order to better understand present Study Area conditions and how these conditions may be expected to change in the future. The Site Conceptual Model was created from the geologic and chemical data that was collected during the historic, EE/CA, and RI investigations in the Study Area. The purpose of the Site Conceptual Model is to test whether constituents could have moved from historic sources in the manner discussed, determine whether constituents would be found in the present day distribution indicated by the data, and identify the ultimate fate of the constituents.

In developing the Site Conceptual Model, it is important to understand the history of the plant, which operated between the mid-1920s until 1961. Although there are few records of specific volumes within this time frame, some liquid and solid waste materials were disposed in the NE Pit and SW Pit a minimum of 42 years ago, and some as long ago as 77 years. Due to the age of the release and the relatively high solubilities of the liquid waste constituents, a majority of these constituents that entered the groundwater system no longer remain within the former disposal areas.

Chemical data collected from the Study Area show a large volume of the historic liquid organic constituents reside in the groundwater system, or have been biodegraded or otherwise degraded or attenuated within the groundwater system. Some solid organic material remains in the former disposal areas, primarily the NE Pit. However, the organic material present in the groundwater system today is nearly all the result of the historic releases of organic material from liquids, and is not due to continuing releases from solid waste (primarily contained in the NE and SW Pits). The chemical data from the groundwater immediately beneath the solids indicate that these materials contribute little from continued leaching to the groundwater when compared to constituents that exist in the deeper groundwater system.

When the historic organic constituents entered the groundwater system at the NE and SW Pits, conditions were favorable for downward movement or migration into the deep portion of the groundwater system. These conditions include the density of the liquid wastes disposed and the vertical component of the hydraulic gradient particularly at the

NE Pit. Wood by-products, acetic acid, and other simple organic constituents made up a portion of aqueous liquids (denser than water) that were released into the former disposal areas. Godsy et. al. (1999) reported that wood process by-products could contain up to approximately 12 percent acetic acid and other organic constituents (Appendix L). A solution of 12 percent acetic acid would have a specific gravity of about 1.01, so the solution would be denser than water and would sink.

Liquids released into the former disposal areas would have migrated vertically downward through the vadose zone, and upon entering the groundwater system continue downward following preferential pathways, into the deep portion of the groundwater system. The combination of the density of the released liquid and the downward vertical component of the hydraulic gradient of the groundwater, which is approximately 0.1 to 0.3 ft/ft enhanced the downward migration of the organic constituents within the groundwater system. The result of the downward migration is that the highest organic concentrations currently observed in the Study Area are generally found in groundwater samples collected from the deep portion of the groundwater system. Groundwater collected from Monitoring Wells GM-2B, GM-62B, and Soil Borings GMSB-1 and GMSB-2 is an example of this phenomenon.

The geologic materials that contain the groundwater system consist of complex sequences of materials with low to high permeability. Generally, the materials that possess the highest permeabilities represent zones of high groundwater flow, which were defined as Unit 1 material for this RI report. The geologic materials included in Unit 1, were described as fine to coarse grain sand and gravel, as identified during the drilling of soil borings. Unit 2 material, described as very fine grain sand and silty sand, possess a lower permeability than Unit 1 material. The least permeable materials, consisting of silt and clay, were defined as Unit 3 material. The liquid organic constituents released to the former disposal areas, encountered all three of these geologic units during its movement. As with the groundwater flow pattern, most of the movement of the constituents released into the groundwater occurred within Unit 1 material. Some groundwater and constituent movement occurred in Unit 2 material, although at a much slower rate than in the Unit 1 material. Over years, a significantly smaller amount of organic constituents would have entered the Unit 3 materials, primarily through diffusion processes.

Groundwater flow has moved much of the historical organic constituents through the Unit 1 material, due to several factors that include the age of the release, the hydraulic conductivity of the material, the horizontal hydraulic groundwater gradient, and the relatively high solubilities of many of the constituents. However, much less constituent movement would have occurred in areas of lower groundwater flow, such as Unit 2 material. Because of the lower groundwater flow, Unit 2 materials would be expected to currently contain higher concentrations of organic constituents than Unit 1 materials. As discussed in Section 6.2, this condition occurs at a number of locations in the Study Area. Organic constituents that have managed to migrate into the silt and clay, defined as Unit 3 material, would be subject to very low migration rates and are essentially "trapped" within these materials.

As the organic constituents move through the groundwater system, most of them undergo some degree of anaerobic biological degradation. The anaerobic biodegradation has, and is, occurring primarily in the deeper portion of the groundwater system. Although solid organic material currently exists in the NE Pit and SW Pit, they are not the source of the higher concentration of methane dissolved in the deep groundwater system. The maximum concentration of methane soluble in groundwater at the groundwater surface (water table) is approximately 30 mg/L. Therefore, the maximum concentration of methane that the groundwater could transport downward into the deep groundwater system would be 30 mg/L.

However, the methane concentration was over 100 mg/L in more than a dozen groundwater samples collected from various monitoring wells completed in the deeper portions of the groundwater system, including Monitoring Wells GM-2B (460 mg/L), GM-62C (298 mg/L), GM-1 (165 mg/L), GM-53B (147 mg/L), and GM-37B (121 mg/L). These monitoring well locations all either coincide with, or are adjacent to, areas of high TOC concentrations in the groundwater. Therefore, the concentrations of dissolved methane in the groundwater system are the result of anaerobic degradation of organic material in the deep groundwater system. A laboratory study by Godsy, et. al. (1999) confirmed the potential for organic material in the deep groundwater to generate methane. A discussion of the laboratory study by Godsy is presented in the following section.

The highest concentrations of dissolved methane are found deep within the groundwater system, where the methane is generated. As groundwater containing dissolved methane in excess of approximately 30 mg/L moves upward from locations deep within the groundwater system, the release of pressure on the groundwater allows for the release of some dissolved methane into gas-phase methane. This generally happens near the Menominee River, where the vertical component of the groundwater flow is upward, as groundwater in the Study Area ultimately vents to the Menominee River. Some of the gas-phase methane that is formed by the release of pressure on the groundwater system is released into the Menominee River, as evidenced by bubbles that may be visible in a segment of the river. The segment of the Menominee River where the bubbles may be visible is shown on Figure 6-60.

Based on the nature of the geologic deposits, the gas-phase methane can either continue to move as "bubbles" in the direction of groundwater flow, or move independently from the groundwater flow. Where bubbles are present in the Menominee River, the gas-phase methane is moving along groundwater preferential pathways and is migrating into the river along with the groundwater.

There are some areas where gas-phase methane that has been released within the groundwater system moves independent of the groundwater flow. When the geology of the deposits along the groundwater pathway changes from a higher to lower permeability material, the flow path of the gas-phase methane can separate from the groundwater. This can be seen in areas such as the Upper Terrace/Breen Avenue area and the RDA area, where the flow of the groundwater is westward towards the Menominee River and the movement of the gas-phase methane is into accumulations eastward of the river. The characteristics of this independent movement are discussed in Section 6.5.1.

An example of independent methane movement is when gas-phase methane "bubbles" rising upward in the groundwater system within preferential pathways (Unit 1 material) encounter a silt/clay layer (Unit 3 material). Where this occurs, gas-phase methane begins to migrate within the more permeable sand towards structurally higher elevations within the base of the silt/clay layer, and away from the continued groundwater flow direction towards the river. Unit 2 material can retard and redirect gas-phase methane when compared to Unit 1 material; however, Unit 2 material also offers a secondary pathway when compared to Unit 3 material.

As the gas-phase methane moves along the base of the silt/clay layer, if it encounters a pocket or dome of permeable sand protruding into the base of the silt/clay layer, gas-phase methane can accumulate within these structures and displace the groundwater, causing a structural trap for the gas-phase methane. As gas-phase methane accumulates, a point can be reached where the gas-phase methane can no longer be contained within the dome structure and gas-phase methane will continue to migrate upward along the dip of the base of the silt/clay, until another structure or dome is encountered that allows gas-phase methane to accumulate again. Ultimately, gas-phase methane can migrate upward to a point where permeable materials disappear into impermeable materials, which can also create a "trap" for the gas-phase methane by the difference in the permeability of the material, and prevent further movement. If permeable pathways are encountered within the silt/clay layers, then the gas-phase methane can move upward into the vadose zone.

The Site Conceptual Model integrates the historical disposal practices with the presence of gas-phase methane found beneath portions of the Study Area. Based on the data collected from the groundwater and the active and passive methane venting programs, the gas-phase methane originally found in the Study Area appears to have accumulated over time. As the stored gas-phase methane is removed, methane volume, as well as concentrations, pressure, and flow, decline.

The initial rates of gas-phase methane released through the active and passive venting programs did not appear to represent methane generation rates. As gas-phase methane trapped beneath the silt/clay layers is vented, equilibrium conditions will ultimately be reached that will represent the rate of gas-phase methane entering the structural or stratigraphic traps. It appears this may already be the case at some locations such as the RDA and Emmet Area.

7.2 USGS Laboratory Investigations

Mike Godsy and Ian Warren of the USGS performed laboratory investigations to better understand the biodegradation of dissolved organic constituents in groundwater in the Study Area. Compound specific isotope analysis was used to derive a signature of the most prominent organic constituents in groundwater to trace the degradation process occurring along groundwater flow paths. The investigations report is included in Appendix L.

Four samples from three locations were studied, including samples collected from Soil Borings GMSB-2, and Monitoring Wells GM-2B and GM-13. A soil sample from Soil Boring GMSB-2, collected from a depth of 245 ft bls, was evaluated for the presence of microbes. The sample was found to contain 10^5 or greater total microorganisms per gram of dry weight. The microorganisms appeared to be anaerobic in nature. Godsy concluded that the soil sample came from an area where iron reduction predominates due to the high numbers of iron bacteria and lack of methanogenic microorganisms. He further concluded that biodegradation of the organic constituents, via methanogenesis, occurs downgradient of the source areas after dilution with groundwater overcomes conditions hostile to microbial growth.

The laboratory investigations performed by Godsy included a laboratory microcosm study, using groundwater collected from Soil Boring GMSB-2 at a depth of 263 ft bls.

The study was performed over a period of 471 days. The findings from this study are summarized below:

- During the first phase of the microcosm study, biodegradation of fatty acids (formate, acetate, propionate, and butyrate) occurred with little degradation of other constituents.

- As the fatty acids degraded, biodegradation shifted to the phenolic compounds with phenol being the first to degrade followed by 3- and 4-methylphenol and then 2-methylphenol. At the end of the study of the confirmed phenolic constituents, only 2,4- and 2,6-dimethylphenol remained.

- A first-order model can be used to describe the biodegradation process.

- The biodegradation rate has a half-life of approximately 98 days.

These findings from Godsy were incorporated in to the Site Conceptual Model and in the simulations that were performed using a groundwater flow and transport model. The following sections discuss the transport modeling and simulations.

7.3 Solute Transport Modeling

To simulate the Site Conceptual Model for movement of constituents in groundwater, a 2-D model was developed to provide insight into future fate and transport of dissolved, anaerobically biodegradable organic material currently contained in groundwater. While a homogeneous, isotropic 2-D model is simplistic, and may be considered inappropriate for the complex situation that exists in the Study Area, a 2-D model assists with developing a hypothesis for understanding what processes may have occurred in the Study Area that would have resulted in the current distribution of the constituents. The 2-D model does not predict future concentrations.

The U.S. EPA Bioscreen model was selected for the 2-D model and simulations were performed using organic material as a representative “tracer” of Study Area constituents. Although the U.S. EPA Bioscreen model is an analytical model that may not be able to completely represent a heterogeneous environment like that within the Study Area, the Bioscreen model simulations serve as an example of how the constituent concentrations could have moved within the groundwater system over time in the Study Area.

Appendix R contains three scenarios of a Bioscreen model, which may represent historic occurrences in the Study Area. The scenarios various hydraulic conductivities are representative of the Unit 1, 2, and 3 materials, as well as varying amounts of source material. Scenarios 1 and 2 replicate conditions where the release was historic and ended approximately 40 years ago, while Scenario 3 represents a continuing source through the present.

7.3.1 Scenario 1

The first Bioscreen model simulation (Scenario 1) was designed to simulate constituent concentrations within Unit 1 in the deep groundwater system during the 40 years after liquid releases to the former disposal pits ceased. Figures representing the Bioscreen model simulation for Scenario 1 are included in Appendix R. For the Scenario 1 simulation, the following assumptions were used:

- Source area concentration 125,000 mg/L
- Source area mass 22,000,000 kilograms
- Hydraulic conductivity 5.7×10^{-3} cm/sec
- Source area distance to river 4,400 ft
- Degradation None

The Bioscreen model simulation for Scenario 1 was performed assuming that no biological degradation occurs. This assumption was made based on the work by Godsy et. al. (1999) presented above, which shows that high concentrations (greater than 2,500 mg/L) of organic material may actually be toxic to anaerobic bacteria and reduce the rate of anaerobic degradation. The results of the Scenario 1 simulation indicate that without biodegradation, the high concentrations of historic acetic acid released to the more permeable soil, characteristic of Unit 1 material, would have moved through the groundwater system to the river over a 40-year period, leaving a residual concentration of less than 3,000 mg/L at the source area (Application 1, Appendix R). The simulation agrees with present day TOC concentrations from groundwater grab samples collected from Soil Borings GMSB-1 and GMSB-2, within the historic source areas. The TOC concentrations in the groundwater from Soil Borings GMSB-1 and GMSB-2, ranged from 33 to 2,300 mg/L.

ARCADIS

7.3.2 Scenario 2

The second Bioscreen model simulation (Scenario 2) was designed to represent conditions in the groundwater system where the organic constituents historically released into less permeable soil, characteristic of Unit 2 material, would slowly migrate into Unit 1 material and then travel within Unit 1 material toward the river. Figures representing the Bioscreen model simulation for Scenario 2 are included in Appendix R. The following assumptions were used for this Bioscreen model simulation:

- Source area concentration 2,500 mg/L
- Source area mass Infinite
- Hydraulic conductivity 5.7×10^{-3} cm/sec
- Source area distance to river 4,400 ft
- Biodegradation half-life 3 years

The source area concentration was based upon current concentrations found in Unit 2 material near the historic source areas. Examples of this source area concentration are the TOC values which range from 2,300 (265 ft bls) to 1,700 mg/L (345 ft bls) from groundwater grab samples collected from Soil Boring GMSB-2 in Unit 2 material. A more conservative biodegradation half-life of 3 years was used in the Scenario 2 simulation. Scenario 2 assumes that the biodegradation curve more accurately reflects the current conditions for the fate and transport of organic constituents migrating from Unit 2 into Unit 1 materials.

This is believed to be a good assumption since Godsy's laboratory studies (1999) using groundwater from Soil Boring GMSB-2 showed that when the groundwater was diluted, anaerobic biodegradation of most of the identified organic material in the groundwater occurred, and that the biodegradation half-life was 98 days. Scenario 2 simulations (Appendix R, Application 2) suggest that the anaerobically biodegradable organic constituents currently remaining in the deep groundwater near the historic source areas are not likely to reach the river at high concentrations by transport within the groundwater system. This is due to their slow release into Unit 1 material and the anaerobic biodegradation that would then occur.

7.3.3 Scenario 3

The third Bioscreen model simulation (Scenario 3) was designed to simulate the transport of organic material that would remain entirely within Unit 2 material, or is present in a lens of Unit 1 material embedded within Unit 2 material, restricting movement. Figures representing the Bioscreen model simulation for Scenario 3 are included in Appendix R.

This scenario represents areas of the groundwater system where some of the highest concentrations of dissolved organic constituents currently exist within the Study Area, including: (1) residual concentrations from the historic releases of organic constituents that have migrated deeply into Unit 2 materials, or (2) stagnant zones within Unit 1 materials where less permeable Unit 2 and Unit 3 materials restrict movement of organic constituents through Unit 1 materials. The TOC values in the groundwater collected from Monitoring Wells GM-32 (4,300 mg/L), GM-40B (2,300 mg/L), and GM-37A/B (710/2,100 mg/L), and Soil Borings GMSB-1 (1,100 mg/L) and GMSB-2 (2,300 mg/L) are representative of these conditions. The following assumptions were used for this Bioscreen model simulation:

- Source area concentration 2,500 mg/L
- Source area mass Infinite
- Hydraulic conductivity 4.7×10^{-4} cm/sec
- Source area distance to river 4,400 ft
- Degradation None

As expected, this Bioscreen model simulation indicates that limited movement of organic constituents occurs under this scenario. After 40 years, with no degradation, the organic constituents travel less than 1,000 ft (Appendix R, Application 3). This supports the belief that movement of organic constituents within Unit 2 and Unit 3 materials is very slow.

7.4 Site Conceptual Model Verification

The Site Conceptual Model was developed for the Study Area/AOC based on the Site conditions, as understood from the data collected during the investigation activities.

The Site Conceptual Model is meant to provide a working hypothesis that can be applied to the Study Area/AOC to understand the conditions present and be used as a tool for future actions that may be necessary at the Site. A 2-D U.S. EPA Bioscreen analytical model was applied to the data to determine if the conditions and organic mass found within the Study Area/AOC could be replicated and verify that the Site Conceptual Model is accurate. While an analytical model has some limitations, it demonstrated that the Site Conceptual Model correctly produced the results that define the conditions within the Study Area/AOC.

The Site Conceptual Model was developed based primarily on data collected from field investigations between April 1997 and January 2001. Additional data collected through December 2007 has been applied to the Site Conceptual Model and the results validate that the Site Conceptual Model is accurate and requires no revision.

In addition to the Site Conceptual Model, a Site-wide groundwater flow model was developed by ARCADIS to confirm the groundwater migration rate to the Menominee River and design a groundwater extraction and treatment system that would capture groundwater in accordance with the CJ. The groundwater flow model provided evidence that the hydrogeologic elements of the Site Conceptual Model are correct.

8. Exposure Pathways and Transport Routes

The analytical data for surface soil, subsurface soil, waste, and groundwater collected from these areas has been compared to the State of Michigan criteria in MDEQ RRD Operational Memorandum #1 Part 201 Generic Cleanup Criteria and Screening Levels (January 23, 2006). Based on the evaluation of the analytical data and standards, risk pathways were established for the media in the Study Area and constituents that present a potential risk to human health. Risk pathways are identified for the specific source areas and the Study Area as a whole that show the route(s) and receptor(s) affected, so that the need for remedial action may be evaluated to eliminate or minimize a risk pathway.

8.1 Groundwater

The potential pathways to evaluate for exposure to impacted material associated with the groundwater, as indicated by the groundwater analytical results include:

- Drinking impacted groundwater.
- Dermal contact with impacted groundwater.
- Inhalation of volatilized constituents from impacted groundwater.
- Flammability or explosivity of vapors from groundwater.
- GSI as addressed at the Menominee River.

The pathways listed are a non-factor over most of the Study Area/AOC, with the exception of the GSI. Drinking water is provided by the City of Kingsford from water supply wells outside of the Study Area and there are no longer any residential water wells. The depth to impacted groundwater is greater than 70 ft throughout most of the Study Area, such that contact with the impacted groundwater in these areas would not be possible.

8.2 NE Pit

The potential pathways to evaluate for exposure to impacted material from the NE Pit include:

- Direct contact with wood tars that could migrate to the surface, or with subsurface waste material via unauthorized excavation or construction activities.
- Inhalation of potential vapors from waste material in indoor air and accumulation in future confined structures, if any were to be constructed in this area.
- Flammability or explosivity of vapors.
- Inhalation of ambient air impacted with vapors.

8.3 SW Pit

The potential pathways to evaluate for exposure to impacted material from the SW Pit include:

- Direct contact with subsurface waste material via unauthorized excavation or construction activities.
- Inhalation of potential vapors from waste material in indoor air and accumulation in future confined structures, if any were to be constructed in this area.
- Flammability or explosivity of vapors.

8.4 RDA

The potential pathways to evaluate for exposure to material impacted from the RDA include:

- Direct contact with subsurface waste material via unauthorized excavation or construction activities.

- Direct contact or inhalation of surface soil particulates.

8.5 Former Plant Site

The potential pathways to evaluate for exposure to impacted material from the FPS include:

- Direct contact with wood tars that could migrate to the surface, or with subsurface waste material via unauthorized excavation or construction activities.

- Inhalation of potential vapors from waste material in indoor air and accumulation in future confined structures, if any were to be constructed in this area.

- Flammability or explosivity of vapors.

8.6 WBADA

The potential pathways to evaluate for exposure to impacted material from the WBADA include:

- Direct contact with subsurface waste material via unauthorized excavation or construction activities.

- Inhalation of potential vapors from waste material in indoor air and accumulation in confined structures.

- Flammability or explosivity of vapors.

8.7 Applicable or Relevant and Appropriate Requirements

Based on the exposure pathways and transportation routes, any selected remedies for the Site will need to comply with state applicable or relevant and appropriate requirements (ARARs) that can be categorized as chemical-specific, location-specific, and action-specific.

Chemical-specific ARARs regulate the release of specific substances which have certain chemical characteristics and typically determine the extent of cleanup at a site. These chemical-specific ARARs could include:

- Part 31/Part 31 Rules, Water Resources Protection Act.

- Part 115/Part 115 Rules, Solid Waste Management Act.

- Part 121, Liquid Industrial Waste Act. Part 201/Part 201 Rules, Environmental Remediation Act.

Location-specific ARARs are those requirements that relate to thegeographical position of a Site. Location-specific ARARs could include:

- Part 31/Part 31 Rules, Water Resources Protection Act.

- Part 91, Soil Erosion and Sedimentation Control, of the NREPA.

Action-Specific ARARs are requirements that define acceptabletreatment and disposal procedures for hazardous substances. Action-Specific ARARs could include:

- Part 31/Part 31 Rules, Water Resources Protection Act.

- Part 55, Air Pollution Control, of the NREPA.

- Part 201/Part 201 Rules, Environmental Remediation Act.

9. Interim Response Activities

During the course of the EE/CA and RI activities, additional actions were undertaken which were not outlined as parts of the EE/CA or RI Work Plans. Some of these activities were undertaken in response to requests from the MDEQ and others as requirements of the Consent Judgment. These interim activities included IRAP preparation and implementation, removal of surficial wood tar from the area of the NE Pit, operation of SVE systems, expanded investigation of the occurrence and distribution of gas-phase methane in the areas of the SVE systems, pilot venting tests, implementation of an Emergency Response Plan (ERP), a city-wide methane detector program, closure of residential wells, surface water sampling from the Menominee River, toxicity testing of groundwater near the Menominee River, and groundwater treatment near the Menominee River. Discussions of these interim response activities are below.

9.1 NE Pit

Wood tar was observed to periodically seep to the ground surface in localized areas of the NE Pit. A weekly inspection program for these areas of the NE Pit was undertaken until the IRAP for the NE Pit was initiated. If wood tar was observed at the ground surface, it was removed and contained for proper disposal in accordance with an approved MDEQ plan. Approximately 65 tons of wood tar and wood tar/soil mix from the seeps and test pit activities have been removed and properly disposed during the program.

In 2003 to 2004, IRAP activities were undertaken at the NE Pit to address the remaining waste materials present. A multi-layered, impermeable cover system was placed over the waste material in order to prevent infiltration of precipitation through the waste material and to minimize or eliminate leaching of waste constituents to groundwater. The cover system also eliminated any direct contact.

Following stripping of the clean cover material, excavation of approximately 16,000 cubic yards of waste materials was completed and the material was consolidated within the cover footprint.

During excavation activities two waste materials were generated that required handling and off-site disposal. Significant quantities of concentrated tar materials were removed, along with immediately surrounding soils. This soil and tar mixture was excavated where encountered across the area, and approximately 6,700 tons was collected and transported off site for disposal. In addition, approximately 26 tons of drum/soil/paint sludge mixture also encountered was transported off site for disposal.

An impermeable lower liner system was placed over the waste material at the bottom of the former pit to prevent the migration of tar materials to the ground surface.

Following consolidation of the waste material above the lower liner system, the upper liner system was installed. An impermeable upper liner system was placed above the consolidated waste to minimize or eliminate infiltration of surface water through waste materials. A final asphalt surface cover was installed to provide an additional layer of protection from any potential surface water infiltration.

Removal and off-site disposal of the tar material and installation of the impermeable cover system significantly reduce or eliminate the potential for this area to be a continuing source of groundwater impacts, as well as the potential for direct contact. Complete details of the cover system and construction activities can be found in the report entitled, "*Former Northeast Pit Interim Response Action Construction Documentation Report, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case 04-1427-CE,"* dated April 19, 2006.

9.2 SW Pit

In 2004, IRAP activities were undertaken at the SW Pit to address the potential for direct contact with the remaining waste material. Results from leachability tests and distribution of the constituents in groundwater indicate that waste material in the SW Pit is not impacting groundwater quality and that the source of constituents in groundwater is the upgradient NE Pit. When the former channel connecting the NE and SW Pits was excavated, some tar material was encountered and a total of 2,285 cubic yards of waste material was excavated. This stockpiled waste material was consolidated beneath the NE Pit impermeable cover system during the interim response action construction.

The permeable soil cover installed at the SW Pit (to address potential direct contact concerns associated with the waste) includes permanent storm water controls consisting of two drainage swales in the pit area for conveyance of storm water away from the permeable cover, and a subsurface infiltration gallery installed south of Lodal Park Drive. These controls provide an additional layer of protection by minimizing or eliminating any potential infiltration of precipitation or run-off through the remaining waste materials. Complete details regarding the waste removal and cover system installation activities can be found in the report entitled *"Former Southwest Pit Interim Response Action Construction Documentation Report, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case 04-1427-CE,"* dated December 28, 2005.

9.3 RDA

From July 2001 to August 2003, IRAP activities were undertaken at the RDA to address the potential for direct contact with the remaining waste material. Results from leachability testing and distribution of the constituents in the groundwater indicate that waste material in the RDA is not impacting groundwater quality and that the source of the constituents in the groundwater is upgradient from the RDA.

During the waste relocation and consolidation activities completed prior to installation of the permeable cover system (installed to address potential direct contact issues associated with the waste) solid tar material was encountered in some areas. Where tar material was observed, the waste was removed, and approximately 121 cubic yards of tar were excavated and transported off site for disposal.

While the completed response action creates a physical barrier that eliminates the direct contact pathway for any remaining waste material, it also minimized the potential for infiltration of precipitation. Extensive testing determined that the waste was not a contributing source to groundwater impacts; however, the cover system provides an additional layer of protection to eliminate any potential risks. Complete details regarding construction of the cover system can be found in the RDA IRAP Construction Documentation Report (ARCADIS, 2002b).

9.4 FPS

From April 2002 to May 2005, IRAP activities were undertaken at the FPS to address the potential for impacts from waste material. All accessible waste encountered was excavated and transported off site for disposal; however, a small amount of waste material enclosed within a concrete trough remains in place below the existing Smith Castings building. The building and the concrete floor slab act as a barrier to prevent any direct contact and potential precipitation or surface water run-off from infiltrating through the remaining waste material and potentially impacting groundwater.

Removal of all encountered waste materials and the existing building and floor slab acting as a cover system for the remaining inaccessible waste eliminates the potential for continuing impacts to groundwater. Further details regarding the waste removal activities can be found in the report entitled "*FPS Interim Response Action Plan and Construction Documentation Report, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case 04-1427-CE,"* dated October 12, 2007.

9.5 Gas-Phase Methane

9.5.1 ERP

An ERP has been established in conjunction with the KPSD to be used in the event of a reported methane detector alarm and confirmation of the presence of hazardous levels of methane. The purpose of the ERP is to set procedures to be followed and provide assistance to the public should a relocation from a residence be required. The first level of response to a methane detector alarm is the KPSD or the Breitung Township Fire Department (BTFD), who inspects the residence and monitors for the presence of gas-phase methane. If hazardous levels of gas-phase methane are found, the residents will be evacuated from the structure and temporarily housed in motels. ARCADIS is then called to further investigate the gas-phase methane occurrence. The investigation initially uses a punch-bar survey, followed by deeper soil borings, and then a SVE program, if required. If KPSD does not identify the presence of hazardous levels of gas-phase methane, ARCADIS is contacted to follow up on the false methane detector alarm.

9.5.2 SVE System Operation

SVE systems are operated as part of a Site-wide IRAP to address gas-phase methane. These SVE systems include the Breen SVE system, Emmet SVE system, RDA SVE system, the Lodal/GMSG-96/96A SVE system the Pyle SVE system, the GM-41 SVE system, and the GMSG-135 SVE system.

SVE operations have also been conducted on a temporary basis during the RI with portable SVE systems at four locations. These portable SVE systems include the GM-2A SVE system, the Notch SVE system, the Delta Do-It SVE system, and the GMSG-135 SVE system.

9.5.3 Methane Programs

Since 1999, extensive methane programs have been established to ensure gas-phase methane is not a threat to any of the structures within the AOC. The following sections contain a summary of the components of the methane program.

9.5.3.1 Methane Detector Enhancement Program

Methane monitors were supplied to residents in Kingsford in 1997. In 1999, ARCADIS implemented a Methane Detector Enhancement Program (MDEP) to maintain proper functioning of methane detectors, evaluate and install additional methane detectors as necessary, educate residents about the functioning of their methane detectors, and evaluate methane detector soundings. In 2000, a comprehensive inspection of the residences in Kingsford for gas-phase methane was initiated and each methane detector checked for proper operation and sensitivity to methane. No gas-phase methane has been found in any of the residences inspected to date.

9.5.3.2 Residential Methane Program (RMP)

The RMP is a continuation and expansion of the MDEP. In accordance with the RMP, methane detector soundings are evaluated by completing a follow-up visit for each sounding, and maintaining a database of the information collected from the programs. The RMP also includes offering to install a VCS in appropriate residential structures, offering to seal any cracks or openings in the lowest level of structures that may allow potential vapor intrusion, and offering to complete annual inspections of structures. If the owner does not consent to any of these actions, ARCADIS will implement the provisions outlined in the document entitled *"Contingency, Ford-Kingsford Products Facility, Court Case #04-1427-CE,"* (January 20, 2005). ARCADIS continues to educate new residents about the RMP, and KPSD and BTFD are trained to respond to a residence if a methane detector sounds. The following sections provide further details of the RMP.

9.5.3.2.1 Residential Inspections

Prior to a residential inspection, ARCADIS sends a letter to the resident notifying them that ARCADIS will attempt to contact them to offer to discuss and implement the RMP. ARCADIS then contacts the resident via telephone or door to door contact. Based on an evaluation completed in 2004 and summarized in the previously referenced document entitled "*Evaluation of Methane Accumulation in Storage Sheds,"* accessory structures do not require a methane evaluation and response. If the owner agrees to an inspection, ARCADIS monitors the lowest floor in appropriate structures on the property, including cracks and openings in the floor, for the presence of methane gas using a methane-specific monitoring instrument that measures methane in percent of the lower explosive limit, ppm, and percent by volume. Additionally, existing methane detectors are tested and replaced as needed, and a new methane detector(s) is installed if one is not present. An offer is made to seal cracks or other openings in the lowest level of the structure, and to install a VCS, if one has not already been installed. If the homeowner accepts the offer, a follow-up appointment is made and the activities completed.

In order to educate new residents within the AOC, ARCADIS routinely obtains new resident information from the City of Kingsford and Breitung Township and then contacts the new residents and performs the tasks outlined under the RMP.

9.5.3.2.2 Follow-up Inspections for Detector Soundings

Residents are advised to leave the dwelling when a methane detector sounds and call 911. The KPSD or BTFD responds to monitor the structure for the presence of methane and to determine the cause of the detector sounding. KPSD or BTFD inform the residents of their findings, check or reset the detector, and if applicable, advise them when to return to their home. In addition, if methane is detected in a residence, KPSD or BTFD contact ARCADIS for assistance as necessary. In the unlikely event that residents need to be temporarily relocated from their houses, Ford and KPC, in cooperation with the KPSD and BTFD, have developed a response plan to provide temporary lodgings and necessities to residents.

KPSD records each reported methane detector sounding in its fire index. ARCADIS routinely obtains a copy of the fire index to facilitate contacting the resident and to schedule a follow-up visit. BTFD will contact ARCADIS directly and report a methane sounding. ARCADIS then contacts the residents who have reported a methane detector sounding to schedule a follow-up visit.

The primary purpose of the follow-up visit is to investigate the cause of the detector sounding. Tasks performed during the follow-up visit include the following: monitoring for the presence of methane in the lowest floor of the house, evaluating the methane detector location, checking the sensitivity of the methane detector, and interviewing the resident to determine if any particular activity or circumstance caused the alarm. In an effort to reduce the non-methane-related soundings, ARCADIS also discusses the types of household activities and products that may cause false soundings of methane detectors. ARCADIS records the household activities immediately prior to the methane detector sounding. Information collected during the follow-up visit is recorded on a follow-up form and is updated in the program database.

9.5.3.2.3 VCS

The VCS is designed to provide protection for structures from the potential for the accumulation of methane from subsurface sources. For structures with concrete floor slabs, the standard design consists of a 3-inch diameter PVC pipe extending from the bottom of the concrete floor slab through a hole in the floor and routed to the outside of the structure and terminating with a 4-inch wind turbine above the roof line of the structure. The number of extraction points is determined based on the size and construction of the structure. For structures with a crawl space or dirt floor, the standard design is to place a layer of polyethylene sheeting across the crawl space or dirt floor and install the extraction piping beneath it. Alternative designs may be required based on site-specific conditions encountered in the field during installations. An example of an alternative design is if an existing sump with a subsurface drain is present, the sump may be used as the extraction point in lieu of drilling through the floor. Further details on VCS construction practices can be found in the previously referenced document entitled "*Guidelines for Vapor Control System Installation.*"

9.5.3.2.4 Database Documentation

A comprehensive database has been created for the purpose of tracking data collected during implementation of the program. The database is designed for residential properties and contains multiple tables and queries to organize, track, and summarize the data, and allow it to be used as needed to appropriately implement and improve the program.

The database was created as a tool to contain, organize, and use information gathered during multiple field activities associated with the program. Information gathered in the field is entered into the database to provide comprehensive documentation for the program. The information contained in the tables is linked by a resident identification number, which is assigned to a particular address. The database is continuously updated as new or additional information is collected.

Currently, over 1,100 residences are participating in the RMP and approximately 1,400 methane detectors are present in the residences. As part of the program, ARCADIS adds new residents to the program and completes the tasks included under the initial inspection portion of the program. ARCADIS tracks and completes a follow-up visit on methane detector soundings that occur and are reported in Kingsford and Breitung Township. As part of this effort, ARCADIS may also accompany KPSD or BTFD members in responding to methane detector soundings to gather information. Although there have been no methane detector soundings associated with methane generated from the Site, there have been several soundings that have alerted the residents to potentially dangerous situations including the presence of carbon monoxide, gas leaks from supply lines and appliances, and smoke/fire unrelated to the Site conditions.

9.5.3.3 Commercial Methane Program (CMP)

The CMP was designed for commercial, industrial, and institutional structures located within the AOC. The program was developed with the same purpose as the RMP, but with flexibility to address the uniqueness associated with the diverse configurations and activities related to individual commercial buildings and business types. The activities associated with the CMP are to evaluate methane detector soundings by completing a follow-up visit, monitoring of soil vapor probes, and maintaining a database of the information collected from the programs. The CMP also includes offering to install a VCS in appropriate structures, offering to seal cracks or openings in the lowest level of the structure that may allow vapor intrusion, offering to install and monitor soil vapor probes, and offering to complete annual inspections of structures. If the owner does not consent to any of these actions, ARCADIS will implement the provisions outlined in the document entitled "*Contingency, Ford-Kingsford Products Facility, Court Case #04-1427-CE*," (January 20, 2005). The following sections provide further details of the CMP.

9.5.3.3.1 Inspections

During the initial inspection of a commercial structure, basic information is collected such as building configuration, usage, occupancy, and any other relevant details that may affect how the program is implemented. ARCADIS also requests additional information including floor plans, construction diagrams, and material safety data sheets, if available. ARCADIS monitors the lowest level of the structure(s) for the presence of methane with a methane-specific monitoring instrument, and visually inspects the lowest level of the structure to identify cracks or fractures in concrete slabs, and penetrations of the slab near piping or drains, which could be potential pathways for methane to enter the structure. ARCADIS also locates (as applicable) ventilation equipment, mechanical equipment, electrical equipment, and elevator rooms to determine potential pathways for methane entry.

After the initial inspection, ARCADIS evaluates the information collected to determine optimal locations for installation of a methane detector (if applicable) and/or soil vapor probes and the VCS. Methane detectors were installed at non-residential properties during the initial visits completed following the March 2000 mailing. However, based on the potential for non-methane related detector soundings due to chemical usage, building occupancy, ventilation, manufacturing processes, and the potential for false methane detector soundings and subsequent evacuations and/or work stoppage, soil vapor probes are much more appropriate for non-residential structures.

9.5.3.3.2 Soil Vapor Probe Installation

Soil vapor probes provide access to the soil gas environment below and at the perimeter of a building so the environment can be monitored directly for the presence of methane. Soil vapor probes are also installed to adequately monitor for methane in paved areas over 10,000 square feet located within 5 feet of a structure. These probes are constructed so that the screened portion extends just a short distance below the foundation of the building. Because some buildings have basements, the total depths of these probes range from 2.5 to 15 ft bls. If the owner concurs, nested probes are installed at the property across the permeable areas of the vadose zone. The number of soil vapor probes/nested soil vapor probes installed on a property depends on the size and construction of each individual building.

Following installation of the soil vapor probe(s), ARCADIS monitors the probes weekly for 3 weeks, monthly for the next 3 months, and quarterly thereafter. If methane is detected in a soil vapor probe, further monitoring or actions are completed in accordance with established procedures. Monitoring of the soil vapor probes is conducted using methane-specific monitoring instruments.

9.5.3.3.3 VCS

A VCS, constructed similarly to those for residential structures is also offered to commercial properties.

9.5.3.3.4 Database Documentation

As mentioned above in the RMP, a database was also created for the CMP for the purpose of tracking and recording data collected during the program. The non-residential database is constructed similarly to the residential database with the exception of additional information it contains for the soil vapor probes that are installed at commercial properties. The database is continuously updated as new or additional information is collected.

Through December 2007 a total of 73 commercial, industrial or institutional facilities participate in the CMP. Methane was not detected during the inspections of any of the buildings. A total of three methane detectors are located in two CMP properties, and 376 soil-vapor probes have been installed at 58 commercial properties.

9.5.3.4 Construction/Excavation Monitoring

ARCADIS established procedures to receive notification of construction activities in the AOC with the City of Kingsford Zoning and Building Permits Department, the Department of Public Works, and Miss Dig to facilitate appropriate screening/monitoring of applicable excavation and construction areas. Once ARCADIS is notified of the activities, the specific activity is reviewed and ARCADIS monitors the excavation, if appropriate, for the presence of methane. If methane is detected, the work area will be evaluated to determine what action should be taken, if any, regarding the safety of the workers.

Since beginning this program, 112 excavations have been monitored by ARCADIS with no methane ever detected.

9.6 Groundwater

9.6.1 Residential Well Closures

ARCADIS conducted a residential well survey in 1999 to identify residential water wells within the Study Area. The locations of 16 residential wells were provided by representatives of the City of Kingsford and from citizen responses to a city-wide mailing. Efforts to locate all 16 wells and obtain permission for abandonment were implemented to eliminate the potential for use of or contract with impacted groundwater. Four wells were found not to exist. All of the existing residential wells within the Study Area were abandoned.

9.6.2 Groundwater Treatment

In accordance with the CJ, a groundwater extraction and treatment system was designed and constructed to capture groundwater venting to the Menominee River. To facilitate this activity, additional investigations and studies were implemented to support the design of the groundwater extraction and treatment system.

Extensive pilot study activities were conducted to fully understand and determine the most effective methods of both extracting and treating impacted groundwater at the Site. The pilot study consisted of three phases: Phases I, IIA, and IIB; which were implemented in succession as more knowledge was attained and additional methodologies were applied and tested to determine the most applicable design. Presented below is a brief summary of activities completed during the groundwater extraction and treatment pilot studies, and references to documents where more detailed information can be found.

9.6.2.1 Phase I Pilot Study

The Phase I Pilot Study was completed to evaluate the response in groundwater quality and groundwater hydraulics to withdrawals of shallow groundwater in the vicinity of the seep area near the Menominee River. An extraction well (Extraction Well GMEW-1) was installed into the Zone A sands in the vicinity of the seep area. Beginning on April 17, 2001, groundwater was extracted from the well, and initially transported off site for disposal. Upon completion of the Phase I pre-treatment system, the extracted groundwater was processed on site and then discharged to the sanitary sewer system. The data accumulated during this phase was used to gain a better understanding of the groundwater hydraulics in the Zone A sands, and to control migration of groundwater from these sands into the seep area.

The Phase I pre-treatment system consisted of an aeration tank to remove dissolved-phase methane and precipitate metals prior to discharge to the sanitary sewer. An access road, lift station, and force main with a design capacity of 100 gpm were also constructed during Phase I to facilitate the activities and also to establish necessary infrastructure for use during future phases.

The Phase I Pilot Study was conducted between April 17 and August 29, 2001, after which the Phase I pre-treatment system was shut down to facilitate construction of the Phase II system. A detailed description of the Phase I Pilot Study can be found in the report entitled "*Phase I Pilot Study Report, Ford/Kingsford Site, Kingsford, Michigan*," dated January 24, 2002.

9.6.2.2 Phase II Pilot Study

The Phase II Pilot Study was completed to evaluate the response in groundwater quality and groundwater hydraulics to withdrawals of deep groundwater in the vicinity of Monitoring Well GM-25B. The pilot study was completed utilizing groundwater with the highest concentrations of BOD in order to evaluate treatment methods and determine the most effective method for addressing the groundwater with higher constituent concentrations. In addition, the pilot study identified operation and maintenance information to be used in the design of the full-scale treatment system to ensure appropriate functioning. The Phase II Pilot Study was divided into two parts, Phase IIA and IIB.

9.6.2.2.1 Phase IIA

During the Phase IIA Pilot Study, Extraction Wells GMEW-3 and GMEW-4 were installed into Zone B/C sands, approximately 200 ft east-southeast and approximately 15 ft north of Monitoring Well GM-25B, respectively. In addition, Extraction Well GMEW-2, was installed into the Zone A sands at a distance of several hundred feet inland of Extraction Well GMEW-1 and approximately 180 ft north of Monitoring Well GM-27A. The data collected from hydraulic tests on Extraction Wells GMEW-2, GMEW-3, and GMEW-4 were used to gain a better understanding of the groundwater hydraulics in the Zone A and B/C sands and the hydraulic properties of the Zone B/C sands in the vicinity of Monitoring Well GM-25B. A more complete discussion of the Phase IIA Pilot Study can be found in the report entitled "*Phase IIA Pilot Study Results, Ford/Kingsford Site, Kingsford, Michigan,*" dated July 17, 2002.

Construction of the Phase II System was initiated prior to the shutdown of the Phase I groundwater pre-treatment system. The Phase II System was constructed to provide biological treatment of extracted groundwater containing concentrations of BOD greater than 250 mg/L. The primary components of the Phase II System were two fixed-film bioreactors with associated aeration blowers, nutrient feed systems and piping, a clarifier, and a liquid sludge storage tank. The clarifier was designed to handle a flow of approximately 100 gpm, and the bioreactors were designed to treat approximately 1,000 pounds per day (lb/day) of BOD. The treated effluent from the Phase II System was discharged to the sanitary sewer system.

9.6.2.2.2 Phase IIB

During Phase IIB, Extraction Well GMEW-4R was installed into the top of the Zone B/C sands approximately 10 ft south of Monitoring Well GM-25B. Extraction Well GMEW-4R was installed to replace Extraction Well GMEW-4, which was abandoned due to excessive production of fines from the screened formation that resulted in a collapse of the well screen and the surrounding formation. In addition, redevelopment of Extraction Well GMEW-3 was completed to increase well yield and subsequent extraction from Zone B/C. The data accumulated from the additional hydraulic tests on

Extraction Wells GMEW-3, GMEW-4, and GMEW-4R was used to further understand the groundwater hydraulics in the Zone B/C sands.

During Phase IIB, two additional extraction wells were installed into the Zone A sands. Extraction Well GMEW-5 was installed approximately 165 ft east-northeast of Monitoring Well GM-27A and Extraction Well GMEW-6 was installed approximately 140 ft northeast of Monitoring Well GM-25A. Hydraulic tests were performed on both extraction wells and the data accumulated from the testing of these wells provided additional information on groundwater hydraulics and water quality in the Zone A sands. A more complete discussion of the hydraulic evaluations can be found in the ARCADIS report entitled, "*Phase IIB Pilot Study Results, Ford/Kingsford Site, Kingsford, Michigan,*" dated June 25, 2004.

9.6.2.3 Pilot Study Results

The pilot tests were completed to verify that extraction could be successfully implemented to prevent the migration of impacted groundwater towards the Menominee River and to determine the most effective method to treat the extracted groundwater. The pilot tests determined that hydraulic capture of impacted groundwater from the Zone A and B/C sands could be achieved at the Site. However, multiple treatment system operational constraints were identified as potential issues to be addressed to facilitate appropriate full-scale treatment. The primary obstacle identified was certain groundwater constituents (dissolved metals in combination with high alkalinity) acting as a naturally occurring coagulant, which precipitated to form floc with biomass and silt particles. This floc formation caused significant difficulties during evaluation of fixed-film biological treatment by bridging the void spaces in the fixed-film bioreactors, resulting in clogged media that significantly impaired treatment efficiency.

Therefore, during Phase IIB, the treatment system was retrofitted to include one suspended growth bioreactor followed by a fixed-film biological treatment polishing step. This retrofitted unit was capable of treating approximately 600 lb/day of BOD while maintaining an effluent BOD concentration of 25 mg/L or less, which met applicable NPDES permit requirements.

In addition to the floc formation and scaling issue, required operational information necessary for appropriate treatment was generated during the pilot tests, including appropriate nutrient dosage, O_2 delivery requirements, foam control additives, media and process piping maintenance, sludge generation and characteristics, and overall monitoring and operational procedures. This information and the most effective treatment configuration were then used to design the full-scale treatment system.

9.6.2.4 Groundwater Extraction and Treatment System

Design of a full-scale groundwater extraction and treatment system was completed and construction was initiated on June 21, 2004. The system design and construction meet the provisions of Section 7.6 of the Consent Judgment (October 2004). This interim response action to address groundwater was mutually agreed upon between the MDEQ and Ford/KPC.

ARCADIS developed a steady-state, 3-D groundwater flow model to aid in the design of the groundwater extraction system. The model was calibrated, based on data collected during the Phase I and Phase II Pilot Studies, and simulations were performed to evaluate different configurations and flow rates from extraction wells in the Zone A and B/C sands to capture groundwater in the designated capture areas. The results of the initial modeling are presented in the ARCADIS report entitled, *"Numerical Groundwater Flow Model, Kingsford, Michigan,"* May 24, 2004.

Based on the results of the groundwater flow model, 43 groundwater extraction wells were installed between June and November 2004 to capture groundwater in the designated areas. The groundwater extraction system included 29 shallow extraction wells installed to capture groundwater from the Zone A sands and 14 deep extraction wells installed to capture groundwater from the Zone B/C sands. Details regarding construction of the groundwater extraction wells are included in the Performance Monitoring Plan (ARCADIS, 2005). Appendix A of the Performance Monitoring Plan (Addendum to Numerical Groundwater Flow Model) contains updated groundwater model simulations based on recalibration of the groundwater flow model.

Based on groundwater elevation data collected in January and February 2006, it was determined that additional extraction wells were needed to achieve complete hydraulic capture of groundwater in the designated areas. In April and May 2006, two new extraction wells were installed in the Zone A sands and three new extraction wells were installed in the Zone B/C sands. Details regarding construction of the additional groundwater extraction wells are included in the report entitled *Addendum Performance Monitoring Plan – Groundwater Extraction System, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case No. 04-1427-CE*, dated September 2006. The locations of the groundwater extraction wells are shown on Figure 4-9. The groundwater extraction and treatment system is operated under a NPDES Permit (No.

MI0057428) granted to ARCADIS for discharging treated effluent from the groundwater extraction and treatment system to the Menominee River.

9.6.2.4.1 Extraction System Process

This section provides a description of the major process steps for the groundwater extraction component of the system. Groundwater is pumped from each extraction well utilizing a submersible electric pump specifically designed for the hydraulic requirements of the well. Groundwater treatment system influent is received from a network of groundwater extraction wells equipped with individual subsurface conveyance piping that terminate above grade (with appurtenant valves, flow meters, and sample taps) at one of three common headers located within two pump houses (designated North Pump House and South Pump House).

The groundwater extraction and conveyance system consists of the following components:

- Thirty-one Zone A sands extraction wells and 17 Zone B/C sands extraction wells, with associated duct banks and electrical controls for each well. The average flow rate from these wells ranges from approximately 4 to 20 gpm. Under normal operating conditions only 33 extraction wells operate at any one time. These include 24 extraction wells within the Zone A Sands and 9 extraction wells within the Zone B/C Sands. The remaining 15 extraction wells are designated for standby service.

- Three force mains running from the North Pump House and two force mains running from the South Pump House which terminate at the groundwater treatment plant. The groundwater conveyance force main system is configured with two active force mains and a spare at the North Pump House and one active force main and a spare at the South Pump House. The spare force mains can be deployed if an active force main requires cleaning, if an active force main fails, or if additional capacity is required for capture of the groundwater.

For a more detailed description of the extraction system process refer to the Construction Documentation Report for the Full-Scale Groundwater Extraction and Treatment System, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case Number 04-1427-CE, dated October 26, 2004.

9.6.2.4.2 Groundwater Treatment Process

The groundwater treatment system became fully operational in December 2005, treating approximately 400 gpm of extracted groundwater. The groundwater treatment system has the flexibility to handle a range of flows and influent contaminant loadings, depending on the pumping requirements required for hydraulic capture of the groundwater and the concentration of impacted groundwater associated with the specific extraction wells producing groundwater.

The original system design included a pretreatment aeration tank, which facilitated precipitation of dissolved metals (e.g., iron and hardness constituents). Based on operating data from the first year of operation it was determined that the pretreatment system was removing only minimal amounts of dissolved metals from the influent groundwater; therefore, the pretreatment system was taken out of service. A by-pass line was incorporated into the original design so that groundwater from the extraction wells is routed to one of two pump houses (the North Pump House and the South Pump House) where it is combined in a splitter box before being discharged into the first stage biological treatment aeration basins. The first-stage aeration process removed 80 to 90 percent of the BOD through suspended biological growth and clarification.

The treated effluent/mixed liquor from the aeration basins flows by gravity into a second splitter box that distributes flow through adjustable weirs to two parallel first stage clarifiers for the settling and removal of mixed liquor solids. Clarified effluent then flows by gravity to a common wet well where it is pumped through an 8-inch force main to a third splitter box that distributes flow by gravity through adjustable weirs to the second stage biological treatment component for tertiary treatment through three submerged fixed-film bioreactors. Based on extensive operating data from the Facility, ARCADIS requested that the second-stage biological treatment process be by-passed for normal operation. This request was approved by the MDEQ on February 29, 2008; therefore, a by-pass was installed around the three bioreactors and aeration of the vessels was discontinued. Effluent by-passed around the second stage bioreactors flows by gravity to a 10-inch diameter line that feeds a fourth splitter box that distributes flow through adjustable weirs into the two parallel second stage clarifiers. Clarified effluent flows by gravity to a 12-inch diameter line connected to a series of outfall diffusers in the Menominee River.

Settled solids are thickened in the first stage and second stage clarifiers using a rake mechanism. Sludge generated in the second stage clarifiers is pumped to the solids storage tank as waste activated sludge (WAS). Sludge generated in the first stage clarifier is pumped back to the aeration basins as return activated sludge (RAS), or diverted to the solids storage tank as WAS. The RAS and WAS from the first stage clarifier is controlled by the operators via adjustable timers and is determined by the operating conditions of the treatment system (e.g., sludge age, settling characteristics, presence of filamentous biomass, etc.). Sludge in the solids storage tank is pumped to a belt filter press where the sludge is dewatered and transferred to a loading dock for off-site disposal. Water generated from the dewatering process is returned to the first stage aeration basin splitter box for additional treatment.

9.6.2.4.3 Hydraulic Capture and Performance Monitoring

A monitoring network of piezometers has been established to monitor the performance of the groundwater extraction system and ensure hydraulic containment of the groundwater within the designated areas. Groundwater data collected from this network was used to establish a baseline condition for the groundwater extraction system. Continued monitoring of the network provides operational data that is used to confirm hydraulic capture and for making adjustments to individual well flow rates, if necessary.

Full-scale operation of the groundwater extraction system was initiated in December 2005, and steady-state conditions were achieved in early January 2006. Following the establishment of steady-state operating conditions, an evaluation of the hydraulic capture was completed for both the Zone A and B/C sands. A static baseline condition was established for the groundwater extraction system in September 2005 and groundwater level measurements were collected on January 12, February 13, March 15 to 16, August 8, 2006, and quarterly since November 2006.

The groundwater data for September 2005 represent the static baseline condition (prior to operation of the groundwater extraction system), which was used to determine the difference in groundwater elevations between the inland and river monitoring points under non-pumping conditions. This groundwater data was used to determine whether there is a landward gradient at an extraction well by using the difference in the groundwater elevations between the inland and river monitoring points under pumping conditions. Where the difference between the two groundwater elevations is a positive number, the groundwater gradient is toward the Menominee River and away from the extraction well, which would indicate that hydraulic capture may have not been achieved in that area. Where the difference between the two groundwater elevations is negative, the groundwater gradient is away from the Menominee River and toward the extraction well, which indicates that hydraulic capture has been achieved in that area.

The groundwater level data collected in August 2006 shows a greater landward hydraulic gradient than the February 2006 groundwater level data. It is apparent that the extraction system sequentially increased influence on the groundwater system over time (i.e., the difference in groundwater levels between February and August 2006 became increasingly negative indicating that the groundwater gradient was developing over time) and is away from the Menominee River. Since November 2006 a groundwater gradient away from the Menominee River has been maintained by operation of the groundwater extraction system.

The monitoring data clearly indicates that the groundwater extraction system, as currently configured and operated, provides hydraulic capture of the groundwater in the designated areas in compliance with the CJ.

10. Conclusions

Based on the results of the historical data collected from the Study Area, the data collected during the EE/CA investigation, and the data collected during the RI and subsequent investigations, the following conclusions can be made for the Study Area and AOC. These conclusions are supported by the data presented within this RI report in the appropriate sections that are identified with each conclusion.

- The subsurface geology beneath the Study Area consists of units of unconsolidated deposits that overlie bedrock in a complex distribution. The unconsolidated deposits are composed of layers of clay, silt, sand, and gravel. The uppermost layer often consists of fine-grain to coarse-grain sand and gravel. Although the geology is complex, the visualization program provides an understanding of the interrelationships of the different geologic units and preferred pathways for groundwater flow. Section 6.1.1 discusses specific details of the subsurface geology.

- Groundwater flow within the Study Area is predominately west-southwest toward the Menominee River. The groundwater generally flows along preferred pathways within the subsurface that consist of layers of the fine-grain to coarse-grain sand and gravel, moving from areas of higher water level elevations and pressures to areas with lower water level elevations and pressures. There is a downward vertical component to groundwater flow throughout much of the Study Area, except near the Menominee River where groundwater flow is upward. Section 6.2.2 discusses specific details of the hydrogeology.

- Much of the organic constituents that have entered the groundwater system resulted from historical disposal practices. Because of the strong downward vertical groundwater gradient and density differences, liquid organic constituents disposed into the NE Pit, and to a lesser extent the SW Pit, have historically migrated into the deep portion of the groundwater system. The organic constituents move along preferred pathways of groundwater flow, in more permeable material, toward the Menominee River. However, some of these organic constituents have also migrated into less permeable, very fine-grain sand and silt. Movement of constituents in these less permeable units is much slower than in the more permeable preferred pathways, and organic constituents remain within some of the less permeable units. Section 6.2.2 discusses specific details of the distribution of the constituents within the subsurface.

- Almost all of the organic constituents identified in the groundwater system are anaerobically biodegradable. Conditions within the groundwater system are favorable for natural attenuation of these degradable organic constituents, which result in an increase in concentrations of dissolved iron and manganese and the formation of methane in groundwater. This reduces the amount of organic material that is migrating toward the Menominee River, but results in increased dissolved iron and manganese, as well as dissolved and gas-phase methane, migrating toward the river. Section 6.2.3 discusses specific details of the biodegradation process.

- With several exceptions, an area of an upward vertical groundwater gradient that is most often found near the Menominee River is required to release the dissolved methane in the groundwater. The released gas-phase methane either migrates to the river or moves along preferred pathways away from the river. As the gas phase methane moves away from the area of the Menominee River along the preferred pathways, pockets of gas-phase methane can accumulate in structural "domes" within the overlying silt/clay confining layers. Methane has historically been identified in the gas-phase (as opposed to the dissolved phase in groundwater) at ten primary accumulation areas throughout the Study Area. The passive and active venting programs are controlling and removing and/or have eliminated these accumulations. The active and passive venting programs, from 1998 through December 2007, have removed approximately 3,900,000 lbs of methane (all passive vents and active SVE system withdrawal) from the subsurface. Section 6.5.1 discusses specific details of the methane generation and transport.

- Groundwater quality in some of the Study Area/AOC does not meet the State of Michigan Part 201 generic drinking water criteria. This area is primarily in the central and western portions of the Study Area/AOC. However, this area is serviced by a municipal water distribution system that is supplied by a well field unaffected by past disposal practices from the Site. All residential wells within the Study Area have been abandoned. In response to requirements of the CJ, a groundwater extraction and treatment system has been constructed and became operational in 2005. This system captures and treats groundwater venting to the Menominee River within the designated capture areas in compliance with the CJ.

- Based on water samples collected from the Menominee River, river studies performed by WEPCO and the WDNR, and the bioassessment study of the Menominee River conducted by ARCADIS, impacted groundwater that migrates into the Menominee River does not affect surface water quality, aquatic life, or benthic organisms. Section 6.3 discusses specific details of the Menominee River quality.

- The RDA contains solid waste material that has constituent concentrations above the Part 201 generic criteria for residential direct contact. The waste material does not pose a source for continuing release to groundwater. An IRAP to address the RDA was prepared and the selected remedial actions were completed. Section 6.4.1 discusses specific details of the RDA.

- The SW Pit contains solid waste material that has constituent concentrations above the Part 201 generic criteria for residential direct contact. The waste material poses a low potential as a source for continuing release to groundwater. An IRAP to address the SW Pit was prepared and the selected remedial actions were completed. Section 6.4.3 discusses specific details of the SW Pit.

- The NE Pit contains solid waste material that has constituent concentrations above the Part 201 generic criteria for industrial direct contact. Although the surface soil at the NE Pit does not have any constituents with concentrations above the Part 201 generic criteria for industrial direct contact, wood tar material that does have constituent concentrations above these criteria occasionally migrated to the land surface. Chemical data from the waste material and the groundwater from beneath the waste suggests that the majority of the constituents present in the groundwater are the result of historic liquid waste releases from the NE Pit. An IRAP to address the NE Pit was prepared and the selected remedial actions were completed. Section 6.4.2 discusses specific details of the NE Pit.

- The FPS is used for existing manufacturing operations by third parties. Subsurface soils do not have constituent concentrations above the Part 201 generic screening criteria for industrial direct contact, nor are they above the generic screening criteria for industrial soil volatilization to indoor air. Wood tar that was present on the ground surface on Smith Castings property contained constituents that were above the generic industrial direct contact criteria, but has been removed. An IRAP to address the FPS was prepared and the selected remedial actions were completed. Section 6.4.4 discusses specific details of the FPS.

- The WBADA contains solid waste material that has constituent concentrations above the Part 201 generic criteria for residential direct contact. The waste material does not pose a source for continuing release to groundwater. The constituent concentrations above the Part 201 generic criteria for residential direct contact were present below at least 30 inches of fill material. The construction of improvements on the Maule property and healthy vegetation covering the property indicate that it is unlikely a direct contact risk exists on the Maule property portion of the WBADA. No further action is necessary at the WBADA. Section 6.4.5 discusses specific details of the WBADA.

- Gas-phase methane is present in the vadose zone in an area east of the RDA and historically extended to the intersection of Westwood Avenue and Woodward Avenue (Notch Area). Gas-phase methane had migrated into this area due to off-gassing of dissolved phase methane from the upward movement of groundwater near the Menominee River, and is not related to the waste material at the RDA. An SVE system is controlling/removing methane from this area. Gas-phase methane has not been present in the Notch area since November 2001, and it appears that gas-phase methane migration into the Notch area has been eliminated by operation of the RDA SVE system. Section 6.5.2.2 discusses specific details of the transport and removal of methane near the RDA, and Section 6.5.2.1 discusses specific details of the transport and removal of methane in the Notch area.

- Gas-phase methane is present in the Upper Terrace/Breen Avenue area. This area is adjacent to the zone where the vertical movement of groundwater is upward. Gas-phase methane has migrated into parts of this area due to off-gassing of dissolved phase methane from the upward movement of groundwater near the Menominee River. Passive vents and an SVE system are controlling/removing methane in this area. Section 6.5.2.5 discusses specific details of the transport and removal of gas-phase methane in the Upper Terrace/Breen Avenue area.

- Gas-phase methane is present in the Emmet Avenue area. This area is adjacent to the zone where the vertical movement of groundwater is upward. Gas-phase methane has migrated into parts of this area due to off-gassing of dissolved phase methane from the upward movement of groundwater near the Menominee River. Passive vents and an SVE system are controlling/removing methane in this area. Section 6.5.2.6 of this RI Report discusses specific details of the transport and removal of methane in the Emmet Avenue area.

- Gas-phase methane is present in the Lodal Park area. Gas-phase methane is present in the vadose zone primarily as the result of the degradation of the waste material within the SW Pit, but may have also migrated into parts of this area due to off-gassing of dissolved phase methane from the upward movement of groundwater near the Menominee River. SVE systems are controlling/removing methane in this area. Section 6.5.2.4 discusses specific details of the transport and removal of gas-phase methane in the Lodal Park area.

- Gas-phase methane is present in the FPS area. Gas-phase methane is present in the vadose zone primarily as the result of migration from deeper depths over a period of time from impacted groundwater. SVE systems are controlling/removing methane in this area. Section 6.5.2.3 discusses the transport and removal of the gas-phase methane in the FPS area.

- Gas-phase methane is present in the Pyle Drive area. Gas-phase methane has migrated into parts of this area due to off-gassing of dissolved phase methane from the upward movement of groundwater near the Menominee River. Passive vents and an SVE are controlling/removing methane in this area. Section 6.5.2.8 discusses specific details of the transport and removal of gas-phase methane in the Pyle Drive area.

- Gas-phase methane is present in the GM-82A/B area. This area is adjacent to the zone where the vertical movement of groundwater is upward. Gas-phase methane has migrated into parts of this area due to off-gassing of dissolved phase methane from the upward movement of groundwater near the Menominee River. Passive vents are controlling/removing methane in this area. Section 6.5.2.9 discusses specific details of the transport and removal of gas-phase methane in the GM-82A/B area.

- Gas-phase methane is present in the Menominee River area. Gas-phase methane has migrated into parts of this area due to off-gassing of dissolved phase methane from the upward movement of groundwater near the Menominee River. A passive vent is controlling/removing methane in this area. Section 6.5.2.10 discusses specific details of the transport and removal of gas-phase methane in the Menominee River area.

- Gas-phase methane had historically been present in the GM-2A area. The gas-phase methane was removed from the vadose zone in the GM-2A area with periodic SVE. Monitoring of the area has demonstrated that gas-phase methane has not been present in the GM-2A area since April 2005. Section 6.5.2.7 discusses specific details of the removal of methane in the GM-2A area.

RI activities have been completed for the Site per provisions prescribed in Part 201 and the CJ to adequately define the source areas, the nature and extent of any impacts to the soil, sediment, groundwater, surface water, and indoor air, and the risks to the public health, safety, and welfare at the Site. Activities conducted for a Site EE/CA and in conjunction with interim response actions have also been used to define the conditions at the Site.

The Site Conceptual Model characterizes the geology associated with the Site, as well as the groundwater flow and gradient. An extensive groundwater flow model constructed to support design of a groundwater extraction and treatment system confirmed the groundwater flow and migration pathways for the Site. The Site Conceptual Model also identified and characterized the fate and transport of the constituents still present at the Site.

Sufficient data has been collected to identify the former source areas and characterize nature and extent of impacts at the Site. Any impacts to the surface and subsurface soil at the Site are restricted to the former disposal areas, namely the NE Pit, SW Pit, RDA, FPS, and the WBADA. Any impacts to the groundwater at the Site from the former disposal areas are fully delineated. Results from the Menominee River biological survey and other RI activities indicate that there is no impact from the Site to the sediment and surface water of the Menominee River. The boundaries of methane concentrations above 0.5 ppm in the groundwater and above 1.25 percent by volume in soil gas are delineated for the Site.

Sufficient data has been collected from the EE/CA, RI, subsequent investigations, and interim response actions to assess the impact of the remaining constituents from the former sources at the Site. Potential pathways that could present risks to the public health, safety, and welfare, as well as the environment have been identified. In many cases, the potential pathways identified are no longer relevant due to interim response actions that have been completed, lower concentrations of constituents, and spacial separation. Restrictive covenants incorporated as part of the interium response actions will also be a part of the final RAP. Based on the results from this RI, the Site conditions have been fully assessed in order to select and implement the appropriate remedy for the Site.

11. References

Anderson, M. P., and W. H. Woessner, 1992. Applied Groundwater Modeling. Academic Press, Inc., San Diego, California.

American Society for Testing and Materials (ASTM). 1994. Application of a Ground-Water Flow Model to a Site-Specific Problem. ASTM Standard D 5447.

ARCADIS G&M. 1998. Engineering Evaluation/Cost Analysis Report, Easton Estates Site, Ford/Kingsford Site, Kingsford, Michigan, July 16, 1998.

ARCADIS G&M. 1998. Remedial Investigation Work Plan, Ford/Kingsford Site, Kingsford, Michigan, July 22, 1989.

ARCADIS G&M. 2000. Draft Remedial Investigation Report, Easton Estates Site, Kingsford, Michigan, May 25, 2000.

ARCADIS G&M. 2000. Former NE Pit Investigation Report, Ford/Kingsford Site, Kingsford, Michigan, October 25, 2000.

ARCADIS G&M. 2001. Methane Detector Enhancement Program, Kingsford, Michigan, March 8, 2001.

ARCADIS. 2001. Report on Subsurface Methane in the Southern Airport Area, Kingsford, Michigan, September 2001.

ARCADIS. 2001. Investigation of the Former Charcoal Disposal Area, Ford/Kingsford Site, Kingsford, Michigan, October 24, 2001.

ARCADIS. 2002. Remedial Investigation Report, Easton Estates Site, Kingsford, Michigan, July 17, 2002.

ARCADIS. 2002. Phase IIA Pilot Study Results, Ford/Kingsford Site, Kingsford, Michigan, July 17, 2002.

ARCADIS. 2002. Methane Venting Results through June 2002, Ford/Kingsford Site, Kingsford, Michigan, July 3, 2002.

ARCADIS. 2002. Phase I Pilot Study Report, Ford/Kingsford Site, Kingsford, Michigan, January 24, 2002.

ARCADIS. 2002. Phase IIA Pilot Study Results, Ford/Kingsford Site, Kingsford, Michigan, July 17, 2002.

ARCADIS. 2002b. Riverside Disposal Area Interim Response Action Plan (IRAP), Ford/Kingsford Site, Kingsford, Michigan, October 31, 2002.

ARCADIS. 2003. Former Northeast Pit Interim Response Action Plan (IRAP), Ford/Kingsford Site, Kingsford, Michigan, January 8, 2003.

ARCADIS. 2003. Addendum for the Former Northeast Pit Interim Response Action Plan, Ford/Kingsford Site, Kingsford, Michigan, May 14, 2003.

ARCADIS. 2003. Former Southwest Pit Area Interim Response Action Plan, Ford/Kingsford Site, Kingsford, Michigan, July 18, 2003.

ARCADIS. 2003. Residential and Commercial Methane Programs Report, Ford/Kingsford Site, Kingsford, Michigan, August 22, 2003.

ARCADIS. 2003. Methane Venting Results from July 2002 through June 2003, Ford/Kingsford Site, Kingsford, Michigan, December 18, 2003.

ARCADIS. 2004. Addendum for the Former Riverside Disposal Area Interim Response Action Plan, Ford/Kingsford Site, Kingsford, Michigan, February 26, 2004.

ARCADIS. 2004. Numerical Groundwater Flow Model, Kingsford, Michigan, May 24, 2004.

ARCADIS. 2004. Report on Subsurface Methane along Pyle Drive, Kingsford, Michigan, June 10, 2004.

ARCADIS. 2004. Phase IIB Pilot Study Results, Ford/Kingsford Site, Kingsford, Michigan, June 25, 2004.

ARCADIS. 2004. Quality Assurance and Project Plan, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case No. #04-1427-CE, November 22, 2004.

ARCADIS. 2004. Standard Contingent Work Plan - Pressure Control System, Ford-Kingsford Products Facility, Court Case No. #04-1427-CE, December 16, 2004.

ARCADIS. 2004. Results of Subsurface Methane Investigation and Extraction Activities in the Vicinity of Monitoring Well GM-41, Ford/Kingsford Site, Kingsford, Michigan, December 20, 2004.

ARCADIS. 2004. Results of Subsurface Methane Investigation and Extraction Activities in the Vicinity of Soil Vapor Probe GMSG-20, Ford/Kingsford Site, Kingsford, Michigan, December 20, 2004.

ARCADIS. 2004. Results of Subsurface Methane Investigation and Extraction Activities in the Vicinity of Soil Vapor Probe GMSG-14, Ford/Kingsford Site, Kingsford, Michigan, December 20, 2004.

ARCADIS. 2004. Work Plan for Supplemental Remedial Investigation, Ford-Kingsford Products Facility, Court Case No. #04-1427-CE, December 21, 2004.

ARCADIS. 2004. Evaluation of Methane Accumulation in Storage Sheds, Ford-Kingsford Products Facility, Court Case #04-1427-CE, December 23, 2004.

ARCADIS. 2005. Progress Report #1, October 26 through December 31, 2004, Ford-Kingsford Products Facility, Court Case #04-1427-CE, January 21, 2005.

ARCADIS. 2005. Guidelines for Vapor Control System Installation, Ford-Kingsford Products Facility, Court Case #04-1427-CE, January 21, 2005.

ARCADIS. 2005. Contingency, Ford-Kingsford Products Facility, Court Case #04-1427-CE, January 21, 2005.

ARCADIS. 2005. Request for Preliminary Mixing Zone-Based Criteria and Proposed Groundwater Monitoring Program, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case No. 04-1427-CE, March 31, 2005.

ARCADIS. 2005. Consent Judgment Submittal, Ford-Kingsford Products Facility, Court Case No. 04-1427-CE, April 22, 2005.

ARCADIS. 2005. Performance Monitoring Plan - Groundwater Extraction System, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case No. 04-1427-CE, April 22, 2005.

ARCADIS. 2005. Progress Report #2, January 1 through March 31, 2005, Ford-Kingsford Products Facility, Court Case #04-1427-CE, April 27, 2005.

ARCADIS. 2005. Progress Report #3, April 1 through June 30, 2005, Ford-Kingsford Products Facility, Court Case #04-1427-CE, July 25, 2005.

ARCADIS. 2005. Former West Breen Avenue Disposal Area Report, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case #04-1427-CE, October 25, 2005.

ARCADIS. 2005. Progress Report #4, July 1 through September 30, 2005, Ford-Kingsford Products Facility, Court Case #04-1427-CE, October 28, 2005.

ARCADIS. 2005. Soil Vapor Extraction Operation and Maintenance Manual, Ford-Kingsford Products Facility, Court Case #04-1427-CE, November 3, 2005.

ARCADIS. 2005. Former Southwest Pit Interim Response Action Construction Documentation Report, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case 04-1427-CE, December 28, 2005.

ARCADIS, 2006. Progress Report #5, October 1 through December 31, 2005, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case #04-1427-CE, dated January 27, 2006.

ARCADIS, 2006. Former Northeast Pit Interim Response Action Construction Documentation Report, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case #04-1427-CE, dated April 19, 2006.

ARCADIS, 2006. Progress Report #6, January 1 through March 31, 2006, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case #04-1427-CE, dated April 26, 2006.

ARCADIS, 2006. Progress Report #7, April 1 through June 30, 2006, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case #04-1427-CE, dated July 28, 2006.

ARCADIS, 2006. Progress Report #8, July 1 through September 30, 2006, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case #04-1427-CE, dated October 30, 2006.

ARCADIS. 2006. Addendum Performance Monitoring Plan - Groundwater Extraction System, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case No. #04-1427-CE, September 1, 2006.

ARCADIS, 2007. Progress Report #9, October 1 through December 31, 2006, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case #04-1427-CE, dated January 30, 2007.

ARCADIS. 2007. Groundwater Treatment and Extraction System Operations and Maintenance Plan, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case #04-1427-CE, February 2007.

ARCADIS, 2007. Progress Report #10, January 1 through March 31, 2007, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case #04-1427-CE, dated April 27, 2007.

ARCADIS, 2007. Progress Report #11, April 1 through June 30, 2007, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case #04-1427-CE, dated July 30, 2007.

ARCADIS. 2007. FPS Interim Response Action Plan and Construction Documentation Report, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case #04-1427-CE, October 12, 2007.

ARCADIS, 2007. Progress Report #12, July 1 through September 30, 2007, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case #04-1427-CE, dated October 30, 2007.

ARCADIS. 2007. Methane Interim Response Action Plan, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case #04-1427-CE, October 31, 2007.

ARCADIS. 2008. Addendum to the FPS Interim Response Action Plan and Construction Report, Ford-Kingsford Products Facility, Kingsford, Michigan, Court Case #04-1427-CE, June 24, 2008.

Ausley, L.W. 2000. Reflection on whole effluent toxicity: The Pellston workshops. Environ. Toxicol. Chem. 19:1-2.

Barbour, M.T., J. Gerritsen, B.D. Snyder, and J.B. Stribling. 1999. Rapid bioassessment protocols for use in streams and wadeable rivers: Periphyton, Benthic Macroinvertebrates and Fish, Second Edition. EPA 841-B-99-002. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

Bayley, R.W., D.E. Dutton, and C.A. Lamey. 1996. Geology of the Menominee Iron-Bearing District Dickinson County, Michigan and Florence and Marinette Counties, Wisconsin: Geological Survey Professional Paper 513. United States Government Printing Office, Washington. 96 pages.

Beeman, R.G., and J.M. Suflita. 1987. Microbial Ecology of a Shallow Unconfined Groundwater Aquifer Polluted by Municipal Landfill Leachate. Microbial Ecology Volume 14, pp 39 - 54.

BLDI. September 1996. Phase I Site Investigation Report, 500 Balsam Street Project, City of Kingsford, Michigan.

Bode, R.W., M.A. Novak, and L.E. Abele. 1991. Methods for rapid biological assessment of streams. New York State Department of Environmental Conservation Report, Albany, New York.

Chapman, P.M. 2000. Whole effluent toxicity testing - Usefulness, level of protection, and risk assessment. Environ. Toxicol. Chem. 19:3-13.

Civil & Environmental Consultants, Inc. and Environmental Quality Management, Inc., 1997, Operation and Maintenance Manual, Methane Extraction System, 2001 Emmet Avenue, Kingsford, Michigan. 8 pages plus attachments.

Clayton, G.D., and F.E. Clayton. 1982. Patty's Industrial Hygiene and Toxicology: Volume 2A, 2B, 2C: Toxicology. Third ed. John Wiley Sons, New York.

Coleman Engineering. 1995. Easton Estates Gas Investigation in the City of Kingsford.

CRC Handbook of Chemistry and Physics. 1996. Seventy-seventh edition, Daniel R. Lide, Ph.D. editor CRC Press, New York, New York.

Diamond, J., and C. Daley. 2000. What is the relationship between whole effluent toxicity and instream biological condition? Environ. Toxicol. Chem. 19:158-168.

Dulan, M.L., and W.J. Cummings. 1978. Born From Iron: Iron Mountain Michigan. Iron Mountain Centennial Committee Publishers, Iron Mountain, Michigan. 258 pages.

Ecology and Environment. January 1989. Screening Site Inspection Report for Old Ford Motor Company Dump, Kingsford, Michigan.

Earth and Water Resources Engineers. 1986. Phase I Remedial Investigation of the Kingsford Site Kingsford, Michigan.

Earth and Water Resources Engineers. 1987. Phase II Site Investigation of the Kingsford Site, Kingsford, Michigan.

Earth and Water Resources Engineers. 1988. Kingsford Surficial Tar Removal, Kingsford, Michigan.

Fetter, C.W.. 1994. Applied Hydrogeology. 691 pages.

Geraghty & Miller, Inc. 1997. Work Plan for an Engineering Evaluation/Cost Analysis, Easton Estates Site, Kingsford, Michigan, April 25, 2007

Geraghty & Miller, Inc. 1997. Work Plan for Phase II Field Investigations, Engineering Evaluation/Cost Analysis, Easton Estates Site, Kingsford, Michigan, September 23, 1997.

Godsy, M. 1997. Personal communication with Christopher Lutes ARCADIS Geraghty & Miller, regarding analytical method for fatty acids.

Godsy, M. 1998. Personal communication with Peter Palmer/Evan Nyer ARCADIS Geraghty & Miller, regarding microcosms studies and methane generation.

Godsy, E.M., and D.B. Westjohn. 1998. Microbial Origin of Methane in Groundwater and Glacial Deposits at Kingsford, Michigan. U.S.G.S. Administrative Report, Prepared for the USEPA, 16p.

Godsy, E.M., and E. Warren. 1999. Origins of Dissolved Methane In Ground Water at Kingsford, Michigan, U.S.G.S. draft report, 16p.

Hall, A.H., and B.H. Rumack. 1997. POISINDEX Information System. Micromedex, Inc. Englewood, CO. CCIS Volume 95, A.H. Hall and B.H. Rumack (eds.): TOMES Information System.

Hazardous Substances Database (HSDB). 1998. MEDLARS, The National Library of Medicine's Online Network. U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health. Bethesda, MD.

Hoffman, E. 1998. Tributyltin analysis: Clarification of interstitial water extraction and analysis methods – interim. DMMP clarification paper/SMS Technical information memorandum. Khangarot, B.S. 1991. Toxicity of metals to a freshwater tubificid worm, *Tubifex tubifex* (Muller). Bull. Environ. Contam. Toxicol. 46:906-912.

Lillie, R. 1998. Wisconsin Department of Resources, personal communication.

Lazorchak, J.M., D.J. Klemm, and D.V. Peck (editors). 1998. Environmental monitoring and assessment program - surface waters: Field operations and methods for measuring the ecological condition of wadeable streams. EPA/620/R-94/004F. U.S. Environmental Protection Agency, Washington, DC.

Martin, H.M. 1995. Map of the surface formations of the southern peninsula of Michigan: Michigan Geological Survey Publication 49, Scale 1:500,000.

Merck Index. 1989. Budavari, Susan, editor, Eleventh Edition, Merck & Co., Inc., Rahway, New Jersey.

Michigan Department of Environmental Quality, 2006. Remediation and Redevelopment Division Operational Memorandum No. 1, Part 201 Cleanup Criteria and Part 213 Risk-based Screening Levels, January 23, 2006.

Michigan Department of Environmental Quality, 2006. Remediation and Redevelopment Division Operational Memorandum No. 4, Site Characterization and Remediation Verification, Attachment 5 - Methane, June 2006.

Michigan Department of Environmental Quality, 2006. Water Resources Protection Act 457, Part 4, Rule 57 Water Quality Values, December 11, 2006.

Michigan Department of Public Health (MDPH). 1987. Code, Act 368, P.A. of 1978, Part 127, Groundwater Quality Control Act.

Michigan Natural Resources and Environmental Protection Act, P.A. 1994, No. 451, Michigan Administrative Code, Rules Part 201.

Milstein. 1987. Bedrock Geology of Southern Michigan, Michigan Geological Survey, Scale 1:500,000.

Moore, D.R.J., W.J. Warren-Hicks, B.R. Parkhurst, R.S. Teed, R.B. Baird, R. Berger, D.L. Denton, and J.J. Pletl. 2000a. Intra- and intertreatment variability in reference toxicant test: Implications for whole effluent toxicity testing programs. Environ. Toxicol. Chem. 19:105-112.

Moore, T.F., S.P. Canton, and M. Grimes. 2000a. Investigating the incidence of type I errors for chronic whole effluent toxicity testing using *Ceriodaphnia dubia.* Environ. Toxicol. Chem. 19:118-122.

Nelson, W.G., 1930. Waste-Wood Utilization by the Badger-Stafford Process. Industrial and Engineering Chemistry Volume 22, pp 312-315.

Nyer, E.K., and S. Suthan. 1996. In Situ Reactive Zones. Ground Water Monitoring & Remediation. Summer 1996, pp 70-75.

Nyer, E.K., E.P. Carman, and R.M. Flynn. 1999. Other Types of Contamination. Ground Water Monitoring & Remediation. Spring 1999, Volume XIX, No. 2, pp 61-64.

Nyer, E.K., Palmer, P.L., Carman, E.P., Boettcher, G., Bedessem, J.M., Lenzo, F., Crossman, T.L., Rorech, G.J., and Kidd, D.F., 2001. In Situ Treatment Technology, 2nd Edition, Lewis Publishers, 526 p.

REAC. June 1996. Viking GC/MS Final. Field Analytical Report, Former Ford/Kingsford Site, Kingsford, Michigan.

SCS Engineers and Environmental Quality Management, Inc., 1996, Addendum To Operation and Maintenance Manual, Methane Collection System, Kingsford, Michigan, 29 pages plus attachments.

Simon, T.P., and R.E. Sanders. 1999. Applying an index of biotic integrity based on great-river fish communities: Considerations in sampling and interpretation. In: Simon (ed.). Assessing the sustainability and biological integrity of water resources using fish communities. CRC Press, Boca Raton, FL. Pages 475-505.

Snyder, E. 1987. Browning's Toxicology and Metabolism of Industrial Solvents. Second ed., Vol 1.

Soil Conservation Service. 1989. Soil Survey of Dickinson County, Michigan, 177 pages plus plates.

State of Michigan, Consent Judgment between the Michigan Department of Environmental Quality (MDEQ), Ford Motor Company (Ford) and the Kingsford Products Company (KPC), Court Case No. 04-1427-CE, October 26, 2004.

Stephan, C.E., D.I. Mount, D.J. Hansen, J.H. Gentile, G.A. Chapman, and W.A. Brungs. 1985. Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses. U.S. Environmental Protection Agency, Office of Research and Development, Duluth, MN.

U.S. Environmental Protection Agency. 1992. Specifications and Guidance for Obtaining Contaminant-Free Sample Containers, OSWER Directive 9240.0-05A.

U.S. Environmental Protection Agency, CLP. 1993. National Functional Guidelines for Organic Data Review. February 1993.

Voltaix. 1994. Material Safety Data Sheet for Methane (CH_4). Voltaix, Inc., North Branch, New Jersey.
Warren-Hicks, W.J., B.R. Parkhurst, D.R.J. Moore, R.S. Teed, R.B. Baird, R. Berger, D.L. Denton, and J.J. Pletl. 2000. Assessment of whole effluent toxicity test variability: Partitioning sources of variability. Environ. Toxicol. Chem. 19:94-104.

Westjohn, D.B., E.M. Godsy, and R.W. Healy. 1996. Origin of dissolved methane in ground water. Administrative report prepared by the U. S. Geological Survey for the U. S. Environmental Protection Agency. 35 pp.

Westjohn, D.B., and C.L. Luukkonen. 2001. Ground-Water Flow and Contributing Areas to Public-Supply Wells in Kingsford an Iron Mountain, Michigan, Water-Resources Investigations Report 00-4226, USGS, Lansing, Michigan, 43 p.

Wiedemeier, T.H., M.A. Swanson, D.E. Moutoux, E.K. Gordon, J.P. Wilson, G.H. Wilson, D.H. Kampbell, J.E. Hansen, P. Haas, and F.H. Chapelle. 1996. Technical Protocol for Evaluating National Attenuation of Chlorinated Solvents in Groundwater. Air Force Center for Environmental Excellence, Technology Transfer Division, Brooks Air Force Base, San Antonio, Texas. Draft Revision 1.

Wisconsin Department on Natural Resources. 1997. Effects of flow regulation and restriction of passage due to hydroelectric project operation on the structure of fish and invertebrate communities in Wisconsin's large river systems: 1996 Progress Report Phase II, Menominee River. Monona, WI. Wisconsin Department of Natural Resources.

Wisconsin Department on Natural Resources. 1998. Effects of flow regulation and restriction of passage due to hydroelectric project operation on the structure of fish and invertebrate communities in Wisconsin's large river systems: 1997 Progress Report Phase II, Menominee River. Monona, WI. Wisconsin Department of Natural Resources.

Wisconsin Department on Natural Resources. 2002. Response of a Riverine Mussel Community to a Change in Flow Regulation. 1999 Progress Report, Phase I: Menominee River Randel Piette, Wisconsin Department of Natural Resources, Waupaca, Wisconsin. 19p.

THIS PAGE INTENTIONALLY LEFT BLANK

ARCADIS

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GM-1	MW	05/15/97		370815.38	25967133.86	1121.79	1123.97	321.5	230	220
GM-2A	MW	05/07/97		370107.55	25969704.16	1121.3	1121.11	50	50	40
GM-2B	MW	05/06/97		370113.03	25969704.17	1121.33	1121.19	281	281	271
GM-2C	MW	07/08/98		370120.40	25969703.63	1121.36	1120.99	75	74	64
GM-3A	MW	05/06/97		370138.77	25968519.05	1119.54	1119.35	85	84	74
GM-3B	MW	05/03/97		370139.11	25968524.10	1119.61	1119.4	307	180	170
GM-4	MW	06/16/97		374589.36	25968793.20	1125.54	1127.98	137	86	76
GM-5	MW	06/14/97		373215.84	25965313.78	1122.18	1125.58	263	260	250
GM-6	MW	05/15/97		373950.51	25965004.16	1124.07	1126.71	205	175	165
GM-7	MW	06/12/97		370103.51	25971402.51	1107.63	1107.4	227	155	145
GM-8	MW	06/26/97		367258.40	25969133.08	1043.64	1046.43	90	89	79
GM-9	MW	09/16/97		369592.91	25965960.33	1053.04	1055.69	244	174	164
GM-10	MW	09/24/97		371938.24	25964101.10	1056.2	1055.86	205	180	170
GM-11	MW	09/29/97		375428.78	25960859.94	1067.84	1067.6	188	184.7	174.7
GM-12	MW	10/10/97		373036.50	25969580.29	1120.49	1123.23	315	300	290
GM-13	MW	09/17/97		371521.22	25969980.26	1116.1	1115.78	343	335	325
GM-14	MW	09/14/97		374127.49	25974268.72	1115.05	1114.56	175	145	135
GM-15	MW	09/11/97		374171.72	25971408.94	1127.2	1126.99	183	175	165
GM-16	MW	10/13/97		375466.98	25965317.14	1130.25	1129.8	144	118	108
GM-17	MW	10/23/97		372503.21	25972077.74	1111.84	1111.51	272.5	234.3	224.3
GM-18	MW	11/24/97	X	372339.53	25967270.19	1120.13	1122.4	61	60	50
GM-19	MW	11/25/97	X	372259.63	25967424.16	1117.13	1119.55	57	56	46
GM-20	MW	11/25/97	X	372311.42	25967691.87	1119.1	1121.35	53	52	42
GM-21	MW	11/24/97		370149.51	25965892.41	1055.99	1059.06	24	15	5
GM-22	MW	11/25/97		370335.32	25965994.49	1064.23	1066.7	20	16	6
GM-23	MW	11/26/97		370291.92	25965841.93	1055.9	1058.44	16	13.5	3.5
GM-24A	MW	10/24/98		369310.81	25967825.21	1099.38	1098.96	95	81	71
GM-24B	MW	10/23/98		369310.70	25967829.92	1099.22	1098.8	115.5	114	104
GM-24C	MW	10/22/98		369310.90	25967835.23	1099.22	1098.73	215	198	193
GM-25A	MW	06/13/98		372555.62	25965086.52	1047.71	1050.082	30	29	19

Footnotes on Page 35.

ARCADIS

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GM-25B	MW	06/13/98		372548.99	25965088.49	1047.85	1049.992	109	108	98
GM-25C	MW	06/10/98		372546.41	25965089.78	1047.94	1049.886	220	216	206
GM-26A	MW	06/23/98		371712.12	25964839.72	1047.31	1049.555	40	40	30
GM-26B	MW	06/23/98		371707.27	25964838.48	1047.17	1049.63	111	111	101
GM-26C	MW	06/22/98		371702.08	25964837.17	1047.27	1049.555	205	170	160
GM-27A	MW	06/27/98		371204.72	25965360.84	1052.45	1054.961	41	40	30
GM-27B	MW	06/26/98		371202.15	25965356.52	1052.61	1055.299	156	155	145
GM-27C	MW	06/26/98		371197.66	25965349.66	1052.53	1054.996	222	220	210
GM-28A	MW	06/29/98		370345.73	25965962.78	1062.08	1064.55	50	50	40
GM-28B	MW	06/29/98		370347.31	25965958.96	1061.85	1064.39	155	129.5	124.5
GM-29	MW	06/30/98		369577.21	25965973.76	1053.15	1055.8	65	65	55
GM-30	MW	07/06/98		373642.56	25965919.64	1121.73	1124.47	125	85	75
GM-30A	VE	07/25/04		373634.56	25965924.16	1121.99	1124.28	83	76	56
GM-31	MW	07/07/98		373215.27	25965328.57	1121.73	1124.22	115	115	105
GM-32	MW	07/09/98		371521.83	25969974.27	1116.14	1115.88	150	145	135
GM-33	MW	07/12/98	X	371541.69	25967501.63	1119.43	1119.13	265	89	74
GM-33R	MW	06/07/05		371521.38	25967501.61	1119.33	1119.37	95	90	75
GM-34A	MW	07/15/98		368950.52	25969226.47	1088.08	1088.18	41	40	30
GM-34B	MW	07/14/98		368953.87	25969226.67	1088.01	1088.16	194	95	85
GM-35	MW	07/20/98		373026.53	25969585.33	1120.49	1123.29	51	50	40
GM-36	MW	07/21/98		374166.02	25971408.50	1127.17	1126.77	106	105	95
GM-37A	MW	07/27/98	X	372254.59	25967423.53	1117.35	1119.92	349	154	144
GM-37B	MW	08/05/98	X	372249.83	25967422.90	1117.29	1119.92	338.5	338	328
GM-38A	MW	07/25/98		369015.28	25968572.95	1097.22	1096.86	106	105	95
GM-38B	MW	07/25/98		369020.26	25968573.18	1097.3	1096.86	171	170	160
GM-38C	MW	07/24/98		369025.16	25968573.25	1097.29	1096.96	231.5	210	200
GM-39	MW	07/28/98		369012.77	25969905.63	1087.29	1086.97	240	95	85
GM-40A	MW	08/05/98		372212.55	25969627.98	1115.18	1115.07	155	85	75
GM-40B	MW	08/05/98		372212.70	25969633.07	1115.15	1114.86	131.5	130	120
GM-41	MW	08/08/98		373040.31	25969905.67	1120.17	1119.68	155	50	40

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GM-42	MW	08/07/98		373318.39	25969519.93	1121.17	1121.12	100	82	72
GM-43	MW	08/08/98		373853.92	25965858.55	1122.48	1125.31	95	74	64
GM-43A	VE	12/07/04		373852.13	25965867.44	1122.71	1125.06	78	72	65
GM-44	MW	08/10/98		373703.05	25966019.64	1122.97	1125.47	85	80	60
GM-44A	VE	12/09/04		373706.79	25966013.97	1122.93	1124.92	76	74	59
GM-45	MW	08/11/98		373490.47	25966023.73	1122.34	1124.92	95	85	70
GM-45A	VE	07/26/04		373509.12	25966011.56	1122.94	1126.17	80	80	67
GM-46	MW	08/12/98		374002.21	25965713.01	1123.01	1125.59	75	75	65
GM-47	MW	08/18/98		374099.02	25965452.61	1126.11	1126.12	85	84	69
GM-47A	VE	12/10/04		374099.16	25965452.69	1126.21	1126.01	83	81	69
GM-48	MW	08/19/98		374082.73	25965958.81	1124.98	1127.36	85	85	65
GM-49	MW	08/20/98	X	373173.32	25966142.34	1121.69	1124.05	95	93.5	83.5
GM-50	MW	08/24/98		371536.25	25967024.62	1120.64	1120	96	95.5	80.5
GM-51	MW	08/24/98	X	373706.87	25965416.12	1095.88	1098.44	80	77	67
GM-52	MW	08/25/98	X	371156.66	25967202.12	1119.74	1122.13	95	95	75
GM-53A	MW	10/14/98		370458.65	25967167.74	1103.76	1106.73	95	89	79
GM-53B	MW	10/13/98		370460.56	25967162.71	1103.83	1106.75	205	205	195
GM-54	MW	09/26/98	X	374299.50	25965258.40	1126.88	1126.42	115	90	80
GM-55	MW	09/26/98		374598.56	25965574.94	1126.68	1126.36	95	85	75
GM-56	MW	09/28/98		373439.65	25970050.95	1118.56	1121.39	65	47	32
GM-57	MW	10/26/98		374816.70	25966105.77	1130.81	1130.29	95	86	76
GM-58	MW	10/27/98		375180.55	25965680.09	1130.9	1130.6	95	85	75
GM-59	MW	11/07/98		375422.42	25964051.44	1129.97	1131.81	125	124	114
GM-60	MW	11/09/98		375446.78	25966728.12	1191.33	1190.74	121	107	102
GM-61	MW	12/16/98		375823.78	25966218.75	1209.08	1211.6	195	143	138
GM-62A	MW	06/10/99		372897.15	25967872.09	1124.78	1127.69	102	100	90
GM-62B	MW	06/21/99		372897.07	25967888.23	1124.74	1128.05	205	205	195
GM-62C	MW	06/15/99		372897.75	25967881.13	1124.77	1128	357	325	315
GM-63A	MW	05/23/00		371449.36	25965078.18	1049.72	1052.271	50	50	45
GM-63B	MW	05/16/00		371445.06	25965081.02	1049.72	1052.113	135	110	105

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GM-64A	MW	05/30/00		370716.87	25965495.72	1054.73	1057.26	45	43	33
GM-64B	MW	05/21/00		370711.29	25965499.24	1055.13	1057.57	214	122	117
GM-65	OB	06/03/00		372452.91	25965328.06	1065.21	1068.213	205	130	120
GM-66A	MW	06/06/00		373424.01	25964655.24	1045.7	1048.156	37	37	27
GM-66B	MW	06/05/00		373426.38	25964655.64	1045.72	1048.156	175	135	125
GM-67	MW	06/15/00		368696.65	25971320.52	1115.9	1115.37	265	127	122
GM-68	MW	06/29/00		371140.04	25972684.12	1105.72	1105.58	243	150	140
GM-69	MW	07/06/00	X	371085.07	25966330.00	1086.47	1088.98	85	69	59
GM-70	MW	07/08/00	X	373110.26	25968797.19	1117.95	1120.52	55	52	42
GM-71	MW	07/09/00	X	372980.55	25968893.51	1118	1120.5	51	49	39
GM-72	MW	07/09/00	X	373100.58	25969108.04	1118.83	1121.45	55	53	43
GM-72A	MW	08/04/04		373095.36	25969112.62	1118.83	1123.2	56	56	46
GM-73	MW	08/15/00		376573.92	25961545.12	1111.42	1113.9	52	52	42
GM-74	MW	08/16/00		376379.20	25961263.75	1100.95	1103.35	44	44	34
GM-75	MW	08/17/00		376657.88	25961116.54	1089.05	1091.51	34	34	24
GM-76	MW	12/05/00		369888.10	25966127.03	1056.36	1059.96	13	13	3
GM-77	MW	09/08/03		373111.15	25964772.83	1043.06	1045.258	165	110	105
GM-78	MW	09/10/03		372643.09	25965078.45	1049.24	1051.717	35	30	20
GM-79	MW	09/10/03		371002.59	25965391.86	1052.81	1052.37	35	35	25
GM-80	MW	04/22/04		373305.45	25970852.83	1120.7462	1120.513	190	123	113
GM-81A	MW	05/26/04		371933.16	25970883.44	1110.84	1110.84	185	145	140
GM-81B	MW	05/25/04		371941.92	25970885.10	1111.32	1111.32	321	300	295
GM-82A	MW	06/06/04		372962.41	25966839.72	1121.63	1121.63	115	92	82
GM-82B	MW	06/04/04		372962.56	25966829.19	1121.86	1121.86	250	156.7	151.7
GM-83	SB	07/11/04	X	373842.51	25967757.30	1131.92	NA	128	NA	NA
GM-84	MW	06/29/04		373837.58	25964430.87	1052.7204	1055.14	93	82	77
GM-85	MW	08/07/04		368648.63	25971929.66	1070.49	1070.2	85	80	75
GM-86A	MW	01/21/06		372250.21	25967835.89	1115.22	1117.92	148	148	143
GM-86B	MW	01/20/06		372245.22	25967836.43	1114.97	1117.95	351	340	335
GM-87A	MW	01/25/06		370750.02	25965434.46	1054.92	1054.16	42	42	32

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GM-87B	MW	01/24/06		370746.58	25965434.61	1055.01	1054.27	135	132	117
GM-100	MW	07/23/98	X	370456.22	25967155.04	1103.69	1111.68	70.5	70.5	65.5
GM-118D	MW	09/10/98		371087.61	25967940.27	1116.64	1116.32	59	59	54
GMIM-1	MW	10/27/03		371498.84	25965309.07	1041.73	1044.5	24	24	12
GMIM-2	MW	10/27/03		371489.02	25965321.29	1041.73	1044.32	24	24	12
GMIM-3	MW	10/27/03		371483.15	25965305.10	1042.15	1044.7	24	24	12
GMEW-1	EP	06/16/00		371261.77	25965134.55	1039.49	1041.69	30	30	20
GMEW-2	EW	06/17/00		371565.67	25965390.26	1049.53	1050.44	36	33	23
GMEW-3	EW	06/20/00		372463.20	25965327.63	1065.4	1066.79	165	145	135
GMEW-4	EW	01/11/02	X	372564.96	25965083.74	1047.77	1049.19	125	120	100
GMEW-4R	EW	07/31/02		372541.43	25965090.74	1047.5	1047.319	132	127	107
GMEW-5	EW	06/29/02		371279.79	25965487.16	1066.13	1068.328	53	48	40
GMEW-6	EW	06/27/02		372610.31	25965210.91	1060.43	1062.182	51	46	39
GMEW-7	EW	10/10/03		372446.48	25965337.07	1065.85	1069.6	198	193	183
GMEW-8	EW	10/20/03		371703.39	25965132.24	1044.08	1046.465	176	170	125
GMEW-9 (GMEWC-4)	EW	10/22/03	X	372900.84	25964996.88	1048.91	1051.26	175	170	125
GMEWA-1	EW	06/02/04		371107.67	25965497.76	1054.15	1052.659	45	36	26
GMEWA-2	EW	06/03/04		371178.17	25965459.60	1053.69	1052.615	45	36	26
GMEWA-3	EW	06/03/04		371245.46	25965419.09	1053.41	1051.887	45	35	25
GMEWA-4	EW	06/04/04		371313.24	25965372.84	1049.23	1047.937	35	30	20
GMEWA-5	EW	06/04/04		371348.70	25965285.60	1042.35	1041.538	35	26	16
GMEWA-6	EW	08/03/04		371326.40	25965205.69	1043.88	1042.414	35	27	22
GMEWA-7	EW	07/20/04		371305.17	25965128.25	1042.34	1041.88	35	27	17
GMEWA-8	EW	07/20/04		371327.75	25965052.51	1041.58	1040.6	55	40	20
GMEWA-9	EW	07/19/04		371353.85	25964977.67	1040.5	1039.962	75	35	20
GMEWA-10	EW	07/14/04		371410.12	25964922.24	1041.42	1040.921	56.5	45	25
GMEWA-11	EW	07/13/04		371477.35	25964887.05	1043.25	1042.78	42	39	24
GMEWA-12	EW	07/12/04		371549.48	25964864.40	1044.34	1043.722	67	38	23

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMEWA-13	EW	07/27/04		371622.25	25964852.86	1045.04	1044.257	95	35	20
GMEWA-14	EW	08/02/04		371693.77	25964857.77	1047.01	1045.477	65	50	25
GMEWA-15	EW	07/22/04		371765.10	25964868.79	1047.09	1045.666	75	50	20
GMEWA-16	EW	07/21/04		371832.80	25964881.05	1047.52	1046.234	75	50	20
GMEWA-17	EW	07/11/04		371901.28	25964898.53	1047.92	1047.165	75	65	20
GMEWA-18	EW	07/11/04		371979.99	25964913.86	1048	1046.773	45	28	18
GMEWA-19	EW	07/11/04		372056.07	25964931.26	1048.79	1047.269	35	29	19
GMEWA-20	EW	07/10/04		372132.81	25964949.63	1049.2	1047.929	35	29	19
GMEWA-21	EW	07/10/04		372208.13	25964967.73	1049.47	1048.611	35	28	23
GMEWA-22	EW	07/09/04		372284.52	25964984.01	1049.44	1048.418	35	29	24
GMEWA-23	EW	07/08/04		372361.76	25965003.31	1049.29	1047.853	45	35	23
GMEWA-24	EW	07/08/04		372434.55	25965037.85	1049.02	1046.736	45	37	22
GMEWA-25	EW	07/01/04		372481.92	25965053.04	1049.22	1047.463	55	33	23
GMEWA-26	EW	07/24/04		372527.42	25965104.85	1049.22	1048.05	45	32	22
GMEWA-27	EW	06/28/04		372571.90	25965098.33	1048.96	1047.238	55	31	21
GMEWA-28	EW	07/02/04		372612.97	25965092.26	1049.19	1047.975	45	35	25
GMEWA-28A	EW	07/07/04		372632.02	25965090.32	1049.74	1048.653	45	33	23
GMEWA-29	EW	04/04/06		372094.58	25964939.78	1049.07	1050.51	32	27	22
GMEWA-30	EW	04/04/06		372163.86	25964956.97	1049.26	1051.08	34	29	24
GMEWB-1	EW	09/26/04		372466.51	25965049.68	1049.17	1047.165	120	104	99
GMEWC-1	EW	06/08/04		373340.74	25964699.38	1045.19	1044.278	159	138	123
GMEWC-1A	EW	06/19/04		373358.71	25964691.27	1045.68	1044.272	162.5	157.5	117.5
GMEWC-2	EW	06/20/04		373173.71	25964778.04	1043.87	1042.909	192	180	165
GMEWC-2A	EW	10/05/04		373154.97	25964786.24	1043.77	1042.503	195	187	133
GMEWC-3	EW	06/17/04		373043.97	25964914.58	1046.7	1046.023	175	162	107
GMEWC-4 (GMEW-9)	EW	10/22/03		372900.77	25964996.93	1048.34	1046.633	175	170	125
GMEWC-5	EW	07/01/04		372717.78	25965079.16	1050.91	1049.861	195	185	122
GMEWC-6	EW	06/22/04		372513.30	25965077.26	1048.72	1047.606	175	150	104
GMEWC-7	EW	07/01/04		372331.43	25964997.36	1049.56	1048.074	175	148	108
GMEWC-7A	EW	09/24/04		372313.81	25964991.04	1049.54	1047.638	175	150	135

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMEWC-8	EW	07/10/04		371747.33	25964861.81	1047.03	1045.703	185	167	127
GMEWC-8A	EW	09/22/04		371771.33	25964865.51	1047.3	1045.765	175	162	122
GMEWC-9	EW	07/23/04		372604.03	25965086.17	1048.75	1047.562	124.7	119.7	114.7
GMEWC-10	EW	09/28/04		372618.15	25965082.62	1049.35	1048.115	205	180	134
GMEWC-11	EW	03/30/06		372652.69	25965101.95	1050.84	1052.63	195	190	125
GMEWC-12	EW	04/01/06		372560.44	25965102.69	1048.4	1050.86	165	160	103
GMEWC-13	EW	04/03/06		372471.24	25965088.21	1048.33	1048.43	169	164	115
GMPZA-1	EP	04/27/05		372536.42	25965109.01	1049.18	1051.97	35	32	22
GMPZA-2	EP	04/27/05		372473.84	25965051.05	1049.06	1051.744	35	33	23
GMPZA-3	EP	04/28/05		372426.65	25965035.09	1049.07	1051.766	45	35	25
GMPZA-4	EP	04/29/05		372352.44	25965001.40	1049.19	1051.811	35	34	24
GMPZA-5	EP	04/29/05		372274.87	25964982.14	1049.53	1052.002	35	33	23
GMPZA-6	EP	04/29/05		372199.28	25964966.31	1049.5	1052.128	35	30	20
GMPZA-7	EP	04/29/05		372123.58	25964948.06	1049.17	1051.799	35	30	20
GMPZA-8	EP	04/30/05		372046.93	25964930.22	1048.8	1051.644	35	24	14
GMPZA-9	EP	04/30/05		371970.39	25964911.78	1048.01	1049.94	35	28	18
GMPZA-10	EP	04/30/05		371892.24	25964896.93	1048.08	1050.698	35	35	25
GMPZA-11	EP	04/30/05		371824.17	25964879.82	1047.42	1050.107	35	34	24
GMPZA-12	EP	05/01/05		371756.18	25964867.82	1047.33	1049.734	35	34	24
GMPZA-13	EP	05/09/05		371684.35	25964858.38	1046.79	1049.431	45	40	30
GMPZA-14	EP	05/09/05		371613.02	25964854.00	1044.98	1047.735	35	30	20
GMPZA-15	EP	05/10/05		371540.96	25964866.47	1044.43	1047.128	35	36	26
GMPZA-16	EP	05/10/05		371469.15	25964890.54	1043.18	1045.767	35	35	25
GMPZA-17	EP	05/10/05		371403.08	25964927.90	1041.49	1044.97	35	35	25
GMPZA-18	EP	05/10/05		371349.12	25964986.04	1040.53	1043.15	35	30	20
GMPZA-19	EP	05/11/05		371325.28	25965061.08	1041.94	1044.608	35	30	20
GMPZA-20	EP	05/11/05		371306.13	25965138.88	1042.52	1045.314	35	25	15
GMPZA-21	EP	05/11/05		371330.20	25965214.04	1043.69	1046.263	35	27	17
GMPZA-22	EP	05/02/05		371355.56	25965279.55	1042.51	1045.236	35	25	15

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMPZA-23	EP	04/28/05		372534.48	25965030.76	1049.39	1052.04	35	32	22
GMPZA-24	EP	04/28/05		372501.12	25965013.55	1049.02	1051.08	35	33	23
GMPZA-25	EP	05/02/05		372450.81	25964996.86	1049.34	1052.187	35	35	25
GMPZA-26	EP	05/03/05		372373.15	25964970.25	1049.35	1051.949	35	30	20
GMPZA-27	EP	05/03/05		372290.14	25964952.48	1049.53	1052.242	35	30	20
GMPZA-28	EP	05/03/05		372214.97	25964938.19	1049.02	1051.909	35	28	18
GMPZA-29	EP	05/03/05		372139.85	25964916.06	1049.23	1050.81	35	28	18
GMPZA-30	EP	05/04/05		372067.57	25964891.88	1048.74	1051.296	35	29	19
GMPZA-31	EP	05/04/05		371985.89	25964871.52	1048.59	1051.17	35	29	19
GMPZA-32	EP	05/10/05		371913.42	25964843.91	1048.59	1051.251	45	36	26
GMPZA-33	EP	05/10/05		371841.82	25964820.61	1048.06	1050.518	35	35	25
GMPZA-34	EP	04/30/05		371763.06	25964815.46	1047.76	1050.405	35	35	25
GMPZA-35	EP	05/01/05		371692.20	25964807.99	1046.68	1049.336	45	40	30
GMPZA-36	EP	05/01/05		371615.58	25964810.16	1045.56	1048.318	35	31	21
GMPZA-37	EP	05/01/05		371531.10	25964822.61	1045.83	1048.338	45	37	27
GMPZA-38	EP	05/02/05		371455.60	25964846.72	1044.22	1046.561	35	38.5	25
GMPZA-39	EP	05/02/05		371383.65	25964888.04	1042.61	1045.474	45	36	26
GMPZA-40	EP	05/13/05		371323.78	25964954.56	1041.42	1043.54	30	30	20
GMPZA-41	EP	05/12/05		371269.24	25965030.17	1039.36	1041.836	30	30	20
GMPZA-42	EP	05/02/05		371292.32	25965231.19	1042.08	1044.728	35	25	15
GMPZB-1	VE	05/12/05		372552.34	25965034.72	1054.47	NA	115	105	95
GMPZC-1	EP	03/16/05		373350.24	25964695.83	1045.49	1048.35	125	125	115
GMPZC-2	EP	03/17/05		373164.68	25964781.99	1043.68	1046.104	155	139	134
GMPZC-3	EP	03/17/05		373034.36	25964918.38	1046.6	1046.96	135	130	120
GMPZC-4 (GMPZ-9)	EP	10/14/03	X	372891.08	25965002.55	1048.31	1050.64	180	170	130
GMPZC-5	EP	03/18/05		372709.34	25965083.32	1051.09	1053.982	175	155	145
GMPZC-6	EP	03/21/05		372506.65	25965078.65	1048.52	1051.246	135	125	115
GMPZC-7	EP	03/22/05		372322.07	25964993.46	1049.47	1052.214	145	145	135
GMPZC-8	EP	03/23/05		371761.10	25964864.18	1047.3	1050.086	145	145	135
GMPZC-9	EP	03/20/05		372595.05	25965092.27	1048.73	1051.745	125	120	115

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMPZC-10	EP	03/19/05		372624.06	25965086.43	1049.29	1052.283	175	166	156
GMPZC-11	EP	03/30/05		373334.40	25964646.05	1046.17	1045.529	135	125	115
GMPZC-12	EP	03/31/05		373136.76	25964743.05	1043.03	1046.002	155	142	137
GMPZC-13	EP	04/01/05		373003.43	25964875.72	1042.92	1045.21	135	115	105
GMPZC-14	EP	04/02/05		372609.75	25965045.33	1047.85	1047.376	135	116	111
GMPZC-15	EP	04/03/05		372517.58	25965020.54	1049.4	1048.94	145	140	130
GMPZC-16	EP	04/04/05		372328.82	25964964.55	1049.4	1048.833	155	128	118
GMPZC-17	EP	03/29/05		371749.49	25964816.37	1047.41	1046.791	135	135	125
GMPZC-18	EP	01/23/06		372890.32	25965001.77	1047.46	1050.07	170	170	160
GMPZ-1	OB	08/27/01		371587.28	25965389.04	1050.11	1052.673	32	32	22
GMPZ-2	OB	08/28/01		371616.30	25965392.26	1050.68	1053.141	38	34	24
GMPZ-3	OB	08/27/01		371504.40	25965325.62	1041.5	1044.076	26	22	12
GMPZ-4	OB	09/07/01	X	372448.68	25965279.63	1058.17	1060.63	141	141	131
GMPZ-5	OB	06/10/02		371264.92	25965489.74	1065.78	1068.541	56	55	40
GMPZ-6	OB	06/11/02		372623.21	25965202.05	1060.44	1063.357	49	45.5	32.5
GMPZ-7	OB	10/10/03		372456.66	25965333.74	1065.94	1068.578	196	193	183
GMPZ-8	OB	10/08/03		371702.84	25965122.21	1044.35	1047.5	190	145	125
GMPZ-9 (GMPZC-4)	OB	10/14/03	X	372891.08	25965002.55	1048.31	1050.93	180	170	130
GMPZ-10	OB	10/07/03		372448.11	25965317.96	1064.5	1067.53	210	145	135
AGMGT-1	SB	12/04/00	X	371095.95	25965437.74	1053.62	NA	32	NA	NA
AGMGT-2	SB	12/04/00	X	371194.20	25965364.45	1052.98	NA	30	NA	NA
AGMGT-3	SB	12/05/00	X	371127.16	25965329.18	1052.79	NA	30	NA	NA
AGMGT-4	SB	03/04/02	X	373302.90	25965495.60	1120.99	NA	52	NA	NA
AGMGT-5	SB	03/05/02	X	373423.05	25965660.99	1120.61	NA	53	NA	NA
AGMGT-6	SB	03/05/02	X	373640.44	25965513.59	1120.62	NA	50.5	NA	NA
AGMGT-7	SB	03/06/02	X	373517.23	25965340.17	1120.32	NA	52	NA	NA
AGMGT-8	SB	01/06/04	X	370970.88	25965437.76	1054.04	NA	40	NA	NA
AGMGT-9	SB	01/07/04	X	370990.63	25965481.78	1054.04	NA	40	NA	NA

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
AGMGT-10	SB	01/07/04	X	370876.92	25965503.18	1055.51	NA	40	NA	NA
AGMGT-11	SB	01/08/04	X	370810.73	25965530.71	1057.41	NA	40	NA	NA
AGMGT-12	SB	01/08/04	X	370829.62	25965567.33	1052.59	NA	40	NA	NA
GMSB-Quarry	SB	09/29/97	X	370500.00	25967200.00	1096	NA	52	NA	NA
GMSB-1	SB	06/03/97	X	373114.59	25968975.03	1117.47	NA	331.5	NA	NA
GMSB-2	SB	05/30/97	X	372462.71	25968042.16	1117.22	NA	363	NA	NA
GMSB-3	SB	06/13/97	X	374481.40	25968493.55	1102.86	NA	110	NA	NA
GMSB-3A	SB	06/16/97	X	374358.13	25968456.99	1128.59	NA	25	NA	NA
GMSB-3B	SB	06/16/97	X	374358.76	25968500.64	1129.01	NA	35	NA	NA
GMSB-3C	SB	06/16/97	X	374375.92	25968644.01	1129.99	NA	25	NA	NA
GMSB-3D	SB	06/16/97	X	374475.01	25968680.03	1127.31	NA	35	NA	NA
GMSB-4	SB	06/10/97	X	373463.06	25965504.98	1119.88	NA	212	NA	NA
GMSB-5	SB	11/25/97	X	370022.20	25965930.38	1054.63	NA	16	NA	NA
GMSB-6	SB	07/07/98	X	371542.28	25968099.39	1114.58	NA	32	NA	NA
GMSB-7	SB	07/13/98	X	370978.10	25971034.83	1109.69	NA	42	NA	NA
GMSB-8	SB	09/11/97	X	370087.20	25973008.43	1097.9	NA	188	NA	NA
GMSB-9 (GM-14)	SB	09/14/97	X	374127.49	25974268.72	1115.05	NA	175	NA	NA
GMSB-10 (GM-15)	SB	09/11/97	X	374171.72	25971408.94	1127.2	NA	183	NA	NA
GMSB-11	SB	07/14/98	X	370921.88	25969060.31	1119.49	NA	58	NA	NA
GMSB-12	SB	11/03/98	X	368440.75	25970130.25	1081.67	NA	33	NA	NA
GMSB-13	SB	08/21/98	X	373489.95	25966663.69	1125.03	NA	135	NA	NA
GMSB-14	SB	08/23/98	X	371539.16	25967868.52	1115.67	NA	165	NA	NA
GMSB-15	SB	09/01/98	X	374478.63	25969006.22	1121.45	NA	135	NA	NA
GMSB-16	SB	09/12/98	X	374768.57	25964998.64	1127.57	NA	72	NA	NA
GMSB-17	SB	09/14/98	X	370450.30	25967152.40	1102.27	NA	335	NA	NA
GMSB-18	SB	09/15/98	X	371092.62	25966335.38	1086.62	NA	75	NA	NA
GMSB-19	SB	09/22/98	X	374292.85	25966351.63	1128.75	NA	65	NA	NA
GMSB-20	SB	09/24/98	X	372997.01	25968279.42	1114.12	NA	85	NA	NA
GMSB-21	SB	09/25/98	X	372484.00	25966703.97	1121.97	NA	105	NA	NA

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSB-22	SB	09/27/98	X	372757.57	25971060.64	1116.58	NA	65	NA	NA
GMSB-23	SB	09/29/98	X	372977.68	25970705.03	1119.45	NA	65	NA	NA
GMSB-24	SB	10/25/98	X	374028.78	25966717.13	1128.05	NA	95	NA	NA
GMSB-25	SB	11/05/98	X	375412.26	25964052.25	1129.08	NA	195	NA	NA
GMSB-26	SB	12/19/98	X	376457.46	25966961.48	1222.08	NA	175	NA	NA
GMSB-27	SB	12/21/98	X	375505.37	25967521.33	1194.01	NA	124	NA	NA
GMSB-28	SB	06/10/99	X	372204.89	25966364.17	1120.29	NA	30	NA	NA
GMSB-29	SB	06/10/99	X	371808.89	25966288.31	1120.38	NA	30	NA	NA
GMSB-30	SB	11/20/99	X	373199.14	25968648.94	1118.03	NA	20	NA	NA
GMSB-31	SB	11/20/99	X	373090.79	25968568.24	1117.62	NA	23	NA	NA
GMSB-32	SB	11/20/99	X	373084.81	25968682.00	1117.39	NA	25	NA	NA
GMSB-33	SB	11/20/99	X	373154.96	25968765.75	1117.6	NA	25	NA	NA
GMSB-34	SB	11/20/99	X	373153.96	25968868.47	1117.84	NA	35	NA	NA
GMSB-35	SB	11/20/99	X	373208.23	25969007.62	1118.51	NA	35	NA	NA
GMSB-36	SB	11/20/99	X	373151.11	25969134.54	1119.34	NA	45	NA	NA
GMSB-37	SB	11/21/99	X	373076.57	25969110.95	1118.72	NA	35	NA	NA
GMSB-38	SB	11/21/99	X	373008.66	25968983.68	1117.4	NA	25	NA	NA
GMSB-39	SB	11/21/99	X	373077.69	25968898.63	1117.13	NA	25	NA	NA
GMSB-40	SB	11/21/99	X	373121.99	25969024.64	1117.98	NA	35	NA	NA
GMSB-41	SB	11/21/99	X	372917.24	25968557.25	1115.19	NA	25	NA	NA
GMSB-42	SB	11/21/99	X	372884.35	25968478.88	1116.45	NA	25	NA	NA
GMSB-43	SB	11/21/99	X	372868.67	25968411.88	1117.73	NA	35	NA	NA
GMSB-44	SB	11/21/99	X	372485.24	25967904.76	1119.07	NA	25	NA	NA
GMSB-45	SB	11/21/99	X	372404.14	25967945.85	1117.94	NA	25	NA	NA
GMSB-46	SB	11/22/99	X	372400.69	25968063.39	1118.16	NA	25	NA	NA
GMSB-47	SB	11/22/99	X	372528.62	25968090.18	1117.19	NA	35	NA	NA
GMSB-48	SB	11/22/99	X	372540.55	25968004.75	1118.16	NA	45	NA	NA
GMSB-49	SB	05/19/00	X	371261.55	25965132.42	1039.63	NA	155	NA	NA
GMSB-50	SB	05/31/00	X	371602.03	25965387.35	1049.8	NA	125	NA	NA
GMSB-51	SB	06/18/00	X	372390.74	25965246.01	1052.19	NA	165	NA	NA

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSB-52	SB	07/06/00	X	372530.00	25972810.00	1104	NA	35	NA	NA
GMSB-53	SB	08/17/00	X	376521.74	25961258.78	1088.81	NA	14	NA	NA
GMSB-54	SB	08/18/00	X	376436.83	25961340.58	1103.1	NA	14	NA	NA
GMSB-55	SB	08/18/00	X	376489.38	25961485.76	1102.09	NA	14	NA	NA
GMSB-56	SB	08/18/00	X	376363.52	25961399.64	1118.36	NA	14	NA	NA
GMSB-57	SB	08/18/00	X	376364.05	25961570.34	1119.84	NA	14	NA	NA
GMSB-58	SB	08/18/00	X	376596.03	25961375.50	1108.76	NA	14	NA	NA
GMSB-59	SB	08/19/00	X	376590.21	25961441.39	1109.25	NA	14	NA	NA
GMSB-60	SB	08/21/00	X	375016.57	25966272.01	1142.69	NA	106	NA	NA
GMSB-61	SB	08/22/00	X	376543.22	25961433.28	1099.96	NA	14	NA	NA
GMSB-62	SB	08/23/00	X	376641.97	25961281.17	1113.69	NA	14	NA	NA
GMSB-63	SB	08/23/00	X	376704.81	25961353.57	1094.95	NA	14	NA	NA
GMSB-64	SB	08/23/00	X	376661.35	25961461.25	1098.58	NA	14	NA	NA
GMSB-65	SB	06/04/01	X	372868.09	25969457.15	1119.9	NA	50	NA	NA
GMSB-66	SB	06/05/01	X	372869.01	25969591.71	1119.49	NA	46	NA	NA
GMSB-67	SB	06/06/01	X	372848.91	25969810.80	1119.59	NA	44	NA	NA
GMSB-68	SB	06/06/01	X	372844.67	25969894.87	1119.47	NA	46	NA	NA
GMSB-69	SB	06/07/01	X	372789.04	25970020.71	1118.24	NA	44	NA	NA
GMSB-70	SB	06/07/01	X	372417.43	25970021.10	1116.68	NA	42	NA	NA
GMSB-71	SB	06/08/01	X	372314.17	25969784.41	1114.95	NA	50	NA	NA
GMSB-72	SB	06/11/01	X	372647.60	25969616.89	1117.17	NA	52	NA	NA
GMSB-73	SB	06/12/01	X	373325.44	25968000.27	1117.97	NA	47	NA	NA
GMSB-74	SB	06/13/01	X	373332.84	25967911.15	1119.14	NA	42	NA	NA
GMSB-75	SB	09/04/01	X	NA	NA	NA	NA	65	NA	NA
GMSB-76	SB	09/05/01	X	NA	NA	NA	NA	65	NA	NA
GMSB-77	SB	09/05/01	X	NA	NA	NA	NA	65	NA	NA
GMSB-78	SB	09/05/01	X	NA	NA	NA	NA	15	NA	NA
GMSB-79	SB	09/05/01	X	NA	NA	NA	NA	15	NA	NA
GMSB-80	SB	09/05/01	X	NA	NA	NA	NA	15	NA	NA
GMSB-81	SB	09/06/01	X	NA	NA	NA	NA	65	NA	NA

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSB-82	SB	09/06/01	X	NA	NA	NA	NA	55	NA	NA
GMSB-83	SB	09/07/01	X	NA	NA	NA	NA	13	NA	NA
GMSB-84	SB	09/07/01	X	NA	NA	NA	NA	18	NA	NA
GMSB-85	SB	09/07/01	X	NA	NA	NA	NA	16	NA	NA
GMSB-86	SB	09/07/01	X	NA	NA	NA	NA	14	NA	NA
GMSB-87	SB	12/12/01	X	373261.51	25969871.33	1118.59	NA	15	NA	NA
GMSB-88	SB	12/13/01	X	373547.15	25969783.89	1119.82	NA	16	NA	NA
GMSB-89	SB	12/13/01	X	373339.44	25969960.22	1118.42	NA	16	NA	NA
GMSB-90	SB	12/13/01	X	373204.20	25969815.68	1119.76	NA	16	NA	NA
GMSB-91	SB	12/13/01	X	373241.25	25969913.08	1120.08	NA	16	NA	NA
GMSB-92	SB	12/13/01	X	373282.50	25969876.47	1118.04	NA	16	NA	NA
GMSB-93	SB	12/14/01	X	373241.91	25969865.62	1118.84	NA	16	NA	NA
GMSB-94	SB	12/14/01	X	373258.98	25969845.99	1119.24	NA	16	NA	NA
GMSB-95	SB	03/07/02	X	372900.47	25968517.16	1114.71	NA	18	NA	NA
GMSB-96	SB	03/07/02	X	372967.83	25968637.16	1116.82	NA	18	NA	NA
GMSB-97	SB	03/07/02	X	373012.80	25968746.92	1117.44	NA	20	NA	NA
GMSB-98	SB	03/07/02	X	373028.85	25968687.74	1117.33	NA	20	NA	NA
GMSB-99	SB	03/07/02	X	372948.01	25968713.35	1116.67	NA	20	NA	NA
GMSB-100	SB	07/09/98	X	372834.50	25968548.80	1104	NA	52	NA	NA
GMSB-100	SB	03/08/02	X	372834.50	25968548.80	1114.22	NA	20	NA	NA
GMSB-101	SB	03/08/02	X	372881.23	25968589.35	1114.5	NA	18	NA	NA
GMSB-102	SB	03/08/02	X	372954.41	25968482.29	1115.3	NA	22	NA	NA
GMSB-103	SB	03/08/02	X	373003.96	25968574.04	1116.94	NA	21	NA	NA
GMSB-104	SB	05/13/03	X	372059.99	25968245.18	1113.96	NA	50	NA	NA
GMSB-105	SB	05/14/03	X	372048.31	25968438.96	1115.45	NA	48	NA	NA
GMSB-106	SB	05/15/03	X	371787.46	25968325.77	1112.85	NA	44	NA	NA
GMSB-107	SB	05/19/03	X	371722.10	25967834.28	1114.53	NA	48	NA	NA
GMSB-108	SB	05/20/03	X	370348.12	25969895.72	1121.39	NA	60	NA	NA
GMSB-109	SB	05/21/03	X	372097.82	25967907.18	1113.4	NA	42	NA	NA
GMSB-110	SB	05/22/03	X	370149.06	25970051.96	1121.75	NA	54	NA	NA

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSB-111	SB	08/15/03	X	373010.88	25964903.30	1043.87	NA	26	NA	NA
GMSB-112	SB	09/03/03	X	372348.20	25964997.36	1048.2	NA	220	NA	NA
GMSB-113	SB	09/05/03	X	372774.59	25965052.97	1047.44	NA	230	NA	NA
GMSB-114	SB	08/19/98	X	370230.15	25967610.11	1093.56	NA	82	NA	NA
GMSB-115	SB	08/20/98	X	370033.81	25967607.10	1088.73	NA	62	NA	NA
GMSB-116	SB	08/13/03	X	370907.36	25965471.81	1054.81	NA	244	NA	NA
GMSB-117	SB	08/15/03	X	373021.04	25964891.78	1043.17	NA	185	NA	NA
GMSB-118	SB	08/16/03	X	372164.81	25964953.31	1049.26	NA	145	NA	NA
GMSB-119	SB	08/18/03	X	373258.05	25964738.81	1045.19	NA	187	NA	NA
GMSB-120	SB	09/23/98	X	371455.73	25968073.19	1115.17	NA	102	NA	NA
GMSB-121	SB	09/24/98	X	370571.06	25967939.24	1119.67	NA	72	NA	NA
GMSB-122	SB	09/08/03	X	372570.14	25965090.90	1048.35	NA	165	NA	NA
GMSB-123	SB	09/09/03	X	373258.66	25964728.83	1044.81	NA	165	NA	NA
GMSB-124	SB	10/29/03	X	374018.28	25967812.19	1132.58	NA	78	NA	NA
GMSB-125	SB	04/20/04	X	374409.49	25964221.21	1125.4647	NA	112	NA	NA
GMSB-126	SB	10/08/98	X	370862.87	25968021.53	1118.17	NA	40	NA	NA
GMSB-127	SB	10/09/98	X	371057.09	25967793.57	1117.62	NA	40	NA	NA
GMSB-128	SB	04/22/04	X	373299.56	25970859.75	1120.7208	NA	145	NA	NA
GMSB-129	SB	05/17/04	X	374171.69	25967758.65	1131.2643	NA	145	NA	NA
GMSB-130	SB	05/18/04	X	374020.08	25967995.18	1131.8655	NA	152	NA	NA
GMSB-131	SB	05/19/04	X	373991.82	25967637.32	1131.3169	NA	95	NA	NA
GMSB-132	SB	07/07/04	X	371943.52	25964906.08	1047.6906	NA	137	NA	NA
GMSB-133	SB	07/27/04	X	372427.78	25965035.41	1048.95	NA	155	NA	NA
GMSB-134	SB	08/06/04	X	368256.41	25971476.04	1069.16	NA	25	NA	NA
GMSB-135	SB	08/10/04	X	373539.46	25967883.47	1125.84	NA	292	NA	NA
GMSB-136	SB	08/11/04	X	373634.13	25967493.39	1130.73	NA	288	NA	NA
GMSB-137	SB	09/20/04	X	372543.71	25965127.48	1124.12	NA	125	NA	NA
GMSB-138	SB	10/18/04	X	371261.42	25968402.48	1117.08	NA	46	NA	NA
GMSB-139	SB	10/19/04	X	371001.31	25968403.48	1118.69	NA	56	NA	NA
GMSB-140	SB	04/04/06	X	372170.24	25964958.65	1049.09	NA	35	NA	NA

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSB-201	SB	07/25/98	X	369548.98	25967612.55	1100.09	NA	74	NA	NA
GMSB-203	SB	07/25/98	X	369530.81	25966998.29	1097.97	NA	60	NA	NA
GMSB-213	SB	09/03/98	X	369473.97	25968084.99	1096.8	NA	57	NA	NA
GMSB-213A	SB	09/23/98	X	369473.97	25968084.99	1096.8	NA	105	NA	NA
GMSB-217	SB	09/22/98	X	369340.12	25968570.12	1090.47	NA	57	NA	NA
GPR-1	SB	10/07/97	X	369403.15	25967739.24	1100	NA	50	NA	NA
GPR-2	SB	10/08/97	X	370037.63	25967741.38	1088	NA	50	NA	NA
GPR-3	SB	10/09/97	X	370497.23	25967742.93	1121	NA	50	NA	NA
GPR-4	SB	10/10/97	X	370163.43	25967521.73	1091	NA	50	NA	NA
GPR-5	SB	10/08/97	X	370156.74	25967671.72	1091	NA	50	NA	NA
GPR-6	SB	10/08/97	X	370158.83	25967837.81	1092	NA	50	NA	NA
GPR-7	SB	10/13/97	X	369903.01	25967742.43	1087	NA	50	NA	NA
GPR-8	SB	11/17/97	X	370003.11	25969383.35	1122	NA	50	NA	NA
GPR-9	SB	11/17/97	X	370487.91	25969225.84	1121	NA	50	NA	NA
GPR-10	SB	11/18/97	X	369953.00	25969925.75	1122	NA	50	NA	NA
GPR-11	SB	11/18/97	X	370107.08	25969053.71	1120	NA	46	NA	NA
GPR-12	SB	11/18/97	X	369746.57	25969053.16	1094	NA	50	NA	NA
GPR-13	SB	11/18/97	X	368996.62	25969252.96	1088	NA	46	NA	NA
GPR-14	SB	11/19/97	X	368994.47	25969718.17	1089	NA	50	NA	NA
GPR-15	SB	11/19/97	X	369429.47	25970558.29	1120	NA	50	NA	NA
GPR-16	SB	11/19/97	X	369409.84	25969892.20	1121	NA	50	NA	NA
GPR-17	SB	11/19/97	X	368062.51	25968716.71	1094	NA	50	NA	NA
GPR-18	SB	11/20/97	X	369651.39	25969381.84	1096	NA	50	NA	NA
GPR-19	SB	11/20/97	X	370653.88	25969721.24	1121	NA	50	NA	NA
GPR-20	SB	11/20/97	X	369820.84	25970380.66	1120	NA	50	NA	NA
GPR-21	SB	11/20/97	X	369038.15	25970056.86	1092	NA	50	NA	NA
GMP-1	GP	05/14/97	X	369680.00	25967400.00	1097	NA	30	NA	NA
GMP-2	GP	05/13/97	X	369760.00	25967620.00	1089	NA	30	NA	NA

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMP-3	GP	05/13/97	X	369550.00	25967610.00	1100	NA	36	NA	NA
GMP-4	GP	05/13/97	X	369560.00	25967800.00	1100	NA	28	NA	NA
GMP-5	GP	05/13/97	X	369220.00	25967740.00	1101	NA	30	NA	NA
GMGP-1	GP	12/12/00	X	370036.93	25966233.86	1089.48	NA	24	NA	NA
GMGP-2	GP	12/12/00	X	370059.30	25966228.76	1089.55	NA	24	NA	NA
GMGP-3	GP	12/12/00	X	370081.43	25966228.20	1089.91	NA	24	NA	NA
GMGP-4	GP	12/12/00	X	370180.96	25966232.73	1088.73	NA	24	NA	NA
GMGP-5	GP	12/12/00	X	370216.74	25966231.65	1086.72	NA	24	NA	NA
GMGP-6	GP	12/12/00	X	370249.58	25966231.02	1085.76	NA	24	NA	NA
GMGP-7	GP	12/13/00	X	370277.56	25966229.52	1083.15	NA	24	NA	NA
GMGP-8	GP	12/13/00	X	370302.39	25966227.99	1080.43	NA	24	NA	NA
GMGP-9	GP	03/29/01	X	369891.40	25966336.48	1087.82	NA	12	NA	NA
GMGP-10	GP	03/29/01	X	369872.57	25966347.55	1086.92	NA	13	NA	NA
GMGP-11	GP	03/29/01	X	369898.94	25966365.54	1087.51	NA	12	NA	NA
GMGP-12	GP	03/29/01	X	369890.45	25966405.37	1089.58	NA	12	NA	NA
GMGP-13	GP	03/31/01	X	372428.60	25969616.52	1117.38	NA	12	NA	NA
GMGP-14	GP	03/31/01	X	372379.06	25969572.02	1116.64	NA	12	NA	NA
GMGP-15	GP	03/31/01	X	372336.22	25969615.15	1117.09	NA	12	NA	NA
GMGP-16	GP	04/04/02	X	369986.40	25966346.89	1089.23	NA	20	NA	NA
GMGP-17	GP	04/04/02	X	370022.23	25966348.43	1089.82	NA	20	NA	NA
GMGP-18	GP	04/04/02	X	370059.97	25966346.99	1090.74	NA	20	NA	NA
GMGP-19	GP	04/04/02	X	370030.26	25966436.26	1089.95	NA	20	NA	NA
GMGP-20	GP	04/04/02	X	370115.91	25966349.55	1090.66	NA	20	NA	NA
GMGP-21	GP	04/04/02	X	370199.33	25966326.82	1089.39	NA	20	NA	NA
GMSG-1	SG	09/11/97	X	370138.66	25969703.25	1121.59	1121.54	34.5	24	23
GMSG-2A	SG	09/12/97	X	370144.89	25969597.99	1121.56	1121.58	24.5	24.5	23.5
GMSG-2B	SG	09/12/97		370145.05	25969601.67	1121.64	1121.4	42	36	35
GMSG-3A	SG	09/13/97	X	370015.16	25969720.76	1121.73	1121.77	23	22	21

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSG-3B	SG	09/16/97		370011.99	25969720.19	1121.68	1121.41	50	44	43
GMSG-4A	SG	09/13/97	X	370242.64	25969716.93	1121.33	1120.88	22	21	20
GMSG-4B	SG	09/15/97		370246.39	25969719.24	1121.3	1120.84	50	42	41
GMSG-5	SG	09/16/97	X	369913.76	25969722.60	1121.34	1121.24	50	27	26
GMSG-6A	SG	09/24/97	X	370288.72	25969492.11	1120.5	1120.96	25	25	24
GMSG-6B	SG	09/24/97	X	370288.76	25969495.34	1120.53	1121.02	50	38	37
GMSG-6C	SG	09/28/97	X	370293.76	25969494.47	1120.5	1120.67	41.2	41.2	40.2
GMSG-7A	SG	09/26/97	X	370392.40	25969709.02	1120.28	1120.7	20	20	19
GMSG-7B	SG	09/26/97	X	370392.72	25969705.83	1120.14	1120.58	60	48	47
GMSG-7C	SG	09/28/97	X	370393.23	25969701.54	1120.24	1120.56	53	48	47
GMSG-8A	SG	09/26/97	X	370144.81	25969899.15	1122.07	1121.98	26	25	24
GMSG-8B	SG	09/26/97	X	370141.20	25969899.09	1122.08	1121.78	50	45	44
GMSG-9	SG	11/26/97	X	369030.00	25970060.00	1092	NA	15	15	14
GMSG-10	SG	11/26/97	X	369925.00	25970380.00	1120	NA	11	11	10
GMSG-11	SG	11/26/97	X	369070.00	25969230.00	1088	NA	6	6	5
GMSG-12	SG	04/23/98	X	369990.60	25969764.21	1121.47	1121.53	12	11	10
GMSG-13	SG	04/23/98	X	370035.71	25969763.95	1121.48	1121.73	12	11	10
GMSG-14	SG	07/06/98		371936.08	25968339.73	1112.86	NA	30	22	21
GMSG-15	SG	07/07/98	X	372557.72	25968073.78	1117.08	NA	30	17	16
GMSG-16	SG	07/07/98		372655.32	25967785.84	1120.5	NA	30	18	17
GMSG-17	SG	07/11/98		370274.38	25969555.63	1120.86	1120.49	44	43	42
GMSG-18	SG	07/11/98	X	370147.45	25969389.04	1121.93	1121.26	36	34	33
GMSG-19	SG	07/12/98		370013.99	25969597.58	1121.23	1120.58	40	39	38
GMSG-20	SG	07/12/98		370137.58	25969895.90	1121.93	1121.14	46.5	46	45
GMSG-21	SG	07/14/98		373040.00	25969560.00	1122	NA	48	37	32
GMSG-22	SG	06/09/99		370968.54	25971320.56	1112.44	1111.97	10	10	5
GMSG-23	SG	06/09/99		373848.25	25966198.97	1127.42	1126.72	10	10	5
GMSG-24	SG	06/09/99	X	374518.94	25965315.14	1128.11	1127.52	10	10	5
GMSG-24R	SG	04/17/04		374476.21	25965291.72	1128.35	1128.07	7.2	7.2	2.2
GMSG-25	SG	06/09/99		374799.88	25965202.47	1128.3	1127.55	10	10	5

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSG-26	SG	06/11/99		374375.21	25965133.20	1128.16	1127.53	10	10	5
GMSG-27	SG	06/10/99	X	372837.17	25965893.39	1122.06	1121.48	16	10	5
GMSG-28	SG	06/11/99		375157.37	25969237.05	1150.49	1149.98	10	10	5
GMSG-29	VE	06/05/00		372550.17	25968087.96	1117.63	1117.17	25.5	25	15
GMSG-30	SG	06/05/00	X	372402.53	25968191.07	1119.55	1119.01	30.5	30	20
GMSG-31	VE	06/06/00		372387.7	25967886.31	1118.43	1118.06	24	21	6
GMSG-32	VE	06/06/00		372500.51	25968007.19	1117.91	1117.3	22	21.5	6.5
GMSG-33	VE	06/06/00		372539.08	25968035.46	1117.02	1116.46	20	20	5
GMSG-34	SG	03/31/01		372380.82	25969619.29	1117.31	1116.52	20	8	3
GMSG-35	SG	05/14/01		374479.26	25970587.07	1127.48	1126.96	5	5	0
GMSG-36	SG	05/14/01		374352.64	25970468.71	1127.52	1127.01	5	5	0
GMSG-37	SG	06/12/01		372377.77	25969615.95	1117.29	1116.88	46	40	5
GMSG-38	SG	07/20/01		373621.00	25969511.00	1125.31	1124.66	5	5	0
GMSG-39	SG	07/20/01		371682.49	25969254.46	1115.71	1115.27	10	10	0
GMSG-40	SG	07/20/01		371883.34	25969174.05	1116.05	1115.62	5	5	0
GMSG-41	SG	07/20/01		372322.92	25969178.26	1116.09	1115.37	5	5	0
GMSG-42	SG	07/20/01		373829.00	25969987.00	1127.82	1127.19	5	5	0
GMSG-43	SG	07/23/01		371675.15	25971630.41	1111.42	1110.85	5	5	0
GMSG-44	SG	07/23/01		371795.66	25971645.13	1111.11	1110.52	5	5	0
GMSG-45	SG	07/23/01		371735.47	25971162.22	1115.28	1114.73	10.8	10.8	5
GMSG-46	SG	07/23/01		371965.73	25971129.86	1112.84	1112.44	5	5	0
GMSG-47	SG	07/23/01		373779.59	25970550.75	1123.68	1123.35	5	5	0
GMSG-48	SG	07/24/01		373416.64	25969246.23	1113.96	1115.63	4	4	0
GMSG-49	SG	02/12/02		370947.32	25971106.77	1111.06	1110.27	9.8	9.8	6.8
GMSG-50	SG	02/11/02		370941.00	25971173.00	1111.92	1111.48	11	11	8
GMSG-51	SG	08/15/01		NA	NA	NA	NA	3	3	2.5
GMSG-52	SG	08/15/01		NA	NA	NA	NA	5.5	5.5	3.5
GMSG-53	SG	08/15/01		NA	NA	NA	NA	4	4	2
GMSG-54	SG	08/28/01		372199.34	25971096.07	1112.09	1111.43	10	10	5
GMSG-55	SG	08/30/01		373488.36	25969037.21	1121.79	1121.31	10	10	5

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSG-56	SG	08/30/01		373449.39	25968992.72	1121.82	1121.43	10	10	5
GMSG-57	SG	02/08/02		373995.67	25969188.13	1124.69	1123.83	6	6	4
GMSG-58	SG	02/08/02		373959.02	25969168.61	1125.03	1124.13	6	6	4
GMSG-59	SG	02/08/02	X	371763.22	25971884.88	1114.19	1113.42	6	6	4
GMSG-60	SG	02/08/02		374649.71	25970601.47	1127.12	1126.4	6	6	4
GMSG-61	SG	02/09/02	X	373990.52	25970641.16	1123	1122.27	6	6	4
GMSG-61R	SG	08/17/06		373990.52	25970641.16	1123	NA	11.2	11.2	8.7
GMSG-62	SG	02/09/02	X	373969.46	25970602.70	1123.22	1122.35	6	6	4
GMSG-62R	SG	08/10/06		373969.46	25970602.70	1123.22	NA	11	11	8.5
GMSG-63	SG	02/09/02		373804.74	25966381.26	1127.76	1127.14	5.75	5.75	3.75
GMSG-64	SG	10/19/02		373839.44	25966536.56	1128.44	NA	4.33	4.33	2
GMSG-65	SG	02/10/02		373414.02	25969762.58	1122.36	1121.72	5.75	5.75	3.75
GMSG-66	SG	02/10/02		373526.34	25969562.58	1124.44	1123.81	6	6	4
GMSG-67	SG	02/11/02		372797.02	25966141.54	1122.08	1121.55	6	6	4
GMSG-68	SG	02/11/02		372460.64	25966080.20	1122.09	1121.38	6.75	6.75	4.75
GMSG-69	SG	06/07/02		371995.26	25968788.45	1114.37	1114.45	4.33	3.92	1.42
GMSG-69B	SG	08/02/05		371955.36	25968786.15	1114.88	1114.48	42	25	20
GMSG-69C	SG	08/02/05		371955.51	25968786.03	1114.88	1114.22	42	38	18
GMSG-70	SG	06/07/02		372325.88	25968948.48	1114.12	1114.25	2.75	2.67	1.67
GMSG-70B	SG	08/02/05		372324.47	25968949.92	1114.36	1114.27	42	35	30
GMSG-70C	SG	08/02/05		372324.63	25968949.70	1114.36	1114.23	42	35	30
GMSG-71	SG	06/07/02		371736.26	25968972.15	1114.39	1114.83	2.75	2.67	1.67
GMSG-71B	SG	08/07/05		371736.18	25968974.78	1114.74	1114.31	40	20	15
GMSG-72	SG	06/07/02		372019.07	25968972.09	1114	1114.05	2.58	2.5	1.5
GMSG-72B	SG	08/08/05		372018.09	25968973.44	1114.3	1113.83	42	20	15
GMSG-73	SG	07/09/02		372320.09	25969819.03	1115.24	1117.55	10	10	3
GMSG-74	SG	07/09/02		372580.42	25970016.75	1117.22	1119.27	10	10	3
GMSG-75	SG	07/09/02		372845.19	25969813.00	1119.63	1123.06	10	10	3
GMSG-76	SG	07/09/02		373193.30	25969683.48	1123.22	1122.54	10	10	3
GMSG-77	SG	07/10/02		372954.58	25970101.36	1120.82	1120.3	10	10	3

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSG-78	SG	07/10/02		373893.17	25969976.97	1127.63	1127.06	5.25	5	2
GMSG-79	SG	07/10/02		373039.82	25970359.02	1121.31	1120.68	5.25	5	2
GMSG-80	SG	07/10/02		372959.33	25970444.25	1120.18	1120.48	10	10	3
GMSG-81	SG	07/10/02		373028.50	25970752.25	1119.6	1119.13	10	10	3
GMSG-81B	SG	08/15/05		373030.88	25970750.05	1119.51	1119.27	43	30	25
GMSG-81C	SG	08/15/05		373030.69	25970749.96	1119.51	1119.28	43	39	37
GMSG-82	SG	07/10/02		372862.77	25970882.61	1117.13	1116.64	10	10	3
GMSG-82B	SG	08/10/05		372864.89	25970886.79	1117.16	1116.64	41	35	30
GMSG-82C	SG	08/10/05		372865.07	25970886.92	1117.16	1116.65	41	35	30
GMSG-83	SG	07/10/02		372918.71	25970943.76	1118.64	1118.18	10	10	3
GMSG-83B	SG	08/16/05		372916.38	25970943.75	1118.33	1117.99	41	35	30
GMSG-83C	SG	08/16/05		372916.23	25970943.84	1118.33	1118	41	35	30
GMSG-84	SG	07/10/02		373086.01	25970091.45	1119.97	1122.59	10	10	3
GMSG-85	SG	07/11/02		372070.83	25969987.50	1114.52	1113.99	5.25	5	2
GMSG-86	SG	07/11/02		372069.54	25969930.67	1114.55	1114.38	5.25	5	2
GMSG-87	SG	07/11/02		372781.09	25971044.77	1116.78	1116.27	10	10	3
GMSG-87B	SG	08/10/05		372778.56	25971044.64	1116.8	1116.61	41	25	20
GMSG-88	SG	07/13/02		373658.00	25967787.48	1133.35	1132.61	5	5	2
GMSG-89	SG	07/13/02		373762.00	25967773.00	1134.33	1133.65	5.25	5	2
GMSG-90	SG	09/10/02		371623.88	25969564.62	1114.91	1114.26	5.9	5.9	0.9
GMSG-91	SG	09/10/02		371747.97	25969565.46	1115.14	1114.48	8	8	3
GMSG-92	SG	10/19/02		373743.19	25966597.99	1128.59	NA	4.33	4.33	2
GMSG-93	SG	11/11/02		370122.81	25970815.50	1118.48	NA	6	6	4
GMSG-94	SG	11/18/02		374021.90	25967540.62	1132.16	NA	8	8	6.3
GMSG-95	SG	11/18/02		373943.42	25967552.51	1132.29	NA	4	4	2
GMSG-96	VE	05/16/03		371914.14	25968137.92	1113.45	1112.97	52	46	36
GMSG-96A	VE	06/19/04		371914.5891	25968133.94	1113.2167	NA	25	25	15
GMSG-97	SG	06/03/03		370055.28	25970269.44	1121.14	NA	4	4	1.5
GMSG-98	SG	06/03/03		370094.95	25970243.37	1121.37	NA	4	4	1.5
GMSG-99	SG	06/03/03		370267.25	25970006.38	1122.11	1121.63	10.5	10.5	8

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSG-100	SG	07/10/98	X	370456.22	25967155.04	1103.69	1102.56	70	70	65
GMSG-101	SG	07/09/98	X	370469.08	25967269.24	1101.18	1101.17	54	53.3	52.3
GMSG-102	SG	07/10/98		370387.37	25967354.00	1105.09	1104.31	55	55	50
GMSG-103	SG	07/11/98	X	370147.86	25966259.60	1088.89	1088.33	38	12.2	7.2
GMSG-104	SG	07/12/98	X	370670.00	25967236.47	1097.69	1096.73	62.7	62.7	57.7
GMSG-105	SG	07/13/98	X	370651.46	25966967.43	1097.33	1096.51	70	70	65
GMSG-106	SG	07/14/98		369957.90	25967255.19	1088.6	1088.02	66	64.9	59.9
GMSG-107	SG	07/21/98		369962.07	25967131.43	1089.27	1088.64	66	64	59
GMSG-108	SG	07/22/98	X	370504.74	25967034.77	1109.84	1109.68	82	81	76
GMSG-109	SG	07/23/98		370183.25	25966995.63	1089.66	1088.38	66	62	57
GMSG-110	SG	08/09/98	X	369798.82	25967173.85	1094.79	1093.84	74	72	67
GMSG-111	SG	08/10/98	X	369948.79	25966904.45	1088.87	1088.38	68	66	61
GMSG-112	SG	08/11/98		370185.55	25966767.96	1089.14	1088.5	66	63	58
GMSG-113	SG	08/18/98	X	370563.93	25966756.53	1102.36	1101.43	80	78	73
GMSG-116	VE	08/25/98		370590.13	25967609.31	1121.78	1121.25	82	79.8	74.8
GMSG-117	VE	09/01/98		371139.5	25967612.6	1118.83	1118.36	87	85	75
GMSG-118A	SG	09/11/98		371076.90	25967940.26	1116.6	1116.19	13	12	9
GMSG-118B	SG	09/11/98		371072.92	25967940.74	1116.58	1116.11	29	28	25
GMSG-118C	SG	09/11/98		371066.64	25967941.60	1116.25	1115.99	96	42	39
GMSG-119	SG	09/15/98	X	370786.54	25967419.08	1119.69	1119.11	90	88	83
GMSG-120	VE	10/27/03		374040	25967822	1132.59	NA	62	34	14
GMSG-123	VE	10/06/98		371153.16	25968268.42	1117.99	1117.31	56	54	49
GMSG-122	SG	09/25/98	X	370185.91	25966561.00	1090.18	1089.39	68	66	61
GMSG-124	SG	09/30/98		371016.42	25968073.22	1117.12	1116.66	54	48	43
GMSG-125A	SG	10/07/98		371246.06	25967943.13	1115.63	1115.02	14	14	11
GMSG-125B	SG	10/07/98		371240.83	25967942.98	1115.59	1114.98	30	22	19
GMSG-126	VE	04/05/04		370139.9709	25969895.25	1122.0509	1121.599	49	49	39
GMSG-127	VE	04/05/04		373041.46	25969903.04	1120.1316	1119.7404	40	40	30
GMSG-128	VE	12/16/98		370287.36	25967201.64	1090.92	1090.3	82	62	57
GMSG-129	SG	12/17/98		370293.38	25967348.41	1092.78	1092.38	82	23	18

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSG-130	SG	12/18/98	X	370255.41	25967285.02	1091.1	1090.51	87	64	59
GMSG-131	SG	12/19/98	X	370236.85	25967222.90	1090.82	1090.08	79	62	57
GMSG-132	SG	12/21/98	X	370319.66	25967270.08	1092.17	1091.6	92	68	63
GMSG-133	SG	06/03/03		370909.61	25971492.18	1112.77	NA	9	9	6.5
GMSG-134	SG	06/12/03		370105.15	25969482.69	1122.31	1121.55	11.33	11.33	6.33
GMSG-135	VE	04/06/04		371083.61	25967940.92	1116.4895	1116.045	43	43	28
GMSG-136	VE	06/26/04		373808.75	25967757.52	1132.23	NA	125	115	110
GMSG-137	VE	08/04/04		373802.65	25966022.28	1124.38	1126.74	85	70	60
GMSG-138	VE	08/05/04		373902.49	25966017.24	1125.46	1127.61	77	72	57
GMSG-200	SG	07/24/98	X	369283.85	25967746.80	1100.15	1099.73	48	46	41
GMSG-202	SG	07/25/98		369366.06	25967787.73	1099.81	1099.22	46	27.5	22.5
GMSG-204	SG	07/27/98		369497.73	25967742.21	1100.57	1099.98	54	28	23
GMSG-205	SG	07/28/98	X	369416.66	25967603.93	1099.65	1099.24	56	27	22
GMSG-206	SG	07/28/98	X	369214.14	25967273.82	1090.72	1090.3	38	35	30
GMSG-207	SG	08/03/98	X	369257.08	25967527.30	1089.69	1089.34	52	34	29
GMSG-208	SG	08/05/98	X	369212.65	25967386.48	1087.25	1086.6	44	33	28
GMSG-209	SG	08/21/98	X	369162.53	25967748.19	1100.73	1100.02	70	63	58
GMSG-210	SG	08/22/98	X	369354.25	25967940.77	1100.08	1099.47	52	48	43
GMSG-211	SG	08/23/98	X	369545.52	25967902.13	1099.24	1098.62	62	48	43
GMSG-212	SG	09/02/98	X	369173.38	25967943.59	1098.77	1098.16	88	86	81
GMSG-214	VE	09/03/98		369359.18	25968086.96	1099.2	1098.77	52	47	42
GMSG-214R	VE	08/01/05		369362.41	25968085.91	1099.13	1099.13	50	45	40
GMSG-215	VE	09/08/98		369322.43	25968265.19	1097.27	1096.6	62	55	50
GMSG-216	SG	09/21/98		369256.03	25968089.50	1098.41	1097.48	52	48	43
GMSG-300	VE	11/09/98		375445.01	25966733.32	1191.32	1190.84	25	25	20
GMSG-301	VE	12/19/98		375447.03	25966727.36	1191.36	1191.01	85	83	73
GMSG-302	VE	06/11/99		375447.97	25966724.61	1191.4	1190.76	10	10	5
GMSG-303	SG	06/11/99	X	375445.05	25966579.32	1192.23	1191.6	10	10	5
GMSG-304	SG	06/11/99		375496.97	25966746.70	1192.02	1191.47	10	10	5
GMSG-305	SG	06/11/99	X	375654.81	25966815.51	1201.1	1200.43	10	10	5

Footnotes on Page 35.

ARCADIS

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSG-306	SG	06/11/99	X	375511.10	25966966.20	1192.34	1191.85	10	10	5
GMSG-307	SG	06/11/99	X	375280.99	25966749.30	1179.34	1178.6	10	10	5
GMSG-308	SG	07/09/99	X	375540.89	25966736.37	1198.35	1197.89	9	9	4
GMSG-309	SG	07/24/99		375498.17	25966814.84	1192.69	1191.86	10	10	5
GMSG-310	SG	07/26/99	X	375571.64	25966860.30	1194.8	1194.06	6.3	6.3	5.3
GMSG-401	SG	10/08/03		370310.62	25969264.42	1121.56	1121.02	4.16	4.16	1.67
GMSG-402	SG	10/08/03		370220.04	25969359.64	1120.86	1120.31	4.16	4.16	1.67
GMSG-403	SG	10/08/03		370251.57	25970118.86	1121.79	1121.2	4	4	1.5
GMSG-404	SG	10/08/03		370900.24	25971983.11	1109.98	1109.34	4.17	4.17	1.67
GMSG-405	SG	10/08/03		370069.33	25970669.19	1118.88	1118.39	9.08	9.08	4.33
GMSG-406	SG	10/08/03		370134.74	25970143.28	1121.82	1121.31	10.42	10.42	5.17
GMSG-407	SG	10/08/03		370242.57	25970189.22	1121.94	1121.31	10	10	5.25
GMSG-408	SG	10/09/03		370253.50	25969916.74	1121.78	1121.14	8.75	8.75	4.58
GMSG-409	SG	10/09/03		369794.14	25969325.11	1123.32	1122.56	6.33	6.33	3
GMSG-410	SG	10/09/03		369847.24	25969336.03	1122.86	1122.04	6.42	6.42	3.83
GMSG-411	SG	10/09/03		370250.93	25968786.19	1121.45	1120.97	9.17	9.17	6.67
GMSG-412	SG	10/09/03		370249.79	25968842.83	1121.66	1120.94	4.92	4.92	2.42
GMSG-413	SG	10/09/03		371372.07	25969192.43	1116.53	1115.8	4.75	4.75	2.25
GMSG-414	SG	10/09/03		371466.48	25969211.00	1114.22	1113.56	4.5	4.5	2
GMSG-415	SG	10/09/03		371624.41	25970730.19	1113.04	1112.54	4	4	1.5
GMSG-416	SG	10/09/03		371684.09	25969969.44	1116.44	1115.79	4.67	4.67	2.17
GMSG-417	SG	10/10/03		373983.40	25967732.49	1132.98	1132.18	4.67	4.67	2.5
GMSG-417B	SG	10/17/03	X	373966.00	25967729.00	1132.98	1132.18	7	7	5
GMSG-417C	SG	10/21/03	X	374043.00	25967808.00	1132.32	1132.74	7	7	5
GMSG-418	SG	10/21/03		374307.07	25966637.57	1131.8	1131.21	4	4	1.5
GMSG-419	SG	10/15/03		373809.58	25967860.14	1132.71	1132.06	4.92	4.92	2.42
GMSG-420	SG	10/10/03		373945.76	25968130.81	1132	1131.52	5	5	2.5
GMSG-421	SG	10/10/03		374000.56	25968971.44	1126.89	1126.35	4.08	4.08	1.5
GMSG-422	SG	10/10/03		373841.03	25969003.39	1127.04	1126.48	4.67	4.67	2.17
GMSG-423	SG	10/22/03		373900.54	25969564.52	1125.44	1124.54	5.08	5.08	2.58

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSG-424	SG	10/24/03		373797.04	25969784.61	1125.85	1125.2	4.17	4.17	1.67
GMSG-425	SG	10/24/03		373831.00	25969881.00	1126.11	1125.45	5	5	2.5
GMSG-426	SG	10/22/03		373850.95	25970165.23	1126.53	1126.08	4.17	4.17	1.67
GMSG-427	SG	10/22/03		373892.09	25970259.12	1126.53	1125.99	4.17	4.17	1.67
GMSG-428	SG	10/15/03		373893.57	25970464.79	1126.58	1126.06	4.67	4.67	2.17
GMSG-428B	SG	08/18/05		373888.17	25970463.84	1126.42	1125.72	44	25	20
GMSG-429	SG	10/31/03		372897.05	25971823.96	1117.89	1117.47	4	4	1.5
GMSG-430	SG	10/31/03		372754.48	25971796.19	1115.7	1114.97	5.08	5.08	2.58
GMSG-431	SG	10/28/03		374027.00	25967797.00	1133	1133.13	7	7	2
GMSG-432	SG	06/01/05		373444.36	25969509.36	1124.93	1124.77	5.92	5.92	3.92
GMSG-433	SG	06/01/05		373627.84	25969528.62	1124.71	1124.76	5.1	5.1	3.2
GMSG-434	SG	06/01/05		373334.09	25969596.37	1122.59	1122.05	6.25	6.25	4.25
GMSG-435	SG	06/01/05		373249.64	25969819.08	1122.69	1122.64	5.33	5.33	3.33
GMSG-436	SG	06/01/05		373375.87	25969699.70	1123.22	1122.89	5.92	5.92	3.92
GMSG-437	SG	06/03/05		371932.66	25969868.38	1114.86	1114.71	5.5	5.5	3
GMSG-438	SG	06/03/05		371952.20	25969904.14	1114.92	1114.67	5.5	5.5	3.5
GMSG-439	SG	06/03/05		371949.24	25969935.84	1114.85	1114.47	5.7	5.7	2.2
GMSG-440	SG	06/03/05		371909.19	25969903.66	1114.57	1114.37	5.2	5.2	2.7
GMSG-441	SG	06/04/05		375210.39	25969279.96	1159.35	1158.85	9.7	9.7	7.2
GMSG-442	SG	06/04/05		375211.63	25969115.55	1159.31	1158.9	11	10.5	8
GMSG-443	SG	06/04/05		375161.77	25969100.39	1150.35	1149.37	6	6	3.5
GMSG-444	SG	06/04/05		375076.44	25969165.20	1150.24	1149.42	6	6	3.5
GMSG-445	SG	06/04/05		373885.42	25966309.44	1127.76	1127.1	5.8	5.8	3.3
GMSG-446	SG	06/04/05		373750.15	25966224.81	1127.81	1127.21	5.7	5.7	3.2
GMSG-447	SG	06/05/05		373995.02	25967505.76	1132.24	1131.59	5.6	5.6	3.1
GMSG-448	SG	06/05/05		370908.90	25971299.79	1111.93	1111.74	6.1	6.1	4.08
GMSG-449	SG	06/08/05		370923.99	25971205.15	1111.66	1111.12	5.7	5.7	3.2
GMSG-450	SG	06/08/05		370972.61	25971192.62	1112.07	1111.73	10.1	10.1	7.4
GMSG-451	SG	06/09/05		370964.60	25971228.63	1112.57	1112.37	10	10	7.5
GMSG-452	SG	06/15/05		373786.52	25966305.24	1127.11	NA	5.5	5.5	3

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSG-453	SG	06/16/05		373050.00	25967719.00	1128.12	1131.79	2.5	2.5	1.5
GMSG-454	SG	06/16/05		373027.25	25967692.68	1127.97	1127.52	3	3	1.1
GMSG-455	SG	06/17/05		373002.01	25967717.48	1127.99	1127.4	2.5	2.5	1.5
GMSG-456	SG	06/17/05		373024.20	25967739.84	1127.95	1127.5	2.6	2.6	1.1
GMSG-457	SG	06/21/05		370954.40	25971255.87	1112.18	1112.06	6.5	6.5	4
GMSG-458	SG	06/21/05		370959.29	25971157.94	1112.01	1111.81	8.5	8.5	6
GMSG-459	SG	07/07/05		374367.68	25965281.32	1127.65	1127.44	5.5	5.5	3
GMSG-460	SG	07/07/05		374618.14	25965259.14	1127.73	1127.43	5.3	5.3	2.8
GMSG-461	SG	07/07/05		374607.72	25965421.77	1127.9	1127.57	5.6	5.6	3.1
GMSG-462	SG	07/08/05		374565.74	25965160.81	1127.84	1127.57	4.1	4.1	2.1
GMSG-463	SG	07/08/05		374814.33	25965345.18	1128.21	1127.91	5.7	5.7	3.2
GMSG-464	SG	07/08/05		374742.68	25965013.83	1127.93	1127.62	5	5	2.5
GMSG-465	SG	07/11/05		370900.28	25971161.57	1111.1	1110.72	7	7	4.5
GMSG-466	SG	07/12/05		371027.79	25971154.75	1111.11	1110.76	8	8	5.5
GMSG-467	SG	07/13/05		374028.64	25968040.57	1132.42	1131.7	5	5	2.5
GMSG-468	SG	07/14/05		371021.43	25971288.42	1113.55	1112.97	10.5	10.5	8
GMSG-469	SG	07/14/05		373989.01	25967580.33	1132.44	1131.73	5.1	5.1	2.6
GMSG-470	SG	07/15/05		374055.88	25968403.64	1131.32	1130.69	5.1	5.1	2.6
GMSG-471	SG	07/15/05		374056.09	25968471.99	1131.34	1130.62	5.8	5.8	3.3
GMSG-472	SG	07/15/05		374056.47	25968539.93	1130.9	1130.2	5.2	5.2	2.7
GMSG-473	SG	07/18/05		373778.24	25968404.39	1131.32	1130.66	5	5	2.5
GMSG-474	SG	07/18/05		373777.81	25968472.20	1131.44	1130.78	5	5	2.5
GMSG-475	SG	07/18/05		373778.35	25968540.31	1130.94	1130.16	5	5	2.5
GMSG-476	SG	07/19/05		371679.08	25969523.89	1115.25	1115.04	3.5	3.5	1.5
GMSG-477	SG	07/19/05		371693.29	25969607.39	1115.03	1114.61	5.1	5.1	2.5
GMSG-478	SG	07/19/05		373669.84	25968039.66	1132.26	1131.48	5.2	5.2	2.7
GMSG-479A	SG	08/03/05		371827.93	25968786.57	1114.58	1114.38	42	10	5
GMSG-479B	SG	08/03/05		371828.08	25968786.72	1114.58	1114.38	42	25	20
GMSG-479C	SG	08/03/05		371828.20	25968786.46	1114.58	1114.36	42	35	30
GMSG-480A	SG	08/06/05		372227.29	25968715.91	1114.51	NA	42	10	5

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSG-480B	SG	08/06/05		372227.38	25968715.77	1114.5	NA	42	25	20
GMSG-480C	SG	08/06/05		372227.49	25968715.90	1115.1	1114.5	42	38	34
GMSG-481A	SG	08/05/05		372326.58	25968699.35	1114.99	1114.27	40	10	5
GMSG-481B	SG	08/05/05		372326.40	25968699.19	1114.99	1114.26	40	25	20
GMSG-481C	SG	08/05/05		372326.60	25968699.10	1114.99	1114.26	40	35	30
GMSG-482A	SG	08/05/05		372324.80	25968782.43	1114.55	1113.95	42	10	5
GMSG-482B	SG	08/05/05		372324.92	25968782.25	1114.55	1113.99	42	25	20
GMSG-482C	SG	08/05/05		372324.96	25968782.42	1114.55	1113.98	42	34	32
GMSG-483A	SG	08/06/05		372104.28	25968862.09	1114.46	1114.26	42	10	10
GMSG-483B	SG	08/06/05		372104.26	25968861.89	1114.46	1114.29	42	25	25
GMSG-483C	SG	08/06/05		372104.43	25968861.93	1114.46	1114.32	42	35	35
GMSG-484A	SG	08/07/05		372197.29	25968980.39	1114.72	1114.54	42	10	5
GMSG-484B	SG	08/07/05		372196.98	25968980.40	1114.72	1114.52	42	25	20
GMSG-484C	SG	08/07/05		372197.21	25968980.62	1114.72	1114.52	42	34	30
GMSG-485	SG	08/10/05		373686.42	25968777.91	1128.88	1128.35	5	5	2.5
GMSG-486A	SG	08/03/05		371869.26	25968974.19	1114.12	1113.78	44	10	5
GMSG-486B	SG	08/03/05		371869.35	25968974.02	1114.12	1113.78	44	20	18
GMSG-487A	SG	08/04/05		371678.13	25968857.26	1114.66	1114.44	42	10	5
GMSG-487B	SG	08/04/05		371678.35	25968857.25	1114.66	1114.42	42	20	18
GMSG-487C	SG	08/04/05		371678.26	25968857.01	1114.66	1114.43	42	38	33
GMSG-488A	SG	08/08/05		372845.66	25970564.75	1116.82	1116.55	41	10	5
GMSG-488B	SG	08/08/05		372845.52	25970564.66	1116.82	1116.58	41	25	23
GMSG-488C	SG	08/08/05		372845.54	25970564.86	1116.82	1116.54	41	35	30
GMSG-489A	SG	08/09/05		372864.76	25970747.94	1117.34	1116.81	41	10	5
GMSG-489B	SG	08/09/05		372864.75	25970747.86	1117.34	1116.79	41	24	21
GMSG-489C	SG	08/09/05		372864.93	25970747.90	1117.34	1116.8	41	34	30
GMSG-490	SG	08/10/05		373809.13	25968745.91	1129	1128.52	5.2	5.2	2.7
GMSG-491	SG	08/04/05		374051.17	25968780.46	1129.15	1128.56	5	5	2.5
GMSG-492	SG	08/10/05		373867.75	25968792.64	1129	1128.24	5.7	5.7	3.2
GMSG-493	SG	08/10/05		373928.80	25968746.97	1129.04	1128.39	4.8	4.8	2.3

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSG-494	SG	08/11/05		373895.54	25966570.90	1128.68	1127.95	4.9	4.9	2.4
GMSG-495	SG	08/18/05		373861.50	25966622.86	1128.5	1127.84	3	3	1.7
GMSG-496	SG	08/18/05		373800.07	25966639.57	1128.66	1127.82	3	3	1.7
GMSG-497A	SG	08/16/05		372931.28	25970746.42	1118.86	1118.57	43	10	5
GMSG-497B	SG	08/16/05		372931.38	25970746.27	1118.86	1118.56	43	25	20
GMSG-497C	SG	08/16/05		372931.20	25970746.29	1118.86	1118.58	43	35	30
GMSG-498A	SG	08/17/05		372959.34	25971038.53	1119.53	1119.27	43	10	5
GMSG-498B	SG	08/17/05		372959.46	25971038.67	1119.53	1119.26	43	37	34
GMSG-499A	SG	08/18/05		373055.14	25970979.16	1120.44	1120.13	45	13	8
GMSG-499C	SG	08/18/05		373055.34	25970979.19	1120.44	1120.12	45	35	30
GMSG-500A	SG	08/19/05		373118.25	25970884.94	1120.87	1120.52	46	10	5
GMSG-500B	SG	08/19/05		373118.06	25970884.79	1120.87	1120.51	46	26	24
GMSG-500C	SG	08/19/05		373118.00	25970884.97	1120.87	1120.53	46	40	36
GMSG-501A	SG	08/19/05		372742.31	25970442.27	1117.51	1116.97	42	11	6
GMSG-501B	SG	08/19/05		372742.24	25970442.42	1117.51	1117.32	42	34	29
GMSG-502A	SG	08/21/05		372732.18	25970938.49	1117	1116.45	40	10	5
GMSG-502B	SG	08/21/05		372732.28	25970938.34	1117	1116.42	40	28	23
GMSG-502C	SG	08/21/05		372732.38	25970938.50	1117	1116.34	40	38	35
GMSG-503A	SG	08/20/05		372725.78	25970765.75	1116.85	1116.27	40	10	5
GMSG-503B	SG	08/20/05		372725.74	25970765.87	1116.85	1116.26	40	30	25
GMSG-504A	SG	08/21/05		372727.70	25970584.68	1116.84	1116.28	40	11	6
GMSG-504B	SG	08/21/05		372727.80	25970584.50	1116.84	1116.28	40	25	20
GMSG-505A	SG	08/19/05		373111.21	25970767.91	1120.98	1120.6	44	10	5
GMSG-505C	SG	08/19/05		373111.03	25970767.94	1120.98	1120.6	44	35	30
GMSG-506A	SG	08/20/05		373996.56	25970474.02	1126.4	1125.78	42	10	5
GMSG-506B	SG	08/20/05		373996.43	25970474.08	1126.4	1125.72	42	22	17
GMSG-507	SG	09/07/05		373944.56	25968228.88	1132.17	1131.83	4.9	4.9	2.4
GMSG-508	SG	09/12/05		373980.27	25968127.14	1132.12	1131.83	4.2	4.2	1.7
GMSG-509	SG	09/12/05		373996.49	25968171.53	1132.22	1131.61	4.2	4.2	1.9
GMSG-510	SG	09/12/05		369820.72	25969278.70	1122.57	1122	5.2	5.2	2.7

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSG-511	SG	09/13/05		373996.15	25968938.39	1126.87	1126.09	4.1	4.1	1.6
GMSG-512	SG	10/12/05		373928.40	25969028.51	1126.45	1125.61	4	4	2
GMSG-513	SG	10/26/05		373802.18	25968944.47	1124.42	1123.52	4.5	4.5	2
GMSG-514	SG	10/26/05		369811.66	25969379.60	1120.27	1119.64	4.9	4.9	2.4
GMSG-515	SG	04/20/06		371684.67	25970756.69	1113.3	NA	4	4	1.5
GMSG-516	SG	04/20/06		371616.70	25970783.80	1113.1	NA	4.3	4.3	1.8
GMSG-517	SG	04/27/06		371584.93	25970741.54	1113.2	NA	5	5	2
GMSG-518	SG	11/01/05		371776.47	25969134.36	1115.6	1115.05	5	5	2.5
GMSG-519	SG	11/01/05		371816.68	25969132.24	1115.47	1115.04	5.25	5.25	2.5
GMSG-520	SG	11/01/05		371777.67	25969091.84	1115.63	1115.11	4.75	4.75	2.5
GMSG-521	SG	11/03/05		371744.65	25969113.09	1115.41	1115.15	4.6	4.6	2.5
GMSG-522	SG	11/01/05		371684.29	25969172.59	1116.04	1115.42	4.6	4.6	2.5
GMSG-523	SG	11/01/05		371797.56	25969174.20	1115.68	1115.1	5.2	5.2	2.5
GMSG-524	SG	11/01/05		372164.35	25969177.10	1116.24	1115.76	5.25	5.25	2.5
GMSG-525	SG	11/01/05		372063.82	25969327.62	1116.19	1115.77	5.6	5.6	2.5
GMSG-526	SG	11/01/05		372271.13	25969280.97	1116.15	1115.89	4.3	4.3	2.5
GMSG-527	SG	11/03/05		371826.98	25969326.21	1116.06	1115.9	3.6	3.6	2.5
GMSG-528	SG	10/28/05		373415.83	25969328.58	1121.6	1121.49	4.75	4.75	2.5
GMSG-529	SG	10/28/05		373437.94	25969289.31	1121.33	1120.95	2.4	2.4	1
GMSG-530	SG	10/28/05		373393.45	25969288.09	1121.34	1121.04	5.2	5.2	3.1
GMSG-531	SG	11/16/05		370231.65	25969920.10	1121.85	1121.34	8.2	8.2	2.5
GMSG-532	SG	11/16/05		370255.31	25969944.70	1121.87	1121.16	8.25	8.25	2.5
GMSG-533	SG	11/16/05		370274.19	25969921.61	1121.94	1121.41	8.2	8.2	2.5
GMSG-534	SG	10/27/05		372018.89	25969967.78	1114.73	1114.54	4.75	4.75	2.3
GMSG-535	SG	10/27/05		372122.37	25969975.55	1114.65	1114.46	4.6	4.6	2.5
GMSG-536A	SG	11/11/05		372126.89	25969284.13	1116	1115.94	36	10	5
GMSG-536B	SG	11/11/05		372127.05	25969284.17	1116	1115.91	36	25	20
GMSG-537	SG	10/26/05		371709.98	25969994.72	1116.85	1116.73	5	5	2.5
GMSG-538	SG	10/27/05		371674.45	25970013.28	1116.53	1116.21	4.6	4.6	3.1
GMSG-539	SG	10/27/05		371627.89	25969992.34	1117.09	1116.54	5	5	2.5

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSG-540	SG	08/10/06		374009.00	25970600.00	1123.1	NA	11.3	11.3	8.8
GMSG-541	SG	08/15/06		373956.00	25970660.00	1122.3	NA	11.1	11.1	8.6
GMSG-542	SG	11/15/05		373875.88	25967889.57	1133.22	1132.51	5	5	2.5
GMSG-543	SG	11/15/05	X	373816.30	25967936.62	1132.74	NA	3.25	3.25	2
GMSG-543R	SG	11/29/05		373816.30	25967936.62	1132.74	1132.13	5	5	2.5
GMSG-544	SG	11/15/05		373839.09	25967867.37	1132.96	1132.38	5.2	5.2	2.5
GMSG-545	SG	11/17/05		373434.87	25968939.25	1121.81	1121.67	5.6	5.6	3.1
GMSG-546	SG	11/17/05		373466.61	25968970.55	1121.97	1121.58	5.4	5.4	2.9
GMSG-547	SG	12/02/05		373403.27	25968984.10	1121.94	1121.61	5.4	5.4	2.9
GMSG-548	SG	11/18/05		374282.77	25966666.50	1131.49	1130.47	4.7	4.7	2.2
GMSG-549	SG	11/18/05		374278.35	25966567.25	1131.36	1130.85	5.1	5.1	2.6
GMSG-550	SG	11/28/05		374219.01	25966626.30	1135.88	1135.63	10.8	10.8	8.3
GMSG-551	SG	11/21/05		374012.91	25969175.32	1125.1	1124.58	5	5	2.5
GMSG-552	SG	11/21/05		373995.76	25969143.49	1125.11	1124.39	5.2	5.2	2.7
GMSG-553	SG	11/29/05		370269.68	25969253.95	1121.43	1121.22	5.25	5.25	2.75
GMSG-554	SG	11/29/05		370255.32	25969372.93	1121.06	1120.68	5.25	5.25	2.75
GMSG-555	SG	12/02/05		371441.51	25969233.53	1114.79	1114.49	4.9	4.9	2.4
GMSG-556	SG	05/26/06		371390.75	25969112.67	1114.8	1114.5	5.2	5.2	2.5
GMSG-557A	SG	02/28/06		371689.86	25971083.65	1111.98	NA	39	10	5
GMSG-557B	SG	02/28/06		371689.86	25971083.65	1111.98	NA	39	25	20
GMSG-558A	SG	03/01/06		371636.16	25971234.27	1112.03	NA	38	11	6
GMSG-558B	SG	03/01/06		371636.16	25971234.27	1112.03	NA	38	32	27
GMSG-559A	SG	03/01/06		371760.13	25971167.46	1111.62	NA	35	18	8
GMSG-559B	SG	03/01/06		371760.13	25971167.46	1111.62	NA	35	34	29
GMSG-560A	SG	03/06/06		371914.93	25971221.92	1112.58	NA	38	11	6
GMSG-560B	SG	03/06/06		371914.93	25971221.92	1112.58	NA	38	21	16
GMSG-561A	SG	03/07/06		372031.82	25971176.14	1112.59	NA	36	14	9
GMSG-561B	SG	03/07/06		372031.82	25971176.14	1112.59	NA	36	36	31
GMSG-562A	SG	03/02/06		371962.80	25971125.09	1112.58	NA	36	20	15
GMSG-562B	SG	03/02/06		371962.80	25971125.09	1112.58	NA	36	35	30

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSG-563	SG	03/02/06		372186.69	25971095.08	1112	NA	36	26	21
GMSG-564	SG	03/07/06		372206.96	25971175.21	1112.31	NA	38	10	5
GMSG-565	SG	04/27/06		370139.07	25970825.04	1118.48	1118.31	5.2	5.2	2.25
GMSG-566	SG	04/27/06		370153.02	25970806.27	1118.65	1118.40	5	5	1.9
GMSG-567	SG	04/27/06		370138.59	25970800.08	1118.89	1118.62	4.75	4.75	1.7
GMSG-568	SG	05/05/06		375374.41	25964555.81	1131.83	1131.69	5	5	2.5
GMSG-569	SG	05/05/06		375438.32	25964571.29	1131.57	1131.27	5	5	2.5
GMSG-570	SG	05/05/06		375404.74	25964610.37	1131.75	1131.50	4.75	4.75	2.25
GMSG-571	SG	05/08/06		375406.42	25964516.79	1131.56	1131.67	4.4	4.4	1.9
GMSG-572	SG	05/08/06		372797.62	25971927.44	1117.57	1117.22	4.3	4.3	1.8
GMSG-573	SG	05/10/06		372828.73	25971782.52	1117.89	1117.70	2.75	2.75	1.25
GMSG-574	SG	05/18/06		373795.73	25970654.70	1123.22	1124.34	4.5	4.5	2
GMSG-575	SG	05/18/06		373812.38	25970581.59	1123.98	1124.01	3.25	3.25	1.25
GMSG-576	SG	05/19/06		373728.84	25970577.79	1121.29	1121.29	5	5	2.5
GMSG-577	SG	05/15/06		371765.56	25971890.43	1113.71	1113.39	38	20	10
GMSG-578A	SG	05/19/06		371822.19	25971878.22	1106.79	NA	32	8	3
GMSG-578B	SG	05/19/06		371822.31	25971878.17	1107.09	NA	32	25	20
GMSG-579A	SG	05/18/06		371896.24	25971808.27	1107.44	1107.18	34	10	5
GMSG-579B	SG	05/18/06		371896.28	25971808.13	1107.44	1106.73	34	23	18
GMSG-580A	SG	05/16/06		371872.24	25971690.13	1111.01	1110.71	36	10	5
GMSG-580B	SG	05/16/06		371872.13	25971690.11	1111.01	1110.69	36	27	22
GMSG-581A	SG	05/17/06		371784.76	25971628.94	1110.82	NA	38	10	5
GMSG-581B	SG	05/17/06		371784.83	25971628.91	1110.79	NA	38	32.5	27
GMSG-582	SG	10/04/06		371693.13	25971610.94	1110.9	NA	40	25	20
GMSG-583	SG	05/19/06		371593.09	25971751.89	1111.05	1111.00	38	17	7
GMSG-584	SG	05/23/06		374005.77	25970200.30	1126.95	1126.71	5.1	5.1	2.6
GMSG-585	SG	05/23/06		373825.84	25970205.77	1117.19	1117.20	4.6	4.6	2.1
GMSG-586	SG	05/23/06		373776.16	25969863.00	1123.83	1123.79	5.2	5.2	2.7
GMSG-587	SG	05/30/06		373875.00	25969837.00	1124.90	1124.73	5.1	5.1	2.6
GMSG-588	SG	05/23/06		373927.00	25969647.00	1123.85	1123.69	5	5	2.5

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSG-589	SG	05/23/06		373957.10	25969583.72	1125.30	1125.35	4.75	4.75	2.25
GMSG-590	SG	05/24/06		373929.03	25969522.56	1125.09	1124.77	5.2	5.2	2.7
GMSG-591	SG	05/30/06		370138.83	25970630.88	1120.1	NA	5.1	5.1	2.6
GMSG-592	SG	05/31/06		370141.24	25970576.45	1120.4	NA	5	5	2.5
GMSG-593	SG	05/31/06		370079.14	25970613.77	1119.4	NA	4.25	4.25	1.75
GMSG-594	SG	06/07/06		370869.51	25972011.85	1110	NA	6.75	6.75	4.25
GMSG-595	SG	06/08/06		370854.52	25971976.72	1109.6	NA	4.6	4.6	2.1
GMSG-596	SG	06/08/06		370886.44	25971944.00	1110.5	NA	4.4	4.4	1.9
GMSG-597	SG	06/12/06		373422.46	25969055.93	1121.8	NA	4.8	4.8	2.3
GMSG-598	SG	06/12/06		373463.69	25969090.39	1121.9	NA	4.8	4.8	2.3
GMSG-599	SG	06/30/06		373514.50	25969051.95	1122	NA	4.5	4.5	2
GMSG-600	SG	06/13/06		372747.98	25971218.45	1116.8	NA	5	5	2.5
GMSG-601	SG	06/14/06		372754.61	25971081.56	1116.7	NA	5	5	2.5
GMSG-602	SG	06/14/06		372713.72	25971402.66	1115.8	NA	4.6	4.6	2.1
GMSG-603	SG	07/21/06		372683.28	25971350.19	1116	NA	5	5	2.5
GMSG-604	SG	07/20/06		372697.47	25971074.53	1116.7	NA	5.3	5.3	2.8
GMSG-605	SG	06/18/06		370939.72	25971452.38	1113.1	NA	4.8	4.8	2.3
GMSG-606	SG	06/20/06		370871.71	25971449.21	1111.5	NA	9.1	9.1	6.6
GMSG-607	SG	06/21/06		370897.23	25971434.91	1112.1	NA	8.2	8.2	5.7
GMSG-608	SG	07/25/06		370245.76	25970154.66	1122.1	NA	5.2	5.2	2.7
GMSG-609	SG	07/25/06		370265.68	25970141.35	1122.8	NA	5.3	5.3	2.8
GMSG-610	SG	07/25/06		370231.10	25970130.95	1121	NA	10.1	10.1	7.6
GMSG-611	SG	07/26/06		370097.95	25971421.50	1108.8	NA	5.2	5.2	2.7
GMSG-612	SG	07/26/06		370047.93	25971447.53	1106.9	NA	5.3	5.3	2.8
GMSG-613	SG	07/27/06		370050.27	25971480.62	1106.7	NA	5.2	5.2	2.7
GMSG-614	SG	07/26/06		370145.34	25971478.52	1108	NA	8.3	8.3	5.8
GMSG-615	SG	07/28/06		371966.29	25969497.79	1117.1	NA	5.2	5.2	2.7
GMSG-616	SG	07/31/06		371935.78	25969660.24	1115.4	NA	5.3	5.3	2.8
GMSG-617	SG	07/31/06		371971.99	25969722.33	1116.2	NA	5	5	2.5
GMSG-618	SG	08/01/06		372089.62	25969641.35	1115.5	NA	5.2	5.2	2.7

Footnotes on Page 35.

ARCADIS

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSG-619	SG	08/01/06		372090.57	25969538.99	1115.8	NA	5.2	5.2	2.7
GMSG-620	SG	08/02/06		370093.69	25970140.29	1122.1	NA	11.2	11.2	8.7
GMSG-621	SG	08/03/06		370108.11	25970093.59	1121.9	NA	11.3	11.3	8.8
GMSG-622	SG	08/03/06		370143.44	25970093.39	1122.2	NA	11.1	11.1	8.6
GMSG-623	SG	08/07/06		370220.01	25969975.24	1121.7	NA	5.2	5.2	2.7
GMSG-624	SG	08/08/06		370315.56	25970021.82	1121.7	NA	5.3	5.3	2.8
GMSG-625	SG	08/08/06		370264.53	25970038.80	1121	NA	11.2	11.2	8.7
GMSG-626	SG	08/21/06		370157.33	25969474.28	1121.3	NA	8.8	8.8	6.3
GMSG-627	SG	08/21/06		370122.87	25969533.72	1122.4	NA	5.2	5.2	2.5
GMSG-628	SG	08/21/06		370133.71	25969440.14	1121.8	NA	9	9	6.5
GMSG-629	SG	09/04/06		374051.25	25968703.27	1129.1	NA	5	5	2.5
GMSG-630	SG	09/04/06		373959.85	25968680.53	1129	NA	4.9	4.9	2.4
GMSG-631	SG	09/04/06		373779.86	25968678.54	1128.9	NA	5.1	5.1	2.6
GMSG-632	SG	09/28/06		373687.96	25968698.76	1128.8	NA	4.9	4.9	2.4
GMSG-633	SG	09/28/06		373879.35	25968722.13	1129	NA	5	5	2.5
GMSG-634	SG	10/04/06		370139.27	25969789.88	1122.6	NA	8	8	5.5
GMSG-635	SG	10/04/06		370127.41	25969812.65	1122.7	NA	8	8	5.5
GMSG-636	SG	10/04/06		370115.23	25969816.37	1122.5	NA	5.2	5.2	2.7
GMSG-637	SG	10/04/06		370153.52	25969809.48	1122.5	NA	8	8	5.5
GMSG-638	SG	10/18/06		372949.23	25970253.81	1120.2	NA	5.5	5.5	3
GMSG-639	SG	10/18/06		373062.69	25970276.20	1120.3	NA	5.5	5.5	3
GMSG-640	SG	10/18/06		373104.64	25970234.76	1120.2	NA	5.5	5.5	3
GMSG-641	SG	10/18/06		373089.73	25969964.70	1119.8	NA	5.5	5.5	3
GMSG-642	SG	10/18/06		373009.80	25969944.34	1120.4	NA	5.5	5.5	3
GMSG-643	SG	10/18/06		373088.03	25970552.94	1121	NA	5.5	5.5	3
GMSG-644	SG	10/18/06		372986.47	25970575.38	1120.8	NA	5.5	5.5	3
GMSG-645	SG	10/18/06		372967.02	25970372.19	1120.2	NA	15	14.7	9.7
GMSG-646	SG	04/23/07		374052.17	25968618.18	1130.1	NA	5.1	5.1	2.6
GMSG-647	SG	04/23/07		374010.91	25968590.71	1130.6	NA	5.1	5.1	2.6
GMSG-648	SG	04/23/07		374018.30	25968632.76	1130.1	NA	5.1	5.1	2.6

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
GMSG-649	SG	06/18/07		373440.33	25968730.40	1120.61	1120.03	505	5.5	3
GMSG-650	SG	06/19/07		373378.95	25968680.48	1120.52	1120.05	5	5	2.5
GMSG-651	SG	07/10/07		374310.65	25965191.35	1128.46	1127.89	5	5	2.5
GMSG-652	SG	07/01/07		374679.59	25965458.32	1127.67	1127.11	4.5	4.5	2
GMSG-653	SG	06/30/07		374835.03	25965123.87	1127.89	1127.36	4.25	4.25	1.75
GMSG-654	SG	06/30/07		374513.79	25965130.49	1128.51	1127.97	4.25	4.25	1.75
TSG-1	SG	11/19/98	X	NA	NA	NA	NA	10	10	10
TSG-2	SG	11/19/98	X	NA	NA	NA	NA	10	10	10
TSG-3	SG	11/19/98	X	NA	NA	NA	NA	10	10	10
TSG-4	SG	11/20/98	X	NA	NA	NA	NA	10	10	10
TSG-5	SG	11/20/98	X	NA	NA	NA	NA	10	10	10
TSG-6	SG	11/20/98	X	NA	NA	NA	NA	10	10	10
TSG-7	SG	11/21/98	X	NA	NA	NA	NA	10	10	10
TSG-8	SG	11/21/98	X	NA	NA	NA	NA	10	10	10
TSG-9	SG	11/21/98	X	NA	NA	NA	NA	10	10	10
RTP-1	TP	06/25/98	X	373632.11	25965588.19	1118.95	NA	13.9	NA	NA
RTP-2	TP	06/25/98	X	373772.67	25965555.16	1125.01	NA	7	NA	NA
RTP-3	TP	06/25/98	X	373738.87	25965880.03	1120.28	NA	9	NA	NA
RTP-4	TP	06/25/98	X	373492.57	25966023.38	1122.49	NA	8	NA	NA
RTP-5	TP	06/25/98	X	373536.18	25965683.14	1118.23	NA	12	NA	NA
RTP-6	TP	06/25/98	X	373417.11	25965684.65	1119.4	NA	11	NA	NA
RTP-7	TP	06/25/98	X	373394.13	25965575.2	1119.75	NA	13	NA	NA
RTP-8	TP	06/25/98	X	373294.85	25965649.64	1122.19	NA	9	NA	NA
RTP-9	TP	06/25/98	X	373146.28	25965442.49	1123.34	NA	7	NA	NA
RTP-10	TP	06/25/98	X	373268.2	25965331.77	1122.55	NA	7	NA	NA
RTP-11	TP	06/25/98	X	373387.56	25965365.18	1119.61	NA	10.5	NA	NA
RTP-12	TP	06/25/98	X	373445.28	25965208.19	1120.79	NA	7	NA	NA

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
RTP-13	TP	06/25/98	X	373531.42	25965294.25	1115.36	NA	13.5	NA	NA
RTP-14	TP	06/25/98	X	373510.54	25965466.62	1119.02	NA	12.3	NA	NA
RTP-15	TP	07/12/99	X	373475	25965150	1111	NA	6	NA	NA
RTP-16	TP	07/12/99	X	373385	25965170	1118	NA	5.5	NA	NA
SCTP-1	TP	01/08/02	X	373261.51	25969871.34	1118.6	NA	5	NA	NA
SCTP-2	TP	01/08/02	X	373262	25969912	1118.6	NA	3.5	NA	NA
SCTP-3	TP	01/08/02	X	373262	25969969	1119.14	NA	2.5	NA	NA
SCTP-4	TP	01/08/02	X	373262	25969829	1119.64	NA	3	NA	NA
SCTP-5	TP	04/16/02	X	373152.65	25969716.2	1120.5	NA	6.5	NA	NA
SCTP-6	TP	05/07/02	X	373044.3	25969621.12	1123	NA	605	NA	NA
TP-1	TP	10/28/98	X	373113.84	25969103.09	1118.5	NA	5.6	NA	NA
TP-2	TP	10/28/98	X	373071.64	25969066.77	1118.46	NA	6	NA	NA
TP-3	TP	10/28/98	X	373047.06	25968926.80	1115.67	NA	6	NA	NA
TP-4	TP	10/28/98	X	373060.29	25968833.27	1116.82	NA	6	NA	NA
TP-5	TP	10/28/98	X	373135.83	25968627.47	1116.54	NA	6	NA	NA
TP-5A	TP	10/28/98	X	373135.83	25968627.47	1116.54	NA	6	NA	NA
TP-6	TP	10/28/98	X	373142.45	25968545.32	1117.74	NA	6	NA	NA
TP Shingle (TP-7)	TP	10/28/98	X	372922.36	25968557.95	1114.82	NA	6	NA	NA
TP-7	TP	10/28/98	X	372922.36	25968557.95	1114.82	NA	6	NA	NA
TP-8	TP	10/28/98	X	373070.43	25968623.79	1117.68	NA	6	NA	NA
TP-9	TP	10/28/98	X	372840.00	25968490.00	1118	NA	6	NA	NA
TP-10	TP	11/03/99	X	372983.93	25968781.95	1117.47	NA	10	NA	NA
TP-11	TP	11/04/99	X	372786.87	25968413.67	1117.19	NA	11	NA	NA
TP-12	TP	08/21/00	X	373199.74	25968806.84	1118.33	NA	12	NA	NA
TP-13	TP	08/21/00	X	373067.79	25968866.58	1117.43	NA	12.5	NA	NA
TP-14	TP	08/21/00	X	373139.52	25968850.25	1117.9	NA	13	NA	NA
TP-15	TP	08/21/00	X	372978.21	25968944.49	1116.82	NA	12	NA	NA
TP-16	TP	08/21/00	X	373004.80	25969114.38	1118.65	NA	16	NA	NA
TP-17	TP	08/21/00	X	373117.93	25969224.18	1119.64	NA	14	NA	NA
TP-18	TP	08/21/00	X	373216.70	25969195.49	1119.85	NA	13	NA	NA

Footnotes on Page 35.

Table 5-1. Summary of Soil Borings/Wells/Soil Vapor Probes/Test Pits/Staff Gauges/Construction Details, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Borehole/ Probe	Purpose	Install Date	Abandoned	Northing (ft)	Easting (ft)	Ground Elevation (ft)	TOC Elevation (ft msl)	Total Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Depth (ft bls)
TP-19	TP	08/21/00	X	373253.51	25969068.12	1118.83	NA	12	NA	NA
TP-20	TP	08/21/00	X	373208.61	25968940.04	1118.13	NA	12	NA	NA
TP-21	TP	08/21/00	X	373138.89	25968937.55	1117.49	NA	10	NA	NA
TP-22	TP	08/21/00	X	372926.83	25969057.68	1117.75	NA	15	NA	NA
TP-23	TP	08/21/00	X	372980.38	25969220.08	1120.43	NA	13	NA	NA
TP-24	TP	08/21/00	X	373239.16	25969286.13	1120.54	NA	12.5	NA	NA
TP-25	TP	08/22/00	X	373005.73	25968825.77	1116.98	NA	12	NA	NA
TP-26	TP	08/22/00	X	373250.00	25968980.00	1116.97	NA	7	NA	NA
TP-27	TP	08/22/00	X	373204.13	25969265.47	1120.35	NA	12	NA	NA
TP-27A	TP	08/22/00	X	373157.49	25969289.17	1120.11	NA	11	NA	NA
TP-28	TP	08/22/00	X	373060.92	25969175.21	1119.05	NA	7	NA	NA
TP-29	TP	08/22/00	X	372938.09	25968686.29	1116.42	NA	13	NA	NA
TP-30	TP	08/22/00	X	372944.23	25968479.07	1115.12	NA	12	NA	NA
TP-31	TP	03/06/02	X	373274.79	25968960.00	1118.8	NA	9	NA	NA
TP-32	TP	03/06/02	X	373275.00	25969029.00	1119.2	NA	11	NA	NA
SG-1	RG	10/15/97		369499.42	25965998.51	NA	1037.12	NA	NA	NA
SG-2	RG	10/15/97		372660.71	25965009.43	NA	1037.25	NA	NA	NA
SG-3	RG	10/15/97		375314.50	25960766.32	NA	1037.93	NA	NA	NA
SG-4	RG	10/15/97		367184.31	25969049.61	NA	1037.67	NA	NA	NA
SG-5	RG	05/23/00		371190.46	25965114.55	NA	1037.6	NA	NA	NA
SG-6	RG	05/23/00		371203.53	25965122.24	NA	1037.61	NA	NA	NA
SG-7	RG	05/23/00		371194.46	25965118.55	NA	1037.58	NA	NA	NA
SG-8	RG			371675.58	25964778.51	NA	1036.6	NA	NA	NA
SG-9	RG			372662.94	25965007.59	NA	1037.4	NA	NA	NA

Northing and Easting are in feet relative to the Michgian State Plane System.

*	Staff gauge elevations are at the 3.0 ft mark of the staff gauge.				
ft	Feet.	MW	Monitoring Well.	TOC	Top of Casing.
ft bls	Feet below land surface.	NA	Not available or not applicable.	TP	Test Pit.
ft msl	Feet mean sea level.	RG	River Staff Gauge	VE	Vapor Extraction Well.
GP	Soil Gas Probe.	SB	Soil Boring.		

Table 5-2. Summary of EE/CA Waste Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/ Boring	Sample I.D.	Depth (feet)	Samle Date	SVOCs	TOCs	VOCs	Metals	Inorganics	Acetic Acids	Alcohols	Aldehydes
CHTar	CHTAR-1 (9/10/04)		09/10/04	X		X	X			X	
GMGP-2	GMGP-2/18	18	12/12/00	X		X	X			X	
GMGP-3	GMGP-3/15	15	12/12/00	X		X	X			X	
GMGP-17	GMGP-17/2'-4' (4/4/02)	2-4	04/04/02	X		X	X			X	
GMSB-1	GMSB-1 COMPOSITE	0-31.5	05/16/97	X	X	X	X				
GMSB-2	GMSB-2/0525	5-25	05/17/97	X	X	X	X				
GMSB-4	GMSB-4/5-25	5-25	06/03/97	X	X	X	X				
GMSB-34	GMSB-34/6	6	10/20/99	X	X	X	X		X	X	X
GMSB-35	GMSB-35/22	22	10/20/99	X	X	X	X		X	X	X
GMSB-36	GMSB-36/12	12	10/20/99	X	X	X	X		X	X	X
GMSB-37	GMSB-37/10	10	10/21/99	X	X	X	X		X	X	X
GMSB-38	GMSB-38/7	7	10/21/99	X	X	X	X		X	X	X
GMSB-40	GMSB-40/12	12	10/20/99								X
GMSB-40	GMSB-40/12	12	10/21/99	X	X	X	X		X	X	
GMSB-40	GMSB-40/23	23	10/21/99				X				
GMSB-41	GMSB-41/8	8	10/21/99	X	X	X	X		X	X	X
GMSB-43	GMSB-43/3	3	10/21/99	X	X	X	X		X	X	X
GMSB-44	GMSB-44/15	15	10/21/99	X	X	X	X		X	X	X
GMSB-45	GMSB-45/10	10	10/21/99	X	X	X	X		X	X	X
GMSB-47	GMSB-47/15	15	10/22/99	X	X	X	X		X	X	X
GMSB-48	GMSB-48/22	22	10/21/99								X
GMSB-48	GMSB-48/22	22	10/22/99	X	X	X	X		X	X	
GMSB-53	GMSB-53/0-0.5	0-0.5	08/17/00	X		X	X			X	
GMSB-54	GMSB-54/0-0.5	0-0.5	08/18/00	X		X	X			X	
GMSB-55	GMSB-55/0-1	0-1	08/18/00	X		X	X			X	
GMSB-58	GMSB-58/0-0.5	0-0.5	08/18/00	X		X	X			X	
GMSB-59	GMSB-59/0-0.5	0-0.5	08/19/00	X		X	X			X	
GMSB-61	GMSB-61/2-4	2-4	08/22/00	X		X	X			X	
GMSB-63	GMSB-63 0-0.5	0-0.5	08/23/00	X		X	X			X	
GMSB-64	GMSB-64 0-1.0	0-1	08/23/00	X		X	X			X	
NED	NED-1		06/03/04	X		X	X			X	
NED	NED-2		06/03/04	X		X	X			X	

Footnotes on Page 2.

Table 5-2. Summary of EE/CA Waste Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/ Boring	Sample I.D.	Depth (feet)	Samle Date	SVOCs	TOCs	VOCs	Metals	Inorganics	Acetic Acids	Alcohols	Aldehydes
NED	NED-2 (TCLP)		06/15/04				X				
SCTAR-1	SCTAR-1/2.5 (4/10/02)	2.5	04/10/02	X		X	X			X	
SCTar-2/5	SCTar-02/5 (12/15/03)	5	12/15/03	X		X				X	
SCTE-7	SCTE-7/5 (5/24/02)	5	05/24/02	X		X	X			X	
TP Shingle (TP-7)	Shingle Pile	2	12/17/98	X	X	X				X	
TP-3	Test Pit #3	3	12/17/98	X	X	X				X	
TP-5	Test Pit #5	2	12/17/98	X	X	X				X	
TP-5A	TP-5A/2	2	11/02/99	X	X	X	X			X	X
TP-10	TP-10/12	12	11/03/99	X	X	X	X			X	X
TP-2	TP-2 Waste Char.		07/19/01	X		X	X	X		X	
TP-3	TP-3 Waste Char.		09/09/01								

COD Chemical oxygen demand.
PCB Polychlorinated biphenyl.
SVOCs Semi-volatile organic compounds.
TCLP Toxic characteristic leaching procedure.
TOC Total organic carbon.
VOCs Volatile organic compounds.
X Submitted for analysis.

Table 5-2. Summary of EE/CA Waste Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/ Boring	Pesticides/ PCBs	Ignitability	TCLP	Miscellaneous	Paint	Solids
CHTar						
GMGP-2						
GMGP-3						
GMGP-17						
GMSB-1	X		X			
GMSB-2	X		X			
GMSB-4	X		X			
GMSB-34			X			X
GMSB-35			X			X
GMSB-36			X			X
GMSB-37			X			X
GMSB-38			X			X
GMSB-40			X			X
GMSB-40			X			
GMSB-40						
GMSB-41			X			X
GMSB-43			X			X
GMSB-44			X			X
GMSB-45			X			X
GMSB-47			X			X
GMSB-48						X
GMSB-48			X			
GMSB-53						
GMSB-54						
GMSB-55						
GMSB-58						
GMSB-59						
GMSB-61						
GMSB-63						
GMSB-64						
NED						
NED						

Footnotes on Page 4.

Table 5-2. Summary of EE/CA Waste Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/ Boring	Pesticides/ PCBs	Ignitability	TCLP	Miscellaneous	Paint	Solids
NED						
SCTAR-1						
SCTar-2/5						
SCTE-7						
TP Shingle (TP-7)			X			X
TP-3			X			X
TP-5			X			X
TP-5A			X			X
TP-10			X			X
TP-2	X	X		X	X	
TP-3					X	

COD Chemical oxygen demand.
PCB Polychlorinated biphenyl.
SVOCs Semi-volatile organic compounds.
TCLP Toxic characteristic leaching procedure.
TOC Total organic carbon.
VOCs Volatile organic compounds.
X Submitted for analysis.

Table 5-3. Summary of Subsurface Soil Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Depth	Sample Date	VOCs	SVOCs	Metals	Alcohols	TOC	COD	Pesticides/ PCBs	TCLP	Methane Degeneration and Methanotrophic Enumeration	Geotechnical Parameters
GM-4	GM-4/118 (TCLP)	118'	6/15/1997								X		
GM-12	GM-12/50	50'	9/30/1997	X	X	X		X		X	X		
GM-32	GM-32/150	150	7/8/1998									X	
GM-35	GM-35/35	35'	7/20/1998	X	X	X	X	X		X			
GM-37	GM-37/213	213	8/4/1998									X	
GM-37	GM-37/215	215	7/23/1998									X	
GM-37	GM-37/325	325	7/25/1998									X	
GM-37	GM-37B/293	293	8/4/1998									X	
GM-40	GM-40B/10	10	8/5/1996	X	X	X		X		X			
GM-40B	GM-40B/10	10'	8/6/1998	X	X	X	X	X		X			
GM-41	GBGM-41/49	49'	8/6/1998	X	X	X	X	X		X			
GM-42	GM-42/1.5	1.5'	8/6/1998	X	X	X	X	X		X			
GM-44	GM-44/64	64	8/9/1998									X	
GM-44	GM-44/78.5	78.5	8/9/1998									X	
GM-45	GM-45/72	72	8/10/1998									X	
GM-46	GM-46/74	74	8/11/1998									X	
GM-47	GM-47/83	83	8/18/1998									X	
GM-48	GM-48/64	64	8/19/1998									X	
GM-48	GM-48/85	85	8/19/1998									X	
GM-50	GM-50/72	72	8/24/1998									X	
GM-50	GM-50/78	78	8/24/1998									X	
GM-52	GM-52/82	82	8/25/1998									X	
GM-53	GM-53/63	63	9/2/1998									X	
GM-53	GM-53/65-70	65-70	9/2/1998									X	
GM-53	GM-53/90	90	9/2/1998									X	
GM-56	GM-56/34	34	9/28/1998	X	X	X		X		X			
GM-83	GM-83/53-55 (6/5/04)	53-55	6/5/2004	X	X		X	X					
GM-83	GM-83/61-62 (6/5/04)	61-62	6/5/2004	X	X		X	X					

Footnots on Page 5.

Table 5-3. Summary of Subsurface Soil Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Depth	Sample Date	VOCs	SVOCs	Metals	Alcohols	TOC	COD	Pesticides/ PCBs	TCLP	Methane Degeneration and Methanotrophic Enumeration	Geotechnical Parameters
GMGW-118	GM-118/24-27	24-27	9/10/1998									X	
GMGW-118	GM-118/54-56	54-56	9/10/1998									X	
GMSB-1	GMSB-1/35-45	35-45'	5/16/1997	X	X	X		X		X	X		
GMSB-1	GMSB-1/65	65'	5/16/1997		X			X			X		
GMSB-1	GMSB-1/90	90'	5/16/1997	X	X			X			X		
GMSB-1	GMSB-1/115	115'	5/17/1997	X	X			X			X		
GMSB-1	GMSB-1/140	140'	5/17/1997	X	X			X			X		
GMSB-1	GMSB-1/170	170'	5/17/1997	X	X			X			X		
GMSB-1	GMSB-1/202	202'	5/18/1997					X					
GMSB-1	GMSB-1/237	237'	5/19/1997	X	X			X			X		
GMSB-1	GMSB-1/262	262'	5/19/1997					X					
GMSB-1	GMSB-1/287	287'	5/20/1997					X					
GMSB-1	GMSB-1/312	312'	5/20/1997	X	X			X			X		
GMSB-2	GMSB-2/35	35'	5/17/1997	X	X	X		X		X	X		
GMSB-2	GMSB-2/60	60'	5/17/1997					X					
GMSB-2	GMSB-2/85	85'	5/17/1997					X					
GMSB-2	GMSB-2/110	110'	5/19/1997	X	X			X			X		
GMSB-2	GMSB-2/135	135'	5/19/1997					X					
GMSB-2	GMSB-2/160	160'	5/19/1997					X					
GMSB-2	GMSB-2/185	185'	5/19/1997					X					
GMSB-2	GMSB-2/215	215'	5/19/1997					X					
GMSB-2	GMSB-2/245'	245'	5/20/1997	X	X			X			X		
GMSB-2	GMSB-2/300'	300'	5/20/1997	X	X		X	X			X		
GMSB-2	GMSB-2/323	323'	5/30/1997	X	X			X			X		
GMSB-2	GMSB-2/355	355'	5/30/1997	X	X			X			X		
GMSB-3	GMSB-3/33	33'	6/13/1997	X	X	X		X		X	X		
GMSB-3	GMSB-3/62	62'	6/13/1997	X	X			X			X		
GMSB-4	GMSB-4/27	27'	6/3/1997	X	X			X			X		

Footnots on Page 5.

Table 5-3. Summary of Subsurface Soil Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Depth	Sample Date	VOCs	SVOCs	Metals	Alcohols	TOC	COD	Pesticides/ PCBs	TCLP	Methane Degeneration and Methanotrophic Enumeration	Geotechnical Parameters
GMSB-4	GMSB-4/55	55'	6/3/1997					X					
GMSB-4	GMSB-4/80	80'	6/3/1997					X					
GMSB-4	GMSB-4/109	109'	6/4/1997	X	X			X			X		
GMSB-4	GMSB-4/135	135'	6/9/1997					X					
GMSB-4	GMSB-4/160	160'	6/9/1997					X					
GMSB-4	GMSB-4/185	185'	6/9/1997	X	X			X			X		
GMSB-4	GMSB-4/205	205'	6/10/1997					X					
GMSB-10A	GMSB-10A/12-14	12-14	9/29/1998									X	
GMSB-10A	GMSB-10A/28-30	28-30	9/29/1998									X	
GMSB-12A	GMSB-12A/28	28	9/26/1998									X	
GMSB-14A	GMSB-14A/27	27	9/26/1998									X	
GMSB-15	GMSB-15/134	134	9/1/1998	X	X	X		X		X			
GMSB-16A	GMSB-16A/22	22	9/27/1998									X	
GMSB-18A	GMSB-18A/15	15	9/26/1998									X	
GMSB-26A	GMSB-26A/10-12	10-12	9/28/1998									X	
GMSB-33A	GMSB-33A/35	35	9/27/1998									X	
GMSB-3A	GMSB-3A/22	22	9/26/1998									X	
GMSB-45A	GMSB-45A/46	46	9/27/1998									X	
GMSB-47A	GMSB-47A/40	40	9/27/1998									X	
GMSB-97	GMSB-97/10-12'	10-12'	3/7/2002	X	X	X	X				X		
GMSB-97	GMSB-97/18-20'	18-20'	3/7/2002	X	X	X	X				X		
GMSB-98	GMSB-98/18-20'	18-20'	3/7/2002	X	X	X	X				X		
GMSB-101	GMSB-101/16-18'	16-18'	3/8/2002	X	X	X	X				X		
GMSB-103	GMSB-103/19-21'	19-21'	3/8/2002	X	X	X	X				X		
GMSB-118A	GMSB-118A/12	12	9/26/1998									X	
GMSB-118A	GMSB-118A/8	8	9/26/1998									X	
GMSB-124	GMSB-124/42	42	10/29/2003					X					
GMSB-124	GMSB-124/60	60	10/29/2003					X					

Footnots on Page 5.

Table 5-3. Summary of Subsurface Soil Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Depth	Sample Date	VOCs	SVOCs	Metals	Alcohols	TOC	COD	Pesticides/ PCBs	TCLP	Methane Degeneration and Methanotrophic Enumeration	Geotechnical Parameters
GMSB-124	GMSB-124/66	66	10/29/2003					X					
GMSB-124	GMSB-124/78	78	10/29/2003					X					
GMSB-15	GMSB-15/134	134'	9/1/1998	X	X	X				X			
GMSB-95	GMSB-95/10-12'	10-12'	3/7/2002	X	X	X	X				X		
GMSB-95	GMSB-95/16-18'	16-18'	3/7/2002	X	X	X	X				X		
GMSB-96	GMSB-96/10-12'	10-12'	3/7/2002	X	X	X	X				X		
GMSB-97	GMSB-97/10-12'	10-12'	3/7/2002	X	X	X	X						
GMSG-121	GMSG-121/41	41	9/24/1998										X
GMSG-121	GMSG-121/41.5	41.5	9/24/1998										X
GMSG-122	GMSG-122/7.5	7.5	9/24/1998										X
GMSG-122	GMSG-122/8	8	9/24/1998										X
GMSG-122	GMSG-122/12	12	9/25/1998									X	
GMSG-122	GMSG-122/23	23	9/24/1998										X
GMSG-122	GMSG-122/23.5	23.5	9/24/1998										X
GMSG-122	GMSG-122/24	24	9/24/1998										X
GMSG-122	GMSG-122/59.5	29.5	9/24/1998										X
GMSG-122	GMSG-122/60	60	9/24/1998										X
GMSG-122	GMSG-122/61	61	9/25/1998									X	
GMSG-300	GMSG-300/25	25'	11/9/1998	X	X	X							
SCTE-1	SCTE-1 4/2.8	2.8'	4/2/2002	X	X		X						
SCTE-2	SCTE-2 4/3.5	3.5'	4/2/2002	X	X		X						
SCTE-3	SCTE-3/2.75 (4/10/02)	2.75'	4/10/2002	X	X		X						
SCTE-4	SCTE-4/7.5 (4/11/02)	7.5'	4/11/2002	X	X		X						
SCTE-5	SCTE-5/6.5 (4/16/02)	6.5'	4/16/2002	X	X		X						
SCTE-6	SCTE-6/9 (5/7/02)	9'	5/7/2002	X	X		X						
SCTE-8	SCTE-08/5 (12/11/03)	5	12/11/2003	X	X		X						
SCTE-9	SCTE-09/5 (12/11/03)	5	12/11/2003	X	X		X						
SCTE-10	SCTE-10/5 (12/11/03)	5	12/11/2003	X	X		X						

Footnots on Page 5.

Table 5-3. Summary of Subsurface Soil Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Depth	Sample Date	VOCs	SVOCs	Metals	Alcohols	TOC	COD	Pesticides/ PCBs	TCLP	Methane Degeneration and Methanotrophic Enumeration	Geotechnical Parameters
SCTE-11	SCTE-11/2 (12/11/03)	2	12/11/2003	X	X		X						
SCTE-12	SCTE-12/3.5 (12/12/03)	3.5	12/12/2003	X	X		X						
SCTE-13	SCTE-13/4 (12/12/03)	4	12/12/2003	X	X		X						
SCTE-14	SCTE-14/5 (12/12/03)	5	12/12/2003	X	X		X						
SCTE-15	SCTE-15/2 (12/12/03)	2	12/12/2003	X	X		X						
SCTE-16	SCTE-16/5 (12/15/03)	5	12/15/2003	X	X		X						
SCTE-17	SCTE-17/5 (12/15/03)	5	12/15/2003	X	X		X						
SCTE-18	SCTE-18/7 (12/15/03)	7	12/15/2003	X	X		X						
SCTE-19	SCTE-19/3 (12/17/03)	3	12/17/2003	X	X		X						
SCTE-20	SCTE-20 (9/23/04)		9/23/2004	X	X		X						
SCTE-21	SCTE-21 (9/23/04)		9/23/2004	X	X		X						

COD Chemical Oxygen Demand.
PCB Polychlorinated Biphenyls.
SVOCs Semi-Volatile Organic Compounds.
TCLP Toxic Characteristic Leaching Procedure.
TOC Total Organic Carbon.
VOCs Volatile Organic Compounds.
X Submitted for analysis.

Table 5-4. Grain Size Analyses and Soil Classification, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Depth (ft bgs)	% Gravel	% Sand	% Silt	% Clay	USCS
AGMGT-8	2-4	39.1	57	3.9	(3.9)	SP
AGMGT-8	6-8	29.3	62.8	7.9	(7.9)	SP-SM
AGMGT-8	8-10	17.1	75.2	7.7	(7.7)	SP-SM
AGMGT-8	14-16	0	9.2	90.8	(90.8)	CL-ML
AGMGT-8	22-22.5	0	15	85	(85.0)	ML
AGMGT-8	26-28	0	97.8	2.2	(2.2)	SP
AGMGT-8	30-32	0	91.4	8.6	(8.6)	SP-SM
AGMGT-8	35.8-36	2.9	93	4.1	(4.1)	SP
AGMGT-8	38.5-40	0.1	87.9	12	(12)	SP-SM
AGMGT-9	20-22	0	9.2	90.8	(90.8)	CL
AGMGT-9	26-28	0	98.7	1.3	(1.3)	SP
AGMGT-10	4-6	30.8	62.8	6.4	(6.4)	SP-SM
AGMGT-10	6-8	42	53.3	4.7	(4.7)	SP
AGMGT-10	10-12	32.1	60.3	7.6	(7.6)	SP-SM
AGMGT-10	14-16	0	8.1	91.9	(91.9)	ML
AGMGT-10	20-22	0	25.7	74.3	(74.3)	CL
AGMGT-10	26-28	0	98	2	(2.0)	SP
AGMGT-10	35-36	15.1	81.7	3.2	(3.2)	SP
AGMGT-11	2-4	21.2	64.2	14.6	(14.6)	SM
AGMGT-11	6-8	48.5	47.6	3.9	(3.9)	GP
AGMGT-11	13-14	13.4	73.1	13.5	(13.5)	SM
AGMGT-11	18-20	0	6.1	93.9	(93.9)	ML
AGMGT-11	22-24	0	24	76	(76.0)	CL
AGMGT-11	31-32	0	98.4	1.6	(1.6)	SP
AGMGT-11	37-38	0	90.3	9.7	(9.7)	SP-SM
AGMGT-12	14-16	0	11.8	88.2	(88.2)	CL
AGMGT-12	34-35	14	81.7	4.3	(4.3)	SP
GM-1	107	0	0.3	86.1	13.6	ML
GM-1	30-35	0	51.8	45.7	2.5	SM
GM-1	60-65	0	1.7	77.9	20.3	ML
GM-1	75-80	0	2.8	57	40.2	ML
GM-1	80-85	0	29.1	56.1	14.8	ML
GM-1	85-90	14.9	81.7	0.7	2.7	SP
GM-1	171	0	42.8	55.4	1.6	ML
GM-1	208	0	7.2	79.8	13	ML
GM-1	223	0	93	5.1	1.9	SP-SM
GM-1	267	0	93.1	5.2	1.7	SP-SM
GM-1	277	0	6.8	87.4	5.8	ML
GM-1	294	0	6.6	45	48.4	ML
GM-2	100-105	0	77.7	20.3	2	SM
GM-2	30-35	0	32.8	50.2	17	ML
GM-2	35-40	0.4	81.1	13.1	5.4	SM
GM-2	5-15	5.3	93.4	0	1.3	SP
GM-2	70-75	0	72.3	24.9	2.8	SM
GM-2	125-130	0	36.5	57.5	6	ML
GM-2	155-160	0	0.4	73.3	26.3	ML

Footnotes on Page 4.

ARCADIS

Table 5-4. Grain Size Analyses and Soil Classification, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Depth (ft bgs)	% Gravel	% Sand	% Silt	% Clay	USCS
GM-2	200-205	0	67.8	29.1	3.1	SM
GM-2	250-255	0	48.8	48.9	2.3	ML
GM-2	275-280	1.5	77.3	18	3.2	SM
GM-3	10-15	9	86.2	3.5	1.3	SW
GM-3	45-50	0	1.8	71.2	27	ML
GM-3	75-80	0.1	97.1	0	2.8	SP
GM-3	115-120	0	49	44.9	6.1	ML
GM-3	120-125	0	14.9	69	16.1	ML
GM-3	134-140	0	90.8	6.7	2.5	SP-SM
GM-3	150-155	0	0.2	85.1	14.7	ML
GM-3	170-175	0	86.2	11.7	2.1	SM
GM-3	210-215	0	65.6	32.9	1.5	SM
GM-3	260-265	0	91.7	7.4	0.9	SP-SM
GM-3	270-275	0	9.8	86.7	3.5	ML
GM-3	295-300	0	59.3	39.5	1.2	SM
GM-4	60	8.3	54.5	28.8	8.4	SM
GM-4	68	0	94.4	3.5	2.1	SP-SM
GM-4	85	0	89.9	8.1	2	SP-SM
GM-4	96	0.2	6.5	66.1	27.2	ML
GM-5	40	19	79.4	0.8	0.8	SP
GM-5	68	0	10.6	78.2	11.2	ML
GM-5	96	0	26.7	55.4	17.9	ML
GM-5	113	29.6	68	1.2	1.2	SP
GM-5	129	0.3	4.4	93.1	2.2	ML
GM-5	199	6.2	34.3	42.4	17.1	ML
GM-5	235	31.3	59.8	6.9	2	SP-SM
GM-6	5-10	45.2	52.2	2.6	2.6	SP
GM-6	25-27	0.1	1.1	61.7	37.1	ML
GM-6	48-50	0	3	87	10	ML
GM-6	55-65	0	5.7	44.6	49.7	ML
GM-6	80-85	0	5.9	85.1	9	ML
GM-6	105-115	0	96.4	2	1.6	SP
GM-6	122-125	15.8	77.2	5.1	1.9	SP-SM
GM-6	160-165	50.1	39.8	6.4	3.7	GW-GM
GM-6	194-195	17.1	30.9	40.6	11.4	ML
GM-7	120	0	98.3	0.1	1.6	SP
GM-7	139	0	2.9	56.6	40.5	ML
GM-7	156	0	85.7	12.6	1.6	SM
GM-7	190	0	0.4	82.7	16.9	ML
GM-7	225	0	2.2	81.3	16.5	ML
GM-8	60	0	93.8	4.9	1.3	SP-SM
GM-9	28	0	1.3	44.5	54.2	ML
GM-9	61	48	50.5	0.8	0.7	SP
GM-9	95	0	96.9	1.7	1.4	SP
GM-9	215-217	0.3	2.3	70.7	26.7	ML
GM-10	21	0	25.5	61.5	13	ML
GM-10	35-40	4	90.8	2.5	2.7	SP-SM
GM-10	183	0	58.7	34.3	7	SM

Footnotes on Page 4.

Table 5-4. Grain Size Analyses and Soil Classification, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Depth (ft bgs)	% Gravel	% Sand	% Silt	% Clay	USCS
GM-11	60	0	0.6	85.7	13.7	ML
GM-12	100-105	0	36.8	58.3	4.9	ML
GM-13	280-285	0	34.9	62.9	2.2	ML
GM-14	56	0.1	68.2	33.9	1.4	SM
GM-14	88	0	5.4	52	42.6	ML
GM-14	144	0	64.2	32.7	3.1	SM
GM-15	45	1.7	87.4	6.1	4.8	SP
GM-15	165.5-166.5	0	87.3	9	3.7	SM
GM-16	110-115	0.1	97.3	0.8	1.8	SP
GM-16	70-75	0	6.4	78.5	15.1	ML
GM-17	180	0	96.5	1.7	1.8	SP
GM-17	265-267	55.8	38.9	3.2	2.1	GW-GM
GM-17	267-270	3.4	90.7	3.6	2.3	SP-SM
GM-65	123	0.4	89.6	10	(10)	SW-SM
GM-65	130	0	39.8	60.2	(60.2)	ML
GM-65	140	0.5	90	9.5	(9.5)	SP-SM
GM-65	145	0	88.5	11.5	(11.5)	SP-SM
GM-65	150	0.4	91.8	7.8	(7.8)	SP-SM
GM-65	154-155	0	91	9	(9)	SP-SM
GMPZ-8	138	0	97.9	2.1	(2.1)	SP
GMPZ-8	143	0	97.4	2.6	(2.6)	SP
GMPZ-8	149.5	0	94.3	5.7	(5.7)	SP-SM
GMPZ-8	153	0	95.6	4.4	(4.4)	SP
GMPZ-8	156	0	95.3	4.7	(4.7)	SP
GMPZ-8	158.5	0	93.5	6.5	(6.5)	SP-SM
GMPZ-8	161.5	0	96.9	3.1	(3.1)	SP
GMPZ-8	166	0	96.6	3.4	(3.4)	SP
GMPZ-8	169	0	96.4	3.6	(3.6)	SP
GMPZ-9	119	0	86.6	13.4	(13.4)	SM
GMPZ-9	128	26.7	67.5	5.8	(5.8)	SP-SM
GMPZ-9	133	44.2	52.5	3.3	(3.3)	SP
GMPZ-9	148	0.1	95	4.9	(4.9)	SP
GMPZ-9	144	0	95	5	(5)	SP
GMPZ-9	153	0	97.6	2.4	(2.4)	SP
GMPZ-9	158	0	96.9	3.1	(3.1)	SP
GMPZ-9	163	0	96.9	3.1	(3.1)	SP
GMPZ-9	169	0	96.1	3.9	(3.9)	SP
GMPZ-9	174	0	96.9	3.1	(3.1)	SP
GMSB-1	80	4	73	16.2	6.8	SM
GMSB-1	108	0	0.9	77.6	21.5	ML
GMSB-1	287-292	54.8	24.4	2.9	1.9	GP
GMSB-1	292-297	70.6	26.1	2.2	1.1	GP
GMSB-1	324	1.7	88.3	6.2	3.8	SP-SM
GMSB-1	338	4.8	75	11.7	8.5	SM
GMSB-2	90	0.3	96	2	1.7	SP
GMSB-2	184	0	0.2	81.5	18.2	ML
GMSB-2	355	41.1	28.4	18.4	12.1	GM
GMSB-2	NA	0	3.7	56.5	39.8	ML

Footnotes on Page 4.

Table 5-4. Grain Size Analyses and Soil Classification, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Depth (ft bgs)	% Gravel	% Sand	% Silt	% Clay	USCS
GMSB-4	30	1.7	41.7	54.3	2.3	ML
GMSB-4	65	0	2.1	74.3	23.6	ML
GMSB-4	77	0	7.5	80.4	12.1	ML
GMSB-4	113	2.9	94.6	1	1.5	SP
GMSB-4	180	27.5	69.7	1.9	0.9	SP
GMSB-8	165	0	1.4	81.5	17.1	ML
GMSB-8	176	3.5	60.8	24.3	11.4	SM
GMSB-49	11-15	0.1	99.2	0.7	(0.7)	SP
GMSB-49	23-25	0	98.7	1.3	(1.3)	SP
GMSB-49	33-35	0	96.5	3.5	(3.5)	SP
GMSB-49	41-42	0	88.1	11.9	(11.9)	SP-SM
GMSB-49	53-54	0	12.5	87.5	(87.5)	ML
GMSB-49	93-95	0	96.8	3.2	(3.2)	SP
GMSB-50	23-25	18.8	80.1	1.1	(1.1)	SP
GMSB-50	30-32	6	93.6	0.4	(0.4)	SP
GMSG-121	41	0	19.1	74.6	6.3	ML
GMSG-121	41.5	0	6.5	86.4	7.1	ML
GMSG-122	7.5	56.5	38.7	3.4	1.4	GP
GMSG-122	8	38.6	52.9	4.8	3.7	SP-SM
GMSG-122	23	0	41.7	51.8	6.5	ML
GMSG-122	23.5	0	5.1	86.2	8.7	ML
GMSG-122	24	0	33.9	63.6	2.5	ML
GMSG-122	59.5	0	5.7	68.9	25.4	ML
GMSG-122	60	0	10.8	64.3	24.9	ML

( )	Silt/Clay content given as one combined percentage.
ft bgs	Feet below ground surface.
GP	Poorly graded gravels, gravel-sand mixtures, little or no fines.
GM	Silty gravels, poorly graded gravel-sand-silt mixtures.
GW	Well graded gravels, gravel-sand mixtures, little or no fines.
ML	Inorganic silts and very fine sand, rock flour, silty or clayey fine sands with slight plasticity.
NA	Not available.
SM	Silty sands, poorly graded sand-silt mixtures.
SP	Poorly graded sands, gravelly sands, little or no fines.
SW	Well graded sands, gravel-sand mixtures.
USCS	Unified Soil Classification System.

Table 5-5. Summary of Geotechnical Data, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Probe	Depth (ft bgs)	Bulk Density (pcf)	Dry Density (pcf)	Moisture Content (%)	Organic Content (%)	Porosity	Hydraulic Conductivity (cm/sec)
GMSG-121	41	118.7	105.5	12.5	0.8	0.37	8.5E-05
GMSG-121	41.5	124.5	106.4	17	0.8	0.37	3.9E-05
GMSG-122	7.5	127.6	123.6	3.2	0.4	0.27	2.6E-02
GMSG-122	8	129.9	123.3	5.4	0.9	0.27	9.2E-03
GMSG-122	23	137.2	117.8	15.9	0.6	0.3	5.1E-06
GMSG-122	23.5	135.7	112.1	17.9	0.7	0.32	7.3E-06
GMSG-122	24	128	106.8	19.8	0.6	0.37	1.7E-05
GMSG-122	59.5	129.2	106.4	21.4	1.5	0.37	2.2E-06
GMSG-122	60	132.7	107.5	21	1.5	0.35	1.2E-06

cm/sec Centimeters per second.
ft bgs Feet below ground surface.
pcf Pounds per cubic foot.

Table 5-6. Summary of RI Surface Soil Samples and Analyses Performed, Ford-Kingsford Products Facility Site, Kingsford, Michigan

Sample ID	Location	Date	SVOCs	VOCs	Alcohols	Metals	Pesticides, PCBs
RDACS-1 (17,29)	Riverside Disposal	8/21/2001	X	X	X	X	
RDACS-2 (52,29)	Riverside Disposal	8/21/2001	X	X	X	X	
RDACS-3 (87,29)	Riverside Disposal	8/21/2001	X	X	X	X	
RDACS-4 (122,29)	Riverside Disposal	8/21/2001	X	X	X	X	
RDACS-5 (157,29)	Riverside Disposal	8/21/2001	X	X	X	X	
RDACS-6 (192,29)	Riverside Disposal	8/21/2001	X	X	X	X	
RDACS-7 (227,29)	Riverside Disposal	8/21/2001	X	X	X	X	
RDACS-8 (262,29)	Riverside Disposal	8/21/2001	X	X	X	X	
RDACS-9 (297,29)	Riverside Disposal	8/21/2001	X	X	X	X	
RDACS-10 (332,29)	Riverside Disposal	8/21/2001	X	X	X	X	
RDACS-11 (367,29)	Riverside Disposal	8/21/2001	X	X	X	X	
RDACS-12 (402,29)	Riverside Disposal	8/21/2001	X	X	X	X	
RDACS-13 (17,59)	Riverside Disposal	8/21/2001	X	X	X	X	
RDACS-14 (52,64)	Riverside Disposal	8/21/2001	X	X	X	X	
RDACS-15 (87,64)	Riverside Disposal	8/21/2001	X	X	X	X	
RDACS-16 (122,64)	Riverside Disposal	8/21/2001	X	X	X	X	
RDACS-17 (157,64)	Riverside Disposal	8/21/2001	X	X	X	X	
RDACS-19 (227,64)	Riverside Disposal	8/22/2001	X	X	X	X	
RDACS-20 (262,64)	Riverside Disposal	8/22/2001	X	X	X	X	
RDACS-25 (262,134)	Riverside Disposal	8/22/2001	X	X	X	X	
RDACS-27 (192,124)	Riverside Disposal	8/22/2001	X	X	X	X	
RDACS-29 (336,124)	Riverside Disposal	8/29/2001	X	X	X	X	
RDACS-30 (437,185)	Riverside Disposal	8/29/2001	X	X	X	X	
RDACS-32 (414,-122)	Riverside Disposal	8/29/2001	X	X	X	X	
RDACS-33 (414,-227)	Riverside Disposal	8/29/2001	X	X	X	X	
RDACS-34 (24,29)	Riverside Disposal	8/29/2001	X	X	X	X	
RDACS-35 (74,29)	Riverside Disposal	8/29/2001	X	X	X	X	
RDACS-37 (414,17)	Riverside Disposal	8/22/2001	X	X	X	X	
RDACS-38 (124,29)	Riverside Disposal	8/29/2001	X	X	X	X	
RDACS-39 (174,29)	Riverside Disposal	8/29/2001	X	X	X	X	
RDACS-40 (224,29)	Riverside Disposal	8/29/2001	X	X	X	X	
RDACS-41 (274,29)	Riverside Disposal	8/29/2001	X	X	X	X	
RDACS-42 (324,32)	Riverside Disposal	8/29/2001	X	X	X	X	
RDAUS-1	Riverside Disposal	9/10/2001	X	X	X	X	
RDAUS-2	Riverside Disposal	9/10/2001	X	X	X	X	
RDAUS-3	Riverside Disposal	9/10/2001	X	X	X	X	
RDAUS-4	Riverside Disposal	9/10/2001	X	X	X	X	
RDAUS-5	Riverside Disposal	9/10/2001	X	X	X	X	
RDAUS-6	Riverside Disposal	9/10/2001	X	X	X	X	
RDAUS-7	Riverside Disposal	9/10/2001	X	X	X	X	
RDAUS-8	Riverside Disposal	9/10/2001	X	X	X	X	
RDAUS-9	Riverside Disposal	9/10/2001	X	X	X	X	
SSLP-1	SW Pit	8/10/1999	X	X	X	X	
SSLP-2	SW Pit	8/10/1999	X	X	X	X	
SSLP-3	SW Pit	8/10/1999	X	X	X	X	
SSLP-4	SW Pit	8/10/1999	X	X	X	X	
SSLP-5	SW Pit	8/10/1999	X	X	X	X	

Footnotes on Page 2.

Table 5-6. Summary of RI Surface Soil Samples and Analyses Performed, Ford-Kingsford Products Facility Site, Kingsford, Michigan

Sample ID	Location	Date	SVOCs	VOCs	Alcohols	Metals	Pesticides, PCBs
SSLP-6	SW Pit	8/10/1999	X	X	X	X	
SSLP-7	SW Pit	8/10/1999	X	X	X	X	
SSLP-8	SW Pit	8/10/1999	X	X	X	X	
SSLP-9	SW Pit	8/10/1999	X	X	X	X	
SSLP-10	SW Pit	8/10/1999	X	X	X	X	
SSLP-11	SW Pit	8/10/1999	X	X	X	X	
SSLP-12	SW Pit	8/10/1999	X	X	X	X	
SSLP-13	SW Pit	8/10/1999	X	X	X	X	
SSNE-1	NE Pit	8/5/1999	X	X	X		X
SSNE-2	NE Pit	8/5/1999	X	X	X		X
SSNE-3	SW Pit	8/5/1999	X	X	X		X
SSNE-4	NE Pit	8/5/1999	X	X	X		X
SSNE-5	NE Pit	8/5/1999	X	X	X		X
SSNE-6	NE Pit	8/5/1999	X	X	X		X
SSNE-7	NE Pit	8/5/1999	X	X	X		X
SSNE-8	NE Pit	8/5/1999	X	X	X		X
SSNE-98	NE Pit	8/5/1999	X	X	X		X
SSNE-9	NE Pit	8/5/1999	X	X	X		X
SSNE-10	NE Pit	8/5/1999	X	X	X		X
SSNE-11	NE Pit	8/5/1999	X	X	X		X
SSNE-12	NE Pit	8/5/1999	X	X	X		X
SSQ-1	General Study	9/29/1999	X	X	X		
SSQ-2	General Study	9/29/1999	X	X	X		
SSQ-3	General Study	9/29/1999	X	X	X		
SSQ-4	General Study	9/29/1999	X	X	X		
SSRIV-1	Riverside Disposal	8/6/1999	X	X	X	X	
SSRIV-2	Riverside Disposal	8/6/1999	X	X	X	X	
SSRIV-3	Riverside Disposal	8/6/1999	X	X	X	X	
SSRIV-4	Riverside Disposal	8/5/1999	X	X	X	X	
SSRIV-5	Riverside Disposal	8/6/1999	X	X	X	X	
SSRIV-6	Riverside Disposal	8/5/1999	X	X	X	X	
SSRIV-7	Riverside Disposal	8/5/1999	X	X	X	X	
SSRIV-8	Riverside Disposal	8/6/1999	X	X	X	X	
SSRIV-9	Riverside Disposal	8/6/1999	X	X	X	X	
SSRIV-10	Riverside Disposal	8/5/1999	X	X	X	X	
SSRIV-11	Riverside Disposal	8/5/1999	X	X	X	X	
SSRIV-12	Riverside Disposal	8/6/1999	X	X	X	X	
SSRIV-13	Riverside Disposal	8/6/1999	X	X	X	X	
SSWB-1	West Breen	9/7/2005	X	X	X	X	
SSWB-2	West Breen	9/7/2005	X	X	X	X	
SSWB-3	West Breen	9/7/2005	X	X	X	X	
SSWB-4	West Breen	9/7/2005	X	X	X	X	

PCBs Polychlorinated Biphenyls.
SVOCs Semi-volatile Organic Compounds.
VOCs Volatile Organic Compounds.

Table 5-7. Summary of EE/CA, RI, and Additional Investigation Groundwater Grab Samples and Analyses Performed through December 2007, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/ Boring	Sample I.D.	Sample Date	Depth	VOC	SVOC	TOC	COD	Inorganic	BOD	Acetic Acid	Alcohols	Aldehydes
GM-1	GBGM-1/95	5/12/1997	220	X	X	X	X					
GM-1	GBGM-99/1	5/13/1997	220	X	X	X	X					
GM-1	GBGM-1/144	5/13/1997	220	X	X	X	X					
GM-1	GBGM-1/193	5/14/1997	220	X	X	X	X					
GM-1	GBGM-1/290'-295'	5/16/1997	220	X	X	X	X					
GM-2B	GBGM-2/75	5/2/1997	271	X	X	X	X					
GM-2B	GBGM-2/135	5/3/1997	271	X	X	X	X	X				
GM-2B	GBGM-2/205	5/4/1997	271	X	X	X	X					
GM-2B	GBGM-2/255	5/5/1997	271	X	X	X	X					
GM-3B	GBGM-3/69	4/30/1997	170	X	X	X	X					
GM-3B	GBGM-3/119	5/1/1997	170	X	X	X	X					
GM-3B	GBGM-3/167	5/1/1997	170	X	X	X	X					
GM-3B	GBGM-3/207	5/1/1997	170	X	X	X	X					
GM-3B	GBGM-3/265	5/3/1997	170	X	X	X	X	X				
GM-3B	GBGM-3/305	5/4/1997	170	X	X	X	X	X				
GM-5	GBGM-5/115	6/12/1997	250	X	X	X	X		X			
GM-5	GBGM-5/173	6/12/1997	250	X	X	X	X		X			
GM-5	GBGM-5/235	6/13/1997	250	X	X	X	X		X			
GM-7	GBGM-7/153	6/11/1997	145	X	X	X	X		X			
GM-7	GBGM-99/2	6/11/1997	145	X	X	X	X		X			
GM-9	GBGM-9/62	9/12/1997	164	X	X	X						
GM-10	GBGM-10/95	9/16/1997	170	X	X	X						
GM-10	GBGM-10/155	9/22/1997	170	X	X	X						
GM-11	GBGM-11/35	9/27/1997	174.7	X	X	X						
GM-11	GBGM-90	9/27/1997	174.7	X	X	X						
GM-12	GBGM-12/65	9/30/1997	290	X	X	X						
GM-12	GBGM-12/230	10/7/1997	290	X	X	X						
GM-13	GBGM-13/145	9/23/1997	325	X	X	X						
GM-14	GBGM-14/85*	9/12/1997	135	X	X	X						
GM-15	GBGM-15/55*	9/9/1997	165	X	X	X						
GM-15	GBGM-15/140*	9/10/1997	165	X	X	X						
GM-16	GBGM-16/115	10/12/1997	108	X	X	X						

Table 5-7. Summary of EE/CA, RI, and Additional Investigation Groundwater Grab Samples and Analyses Performed through December 2007, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/ Boring	Sample I.D.	Sample Date	Depth	VOC	SVOC	TOC	COD	Inorganic	BOD	Acetic Acid	Alcohols	Aldehydes
GM-17	GBGM-17/105	10/21/1997	224.3	X	X	X						
GM-25C	GBGM-25/105	6/10/1998	206	X	X	X					X	
GM-26C	GBGM-26/30	6/15/1998	160	X	X	X					X	
GM-26C	GBGM-26/140	6/16/1998	160	X	X	X					X	
GM-27C	GBGM-27/105	6/24/1998	210	X	X	X					X	
GM-32	GBGM-32/125	7/8/1998	135	X	X	X					X	
GM-33	GBGM-33/105	7/10/1998	74	X	X	X					X	
GM-34B	GBGM-34/95	7/13/1998	85	X	X	X					X	
GM-38B	GBGM-38/105	7/23/1998	160	X	X	X					X	
GM-38B	GBGM-38/165	7/23/1998	160	X	X	X					X	
GM-39	GBGM-39/95	7/27/1998	85	X	X	X					X	
GM-53B	GBGM-53/225	9/9/1998	195	X	X	X					X	
GM-67	GBGWGM-67/122-127	6/14/2000	122	X	X	X	X	X	X	X	X	X
GM-82A	GBGWGM-82/95 (6/3/04)	6/2/2004	82	X	X	X	X	X	X	X	X	X
GM-82A	GBGWGM-82/114 (6/5/04)	6/5/2004	82	X	X	X	X	X	X	X	X	X
GMSB-1	GBGMSB-1/85	5/16/1997		X	X	X	X		X			
GMSB-1	GBGMSB-1/135	5/17/1997		X	X	X	X		X			
GMSB-1	GBGMSB-1/215	5/18/1997		X	X	X	X		X			
GMSB-1	GBGMSB-1/275'	5/19/1997		X	X	X	X		X			
GMSB-1	GBGMSB-1/325	6/2/1997		X	X	X	X		X			
GMSB-2	GBGMSB-2/93	5/18/1997		X	X	X	X		X			
GMSB-2	GBGMSB-2/265'	5/20/1997		X	X	X	X		X			
GMSB-2	GBGMSB-2/345	5/31/1997		X	X	X	X		X			
GMSB-2	GBGMSB-2/345 DUP	5/31/1997										
GMSB-4	GBGMSB-4/115	6/4/1997		X	X	X	X		X			
GMSB-4	GBGMSB-4/183.5	6/9/1997		X	X	X	X		X			
GMSB-8	GBGMSB-8/85	9/9/1997		X	X	X						
GMSB-8	GBGMSB-8/117	9/10/1997		X	X	X						
GMSB-8	GBGMSB-8/186	9/11/1997		X	X	X						
GMSB-49	GBGWGMSB-49/93	5/19/2000		X	X	X	X	X	X	X	X	X
GMSB-50	GBGWGMSB-50/100-105	6/1/2000		X	X	X	X	X	X	X	X	X
GMSB-111	GBGWGMSB-111/26	8/19/2003		X	X	X	X	X	X	X	X	X

Table 5-7. Summary of EE/CA, RI, and Additional Investigation Groundwater Grab Samples and Analyses Performed through December 2007, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/ Boring	Sample I.D.	Sample Date	Depth	VOC	SVOC	TOC	COD	Inorganic	BOD	Acetic Acid	Alcohols	Aldehydes
GMSB-112	GBGWGMSB-112/134	9/3/2003		X	X	X	X	X	X	X	X	X
GMSB-112	GBGWGMSB-112/192	9/3/2003		X	X	X	X	X	X	X	X	X
GMSB-113	GBGWGMSB-113/155	9/5/2003		X	X	X	X	X	X	X	X	
GMSB-113	GBGWGMSB-113/199	9/5/2003		X	X	X	X	X	X	X	X	X
GMSB-113	GBGWGMSB-113/27	9/4/2003		X	X	X	X	X	X	X	X	X
GMSB-116	GBGWGMSB-116/122	8/12/2003		X	X	X	X	X	X	X	X	X
GMSB-116	GBGWGMSB-116/32	8/11/2003		X	X	X	X	X	X	X	X	X
GMSB-117	GBGWGMSB-117/115	8/14/2003		X	X	X	X	X	X	X	X	X
GMSB-117	GBGWGMSB-117/154	8/15/2003		X	X	X	X	X	X	X	X	X
GMSB-118	GBGWGMSB-118/25	8/16/2003		X	X	X	X	X	X	X	X	X
GMSB-119	GBGWGMSB-119/125	8/18/2003		X	X	X	X	X	X	X	X	X
GMSB-119	GBGWGMSB-119/45	8/17/2003		X	X	X	X	X	X	X	X	X
GMSB-122	GBGWGMSB-122/145	9/8/2003		X	X	X	X	X	X	X	X	X
GMSB-123	GBGWGMSB-123/150	9/9/2003		X	X	X	X	X	X	X	X	X

Table 5-7. Summary of EE/CA, RI, and Additional Investigation Groundwater Grab Samples and Analyses Performed through December 2007, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/ Boring	Density	Hardness	Dissolved Gases	Total Metals	Dissolved Metals	Solids
GM-1						
GM-1						
GM-1						
GM-1						
GM-1						
GM-2B						
GM-2B						
GM-2B						
GM-2B						
GM-3B						
GM-3B						
GM-3B						
GM-3B						
GM-3B						
GM-3B						
GM-5	X		X			
GM-5	X		X			
GM-5	X					
GM-7	X		X			
GM-7	X		X			
GM-9			X			
GM-10			X			
GM-10			X			
GM-11			X			
GM-11			X			
GM-12			X			
GM-12			X			
GM-13			X			
GM-14			X			
GM-15			X			
GM-15			X			
GM-16			X			

Table 5-7. Summary of EE/CA, RI, and Additional Investigation Groundwater Grab Samples and Analyses Performed through December 2007, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/ Boring	Density	Hardness	Dissolved Gases	Total Metals	Dissolved Metals	Solids
GM-17			X			
GM-25C			X			
GM-26C			X			
GM-26C			X			
GM-27C						
GM-32			X			
GM-33			X			
GM-34B			X			
GM-38B			X			
GM-38B			X			
GM-39			X			
GM-53B						
GM-67		X	X	X	X	
GM-82A			X	X	X	
GM-82A			X	X	X	
GMSB-1						
GMSB-1			X			
GMSB-1			X			
GMSB-1						
GMSB-1	X		X			
GMSB-2			X			
GMSB-2			X			
GMSB-2	X		X			
GMSB-2	X					
GMSB-4	X		X			
GMSB-4	X		X			
GMSB-8			X			
GMSB-8			X			
GMSB-8			X			
GMSB-49		X		X	X	
GMSB-50		X	X	X	X	
GMSB-111			X	X	X	X

Table 5-7. Summary of EE/CA, RI, and Additional Investigation Groundwater Grab Samples and Analyses Performed through December 2007, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/ Boring	Density	Hardness	Dissolved Gases	Total Metals	Dissolved Metals	Solids
GMSB-112				X	X	X
GMSB-112			X	X	X	
GMSB-113			X	X	X	
GMSB-113			X	X	X	
GMSB-113			X	X	X	
GMSB-116				X	X	X
GMSB-116				X	X	X
GMSB-117				X	X	X
GMSB-117			X	X	X	X
GMSB-118			X	X	X	X
GMSB-119			X	X	X	X
GMSB-119			X	X	X	X
GMSB-122			X	X	X	
GMSB-123			X	X	X	X

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
BR-2	GWBR-2	6/29/1997	75	X	X	X				X	X
BR-3	GWBR-3	6/28/1997	122	X	X	X				X	X
BR-4	GWBR-4	7/1/1997	93								
BR-5A	GWBR-5A	7/1/1997	88	X	X	X				X	X
BR-5B	GWBR-5B	7/1/1997	188	X	X	X				X	X
BR-5B	GWGM-98	7/1/1997	188	X	X	X				X	X
BR-6	GWBR-6	6/29/1997	149	X	X	X				X	X
CW-1	CW-1	10/14/1997	130	X	X	X				X	X
CW-1	GWCW-1	10/22/1998	130	X	X	X	X	X	X	X	
CW-1	GWCW-1	4/29/1999	130	X	X	X	X	X	X	X	
GM-1	GWGM-1	6/24/1997	220	X	X	X				X	X
GM-1	GM-1	10/9/1997	220	X	X	X				X	X
GM-1	GWGM-1	10/7/1998	220	X	X	X	X	X	X	X	
GM-1	GWGM-1	4/16/1999	220	X	X	X	X	X	X	X	
GM-1	GWGM-1 (4/28/04)	4/28/2004	220	X	X	X	X	X	X	X	X
GM-1	GBGM-1/95	5/12/1997	220	X	X	X					
GM-1	GBGM-99/1	5/13/1997	220	X	X	X					
GM-1	GBGM-1/144	5/13/1997	220	X	X	X					
GM-1	GBGM-1/193	5/14/1997	220	X	X	X					
GM-1	GBGM-1/290'-295'	5/16/1997	220	X	X	X					
GM-2B	GBGM-2/75	5/2/1997	271	X	X	X					
GM-2B	GBGM-2/135	5/3/1997	271	X	X	X					
GM-2B	GBGM-2/205	5/4/1997	271	X	X	X					
GM-2B	GBGM-2/255	5/5/1997	271	X	X	X	X				
GM-2A	GWGM-2A	7/2/1997	40	X	X	X				X	X
GM-2A	GM-2A	10/12/1997	40	X	X	X				X	X
GM-2B	GWGM-2B	6/26/1997	271	X	X	X				X	X
GM-2B	GM-2B	10/21/1997	271	X	X	X				X	X
GM-2B	GM-2B	12/11/1997	271	X	X	X	X			X	X
GM-2B	GWGM-2B	11/22/1998	271	X	X	X	X	X	X	X	
GM-2B	GWGM-2B	4/16/1999	271	X	X	X	X	X	X	X	
GM-2B	GWGM-2B(5/25/04)	5/25/2004	271	X	X	X	X	X	X	X	X

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE Toxicity
BR-2	X	X		X		X								
BR-3	X	X		X		X								
BR-4												X		
BR-5A	X	X		X		X						X		
BR-5B	X	X		X		X						X		
BR-5B	X	X		X		X								
BR-6	X	X		X		X								
CW-1	X	X		X										
CW-1	X	X	X	X				X					X	
CW-1	X	X	X	X					X				X	
GM-1	X	X		X								X		
GM-1	X	X		X										
GM-1	X	X	X	X				X					X	
GM-1	X	X	X	X									X	
GM-1	X	X	X	X										
GM-1				X										
GM-1				X										
GM-1				X										
GM-1				X										
GM-1				X										
GM-2B				X										
GM-2B	X			X										
GM-2B				X										
GM-2B				X										
GM-2A	X	X		X		X								
GM-2A	X	X		X										
GM-2B	X	X		X		X								
GM-2B	X	X		X										
GM-2B	X			X										
GM-2B	X	X	X	X				X					X	
GM-2B	X	X	X	X									X	
GM-2B	X	X	X	X										

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
GM-2C	GWGM-2C	11/6/1998	64	X	X	X	X	X	X	X	
GM-2C	GWGM-2C	4/13/1999	64	X	X	X	X		X	X	
GM-2C	GWGM-2C	4/14/1999	64	X							
GM-2C	GWGM-2C (5/4/04)	5/4/2004	64	X	X	X	X	X	X	X	X
GM-3B	GBGM-3/69	4/30/1997	170	X	X	X					
GM-3B	GBGM-3/119	5/1/1997	170	X	X	X					
GM-3B	GBGM-3/167	5/1/1997	170	X	X	X	X				
GM-3B	GBGM-3/207	5/1/1997	170	X	X	X					
GM-3B	GBGM-3/265	5/3/1997	170	X	X	X					
GM-3B	GBGM-3/305	5/4/1997	170	X	X	X					
GM-3A	GWGM-3A	6/25/1997	74	X	X	X				X	X
GM-3A	GWGM-3A DUP	6/25/1997	74								
GM-3A	GM-3A	10/10/1997	74	X	X	X				X	X
GM-3A	GWGM-3A	10/9/1998	74	X	X	X	X	X	X	X	
GM-3A	GWGM-3A	4/13/1999	74	X	X	X	X	X	X	X	
GM-3A	GWGM-3A (5/5/04)	5/5/2004	74	X	X	X	X	X	X	X	X
GM-3A	GWGM-3A (5/11/04)	5/11/2004	74								
GM-3B	GWGM-3B	6/26/1997	170	X	X	X	X			X	X
GM-3B	GM-3B	10/14/1997	170	X	X	X				X	X
GM-3B	GWGM-3B	10/8/1998	170	X	X	X	X	X	X	X	
GM-3B	GWGM-3B	4/17/1999	170	X	X	X	X	X	X	X	
GM-3B	GWGM-88	4/17/1999	170	X	X	X	X	X	X	X	
GM-3B	GWGM-3B (5/11/04)	5/11/2004	170	X	X	X	X	X	X	X	X
GM-4	GWGM-4	6/26/1997	76	X	X	X				X	X
GM-4	GM-4	10/14/1997	76	X	X	X				X	X
GM-4	GWGM-4	10/20/1998	76	X	X	X	X	X	X	X	
GM-4	GWGM-4	4/21/1999	76	X	X	X	X	X	X	X	
GM-4	GWGM-997 (5/1/04)	5/1/2004	76			X					
GM-4	GWGM-4 (5/2/04)	5/2/2004	76			X					
GM-4	GWGM-4 (5/22/04)	5/22/2004	76								
GM-4	GWGM-4	1/8/2007	76								
GM-5	GWGM-5	7/2/1997	250	X	X	X				X	X

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE Toxicity
GM-2C	X	X	X	X				X					X	
GM-2C	X		X	X									X	
GM-2C		X												
GM-2C	X	X	X	X										
GM-3B				X										
GM-3B				X										
GM-3B				X										
GM-3B				X										
GM-3B	X			X										
GM-3B	X			X										
GM-3A	X			X		X								
GM-3A						X								
GM-3A	X	X		X										
GM-3A	X	X	X	X				X					X	
GM-3A	X	X	X	X									X	
GM-3A	X		X	X										
GM-3A		X												
GM-3B	X	X		X		X								
GM-3B	X	X		X										
GM-3B	X	X	X	X				X					X	
GM-3B	X	X	X	X									X	
GM-3B	X	X	X	X										
GM-3B	X	X	X	X										
GM-4	X	X		X		X								
GM-4	X	X		X										
GM-4	X	X	X	X				X					X	
GM-4	X	X	X	X									X	
GM-4														
GM-4														
GM-4		X												
GM-4		X												
GM-5	X	X		X		X								

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
GM-5	GM-5	10/15/1997	250	X	X	X				X	X
GM-5	GWGM-5	4/18/1999	250	X	X	X	X	X	X	X	
GM-5	GM-5	11/30/1999	250		X		X	X	X	X	X
GM-5	GWGM-5	8/15/2000	250		X					X	
GM-5	GWGM-5	9/20/2000	250		X						X
GM-5	GBGM-5/115	6/12/1997	250	X	X	X					
GM-5	GBGM-5/173	6/12/1997	250	X	X	X					
GM-5	GBGM-5/235	6/13/1997	250	X	X	X					
GM-6	GWGM-6	6/28/1997	165	X	X	X				X	X
GM-6	GM-6	10/22/1997	165	X	X	X				X	X
GM-6	GWGM-6	10/10/1998	165	X	X	X	X	X	X	X	
GM-6	GWGM-6	4/19/1999	165	X	X	X	X	X	X	X	
GM-6	GWGM-6	2/29/2000	165		X						X
GM-6	GWGM-6	7/19/2000	165	X	X	X	X	X	X		X
GM-6	GWGM-6	9/25/2000	165		X						X
GM-7	GWGM-7	6/29/1997	145	X	X	X				X	X
GM-7	GM-7	10/11/1997	145	X	X	X				X	X
GM-7	GWGM-7	10/23/1998	145	X	X	X	X	X	X	X	
GM-7	GWGM-7	5/1/1999	145	X	X	X	X	X	X	X	
GM-7	GM-7	9/23/2003	145	X	X	X	X	X	X	X	X
GM-7	GWGM-7 (5/3/04)	5/3/2004	145	X	X	X	X	X	X	X	X
GM-7	GBGM-7/153	6/11/1997	145	X	X	X					
GM-7	GBGM-99/2	6/11/1997	145	X	X	X					
GM-7	GBGM-99/2	6/11/1997	145		X						
GM-8	GWGM-8	6/30/1997	79	X	X	X				X	X
GM-8	GM-8	10/12/1997	79	X	X	X				X	X
GM-8	GWGM-8	10/9/1998	79	X	X	X	X	X	X	X	
GM-8	GWGM-8	4/13/1999	79	X	X	X	X	X	X	X	
GM-8	GM-8	10/21/1999	79	X	X	X	X	X	X	X	
GM-9	GM-9	10/13/1997	164	X	X	X				X	X
GM-9	GWGM-9	10/11/1998	164	X	X	X	X	X	X	X	
GM-9	GWGM-9MS	10/11/1998	164						X		

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE Toxicity
GM-5	X	X		X								X		
GM-5	X	X	X	X					X				X	
GM-5							X				X		X	
GM-5	X										X			
GM-5	X													
GM-5		X	X	X		X								
GM-5		X	X	X		X								
GM-5			X	X		X								
GM-6	X	X		X		X								
GM-6	X	X		X										
GM-6	X	X	X	X				X					X	
GM-6	X	X	X	X					X				X	
GM-6	X										X			
GM-6	X	X	X	X			X				X		X	
GM-6	X										X			
GM-7	X	X		X		X						X		
GM-7	X	X		X										
GM-7	X	X	X	X				X					X	
GM-7	X	X	X	X									X	
GM-7	X	X	X	X										
GM-7	X	X	X	X										
GM-7		X	X	X		X								
GM-7		X	X	X		X								
GM-7														
GM-8	X	X		X		X								
GM-8	X	X		X										
GM-8	X	X	X	X				X					X	
GM-8	X	X	X	X					X				X	
GM-8		X	X	X	X		X			X			X	X
GM-9	X	X		X										
GM-9	X	X	X	X				X						
GM-9													X	

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
GM-9	GWGM-9MSD	10/11/1998	164						X		
GM-9	GWGM-9	4/18/1999	164	X	X	X	X	X	X	X	
GM-9	GWGM-9	3/6/2000	164								
GM-9	GM-9	9/10/2003	164	X	X	X	X	X	X	X	X
GM-9	GWGM-9 (5/3/04)	5/3/2004	164	X	X	X	X	X	X	X	X
GM-9	GWGM-9 (072805)	7/28/2005	164	X	X	X	X	X	X	X	X
GM-9	GBGM-9/62	9/12/1997	164	X	X	X					
GM-10	GM-10	10/14/1997	170	X	X	X				X	X
GM-10	GWGM-10	11/6/1998	170	X	X	X	X	X	X	X	
GM-10	GWGM-10	4/27/1999	170	X	X	X	X	X	X	X	
GM-10	GBGM-10/95	9/16/1997	170	X	X	X					
GM-10	GBGM-10/155	9/22/1997	170	X	X	X					
GM-11	GM-11	10/15/1997	174.7	X	X	X				X	X
GM-11	GBGM-11/35	9/27/1997	174.7	X	X	X					
GM-11	GBGM-90	9/27/1997	174.7	X	X	X					
GM-12	GM-12	10/22/1997	290	X	X	X				X	X
GM-12	GWGM-12	10/10/1998	290	X	X	X	X	X		X	
GM-12	GWGM-12	10/11/1998	290						X		
GM-12	GWGM-12	4/19/1999	290	X	X	X	X	X	X	X	
GM-12	GBGM-12/65	9/30/1997	290	X	X	X					
GM-12	GBGM-12/230	10/7/1997	290	X	X	X					
GM-13	GM-13	10/22/1997	325	X	X	X				X	X
GM-13	GWGM-13	4/20/1999	325	X	X	X	X	X	X	X	
GM-13	GWGM-13 (5/18/04)	5/18/2004	325	X	X	X	X	X	X	X	X
GM-13	GBGM-13/145	9/23/1997	325	X	X	X					
GM-14	GM-14	10/21/1997	135	X	X	X				X	X
GM-14	GWGM-14	10/23/1998	135								
GM-14	GWGM-14	10/28/1998	135	X	X	X	X	X	X	X	
GM-14	GWGM-14	5/2/1999	135	X	X	X	X	X	X	X	
GM-14	GBGM-14/85*	9/12/1997	135	X	X	X					
GM-15	GM-15	10/20/1997	165	X	X	X				X	X
GM-15	GWGM-15	10/11/1998	165	X	X	X	X	X	X	X	

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE Toxicity
GM-9														
GM-9	X	X	X	X					X				X	
GM-9											X			
GM-9	X	X	X	X										
GM-9	X	X	X	X										
GM-9	X	X	X	X										
GM-9		X												
GM-10	X	X		X										
GM-10	X	X	X	X				X					X	
GM-10	X	X	X	X									X	
GM-10		X												
GM-10		X												
GM-11	X	X		X										
GM-11		X												
GM-11		X												
GM-12	X	X		X										
GM-12	X	X	X	X				X						
GM-12													X	
GM-12	X	X	X	X									X	
GM-12		X												
GM-12		X												
GM-13	X	X		X										
GM-13	X	X	X	X									X	
GM-13	X	X	X	X										
GM-13		X												
GM-14	X	X		X								X		
GM-14		X												
GM-14	X	X	X	X				X					X	
GM-14	X	X	X	X									X	
GM-14		X												
GM-15	X	X		X										
GM-15	X	X	X	X				X					X	

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
GM-15	GWGM-15	4/20/1999	165	X	X	X	X	X	X	X	
GM-15	GWGM-15 (5/10/04)	5/10/2004	165	X	X	X	X	X	X	X	X
GM-15	GWGM-996 (5/10/04)	5/10/2004	165	X	X	X	X	X	X	X	X
GM-15	GBGM-15/55*	9/9/1997	165	X	X	X					
GM-15	GBGM-15/140*	9/10/1997	165	X	X	X					
GM-16	GM-16	10/22/1997	108	X	X	X				X	X
GM-16	GM-78	10/22/1997	108	X	X	X				X	X
GM-16	GWGM-16	10/9/1998	108	X	X	X	X	X	X	X	
GM-16	GWGM-16	4/14/1999	108	X	X	X	X	X	X	X	
GM-16	GM-16	9/23/2003	108	X	X	X	X	X	X	X	X
GM-16	GWGM-16 (4/27/04)	4/27/2004	108	X	X	X	X	X	X	X	X
GM-16	GBGM-16/115	10/12/1997	108	X	X	X					
GM-17	GM-17	10/28/1997	224.3	X	X	X				X	X
GM-17	GWGM-17	10/12/1998	224.3	X	X	X	X	X	X	X	
GM-17	GWGM-17	4/26/1999	224.3	X	X	X	X	X	X	X	
GM-17	GWGM-17 (5/1/04)	5/1/2004	224.3			X					
GM-17	GWGM-17 (5/16/04)	5/16/2004	224.3								
GM-17	GWGM-17	1/15/2007	224.3								
GM-17	GBGM-17/105	10/21/1997	224.3	X	X	X					
GM-18	GM-18	12/4/1997	50	X	X	X				X	X
GM-18	GWGM-18	11/7/1998	50	X	X	X	X	X		X	
GM-19	GM19	12/4/1997	46	X		X				X	X
GM-19	GM-19	12/11/1997	46		X						
GM-20	GM-20	12/5/1997	42	X	X	X				X	X
GM-21	GM-21	12/3/1997	5	X	X	X				X	X
GM-21	GM-95	12/3/1997	5	X	X	X				X	X
GM-21	GWGM-21	10/13/1998	5	X	X	X	X	X	X	X	
GM-21	GWGM-21	1/29/2001	5	X	X		X			X	X
GM-21	GWGM-21 (9/9/05)	9/9/2005	5	X	X		X			X	X
GM-22	GM-22	12/5/1997	6	X	X	X				X	X
GM-22	GWGM-22	10/10/1998	6	X	X	X	X	X	X	X	
GM-22	GWGM-22	4/13/1999	6	X	X	X	X	X	X	X	

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE Toxicity
GM-15	X	X	X	X									X	
GM-15	X	X	X	X										
GM-15	X	X	X	X										
GM-15		X												
GM-15		X												
GM-16	X	X		X										
GM-16	X	X		X										
GM-16	X	X	X	X				X					X	
GM-16	X	X	X	X									X	
GM-16	X	X	X	X										
GM-16	X	X	X	X										
GM-16		X												
GM-17	X	X		X										
GM-17	X	X	X	X				X					X	
GM-17	X	X	X	X									X	
GM-17														
GM-17		X												
GM-17		X												
GM-17		X												
GM-18	X	X		X										
GM-18	X	X	X	X				X						
GM-19	X	X		X										
GM-19														
GM-20	X			X										
GM-21	X	X		X										
GM-21	X	X		X										
GM-21	X	X	X	X				X					X	
GM-21														
GM-21														
GM-22	X	X		X										
GM-22	X	X	X	X				X					X	
GM-22	X	X	X	X					X				X	

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
GM-22	GWGM-22	1/15/2001	6	X	X		X			X	X
GM-22	GWGM-22(9/8/05)	9/8/2005	6	X	X		X			X	X
GM-22	GWGM-999 (GM-22) (9/8/05)	9/8/2005	6	X	X		X			X	X
GM-23	GM-23	12/3/1997	3.5	X	X	X				X	X
GM-23	GWGM-23	10/10/1998	3.5	X	X	X	X	X	X	X	
GM-23	GWGM-23	1/16/2001	3.5	X	X		X			X	X
GM-23	GWGM-23 (5/12/04)	5/12/2004	3.5	X	X	X	X	X	X	X	X
GM-23	GWGM-995 (5/12/04)	5/12/2004	3.5	X	X	X	X	X	X	X	X
GM-23	GWGM-23(9/8/05)	9/8/2005	3.5	X	X		X			X	X
GM-24A	GWGM-24A	11/9/1998	71	X	X	X	X	X	X	X	
GM-24A	GWGM-24A	5/4/1999	71	X	X	X	X	X	X	X	
GM-24B	GWGM-24B	11/17/1998	104	X	X	X	X	X	X	X	
GM-24B	GWGM-94	11/17/1998	104	X	X	X	X	X	X	X	
GM-24B	GWGM-24B	5/5/1999	104	X	X	X	X	X	X	X	
GM-24B	GWGM-24B (4/29/04)	4/29/2004	104	X	X	X	X		X	X	X
GM-24B	GWGM-24B (5/4/04)	5/4/2004	104					X			
GM-24C	GWGM-24C	11/20/1998	193	X	X	X	X	X	X	X	
GM-24C	GWGM-93	11/20/1998	193	X	X	X	X	X	X	X	
GM-24C	GWGM-24C	5/13/1999	193	X	X	X	X	X	X	X	
GM-24C	GM-24C	9/24/2003	193	X	X	X	X	X	X	X	X
GM-24C	GWGM-24C (4/29/04)	4/29/2004	193	X	X	X	X	X	X	X	X
GM-25A	GWGM-25A	10/6/1998	19	X	X	X	X	X	X	X	
GM-25A	GWGM-25A	4/16/1999	19	X	X	X	X	X	X	X	
GM-25A	GM-25A	12/1/1999	19		X		X	X	X	X	
GM-25A	GWGM-25A	8/21/2000	19		X						X
GM-25A	GM-25A	9/9/2003	19	X	X	X	X	X	X	X	X
GM-25A	GWGM-25A (5/12/04)	5/12/2004	19	X	X	X	X	X	X	X	X
GM-25B	GWGM-25B	10/6/1998	98	X	X	X	X	X	X	X	
GM-25B	GWGM-25B	4/27/1999	98	X	X	X	X	X	X	X	
GM-25B	GM-25B	10/20/1999	98	X	X	X	X	X	X	X	
GM-25B	GWGM-25B	4/17/2000	98							X	X
GM-25B	GM-25B	9/9/2003	98	X	X	X	X	X	X	X	X

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE Toxicity
GM-22														
GM-22														
GM-22														
GM-23	X	X		X										
GM-23	X	X	X	X				X					X	
GM-23														
GM-23	X	X	X	X										
GM-23	X	X	X	X										
GM-23														
GM-24A	X	X	X	X				X					X	
GM-24A	X	X	X	X									X	
GM-24B	X	X	X	X				X						
GM-24B	X	X	X	X				X						
GM-24B	X	X	X	X									X	
GM-24B	X		X	X										
GM-24B	X	X												
GM-24C	X	X	X	X				X					X	
GM-24C	X	X	X	X				X						
GM-24C	X	X	X	X									X	
GM-24C	X	X	X	X										
GM-24C	X	X	X	X										
GM-25A	X	X	X	X				X						
GM-25A	X	X	X	X					X					
GM-25A							X				X		X	
GM-25A	X										X		X	
GM-25A	X	X	X	X										
GM-25A	X	X	X	X										
GM-25B	X	X	X	X				X					X	
GM-25B	X	X	X	X					X				X	
GM-25B		X	X	X	X		X				X		X	X
GM-25B	X								X					
GM-25B	X	X	X	X										

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
GM-25B	GWGM-25B (5/18/04)	5/18/2004	98	X	X	X	X	X	X	X	X
GM-25B	GM-25B (5/31/06)	5/31/2006	98			X					
GM-25B	GM-25B	7/17/2006	98			X					
GM-25C	GBGM-25/105	6/10/1998	206	X	X	X	X				
GM-25C	GWGM-25C	10/26/1998	206						X		
GM-25C	GWGM-25C	11/9/1998	206	X	X	X	X	X	X	X	
GM-25C	GWGM-95	11/9/1998	206	X	X	X	X	X	X	X	
GM-25C	GWGM-25C	4/20/1999	206	X	X	X	X	X	X	X	
GM-25C	GWGM-25C	8/2/2000	206	X	X	X	X	X	X		X
GM-25C	GM-25C	9/15/2003	206	X	X	X	X	X	X	X	X
GM-25C	GWGM-25C (5/4/04)	5/4/2004	206	X	X	X	X	X	X	X	X
GM-25C	GWGM-25C (08/01/05)	8/1/2005	206	X		X	X	X	X	X	X
GM-26A	GWGM-26A	10/7/1998	30	X	X	X	X	X	X	X	
GM-26A	GWGM-26A	4/14/1999	30	X	X	X	X	X	X	X	
GM-26A	GM-26A	11/29/1999	30		X		X	X	X	X	X
GM-26A	GWGM-26A	8/16/2000	30		X						X
GM-26A	GM-26A	9/9/2003	30	X	X	X	X	X	X	X	X
GM-26A	GWGM-26A (5/13/04)	5/13/2004	30	X	X	X	X	X	X	X	X
GM-26B	GWGM-26B	10/7/1998	101	X	X	X	X	X	X	X	
GM-26B	GWGM-26B	4/15/1999	101	X	X	X	X	X	X	X	
GM-26B	GM-26B	11/30/1999	101		X		X	X	X	X	X
GM-26B	GWGM-26B	7/18/2000	101	X	X	X	X	X	X		X
GM-26B	GM-26B	9/9/2003	101	X	X	X	X	X	X	X	X
GM-26B	GWGM-26B (4/27/04)	4/27/2004	101	X	X	X	X	X	X	X	X
GM-26B	GWGM-26B (072805)	7/28/2005	101	X	X	X	X	X	X	X	X
GM-26C	GBGM-26/30	6/15/1998	160	X	X	X	X				
GM-26C	GBGM-26/140	6/16/1998	160	X	X	X	X				
GM-26C	GWGM-26C	10/25/1998	160	X	X	X	X	X	X	X	
GM-26C	GWGM-26C	4/17/1999	160	X	X	X	X	X	X	X	
GM-26C	GM-26C	11/30/1999	160		X		X	X	X	X	X
GM-26C	GWGM-26C	8/16/2000	160		X						X
GM-26C	GM-26C	9/16/2003	160	X	X	X	X	X	X	X	X

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE Toxicity
GM-25B	X	X	X	X										
GM-25B				X										
GM-25B				X										
GM-25C		X												
GM-25C														
GM-25C	X	X	X	X				X						
GM-25C	X	X	X	X				X					X	
GM-25C	X	X	X	X					X				X	
GM-25C	X	X	X	X			X						X	
GM-25C	X	X	X	X										
GM-25C	X	X	X	X										
GM-25C	X	X	X	X										
GM-26A	X	X		X				X					X	
GM-26A	X	X	X	X					X				X	
GM-26A							X				X		X	
GM-26A	X										X			
GM-26A	X		X	X										
GM-26A	X	X	X	X										
GM-26B	X	X	X	X				X					X	
GM-26B	X	X	X	X					X				X	
GM-26B							X				X		X	
GM-26B	X	X	X	X			X						X	
GM-26B	X	X	X	X										
GM-26B	X	X	X	X										
GM-26B	X	X	X	X										
GM-26C		X												
GM-26C		X												
GM-26C	X	X	X	X				X					X	
GM-26C	X	X	X	X					X				X	
GM-26C							X						X	
GM-26C	X										X			
GM-26C	X	X	X	X										

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
GM-26C	GWGM-26C (5/18/04)	5/18/2004	160	X	X	X	X	X	X	X	X
GM-26C	GWGM-994 (5/18/04)	5/18/2004	160	X	X	X	X	X	X	X	X
GM-27C	GBGM-27/105	6/24/1998	210	X	X	X	X				
GM-27A	GWGM-27A	10/8/1998	30	X	X	X	X	X	X	X	
GM-27A	GWGM-27A	4/15/1999	30	X	X	X	X	X	X	X	
GM-27A	GM-27A	12/1/1999	30		X		X	X	X	X	
GM-27A	GM-27A	9/10/2003	30	X	X	X	X	X	X	X	X
GM-27A	GWGM-27A (5/13/04)	5/13/2004	30	X	X	X	X	X	X	X	X
GM-27A	GM-27A (4/24/06)	4/24/2006	30			X					
GM-27A	GM-27A (5/26/06)	5/26/2006	30			X					
GM-27A	GM-27A	7/14/2006	30			X					
GM-27B	GWGM-27B	10/26/1998	145	X	X	X	X	X	X	X	
GM-27B	GWGM-27B	4/14/1999	145	X	X	X	X	X	X	X	
GM-27B	GWGM-27B	7/18/2000	145	X	X	X	X	X	X		X
GM-27B	GM-27B	9/10/2003	145	X	X	X	X	X	X	X	X
GM-27B	GWGM-27B (4/30/04)	4/30/2004	145	X	X	X	X	X	X	X	X
GM-27B	GWGM-998 (4/30/04)	4/30/2004	145	X	X	X	X	X	X	X	X
GM-27B	GWGM-27B (08/05/05)	8/5/2005	145	X	X	X	X	X	X	X	X
GM-27B	GWGM27B (12/7/06)	12/7/2006	145	X	X	X	X	X	X	X	X
GM-27B	GWGM-27B (2/22/07)	2/22/2007	145	X	X	X	X	X	X	X	X
GM-27B	GWGM-27B(5/11/07)	5/11/2007	145	X	X	X	X	X	X	X	X
GM-27B	GWGM-27B (8/8/07)	8/8/2007	145	X	X	X	X	X	X	X	X
GM-27B	GWGM-27B (11/8/07)	11/8/2007	145	X	X	X	X	X	X	X	X
GM-27C	GWGM-27C	11/9/1998	210	X	X	X	X	X	X	X	
GM-27C	GWGM-27C	12/2/1998	210	X			X				
GM-27C	GWGM-27C	4/26/1999	210	X	X	X	X	X	X	X	
GM-27C	GWGM-86	4/26/1999	210	X	X	X	X	X	X	X	
GM-27C	GMGW-27C	8/7/2000	210	X	X	X	X	X	X		X
GM-27C	GM-27C	9/11/2003	210	X	X	X	X	X	X	X	X
GM-27C	GWGM-27C (4/30/04)	4/30/2004	210	X	X	X	X	X	X	X	X
GM-27C	GWGM-27C (08/05/05)	8/5/2005	210	X	X	X	X	X	X	X	X
GM-28A	GWGM-28A	10/28/1998	40	X	X	X	X	X	X	X	

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE Toxicity
GM-26C	X	X	X	X										
GM-26C	X	X	X	X										
GM-27C														
GM-27A	X	X	X	X				X					X	
GM-27A	X	X	X	X					X				X	
GM-27A							X				X		X	
GM-27A	X	X	X	X										
GM-27A	X	X	X	X										
GM-27A				X										
GM-27A				X										
GM-27A				X										
GM-27B	X	X	X	X				X					X	
GM-27B	X	X	X	X					X				X	
GM-27B	X	X	X	X			X						X	
GM-27B	X	X	X	X										
GM-27B	X	X	X	X										
GM-27B	X	X	X	X										
GM-27B	X	X	X	X										
GM-27B	X	X	X	X										
GM-27B	X	X	X	X										
GM-27B	X	X	X	X										
GM-27B	X	X	X	X										
GM-27B	X	X	X	X										
GM-27C	X	X	X	X				X					X	
GM-27C														
GM-27C	X	X	X	X					X				X	
GM-27C	X	X	X	X										
GM-27C	X	X	X	X			X						X	
GM-27C	X	X	X	X										
GM-27C	X	X	X	X										
GM-27C	X	X	X	X										
GM-28A	X	X	X	X				X					X	

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
GM-28A	GWGM-28A	4/19/1999	40	X	X	X	X	X	X	X	
GM-28A	GWGM-28A	2/29/2000	40		X						X
GM-28A	GWGM-28A	7/19/2000	40	X	X	X	X	X	X		X
GM-28A	GWGM-28A (4/28/04)	4/28/2004	40	X	X	X	X	X	X	X	X
GM-28A	GWGM28A (072605)	7/26/2005	40	X	X	X	X	X	X	X	X
GM-28A	GWGM-999 (7/26/05)	7/26/2005	40	X	X	X	X	X	X	X	X
GM-28A	GWGM-28A(12/5/06)	12/5/2006	40	X	X	X	X	X	X	X	X
GM-28A	GWGM-28A (2/21/07)	2/21/2007	40	X	X	X	X	X	X	X	X
GM-28A	GWGM-28A (5/10/07)	5/10/2007	40	X	X	X	X	X	X	X	X
GM-28A	GWGM-28A (8/7/07)	8/7/2007	40	X	X	X	X	X	X	X	X
GM-28A	GWGM-28A (11/5/07)	11/5/2007	40	X	X	X	X	X	X	X	X
GM-28B	GWGM-96	10/24/1998	124.5								
GM-28B	GWGM-96	10/26/1998	124.5						X		
GM-28B	GWGM-28B	11/8/1998	124.5	X	X	X	X	X	X	X	
GM-28B	GWGM-96	11/8/1998	124.5	X	X	X	X	X	X	X	
GM-28B	GWGM-28B	4/19/1999	124.5	X	X	X	X	X	X	X	
GM-28B	GWGM-87	4/19/1999	124.5	X	X	X	X	X	X	X	
GM-28B	GWGM-28B	3/1/2000	124.5		X						X
GM-28B	GWGM-28B (4/28/04)	4/28/2004	124.5	X	X	X	X	X	X	X	X
GM-28B	GWGM-999 (4/28/04)	4/28/2004	124.5	X	X	X	X	X	X	X	X
GM-28B	GWGM28B (072605)	7/26/2005	124.5	X	X	X	X	X	X	X	X
GM-28B	GWGM-28B(12/5/06)	12/5/2006	124.5	X	X	X	X	X	X	X	X
GM-28B	GWGM-28B (2/21/07)	2/21/2007	124.5	X	X	X	X	X	X	X	X
GM-28B	GWGM-28B (5/10/07)	5/10/2007	124.5	X	X	X	X	X	X	X	X
GM-28B	GWGM-28B (8/7/07)	8/7/2007	124.5	X	X	X	X	X	X	X	X
GM-28B	GWGM-28B (11/5/07)	11/5/2007	124.5	X	X	X	X	X	X	X	X
GM-29	GWGM-29	10/9/1998	55	X	X	X	X	X	X	X	
GM-29	GWGM-99	10/9/1998	55	X	X	X	X	X	X	X	
GM-29	GWGM-29	4/16/1999	55	X	X	X	X	X	X	X	
GM-29	GMGM-29	2/29/2000	55		X						X
GM-29	GM-29	9/10/2003	55	X	X	X	X	X	X	X	X
GM-29	GWGM-29 (5/3/04)	5/3/2004	55	X	X	X	X	X	X	X	X

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE Toxicity
GM-28A	X	X	X	X					X				X	
GM-28A	X										X		X	
GM-28A	X	X	X	X			X							
GM-28A	X	X	X	X										
GM-28A	X	X	X	X										
GM-28A	X	X	X	X										
GM-28A	X	X	X	X										
GM-28A	X	X	X	X										
GM-28A	X	X	X	X										
GM-28A	X	X	X	X										
GM-28A	X	X	X	X										
GM-28B		X												
GM-28B														
GM-28B	X	X	X	X				X					X	
GM-28B	X	X	X	X				X						
GM-28B	X	X	X	X					X				X	
GM-28B	X	X	X	X										
GM-28B	X										X			
GM-28B	X	X	X	X										
GM-28B	X	X	X	X										
GM-28B	X	X	X	X										
GM-28B	X	X	X	X										
GM-28B	X	X	X	X										
GM-28B	X	X	X	X										
GM-28B	X	X	X	X										
GM-28B	X	X	X	X										
GM-29	X	X	X	X				X					X	
GM-29	X	X	X	X				X						
GM-29	X	X	X	X					X				X	
GM-29	X										X			
GM-29	X	X	X	X										
GM-29	X	X	X	X										

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
GM-29	GWGM-29 (07/28/05)	7/28/2005	55	X	X	X	X	X	X	X	X
GM-29	GWGM-29 (12/8/06)	12/8/2006	55	X	X	X	X	X	X	X	X
GM-29	GWGM-29 (2/20/07)	2/20/2007	55	X	X	X	X	X	X	X	X
GM-29	GWGM-29 (5/9/07)	5/9/2007	55	X	X	X	X	X	X	X	X
GM-29	GWGM-29 (8/7/07)	8/7/2007	55	X	X	X	X	X	X	X	X
GM-29	DUP-999(11/6/07)	11/6/2007	55	X	X	X	X	X	X	X	X
GM-29	GWGM-29(11/6/07)	11/6/2007	55	X	X	X	X	X	X	X	X
GM-30	GWGM-30	10/27/1998	75	X	X	X	X	X	X	X	
GM-30	GWGM-30	5/12/1999	75	X	X	X	X	X	X	X	
GM-30	GWGM-83	5/12/1999	75	X	X	X	X	X	X	X	
GM-31	GWGM-31	10/24/1998	105	X	X	X	X	X	X	X	
GM-31	GWGM-31	5/3/1999	105	X	X	X	X	X	X	X	
GM-31	GWGM-31	10/9/2000	105		X						X
GM-32	GWGM-32	10/25/1998	135	X	X	X	X	X	X	X	
GM-32	GWGM-32	4/27/1999	135	X	X	X	X	X	X	X	
GM-32	GM-32	9/25/2003	135	X	X	X	X	X	X	X	X
GM-32	GWGM-32(5/26/04)	5/26/2004	135	X	X	X	X	X	X	X	X
GM-32	GBGM-32/125	7/8/1998	135	X	X	X	X				
GM-33	GWGM-33	12/3/1998	74	X	X		X				
GM-33	GWGM-33	5/10/1999	74	X	X	X	X	X	X	X	
GM-33	GBGM-33/105	7/10/1998	74	X	X	X	X				
GM-34A	GWGM-34A	10/8/1998	30	X	X	X	X	X	X	X	
GM-34A	GWGM-34A	4/17/1999	30	X	X	X	X	X	X	X	
GM-34A	GWGM-34A (4/29/04)	4/29/2004	30	X	X	X	X	X	X	X	X
GM-34B	GBGM-34/95	7/13/1998	85	X	X	X	X				
GM-34B	GWGM-34B	10/12/1998	85	X	X	X	X	X	X	X	
GM-34B	GWGM-34B	4/14/1999	85	X	X	X	X	X	X	X	
GM-34B	GM-34B	9/24/2003	85	X	X	X	X	X	X	X	X
GM-34B	GWGM-34B (4/28/04)	4/28/2004	85	X	X	X	X	X	X	X	X
GM-35	GWGM-35	11/4/1998	40	X	X	X	X	X	X	X	
GM-35	GWGM-35	5/4/1999	40	X	X	X	X	X	X	X	
GM-35	GWGM-84	5/4/1999	40	X	X	X	X	X	X	X	

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE Toxicity
GM-29	X	X	X	X										
GM-29	X	X	X	X										
GM-29	X	X	X	X										
GM-29	X	X	X	X										
GM-29	X	X	X	X										
GM-29	X	X	X											
GM-29	X	X	X	X										
GM-30	X	X	X	X				X					X	
GM-30	X	X	X	X									X	
GM-30	X	X	X	X										
GM-31	X	X	X	X				X					X	
GM-31	X	X	X	X					X				X	
GM-31	X										X			
GM-32	X	X	X	X				X					X	
GM-32	X	X	X	X									X	
GM-32	X	X	X	X										
GM-32	X	X	X	X										
GM-32		X												
GM-33														
GM-33	X		X	X									X	
GM-33		X												
GM-34A	X	X	X	X				X					X	
GM-34A	X	X	X	X									X	
GM-34A	X	X	X	X										
GM-34B		X												
GM-34B	X	X	X	X				X					X	
GM-34B	X	X	X	X									X	
GM-34B	X	X	X	X										
GM-34B	X	X	X	X										
GM-35	X	X	X	X				X					X	
GM-35	X	X	X	X									X	
GM-35	X		X	X										

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
GM-36	GWGM-36	11/3/1998	95	X	X	X	X	X	X	X	
GM-36	GWGM-36	5/5/1999	95	X	X	X	X	X	X	X	
GM-36	GWGM-36 (5/4/04)	5/4/2004	95	X	X	X	X	X	X	X	X
GM-37A	GWGM-37A	11/18/1998	144	X	X	X	X	X	X	X	
GM-37A	GWGM-37A	5/11/1999	144	X	X	X	X	X	X	X	
GM-37A	GM-37A	9/25/2003	144	X	X	X	X	X	X	X	X
GM-37A	GWGM-37A (5/17/04)	5/17/2004	144	X	X	X	X	X	X	X	X
GM-37B	GWGM-37B	10/13/1998	328	X	X	X	X	X	X	X	
GM-37B	GWGM-37B	5/14/1999	328	X	X	X	X	X	X	X	
GM-37B	GM-37B	9/25/2003	328	X	X	X	X	X	X	X	X
GM-37B	GWGM-37B (5/27/04)	5/27/2004	328	X	X	X	X	X	X	X	X
GM-38B	GBGM-38/105	7/23/1998	160	X	X	X	X				
GM-38B	GBGM-38/165	7/23/1998	160	X	X	X	X				
GM-38A	GWGM-38A	10/13/1998	95	X	X	X	X	X	X	X	
GM-38A	GWGM-98	10/13/1998	95	X	X	X	X	X	X	X	
GM-38A	GWGM-38A	4/15/1999	95	X	X	X	X	X	X	X	
GM-38B	GWGM-38B	10/14/1998	160	X	X	X	X	X	X	X	
GM-38B	GWGM-38B	4/29/1999	160	X	X	X	X	X	X	X	
GM-38C	GWGM-38C	10/20/1998	200	X	X	X	X	X	X	X	
GM-38C	GWGM-97	10/20/1998	200	X	X	X	X	X	X	X	
GM-38C	GWGM-38C	4/30/1999	200	X	X	X	X	X	X	X	
GM-39	GWGM-39	10/12/1998	85	X	X	X	X	X	X	X	
GM-39	GWGM-39	4/15/1999	85	X	X	X	X	X	X	X	
GM-39	GWGM-89	4/15/1999	85	X	X	X	X	X	X	X	
GM-39	GBGM-39/95	7/27/1998	85	X	X	X	X				
GM-40A	GWGM-40A	10/26/1998	75	X	X	X	X	X	X	X	
GM-40A	GWGM-40A	4/28/1999	75	X	X	X	X	X	X	X	
GM-40A	GWGM-40A (5/3/04)	5/3/2004	75	X	X	X	X	X	X	X	X
GM-40B	GWGM-40B	10/26/1998	120	X	X	X	X	X	X	X	
GM-40B	GWGM-40B	4/27/1999	120	X	X	X	X	X	X	X	
GM-40B	GWGM-40B (5/19/04)	5/19/2004	120	X	X	X	X	X	X	X	X
GM-41	GWGM-41	10/19/1998	40	X	X	X	X	X	X	X	

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE Toxicity
GM-36	X	X	X	X				X					X	
GM-36	X	X	X	X									X	
GM-36	X	X	X	X										
GM-37A	X	X	X	X				X					X	
GM-37A	X		X	X									X	
GM-37A	X	X	X	X										
GM-37A	X	X	X	X										
GM-37B	X		X	X				X		X			X	
GM-37B	X	X	X	X									X	
GM-37B	X	X	X	X										
GM-37B	X	X	X	X										
GM-38B		X												
GM-38B		X												
GM-38A	X	X	X	X				X					X	
GM-38A	X	X	X	X				X						
GM-38A	X	X	X	X									X	
GM-38B	X	X	X	X				X					X	
GM-38B	X	X	X	X									X	
GM-38C	X	X	X	X				X					X	
GM-38C	X	X	X	X				X						
GM-38C	X	X	X	X									X	
GM-39	X	X	X	X				X					X	
GM-39	X	X	X	X									X	
GM-39	X	X	X	X										
GM-39		X												
GM-40A	X	X	X	X				X					X	
GM-40A	X	X	X	X									X	
GM-40A	X	X	X	X										
GM-40B	X	X	X	X				X					X	
GM-40B	X	X	X	X									X	
GM-40B	X	X	X	X										
GM-41	X	X	X	X				X					X	

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
GM-41	GWGM-41	4/16/1999	40	X	X	X	X	X	X	X	
GM-42	GWGM-42	10/20/1998	72	X	X	X	X	X	X	X	
GM-42	GWGM-42	4/16/1999	72	X	X	X	X	X	X	X	
GM-46	GM-46	8/20/1998	65								
GM-47	GM-47	8/20/1998	69								
GM-48	GM-48	8/20/1998	65								
GM-49	GWGM-49	4/17/1999	83.5	X	X	X	X	X	X	X	
GM-50	GWGM-50	10/14/1998	80.5	X	X	X	X	X	X	X	
GM-50	GWGM-50	4/17/1999	80.5	X	X	X	X	X	X	X	
GM-51	GWGM-51	10/20/1998	67	X	X	X	X	X	X	X	
GM-51	GWGM-51	4/18/1999	67	X	X	X	X	X	X	X	
GM-52	GWGM-52	4/19/1999	75	X	X	X	X	X	X	X	
GM-53A	GWGM-53A	4/19/1999	79	X	X	X	X	X	X	X	
GM-53B	GBGM-53/225	9/9/1998	195	X	X	X	X				
GM-53B	GWGM-53B	11/5/1998	195	X	X	X	X	X	X	X	
GM-53B	GWGM-53B	5/1/1999	195	X	X	X	X	X	X	X	
GM-54	GWGM-54	10/24/1998	80	X	X	X	X	X	X	X	
GM-54	GWGM-54	5/1/1999	80	X	X	X	X	X	X	X	
GM-55	GWGM-55	10/24/1998	75	X	X	X	X	X	X	X	
GM-55	GWGM-55	5/1/1999	75	X	X	X	X	X	X	X	
GM-55	GWGM-85	5/1/1999	75	X	X	X	X	X	X	X	
GM-56	GWGM-56	10/21/1998	32	X	X	X	X	X		X	
GM-56	GWGM-56	10/24/1998	32						X		
GM-56	GWGM-56	4/20/1999	32	X	X	X	X	X	X	X	
GM-57	GWGM-57	4/20/1999	76	X	X	X	X	X	X	X	
GM-58	GWGM-58	4/26/1999	75	X	X	X	X	X	X	X	
GM-58	GWGM-58 (5/22/04)	5/22/2004	75								
GM-59	GWGM-59	11/17/1998	114	X	X	X	X	X	X	X	
GM-59	GWGM-59	4/28/1999	114	X	X	X	X	X	X	X	
GM-59	GWGM-59 (5/1/04)	5/1/2004	114			X					
GM-59	GWGM-59 (5/15/04)	5/15/2004	114								
GM-59	GWGM-997 (5/22/04)	5/22/2004	114								

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE	Toxicity
GM-41	X	X	X	X									X		
GM-42	X	X	X	X				X					X		
GM-42	X	X	X	X									X		
GM-46										X					
GM-47										X					
GM-48										X					
GM-49	X	X	X	X									X		
GM-50	X	X	X	X				X					X		
GM-50	X	X	X	X									X		
GM-51	X	X	X	X				X					X		
GM-51	X	X	X	X									X		
GM-52	X	X	X	X									X		
GM-53A	X	X	X	X									X		
GM-53B													X		
GM-53B	X	X	X	X				X					X		
GM-53B	X	X	X	X									X		
GM-54	X	X	X	X				X					X		
GM-54	X	X	X	X									X		
GM-55	X	X	X	X				X					X		
GM-55	X	X	X	X									X		
GM-55	X	X	X	X											
GM-56	X	X	X	X				X					X		
GM-56													X		
GM-56	X	X	X	X					X						
GM-57	X	X	X	X									X		
GM-58	X	X	X	X									X		
GM-58		X													
GM-59	X	X	X	X				X					X		
GM-59	X	X	X	X									X		
GM-59															
GM-59		X													
GM-59		X													

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
GM-59	GWGM-59 (7/29/05)	7/29/2005	114								
GM-59	GWGM-59	1/11/2007	114								
GM-59	GWGM-999	1/11/2007	114								
GM-60	GWGM-60	5/12/1999	102	X	X	X	X	X	X	X	
GM-61	GWGM-61	5/3/1999	138	X	X	X	X	X	X	X	
GM-61	GWGM-61 (5/1/04)	5/1/2004	138			X					
GM-61	GWGM-61 (5/16/04)	5/16/2004	138								
GM-61	GWGM-61 (7/30/05)	7/30/2005	138								
GM-61	GWGM-61	1/9/2007	138								
GM-62A	GWGM-62A	8/23/1999	90	X	X	X	X	X	X	X	
GM-62A	GWGM-62A (5/11/04)	5/11/2004	90	X	X	X	X	X	X	X	X
GM-62A	GWGM-62A MS	8/23/1999	90								
GM-62A	GWGM-62A MSD	8/23/1999	90								
GM-62B	GWGM-62B	8/24/1999	195	X	X	X	X	X	X	X	
GM-62B	GWGM-82	8/24/1999	195	X	X	X	X	X	X	X	
GM-62B	GWGM-62B (5/19/04)	5/19/2004	195	X	X	X	X	X	X	X	X
GM-62C	GWGM-62C	8/24/1999	315	X	X	X	X	X	X	X	
GM-62C	GWGM-62C (5/18/04)	5/18/2004	315	X	X	X	X	X	X	X	X
GM-63A	GWGM-63A	8/29/2000	45	X	X	X	X	X			X
GM-63A	GWGM-63A	9/19/2000	45	X	X	X	X	X	X		X
GM-63A	GWGM-63A	10/18/2000	45								
GM-63A	GM-63A	9/15/2003	45	X	X	X	X	X	X	X	X
GM-63A	GWGM-63A (5/5/04)	5/5/2004	45	X	X	X	X	X	X	X	X
GM-63B	GWGM-63B	2/7/2001	105	X	X	X	X	X	X	X	X
GM-63B	GM-63B	9/11/2003	105	X	X	X	X	X	X	X	X
GM-63B	GWGM-63B (4/27/04)	4/27/2004	105	X	X	X	X	X	X	X	X
GM-64A	GWGM-64A	8/30/2000	33	X	X	X	X	X			X
GM-64A	GWGM-64A	10/3/2000	33	X	X	X	X	X	X		X
GM-64A	GWGM-64A	10/19/2000	33								
GM-64A	GM-64A	9/8/2003	33	X	X	X	X	X	X	X	X
GM-64A	GWGM-64A (5/4/04)	5/4/2004	33	X	X	X	X	X	X	X	X
GM-64B	GWGM-64B	7/24/2000	117	X	X	X	X	X	X		X

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE Toxicity
GM-59		X												
GM-59		X												
GM-59		X												
GM-60	X		X	X									X	
GM-61	X	X	X	X									X	
GM-61														
GM-61		X												
GM-61		X												
GM-61		X												
GM-62A	X	X	X	X									X	
GM-62A	X	X	X	X										
GM-62A		X												
GM-62A		X												
GM-62B	X	X	X	X									X	
GM-62B	X	X	X	X										
GM-62B	X	X	X	X										
GM-62C	X	X	X	X									X	
GM-62C	X	X	X	X										
GM-63A	X		X	X			X						X	
GM-63A	X		X	X			X						X	
GM-63A		X												
GM-63A	X	X	X	X										
GM-63A	X	X	X	X										
GM-63B	X	X	X	X										
GM-63B	X	X	X	X										
GM-63B	X	X	X	X										
GM-64A	X	X	X	X			X							
GM-64A	X		X	X							X		X	
GM-64A		X												
GM-64A	X	X	X	X										
GM-64A	X	X	X	X										
GM-64B	X		X	X			X				X		X	

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
GM-64B	GWGM-64B	10/4/2000	117		X						X
GM-64B	GM-64B	9/8/2003	117	X	X	X	X	X	X	X	X
GM-64B	GWGM-64B (5/11/04)	5/11/2004	117	X	X	X	X	X	X	X	X
GM-66A	GWGM-66A	7/18/2000	27	X	X	X	X	X	X		X
GM-66A	GM-66A	9/16/2003	27	X	X	X	X	X	X	X	X
GM-66A	GWGM-66A (4/27/04)	4/27/2004	27	X	X	X	X	X	X	X	X
GM-66A	GWGM66A (072705)	7/27/2005	27	X	X	X	X	X	X	X	X
GM-66B	GWGM-66B	7/19/2000	125	X	X	X	X	X	X		X
GM-66B	GMGW-66B	8/3/2000	125	X	X	X	X	X	X		X
GM-66B	GM-66B	9/11/2003	125	X	X	X	X		X	X	X
GM-66B	GM-66B (09/11/03)	9/11/2003	125					X			
GM-66B	GWGM-66B (5/10/04)	5/10/2004	125	X	X	X	X	X	X	X	X
GM-66B	GWGM66B (072705)	7/27/2005	125	X	X	X	X	X	X	X	X
GM-66B	GWGM-66B (12/8/06)	12/8/2006	125	X	X	X	X	X	X	X	X
GM-66B	GWGM-66B (3/1/07)	3/1/2007	125	X	X	X	X	X	X	X	X
GM-66B	GWGM-66B(5/14/07)	5/14/2007	125	X	X	X	X	X	X	X	X
GM-66B	GWGM-999 (5/14/07)	5/14/2007	125	X	X	X	X	X	X	X	X
GM-66B	GWGM-66B (8/14/07)	8/14/2007	125	X	X	X	X	X	X	X	X
GM-66B	GWGM-66B (11/9/07)	11/9/2007	125	X	X	X	X	X	X	X	X
GM-67	GWGM-67	8/7/2000	122	X	X	X	X	X	X	X	
GM-67	GWGM-67 (5/1/04)	5/1/2004	122			X					
GM-67	GWGM-67 (5/17/04)	5/17/2004	122								
GM-67	GWGM-67	1/12/2007	122								
GM-67	GBGWGM-67/122-127	6/14/2000	122	X	X	X	X	X	X		X
GM-68	GWGM-68	8/31/2000	140	X	X	X	X	X			X
GM-68	GWGM-68	9/26/2000	140	X	X	X	X	X	X		X
GM-68	GWGM-68	10/17/2000	140								
GM-68	GWGM-68 (5/24/04)	5/24/2004	140								
GM-68	GWGM-68 (7/31/05)	7/31/2005	140								
GM-68	GWGM-68	1/12/2007	140								
GM-70	GWGM-70	8/17/2000	42	X	X	X	X	X	X		X
GM-71	GWGM-71	8/21/2000	39	X	X	X	X	X	X		X

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE Toxicity
GM-64B	X										X			
GM-64B	X	X	X	X										
GM-64B	X	X	X	X										
GM-66A	X	X	X	X			X				X		X	
GM-66A	X	X	X	X										
GM-66A	X	X	X	X										
GM-66A	X	X	X	X										
GM-66B	X	X	X	X			X						X	
GM-66B	X	X	X	X			X						X	
GM-66B	X	X	X	X										
GM-66B	X													
GM-66B	X	X	X	X										
GM-66B	X	X	X	X										
GM-66B	X	X	X	X										
GM-66B	X	X	X	X										
GM-66B	X	X	X	X										
GM-66B	X	X	X											
GM-66B	X	X	X	X										
GM-66B	X	X	X	X										
GM-67	X	X	X	X			X						X	
GM-67														
GM-67		X												
GM-67		X												
GM-67	X	X	X	X			X							
GM-68	X		X	X			X						X	
GM-68	X		X	X			X						X	
GM-68		X												
GM-68		X												
GM-68		X												
GM-68		X												
GM-70	X	X	X	X			X				X		X	
GM-71	X	X	X	X			X						X	

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
GM-72	GWGM-72	8/22/2000	43	X	X	X	X	X	X		X
GM-72	GM-72	9/24/2003	43	X	X	X	X	X	X	X	X
GM-72	GWGM-72	1/5/2004	43	X	X	X	X	X	X	X	X
GM-72	GM-72	4/16/2004	43	X	X	X	X	X	X	X	X
GM-72A	GWGM-72A (11/8/07)	11/8/2007	46	X	X	X	X	X	X	X	X
GM-72A	GWGM-72A (07/25/05)	7/25/2005	46	X	X	X	X	X	X	X	X
GM-72A	GWGM-72A (12/12/06)	12/12/2006	46	X	X	X	X	X	X	X	X
GM-73	GMGW-73	9/6/2000	42					X	X		
GM-73	GWGM-73	9/6/2000	42	X	X	X	X				X
GM-74	GWGM-74	9/7/2000	34	X	X	X	X	X	X		X
GM-75	GMGW-75	9/8/2000	24								
GM-75	GWGM-75	9/8/2000	24	X	X	X	X	X	X		X
GM-76	DUP.012901	1/29/2001	3	X	X		X			X	X
GM-76	GWGM-76	1/29/2001	3	X	X		X			X	X
GM-76	GWGM-76 (9/9/05)	9/9/2005	3	X	X		X			X	X
GM-77	GM-77	9/22/2003	105	X	X	X	X	X	X	X	X
GM-77	GWGM-77 (5/11/04)	5/11/2004	105	X	X	X	X	X	X	X	X
GM-77	GWGM-77 (072805)	7/28/2005	105	X	X	X	X	X	X	X	X
GM-78	GM-78 (9/18/03)	9/18/2003	20	X	X	X	X	X	X	X	X
GM-78	GWGM-78 (4/29/04)	4/29/2004	20	X	X	X	X	X	X	X	X
GM-78	GWGM-78 (7/29/05)	7/29/2005	20	X	X	X	X	X	X	X	X
GM-78	GWGM-998 (7/29/05)	7/29/2005	20	X	X	X	X	X	X	X	X
GM-78	GWGM-78 (12/8/06)	12/8/2006	20	X	X	X	X	X	X	X	X
GM-78	GWGM-78 (2/28/07)	2/28/2007	20	X	X	X	X	X	X	X	X
GM-78	GWGM-998 (2/28/07)	2/28/2007	20	X	X	X	X	X	X	X	X
GM-78	GWGM-78(5/11/07)	5/11/2007	20	X	X	X	X	X	X	X	X
GM-78	GWGM78 (8/14/07)	8/14/2007	20	X	X	X	X	X	X	X	X
GM-78	GWGM-78 (11/8/07)	11/8/2007	20	X	X	X	X	X	X	X	X
GM-79	GM-79 (9/18/03)	9/18/2003	25	X	X	X	X	X	X	X	X
GM-79	GWGM-79 (4/26/04)	4/26/2004	25	X	X	X	X	X	X	X	X
GM-79	GWGM-79 (7/29/05)	7/29/2005	25	X	X	X	X	X	X	X	X
GM-79	GWGM-79(12/4/06)	12/4/2006	25	X	X	X	X	X	X	X	X

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE Toxicity
GM-72	X	X	X	X			X						X	
GM-72	X	X	X	X										
GM-72	X	X	X	X										
GM-72	X	X	X	X										
GM-72A	X	X	X	X										
GM-72A	X	X	X	X										
GM-72A	X	X	X											
GM-73	X												X	
GM-73	X	X	X	X			X							
GM-74	X	X	X	X			X						X	
GM-75		X											X	
GM-75	X		X	X			X							
GM-76														
GM-76														
GM-76														
GM-77	X	X	X	X										
GM-77	X	X	X	X										
GM-77	X	X	X	X										
GM-78	X	X	X	X										
GM-78	X	X	X	X										
GM-78	X	X	X	X										
GM-78	X	X	X	X										
GM-78	X	X	X	X										
GM-78	X	X	X	X										
GM-78	X	X	X											
GM-78	X	X	X	X										
GM-78	X	X	X	X										
GM-78	X	X	X	X										
GM-79	X	X	X	X										
GM-79	X	X	X	X										
GM-79	X	X	X	X										
GM-79	X	X	X	X										

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
GM-79	GWGM-79 (2/22/07)	2/22/2007	25	X	X	X	X	X	X	X	X
GM-79	GWGM-999 (2/22/07)	2/22/2007	25	X	X	X	X	X	X	X	X
GM-79	GWGM-79 (5/9/07)	5/9/2007	25	X	X	X	X	X	X	X	X
GM-79	GWGM-79 (8/7/07)	8/7/2007	25	X	X	X	X	X	X	X	X
GM-79	GWGM-79(11/6/07)	11/6/2007	25	X	X	X	X	X	X	X	X
GM-80	GWGM-80 (5/3/04)	5/3/2004	113								
GM-82A	GBGWGM-82/95 (6/3/04)	6/2/2004	82	X	X	X	X	X	X	X	X
GM-82A	GBGWGM-82/114 (6/5/04)	6/5/2004	82	X	X	X	X	X	X	X	X
GM-84	GWGM-84 (8/19/04)	8/19/2004	77	X	X	X	X	X	X	X	X
GM-84	GWGM-84 (8/26/04)	8/26/2004	77								
GM-84	GWGM-84 (08/01/05)	8/1/2005	77	X	X	X	X	X	X	X	X
GM-84	GWGM-84 (12/12/06)	12/12/2006	77	X	X	X	X	X	X	X	X
GM-84	GWGM-84 (3/2/07)	3/2/2007	77	X	X	X	X	X	X	X	X
GM-84	GWGM-84 (5/14/07)	5/14/2007	77	X	X	X	X	X	X	X	X
GM-84	GWGM-84 (8/14/07)	8/14/2007	77	X	X	X	X	X	X	X	X
GM-84	GWGM-84(11/9/07)	11/9/2007	77	X	X	X	X	X	X	X	X
GM-85	GWGM-85 (9/1/04)	9/1/2004	75								
GM-85	GWGM-85 (7/31/05)	7/31/2005	75								
GM-85	GWGM-85	1/12/2007	75								
GM-87A	GWGM-87A (12/5/06)	12/5/2006	32	X	X	X	X	X	X	X	X
GM-87A	GWGM-999(12/5/06)	12/5/2006	32	X	X	X	X	X	X	X	X
GM-87A	GWGM-87A (02/19/07)	2/19/2007	32	X	X	X	X	X	X	X	X
GM-87A	GWGM-87A (5/8/07)	5/8/2007	32	X	X	X	X	X	X	X	X
GM-87A	GWGM-87A (8/6/07)	8/6/2007	32	X	X	X	X	X	X	X	X
GM-87A	GWGM-87A (11/7/07)	11/7/2007	32	X	X	X	X	X	X	X	X
GM-87B	GWGM-87A(12/5/06)	12/5/2006	117	X	X	X	X	X	X	X	X
GM-87B	GWGM-87B (2/20/07)	2/20/2007	117	X	X	X	X	X	X	X	X
GM-87B	GWGM-87B (5/8/07)	5/8/2007	117	X	X	X	X	X	X	X	X
GM-87B	GWGM-87B (8/6/07)	8/6/2007	117	X	X	X	X	X	X	X	X
GM-87B	GWGM-87B (11/7/07)	11/7/2007	117	X	X	X	X	X	X	X	X
GM-118D	GWGM-118D	10/21/1998	54	X	X	X	X	X	X	X	
GM-118D	GWGM-118D	4/29/1999	54	X	X	X	X	X	X	X	

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE Toxicity
GM-79	X	X	X	X										
GM-79	X	X	X											
GM-79	X	X	X	X										
GM-79	X	X	X	X										
GM-79	X	X	X	X										
GM-80		X												
GM-82A	X	X	X	X										
GM-82A	X	X	X	X										
GM-84	X		X	X										
GM-84		X												
GM-84	X	X	X	X										
GM-84	X	X	X	X										
GM-84	X	X	X	X										
GM-84	X	X	X	X										
GM-84	X	X	X	X										
GM-84	X	X	X	X										
GM-85		X												
GM-85		X												
GM-85		X												
GM-87A	X	X	X	X										
GM-87A	X	X	X											
GM-87A	X	X	X	X										
GM-87A	X	X	X	X										
GM-87A	X	X	X	X										
GM-87A	X	X	X	X										
GM-87B	X	X	X	X										
GM-87B	X	X	X	X										
GM-87B	X	X	X	X										
GM-87B	X	X	X	X										
GM-87B	X	X	X	X										
GM-118D	X	X	X	X				X					X	
GM-118D	X	X	X	X									X	

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
GMEW-1	GMEWGW-1	9/21/2000	20	X		X	X				
GMEW-1	GMEW-1 (4/24/06)	4/24/2006	20			X					
GMEW-1	GMEW-1 (5/26/06)	5/26/2006	20			X					
GMEW-1	GMEW-1	7/14/2006	20			X					
GMEW-2	GMEWGW-2	9/21/2000	23	X		X	X				
GMEW-3	GWGMEW-3	7/24/2000	135	X	X	X	X	X	X		X
GMEWA-1	GWGMEWA-1	4/11/2005	26	X	X	X	X	X	X	X	X
GMEWA-2	GWGMEWA-2	4/12/2005	26	X	X	X	X	X	X	X	X
GMEWA-3	GWGMEWA-3	4/12/2005	25	X	X	X	X	X	X	X	X
GMEWA-4	GWGMEWA-4	4/12/2005	20	X	X	X	X	X	X	X	X
GMEWA-4	GWGMEWA4 (08/02/05)	8/2/2005	20	X	X	X	X	X	X	X	X
GMEWA-18	GMEWA-18 (4/24/06)	4/24/2006	18			X					
GMEWA-18	GMEWA-18	7/14/2006	18			X					
GMEWA-19	GMEWA-19 (4/24/06)	4/24/2006	19			X					
GMEWA-19	GMEWA-19	7/14/2006	19			X					
GMEWA-20	GMEWA-20 (4/24/06)	4/24/2006	19			X					
GMEWA-20	GMEWA-20 (7/14/2006)	7/14/2006	19			X					
GMEWA-21	GMEWA-21 (4/24/06)	4/24/2006	23			X					
GMEWA-21	GMEWA-21	7/14/2006	23			X					
GMEWA-22	GMEWA-22 (4/24/06)	4/24/2006	24			X					
GMEWA-22	GMEWA-22	7/14/2006	24			X					
GMEWA-25	GMEWA-25 (4/24/06)	4/24/2006	23			X					
GMEWA-25	GMEWA-25 (5/26/06)	5/26/2006	23			X					
GMEWA-25	GMEWA-25	7/14/2006	23			X					
GMEWA-26	GWGMEWA-26 (4/15/05)	4/15/2005	22	X	X	X	X	X	X	X	X
GMEWA-26	GWGMEWA-26 (072705)	7/27/2005	22	X	X	X	X	X	X	X	X
GMEWA-27	GWGMEWA-27 (4/13/05)	4/13/2005	21	X	X	X	X	X	X	X	X
GMEWA-27	GWGMEWA-999 (4/13/05)	4/13/2005	21	X	X	X	X	X	X	X	X
GMEWA-28	GWGMEWA-28 (4/13/05)	4/13/2005	25	X	X	X	X	X	X	X	X
GMEWC-1	GWGMEWC-1 (072605)	7/26/2005	123	X	X	X	X	X	X	X	X
GMEWC-1A	GWGMEWC-1A (117.5-142.5)	4/14/2005	117.5	X	X	X	X	X	X	X	X
GMEWC-1A	GWGMEWC-1A (152.5-157.5)	4/14/2005	117.5	X	X	X	X	X	X	X	X

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE Toxicity
GMEW-1			X											
GMEW-1				X										
GMEW-1				X										
GMEW-1				X										
GMEW-2			X											
GMEW-3	X	X	X	X			X				X			
GMEWA-1	X		X	X										
GMEWA-2	X		X	X										
GMEWA-3	X		X	X										
GMEWA-4	X		X	X										
GMEWA-4	X	X	X	X										
GMEWA-18				X										
GMEWA-18				X										
GMEWA-19				X										
GMEWA-19				X										
GMEWA-20				X										
GMEWA-20				X										
GMEWA-21				X										
GMEWA-21				X										
GMEWA-22				X										
GMEWA-22				X										
GMEWA-25				X										
GMEWA-25				X										
GMEWA-25				X										
GMEWA-26	X		X	X										
GMEWA-26	X	X	X	X										
GMEWA-27	X			X										
GMEWA-27	X			X										
GMEWA-28	X			X										
GMEWC-1	X	X	X	X										
GMEWC-1A	X		X	X										
GMEWC-1A	X		X	X										

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
GMEWC-2A	GMEWC-2A (5/31/06)	5/31/2006	133			X					
GMEWC-2A	GMEWC-2A	7/17/2006	133			X					
GMPZA-24	GMPZA-24 (4/24/06)	4/24/2006	23			X					
GMPZA-24	GMPZA-24 (5/26/06)	5/26/2006	23			X					
GMPZA-24	GMPZA-24	7/14/2006	23			X					
GMPZA-25	GMPZA-25 (4/24/06)	4/24/2006	25			X					
GMPZA-25	GMPZA-25 (5/26/06)	5/26/2006	25			X					
GMPZA-25	GMPZA-25	7/14/2006	25			X					
GMPZA-26	GMPZA-26	7/24/2006	20			X					
GMPZA-26	GWGMPZA-26 (12/06/06)	12/6/2006	20	X	X	X	X	X	X	X	X
GMPZA-26	GWGMPZA-26 (2/27/07)	2/27/2007	20	X	X	X	X	X	X	X	X
GMPZA-26	GWGMPZA-26 (8/13/07)	8/13/2007	20	X	X	X	X	X	X	X	X
GMPZA-28	GMPZA-28 (4/24/06)	4/24/2006	18			X					
GMPZA-28	GMPZA-28 (7/14/2006)	7/14/2006	18			X					
GMPZA-29	GMPZA-29 (4/24/06)	4/24/2006	18			X					
GMPZA-29	GMPZA-29 (5/26/06)	5/26/2006	18			X					
GMPZA-29	GMPZA-29 (7/14/2006)	7/14/2006	18			X					
GMPZA-29	GWGMPZA-29 (12/6/06)	12/6/2006	18	X	X	X	X	X	X	X	X
GMPZA-29	GWGMPZA-29 (2/26/07)	2/26/2007	18	X	X	X	X	X	X	X	X
GMPZA-29	GWGMPZA-29(08/10/07)	8/10/2007	18	X	X	X	X	X	X	X	X
GMPZA-30	GMPZA-30 (4/24/06)	4/24/2006	19			X					
GMPZA-30	GMPZA-30 (7/14/2006)	7/14/2006	19			X					
GMPZA-34	GMPZA-34 (4/24/06)	4/24/2006	25			X					
GMPZA-34	GMPZA-34 (5/26/06)	5/26/2006	25			X					
GMPZA-34	GMPZA-34 (7/14/2006)	7/14/2006	25			X					
GMPZA-34	GWGMPZA-34 (12/8/06)	12/8/2006	25	X	X	X	X	X	X	X	X
GMPZA-34	GWGMPZA-34 (2/26/07)	2/26/2007	25	X	X	X	X	X	X	X	X
GMPZA-34	GWGMPZA-34 (8/9/07)	8/9/2007	25	X	X	X	X	X	X	X	X
GMPZA-38	GMPZA-38 (4/24/06)	4/24/2006	25			X					
GMPZA-38	GMPZA-38 (5/26/06)	5/26/2006	25			X					
GMPZA-38	GMPZA-38 (7/14/2006)	7/14/2006	25			X					
GMPZA-38	GWGM-998 (12/7/06)	12/7/2006	25	X	X	X	X	X	X	X	X

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE Toxicity
GMEWC-2A				X										
GMEWC-2A				X										
GMPZA-24				X										
GMPZA-24				X										
GMPZA-24				X										
GMPZA-25				X										
GMPZA-25				X										
GMPZA-25				X										
GMPZA-26				X										
GMPZA-26	X	X	X	X										
GMPZA-26	X	X	X	X										
GMPZA-26	X	X	X	X										
GMPZA-28				X										
GMPZA-28				X										
GMPZA-29				X										
GMPZA-29				X										
GMPZA-29				X										
GMPZA-29	X	X	X	X										
GMPZA-29	X	X	X	X										
GMPZA-29	X	X	X	X										
GMPZA-30				X										
GMPZA-30				X										
GMPZA-34				X										
GMPZA-34				X										
GMPZA-34				X										
GMPZA-34	X	X	X	X										
GMPZA-34	X	X	X	X										
GMPZA-34	X	X	X	X										
GMPZA-38				X										
GMPZA-38				X										
GMPZA-38				X										
GMPZA-38	X	X	X											

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
GMPZA-38	GWGMPZA38 (12/7/06)	12/7/2006	25	X	X	X	X	X	X	X	X
GMPZA-38	GWGMPZA-38 (2/23/07)	2/23/2007	25	X	X	X	X	X	X	X	X
GMPZA-38	GWGMPZA-38 (8/9/07)	8/9/2007	25	X	X	X	X	X	X	X	X
GMPZA-41	GMPZA-41 (4/24/06)	4/24/2006	20			X					
GMPZA-41	GMPZA-41 (5/26/06)	5/26/2006	20			X					
GMPZA-41	GMPZA-41 (7/14/2006)	7/14/2006	20			X					
GMPZA-41	GWGMPZA-41 (12/7/06)	12/7/2006	20	X	X	X	X	X	X	X	X
GMPZA-41	GWGMPZA-41 (2/23/07)	2/23/2007	20	X	X	X	X	X	X	X	X
GMPZA-41	DUP-999 (8/8/07)	8/8/2007	20	X	X	X	X	X	X	X	X
GMPZA-41	GWGMPZA-41 (8/8/07)	8/8/2007	20	X	X	X	X	X	X	X	X
GMPZC-2	GMPZC-2 (5/30/06)	5/30/2006	134	X	X	X	X		X	X	X
GMPZC-12	GMPZC-12 (5/31/06)	5/31/2006	137			X					
GMPZC-12	GMPZC-12	7/17/2006	137			X					
GMPZC-12	GWGMPZC-12 (12/06/06)	12/6/2006	137	X	X	X	X	X	X	X	X
GMPZC-12	GWGMPZC-12 (3/1/07)	3/1/2007	137	X	X	X	X	X	X	X	X
GMPZC-12	GWGMPZC-12 (8/14/07)	8/14/2007	137	X	X	X	X	X	X	X	X
GMPZC-14	GMPZC-14 (5/31/06)	5/31/2006	111			X					
GMPZC-14	GMPZC-14 (7/14/2006)	7/14/2006	111			X					
GMPZC-14	GWGMPZC-14 (12/06/06)	12/6/2006	111	X	X	X	X	X	X	X	X
GMPZC-14	GWGMPZC-14 (2/28/07)	2/28/2007	111	X	X	X	X	X	X	X	X
GMPZC-14	GWGMPZC-14(08/10/07)	8/10/2007	111	X	X	X	X	X	X	X	X
GMPZC-16	GMPZC-16 (5/31/06)	5/31/2006	118			X					
GMPZC-16	GMPZC-16	7/14/2006	118			X					
GMPZC-17	GMPZC-17 (5/31/06)	5/31/2006	125			X					
GMPZC-17	GMPZC-17 (7/14/2006)	7/14/2006	125			X					
GMPZC-17	GWGMPZC-17 (12/7/2006)	12/7/2006	125	X	X	X	X	X	X	X	X
GMPZC-17	GWGMPZC-17 (2/27/07)	2/27/2007	125	X	X	X	X	X	X	X	X
GMPZC-17	DUP-998 (8/13/07)	8/13/2007	125	X	X	X	X	X	X	X	X
GMPZC-17	GWGMPZC-17 (8/13/07)	8/13/2007	125	X	X	X	X	X	X	X	X
GMSB-1	GBGMSB-1/85	5/16/1997		X	X	X	X				
GMSB-1	GBGMSB-1/135	5/17/1997		X	X	X					
GMSB-1	GBGMSB-1/215	5/18/1997		X	X	X	X				

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE Toxicity
GMPZA-38	X	X	X	X										
GMPZA-38	X	X	X	X										
GMPZA-38	X	X	X	X										
GMPZA-41				X										
GMPZA-41				X										
GMPZA-41				X										
GMPZA-41	X	X	X	X										
GMPZA-41	X	X	X	X										
GMPZA-41	X	X	X											
GMPZA-41	X	X	X	X										
GMPZC-2	X		X	X					X					
GMPZC-12				X										
GMPZC-12				X										
GMPZC-12	X	X	X	X										
GMPZC-12	X	X	X	X										
GMPZC-12	X	X	X	X										
GMPZC-14				X										
GMPZC-14				X										
GMPZC-14	X	X	X	X										
GMPZC-14	X	X	X	X										
GMPZC-14	X	X	X	X										
GMPZC-16				X										
GMPZC-16				X										
GMPZC-17				X										
GMPZC-17				X										
GMPZC-17	X	X	X	X										
GMPZC-17	X	X	X	X										
GMPZC-17	X	X	X											
GMPZC-17	X	X	X	X										
GMSB-1			X	X										
GMSB-1		X	X	X										
GMSB-1		X	X	X										

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
GMSB-1	GBGMSB-1/275'	5/19/1997		X	X	X					
GMSB-1	GBGMSB-1/325	6/2/1997		X	X	X					
GMSB-2	GBGMSB-2/93	5/18/1997		X	X	X					
GMSB-2	GBGMSB-2/265'	5/20/1997		X	X	X					
GMSB-2	GBGMSB-2/345	5/31/1997		X	X	X					
GMSB-2	GBGMSB-2/345 DUP	5/31/1997									
GMSB-4	GBGMSB-4/115	6/4/1997		X	X	X					
GMSB-4	GBGMSB-4/183.5	6/9/1997		X	X	X					
GMSB-8	GBGMSB-8/85	9/9/1997		X	X	X					
GMSB-8	GBGMSB-8/117	9/10/1997		X		X					
GMSB-8	GBGMSB-8/186	9/11/1997		X	X	X					
GMSB-49	GBGWGMSB-49/93	5/19/2000		X	X	X	X	X	X		X
GMSB-50	GBGWGMSB-50/100-105	6/1/2000		X	X	X	X	X	X		X
GMSB-111	GBGWGMSB-111/26	8/19/2003		X	X	X	X	X	X	X	X
GMSB-112	GBGWGMSB-112/134	9/3/2003		X	X	X	X	X	X	X	X
GMSB-112	GBGWGMSB-112/192	9/3/2003		X	X	X	X	X	X	X	X
GMSB-113	GBGWGMSB-113/155	9/5/2003		X	X	X	X		X	X	X
GMSB-113	GBGWGMSB-113/199	9/5/2003		X	X	X	X	X	X	X	X
GMSB-113	GBGWGMSB-113/27	9/4/2003		X	X	X	X	X	X	X	X
GMSB-116	GBGWGMSB-116/122	8/12/2003		X	X	X	X	X	X	X	X
GMSB-116	GBGWGMSB-116/32	8/11/2003		X	X	X	X	X	X	X	X
GMSB-117	GBGWGMSB-117/115	8/14/2003		X	X	X	X	X	X	X	X
GMSB-117	GBGWGMSB-117/154	8/15/2003		X	X	X	X	X	X	X	X
GMSB-118	GBGWGMSB-118/25	8/16/2003		X	X	X	X	X	X	X	X
GMSB-119	GBGWGMSB-119/125	8/18/2003		X	X	X	X	X	X	X	X
GMSB-119	GBGWGMSB-119/45	8/17/2003		X	X	X	X	X	X	X	X
GMSB-122	GBGWGMSB-122/145	9/8/2003		X	X	X	X	X	X	X	X
GMSB-123	GBGWGMSB-123/150	9/9/2003		X	X	X	X	X	X	X	X
Grailer	GBGW-53C	5/12/1999			X		X				
Grailer	GBGW-53 C (8/07/03)	8/7/2003									
Grailer	GBGW-53C	8/7/2003		X	X		X				
Hambel	GBGW-101C	5/1/1999			X						

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE Toxicity
GMSB-1			X	X										
GMSB-1		X	X	X		X								
GMSB-2		X	X	X										
GMSB-2		X	X	X										
GMSB-2		X	X	X		X								
GMSB-2						X								
GMSB-4		X	X	X		X								
GMSB-4		X	X	X		X								
GMSB-8		X												
GMSB-8		X												
GMSB-8		X												
GMSB-49	X		X	X			X							
GMSB-50	X	X	X	X			X							
GMSB-111	X	X	X	X					X					
GMSB-112	X		X	X					X					
GMSB-112	X	X	X	X										
GMSB-113	X	X	X	X										
GMSB-113	X	X	X	X										
GMSB-113	X	X	X	X										
GMSB-116	X		X	X					X					
GMSB-116	X		X	X					X					
GMSB-117	X		X	X					X					
GMSB-117	X	X	X	X					X					
GMSB-118	X	X	X	X					X					
GMSB-119	X	X	X	X					X					
GMSB-119	X	X	X	X					X					
GMSB-122	X	X	X	X										
GMSB-123	X	X	X	X					X					
Grailer		X												
Grailer		X												
Grailer														
Hambel														

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
Hambel	GBGW-101 C (8/06/03)	8/6/2003									
Hambel	GBGW-101C	8/6/2003		X	X		X				
Krans	GBGW-101F	5/1/1999			X						
Krans	GBGW-101 F (8/06/03)	8/6/2003									
Krans	GBGW-101F	8/6/2003		X	X		X				
Michaud	GBGW-101G	5/1/1999			X						
Michaud	GBGW-101 G (8/06/03)	8/6/2003									
Michaud	GBGW-101G	8/6/2003		X	X		X				
Schnieder	GBGW-113	5/3/1999			X						
Schnieder	GBGW-113	8/7/2003		X	X		X				
Schnieder	GBGW-113 (8/07/03)	8/7/2003									
MPMW-4	GWMPMW-4 (2/26/02)	2/26/2002		X	X	X	X		X	X	
MW-1B	GWMW-1B	6/27/1997	86	X	X	X				X	X
MW-2B	GWMW-2B	6/28/1997	102	X	X	X				X	X
MW-5	GWMW-5	10/22/1998	83	X	X	X	X	X	X	X	
MW-5	GWMW-5	4/18/1999	83								
MW-5	GWMW-5	4/30/1999	83	X	X	X	X	X	X	X	
MW-8	GWGM-99	6/29/1997	133	X	X	X				X	X
MW-8	GWMW-8	6/29/1997	133	X	X	X				X	X
MW-8	GWMW-8	10/24/1998	133	X	X	X	X	X	X	X	
MW-8	GWMW-8	5/3/1999	133	X	X	X	X	X	X	X	
MW-8	GWMW-8 (5/12/04)	5/12/2004	133	X	X	X	X	X	X	X	X
MW-9A	GWMW-9A	7/2/1997	57	X	X	X				X	X
MW-9B	GWMW-9B (7/2/97)	7/2/1997	107								
MW-10	GWMW-10	6/30/1997	95			X				X	X
UG-1	GWUG-1 (5/21/04)	5/21/2004	81								
UG-1	GWGM-997 (7/31/05)	7/31/2005	81								
UG-1	GWUG-1 (7/31/05)	7/31/2005	81								
UG-1	GWUG-1	1/9/2007	81								
UG-2	GWUG-2	7/1/1997	48			X				X	X
UG-2	GWUG-2 DUP	7/1/1997	48								
UG-2	GWUG-2	10/27/1998	48	X	X	X	X	X	X	X	

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE Toxicity
Hambel		X												
Hambel														
Krans														
Krans		X												
Krans														
Michaud														
Michaud		X												
Michaud														
Schnieder		X												
Schnieder														
Schnieder		X												
MPMW-4	X	X	X	X										
MW-1B	X	X		X		X						X		
MW-2B	X	X		X		X								
MW-5	X	X	X	X				X					X	
MW-5		X											X	
MW-5	X		X	X										
MW-8	X	X		X		X						X		
MW-8	X	X		X		X								
MW-8	X	X	X	X				X					X	
MW-8	X	X	X	X									X	
MW-8	X	X	X	X										
MW-9A	X			X		X								
MW-9B		X												
MW-10	X	X		X		X								
UG-1		X												
UG-1		X												
UG-1		X												
UG-1		X												
UG-2	X	X		X		X								
UG-2						X								
UG-2	X	X	X	X				X						

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample ID	Sample Date	Top of Screen Depth	VOCs	SVOCs	TOC	Alcohols	Aldehydes	Acetic Acid/ Acetate	Total Metals	Dissolved Metals
UG-2	GWUG-2	5/3/1999	48	X	X	X	X	X	X	X	
UG-3	GWUG-3 (5/10/04)	5/10/2004	44								
UG-3	GWUG-3 (8/2/05)	8/2/2005	44								
UG-3	GWUG-3	1/11/2007	44								
UG-4	GM-79	10/13/1997	103	X	X	X				X	X
UG-4	UG-4	10/13/1997	103	X	X	X				X	X
UG-4	GWUG-4	10/23/1998	103	X	X	X	X	X	X	X	
UG-4	GWUG-4	5/2/1999	103	X	X	X	X	X	X	X	
UG-5	GWUG-5 (5/22/04)	5/22/2004	139								
UG-5	GWUG-5 (8/3/05)	8/3/2005	139								
UG-4	GWUG-5	1/11/2007	103								
UG-6	UG-6	10/21/1997	236	X	X	X				X	X

Table 5-8. Summary of RI Groundwater Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Inorganics	Methane	BOD	COD	DOC	Density	Hardness	Pesticides/ PCBs	Solids	Microbial	Toxicity	Isotopes	Organic Volatile Acids	TIE Toxicity
UG-2	X	X	X	X										
UG-3		X												
UG-3		X												
UG-3		X												
UG-4	X	X		X										
UG-4	X	X		X										
UG-4	X	X	X	X				X					X	
UG-4	X	X	X	X									X	
UG-5		X												
UG-5		X												
UG-4		X												
UG-6	X	X		X										

ARCADIS

Table 5-9. Summary of Field Parameters Prior to Collection of EE/CA and RI Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample Date	Sample ID	Temperature °C	pH	Specific Conductivity µS/cm
GM-1	5/12/1997	GBGM-1/95	8	8.0	420
GM-1	5/13/1997	GBGM-1/144	10	7.8	770
GM-1	5/16/1997	GBGM-1/290-295	NR	8.2	460
GM-2B	5/2/1997	GBGM-2/75	12	6.9	1,010
GM-2B	5/3/1997	GBGM-2/135	12	7.4	790
GM-2B	5/4/1997	GBGM-2/205	11	8.3	210
GM-2B	5/5/1997	GBGM-2/255	11	7.2	1,560
GM-3B	4/30/1997	GBGM-3/69	8	7.8	460
GM-3B	5/1/1997	GBGM-3/119	10	7.2	480
GM-3B	5/1/1997	GBGM-3/167	11	7.3	1,100
GM-3B	5/1/1997	GBGM-3/207	11	7.4	860
GM-3B	5/3/1997	GBGM-3/265	12	7.6	600
GM-3B	5/4/1997	GBGM-3/305	11	7.0	1,520
GM-5	6/12/1997	GBGM-5/115	13	7.7	510
GM-5	6/12/1997	GBGM-5/173	15	8.0	590
GM-5	6/13/1997	GBGM-5/235	15	7.1	1,400
GM-7	6/11/1997	GBGM-7/153	12	7.2	630
GM-9	9/12/1997	GBGM-9/62	11	7.9	300
GM-10	9/16/1997	GBGM-10/95	10	7.7	350
GM-10	9/22/1997	GBGM-10/155	13	8.1	310
GM-11	9/27/1997	GBGM-11/35	11	8.1	210
GM-12	9/30/1997	GBGM-12/65	9	7.2	900
GM-12	10/7/1997	GBGM-12/230	8	7.5	940
GM-13	9/23/1997	GBGM-13/145	13	5.6	5,900
GM-14	9/12/1997	GBGM-14/85	12	6.2	620
GM-15	9/9/1997	GBGM-15/55	11	7.5	550
GM-15	9/10/1997	GBGM-15/140	12	8.2	410
GM-16	10/12/1997	GBGM-16/115	11	7.7	590
GM-17	10/21/1997	GBGM-17/105	12	7.7	790
GM-25C	6/10/1998	GBGM-25/105	10.2	5.7	4,300
GM-26C	6/15/1998	GBGM-26/30	6.6	6.6	1,400
GM-26C	6/16/1998	GBGM-26/140	12.8	7.3	300
GM-27C	6/24/1998	GBGM-27/105	13.1	7.4	400
GM-32	7/8/1998	GBGM-32/125	13.3	5.8	830
GM-33	7/10/1998	GBGM-33/105	14	6.3	480
GM-34B	7/13/1998	GBGM-34/95	13.1	7.4	430
GM-38B	7/23/1998	GBGM-38/105	11.6	5.2	380
GM-38B	7/23/1998	GBGM-38/165	12.5	7.7	300
GM-39	7/27/1998	GBGM-39/95	12	6.8	820
GM-53B	9/9/1998	GBGM-53/225	11.5	6.6	400
GM-67	6/14/2000	GBGWGM-67/122-127	16.2	5.2	510
GM-82A	6/2/2004	GBGWGM-82/95 (6/3/04)	15.1	6.9	734
GM-82A	6/5/2004	GBGWGM-82/114 (6/5/04)	19.0	7.1	1,370
GMSB-1	5/16/1997	GBGMSB-1/85	10	6.6	3,300
GMSB-1	5/17/1997	GBGMSB-1/135	12	7.1	640
GMSB-1	5/18/1997	GBGMSB-1/215	11	7.0	3,000
GMSB-1	5/19/1997	GBGMSB-1/275	11	7.3	1,220
GMSB-1	6/2/1997	GBGMSB-1/325	13	7.5	660
GMSB-2	5/18/1997	GBGMSB-2/93	8	6.9	360
GMSB-2	5/20/1997	GBGMSB-2/265	12	6.1	530

Footnotes on Page 2.

Table 5-9. Summary of Field Parameters Prior to Collection of EE/CA and RI Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

			Temperature		Specific Conductivity
GMSB-2	5/31/1997	GBGMSB-2/345	17	6.6	3,400
GMSB-4	6/4/1997	GBGMSB-4/115	16	7.8	490
GMSB-4	6/9/1997	GBGMSB-4/183.5	13	6.9	1,160
GMSB-8	9/9/1997	GBGMSB-8/85	15	7.7	310
GMSB-8	9/10/1997	GBGMSB-8/117	12	5.9	350
GMSB-8	9/11/1997	GBGMSB-8/186	13	8.0	190
GMSB-49	5/19/2000	GBGWGMSB-49/93	9.3	8.2	NR
GMSB-50	6/1/2000	GBGWGMSB-50/100-105	13	6.9	270
GMSB-111	8/19/2003	GBGWGMSB-111/26	12.9	7.9	412
GMSB-112	9/3/2003	GBGWGMSB-112/134	11.1	6.8	2,200
GMSB-112	9/3/2003	GBGWGMSB-112/192	11.8	7.9	278
GMSB-113	9/5/2003	GBGWGMSB-113/155	10.2	6.8	1,960
GMSB-113	9/5/2003	GBGWGMSB-113/199	14.2	7.9	330
GMSB-113	9/4/2003	GBGWGMSB-113/27	9.5	7.0	712
GMSB-116	8/12/2003	GBGWGMSB-116/122	11.5	7.1	920
GMSB-116	8/11/2003	GBGWGMSB-116/32	11.8	7.4	374
GMSB-117	8/14/2003	GBGWGMSB-117/115	12.6	7.0	1,030
GMSB-117	8/15/2003	GBGWGMSB-117/154	12.2	7.0	1,477
GMSB-118	8/16/2003	GBGWGMSB-118/25	12.3	6.8	1,567
GMSB-119	8/18/2003	GBGWGMSB-119/125	15.7	7.3	370
GMSB-119	8/17/2003	GBGWGMSB-119/45	15.6	7.8	545
GMSB-122	9/8/2003	GBGWGMSB-122/145	12.0	6.9	1,950
GMSB-123	9/9/2003	GBGWGMSB-123/150	11.8	6.9	1,456

°C Degress celsius.
µS/cm Microseimens per centimeter.

Table 5-10. Summary of Field Parameters During Collection of EE/CA and RI Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample Date	Sample ID	DTW ft TOC	Temp °C	pH	Dissolved Oxygen mg/L	Specific Conductivity µS/cm	ORP mV	Dissolved Iron mg/L
BR-2	6/29/1997	GWBR-2	60.2	14.93	7.57	0.16	594	176	0
BR-3	6/28/1997	GWBR-3	97.62	22.78	6.86	4.3	813	378	0.2
BR-5A	7/1/1997	GWBR-5A	45.11	16	6.9	0.21	1,706	63	NM
BR-5B	7/1/1997	GWBR-5B	66.05	19.4	6.8	0.18	1,502	182	NM
BR-6	6/29/1997	GWBR-6	34.81	12.01	7.82	3.29	493	419	0
CW-1	10/14/1997	CW-1	46.45	8.86	7.51	0.02	694	-150.9	0.5
CW-1	10/22/1998	GWCW-1	47.33	11.11	7.25	-0.53	696	-126.8	0.72
CW-1	4/29/1999	GWCW-1	47.32	14.05	6.21	0.42	875	-130.1	0.66
GM-1	6/24/1997	GWGM-1	82.54	18.16	7.03	0.07	1,128	111	0.8
GM-1	10/9/1997	GM-1	82.94	13.42	7.11	-0.02	989	-102.5	>1.0
GM-1	10/7/1998	GWGM-1	83.53	12.4	7.07	-7.58	1,110	-97.8	>1.0
GM-1	4/16/1999	GWGM-1	82.75	13.45	7.79	2.37	1,010	-114.6	>1.0
GM-1	4/28/2004	GWGM-1 (4/28/04)	80.77	17.39	7.27	0.56	1,174	-163.5	NM
GM-2A	7/2/1997	GWGM-2A	49.15	22.71	7.3	2.1	813	325	0.07
GM-2A	10/12/1997	GM-2A	49.49	17.41	7.3	-0.02	835	-95.8	0.26
GM-2B	6/26/1997	GWGM-2B	73.72	13.96	7.17	0.04	1,575	95	>1.0
GM-2B	10/21/1997	GM-2B	74.51	5.1	7.51	0.04	1,843	-106.9	>1.0
GM-2B	11/22/1998	GWGM-2B	75.01	10.49	7.03	0.93	2,099	-92.9	>1.0
GM-2B	4/16/1999	GWGM-2B	74.26	10.66	8.35	0.58	1,670	-150.5	>1.0
GM-2B	5/25/2004	GWGM-2B(5/25/04)	73.55	9.15	7.08	0.45	1,950	-157.5	NM
GM-2C	11/6/1998	GWGM-2C	51.33	5.27	7.17	-0.22	593	-64.9	>1.0
GM-2C	4/13/1999	GWGM-2C	52.11	13.83	7.24	0.23	570	132.8	0.4
GM-2C	5/4/2004	GWGM-2C (5/4/04)	49.47	9.85	6.87	0.76	1,173	-83.5	NM
GM-3A	6/25/1997	GWGM-3A	46.98	21.46	7.61	0.6	634	38	0
GM-3A	10/10/1997	GM-3A	47.43	10.33	7.31	4.99	603	70.2	0.05
GM-3A	10/9/1998	GWGM-3A	48.93	11.6	7.4	2.62	615	238	0.1
GM-3A	4/13/1999	GWGM-3A	39.91	12.16	7.64	5.09	586	288.1	0.04
GM-3A	5/5/2004	GWGM-3A (5/5/04)	47.18	10	7.21	8.11	672	124.4	NM
GM-3A	5/11/2004	GWGM-3A (5/11/04)	47.1	11.76	7.81	4.5	724	64.2	NM
GM-3B	6/26/1997	GWGM-3B	74.64	18.65	7.19	0.05	1,630	93	0.84
GM-3B	10/14/1997	GM-3B	75.04	7.8	7.21	-0.02	1,468	-99.3	>1.0
GM-3B	10/8/1998	GWGM-3B	75.84	11.3	7.07	-5.21	1,340	-110	>1.0
GM-3B	4/17/1999	GWGM-3B	75.2	6.77	8.3	0.4	1,336	-153.3	>1.0
GM-3B	5/11/2004	GWGM-3B (5/11/04)	74.4	16.91	7.37	0.1	1,631	-164.4	NM
GM-4	6/26/1997	GWGM-4	42.15	12.6	8.26	6.04	452	-10	0.06

Footnotes on Page 13.

Table 5-10. Summary of Field Parameters During Collection of EE/CA and RI Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample Date	Sample ID	DTW ft TOC	Temp °C	pH	Dissolved Oxygen mg/L	Specific Conductivity µS/cm	ORP mV	Dissolved Iron mg/L
GM-4	10/14/1997	GM-4	42.53	7.89	7.81	10.79	432	66.2	0
GM-4	10/20/1998	GWGM-4	44.04	9.79	7.77	8.99	438	262.4	0.08
GM-4	4/21/1999	GWGM-4	45.2	6.69	8.19	9.89	404	-97	0
GM-4	5/2/2004	GWGM-4 (5/2/04)	42.67	6.93	7.68	11.03	424	109	NM
GM-4	5/22/2004	GWGM-4 (5/22/04)	42.48	9.57	7.59	10	458	71.8	NM
GM-4	1/8/2007	GWGM-4	43.66	38.1	6.25	10.881	3,771	221	NM
GM-5	7/2/1997	GWGM-5	84.6	10.45	7.05	0.14	1,517	26	>1.0
GM-5	10/15/1997	GM-5	85.27	9.37	6.91	9.25	1,389	-128.2	>1.0
GM-5	4/18/1999	GWGM-5	85.23	8.71	8.28	1.23	1,930	-132.2	>1.0
GM-5	11/30/1999	GM-5	85.84	5.56	6.15	1	1,280	165	NM
GM-5	8/15/2000	GWGM-5	87.91	13	6.97	12.65	1,554	-101	NM
GM-5	9/20/2000	GWGM-5	87.69	12	7.2	NM	NM	NM	NM
GM-6	6/28/1997	GWGM-6	84.15	20.35	7	0.07	860	108	>1.0
GM-6	10/22/1997	GM-6	84.76	5.2	7.21	0.07	1,198	-77.2	0.8
GM-6	10/10/1998	GWGM-6	85.06	11.06	6.84	-1.77	1,150	-69.7	>1.0
GM-6	4/19/1999	GWGM-6	84.57	7.89	7.99	0.64	1,338	-117.1	>1.0
GM-6	2/29/2000	GWGM-6	84.32	12.3	6.93	1.08	1,063	-157.8	NM
GM-6	7/19/2000	GWGM-6	84.79	9.2	6.4	0.44	1,111	-101.1	>1.0
GM-6	9/25/2000	GWGM-6	85.28	8.75	6.55	0.48	1,023	-125.5	>1.0
GM-7	6/29/1997	GWGM-7	44.45	21.53	7.29	0.12	642	-296	0.38
GM-7	10/11/1997	GM-7	44.85	10.09	7.16	1.48	397	-74.8	0.45
GM-7	10/23/1998	GWGM-7	47.01	12.64	7.88	-0.23	612	83.9	0.7
GM-7	5/1/1999	GWGM-7	46.72	29.13	7.44	0.69	752	-46.1	0.2
GM-7	9/23/2003	GM-7	44.16	16.55	7.71	0.52	497	106.8	NM
GM-7	5/3/2004	GWGM-7 (5/3/04)	44.31	14.06	7.57	0.79	458	94.5	NM
GM-8	6/30/1997	GWGM-8	11.25	11.06	7.75	3.93	633	70	0
GM-8	10/12/1997	GM-8	11.17	9.62	7.69	7.99	614	88.5	0
GM-8	10/9/1998	GWGM-8	11.44	8.36	7.65	4.07	980	-30.5	NM
GM-8	4/13/1999	GWGM-8	10.54	8.87	6.94	-6.47	674	124.7	0
GM-8	10/21/1999	GM-8	11.38	9.34	7.64	7.06	639	169.3	0.06
GM-9	10/13/1997	GM-9	17.24	10.44	8.23	0	340	-225	0.05
GM-9	10/11/1998	GWGM-9	18.05	8.92	7.22	0.06	585	206.5	0
GM-9	4/18/1999	GWGM-9	17.79	8.7	7.96	0.15	470	-193	0
GM-9	9/10/2003	GM-9	17.95	10.6	7.04	0.14	364	-143.4	NM
GM-9	5/3/2004	GWGM-9 (5/3/04)	16.28	9.07	7.87	0.2	401	-107.2	NM

Footnotes on Page 13.

Table 5-10. Summary of Field Parameters During Collection of EE/CA and RI Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample Date	Sample ID	DTW ft TOC	Temp °C	pH	Dissolved Oxygen mg/L	Specific Conductivity µS/cm	ORP mV	Dissolved Iron mg/L
GM-9	7/28/2005	GWGM-9 (072805)	17.86	9.9	7.81	0.29	334	-130.5	NM
GM-10	10/14/1997	GM-10	16.59	7.48	8.5	0	287	-328	0.05
GM-10	11/6/1998	GWGM-10	17.42	8.38	8	0.56	297	-170.5	NM
GM-10	4/27/1999	GWGM-10	17.03	8.16	8.01	-0.26	343	-156.9	0
GM-11	10/15/1997	GM-11	13.19	10.95	8.24	0.1	264	-322.7	0.08
GM-12	10/22/1997	GM-12	67.39	7.8	7.9	0.32	576	-109.9	0.15
GM-12	10/10/1998	GWGM-12	68.09	13.93	6.39	-0.08	616	-148.3	0.34
GM-12	4/19/1999	GWGM-12	68.33	9.58	8.86	0.23	711	-192.8	0.7
GM-13	10/22/1997	GM-13	60.95	9.56	7.82	0.11	556	-473.8	0.11
GM-13	4/20/1999	GWGM-13	62.11	12.01	6.99	1.45	661	-151.1	0.42
GM-13	5/18/2004	GWGM-13 (5/18/04)	60.55	14.73	9.01	0.14	731	-123	NM
GM-14	10/21/1997	GM-14	32.12	9.91	7.28	0.39	557	-130	0.41
GM-14	10/28/1998	GWGM-14	33.85	11.08	7.08	-2.01	567	-92.7	>1.0
GM-14	5/2/1999	GWGM-14	34.94	18.49	6	0.89	573	-116.5	>1.0
GM-15	10/20/1997	GM-15	40.92	5.25	9.58	0.15	286	-355	0.09
GM-15	10/11/1998	GWGM-15	42.07	14.44	8.48	-1.43	321	7.4	0.2
GM-15	4/20/1999	GWGM-15	43.7	10.61	8.79	0.82	355	-207.6	0.09
GM-15	5/10/2004	GWGM-15 (5/10/04)	41.74	22.67	8.46	1.21	350	-27.8	NM
GM-16	10/22/1997	GM-16	76.41	8.44	7.58	5.22	673	-78	0.06
GM-16	10/9/1998	GWGM-16	76.64	12.3	7.22	5.22	673	275	0.08
GM-16	4/14/1999	GWGM-16	76.37	12.12	7.65	7.24	836	322.9	0.12
GM-16	9/23/2003	GM-16	75.86	15.03	7.2	5.73	860	267.8	NM
GM-16	4/27/2004	GWGM-16 (4/27/04)	74.87	11.97	7.68	8.32	792	95.6	NM
GM-17	10/28/1997	GM-17	55.45	9.66	9.76	1.66	375	-408.5	0
GM-17	10/12/1998	GWGM-17	56.39	13.24	11.18	-1.64	784	-316.2	NM
GM-17	4/26/1999	GWGM-17	57.04	20.27	10.33	0.53	454	197.5	0
GM-17	5/1/2004	GWGM-17 (5/1/04)	55.6	12.65	13.29	0.57	4,477	-136.4	NM
GM-17	5/16/2004	GWGM-17 (5/16/04)	55.62	20.97	11.48	0.68	1,072	-111.9	NM
GM-17	1/15/2007	GWGM-17	58.11	9.18	8.51	197	379.1	-161	NM
GM-18	12/4/1997	GM-18	55.05	7.05	7.36	8.65	470	-10.7	0.05
GM-18	11/7/1998	GWGM-18	55.85	9.1	7.4	9.97	440	236.4	NM
GM-19	12/4/1997	GM19	53.71	8.91	6.95	3.07	719	-49.1	0
GM-21	12/3/1997	GM-21	6.88	8.65	6.73	0.16	1,025	-9.6	0.35
GM-21	10/13/1998	GWGM-21	10.07	10.09	7.16	0.27	1,609	93.8	0.44
GM-21	1/29/2001	GWGM-21	7.16	5.27	6.97	2.03	1,409	104.1	0.18

Footnotes on Page 13.

Table 5-10. Summary of Field Parameters During Collection of EE/CA and RI Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample Date	Sample ID	DTW ft TOC	Temp °C	pH	Dissolved Oxygen mg/L	Specific Conductivity µS/cm	ORP mV	Dissolved Iron mg/L
GM-21	9/9/2005	GWGM-21 (9/9/05)	10.86	11.72	6.35	0.4	1,050	-16.9	NM
GM-22	12/5/1997	GM-22	8.27	9.1	6.79	1.12	629	-94	0
GM-22	10/10/1998	GWGM-22	10.63	15.1	7.9	NM	680	NM	0.06
GM-22	4/13/1999	GWGM-22	7.72	5.06	6.61	0.81	963	53.4	0.55
GM-22	1/15/2001	GWGM-22	8.46	4	6.9	NM	NM	NM	>1.0
GM-22	9/8/2005	GWGM-22(9/8/05)	16.22	10.5	6.95	1.39	760	2.8	NM
GM-23	12/3/1997	GM-23	8.78	8.73	7.32	0.08	661	-190.9	0.1
GM-23	10/10/1998	GWGM-23	10.6	12	8.4	NM	630	NM	0.06
GM-23	1/16/2001	GWGM-23	8.64	2.1	7.3	NM	NM	NM	0
GM-23	5/12/2004	GWGM-23 (5/12/04)	4.86	10.41	6.76	11	347	118.9	NM
GM-23	9/8/2005	GWGM-23(9/8/05)	14.03	11	7.28	1.11	692	22.9	NM
GM-24A	11/9/1998	GWGM-24A	NM	11.47	7.83	0.54	414	-138.2	0.18
GM-24A	5/4/1999	GWGM-24A	59.08	23.93	7.02	0.35	412	-117.8	0.58
GM-24B	11/17/1998	GWGM-24B	24.3	5.54	7.14	3.38	533	105.2	NM
GM-24B	5/5/1999	GWGM-24B	NM	16.78	7.26	0.55	510	-42.4	0.05
GM-24B	4/29/2004	GWGM-24B (4/29/04)	41.27	14.61	7.94	0.81	505	-129.3	NM
GM-24B	5/4/2004	GWGM-24B (5/4/04)	38.2	14.5	7.25	1.36	526	108	NM
GM-24C	11/20/1998	GWGM-24C	59.14	3.83	8.07	-0.7	308	96.8	0
GM-24C	5/13/1999	GWGM-24C	57.66	20.12	9.86	0.61	452	-146.5	0
GM-24C	9/24/2003	GM-24C	58.28	12.67	9.03	0.27	339	-51	NM
GM-24C	4/29/2004	GWGM-24C (4/29/04)	56.11	18.11	9.74	1.07	301	-181.8	NM
GM-25A	10/6/1998	GWGM-25A	12.92	8.52	6.74	0.26	3,686	-147.6	>1.0
GM-25A	4/16/1999	GWGM-25A	11.75	8.44	6.53	1.87	2,840	-129.9	>1.0
GM-25A	12/1/1999	GM-25A	12.28	8.18	6.76	0.85	2,037	-48.5	NM
GM-25A	8/21/2000	GWGM-25A	12.41	10.07	6.34	8.77	2,155	-67.5	NM
GM-25A	9/9/2003	GM-25A	12.72	11.3	6.07	0.08	1,204	-34.7	NM
GM-25A	5/12/2004	GWGM-25A (5/12/04)	11.4	11.18	6.5	7.24	1,365	-114.2	NM
GM-25B	10/6/1998	GWGM-25B	11.48	9.24	6.18	0.3	8,330	-73.8	>1.0
GM-25B	4/27/1999	GWGM-25B	11.16	8.67	5.99	8.91	6,439	-77.1	>1.0
GM-25B	10/20/1999	GM-25B	11.31	8.72	6.06	0.01	7,513	-91.6	>1.0
GM-25B	4/17/2000	GWGM-25B	11.09	6.4	6.9	24.03	5,430	-122.2	NM
GM-25B	9/9/2003	GM-25B	11.3	14.14	5.51	0.12	5,106	-93.5	NM
GM-25B	5/18/2004	GWGM-25B (5/18/04)	9.41	11.42	5.96	1.26	4,023	-119.6	NM
GM-25C	10/26/1998	GWGM-25C	10.78	9.53	7.63	1.59	389	-115.8	0.1
GM-25C	11/9/1998	GWGM-25C	10.87	9.49	7.69	-2.37	405	-115.5	0

Footnotes on Page 13.

Table 5-10. Summary of Field Parameters During Collection of EE/CA and RI Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample Date	Sample ID	DTW ft TOC	Temp °C	pH	Dissolved Oxygen mg/L	Specific Conductivity µS/cm	ORP mV	Dissolved Iron mg/L
GM-25C	4/20/1999	GWGM-25C	10.32	8.89	7.65	0.88	552	-107.5	0.15
GM-25C	8/2/2000	GWGM-25C	10.43	13.3	8.24	0.25	456	-118.2	NM
GM-25C	9/15/2003	GM-25C	10.54	10.5	9.09	0.17	444	84.6	NM
GM-25C	5/4/2004	GWGM-25C (5/4/04)	8.43	9.51	7.82	0.1	494	-154.4	NM
GM-25C	8/1/2005	GWGM-25C (08/01/05)	10.7	12.1	7.68	0.21	419	-177.1	NM
GM-26A	10/7/1998	GWGM-26A	12.52	7.92	6.91	0.16	2,427	-105.3	>1.0
GM-26A	4/14/1999	GWGM-26A	11.34	8.08	6.56	1.56	2,043	-115.8	>1.0
GM-26A	11/29/1999	GM-26A	12.29	7.4	6.87	0	1,320	-130	NM
GM-26A	8/16/2000	GWGM-26A	12.3	10.25	6.22	2.75	1,686	-123.1	NM
GM-26A	9/9/2003	GM-26A	12.6	12.09	6.65	0.11	1,140	-82.8	NM
GM-26A	5/13/2004	GWGM-26A (5/13/04)	11.31	9.5	6.67	0.06	2,270	-128.5	NM
GM-26B	10/7/1998	GWGM-26B	12.17	8.55	8.17	0.16	504	-133.5	0.9
GM-26B	4/15/1999	GWGM-26B	11.26	8.33	7.99	-0.29	372	-147.7	0.3
GM-26B	11/30/1999	GM-26B	NM	6.9	NM	0	344	-183	NM
GM-26B	7/18/2000	GWGM-26B	12.43	9.71	8.79	-1.6	277	-82.1	0.1
GM-26B	9/9/2003	GM-26B	12.28	10.3	9	0.19	223	249.9	NM
Gm-26B	4/27/2004	GWGM-26B (4/27/04)	8.99	8.55	9.03	1.1	206	-72.7	NM
GM-26B	7/28/2005	GWGM-26B (072805)	13	10.74	8.8	0.11	306	-183.6	NM
GM-26C	10/25/1998	GWGM-26C	11.71	8.9	6.92	2.38	1,465	-86.9	0.46
GM-26C	4/17/1999	GWGM-26C	11.15	8.66	6.86	0.93	1,867	-112.9	0.76
GM-26C	11/30/1999	GM-26C	11.54	8.4	7.04	0.68	1,522	-73.8	NM
GM-26C	8/16/2000	GWGM-26C	11.45	10.86	6.14	8.68	1,655	-100.6	NM
GM-26C	9/16/2003	GM-26C	11.6	13.16	5.34	0.05	2,392	-4.1	NM
GM-26C	5/18/2004	GWGM-26C (5/18/04)	10.44	8.34	6.84	0.69	1,661	-132.9	NM
GM-27A	10/8/1998	GWGM-27A	17.32	8.01	6.76	0.28	3,711	-188.2	>1.0
GM-27A	4/15/1999	GWGM-27A	16.31	8.2	6.58	2.79	2,644	-119.5	>1.0
GM-27A	12/1/1999	GM-27A	16.89	7.69	NM	0.57	1,853	-97.6	NM
GM-27A	9/10/2003	GM-27A	17.38	11.25	4.61	0.1	1,976	-57	NM
GM-27A	5/13/2004	GWGM-27A (5/13/04)	16.18	9.58	6.57	3.18	2,058	-127.5	NM
GM-27A	4/24/2006	GM-27A (4/24/06)	16.86	NM	NM	NM	NM	NM	NM
GM-27B	10/26/1998	GWGM-27B	17.14	8.89	7.78	2.13	466	-182.5	0.08
GM-27B	4/14/1999	GWGM-27B	16.18	8.65	9.22	-0.14	274	284.9	0.15
GM-27B	7/18/2000	GWGM-27B	16.84	9.03	8.93	0.49	283	-134.4	0.1
GM-27B	9/10/2003	GM-27B	17.03	12.77	5.7	0.22	225	364.8	NM
GM-27B	4/30/2004	GWGM-27B (4/30/04)	14.79	7.67	8.08	0.16	270	-41.9	NM

Footnotes on Page 13.

Table 5-10. Summary of Field Parameters During Collection of EE/CA and RI Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample Date	Sample ID	DTW ft TOC	Temp °C	pH	Dissolved Oxygen mg/L	Specific Conductivity µS/cm	ORP mV	Dissolved Iron mg/L
GM-27B	8/5/2005	GWGM-27B (08/05/05)	17.11	11.12	8.46	0.12	280	-185.1	NM
GM-27B	2/22/2007	GWGM-27B (2/22/07)	18.31	7.94	8.55	1.527	195	-170	NM
GM-27B	5/11/2007	GWGM-27B(5/11/07)	18.06	4.66	8.21	0.905	210.4	-158	NM
GM-27B	8/8/2007	GWGM-27B (8/8/07)	18.59	10.84	7.97	0.173	236.1	-89	NM
GM-27B	11/8/2007	GWGM-27B (11/8/07)	18.27	8.68	8.22	0.843	214.2	131	NM
GM-27C	11/9/1998	GWGM-27C	16.3	8.62	8.13	-0.21	301	-107.3	0.06
GM-27C	12/2/1998	GWGM-27C	16.25	9.07	8	3.36	297	-157	NM
GM-27C	4/26/1999	GWGM-27C	16.01	9.44	6.59	0.36	301	-41.2	0
GM-27C	8/7/2000	GMGW-27C	16.69	9.67	7.79	8.28	277	-150.6	0.12
GM-27C	9/11/2003	GM-27C	16.25	12.74	7.02	0.21	295	397.4	NM
GM-27C	4/30/2004	GWGM-27C (4/30/04)	14.47	8.07	7.63	0.18	298	-50.9	NM
GM-27C	8/5/2005	GWGM-27C (08/05/05)	17.07	12.04	8.1	0.1	311	-147.7	NM
GM-28A	10/28/1998	GWGM-28A	26.52	8.01	6.94	4.66	875	-99.8	>1.0
GM-28A	4/19/1999	GWGM-28A	26.18	7.91	6.86	0.72	1,037	-127.9	>1.0
GM-28A	2/29/2000	GWGM-28A	25.77	7.78	7.07	0.75	702	-155.9	NM
GM-28A	7/19/2000	GWGM-28A	26.15	9.65	7.1	-1.51	620	-89.2	0.1
GM-28A	4/28/2004	GWGM-28A (4/28/04)	23.45	11.4	6.93	0.1	642	-91.2	NM
GM-28A	7/26/2005	GWGM28A (072605)	26.11	9.74	6.67	0.14	652	-101.9	NM
GM-28A	5/10/2007	GWGM-28A (5/10/07)	26.78	9.37	7.1	0.491	484.2	-108	NM
GM-28A	8/7/2007	GWGM-28A (8/7/07)	27.2	9.84	7.17	0.59	467.7	-139	NM
GM-28A	11/5/2007	GWGM-28A (11/5/07)	26.93	8.27	7.37	0.92	NM	-62	NM
GM-28B	11/8/1998	GWGM-28B	26.55	8.8	10.02	-0.21	268	94.3	0
GM-28B	4/19/1999	GWGM-28B	26.14	8.24	8.9	-0.04	291	-81	0
GM-28B	3/1/2000	GWGM-28B	25.83	7.41	9.66	0.44	261	-109	NM
GM-28B	4/28/2004	GWGM-28B (4/28/04)	23.6	8.34	7.99	0.3	278	125.3	NM
GM-28B	7/26/2005	GWGM28B (072605)	26.21	9.48	7.95	0.35	244	1.8	NM
GM-28B	2/21/2007	GWGM-28B (2/21/07)	26.91	8.07	9.2	2.192	200.7	-156	NM
GM-28B	5/10/2007	GWGM-28B (5/10/07)	26.88	9.58	8.32	0.411	195.9	-31	NM
GM-28B	8/7/2007	GWGM-28B (8/7/07)	27.32	9.89	8.33	0.235	208.4	-175	NM
GM-28B	11/5/2007	GWGM-28B (11/5/07)	27.03	8.48	8.43	0.902	NM	-58	NM
GM-29	10/9/1998	GWGM-29	19.06	8.65	7.7	0.14	604	-142.9	0.77
GM-29	4/16/1999	GWGM-29	18.6	8.48	7.48	0.05	524	-168.2	>1.0
GM-29	2/29/2000	GMGM-29	18.7	9.2	7.39	0.09	332	NM	NM
GM-29	9/10/2003	GM-29	18.93	11	6.71	0.15	451	-84.1	NM
GM-29	5/3/2004	GWGM-29 (5/3/04)	17.36	9.8	7.4	0.12	396	-130.6	NM

Footnotes on Page 13.

Table 5-10. Summary of Field Parameters During Collection of EE/CA and RI Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample Date	Sample ID	DTW ft TOC	Temp °C	pH	Dissolved Oxygen mg/L	Specific Conductivity µS/cm	ORP mV	Dissolved Iron mg/L
GM-29	7/28/2005	GWGM-29 (07/28/05)	18.74	9.94	7.65	0.14	403	-161.7	NM
GM-29	2/20/2007	GWGM-29 (2/20/07)	19.02	8.22	7.62	1.614	320.7	-203	NM
GM-29	5/9/2007	GWGM-29 (5/9/07)	19.25	NM	NM	NM	NM	NM	NM
GM-29	8/7/2007	GWGM-29 (8/7/07)	19.58	8.83	7.25	0.121	364.7	230	NM
GM-29	11/6/2007	GWGM-29(11/6/07)	19.36	8.45	7.75	0.822	294.3	-50	NM
GM-30	10/27/1998	GWGM-30	80.44	12.66	6.9	-1.38	981	-77.3	NM
GM-30	5/12/1999	GWGM-30	79.64	15.08	6.86	2.75	1394	6.3	>1.0
GM-31	10/24/1998	GWGM-31	84.44	13.49	6.73	-0.58	588	-124.2	>1.0
GM-31	5/3/1999	GWGM-31	83.37	24.19	6.94	0.94	707	314.2	0.64
GM-31	10/9/2000	GWGM-31	84.72	15.59	6.74	0.61	NM	-142.7	1
GM-32	4/27/1999	GWGM-32	46.16	16	6	NM	8,306	115.4	>1.0
GM-32	9/25/2003	GM-32	43.3	10.37	5.93	0.05	5,400	-90.6	NM
GM-32	5/26/2004	GWGM-32(5/26/04)	43.35	21.2	5.9	1.91	5,472	-99.6	NM
GM-33	5/10/1999	GWGM-33	NM	10.3	7.2	NM	NM	NM	0.7
GM-34A	10/8/1998	GWGM-34A	19.15	9.33	7.69	5.93	723	91.4	0.06
GM-34A	4/17/1999	GWGM-34A	19.87	9.84	7.28	5.54	558	58.6	0
GM-34A	4/29/2004	GWGM-34A (4/29/04)	17.37	10.05	7.3	5.2	556	208.4	NM
GM-34B	10/12/1998	GWGM-34B	46.22	11.6	7.13	0.93	647	148	0
GM-34B	4/14/1999	GWGM-34B	45.78	14.68	7.72	1.73	539	384.6	0
GM-34B	9/24/2003	GM-34B	45.48	15.48	7.27	1.45	727	290.2	NM
GM-34B	4/28/2004	GWGM-34B (4/28/04)	43.61	9.78	7.84	2.89	676	82.2	NM
GM-35	11/4/1998	GWGM-35	49.72	3.64	6.54	2.64	1,217	62.1	>1.0
GM-35	5/4/1999	GWGM-35	50.67	26.66	6.48	0.62	1,131	416.3	>1.0
GM-36	11/3/1998	GWGM-36	40.38	4.48	7.34	2.24	749	204.7	0.05
GM-36	5/5/1999	GWGM-36	41.45	17.53	7.25	2.94	645	308.8	0.4
GM-36	5/4/2004	GWGM-36 (5/4/04)	39.57	14.29	7.12	3.18	868	111.3	NM
GM-37A	11/18/1998	GWGM-37A	73.34	7.48	6.24	0.97	2,475	-87	NM
GM-37A	5/11/1999	GWGM-37A	72.4	10.2	6.3	NM	NM	NM	NM
GM-37A	9/25/2003	GM-37A	72.05	12.81	6.48	0.15	1,888	-83.4	NM
GM-37A	5/17/2004	GWGM-37A (5/17/04)	72.39	21.13	6.51	0.08	2,073	-94	NM
GM-37B	10/13/1998	GWGM-37B	74.04	10.67	5.93	-0.6	3,303	-122.9	NM
GM-37B	5/14/1999	GWGM-37B	74.19	14.79	5.78	1.64	5,327	-99.3	NM
GM-37B	9/25/2003	GM-37B	73.98	11.06	6.42	0.04	2,523	-114.8	NM
GM-37B	5/27/2004	GWGM-37B (5/27/04)	72.36	12.61	6.32	3.77	4,267	-112	NM
GM-38A	10/13/1998	GWGM-38A	56.04	9.02	7.14	6.67	701	44.7	0.05

Footnotes on Page 13.

Table 5-10. Summary of Field Parameters During Collection of EE/CA and RI Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample Date	Sample ID	DTW ft TOC	Temp °C	pH	Dissolved Oxygen mg/L	Specific Conductivity µS/cm	ORP mV	Dissolved Iron mg/L
GM-38A	4/15/1999	GWGM-38A	55.47	10.29	8.02	6.19	492	290.9	0.08
GM-38B	10/14/1998	GWGM-38B	54.51	7.76	7.83	-3.45	375	-16	NM
GM-38B	4/29/1999	GWGM-38B	54.8	15.72	8.57	1.45	441	273.3	0
GM-38C	10/20/1998	GWGM-38C	54.9	9.14	7.81	-1.02	326	188.2	0.12
GM-38C	4/30/1999	GWGM-38C	54.9	22.81	7.85	0.48	398	304.6	0.2
GM-39	10/12/1998	GWGM-39	43.36	11.77	7.13	0.89	739	234.7	0.09
GM-39	4/15/1999	GWGM-39	43.16	13.95	7.56	1.46	558	345.9	0.06
GM-40A	10/26/1998	GWGM-40A	43.81	12.27	8.28	-1.74	170	131.4	0.44
GM-40A	4/28/1999	GWGM-40A	44.69	16.5	8.36	1.27	203	219.3	0
GM-40A	5/3/2004	GWGM-40A (5/3/04)	41.91	11.35	8.71	0.95	177	55.6	NM
GM-40B	10/26/1998	GWGM-40B	43.65	12.74	6.1	0.38	5,145	-23.6	>1.0
GM-40B	4/27/1999	GWGM-40B	44.59	16.34	6.25	NM	5,460	-14.3	>1.0
GM-40B	5/19/2004	GWGM-40B (5/19/04)	41.7	21.84	6.15	2.15	4,489	-100.5	NM
GM-41	10/19/1998	GWGM-41	43.12	12.61	5.04	0.45	1,499	55.9	0.72
GM-41	4/16/1999	GWGM-41	44.14	12.15	6.85	0.29	1,127	97.4	>1.0
GM-42	10/20/1998	GWGM-42	44.43	10.75	5.27	0.43	1,624	58.5	0.48
GM-42	4/16/1999	GWGM-42	45.23	11.46	7.33	0.25	883	71	>1.0
GM-49	4/17/1999	GWGM-49	81.94	8.25	7.3	0.21	946	175.2	0.52
GM-50	10/14/1998	GWGM-50	78.3	9.19	7.1	1.02	1,898	52.9	0.34
GM-50	4/17/1999	GWGM-50	NM	8.7	6.75	0.28	1,203	291.4	>1.0
GM-51	10/20/1998	GWGM-51	57.53	NM	NM	NM	NM	NM	NM
GM-51	4/18/1999	GWGM-51	56.86	9.43	7.66	0.3	704	107.8	0.35
GM-52	4/19/1999	GWGM-52	66.88	8.9	6.74	0.44	573	217.4	0.25
GM-53A	4/19/1999	GWGM-53A	66.88	9.5	7.53	0.26	600	94.9	>1.0
GM-53B	11/5/1998	GWGM-53B	66.93	6.71	7.04	-1.23	1,174	-103.1	>1.0
GM-53B	5/1/1999	GWGM-53B	66.69	83.85	6.85	0.5	152	-168.8	>1.0
GM-54	10/24/1998	GWGM-54	58.56	22.09	8.08	-0.23	239	65.2	0.09
GM-54	5/1/1999	GWGM-54	58.69	18.52	8.12	0.15	284	-480.1	0
GM-55	10/24/1998	GWGM-55	75.23	15.98	7.17	1.13	856	-116.5	0.48
GM-55	5/1/1999	GWGM-55	75.2	19.12	7.25	-0.59	997	-120.6	>1.0
GM-56	10/21/1998	GWGM-56	43.41	10.78	7.39	3.15	643	50.5	0.09
GM-56	4/20/1999	GWGM-56	43.98	12.67	7.31	3.15	782	291.2	0.3
GM-57	4/20/1999	GWGM-57	77.97	11.08	7.54	0.48	757	208.1	0.1
GM-58	4/26/1999	GWGM-58	78	15.64	7.89	1.6	637	-104.6	0
GM-58	5/22/2004	GWGM-58 (5/22/04)	76.82	11.29	7.71	7.16	481	70.8	NM

Footnotes on Page 13.

Table 5-10. Summary of Field Parameters During Collection of EE/CA and RI Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample Date	Sample ID	DTW ft TOC	Temp °C	pH	Dissolved Oxygen mg/L	Specific Conductivity µS/cm	ORP mV	Dissolved Iron mg/L
GM-59	11/17/1998	GWGM-59	82.02	8.13	7.62	-0.74	513	-169.9	0.02
GM-59	4/28/1999	GWGM-59	81.93	12.44	8.46	0.63	587	-167.4	NM
GM-59	5/1/2004	GWGM-59 (5/1/04)	79.41	10.54	7.73	3.92	536	118.9	NM
GM-59	5/15/2004	GWGM-59 (5/15/04)	80.03	15.5	7.92	0.64	655	-59.5	NM
GM-59	7/29/2005	GWGM-59 (7/29/05)	81.43	13.52	7.49	0.44	566	-102.4	NM
GM-59	1/11/2007	GWGM-59	73.04	7.99	7.83	690	394.6	-96	NM
GM-61	5/3/1999	GWGM-61	121.1	14.79	7.18	0.24	915	-112.3	0.2
GM-61	5/1/2004	GWGM-61 (5/1/04)	122.4	17.04	7.93	1.57	540	107.8	NM
GM-61	5/16/2004	GWGM-61 (5/16/04)	120.36	16.54	8.04	0.22	728	-111.7	NM
GM-61	7/30/2005	GWGM-61 (7/30/05)	122.77	14	7.24	0.18	720	-127.4	NM
GM-62A	8/23/1999	GWGM-62A	56.25	17.22	6.38	0.59	1,167	-90.6	>1.0
GM-62A	5/11/2004	GWGM-62A (5/11/04)	54.31	16.71	8.35	0.71	1,235	-57.2	NM
GM-62B	8/24/1999	GWGM-62B	76.04	22.04	5.85	0.5	3,081	-46.2	>1.0
GM-62B	5/19/2004	GWGM-62B (5/19/04)	75.21	18.92	6.6	1.24	3,123	-148.3	NM
GM-62C	8/24/1999	GWGM-62C	75.82	13.52	5.09	0.87	3,320	-107.5	>1.0
GM-62C	5/18/2004	GWGM-62C (5/18/04)	75.08	19.38	9.93	0.02	2,806	-88.1	NM
GM-63A	8/29/2000	GWGM-63A	14.76	10.7	6.6	2	1,138	-98.7	NM
GM-63A	9/19/2000	GWGM-63A	14.62	11.55	6.47	1.32	1,020	-120.8	>1.0
GM-63A	10/18/2000	GWGM-63A	14.74	15.61	6.54	0.96	NM	-132.8	NM
GM-63A	9/15/2003	GM-63A	14.79	10.17	7.06	0.05	606	-117.3	NM
GM-63A	5/5/2004	GWGM-63A (5/5/04)	13.04	7.75	6.85	0.06	1,073	-112	NM
GM-63B	2/7/2001	GWGM-63B	13.91	7.77	8.02	0.59	185	-168.4	NM
GM-63B	9/11/2003	GM-63B	13.96	10.2	7.83	0.2	297	295.8	NM
GM-63B	4/27/2004	GWGM-63B (4/27/04)	10.96	8.03	7.47	0.38	262	87.7	NM
GM-64A	8/30/2000	GWGM-64A	19.28	10.6	6.55	1.04	991	-99.5	NM
GM-64A	10/3/2000	GWGM-64A	19.35	9.71	6.69	1.53	NM	-113.9	>1.0
GM-64A	10/19/2000	GWGM-64A	19.22	15.41	6.55	1.91	NM	-97.6	>1.0
GM-64A	9/8/2003	GM-64A	19.34	10.3	6.43	0.12	NM	-59.2	NM
GM-64A	5/4/2004	GWGM-64A (5/4/04)	17.43	8.56	6.92	0.08	1,141	-95.9	NM
GM-64B	7/24/2000	GWGM-64B	19.65	9.86	7.1	0.38	1,152	-105.4	NM
GM-64B	10/4/2000	GWGM-64B	19.77	11.02	7.16	2.31	NM	-135	>1.0
GM-64B	9/8/2003	GM-64B	19.58	18.52	6.26	0.12	1,290	-58	NM
GM-64B	5/11/2004	GWGM-64B (5/11/04)	18.54	11.82	6.79	1.24	1,076	-151.6	NM
GM-66A	7/18/2000	GWGM-66A	9.36	9.21	7.59	0.4	858	-134.9	>1.0
GM-66A	9/16/2003	GM-66A	9.23	9.88	7.29	0.09	2,044	-125.7	NM

Footnotes on Page 13.

Table 5-10. Summary of Field Parameters During Collection of EE/CA and RI Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample Date	Sample ID	DTW ft TOC	Temp °C	pH	Dissolved Oxygen mg/L	Specific Conductivity µS/cm	ORP mV	Dissolved Iron mg/L
GM-66A	4/27/2004	GWGM-66A (4/27/04)	6.48	6.12	7.16	0.18	1,037	-111.1	NM
GM-66A	7/27/2005	GWGM66A (072705)	9.55	9.57	6.97	0.02	1,232	-149.5	NM
GM-66B	7/19/2000	GWGM-66B	8.14	9.18	7.04	0.52	1,210	-105.5	>1.0
GM-66B	8/3/2000	GMGW-66B	8.12	9.54	6.6	0.2	1,219	-94.9	>1.0
GM-66B	9/11/2003	GM-66B	8.26	11.92	6.98	0.7	1,038	-94.1	NM
GM-66B	5/10/2004	GWGM-66B (5/10/04)	6.94	11	6.64	1.27	1,295	NM	NM
GM-66B	7/27/2005	GWGM66B (072705)	8.39	9.61	6.62	0.06	1,178	-113.7	NM
GM-66B	3/1/2007	GWGM-66B (3/1/07)	9.41	45.44	7.63	0.994	660.5	-198	NM
GM-66B	5/14/2007	GWGM-66B(5/14/07)	9.43	47.5	7.03	0.855	692.3	-106	NM
GM-66B	8/14/2007	GWGM-66B (8/14/07)	10.04	50.12	6.98	0.811	722.3	-1	NM
GM-66B	11/9/2007	GWGM-66B (11/9/07)	9.66	48.06	7.07	0.709	745	45	NM
GM-67	8/7/2000	GWGM-67	69.5	10.66	6.65	0.16	647	-139	>1.0
GM-67	5/1/2004	GWGM-67 (5/1/04)	68	10.34	7.31	0.82	608	-107.6	NM
GM-67	5/17/2004	GWGM-67 (5/17/04)	67.97	15.57	7.31	0.1	651	-125.4	NM
GM-67	1/12/2007	GWGM-67	70.14	NM	NM	NM	NM	NM	NM
GM-68	8/31/2000	GWGM-68	37.1	29.28	7.3	2.27	564	-69.6	0.06
GM-68	9/26/2000	GWGM-68	36.38	14.26	7.32	2.48	429	-103.2	0.06
GM-68	10/17/2000	GWGM-68	35.76	9.58	7.25	2.75	NM	-82.7	0.08
GM-68	5/24/2004	GWGM-68 (5/24/04)	36.9	10.82	7.57	4.36	889	46.9	NM
GM-68	7/31/2005	GWGM-68 (7/31/05)	37.45	20.95	7.58	3.7	732	59.8	NM
GM-68	1/12/2007	GWGM-68	38.21	NM	NM	NM	NM	NM	NM
GM-70	8/17/2000	GWGM-70	48.52	14.96	6.61	8.94	1,022	-42.3	NM
GM-71	8/21/2000	GWGM-71	40.34	21.61	6.23	6.09	826	-57.2	NM
GM-72	8/22/2000	GWGM-72	42.94	25.7	6.5	8.16	2,745	-145.2	NM
GM-72	9/24/2003	GM-72	42	11.17	6.47	0	3,148	-170.4	NM
GM-72	1/5/2004	GWGM-72	42.94	NM	NM	NM	NM	NM	NM
GM-72	4/16/2004	GM-72	42.51	NM	NM	NM	NM	NM	NM
GM-73	9/6/2000	GWGM-73	47.53	20.07	6.61	5.24	1,194	15.4	0.08
GM-74	9/7/2000	GWGM-74	37.59	15.41	7.5	7.69	403	-13.5	0.02
GM-75	9/8/2000	GWGM-75	25.37	15.8	7.4	2.46	309	-55.5	NM
GM-76	1/29/2001	GWGM-76	5.02	2.5	7.02	2.38	779	201.2	0
GM-76	9/9/2005	GWGM-76 (9/9/05)	11.41	14.18	9.47	1.82	709	30.5	NM
GM-77	9/22/2003	GM-77	5.59	11.52	6.64	0.14	1,215	-259.1	NM
GM-77	5/11/2004	GWGM-77 (5/11/04)	4.67	9.12	6.75	1.09	1,193	NM	NM
GM-77	7/28/2005	GWGM-77 (072805)	6.55	11.52	6.73	0.02	1,063	-110.8	NM

Footnotes on Page 13.

Table 5-10. Summary of Field Parameters During Collection of EE/CA and RI Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample Date	Sample ID	DTW ft TOC	Temp °C	pH	Dissolved Oxygen mg/L	Specific Conductivity µS/cm	ORP mV	Dissolved Iron mg/L
GM-78	9/18/2003	GM-78 (9/18/03)	14.32	10.85	6.63	0.13	1,103	-137.9	NM
GM-78	4/29/2004	GWGM-78 (4/29/04)	11.71	9.3	6.76	0.08	892	-76.1	NM
GM-78	7/29/2005	GWGM-78 (7/29/05)	14.36	9.75	6.88	0.05	1,200	-133.6	NM
GM-78	2/28/2007	GWGM-78 (2/28/07)	15.29	7.93	8.53	955	577.4	-247	NM
GM-78	5/11/2007	GWGM-78(5/11/07)	15.21	9.05	7.24	776	591.1	-116	NM
GM-78	8/14/2007	GWGM78 (8/14/07)	15.68	11.31	7.23	271	606.1	-155	NM
GM-78	11/8/2007	GWGM-78 (11/8/07)	15.35	NM	NM	NM	NM	NM	NM
GM-79	9/18/2003	GM-79 (9/18/03)	14.49	9.65	6.21	0.16	662	-132.5	NM
GM-79	4/26/2004	GWGM-79 (4/26/04)	11.26	7.48	6.55	1.2	635	-53.6	NM
GM-79	7/29/2005	GWGM-79 (7/29/05)	14.46	9.54	6.79	0.11	695	-105	NM
GM-79	5/9/2007	GWGM-79 (5/9/07)	15.29	NM	NM	NM	NM	NM	NM
GM-79	8/7/2007	GWGM-79 (8/7/07)	15.74	11.52	7.13	70	436.4	231	NM
GM-79	11/6/2007	GWGM-79(11/6/07)	15.76	10.79	7.2	758	444.4	-56	NM
GM-80	5/3/2004	GWGM-80 (5/3/04)	44.63	NM	NM	NM	NM	NM	NM
GM-84	8/1/2005	GWGM-84 (08/01/05)	15.36	11.7	8.33	0.17	460	-68.6	NM
GM-84	3/2/2007	GWGM-84 (3/2/07)	15.56	8.01	8.31	1.627	430.4	-135	NM
GM-84	5/14/2007	GWGM-84 (5/14/07)	15.91	9.81	7.73	0.644	454.5	-33	NM
GM-84	8/14/2007	GWGM-84 (8/14/07)	16.44	10.29	7.65	0.369	469.9	-28	NM
GM-84	11/9/2007	GWGM-84(11/9/07)	16.08	8.88	11.32	9.994	291.6	48	NM
GM-85	7/31/2005	GWGM-85 (7/31/05)	23.4	21.89	8.82	2	571	6.8	NM
GM-85	1/12/2007	GWGM-85	24.19	NM	NM	NM	NM	NM	NM
GM-87A	2/19/2007	GWGM-87A (02/19/07)	16.71	7.2	6.56	0.103	414.6	-160	NM
GM-87A	5/8/2007	GWGM-87A (5/8/07)	16.82	9.81	7.23	0.178	486.6	-94	NM
GM-87A	8/6/2007	GWGM-87A (8/6/07)	17.26	11.22	7.11	0.49	529.1	-168	NM
GM-87A	11/7/2007	GWGM-87A (11/7/07)	17.24	9.39	7.43	0.807	411.7	17	NM
GM-87B	2/20/2007	GWGM-87B (2/20/07)	16.86	7.8	7.78	1.915	198.8	-217	NM
GM-87B	5/8/2007	GWGM-87B (5/8/07)	16.85	4.57	7.99	0.257	217.6	-180	NM
GM-87B	8/6/2007	GWGM-87B (8/6/07)	17.31	10.68	7.71	1.066	225.2	-36	NM
GM-87B	11/7/2007	GWGM-87B (11/7/07)	17.27	9.18	7.95	0.781	188	-112	NM
GM-118D	10/21/1998	GWGM-118D	50.56	11.45	7.19	9.02	609	270.7	0
GM-118D	4/29/1999	GWGM-118D	51.32	9.1	7.19	8.6	741	-43.5	0.08
GMEW-1	4/24/2006	GMEW-1 (4/24/06)	5.19	NM	NM	NM	NM	NM	NM
GMEWA-4	8/2/2005	GWGMEWA4 (08/02/05)	12.5	10.24	6.56	0.16	1,682	-76.2	NM
GMEWA-26	7/27/2005	GWGMEWA-26 (072705)	10.22	11.08	6.44	0.17	1,936	-100.3	NM
GMEWC-1	7/26/2005	GWGMEWC-1 (072605)	4.51	11.3	6.75	0.08	1,184	-96.9	NM

Footnotes on Page 13.

Table 5-10. Summary of Field Parameters During Collection of EE/CA and RI Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample Date	Sample ID	DTW ft TOC	Temp °C	pH	Dissolved Oxygen mg/L	Specific Conductivity µS/cm	ORP mV	Dissolved Iron mg/L
GMPZA-24	4/24/2006	GMPZA-24 (4/24/06)	14.68	NM	NM	NM	NM	NM	NM
GMPZA-24	5/26/2006	GMPZA-24 (5/26/06)	14.75	NM	NM	NM	NM	NM	NM
GMPZA-25	4/24/2006	GMPZA-25 (4/24/06)	16.08	NM	NM	NM	NM	NM	NM
GMPZA-26	2/27/2007	GWGMPZA-26 (2/27/07)	16.79	NM	NM	NM	NM	NM	NM
GMPZA-26	8/13/2007	GWGMPZA-26 (8/13/07)	17.46	10.29	6.87	0.369	678.5	-52	NM
GMPZA-28	4/24/2006	GMPZA-28 (4/24/06)	15.9	NM	NM	NM	NM	NM	NM
GMPZA-29	4/24/2006	GMPZA-29 (4/24/06)	14.78	NM	NM	NM	NM	NM	NM
GMPZA-29	2/26/2007	GWGMPZA-29 (2/26/07)	15.74	7.37	7.16	0.842	908.7	-193	NM
GMPZA-29	8/10/2007	GWGMPZA-29(08/10/07)	16.32	11.46	6.75	0.86	337.6	234	NM
GMPZA-30	4/24/2006	GMPZA-30 (4/24/06)	15.38	NM	NM	NM	NM	NM	NM
GMPZA-34	4/24/2006	GMPZA-34 (4/24/06)	14.26	NM	NM	NM	NM	NM	NM
GMPZA-34	2/26/2007	GWGMPZA-34 (2/26/07)	14.79	8.19	7.73	0.693	235.9	-215	NM
GMPZA-34	8/9/2007	GWGMPZA-34 (8/9/07)	15.22	10.94	7.79	0.14	266.3	-182	NM
GMPZA-38	4/24/2006	GMPZA-38 (4/24/06)	10.31	NM	NM	NM	NM	NM	NM
GMPZA-38	2/23/2007	GWGMPZA-38 (2/23/07)	10.87	7.8	8.08	0.895	252.3	-215	NM
GMPZA-38	8/9/2007	GWGMPZA-38 (8/9/07)	11.03	10.57	7.97	0.752	285.2	-208	NM
GMPZA-41	4/24/2006	GMPZA-41 (4/24/06)	5.41	NM	NM	NM	NM	NM	NM
GMPZA-41	2/23/2007	GWGMPZA-41 (2/23/07)	6.02	7.6	7.52	0.618	230.2	-204	NM
GMPZA-41	8/8/2007	GWGMPZA-41 (8/8/07)	6.36	10.23	7.65	0.119	268.3	3	NM
GMPZC-12	3/1/2007	GWGMPZC-12 (3/1/07)	8.33	8.05	7.43	0.963	569.3	-223	NM
GMPZC-12	8/14/2007	GWGMPZC-12 (8/14/07)	8.9	NM	NM	NM	NM	NM	NM
GMPZC-14	2/28/2007	GWGMPZC-14 (2/28/07)	11.92	7.89	6.89	0.85	1,417	-173	NM
GMPZC-14	8/10/2007	GWGMPZC-14(08/10/07)	12.2	10.5	6.8	0.273	1,612	-138	NM
GMPZC-17	2/27/2007	GWGMPZC-17 (2/27/07)	11.12	8.16	8.01	0.727	273.3	-230	NM
GMPZC-17	8/13/2007	GWGMPZC-17 (8/13/07)	11.56	10.26	7.47	0.371	301.9	-16	NM
MPMW-4	2/26/2002	GWMPMW-4 (2/26/02)	71.96	2.35	7.78	1.34	220	-76.8	0
MW-1B	6/27/1997	GWMW-1B	42	14.6	7.33	0.06	665	60	1
MW-2B	6/28/1997	GWMW-2B	81.94	14.67	6.89	0.16	577	39	>1.0
MW-5	10/22/1998	GWMW-5	63.02	9.94	8.24	-0.58	336	11.9	0.02
MW-5	4/30/1999	GWMW-5	63.54	17.2	8.23	0.16	405	-205.5	0
MW-8	6/29/1997	GWMW-8	74.44	27.57	7	0.08	33	38	>1.0
MW-8	10/24/1998	GWMW-8	75.79	13.06	7.12	1.44	1,167	-86.2	>1.0
MW-8	5/3/1999	GWMW-8	75.95	17.45	6.95	0.31	1,349	-132.9	>1.0
MW-8	5/12/2004	GWMW-8 (5/12/04)	73.81	22.76	7.94	0.1	1,212	-162.2	NM
MW-9A	7/2/1997	GWMW-9A	43.92	14.95	7.75	0.11	360	64	0.19

Footnotes on Page 13.

Table 5-10. Summary of Field Parameters During Collection of EE/CA and RI Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample Date	Sample ID	DTW ft TOC	Temp °C	pH	Dissolved Oxygen mg/L	Specific Conductivity µS/cm	ORP mV	Dissolved Iron mg/L
MW-10	6/30/1997	GWMW-10	79.01	12.29	7.43	0.17	780	97	0.11
UG-1	5/21/2004	GWUG-1 (5/21/04)	76.15	11.9	7.26	7	1,493	112.9	NM
UG-1	7/31/2005	GWUG-1 (7/31/05)	76.34	19.22	7.38	4.3	1,028	90.8	NM
UG-1	1/9/2007	GWUG-1	76.5	4.8	7.67	12.847	740.6	227	NM
UG-2	7/1/1997	GWUG-2	39	16.67	7.45	2.56	673	334	0
UG-2	10/27/1998	GWUG-2	40.58	11.44	7.46	3.62	688	157.7	0
UG-2	5/3/1999	GWUG-2	41.15	25.24	7.38	5.5	854	337.4	0.06
UG-3	5/10/2004	GWUG-3 (5/10/04)	40.01	22.64	7.42	3.82	1,343	51.8	NM
UG-3	8/2/2005	GWUG-3 (8/2/05)	30.37	28.79	7.52	2.96	1,078	130	NM
UG-3	1/11/2007	GWUG-3	32.31	48.09	7.43	4.227	794.5	234	NM
UG-4	10/13/1997	UG-4	45.87	11.48	7.37	4.25	579	-182.7	0.31
UG-4	10/23/1998	GWUG-4	48.45	17.89	7.06	1.35	604	-101.8	0.24
UG-4	5/2/1999	GWUG-4	48.65	20.39	7.34	0.32	567	-129.7	0.27
UG-5	5/22/2004	GWUG-5 (5/22/04)	52.31	11.15	7.66	0.8	604	-96.1	NM
UG-4	1/11/2007	GWUG-5	53.87	10.26	7.71	0.429	392.9	-106	NM
UG-6	10/21/1997	UG-6	52.51	7.05	7.98	0.28	579	-136.9	0.3

(-)	Negative number.
>	Greater than.
°C	Degrees celsius.
DTW	Depth to water.
ft TOC	Feet below top of casing.
µS/cm	Microseimens per centimeter.
mg/L	Milligrams per liter.
mV	Millivolt.
NM	Not measured.
ORP	Oxidation Reduction Potential.
Temp	Temperature.

ARCADIS

Table 5-11. Summary of RI Surface Water Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Sample ID	Date	2-methylphenol, phenol, 2,4-Dimethylphenol	TSS	Dissolved Ba, V	Hardness	Organic Volatile Acids	Formaldehyde	Silica	Select Anions
SWD5-1	12/1/1999							X	
SWDNC-A	8/6/1999	X	X	X	X	X	X		
SWDNC-B	8/6/1999	X	X	X	X	X	X		
SWDNMI-A	8/6/1999	X	X	X	X	X	X		
SWDNWI-A	8/6/1999	X	X	X	X	X	X		
SWDNWI-B	8/6/1999	X	X	X	X	X	X		
SWGM26-1	12/1/1999							X	X
SWMIDC-A	8/5/1999	X	X	X	X	X	X		
SWMIDC-B	8/5/1999	X	X	X	X	X	X		
SWMIDMI-A	8/5/1999	X	X	X	X	X	X		
SWMIDWI-A	8/5/1999	X	X	X	X	X	X		
SWUPC-A	8/5/1999	X	X	X	X	X	X		
SWUPMI-A	8/5/1999	X	X	X	X	X	X		
SWUPWI-A	8/5/1999	X	X	X	X	X	X		
SWUS-1	12/1/1999							X	X

Ba Barium
TSS Total suspended solids.
V Vanadium

Table 5-12. Results from Specific Capacity Tests and Calculated Hydraulic Conductivities, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well	Screened Interval (Ft BLS)	Deposit Thickness (Feet)	Drawdown (Feet)	Discharge (GPM)	Specific Capacity (GPM/ft)	Corrected Transmissivity (Ft2/Day)	Hydraulic Conductivity (cm/sec)	Lithology Well Completed In
Unit 1								
GM-1	220-230	10	26.2	3.34	0.13	26.3	9.28E-04	Very Fine to Medium Sand
GM-3A	74-84	11	2.43	3.6	1.48	831	2.67E-02	Fine to Medium Sand
GM-5	250-260	6	19.36	3	0.15	32.48	1.91E-03	Fine to Medium Sand
GM-6	165-175	27	8.08	3.7	0.46	214	2.80E-03	Clay and Gravel
GM-7	145-155	15	35.15	3	0.09	21.22	4.99E-04	Very Fine to Coarse Sand
GM-8	80-90	81.93	0.94	2.78	2.96	4822	2.08E-02	Fine to Medium Sand
GM-9	164-174	18.5	3.9	2.5	0.64	261	4.98E-03	Fine Sand
GM-10	170-180	5	4.65	2.85	0.61	14.2	1.00E-03	Medium Sand
GM-12	290-300	46.5	0.13	1.71	13.15	12,880	9.77E-02	Sand and Gravel
GM-14	135-145	67.5	1.22	1.54	1.26	1,347	7.04E-03	Fine to Medium Sand
GM-16	108-118	22	0.37	1.81	4.89	2,155	3.46E-02	Fine to Medium Sand
GM-17	224-234	100	7.19	4	0.56	1,008	3.56E-03	Medium to Coarse Sand
GM-25A	19-29	14	0.52	2.14	4.12	891.05	2.25E-02	Sand and Gravel
GM-25B	98-108	14	5.35	1.62	0.30	51.66	1.32E-03	Fine to Medium Sand
GM-25C	206-216	18	1.5	1.82	1.21	264.11	5.20E-03	Fine to Medium Sand
GM-26A	30-40	37	0.25	1.82	7.28	3,846.98	3.67E-02	Medium to Coarse Sand
GM-26C	160-170	50	1.03	2.22	2.16	1,387.64	9.83E-03	Fine Sand
GM-27A	30-40	20	0.45	1.88	4.18	1,198.38	2.12E-02	Sand and Gravel
GM-27B	145-155	17	1.98	1.76	0.89	190.53	3.97E-03	Fine Sand
GM-27C	210-220	10	19.54	1.54	0.08	11.85	4.25E-04	Fine Sand and Gravel
GM-28A	40-50	20	0.23	1.76	7.65	2,293.72	4.04E-02	Sand and Gravel
GM-28B	124.5-129.5	6	1.41	1.46	1.04	202.46	1.19E-02	Fine to Medium Sand
GM-29	55-65	50	0.17	1.88	11.06	8,396.29	5.94E-02	Sand and Gravel
GM-31	105-115	23	0.2	1.58	7.90	2,129.52	3.27E-02	Medium Sand
GM-32	135-145	60	1.25	1.76	1.41	1,195.89	7.03E-03	Fine Sand
GM-34A	30-40	15	0.43	1.88	4.37	1,039.22	2.44E-02	Fine to Coarse Sand
GM-34B	85-95	12	3.73	1.28	0.34	59.66	1.75E-03	Coarse Sand and Gravel
GM-36	95-105	10	0.81	1.71	2.11	433.36	1.53E-02	Sand and Gravel
GM-37B	328-338	15	0.2	1.3	6.50	1,591.17	3.74E-02	Sand and Gravel
GM-38A	95-105	10	0.3	1.54	5.13	1,129.08	3.98E-02	Medium to Coarse Sand
GM-38B	160-170	20	1.05	1.67	1.59	423.24	7.47E-03	Fine Sand

Footnotes on Page 2.

Table 5-12. Results from Specific Capacity Tests and Calculated Hydraulic Conductivities, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well	Screened Interval (Ft BLS)	Deposit Thickness (Feet)	Drawdown (Feet)	Discharge (GPM)	Specific Capacity (GPM/ft)	Corrected Transmissivity (Ft2/Day)	Hydraulic Conductivity (cm/sec)	Lithology Well Completed In
Unit 1 (continued)								
GM-39	85-95	13	2.37	1.54	0.65	126.13	3.42E-03	Fine to Coarse Sand
GM-40A	75-85	26	0.07	1.33	19.00	7,772.41	1.05E-01	Fine to Medium Sand
GM-40B	120-130	18	0.93	1.43	1.54	376.28	7.37E-03	Fine Sand
GM-42	72-82	17	1.12	1.28	1.14	259.31	5.38E-03	Fine to Coarse Sand
GM-50	80.5-95.5	10	0.84	1.46	1.74	351.23	1.24E-02	Fine Sand to Sand and Gravel
GM-51	67-77	13	0.18	1.71	9.50	2,283.47	6.20E-02	Fine to Coarse Sand
GMEW-1	23-33	18	1.74	35	20.09	6,097.18	1.19E-01	Fine to Medium Sand/Gravel
GMEW-2	20-30	12	0.96	25	26.07	7,168.04	2.11E-01	Sand and Gravel
Unit 2								
GM-2B	271-281	57	18.14	1.3	0.07	6.36	3.94E-05	Very Fine Sand/Silty
GM-3B	170-180	10	26.55	3.8	0.14	29.12	1.03E-03	Very Fine to Fine Sand/Silty
GM-4	76-86	2	32.98	0.55	0.02	2.87	5.07E-04	Very Fine to Fine Sand
GM-11	175-185	18.5	8.18	3	0.37	118	2.25E-03	Very Fine to Fine Sand
GM-13	325-335	52	2.69	2	0.74	703	4.77E-03	Very Fine Sand to Gravel/Silty
GM-15	165-175	2	55.8	0.29	0.005	0.79	1.39E-04	Silty to Coarse Sand/Gravel
GM-26B	101-111	15	35.28	1.43	0.04	5.85	1.42E-04	Fine Sand and Silt
GM-33	74-89	15	4.41	0.52	0.12	17.11	4.02E-04	Silty to Very Fine Sand
GM-38C	200-210	8	24.79	1.33	0.05	7.70	3.39E-04	Very Fine to Medium Sand/Silty
Unit 3								
No wells completed in this unit.								

Note:	Volume and Discharge measured at end of step with highest discharge rate.
cm/sec	Centimeters per second.
FT BLS	Feet below land surface.
Ft^2/Day	Square feet per day.
GPM	Gallons per minute.
GPM/ft	Gallons per minute per foot of drawdown.
Unit 1	Unit 1 relates to the unit of the 3D geologic model characteristic of sand and gravel.
Unit 2	Unit 2 relates to the unit of the 3D geologic model characteristic of very fine sand to sandy silt.
Unit 3	Unit 3 relates to the unit of the 3D geologic model characteristic of silt and clay.

Table 5-13. Summary of RI Soil Vapor Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/ Boring	Sample I.D.	Date	Compositional (Isotech)	VOCs (Savannah)	CH_4 Age Date (Isotech)
GM-2A	GM-2A/BKGI	8/5/1998	X		
GM-2A	GM-2A/BKGM	8/5/1998	X		
GM-2A	GM2AEFL/EP	8/26/1998	X		
GM-2A	GM2A/2	8/28/1998	X		
GM-2A	GM2A/4	8/30/1998	X		
GM-2A	GM2A/7	9/2/1998	X		
GM-2A	GM2A/1	8/27/1998	X		
GM-2A	GM-2A	9/9/1998	X		
GM-2A	GM-2A	9/16/1998	X		
GM-2A	GM-2A	9/23/1998	X		
GM-2A	GM-2A	9/28/1998	X		
GM-2A	GM-2A	10/7/1998	X		
GM-2A	GM-2A	10/14/1998	X		
GM-2A	GM-2A	10/27/1998	X		
GM-2A	GM-2A	11/12/1998	X		
GM-2A	GM-2A	12/16/1998	X		
GM-2A	GM-2A	1/20/1999	X		
GM-2A	GM-2A	2/10/1999	X		
GM-2A	GM-2A	3/13/1999	X		
GM-2A	GM-2A	4/13/1999	X		
GM-2A	GM-2A	10/9/1999	X		
GM-2A	GM-2A	1/19/2000	X		
GM-2A	GM-2A	4/18/2000	X		
GM-2A	GM-2A	7/22/2000	X		
GM-2A	GM-2A	10/20/2000	X		
GM-2A	GM-2A	1/27/2001	X		
GM-2A	GM-2A	4/23/2001	X		
GM-2A	GM-2A	7/11/2001	X		
GMSG-3A	GMSG-3A	9/23/1998	X		
GMSG-3B	GMSG-3B	2/10/1999	X		
GMSG-4B	GMSG-4B/BKGI	8/5/1998	X		
GMSG-4B	GMSG-4B/EP	8/26/1998	X		
GMSG-4B	GMSG-4B/2	8/28/1998	X		
GMSG-4B	GMSG-4B/4	8/30/1998	X		
GMSG-4B	GMSG-4B/1	8/27/1998	X		
GMSG-4B	GMSG-4B/7	9/2/1998	X		
GMSG-4B	GMSG-4B	9/9/1998	X		
GMSG-4B	GMSG-4B	9/16/1998	X		
GMSG-4B	GMSG-4B	9/23/1998	X		
GMSG-4B	GMSG-4B	9/28/1998	X		
GMSG-4B	GMSG-4B	10/7/1998	X		
GMSG-4B	GMSG-4B	10/14/1998	X		
GMSG-4B	GMSG-4B	10/27/1998	X		
GMSG-4B	GMSG-4B	11/12/1998	X		
GMSG-4B	GMSG-4B	12/16/1998	X		
GMSG-4B	GMSG-4B	1/20/1999	X		
GMSG-4B	GMSG-4B	2/10/1999	X		

Footnotes on Page 3.

Table 5-13. Summary of RI Soil Vapor Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/ Boring	Sample I.D.	Date	Compositional (Isotech)	VOCs (Savannah)	CH_4 Age Date (Isotech)
GMSG-4B	GMSG-4B	3/13/1999	X		
GMSG-4B	GMSG-4B	4/13/1999	X		
GMSG-4B	GMSG-4B	10/9/1999	X		
GMSG-4B	GMSG-4B	1/19/2000	X		
GMSG-4B	GMSG-4B	4/18/2000	X		
GMSG-4B	GMSG-4B	7/22/2000	X		
GMSG-4B	GMSG-4B	10/20/2000	X		
GMSG-4B	GMSG-4B	1/27/2001	X		
GMSG-4B	GMSG-4B	4/23/2001	X		
GMSG-4B	GMSG-4B	7/11/2001	X		
GMSG-19	GMSG-19	12/16/1998	X		
GMSG-19	GMSG-19/BKGI	8/5/1998	X		
GMSG-19	GMSG-19/EP	8/26/1998	X		
GMSG-19	GMSG-19/4	8/30/1998	X		
GMSG-19	GMSG-19/7	9/2/1998	X		
GMSG-19	GMSG-19/2	8/28/1998	X		
GMSG-19	GMSG-19/1	8/27/1998	X		
GMSG-19	GMSG-19	9/9/1998	X		
GMSG-19	GMSG-19	9/16/1998	X		
GMSG-19	GMSG-19	9/23/1998	X		
GMSG-19	GMSG-19	9/28/1998	X		
GMSG-19	GMSG-19	10/7/1998	X		
GMSG-19	GMSG-19	10/14/1998	X		
GMSG-19	GMSG-19	10/27/1998	X		
GMSG-19	GMSG-19	11/12/1998	X		
GMSG-19	GMSG-19	1/20/1999	X		
GMSG-20	GMSG-20	2/10/1999	X		
GMSG-20	GMSG-20	3/13/1999	X		
GMSG-20	GMSG-20	4/13/1999	X		
GMSG-20	GMSG-20	5/10/1999	X		
GMSG-20	GMSG-20	10/9/1999	X		
GMSG-20	GMSG-20	1/19/2000	X		
GMSG-20	GMSG-20	4/18/2000	X		
GMSG-20	GMSG-20	7/22/2000	X		
GMSG-20	GMSG-20	10/20/2000	X		
GMSG-20	GMSG-20	1/27/2001	X		
GMSG-20	GMSG-20	4/23/2001	X		
GMSG-20	GMSG-20	7/11/2001	X		
GMSG-53	GMSG-53	8/24/2001	X		
GMSG-53	GMSG-53	8/18/2001	X		
GMSG-109	GMSG-109	9/11/1998	X		
GMSG-109	GMSG-109	9/16/1998	X		
GMSG-118	GMSG-118A	9/16/1998	X		
GMSG-118	GMSG-118B	9/16/1998	X		
GMSG-118	GMSG-118C	9/16/1998	X		

Footnotes on Page 3.

Table 5-13. Summary of RI Soil Vapor Samples and Analyses Performed, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/ Boring	Sample I.D.	Date	Compositional (Isotech)	VOCs (Savannah)	CH_4 Age Date (Isotech)
GMSG-118A	GMSG-118A	5/10/1999	X		
GMSG-118B	GMSG-118B	5/10/1999	X		
GMSG-118C	GMSG-118C	5/10/1999	X		
GMSG-300	GMSG-300	11/10/1998	X		
GMSG-304	GMSG-304	8/25/1999			X
GMSG-417	GMSG-417	10/17/2003	X		X
2260 Woodward		8/24/2001	X		
SV-Breen	SV-Breen	7/12/1999		X	
SV-Emmet	SV-Emmet	7/13/1999		X	
SVGM-100	SVGM-100	7/12/1999		X	
SVGM-24B	SVGM-24B	7/12/1999		X	
SVGM-30	SVGM-30	7/13/1999		X	

VOCs Volatile organic compounds.
X Submitted for analysis.

Table 5-14. Analytical Parameters, Analytical Methods, and Quantitation Limits, Ford-Kingsford Products Facility, Kingsford, Michigan.

Parameter	Method Reference	Quantitation Limits Groundwater (mg/L)	Quantitation Limits Soil (µg/kg)
VOCs			
1,1,1,2-Tetrachloroethane	8260B	1	100
1,1,1-Trichloroethane	8260B	1	50
1,1,2,2-Tetrachloroethane	8260B	1	100
1,1,2-Trichloroethane	8260B	1	50
1,1-Dichloroethane	8260B	1	50
1,1-Dichloroethene	8260B	1	50
1,2,3-Trichloropropane	8260B	5	100
1,2,4-Trimethylbenzene	8260B	1	100
1,2-Dibromo-3-chloropropane	8260B	5	250
1,2-Dibromoethane	8260B	1	50
1,2-Dichloroethane	8260B	1	50
1,2-Dichloroethene, total	8260B	2	100
1,2-Dichloropropane	8260B	1	50
1,3,5-Trimethylbenzene	8260B	1	100
1,3-Dichlorobenzene	8260B	1	100
1,4-Dichlorobenzene	8260B	1	100
2-Butanone (MEK)	8260B	50	2,500
2-Hexanone	8260B	50	2,500
4-Methyl-2-pentanone (MIBK)	8260B	50	2,500
Acetone	8260B	100	5,000
Acrylonitrile	8260B	25	2,500
Benzene	8260B	1	50
Bromochloromethane	8260B	1	100
Bromodichloromethane	8260B	1	100
Bromoform	8260B	1	100
Bromomethane	8260B	1	250
Carbon disulfide	8260B	5	250
Carbon tetrachloride	8260B	1	50
Chlorobenzene	8260B	1	50
Chloroethane	8260B	1	250
Chloroform	8260B	1	50
Chloromethane	8260B	1	250
cis-1,2-Dichloroethene	8260B	1	50
cis-1,3-Dichloropropene	8260B	1	50
Dibromochloromethane	8260B	1	100
Dibromomethane	8260B	1	250
Dichlorodifluoromethane	8260B	1	100
Diethylether	8260B	10	2,500
Ethylbenzene	8260B	1	50
Furan	8260B	*	*
Isopropylbenzene	8260B	1	100
Methyl (tert) butyl ether	8260B	5	250
Methyl iodide	8260B	5	50
Methylene chloride	8260B	1	250
n-Propylbenzene	8260B	1	100

Footnotes on Page 5.

Table 5-14. Analytical Parameters, Analytical Methods, and Quantitation Limits, Ford-Kingsford Products Facility, Kingsford, Michigan.

Parameter	Method Reference	Quantitation Limits Groundwater (mg/L)	Quantitation Limits Soil (µg/kg)
Styrene	8260B	1	50
Tetrachloroethene	8260B	1	50
Tetrahydrofuran	8260B	*	*
Toluene	8260B	1	100
trans-1,2-Dichloroethene	8260B	1	50
trans-1,3-Dichloropropene	8260B	1	50
trans-1,4-Dichloro-2-butene	8260B	5	250
Trichloroethene	8260B	1	50
Trichlorofluoromethane	8260B	1	100
Vinyl acetate	8260B	50	2,500
Vinyl chloride	8260B	1	100
Xylene (total)	8260B	3	150
SVOCs			
1,2,4-Trichlorobenzene	8270C	5	330
1,2-Dichlorobenzene	8270C	5	330
1,3-Dichlorobenzene	8270C	5	330
1,4-Dichlorobenzene	8270C	5	330
2,3-Dimethylphenol	8270C	*	*
2,4,5-Trichlorophenol	8270C	5	330
2,4,6-Trichlorophenol	8270C	5	330
2,4-Dichlorophenol	8270C	5	330
2,4-Dimethylphenol	8270C	5	330
2,4-Dinitrophenol	8270C	20	1,700
2,4-Dinitrotoluene	8270C	5	330
2,5-Dimethylphenol	8270C	*	*
2,5-Dinitrophenol	8270C	*	*
2,6-Dimethylphenol	8270C	*	*
2,6-Dinitrotoluene	8270C	5	330
2-Chloronaphthalene	8270C	5	330
2-Chlorophenol	8270C	5	330
2-Methylnaphthalene	8270C	5	330
2-Methylphenol	8270C	5	330
2-Nitroaniline	8270C	20	1,700
2-Nitrophenol	8270C	5	670
3,3'-Dichlorobenzidine	8270C	20	670
3,4-Dimethylphenol	8270C	*	*
3-Methylphenol	8270C	10	330
4-Methylphenol	8270C	10	330
3-Nitroaniline	8270C	20	1,700
3-Nitrophenol	8270C	*	*
4,6-Dinitro-2-methylphenol	8270C	20	1,700
4-Bromophenyl-phenylether	8270C	5	330
4-Chloro-3-methylphenol	8270C	5	330
4-Chloroaniline	8270C	20	330
4-Chlorophenyl-phenylether	8270C	5	330

Footnotes on Page 5.

Table 5-14. Analytical Parameters, Analytical Methods, and Quantitation Limits, Ford-Kingsford Products Facility, Kingsford, Michigan.

Parameter	Method Reference	Quantitation Limits Groundwater (mg/L)	Quantitation Limits Soil (µg/kg)
4-Methylphenol (p-cresol)	8270C	5	330
4-Nitroaniline	8270C	20	1,700
4-Nitrophenol	8270C	20	1,700
Acenaphthene	8270C	5	330
Acenaphthylene	8270C	5	330
Anthracene	8270C	5	330
Azobenzene	8270C	5	330
Benzo(a)anthracene	8270C	5	330
Benzo(a)pyrene	8270C	5	330
Benzo(b)fluoranthene	8270C	5	330
Benzo(g,h,i)perylene	8270C	5	330
Benzo(k)fluoranthene	8270C	5	330
bis(2-Chloroethoxy)methane	8270C	5	330
bis(2-Chloroethyl)ether	8270C	5	330
Bis-(2-Chloroisopropyl)ether	8270C	5	330
bis(2-Ethylhexyl)phthalate	8270C	5	330
Butylbenzylphthalate	8270C	5	330
Carbazole	8270C	5	330
Chrysene	8270C	5	330
Di-n-butyl phthalate	8270C	5	330
Di-n-octyl phthalate	8270C	5	330
Dibenzo(a,h)anthracene	8270C	5	330
Dibenzofuran	8270C	5	330
Diethyl phthalate	8270C	5	330
Dimethyl phthalate	8270C	5	330
Fluoranthane	8270C	5	330
Fluorene	8270C	5	330
Hexachlorobenzene	8270C	5	330
Hexachlorobutadiene	8270C	5	330
Hexachlorocyclopentadiene	8270C	5	330
Hexachloroethane	8270C	5	330
Indeno(1,2,3-cd)pyrene	8270C	5	330
Isophorone	8270C	5	330
N-Nitroso-di-n-propylamine	8270C	5	330
N-Nitrosodiphenylamine (1)	8270C	5	330
Naphthalene	8270C	5	330
Nitrobenzene	8270C	5	330
Pentachlorophenol	8270C	20	1,700
Phenanthrene	8270C	5	330
Phenol	8270C	5	330
Pyrene	8270C	5	330
Alcohols			
1,4-Dioxane	8270C	5	330
1-Butanol	8015B	1,000	4,400
1-Propanol	8015B	1,000	1,000

Footnotes on Page 5.

Table 5-14. Analytical Parameters, Analytical Methods, and Quantitation Limits, Ford-Kingsford Products Facility, Kingsford, Michigan.

Parameter	Method Reference	Quantitation Limits Groundwater (mg/L)	Quantitation Limits Soil (µg/kg)
2-Pentanone	8260B	*	*
2-Picoline	8270C	10	330
Acetonitrile	8260B	50	2,500
Acrolein	8260B	50	250
Allyl Alcohol	8260B	*	*
Ethanol	8015B	1,000	4,400
Ethyl Acetate	8015B	5,000	5,000
Ethylene Glycol	8015B	10,000	10,000
Ethylene Oxide	8260B	200	10,000
Isobutyl Alcohol	8015B	1,000	4,400
Isopropyl Alcohol	8015B	1,000	4,400
Methanol	8015B	1,000	4,400
N-Nitroso-di-n-butylamine	8270C	5	330
o-Toluidine	8270C	5	330
Propanenitrile	8260B	25	10,000
Pyridine	8270C	20	330
t-Butyl Alcohol	8015B	1,000	1,000
Aldehydes			
** Acetaldehyde/Paraldehyde	8315A	100	100
** Butanal	8315A	100	100
** Crotonaldehyde	8315A	100	100
** Decanal	8315A	100	100
** Formaldehyde	8315A	100	100
** Heptanal	8315A	100	100
** Hexanal	8315A	100	100
** m-Tolualdehyde	8315A	100	100
** Nonanal	8315A	100	100
** Octanal	8315A	100	100
** Pentanal	8315A	100	100
** Propanal	8315A	100	100
PCBs			
Aroclor 1016	8082	1	33
Aroclor 1221	8082	2	33
Aroclor 1232	8082	1	33
Aroclor 1242	8082	1	33
Aroclor 1248	8082	1	33
Aroclor 1254	8082	1	33
Aroclor 1260	8082	1	33
Metals			
Aluminum	6010B	200	5,000
Antimony	6010B	50	2,500
Arsenic	6010B water/7060B soil	20	250
Barium	6010B	100	1,000

Footnotes on Page 5.

Table 5-14. Analytical Parameters, Analytical Methods, and Quantitation Limits, Ford-Kingsford Products Facility, Kingsford, Michigan.

Parameter	Method Reference	Quantitation Limits Groundwater (mg/L)	Quantitation Limits Soil (µg/kg)
Beryllium	6010B	1	200
Cadmium	7131	0.5	25
Calcium	6010B	100	5,000
Chromium	6010B	5	500
Cobalt	6010B	10	500
Copper	6010B	25	1,000
Iron	6010B	100	2,000
Lead	6010B	3	1,000
Magnesium	6010B	100	3,000
Manganese	6010B	20	2,000
Mercury	7470A water/7471A soil	0.2	100
Molybdenum	6010B	10	100
Nickel	6010B	25	1,000
Potassium	6010B	250	5,000
Selenium	6010 water/7742	5	200
Silver	7761 water/6010B	0.2	500
Sodium	6010B	1,000	10,000
Thallium	7841 water/6010B	2	500
Titanium	6010B	50	2,500
Vanadium	6010B	20	1,000
Zinc	6010B	20	1,000
Other Constituents			
**Organic Volatile Acids	5560	50	100
Alkalinity	310.1	1,000	NA
BOD	405.1	2,000	NA
Chloride	325.2	1,000	NA
COD	410.4	20,000	NA
#Dissolved Methane	RSK 175	1.0	NA
Nitrate	353.2	50	NA
Nitrite	353.2	50	NA
Nitrogen (ammonia)	350.1	30	NA
Phosphate/Phosphorus	365.3	50	NA
**Silica	6010QL	500	NA
Sulfate	375.4	5,000	NA
Sulfide	376.1	1,000	NA
TOC (soil)	Walkley Black	NA	100,000
TOC (water)	415.1	1,000	NA

Practical quantitation limits per Savannah, TriMatrix, and Isotech Laboratories SOPs.

*	Practical quantitation limits to be established upon review of Tentatively Identified. Compounds (TICs).		
**	Analysis to be performed by TriMatrix and include acetic acid.		
#	Analysis to be performed by Isotech.		
BOD	Biochemical Oxygen Demand.	NE	Not established.
COD	Chemical Oxygen Demand.	PCBs	Polychlorinated Biphenyls.
mg/kg	Micrograms per kilogram.	SVOCs	Semi-Volatile Organic Compounds.
µg/L	Micrograms per liter.	TOC	Total Organic Carbon.
NA	Not applicable.	VOCs	Volatile Organic Compounds.

Table 5-15. Analytical Parameters and Quantitation Limits for Soil Vapor Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Parameter	Quanitiation Limit (mg/m^3)
VOCs	
Dichlorodifluoromethane	0.20
Chloromethane	0.20
Vinyl chloride	0.20
Bromomethane	0.20
Chloroethane	0.20
Trichlorofluoromethane	0.20
1,1-Dichloroethene	0.10
Methylene chloride (Dichloromethane)	0.10
trans-1,2-Dichloroethene	0.10
1,1-Dichloroethane	0.10
2,2-Dichloropropane	0.10
cis-1,2-Dichloroethene	0.10
Chloroform	0.10
Bromomchloromethane	0.10
1,1,1-Trichloroethane	0.10
1,1-Dichloropropylene	0.10
Carbon tetrachloride	0.10
1,2-Dichloroethane	0.10
Benzene	0.10
Trichloroethene	0.10
1,2-Dichloropropane	0.10
Bromodichloromethane	0.10
Dibromomethane	0.10
trans-1,3-Dichloropropene	0.10
Toluene	0.10
cis-1,3-Dichloropropene	0.10
1,1,2-Trichloroethane	0.10
1,3-Dichloropropane	0.10
Tetrachloroethene	0.10
Dibromochloromethane	0.10
1,2-Dibromoethane (EDB)	0.10
Chlorobenzene	0.10
1,1,1,2-Tetrachloroethane	0.10
Ethylbenzene	0.10
m&p-Xylene	0.10
o-Xylene	0.10
Styrene	0.10
Isopropylbenzene	0.10
Bromoform	0.10
1,1,2,2-Tetrachloroethane	0.10
1,2,3-Trichloropropane	0.10
n-Propylbenzene	0.10
Bromobenzene	0.10
1,3,5-Trimethylbenzene	0.10
2-Chlorotoluene	0.10
4-Chlorotoluene	0.10
t-Butylbenzene	0.10

Footnotes on Page 2.

Table 5-15. Analytical Parameters and Quantitation Limits for Soil Vapor Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Parameter	Quanitiation Limit (mg/m^3)
1,2,4-Trimethylbenzene	0.10
s-Butylbenzene	0.10
p-Isopropyltoluene	0.10
1,3-Dichlorobenzene	0.10
1,4-Dichlorobenzene	0.10
n-Butylbenzene	0.10
1,2-Dichlorobenzene	0.10
1,2-Dibromo-3-chloropropane	0.50
1,2,4-Trichlorobenzene	0.50
Hexachlorobutadiene	0.50
Naphthalene	0.50
1,2,3-Trichlorobenzene	0.50
Acetone	1.0
2-Butanone (MEK)	1.0
Vinyl acetate	0.50
4-Methyl-2-pentanone (MIBK)	1.0
2-Hexanone	1.0

mg/m^3 Milligrams per cubic meter.
VOCs Volatile organic compounds.

Table 6-1. Summary of Constituents Detected in Groundwater, Ford-Kingsford Products Facility, Kingsford, Michigan.

Compounds	Compounds
VOCs	**SVOCs**
1,1,2-Trichloroethane	1,4-Dichlorobenzene
1,1-Dichloroethane	2,3-Dimethylphenol
1,1-Dichloroethene	2,4-Dimethylphenol
1,2,4-Trimethylbenzene	2,4-Dimethylphenol/2,5-Dimethylphenol
1,2-Dichloroethane	2,5-Dimethylphenol
1,2-Dichloroethene (total)	2,6-Dimethylphenol
1,3,5-Trimethylbenzene	2-Methylnaphthalene
1,3-Dichlorobenzene	2-Methylphenol
2-Butanone (MEK)	2-Nitrophenol
2-Hexanone	3,4-Dimethylphenol
4-Methyl-2-pentanone (MIBK)	3-Methylphenol
Acetone	3-Methylphenol/4-Methylphenol(m&p-cresol)
Acrylonitrile	4-Methylphenol
Benzene	Anthracene
Bromochloromethane	Benzo(a)anthracene
Bromoform	Benzo(a)pyrene
Bromomethane	Benzo(b)fluoranthene
Carbon disulfide	Benzo(g,h,i)perylene
Carbon tetrachloride	Benzo(k)fluoranthene
Chlorobenzene	bis(2-Ethylhexyl)phthalate
Chloroethane	Butylbenzylphthalate
Chloroform	Carbazole
Chloromethane	Chrysene
cis-1,2-Dichloroethene	Dibenzo(a,h)anthracene
Diethylether	Diethylphthalate
Ethylbenzene	Dimethylphthalate
Furan	Di-n-butylphthalate
Isopropylbenzene	Di-n-octylphthalate
Methyl iodide	Fluoranthene
Methyl(tert)butyl ether	Hexachlorobenzene
Methylene chloride	Indeno(1,2,3-c,d)pyrene
Naphthalene	Naphthalene
n-Propylbenzene	Phenanthrene
Propionitrile	Phenol
Styrene	Pyrene
Tetrachloroethene	
Tetrahydrofuran	**Metals**
Toluene	Aluminum
trans-1,2-Dichloroethene	Antimony
Trichloroethene	Arsenic
Vinyl chloride	Barium
Xylene, o	Beryllium
Xylenes (total)	Cadmium
Xylenes, m+p	Calcium
	Chromium
	Cobalt
	Copper

Footnotes on Page 2.

Table 6-1. Summary of Constituents Detected in Groundwater, Ford-Kingsford Products Facility, Kingsford, Michigan.

Compounds	Compounds
Metals (continued)	**Inorganics**
Iron	Alkalinity
Lead	Bicarbonate
Magnesium	Chloride
Manganese	Chlorides Soluble
Mercury	Nitrogen, (Ammonia)
Molybdenum	Nitrogen, Nitrate
Nickel	Nitrogen, Nitrite
Potassium	Nitrogen, Nitrite and Nitrate
Selenium	Ortho-Phosphate
Silver	Phosphate
Sodium	Phosphorus
Thallium	Silica
Titanium	Silica, Dissolved
Vanadium	Sulfate
Zinc	Sulfate Soluble
	Sulfide
Alcohols	
1,4-Dioxane	**MISC**
2-Pentanone	Methane
2-Picoline	Acetic Acid
Acetonitrile	Suspended Solids
Ethanol	Total Dissolved Solids
Ethylacetate	Total Suspended Solids
Ethylene glycol	Total Organic Carbon
Isobutanol	Biochemical Oxygen Demand
Isopropanol	Chemical Oxygen Demand
Methanol	
n-Butanol	
n-Propanol	
Tert-Butyl Alcohol	
Aldehydes	
Acetaldehyde	
Butanal	
Crotonaldehyde	
Cyclohexanone	
Decanal	
Formaldehyde	
Heptanal	
Hexanal	
m-Tolualdehyde	
Nonanal	
Octanal	
Paraldehyde	
Pentanal	
Propanal	

SVOCs Semi-Volatile Organic Compounds
VOCs Volatile Organic Compounds.

ARCADIS

Table 6-2. Summary of VOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-1					GM-2B		
Sample Depth (ft)	95	95	144	193	290-295	75	135	205
Sample Date	05/12/97	05/13/97	05/13/97	05/14/97	05/16/97	05/02/97	05/03/97	05/04/97
Sample I.D.	GBGM-1/95	GBGM-99/1	GBGM-1/144	GBGM-1/193	GBGM-1/290-295	GBGM-2/75	GBGM-2/135	GBGM-2/205
1,1,2-Trichloroethane	<1	<1	<2.1	<1	<1 J	<1	<1	<1
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	<1	<1	<2.1	<1	<1 J	<1	<1	<1
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	<1	<1	<2.1	<1	<1 J	<1	<1	<1
2-Butanone (MEK)	<10	<10	<21	<10	<10 J	10	<10	<10
2-Hexanone	<10	<10	<21	<10	<10 J	<10	<10	<10
4-Methyl-2-pentanone (MIBK)	<10	<10	<21	<10	<10 J	<10	<10	<10
Acetone	<10	<10	<21	<10	<10 J	9.3 J	<10	<10
Benzene	0.27 J	0.30 J	20	12	0.82 J	1.4	7	<1
Carbon disulfide	<1	<1	<2.1	1.1	<1 J	0.13 J	6.6	<1
Carbon tetrachloride	1.1	1.3	<2.1	<1	<1 J	<1	<1	<1
Chloroform	<1	<1	<2.1	<1	<1 J	<1	<1	<1
Chloromethane	<1	<1	<2.1	<1	<1 J	<1	<1	<1
cis-1,2-Dichloroethene	<1	<1	<2.1	<1	<1 J	0.42 J	<1	<1
Diethylether	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	0.95 J	1.1	0.80 J	1.3	0.29 J	0.50 J	<1	<1
Furan	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
Methyl iodide	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	<1	<1	<2.1	<1	<1 J	<1	<1	<1
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	<1	<1	<2.1	<1	<1 J	<1	<1	<1
Tetrachloroethene	<1	<1	<2.1	<1	<1 J	<1	<1	<1
Tetrahydrofuran	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	<1	0.42 J	<2.1	3.5	<1 J	2.9	0.49 J	0.44 J
trans-1,2-Dichloroethene	<1	<1	<2.1	<1	<1 J	<1	<1	<1
Trichloroethene	<1	<1	<2.1	0.60 J	<1 J	1.8	<1	<1
Vinyl chloride	<1	<1	<2.1	<1	<1 J	<1	<1	<1
Xylenes (total)	<1	<1	<2.1	3.1	<1 J	1.9	0.69 J	<1

Footnotes on Page 14.

Table 6-2. Summary of VOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-2B (continued)	GM-3B						GM-5
Sample Depth (ft)	255	69	119	167	207	265	305	115
Sample Date	05/05/97	04/30/97	05/01/97	05/01/97	05/01/97	05/03/97	05/04/97	06/12/97
Sample I.D.	GBGM-2/255	GBGM-3/69	GBGM-3/119	GBGM-3/167	GBGM-3/207	GBGM-3/265	GBGM-3/305	GBGM-5/115
1,1,2-Trichloroethane	<5	<1	<1	<1	<1	<1	<10	<25
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	<5	<1	<1	<1	<1	<1	<10	<25
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	<5	<1	<1	<1	<1	<1	<10 J	<25
2-Butanone (MEK)	710	<10	<10	140	74	39	1,000	<250
2-Hexanone	120	<10	<10	19	<10	<10	98 J	<250
4-Methyl-2-pentanone (MIBK)	<50	<10	<10	<10	<10	<10	<100	<250
Acetone	730	<10	<10	270	190	83	1,400	<250
Benzene	42	0.17 J	6.2	15	15	7.4	22 J	<25
Carbon disulfide	<5	1.3	0.44 J	<1	<1	<1	<10	370
Carbon tetrachloride	<5	0.58 J	0.84 J	0.50 J	0.29 J	0.25 J	<10	<25
Chloroform	<5	<1	<1	<1	<1	<1	<10	<25
Chloromethane	<5	<1	<1	0.18 J	<1	<1	<10	<25
cis-1,2-Dichloroethene	<5	<1	<1	1.1	<1	<1	<10	<25
Diethylether	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	8.1	0.65 J	1.1	2.2	2.5	1.4	4.1 J	<25
Furan	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
Methyl iodide	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	<5	<1	<1	<1	<1	<1	<10	<25
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	<5	<1	<1	<1	<1	<1	<10	<25
Tetrachloroethene	<5	<1	<1	<1	<1	<1	<10	<25
Tetrahydrofuran	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	28	0.24 J	0.51 J	3.8	2.6	6.1	15 J	<25
trans-1,2-Dichloroethene	<5	<1	<1	<1	<1	<1	<10	<25
Trichloroethene	<5	<1	0.26 J	<1	<1	<1	<10	<25
Vinyl chloride	<5	<1	<1	0.09 J	<1	<1	<10	<25
Xylenes (total)	30	0.30 J	2.3	5.3	6.9	5.2	16 J	<25

Footnotes on Page 14.

Table 6-2. Summary of VOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-5 (continued)		GM-7		GM-9	GM-10		GM-11
Sample Depth (ft)	173	235	153	153	62	95	155	35
Sample Date	06/12/97	06/13/97	06/11/97	06/11/97	09/12/97	09/16/97	09/22/97	09/27/97
Sample I.D.	GBGM-5/173	GBGM-5/235	GBGM-7/153	GBGM-99/2	GBGM-9/62	GBGM-10/95	GBGM-10/155	GBGM-11/35
1,1,2-Trichloroethane	<17	<12 J	<1	<1.2	<1	<1	<1	<1
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	<17	<12 J	<1	<1.2	<1	<1	<1	<1
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	<17	<12 J	<1	<1.2	<1	<1	<1	<1
2-Butanone (MEK)	<170	<120 J	<10	<12	<10	<10	<10	<10
2-Hexanone	<170	<120 J	<10	<12	<10	<10	<10	<10
4-Methyl-2-pentanone (MIBK)	<170	<120 J	<10	<12	<10	<10	<10	<10
Acetone	<170	<120 J	<10	<12	<10	<10	<10	<10
Benzene	9.9 J	22 J	6	4.9	<1	<1	<1	<1
Carbon disulfide	390	230 J	0.48 J	41	<1	0.15 J	<1	<1
Carbon tetrachloride	<17	<12 J	<1	<1.2	<1	<1	<1	<1
Chloroform	<17	<12 J	<1	<1.2	<1	<1	<1	<1
Chloromethane	<17	<12 J	<1	<1.2	<1	<1	<1	<1
cis-1,2-Dichloroethene	<17	<12 J	<1	<1.2	<1	<1	<1	<1
Diethylether	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	<17	<12 J	0.50 J	0.40 J	<1	<1	<1	<1
Furan	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
Methyl iodide	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	<17	<12 J	<1	<1.2	0.21 J	<1	<1	<1
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	<17	<12 J	<1	<1.2	<1	<1	<1	<1
Tetrachloroethene	<17	<12 J	<1	<1.2	<1	<1	<1	<1
Tetrahydrofuran	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	<17	11 J	1.2	0.96 J	<1	0.14 J	0.31 J	<1
trans-1,2-Dichloroethene	<17	<12 J	<1	<1.2	<1	<1	<1	<1
Trichloroethene	<17	<12 J	<1	<1.2	<1	<1	<1	<1
Vinyl chloride	<17	<12 J	<1	<1.2	<1	<1	<1	<1
Xylenes (total)	<17	<12 J	1.5	1.2	<1	<1	<1	<1

Footnotes on Page 14.

Table 6-2. Summary of VOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-11 (continued)	GM-12		GM-13	GM-14	GM-15	
Sample Depth (ft)	35	65	230	145	85	55	140
Sample Date	09/27/97	09/30/97	10/07/97	09/23/97	09/12/97	09/09/97	09/10/97
Sample I.D.	GBGM-90	GBGM-12/65	GBGM-12/230	GBGM-13/145	GBGM-14/85*	GBGM-15/55*	GBGM-15/140*
1,1,2-Trichloroethane	<1	<1	<1	<50	<1	<1	<1
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	<1	<1	<1	<50	<1	<1	<1
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	<1	<1	<1	<50	<1	<1	<1
2-Butanone (MEK)	<10	<10	<10	1,400	<10	<10	<10
2-Hexanone	<10	<10	<10	<500	<10	<10	<10
4-Methyl-2-pentanone (MIBK)	<10	<10	<10	<500	<10	<10	<10
Acetone	<10	<10	<10	**2,400**	<10	<10	<10
Benzene	<1	2.2	1.4	26 J	<1	<1	<1
Carbon disulfide	<1	<1	1.2	13 J	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<50	<1	<1	<1
Chloroform	<1	<1	<1	<50	<1	<1	<1
Chloromethane	<1	<1	<1	<50	<1	<1	<1
cis-1,2-Dichloroethene	<1	<1	<1	<50	0.61 J	<1	<1
Diethylether	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	<1	**30**	0.35 J	7.2 J	<1	<1	<1
Furan	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA
Methyl iodide	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	<1	<1	<1	<50	<1	<1	<1
Naphthalene	NA	NA	NA	NA	NA	NA	NA
Styrene	<1	<1	<1	<50	<1	<1	<1
Tetrachloroethene	<1	<1	<1	<50	<1	<1	<1
Tetrahydrofuran	NA	NA	NA	NA	NA	NA	NA
Toluene	<1	0.94 J	0.50 J	35 J	<1	<1	<1
trans-1,2-Dichloroethene	<1	<1	<1	<50	0.33 J	<1	<1
Trichloroethene	<1	<1	1.2	16 J	2.6	<1	<1
Vinyl chloride	<1	<1	<1	<50	<1	<1	<1
Xylenes (total)	<1	2.5	1.3	**44 J**	<1	<1	<1

Footnotes on Page 14.

Table 6-2. Summary of VOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-16	GM-17	GM-25C	GM-26C		GM-27C	GM-32
Sample Depth (ft)	115	105	105	30	140	105	125
Sample Date	10/12/97	10/21/97	06/10/98	06/15/98	06/16/98	06/24/98	07/08/98
Sample I.D.	GBGM-16/115	GBGM-17/105	GBGM-25/105	GBGM-26/30	GBGM-26/140	GBGM-27/105	GBGM-32/125
1,1,2-Trichloroethane	<1	<1	<20	<4	<1	<1	<1
1,2,4-Trimethylbenzene	NA	NA	<20	<4	<1	<1 J	1.3 J
1,2-Dichloroethane	<1	<1	<20	<4	<1	<1	<1
1,2-Dichloroethene (total)	NA	NA	<20	<4	<1	<1	<1
1,3,5-Trimethylbenzene	NA	NA	<20	<4	<1	<1 J	<1 J
1,3-Dichlorobenzene	<1	<1	<20	<4	<1	<1	<1
2-Butanone (MEK)	<10	<10	1,100	320	<10	<10	<10 J
2-Hexanone	<10	<10	200	81	<10	<10	<10
4-Methyl-2-pentanone (MIBK)	<10	<10	<200	<40	<10	<10	<10
Acetone	<10	<10	1,100	360	<10	<10	<10 J
Benzene	<1	<1	<20	21	1.4	<1	3.2
Carbon disulfide	<1	<1	<20	<4	30	<1	49
Carbon tetrachloride	<1	<1	<20	<4	<1	<1	<1
Chloroform	<1	<1	<20	<4	<1	<1	<1
Chloromethane	<1	<1	<20 J	<4	<1	<1	<1
cis-1,2-Dichloroethene	<1	<1	<20	<4	<1	<1	<1
Diethylether	NA	NA	<200	44	11	<10	<10
Ethylbenzene	<1	<1	<20	5.1	<1	<1	1
Furan	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NA	NA	<20	<4	<1	<1 J	<1 J
Methyl iodide	NA	NA	<20	<4	<1	<1	<1
Methylene chloride	<1	<1	<20	5.6	<1	<1	<1
Naphthalene	NA	NA	<20	5.7	<1	<1	<1
Styrene	<1	<1	<20	<4	<1	<1	<1
Tetrachloroethene	<1	<1	<20	<4	<1	<1	<1
Tetrahydrofuran	NA	NA	NA	NA	NA	NA	NA
Toluene	<1	<1	25	17	<1	<1	1.4
trans-1,2-Dichloroethene	<1	<1	<20	<4	<1	<1	<1
Trichloroethene	<1	<1	<20	<4	<1	<1	<1
Vinyl chloride	<1	<1	<20	<4	<1	<1	<1
Xylenes (total)	<1	<1	<20	15	<1	<1	1.6

Footnotes on Page 14.

Table 6-2. Summary of VOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-33	GM-34B	GM-38B		GM-39	GM-53B	GM-67
Sample Depth (ft)	105	95	105	165	95	225	122-127
Sample Date	07/10/98	07/13/98	07/23/98	07/23/98	07/27/98	09/09/98	06/14/00
Sample I.D.	GBGM-33/105	GBGM-34/95	GBGM-38/105	GBGM-38/165	GBGM-39/95	GBGM-53/225	GBGWGM-67/122-127
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1.0	<1.0
1,2,4-Trimethylbenzene	<1	<1 J	<1 J	<1 J	<1	<1.0	<1.0
1,2-Dichloroethane	<1	<1	<1	<1	<1	<1.0	<1.0
1,2-Dichloroethene (total)	<1	<1	<1	<1	<1	<1.0	<2.0
1,3,5-Trimethylbenzene	<1	<1 J	<1 J	<1 J	<1	<1.0	<1.0
1,3-Dichlorobenzene	<1	<1	<1	<1	NA	<5.0	<5.0
2-Butanone (MEK)	<10	<10 J	<10 J	<10 J	<10	<10	<50
2-Hexanone	<10	<10	<10	<10	<10	<10	<50
4-Methyl-2-pentanone (MIBK)	<10	<10	<10	<10	<10	<10	<50
Acetone	<10	<10 J	<10 J	<10 J	<10	<10 J	<100
Benzene	<1	<1	<1	<1	2.9	<1.0	2
Carbon disulfide	<1	<1	<1	<1	<1	<1.0	<5.0
Carbon tetrachloride	<1	<1	<1	<1	<1	<1.0	<1.0
Chloroform	<1	1.7	<1	2	<1	<1.0	<1.0
Chloromethane	<1	<1	<1	<1	<1	<1.0	<1.0
cis-1,2-Dichloroethene	1.1	<1	<1	<1	<1	<1.0	<1.0
Diethylether	<10	<10	$\boxed{64}$	<10	<10	<10	8.8 J
Ethylbenzene	<1	<1	<1	<1	<1	<1.0	<1.0
Furan	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	<1	<1 J	<1 J	<1 J	<1	<1.0	<1.0
Methyl iodide	<1	<1	<1	<1	<5	<5.0	<5.0
Methylene chloride	<1	<1	<1	<1	<1	<1.0	<1.0
Naphthalene	<1	<1	<1	<1	NA	NA	<5.0
Styrene	<1	<1	<1 J	<1	<1	<1.0	<1.0
Tetrachloroethene	<1	<1	<1	<1	<1	<1.0	<1.0
Tetrahydrofuran	NA	NA	NA	NA	NA	NA	NA
Toluene	1.8	<1	<1	<1	<1	1.2	<1.0
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1.0	<1.0
Trichloroethene	<1	<1	<1	<1	1.5	<1.0	<1.0
Vinyl chloride	<1	<1	<1	<1	<1	<1.0	<1.0
Xylenes (total)	2	<1	<1	<1	<3	<3.0	<3.0

Footnotes on Page 14.

Table 6-2. Summary of VOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-82A		GMSB-1			
Sample Depth (ft)	95	114	85	135	215	275
Sample Date	06/02/04	06/05/04	05/16/97	05/17/97	05/18/97	05/19/97
Sample I.D.	GBGWGM-82/95 (6/3/04)	GBGWGM-82/114 (6/5/04)	GBGMSB-1/85	GBGMSB-1/135	GBGMSB-1/215	GBGMSB-1/275
1,1,2-Trichloroethane	<1.0	<1.0	<12	0.52 J	<3.1	<5 J
1,2,4-Trimethylbenzene	<1.0	0.55 J	NA	NA	NA	NA
1,2-Dichloroethane	<1.0	<1.0	<12	<1	<3.1	<5 J
1,2-Dichloroethene (total)	<2.0	1.6 J	NA	NA	NA	NA
1,3,5-Trimethylbenzene	<1.0	0.22 J	NA	NA	NA	NA
1,3-Dichlorobenzene	<1.0	<1.0	<12	<1	<3.1	<5 J
2-Butanone (MEK)	<50	<50	1,600	<10	920	<50 J
2-Hexanone	<50	5.1 J	160	<10	210	<50 J
4-Methyl-2-pentanone (MIBK)	<50	0.93 J	<120	<10	32	<50 J
Acetone	<100	<100	**2,000**	<10	1,100	<50 J
Benzene	0.46 J	3.2	11 J	<1	20	5.7 J
Carbon disulfide	0.82 J	<5.0	8.1 J	<1	3.5	84 J
Carbon tetrachloride	<1.0	<1.0	<12	<1	<3.1	<5 J
Chloroform	<1.0	<1.0	<12	<1	<3.1	<5 J
Chloromethane	<1.0	<1.0	<12	<1	<3.1	<5 J
cis-1,2-Dichloroethene	<1.0	1.6	8.6 J	<1	4.8	<5 J
Diethylether	<10	2.2 J	NA	NA	NA	NA
Ethylbenzene	<1.0	1.2	<12	<1	6.3	<5 J
Furan	<2.0	0.23 J	NA	NA	NA	NA
Isopropylbenzene	<1.0	<1.0	NA	NA	NA	NA
Methyl iodide	0.25 JB	0.19 JB	NA	NA	NA	NA
Methylene chloride	<1.0	<1.0	<12	<1	<3.1	<5 J
Naphthalene	NA	NA	NA	NA	NA	NA
Styrene	<1.0	<1.0	<12	<1	<3.1	<5 J
Tetrachloroethene	<1.0	<1.0	<12	<1	<3.1	2.8 J
Tetrahydrofuran	<2.0	2.6	NA	NA	NA	NA
Toluene	2	2.3	12	0.69 J	30	5.0 J
trans-1,2-Dichloroethene	<1.0	<1.0	<12	<1	<3.1	<5 J
Trichloroethene	<1.0	1.3	6.2 J	<1	11	<5 J
Vinyl chloride	<1.0	<1.0	<12	<1	<3.1	<5 J
Xylenes (total)	<3.0	2.4 J	<12	<1	32	4.6 J

Footnotes on Page 14.

Table 6-2. Summary of VOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1 (continued)	GMSB-2			GMSB-4	
Sample Depth (ft)	325	93	265	345	115	183.5
Sample Date	06/02/97	05/18/97	05/20/97	05/31/97	06/04/97	06/09/97
Sample I.D.	GBGMSB-1/325	GBGMSB-2/93	GBGMSB-2/265	GBGMSB-2/345	GBGMSB-4/115	GBGMSB-4/183.5
1,1,2-Trichloroethane	<1	<1	<5	<25 J	<1	<50
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	<1	<1	<5	<25 J	1.2	<50
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	<1	<1	<5	<25 J	<1	<50
2-Butanone (MEK)	<10	<10	1,100	590	<10	<500
2-Hexanone	<10	<10	85	<250 J	<10	<500
4-Methyl-2-pentanone (MIBK)	<10	<10	<50	<250 J	<10	<500
Acetone	16	<10	1,500	1,000 J	<10	<500
Benzene	2.8	0.50 J	10	5.8 J	2.3	8.2 J
Carbon disulfide	17	2.9	62	13 J	0.19 J	640
Carbon tetrachloride	0.12 J	0.55 J	<5	<25 J	0.19 J	<50
Chloroform	<1	<1	<5	<25 J	<1	<50
Chloromethane	<1	<1	<5	<25 J	<1	<50
cis-1,2-Dichloroethene	0.21 J	<1	<5	<25 J	<1	<50
Diethylether	NA	NA	NA	NA	NA	NA
Ethylbenzene	1.2	0.76 J	3.2 J	<25 J	0.32 J	<50
Furan	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NA	NA	NA	NA	NA	NA
Methyl iodide	NA	NA	NA	NA	NA	NA
Methylene chloride	<1	<1	<5	<25 J	<1.0	<50
Naphthalene	NA	NA	NA	NA	NA	NA
Styrene	<1	<1	<5	<25 J	<1	<50
Tetrachloroethene	<1	<1	<5	<25 J	<1	<50
Tetrahydrofuran	NA	NA	NA	NA	NA	NA
Toluene	2.7	1	13	6.6 J	0.56 J	5.3 J
trans-1,2-Dichloroethene	<1	<1	<5	<25 J	<1	<50
Trichloroethene	0.70 J	<1	<5	<25 J	<1	<50
Vinyl chloride	<1	<1	<5	<25 J	<1	<50
Xylenes (total)	3.8	1.3	15	<25 J	0.34 J	<50

Footnotes on Page 14.

Table 6-2. Summary of VOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-8			GMSB-49	GMSB-50	GMSB-111
Sample Depth (ft)	85	117	186	93	100-105	26
Sample Date	09/09/97	09/10/97	09/11/97	05/19/00	06/01/00	08/19/03
Sample I.D.	GBGMSB-8/85	GBGMSB-8/117	GBGMSB-8/186	GBGWGMSB-49/93	GBGWGMSB-50/100-105	GBGWGMSB-111/26
1,1,2-Trichloroethane	<1	<1	<1	<1	<1.0	<1.0
1,2,4-Trimethylbenzene	NA	NA	NA	<1	<1.0	<1.0
1,2-Dichloroethane	<1	<1	<1	<1	<1.0	<1.0
1,2-Dichloroethene (total)	NA	NA	NA	<2	<2.0	7.9
1,3,5-Trimethylbenzene	NA	NA	NA	<1	<1.0	<1.0
1,3-Dichlorobenzene	<1	<1	<1	<1	<1.0	<1.0
2-Butanone (MEK)	<10	<10	<10	<50	<50	<50
2-Hexanone	<10	<10	<10	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<10	<10	<10	<50	<50	<50
Acetone	<10	<10	<10	<100	<100	<100
Benzene	<1	<1	<1	<1	<1.0	<1.0
Carbon disulfide	2.7	<1	0.12 J	<5	<5.0	<5.0
Carbon tetrachloride	<1	<1	<1	<1	<1.0	<1.0
Chloroform	<1	<1	<1	<1	<1.0	<1.0
Chloromethane	<1	<1	<1	<1 J	<1.0	<1.0
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1.0	7.9
Diethylether	NA	NA	NA	<10	<10	<10
Ethylbenzene	<1	<1	<1	<1	<1.0	<1.0
Furan	NA	NA	NA	NA	NA	<2.0
Isopropylbenzene	NA	NA	NA	<1	<1.0	<1.0
Methyl iodide	NA	NA	NA	<5 J	<5.0 J	<5.0
Methylene chloride	<1	<1	<1	<1	<1.0	<1.0
Naphthalene	NA	NA	NA	<5	NA	NA
Styrene	<1	<1	<1	<1	<1.0	<1.0
Tetrachloroethene	<1	<1	<1	<1	<1.0	6.5
Tetrahydrofuran	NA	NA	NA	NA	NA	<2.0
Toluene	0.31 J	<1	0.24 J	<1	0.54 J	<1.0
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1.0	<1.0
Trichloroethene	<1	<1	<1	<1	<1.0	12
Vinyl chloride	<1	<1	<1	<1	<1.0	<1.0
Xylenes (total)	<1	<1	<1	<3	<3.0	<3.0

Footnotes on Page 14.

Table 6-2. Summary of VOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-112		GMSB-113		
Sample Depth (ft)	134	192	155	199	27
Sample Date	09/03/03	09/03/03	09/05/03	09/05/03	09/04/03
Sample I.D.	GBGWGMSB-112/134	GBGWGMSB-112/192	GBGWGMSB-113/155	GBGWGMSB-113/199	GBGWGMSB-113/27
1,1,2-Trichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50	<50
Acetone	<100	<100	<100	<100	<100
Benzene	19	<1.0	15	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	<5.0
Carbon tetrachloride	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	3.6	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Diethylether	24	<10	15	27	<10
Ethylbenzene	5.8	<1.0	3.8	<1.0	<1.0
Furan	<2.0	<2.0	<2.0	<2.0	<2.0
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	NA	NA	NA	NA	NA
Styrene	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrahydrofuran	<2.0	<2.0	3.6	<2.0	<2.0
Toluene	20	<1.0	14	<1.0	<1.0
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	1	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (total)	11	<3.0	11	<3.0	<3.0

Footnotes on Page 14.

Table 6-2. Summary of VOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	**GMSB-116**		**GMSB-117**		**GMSB-118**
Sample Depth (ft)	**122**	**32**	**115**	**154**	**25**
Sample Date	**08/12/03**	**08/11/03**	**08/14/03**	**08/15/03**	**08/16/03**
Sample I.D.	**GBGWGMSB-116/122**	**GBGWGMSB-116/32**	**GBGWGMSB-117/115**	**GBGWGMSB-117/154**	**GBGWGMSB-118/25**
1,1,2-Trichloroethane	<1.0	<2.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<2.0	<2.0	0.48 BJ	0.78 BJ	3
1,2-Dichloroethane	<1.0	<2.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	<4.0	0.46 J	0.71 J	1.5 J
1,3,5-Trimethylbenzene	<1.0	<2.0	0.31 J	0.58 J	1.1
1,3-Dichlorobenzene	<1.0	<2.0	<1.0	<1.0	0.27 J
2-Butanone (MEK)	<50	<100	<50	<50	7.5 J
2-Hexanone	<100	<100	0.12 J	2.8 J	<50
4-Methyl-2-pentanone (MIBK)	<50	<100	0.083 J	1.2 J	<50
Acetone	<200	<200	<100	13 J	12 J
Benzene	$\boxed{10}$	<2.0	$\boxed{16 B}$	$\boxed{22 B}$	$\boxed{7.6}$
Carbon disulfide	<5.0	<10	0.16 J	0.40 J	0.82 J
Carbon tetrachloride	<1.0	<2.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<2.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<2.0	0.29 J	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	<2.0	0.39 J	0.51 J	1.3
Diethylether	$\boxed{11}$	<20	$\boxed{28}$	$\boxed{27}$	4.4 J
Ethylbenzene	2.4	<2.0	1.2	2.2	4.3
Furan	<2.0	<4.0	<2.0	0.36 J	<2.0
Isopropylbenzene	<1.0	<2.0	0.13 J	<1.0	<1.0
Methyl iodide	<5.0	<10	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<2.0	<1.0	<1.0	<1.0
Naphthalene	NA	NA	NA	NA	NA
Styrene	<1.0	<2.0	0.38 BJ	0.42 BJ	<1.0
Tetrachloroethene	<1.0	<2.0	0.093 BJ	0.36 BJ	0.16 J
Tetrahydrofuran	<2.0	<4.0	1.8 J	3.6	1.7 J
Toluene	9.6	<2.0	5.5	13	8.7
trans-1,2-Dichloroethene	<1.0	<2.0	0.076 J	0.20 J	0.21 J
Trichloroethene	4	<2.0	<1.0	0.78 J	1.5
Vinyl chloride	<1.0	<2.0	<1.0	0.14 J	<1.0
Xylenes (total)	11	<6.0	4.1	7.6	11

Footnotes on Page 14.

Table 6-2. Summary of VOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-119		GMSB-122	GMSB-123	
Sample Depth (ft)	125	45			Groundwater
Sample Date	08/18/03	08/17/03	09/08/03	09/09/03	Contact
Sample I.D.	GBGWGMSB-119/125	GBGWGMSB-119/45	GBGWGMSB-122/145	GBGWGMSB-123/150	Criteria
1,1,2-Trichloroethane	<1.0	<1.0	<1.0	<1.0	21,000
1,2,4-Trimethylbenzene	0.34 J	0.25 J	1.1	<1.0	56,000 (I) S
1,2-Dichloroethane	<1.0	<1.0	<1.0	<1.0	19,000 (I)
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	NA
1,3,5-Trimethylbenzene	0.15 J	<1.0	<1.0	<1.0	61,000 (I) S
1,3-Dichlorobenzene	<1.0	<1.0	<1.0	<1.0	2,000
2-Butanone (MEK)	<50	<50	180	<50	240,000,000 (I) S
2-Hexanone	<50	<50	96	<50	5,200,000
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50	13,000,000 (I)
Acetone	9.3 J	8.0 J	190	<100	31,000,000 (I)
Benzene	2.3	0.61 J	$\boxed{22}$	$\boxed{13}$	11,000 (I)
Carbon disulfide	<5.0	0.31 J	<5.0	<5.0	R
Carbon tetrachloride	<1.0	<1.0	<1.0	<1.0	4,600
Chloroform	<1.0	<1.0	<1.0	<1.0	150,000
Chloromethane	1.6	2	<1.0	<1.0	490,000 (I)
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	200,000
Diethylether	2.0 J	<10	$\boxed{24}$	$\boxed{14}$	35,000,000
Ethylbenzene	0.55 J	0.32 J	7.6	2	170,000 (I) S
Furan	<2.0	<2.0	2.4	<2.0	NA
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	56,000 S
Methyl iodide	<5.0	<5.0	<5.0	<5.0	NA
Methylene chloride	<1.0	<1.0	<1.0	<1.0	220,000
Naphthalene	NA	NA	NA	NA	31,000 S
Styrene	0.44 J	0.48 J	<1.0	<1.0	9,700
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	12,000
Tetrahydrofuran	<2.0	<2.0	7.3	<2.0	1,600,000
Toluene	1.3	0.61 J	23	9.6	530,000 (I) S
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	220,000
Trichloroethene	<1.0	<1.0	1.3	<1.0	22,000
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	1,000
Xylenes (total)	1.6 J	0.80 J	15	6.7	190,000 (I) S

Footnotes on Page 14.

Table 6-2. Summary of VOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Depth (ft) Sample Date Sample I.D.	Indoor Air Inhalation Criteria	Residential Drinking Water Criteria	FAV Criteria	FCV Criteria
1,1,2-Trichloroethane	17,000	5 A	5,600	500
1,2,4-Trimethylbenzene	56,000 (I) S	63 (I) E	310	17
1,2-Dichloroethane	9,600 (I)	5 (I) A	16,000	2,000
1,2-Dichloroethene (total)	NA	NA	19,000	1,100
1,3,5-Trimethylbenzene	61,000 (I) S	72 (I) E	810	45
1,3-Dichlorobenzene	ID	6.6	200	28
2-Butanone (MEK)	240,000,000 (I) S	13,000 (I)	40,000	2,200 I
2-Hexanone	4,200,000	1,000	ID	ID
4-Methyl-2-pentanone (MIBK)	20,000,000 (I) S	1,800 (I)	ID	ID
Acetone	1,000,000,000 (I) D,S	730 (I)	30,000	1,700
Benzene	5,600 (I)	5 (I) A	1,900	200
Carbon disulfide	R	R	ID	ID
Carbon tetrachloride	370	5 A	1,600	89
Chloroform	28,000	80 A,W	11,000	630
Chloromethane	8,600 (I)	260 (I)	ID	ID
cis-1,2-Dichloroethene	93,000	70 A	11,000	620
Diethylether	61,000,000 S	10 E	ID	ID
Ethylbenzene	110,000 (I)	74 (I) E	320	18
Furan	NA	NA	NA	NA
Isopropylbenzene	56,000 S	800	ID	ID
Methyl iodide	NA	NA	NA	NA
Methylene chloride	220,000	5 A	17,000	1,500
Naphthalene	31,000 S	520	200	13
Styrene	170,000	100 A	2,900	160
Tetrachloroethene	25,000	5 A	2,900	190
Tetrahydrofuran	6,900,000	95	150,000	11,000
Toluene	530,000 (I) S	790 (I) E	26,000	270
trans-1,2-Dichloroethene	85,000	100 A	28,000	1,500
Trichloroethene	15,000	5 A	3,500	200
Vinyl chloride	1,100	2 A	17,000	930
Xylenes (total)	190,000 (I) S	280 (I) E	730	41

Footnotes on Page 14.

Table 6-2. Summary of VOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Results in micrograms per liter (µg/L).

<	Less than the Laboratory Method Detection Limit shown.
(ft)	Sample depth in feet below ground surface.
Bold	Indicates a value above the Final Chronic Values (Michigan Part 4 Rule 323.1057, December 11, 2006).
	Indicates a value above the Groundwater Contact Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
Italics	Indicates a value above the Final Acute Values (Michigan Part 4 Rule 323.1057, December 11, 2006).
*	LCS or LCSD exceeds the control limit.
	Indicates a value above the Residential and Commercial I Drinking Water Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
B	Constituent was also detected in laboratory blank.
D	Result was obtained from analysis of a dilution.
E	Analyte was detected at a concentration greater than the calibration range, and is therefore estimated.
J	Estimated result.
NA	Not analyzed.
R	Rejected result.
VOCs	Volatile organic compounds.

State of Michigan Criteria Footnotes:

*	The lowest Human Noncancer Value, Wildlife Value, Human Cancer Value, final chronic value criteria per Michigan Act 451, Part 4, Rule 57 given for this chemical will adequately protect the uses identified with "ID".
A	State of Michigan Drinking Water Standard.
AA	Compound may be adsorbed to particulates rather than dissolved in water; filtered groundwater sample may be more appropriate for comparison to criteria.
B	Background may be substituted if higher than the calculated cleanup criteria.
C	Value presented is a screening level based on the chemical specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat.
CC	The generic groundwater surface water interface criteria are based on the toxicity of unionized ammonia.
D	Calculated criterion exceeds 100%, therefore it is reduced to 100%.
E	Criterion is the aesthetic drinking water value.
EE	Applicable criteria established as required by Section 20120a(15) of the act.
F	Criterion is based on adverse impacts to plant life.
FF	The chloride groundwater surface water interface criteria is 125 mg/l when discharged to surface waters designated as public water supply sources or 50 mg/l when discharged to Great Lakes or connecting waters.
G	GSI value is pH or water hardness dependent.

Table 6-2. Summary of VOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

State of Michigan Criteria Footnotes (continued)

H*92	Criteria based on water hardness of 92.
I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.
ID	Insufficient data.
J	Chemical may be present in several isomer forms. Isomer specific concentrations must be added together for comparison to criteria.
K	Chemical may be flammable and/or explosive.
L	Higher groundwater concentrations, (up to 15 μg/L) may be acceptable if the soil concentration is less than 400 ppm and groundwater migrating offsite will not result in unacceptable exposures.
M	Calculated criterion is below the analytical method detection limit (MDL).
N	Concentrations of all potential nitrate-nitrogen sources must be added together and compared to nitrate criteria.
NA	Criterion or values is not available.
NLS	A literature search has not been conducted.
NLV	Chemical is not likely to volatilize under most soil conditions.
O	All polychlorinated and polybrominated dibenzodioxins, and dibenzofurans are considered as one substance.
P	Amenable or Method OIA-1677 analysis are used to quanitfy cyanide concentrations for compliance with all groundwater criteria.
Q	Criterion for carcinogenic polycyclic aromatic hydrocarbons (PAHs) were developed using "relative potential potencies" (RFPs) to benzo(a)pyrene.
R	Hazardous substance may exhibit the characteristic of reactivity as defined in 40 CFR 261.23.
S	Criterion defaults to the chemical-specific water solubility limit.
T	Refer to Toxic Substances Control Act (TSCA) to determine applicability of TSCA cleanup standards.
Total	Criterion established for total metal only.
V	Criterion is the aesthetic drinking water value, which is a secondary standard.
W	Concentrations of trihalomethanes in groundwater must be added together to detemine compliance with State of Michigan Criteria.
X	The GSI criterion shown is not protective for surface water that is used as a drinking water source.
Z	Data for mercuric chloride serves as the basis for drinking water, groundwater contact, soil direct contact and the groundwater protection criteria.

Table 6-3. Summary of SVOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-1					GM-2B	
Sample Depth (ft)	95	95	144	193	290-295	75	135
Sample Date	05/12/97	05/13/97	05/13/97	05/14/97	05/16/97	05/02/97	05/03/97
Sample ID	GBGM-1/95	GBGM-99/1	GBGM-1/144	GBGM-1/193	GBGM-1/290-295	GBGM-2/75	GBGM-2/135
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	<5	<5	<5	<20	2.0 J	20	<20
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	<5	<5	<5	<20	<5	<12	<20
2-Methylphenol	<5	<5	<5	<20	<5	<12	<20
3,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	2.2 J	1.7 J	<5	<20	<5	<12	<20
Benzo(b)fluoranthene	<5	<5	<5	<20	<5	<12	<20
Benzo(g,h,i)perylene	<5	<5	<5	<20	<5	<12	<20
bis(2-Ethylhexyl)phthalate	6	7.8	4.5 J	5.8 J	<5	150	16 J
Butylbenzylphthalate	2.6 J	2.6 J	4.2 J	<20	2.9 J	<12	<20
Dibenzo(a,h)anthracene	<5	<5	<5	<20	<5	<12	<20
Dimethylphthalate	<5	<5	<5	<20	<5	<12	<20
Di-n-butylphthalate	<5	<5	<5	<20	<5	<12	<20
Di-n-octylphthalate	<5	<5	<5	<20	<5	<12	<20
Indeno(1,2,3-c,d)pyrene	<5	<5	<5	<20	<5	<12	<20
Naphthalene	2.7 J	3.0 J	3.2 J	<20	<5	<12	<20
Phenol	<5	<5	<5	<20	<5	<12	<20

Footnotes on Page 16.

Table 6-3. Summary of SVOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-2B (continued)		GM-3B				
Sample Depth (ft)	205	255	69	119	167	207	265
Sample Date	05/04/97	05/05/97	04/30/97	05/01/97	05/01/97	05/01/97	05/03/97
Sample ID	GBGM-2/205	GBGM-2/255	GBGM-3/69	GBGM-3/119	GBGM-3/167	GBGM-3/207	GBGM-3/265
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	<5	**2,000**	<5	3.3 J	75	130 J	**580**
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	<5	<1,000	<5	<5	<50	<33	<200
2-Methylphenol	<5	***1,800***	<5	<5	**140**	**200 J**	**520**
3,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	<5	***11,000***	<5	<5	***480***	**440 J**	***1,900***
Benzo(b)fluoranthene	<5	<1,000	<5	<5	<50	<33	<200
Benzo(g,h,i)perylene	<5	<1,000	<5	<5	<50	<33	<200
bis(2-Ethylhexyl)phthalate	11	<1,000	<5	27	14 J	<33	<200
Butylbenzylphthalate	<5	<1,000	2.7 J	3.3 J	<50	<33	<200
Dibenzo(a,h)anthracene	<5	<1,000	<5	<5	<50	<33	<200
Dimethylphthalate	<5	<1,000	<5	<5	<50	<33	<200
Di-n-butylphthalate	<5	<1,000	<5	3.9 J	<50	<33	<200
Di-n-octylphthalate	<5	<1,000	<5	<5	<50	<33	<200
Indeno(1,2,3-c,d)pyrene	<5	<1,000	<5	<5	<50	<33	<200
Naphthalene	<5	<1,000	1.7 J	2.8 J	<50	<33	<200
Phenol	<5	**470 J**	1.6 J	<5	<50	R	<200

Footnotes on Page 16.

Table 6-3. Summary of SVOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-3B (continued)	GM-5			GM-7		GM-9
Sample Depth (ft)	305	115	173	235	153	153	62
Sample Date	05/04/97	06/12/97	06/12/97	06/13/97	06/11/97	06/11/97	09/12/97
Sample ID	GBGM-3/305	GBGM-5/115	GBGM-5/173	GBGM-5/235	GBGM-7/153	GBGM-99/2	GBGM-9/62
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	**2,000**	<5	110	770	2.9 J	2.2 J	3.8 J
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	<1,000	<5	<10	<62	<5	<5	<5
2-Methylphenol	***1,600***	<5	<10	<62	<5	<5	<5
3,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	***8,900***	<5	<10	<62	<5	<5	<5
Benzo(b)fluoranthene	<1,000	<5	<10	<62	<5	<5	<5
Benzo(g,h,i)perylene	<1,000	<5	<10	<62	<5	<5	<5
bis(2-Ethylhexyl)phthalate	<1,000	<5.0	62	<62	1.3 J	<5	4.2 J
Butylbenzylphthalate	<1,000	4.0 J	<10	<62	1.3 J	1.5 J	<5
Dibenzo(a,h)anthracene	<1,000	<5	<10	<62	<5	<5	<5
Dimethylphthalate	<1,000	<5	<10	<62	<5	<5	13
Di-n-butylphthalate	<1,000	3.3 J	<10	<62	<5	<5	<5
Di-n-octylphthalate	<1,000	<5	<10	<62	<5	<5	<5
Indeno(1,2,3-c,d)pyrene	<1,000	<5	<10	<62	<5	<5	<5
Naphthalene	<1,000	<5	<10	<62	1.1 J	<5	<5
Phenol	**460 J**	<5	<10	<62	<5	<5	<5

Footnotes on Page 16.

Table 6-3. Summary of SVOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-10		GM-11		GM-12		GM-13
Sample Depth (ft)	95	155	35	35	65	230	145
Sample Date	09/16/97	09/22/97	09/27/97	09/27/97	09/30/97	10/07/97	09/23/97
Sample ID	GBGM-10/95	GBGM-10/155	GBGM-11/35	GBGM-90	GBGM-12/65	GBGM-12/230	GBGM-13/145
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	<5 J	<5	<5	<5	<5	<5	***2,800 J***
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	<5	<5	<5 J	<5	<5	<5	<3,000
2-Methylphenol	<5 J	<5	<5	<5	<5	<5	***10,000***
3,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	<5 J	<5	<5	<5	<5	<5	***22,000***
Benzo(b)fluoranthene	<5	<5	<5 J	<5	<5	<5	<3,000
Benzo(g,h,i)perylene	<5	<5	<5 J	<5	<5	<5	<3,000
bis(2-Ethylhexyl)phthalate	<5	23	<5 J	2.9 J	<5	6.6	<3,000
Butylbenzylphthalate	<5	<5	<5 J	<5	<5	<5	<3,000
Dibenzo(a,h)anthracene	<5	<5	<5 J	<5	<5	<5	<3,000
Dimethylphthalate	42	77	35 J	31	7.7	<5	<3,000
Di-n-butylphthalate	<5	<5	<5 J	<5	<5	<5	<3,000
Di-n-octylphthalate	<5	<5	<5 J	<5	<5	<5	<3,000
Indeno(1,2,3-c,d)pyrene	<5	<5	<5 J	<5	<5	<5	<3,000
Naphthalene	<5	<5	<5 J	<5	1.2 J	<5	<3,000
Phenol	<5 J	<5	<5	<5	<5	<5	***21,000***

Footnotes on Page 16.

Table 6-3. Summary of SVOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-14	GM-15		GM-16	GM-17	GM-25C
Sample Depth (ft)	85	55	140	115	105	105
Sample Date	09/12/97	09/09/97	09/10/97	10/12/97	10/21/97	06/10/98
Sample ID	GBGM-14/85*	GBGM-15/55*	GBGM-15/140*	GBGM-16/115	GBGM-17/105	GBGM-25/105
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	<5	<5	<5	<5	<5	$\boxed{\textbf{\textit{4,400}}}$
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	<5	<5	<5	<5	<5	<1,000
2-Methylphenol	<5	<5	<5	<5	<5	$\boxed{\textbf{\textit{4,300}}}$
3,4-Dimethylphenol	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA
4-Methylphenol	<5	<5	<5	<5	<5	$\boxed{\textbf{\textit{9,100}}}$
Benzo(b)fluoranthene	<5	<5	<5	<5	<5	<1,000
Benzo(g,h,i)perylene	<5	<5	<5	<5	<5	<1,000
bis(2-Ethylhexyl)phthalate	<5	1.5 J	1.6 J	<5	2.9 J	<1,000
Butylbenzylphthalate	<5	1.4 J	<5	<5	1.3 J	<1,000
Dibenzo(a,h)anthracene	<5	<5	<5	<5	<5	<1,000
Dimethylphthalate	<5	<5	<5	<5	<5	<1,000
Di-n-butylphthalate	<5	<5	<5	<5	<5	<1,000
Di-n-octylphthalate	<5	<5	<5	<5	<5	<1,000
Indeno(1,2,3-c,d)pyrene	<5	<5	<5	<5	<5	<1,000
Naphthalene	<5	<5	<5	<5	<5	<2,000
Phenol	<5	<5	<5	<5	<5	**4,100**

Footnotes on Page 16.

Table 6-3. Summary of SVOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26C		GM-27C	GM-32	GM-33	GM-34B
Sample Depth (ft)	30	140	105	125	105	95
Sample Date	06/15/98	06/16/98	06/24/98	07/08/98	07/10/98	07/13/98
Sample ID	GBGM-26/30	GBGM-26/140	GBGM-27/105	GBGM-32/125	GBGM-33/105	GBGM-34/95
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	**2,000**	31	<5	<5	<5	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	<100	<5	<5	<5	<5	<5
2-Methylphenol	**840**	<5	<5	<5 J	<5 J	<5
3,4-Dimethylphenol	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA
4-Methylphenol	**2,500**	<5	<5	<5 J	<5 J	<5
Benzo(b)fluoranthene	<100	<5	<5	<5	<5	<5
Benzo(g,h,i)perylene	<100	<5	<5	<5	<5	<5 J
bis(2-Ethylhexyl)phthalate	<100	<5	<5	<5	<5	<5
Butylbenzylphthalate	<100	<5	<5	<5	<5	<5
Dibenzo(a,h)anthracene	<100	<5	<5	<5	<5	<5 J
Dimethylphthalate	<100	<5	<5	<5	<5	<5
Di-n-butylphthalate	<100	<5	<5	<5	<5	<5
Di-n-octylphthalate	<100	<5	<5	<5 J	<5 J	<5
Indeno(1,2,3-c,d)pyrene	<100	<5	<5	<5	<5	<5
Naphthalene	<200	<10	<10	<10	<10	<10
Phenol	400	<5	<5	<5 J	<5 J	<5

Footnotes on Page 16.

Table 6-3. Summary of SVOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-38B		GM-39	GM-53B	GM-67
Sample Depth (ft)	105	165	95	225	122-127
Sample Date	07/23/98	07/23/98	07/27/98	09/09/98	06/14/00
Sample ID	GBGM-38/105	GBGM-38/165	GBGM-39/95	GBGM-53/225	GBGWGM-67/122-127
2,3-Dimethylphenol	NA	NA	NA	NA	NA
2,4-Dimethylphenol	<5	<5	<5	40	<5.0
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA
2-Methylnaphthalene	<5	<5	<5	<5.0	<5.0
2-Methylphenol	<5	<5	<5	<5.0	<5.0
3,4-Dimethylphenol	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	<5.0
4-Methylphenol	<5	<5	<5	<5.0	NA
Benzo(b)fluoranthene	<5	<5	<5	<5.0	<5.0
Benzo(g,h,i)perylene	<5	<5	<5	<5.0	<5.0
bis(2-Ethylhexyl)phthalate	<5	<5	<5	<5.0	<5.0
Butylbenzylphthalate	<5	<5	<5	<5.0	<5.0
Dibenzo(a,h)anthracene	<5	<5	<5	<5.0	<5.0
Dimethylphthalate	<5	<5	<5	<5.0	<5.0
Di-n-butylphthalate	<5	<5	<5	<5.0	0.64 J
Di-n-octylphthalate	<5	<5	<5	<5.0	<5.0
Indeno(1,2,3-c,d)pyrene	<5	<5	<5	<5.0	<5.0
Naphthalene	<10	<10	<10	<10	NA
Phenol	<5	<5	<5	<5.0	<5.0

Footnotes on Page 16.

Table 6-3. Summary of SVOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-82A		GMSB-1		
Sample Depth (ft)	95	114	85	135	215
Sample Date	06/02/04	06/05/04	05/16/97	05/17/97	05/18/97
Sample ID	GBGWGM-82/95 (6/3/04)	GBGWGM-82/114 (6/5/04)	GBGMSB-1/85	GBGMSB-1/135	GBGMSB-1/215 RE
2,3-Dimethylphenol	<10	12	NA	NA	NA
2,4-Dimethylphenol	NA	NA	**1,100**	2.3 J	**2,300 J**
2,4-Dimethylphenol/2,5-Dimethylphenol	<10	130	NA	NA	NA
2,6-Dimethylphenol	<10	53	NA	NA	NA
2-Methylnaphthalene	<5.0	<5.0	<500	4.0 J	R
2-Methylphenol	<5.0	<5.0	**1,000**	<5	***2,600 J***
3,4-Dimethylphenol	<10	<10	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	<5.0	NA	NA	NA
4-Methylphenol	NA	NA	***5,600***	<5	***12,000 J***
Benzo(b)fluoranthene	<5.0	<5.0	<500	<5	R
Benzo(g,h,i)perylene	1.0 J	<5.0	<500	<5	R
bis(2-Ethylhexyl)phthalate	<5.0	<5.0	<500	3.2 J	R
Butylbenzylphthalate	<5.0	<5.0	<500	<5	R
Dibenzo(a,h)anthracene	1.0 J	<5.0	<500	<5	R
Dimethylphthalate	<5.0	<5.0	<500	<5	R
Di-n-butylphthalate	<5.0	1.3 J	<500	<5	R
Di-n-octylphthalate	<5.0	<5.0	<500	<5	R
Indeno(1,2,3-c,d)pyrene	<5.0	<5.0	<500	<5	R
Naphthalene	<5.0	<5.0	<500	4.2 J	R
Phenol	<5.0	<5.0	**2,000**	<5	**3,300 J**

Footnotes on Page 16.

Table 6-3. Summary of SVOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1 (continued)		GMSB-2			GMSB-4
Sample Depth (ft)	275	325	93	265	345	115
Sample Date	05/19/97	06/02/97	05/18/97	05/20/97	05/31/97	06/04/97
Sample ID	GBGMSB-1/275'	GBGMSB-1/325	GBGMSB-2/93	GBGMSB-2/265'	GBGMSB-2/345	GBGMSB-4/115
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	130	100	18	***3,900***	***3,000***	4.9 J
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	<12	<10	<5	<1,000	<1,000	<5
2-Methylphenol	<12	<10	<5	***7,500***	***5,300***	<5
3,4-Dimethylphenol	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA
4-Methylphenol	<12	8.7 J	<5	***13,000***	***14,000***	<5
Benzo(b)fluoranthene	<12	<10	<5	<1,000	<1,000	<5
Benzo(g,h,i)perylene	<12	<10	<5	<1,000	<1,000	<5
bis(2-Ethylhexyl)phthalate	<12	14	1.8 J	<1,000	<1,000	20
Butylbenzylphthalate	<12	<10	3.0 J	<1,000	<1,000	<5
Dibenzo(a,h)anthracene	<12	<10	<5	<1,000	<1,000	<5
Dimethylphthalate	<12	<10	<5	<1,000	<1,000	<5
Di-n-butylphthalate	<12	<10	1.8 J	<1,000	<1,000	5.1
Di-n-octylphthalate	<12	<10	<5	<1,000	<1,000	<5
Indeno(1,2,3-c,d)pyrene	<12	<10	<5	<1,000	<1,000	<5
Naphthalene	<12	<10	2.0 J	<1,000	<1,000	<5
Phenol	<12	<10	<5	***12,000***	***9,200***	<5

Footnotes on Page 16.

Table 6-3. Summary of SVOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-4 (continued)	GMSB-8			GMSB-49
Sample Depth (ft)	183.5	85	117	186	93
Sample Date	06/09/97	09/09/97	09/10/97	09/11/97	05/19/00
Sample ID	GBGMSB-4/183.5	GBGMSB-8/85	GBGMSB-8/117 RE	GBGMSB-8/186	GBGWGMSB-49/93
2,3-Dimethylphenol	NA	NA	NA	NA	NA
2,4-Dimethylphenol	390	<5	<5	<5	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA
2-Methylnaphthalene	<33	<5 J	<5	<5	<5
2-Methylphenol	<33	<5	<5	<5	<5
3,4-Dimethylphenol	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	<5
4-Methylphenol	<33	<5	<5	<5	NA
Benzo(b)fluoranthene	<33	<5 J	<5	<5	<5
Benzo(g,h,i)perylene	<33	<5 J	<5	<5	<5
bis(2-Ethylhexyl)phthalate	18 J	8.8 J	8.2	<5	<5
Butylbenzylphthalate	<33	<5 J	<5	<5	<5
Dibenzo(a,h)anthracene	<33	<5 J	<5	<5	<5
Dimethylphthalate	<33	80 J	3.3 J	41	<5
Di-n-butylphthalate	<33	<5 J	<5	<5	<5
Di-n-octylphthalate	<33	<5 J	<5	<5	<5
Indeno(1,2,3-c,d)pyrene	<33	<5 J	<5	<5	<5
Naphthalene	<33	<5 J	<5	<5	NA
Phenol	<33	<5	<5	<5	<5

Footnotes on Page 16.

Table 6-3. Summary of SVOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-50	GMSB-111	GMSB-112	
Sample Depth (ft)	100-105	26	134	192
Sample Date	06/01/00	08/19/03	09/03/03	09/03/03
Sample ID	GBGWGMSB-50/100-105	GBGWGMSB-111/26	GBGWGMSB-112/134	GBGWGMSB-112/192
2,3-Dimethylphenol	NA	<10	<100	<10
2,4-Dimethylphenol	<5.0	NA	NA	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	<10	1,400	<10
2,6-Dimethylphenol	NA	<10	<100	<10
2-Methylnaphthalene	<5.0	<5.0	<50	<5.0
2-Methylphenol	<5.0	<5.0	<50	<5.0
3,4-Dimethylphenol	NA	<10	500	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	<5.0	<50	<5.0
4-Methylphenol	NA	NA	NA	NA
Benzo(b)fluoranthene	<5.0	<5.0	<50	5.7
Benzo(g,h,i)perylene	<5.0	<5.0	<50	<5.0
bis(2-Ethylhexyl)phthalate	<5.0	<5.0	<50	<5.0
Butylbenzylphthalate	<5.0	<5.0	<50	<5.0
Dibenzo(a,h)anthracene	<5.0	<5.0	<50	<5.0
Dimethylphthalate	<5.0	<5.0	<50	<5.0
Di-n-butylphthalate	<5.0	<5.0	<50	<5.0
Di-n-octylphthalate	<5.0	<5.0	<50	7.1
Indeno(1,2,3-c,d)pyrene	<5.0	<5.0	57	6.6
Naphthalene	<5.0	<5.0	<50	<5.0
Phenol	<5.0	<5.0	<50	<5.0

Footnotes on Page 16.

Table 6-3. Summary of SVOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-113			GMSB-116
Sample Depth (ft)	155	199	27	122
Sample Date	09/05/03	09/05/03	09/04/03	08/12/03
Sample ID	GBGWGMSB-113/155	GBGWGMSB-113/199	GBGWGMSB-113/27	GBGWGMSB-116/122
2,3-Dimethylphenol	<100	<10	<10	<100
2,4-Dimethylphenol	NA	NA	NA	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	**1,000**	<10	<10	**460**
2,6-Dimethylphenol	350	<10	<10	150
2-Methylnaphthalene	<50	<5.0	<5.0	<50
2-Methylphenol	<50	<5.0	<5.0	<50
3,4-Dimethylphenol	<100	<10	<10	<100
3-Methylphenol/4-Methylphenol(m&p-cresol)	<50	<5.0	<5.0	<50
4-Methylphenol	NA	NA	NA	NA
Benzo(b)fluoranthene	<50	<5.0	<5.0	<50
Benzo(g,h,i)perylene	<50	<5.0	<5.0	<50
bis(2-Ethylhexyl)phthalate	<50	<5.0	<5.0	<50
Butylbenzylphthalate	<50	<5.0	<5.0	<50
Dibenzo(a,h)anthracene	<50	<5.0	<5.0	<50
Dimethylphthalate	<50	<5.0	<5.0	<50
Di-n-butylphthalate	<50	<5.0	<5.0	<50
Di-n-octylphthalate	<50	<5.0	<5.0	<50
Indeno(1,2,3-c,d)pyrene	68	<5.0	6.2	<50
Naphthalene	<50	<5.0	<5.0	<50
Phenol	<50	<5.0	<5.0	<50

Footnotes on Page 16.

Table 6-3. Summary of SVOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-116 (continued)	GMSB-117		GMSB-118
Sample Depth (ft)	32	115	154	25
Sample Date	08/11/03	08/14/03	08/15/03	08/16/03
Sample ID	GBGWGMSB-116/32	GBGWGMSB-117/115	GBGWGMSB-117/154	GBGWGMSB-118/25
2,3-Dimethylphenol	<10	<40	<50	<100
2,4-Dimethylphenol	NA	NA	NA	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	<10	340	$\boxed{\textbf{940}}$	300
2,6-Dimethylphenol	<10	$\boxed{120}$	<50	<100
2-Methylnaphthalene	<5.0	<20	<25	<50
2-Methylphenol	<5.0	<20	<25	<50
3,4-Dimethylphenol	<10	<40	<50	<100
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	<20	<25	<50
4-Methylphenol	NA	NA	NA	NA
Benzo(b)fluoranthene	<5.0	<20	<25	<50
Benzo(g,h,i)perylene	<5.0	<20	<25	<50
bis(2-Ethylhexyl)phthalate	5	$\boxed{20}$	$\boxed{28}$	<50
Butylbenzylphthalate	8.3	<20	<25	<50
Dibenzo(a,h)anthracene	<5.0	<20	<25	<50
Dimethylphthalate	<5.0	<20	<25	<50
Di-n-butylphthalate	<5.0	<20	<25	**70**
Di-n-octylphthalate	<5.0	<20	<25	<50
Indeno(1,2,3-c,d)pyrene	<5.0	<20	<25	<50
Naphthalene	<5.0	<20	<25	<50
Phenol	<5.0	<20	<25	<50

Footnotes on Page 16.

Table 6-3. Summary of SVOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-119		GMSB-122	GMSB-123
Sample Depth (ft)	125	45	145	150
Sample Date	08/18/03	08/17/03	09/08/03	09/09/03
Sample ID	GBGWGMSB-119/125	GBGWGMSB-119/45	GBGWGMSB-122/145	GBGWGMSB-123/150
2,3-Dimethylphenol	<10	<10	<200	290
2,4-Dimethylphenol	NA	NA	NA	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	48	<10	**2,200**	**810**
2,6-Dimethylphenol	<10	<10	570	300
2-Methylnaphthalene	<5.0	<5.0	<100	<50
2-Methylphenol	<5.0	<5.0	**410**	<50
3,4-Dimethylphenol	<10	<10	200	<100
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	<5.0	***2,300***	<50
4-Methylphenol	NA	NA	NA	NA
Benzo(b)fluoranthene	<5.0	<5.0	<100	<50
Benzo(g,h,i)perylene	<5.0	<5.0	<100	<50
bis(2-Ethylhexyl)phthalate	<5.0	6.2	<100	<50
Butylbenzylphthalate	<5.0	7.9	<100	<50
Dibenzo(a,h)anthracene	<5.0	<5.0	<100	<50
Dimethylphthalate	<5.0	<5.0	<100	<50
Di-n-butylphthalate	<5.0	7.1	<100	<50
Di-n-octylphthalate	<5.0	<5.0	<100	<50
Indeno(1,2,3-c,d)pyrene	<5.0	<5.0	<100	<50
Naphthalene	<5.0	<5.0	<100	<50
Phenol	<5.0	<5.0	350	<50

Footnotes on Page 16.

Table 6-3. Summary of SVOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Depth (ft) Sample Date Sample ID	Groundwater Contact Criteria	Indoor Air Inhalation Criteria	Residential Drinking Water Criteria	FAV Criteria	FCV Criteria
2,3-Dimethylphenol	--	--	--	--	--
2,4-Dimethylphenol	520,000	NLV	370	2,700	380
2,4-Dimethylphenol/2,5-Dimethylphenol	520,000	NLV	370	2,700	380
2,6-Dimethylphenol	6,300	NLV	4.4	--	--
2-Methylnaphthalene	25,000 S	ID	260	ID	ID
2-Methylphenol	810,000 J	J,NLV	370 J	1,500	82
3,4-Dimethylphenol	18,000	NLV	10	--	--
3-Methylphenol/4-Methylphenol(m&p-cresol)	810.000 J	J,NLV	370 J	450	25
4-Methylphenol	810,000	J,NLV	370 J	450	25
Benzo(b)fluoranthene	1.5 (Q) S,AA	(Q) ID	1.5 (Q) S, AA	ID	ID
Benzo(g,h,i)perylene	1 M,AA	NLV	1 M	--	--
bis(2-Ethylhexyl)phthalate	320 AA	NLV	6 A	285	ID*
Butylbenzylphthalate	2,700 S	NLV	1,200	630	67
Dibenzo(a,h)anthracene	2 (Q) M,AA	(Q) NLV	2 (Q) M	ID	ID
Dimethylphthalate	4,200,000 S	NLV	73,000	--	--
Di-n-butylphthalate	11,000 S	NLV	880	75	9.7
Di-n-octylphthalate	400	NLV	130	ID	ID
Indeno(1,2,3-c,d)pyrene	2 (Q) AA,M	(Q) NLV	2 (Q) M	ID	ID
Naphthalene	31,000 S	31,000 S	520	200	13
Phenol	29,000,000	NLV	4,400	6,800	450

Footnotes on Page 16.

Table 6-3. Summary of SVOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Results in micrograms per liter (µg/L).

(ft)	Sample depth in feet below ground surface.
<	Less than the laboratory method detection limit shown.
Bold	Indicates a value above the Final Chronic Values (Michigan Part 4 Rule 323.1057, December 11, 2006).
	Indicates a value above the Groundwater Contact Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
Italics	Indicates a value above the Final Acute Values (Michigan Part 4 Rule 323.1057, December 11, 2006).
Underline	Indicates a value above the Groundwater/Surface Water Interface Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
*	LCS or LCSD exceeds the control limit.
	Indicates a value above the Residential and Commercial I Drinking Water Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
B	Constituent was also detected in laboratory blank.
D	Result was obtained from analysis of a dilution.
E	Analyte was detected at a concentration greater than the calibration range, and is therefore estimated.
H	Sample was prepared or analyzed after the EPA recommended holding time had been exceeded.
J	Estimated result.
NA	Not analyzed.
R	Rejected result.
SVOCs	Semi-Volatile Organic Compounds.

State of Michigan Criteria Footnotes:

A	State of Michigan Drinking Water Standard.
AA	Compound may be adsorbed to particulates rather than dissolved in water; filtered groundwater sample may be more appropriate for comparison to criteria.
B	Background may be substituted if higher than the calculated cleanup criteria.
C	Value presented is a screening level based on the chemical specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat.
D	Calculated criterion exceeds 100%, therefore it is reduced to 100%.
E	Criterion is the aesthetic drinking water value.
EE	Applicable criteria established as required by Section 20120a(15) of the act.
F	Criterion is based on adverse impacts to plant life.
FF	The chloride groundwater surface water interface criteria is 125 mg/l when discharged to surface waters designated as public water supply sources or 50 mg/l when discharged to Great Lakes or connecting waters.
G	GSI value is pH or water hardness dependent.

Table 6-3. Summary of SVOCs Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

State of Michigan Criteria Footnotes (continued):

H*92	Criteria based on water hardness of 92.
I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.
ID	Inadequate data to develop criterion.
J	Chemical may be present in several isomer forms. Isomer specific concentrations must be added together for comparison to criteria.
K	Chemical may be flammable and/or explosive.
L	Higher groundwater concentrations, (up to 15 µg/L) may be acceptable if the soil concentration is less than 400 ppm and groundwater migrating offsite will not result in unacceptable exposures.
M	Calculated criterion is below the analytical method detection limit (MDL).
N	Concentrations of all potential nitrate-nitrogen sources must be added together and compared to nitrate criteria.
NA	Criterion or values is not available.
NLS	A literature search has not been conducted.
NLV	Chemical is not likely to volatilize under most soil conditions.
O	All polychlorinated and polybrominated dibenzodioxins, and dibenzofurans are considered as one substance.
P	Amenable or Method OIA-1677 analysis are used to quanitfy cyanide concentrations for compliance with all groundwater criteria.
Q	Criterion for carcinogenic polycyclic aromatic hydrocarbons (PAHs) were developed using "relative potential potencies" (RFPs) to benzo(a)pyrene.
R	Hazardous substance may exhibit the characteristic of reactivity as defined in 40 CFR 261.23.
S	Criterion defaults to the chemical-specific water solubility limit.
T	Refer to Toxic Substances Control Act (TSCA) to determine applicability of TSCA cleanup standards.
Total	Criterion established for total metal only.
V	Criterion is the aesthetic drinking water value, which is a secondary standard.
W	Concentrations of trihalomethanes in groundwater must be added together to detemine compliance with State of Michigan Criteria.
X	The GSI criterion shown is not protective for surface water that is used as a drinking water source.
Z	Data for mercuric chloride serves as the basis for drinking water, groundwater contact, soil direct contact and the groundwater protection criteria.
*	The lowest Human Noncancer Value, Wildlife Value, Human Cancer Value, final chronic value criteria per Michigan Act 451, Part 4, Rule 57 given for this chemical will adequately protect the uses identified with "ID".

Table 6-4. Summary of Metals Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-67	GM-82A		GMSB-49	GMSB-50
Sample Depth (ft)	122-127	95	114	93	100-105
Sample Date	06/14/00	06/02/04	06/05/04	05/19/00	06/01/00
Sample ID	GBGWGM-67/122-127	GBGWGM-82/95 (6/3/04)	GBGWGM-82/114 (6/5/04)	GBGWGMSB-49/93	GBGWGMSB-50/100-105
Aluminum	NA	2,000	1,400	NA	NA
Aluminum-DISS	<200	<200	<200	<47 J	<39
Antimony-DISS	4.8 B	<50	<50	<50	<3.5
Arsenic	NA	5.2 B	16 B	NA	NA
Arsenic-DISS	11 BJ	4.2 B	15 B	6 J	<20 J
Barium	NA	250	400	NA	NA
Barium-DISS	200	230	380	45 B	92 B
Beryllium	NA	<1.0	<1.0	NA	NA
Calcium	NA	110,000	130,000	NA	NA
Calcium-DISS	67,000	100,000	130,000	33,000	31,000
Chromium	NA	**12**	**17**	NA	NA
Chromium-DISS	<5.0	<5.0	1.3 B	<1	<5.0
Cobalt	NA	2.2 B	8.6 B	NA	NA
Cobalt-DISS	1.1 B	0.77 B	7.3 B	1.5 B	<10
Copper	NA	***160***	**19 B**	NA	NA
Copper-DISS	<25	2.7 B	4.7 B	<3.9 J	<25 J
Iron	NA	22,000	21,000	NA	NA
Iron-DISS	3,600 J	19,000	17,000	380	390 J
Lead	NA	5.3	<3.0	NA	NA
Magnesium	NA	27,000	120,000	NA	NA
Magnesium-DISS	37,000	25,000	110,000	16,000	21,000
Manganese	NA	780	510	NA	NA
Manganese-DISS	1,500 J	710	460	85	57 J
Molybdenum	NA	3.9 B	8.2 B	NA	NA
Molybdenum-DISS	9.7 B	3.1 B	5.9 B	13	6.2 BJ
Nickel	NA	9.2 B	24 B	NA	NA
Nickel-DISS	1.7 B	2.4 B	15 B	4.4 B	<25
Potassium	NA	2,900	7,200	NA	NA
Potassium-DISS	3,100	2,200	6,600	2,300	2,100
Selenium-DISS	<5.0	<5.0	<5.0	<5.6 J	<5.0 J
Sodium	NA	4,200	16,000	NA	NA

Footnotes on Page 11.

Table 6-4. Summary of Metals Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-67	GM-82A		GMSB-49	GMSB-50
Sample Depth (ft)	122-127	95	114	93	100-105
Sample Date	06/14/00	06/02/04	06/05/04	05/19/00	06/01/00
Sample ID	GBGWGM-67/122-127	GBGWGM-82/95 (6/3/04)	GBGWGM-82/114 (6/5/04)	GBGWGMSB-49/93	GBGWGMSB-50/100-105
Sodium-DISS	6,900 J	4,000	16,000	6,600 J	3,200
Thallium	NA	<2.0	<2.0	NA	NA
Thallium-DISS	<2.0 J	<2.0	<2.0	<2	<2.0 J
Titanium	NA	140	88	NA	NA
Titanium-DISS	0.33 B	<50	2.3 B	<0.91	<50
Vanadium	NA	6.0 B	8.3 B	NA	NA
Vanadium-DISS	<3.0	<20	3.2 B	<20	<20
Zinc	NA	**190**	**170**	NA	NA
Zinc-DISS	<5.6	78	**190**	23	<20

Footnotes on Page 11.

Table 6-4. Summary of Metals Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-111	GMSB-112			GMSB-113
Sample Depth (ft)	26	134	134	192	155
Sample Date	08/19/03	09/03/03	09/03/03	09/03/03	09/05/03
Sample ID	GBGWGMSB-111/26	GBGWGMSB-112/134	GBGWGMSB-112/134-DL	GBGWGMSB-112/192	GBGWGMSB-113/155
Aluminum	<200	<200	NA	<200	<200
Aluminum-DISS	<200	<200	NA	<200	<200
Antimony-DISS	<50	<50	NA	<50	<50
Arsenic	<20	<20	NA	58	39
Arsenic-DISS	<20	<20	NA	60	39
Barium	130	**730**	NA	<100	**610**
Barium-DISS	130	**720**	NA	<100	**620**
Beryllium	<1.0	<1.0	NA	<1.0	<1.0
Calcium	79,000	160,000	NA	35,000	140,000
Calcium-DISS	83,000	160,000	NA	35,000	140,000
Chromium	<5.0	<5.0	NA	<5.0	<5
Chromium-DISS	<5.0	<5.0	NA	<5.0	<5.0
Cobalt	<10	<10 B	NA	<10	<10
Cobalt-DISS	<10	<10	NA	<10	<10
Copper	<25	<25 B	NA	<25	<20
Copper-DISS	<25	<25	NA	<25	<20
Iron	310	25,000	NA	540	22,000
Iron-DISS	<100	25,000	NA	260	22,000
Lead	<3.0	<3.0	NA	<3.0	<3.0
Magnesium	33,000	310,000	NA	24,000	240,000
Magnesium-DISS	34,000	310,000	NA	24,000	240,000
Manganese	280	65	NA	43	48
Manganese-DISS	290	60	NA	37	45
Molybdenum	<10	<10	NA	<10	<10
Molybdenum-DISS	<10	<10	NA	<10	<10
Nickel	<25	<25	NA	<25	<10
Nickel-DISS	<25	<25	NA	<25	<25
Potassium	4,100	8,200	NA	2,500	6,300
Potassium-DISS	4,400	8,200	NA	2,500	6,400
Selenium-DISS	<5.0	<5.0	NA	<5.0	<5.0
Sodium	14,000	NA	49,000	4,100	39,000

Footnotes on Page 11.

Table 6-4. Summary of Metals Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-111	GMSB-112			GMSB-113
Sample Depth (ft)	26	134	134	192	155
Sample Date	08/19/03	09/03/03	09/03/03	09/03/03	09/05/03
Sample ID	GBGWGMSB-111/26	GBGWGMSB-112/134	GBGWGMSB-112/134-DL	GBGWGMSB-112/192	GBGWGMSB-113/155
Sodium-DISS	15,000	49,000	49,000	4,300	40,000
Thallium	<2.0 W	<2.0 WN	NA	<2.0	<2.0
Thallium-DISS	<2.0 W	<2.0 WN	NA	<2.0	0.50 B
Titanium	<50	<50	NA	<50	<10
Titanium-DISS	<50	<50	NA	<50	<10
Vanadium	<20	<20	NA	<20	<10
Vanadium-DISS	<20	<20	NA	<20	<10
Zinc	<20	<20	NA	<20	<20
Zinc-DISS	<20	<20	NA	<20	<20

Footnotes on Page 11.

Table 6-4. Summary of Metals Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-113 (continued)		GMSB-116		GMSB-117
Sample Depth (ft)	199	27	122	32	115
Sample Date	09/05/03	09/04/03	08/12/03	08/11/03	08/14/03
Sample ID	GBGWGMSB-113/199	GBGWGMSB-113/27	GBGWGMSB-116/122	GBGWGMSB-116/32	GBGWGMSB-117/115
Aluminum	<200	<200	<200	<200	410
Aluminum-DISS	<200	<200	<200	<200	<200
Antimony-DISS	<50	<50	<50	<50	<50
Arsenic	60	<20	<20	<20	15 B
Arsenic-DISS	56	<20	<20	<20	15 B
Barium	<100	210	400	100	120
Barium-DISS	<100	210	390	100	110
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0
Calcium	37,000	100,000	120,000	56,000	100,000
Calcium-DISS	34,000	100,000	120,000	54,000	99,000
Chromium	<5.0	<5.0	<5.0	<5.0	2.3 B
Chromium-DISS	<5.0	<5.0	<5.0	<5.0	0.69 B
Cobalt	<10	<10	<10	<10	4.3 B
Cobalt-DISS	<10	<10	<10	<10	3.8 B
Copper	<25	<25	<25	<25	3.3 B
Copper-DISS	<25	<25	<25	<25	1.1 B
Iron	970	8,600	9,700	2,300	11,000
Iron-DISS	350	8,300	9,300	2,000	9,600
Lead	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium	29,000	45,000	87,000	24,000	100,000
Magnesium-DISS	27,000	44,000	85,000	23,000	97,000
Manganese	54	1,300	120	920	57
Manganese-DISS	38	1,300	110	880	40
Molybdenum	<10	<10	<10	<10	2.8 B
Molybdenum-DISS	<10	<10	<10	<10	2.9 B
Nickel	<25	<25	<25	<25	8.4 B
Nickel-DISS	<25	<25	<25	<25	7.1 B
Potassium	2,800	3,800	4,400	2,200	3,600
Potassium-DISS	2,500	3,800	4,300	2,200	3,500
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	2.3 B
Sodium	3,700	20,000	11,000	3,100	17,000

Footnotes on Page 11.

Table 6-4. Summary of Metals Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-113 (continued)		GMSB-116		GMSB-117
Sample Depth (ft)	199	27	122	32	115
Sample Date	09/05/03	09/04/03	08/12/03	08/11/03	08/14/03
Sample ID	GBGWGMSB-113/199	GBGWGMSB-113/27	GBGWGMSB-116/122	GBGWGMSB-116/32	GBGWGMSB-117/115
Sodium-DISS	3,500	20,000	10,000	3,000	16,000
Thallium	<2.0 WN	<2.0	<2.0 W	<2.0 W	<2.0 W
Thallium-DISS	<2.0 WN	<2.0	<2.0 W	<2.0 W	<2.0 W
Titanium	<50	<50	<50	<50	19 B
Titanium-DISS	<50	<50	<50	<50	0.70 B
Vanadium	<20	<20	<20	<20	2.0 B
Vanadium-DISS	<20	<20	<20	<20	<20
Zinc	<20	<20	<20	35	4.3 B
Zinc-DISS	<20	<20	<20	30	1.9 B

Footnotes on Page 11.

Table 6-4. Summary of Metals Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-117 (continued)	GMSB-118	GMSB-119		GMSB-122
Sample Depth (ft)	154	25	125	45	145
Sample Date	08/15/03	08/16/03	08/18/03	08/17/03	09/08/03
Sample ID	GBGWGMSB-117/154	GBGWGMSB-118/25	GBGWGMSB-119/125	GBGWGMSB-119/45	GBGWGMSB-122/145
Aluminum	33 B	310	720	<200	640
Aluminum-DISS	<200	<200	<200	330	<200
Antimony-DISS	<50	<50	<50	<50	<50
Arsenic	27	35	49	2.1 B	26
Arsenic-DISS	25	39	49	<20	24
Barium	400	**800**	61 B	45 B	**890**
Barium-DISS	400	**830**	58 B	47 B	**840**
Beryllium	0.054 B	0.056 B	<1.0	<1.0	<1.0
Calcium	110,000	140,000	77,000	68,000	180,000
Calcium-DISS	110,000	140,000	77,000	69,000	180,000
Chromium	1.0 B	3.6 B	3.9 B	<5.0	7.7
Chromium-DISS	0.56 B	2.7 B	<5.0	3.8 B	<5.0
Cobalt	3.3 B	6.5 B	1.0 B	1.1 B	<10
Cobalt-DISS	3.3 B	6.6 B	<10	1.1 B	<10
Copper	1.9 B	4.4 B	4.0 B	1.5 B	<25
Copper-DISS	2.1 B	1.6 B	<25	2.7 B	<25
Iron	17,000	32,000	6,000	1,200	29,000
Iron-DISS	17,000	32,000	4,400	1,900	25,000
Lead	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium	160,000	170,000	54,000	36,000	380,000
Magnesium-DISS	160,000	170,000	54,000	37,000	370,000
Manganese	56	350	370	390	96
Manganese-DISS	55	340	350	400	73
Molybdenum	3.5 B	2.5 B	2.2 B	30	<10
Molybdenum-DISS	2.5 B	2.4 B	2.3 B	31	<10
Nickel	8.4 B	6.9 B	2.9 B	1.2 B	<25
Nickel-DISS	7.8 B	6.3 B	<25	3.6 B	<25
Potassium	4,600	4,900	2,200	4,900	9,400
Potassium-DISS	4,500	5,000	2,100	5,100	9,200
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0
Sodium	30,000	19,000	13,000	17,000	54,000

Footnotes on Page 11.

Table 6-4. Summary of Metals Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-117 (continued)	GMSB-118	GMSB-119		GMSB-122
Sample Depth (ft)	154	25	125	45	145
Sample Date	08/15/03	08/16/03	08/18/03	08/17/03	09/08/03
Sample ID	GBGWGMSB-117/154	GBGWGMSB-118/25	GBGWGMSB-119/125	GBGWGMSB-119/45	GBGWGMSB-122/145
Sodium-DISS	30,000	20,000	13,000	17,000	53,000
Thallium	<2.0 W	0.45 BW	<2.0 W	<2.0 W	0.60 BWN
Thallium-DISS	<2.0 W	0.55 BW	<2.0 W	<2.0 W	<2.0 WN
Titanium	2.1 B	20 B	26 B	<50	79
Titanium-DISS	1.2 B	7.1 B	<50	18 B	51
Vanadium	1.3 B	5.4 B	1.5 B	0.69 B	<20
Vanadium-DISS	1.2 B	4.4 B	<20	1.4 B	<20
Zinc	2.4 B	5.6 B	7.3 B	1.9 B	<20
Zinc-DISS	2.9 B	2.9 B	3.9 B	3.2 B	<20

Footnotes on Page 11.

Table 6-4. Summary of Metals Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-123					
Sample Depth (ft)	150	Groundwater		Residential		
Sample Date	09/09/03	Contact	Indoor Air Inhalation	Drinkiing Water	FAV	FCV
Sample ID	GBGWGMSB-123/150	Criteria	Criteria	Criteria	Criteria	Criteria
Aluminum	1,800	64,000,000 (B)	(B) NLV	50 (B) V	--	--
Aluminum-DISS	<200	64,000,000 (B)	(B) NLV	50 (B) V	--	--
Antimony-DISS	<50	68,000	NLV	6 A	2,300	240
Arsenic	56	4,300	NLV	10 A	680	150
Arsenic-DISS	55	4,300	NLV	10 A	680	150
Barium	**410**	14,000,000 (B)	(B) NLV	2,000 (B) A	2,300 H*92	400 H*92
Barium-DISS	400	14,000,000 (B)	(B) NLV	2,000 (B) A	2,300 H*92	400 H*92
Beryllium	<1.0	290,000	NLV	4 A	35 H*92	1.9 H*92
Calcium	130,000	--	--	--	--	--
Calcium-DISS	120,000	--	--	--	--	--
Chromium	6	460,000	NLV	100 A	32 Dissolved	11 Dissolved
Chromium-DISS	<5.0	460,000	NLV	100 A	32 Dissolved	11 Dissolved
Cobalt	<10	2,400,000	NLV	40	740	100
Cobalt-DISS	<10	2,400,000	NLV	40	740	100
Copper	<25	7,400,000 (B)	(B) NLV	1,000 (B) E	25 H*92	8.3 H*92
Copper-DISS	<25	7,400,000 (B)	(B) NLV	1,000 (B) E	25 H*92	8.3 H*92
Iron	22,000	58,000,000 (B)	(B) NLV	300 (B) E	--	--
Iron-DISS	17,000	58,000,000 (B)	(B) NLV	300 (B) E	--	--
Lead	<3.0	(B) ID	(B) NLV	4 (B) L	170 H*92	9.4 H*92
Magnesium	190,000	1,000,000,000 (B) D	(B) NLV	400,000 (B)	--	--
Magnesium-DISS	190,000	1,000,000,000 (B) D	(B) NLV	400,000 (B)	--	--
Manganese	150	9,100,000 (B)	(B) NLV	50 (B) E	7,700 H*92	1,800 H*92
Manganese-DISS	57	9,100,000 (B)	(B) NLV	50 (B) E	7,700 H*92	1,800 H*92
Molybdenum	<10	970,000 (B)	(B) NLV	73 (B)	58,000	3,200
Molybdenum-DISS	<10	970,000 (B)	(B) NLV	73 (B)	58,000	3,200
Nickel	<25	74,000,000 (B)	(B) NLV	100 (B) A	870 H*92	48 H*92
Nickel-DISS	<25	74,000,000 (B)	(B) NLV	100 (B) A	870 H*92	48 H*92
Potassium	5,900	--	--	--	--	--
Potassium-DISS	5,700	--	--	--	--	--
Selenium-DISS	<5.0	970,000 (B)	(B) NLV	50 (B) A	R	R
Sodium	34,000	1,000,000,000 D	NLV	120,000	--	--

Footnotes on Page 11.

Table 6-4. Summary of Metals Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Depth (ft) Sample Date Sample ID	GMSB-123 150 09/09/03 GBGWGMSB-123/150	Groundwater Contact Criteria	Indoor Air Inhalation Criteria	Residential Drinkiing Water Criteria	FAV Criteria	FCV Criteria
Sodium-DISS	34,000	1,000,000,000 D	NLV	120,000	--	--
Thallium	0.45 BWN	13,000 (B)	(B) NLV	2 (B) A	94	7.2
Thallium-DISS	<2.0 WN	13,000 (B)	(B) NLV	2 (B) A	94	7.2
Titanium	<50	--	--	--	ID	ID
Titanium-DISS	<50	--	--	--	ID	ID
Vanadium	<20	970,000	NLV	4.5	220	12
Vanadium-DISS	<20	970,000	NLV	4.5	220	12
Zinc	<20	110,000,000 (B)	(B) NLV	2,400 (B)	220 H*92	110 H*92
Zinc-DISS	<20	110,000,000 (B)	(B) NLV	2,400 (B)	220 H*92	110 H*92

Footnotes on Page 11.

Table 6-4. Summary of Metals Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Results in micrograms per liter (µg/L).

<	Less than the laboratory method detection limit shown.
(ft)	Sample depth in feet below ground surface.
Bold	Indicates a value above the Final Chronic Values (Michigan Part 4 Rule 323.1057, December 11, 2006).
	Indicates a value above the Groundwater Contact Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
Italics	Indicates a value above the Final Acute Values (Michigan Part 4 Rule 323.1057, December 11, 2006).
	Indicates a value above the Residential and Commercial I Drinking Water Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
*	LCS or LCSD exceeds the control limit.
*F5	Post-digestion spike recovery for furnace AA analysis exceeded control limits and sample absorbance or concentration was less than 50% of spike absorbance or concentration.
B	Constituent was also detected in laboratory blank.
J	Estimated result.
L	Serial dilution indicates that interference is present.
M	Matrix interference reported by laboratory.
MBD	This analyte is present in the associated method blank at an amount that is less than two times the reporting limit.
N	Spiked sample recovery is not within control limits (Inorganics only).
NA	Not analyzed.
R	Rejected result.
W	Post-digestion spike for furnace A-A analysis is out of control limits while sample absorbance is less than 50% of spike absorbance.

State of Michigan Criteria Footnotes:

A	State of Michigan Drinking Water Standard.
AA	Compound may be adsorbed to particulates rather than dissolved in water; filtered groundwater sample may be more appropriate for comparison to criteria.
B	Background may be substituted if higher than the calculated cleanup criteria.
CC	The generic groundwater surface water interface criteria are based on the toxicity of unionized ammonia.
D	Calculated criterion exceeds 100%, therefore it is reduced to 100%.
E	Criterion is the aesthetic drinking water value.
EE	Applicable criteria established as required by Section 20120a(15) of the act.
F	Criterion is based on adverse impacts to plant life.
FF	The chloride groundwater surface water interface criteria is 125 mg/l when discharged to surface waters designated as public water supply sources or 50 mg/l when discharged to Great Lakes or connecting waters.
G	GSI value is pH or water hardness dependent.
H*92	Criteria based on water hardness of 92.

Table 6-4. Summary of Metals Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

State of Michigan Criteria Footnotes (continued):

I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.
ID	Inadequate data to develop criterion.
J	Chemical may be present in several isomer forms. Isomer specific concentrations must be added together for comparison to criteria.
K	Chemical may be flammable and/or explosive.
L	Higher groundwater concentrations, (up to 15 µg/L) may be acceptable if the soil concentration is less than 400 ppm and groundwater migrating offsite will not result in unacceptable exposures.
M	Calculated criterion is below the analytical method detection limit (MDL).
N	Concentrations of all potential nitrate-nitrogen sources must be added together and compared to nitrate criteria.
NA	Criterion or values is not available.
NLS	A literature search has not been conducted.
NLV	Chemical is not likely to volatilize under most soil conditions.
O	All polychlorinated and polybrominated dibenzodioxins, and dibenzofurans are considered as one substance.
P	Amenable or Method OIA-1677 analysis are used to quanitfy cyanide concentrations for compliance with all groundwater criteria.
Q	Criterion for carcinogenic polycyclic aromatic hydrocarbons (PAHs) were developed using "relative potential potencies" (RFPs) to benzo(a)pyrene.
R	Hazardous substance may exhibit the characteristic of reactivity as defined in 40 CFR 261.23.
S	Criterion defaults to the chemical-specific water solubility limit.
T	Refer to Toxic Substances Control Act (TSCA) to determine applicability of TSCA cleanup standards.
Total	Criterion established for total metal only.
V	Criterion is the aesthetic drinking water value, which is a secondary standard.
W	Concentrations of trihalomethanes in groundwater must be added together to detemine compliance with State of Michigan Criteria.
X	The GSI criterion shown is not protective for surface water that is used as a drinking water source.
*	The lowest Human Noncancer Value, Wildlife Value, Human Cancer Value, final chronic value criteria per Michigan Act 451, Part 4, Rule 57 given for this chemical will adequately protect the uses identified with "ID".

Table 6-5. Summary of Alcohols/Aldehydes/Inorganics Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-2B	GM-3B		GM-25C	GM-26C		GM-27C	GM-32
Sample Depth (ft)	135	265	305	105	30	140	105	125
Sample Date	05/03/97	05/03/97	05/04/97	06/10/98	06/15/98	06/16/98	06/24/98	07/08/98
Sample I.D.	GBGM-2/135	GBGM-3/265	GBGM-3/305	GBGM-25/105	GBGM-26/30	GBGM-26/140	GBGM-27/105	GBGM-32/125
Alcohols								
2-Pentanone	NA	NA	NA	NA	NA	NA	NA	NA
Ethylene glycol	NA	NA	NA	NA	NA	NA	NA	NA
Methanol	NA	NA	NA	<1,000	<1,000	<1,000	<1,000	2,400
n-Butanol	NA	NA	NA	<800	<800	<800	<800	<800
Aldehydes								
Decanal	NA	NA	NA	NA	NA	NA	NA	NA
Heptanal	NA	NA	NA	NA	NA	NA	NA	NA
Hexanal	NA	NA	NA	NA	NA	NA	NA	NA
m-Tolualdehyde	NA	NA	NA	NA	NA	NA	NA	NA
Nonanal	NA	NA	NA	NA	NA	NA	NA	NA
Octanal	NA	NA	NA	NA	NA	NA	NA	NA
Pentanal	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics								
Alkalinity	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Nitrate	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Nitrite	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	NA	NA	NA	NA	NA	NA	NA	NA
Silica, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	31,000	10,000	<10,000	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 8

Table 6-5. Summary of Alcohols/Aldehydes/Inorganics Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-33	GM-34B	GM-38B		GM-39	GM-53B	GM-67
Sample Depth (ft)	105	95	105	165	95	225	122-127
Sample Date	07/10/98	07/13/98	07/23/98	07/23/98	07/27/98	09/09/98	06/14/00
Sample I.D.	GBGM-33/105	GBGM-34/95	GBGM-38/105	GBGM-38/165	GBGM-39/95	GBGM-53/225	GBGWGM-67/122-127
Alcohols							
2-Pentanone	NA	NA	NA	NA	NA	NA	NA
Ethylene glycol	NA	NA	NA	NA	NA	NA	NA
Methanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1.0
n-Butanol	<800	<800	<800	<800	<800	<800	<1.0
Aldehydes							
Decanal	NA	NA	NA	NA	NA	NA	<100 J
Heptanal	NA	NA	NA	NA	NA	NA	<100 J
Hexanal	NA	NA	NA	NA	NA	NA	<100 J
m-Tolualdehyde	NA	NA	NA	NA	NA	NA	<100 J
Nonanal	NA	NA	NA	NA	NA	NA	<100 J
Octanal	NA	NA	NA	NA	NA	NA	<100 J
Pentanal	NA	NA	NA	NA	NA	NA	<100 J
Inorganics							
Alkalinity	NA	NA	NA	NA	NA	NA	290,000
Chloride	NA	NA	NA	NA	NA	NA	23,000
Nitrogen, (Ammonia)	NA	NA	NA	NA	NA	NA	<30
Nitrogen, Nitrate	NA	NA	NA	NA	NA	NA	<50
Nitrogen, Nitrite	NA	NA	NA	NA	NA	NA	<50
Phosphorus	NA	NA	NA	NA	NA	NA	<100
Silica, Dissolved	NA	NA	NA	NA	NA	NA	5,700
Sulfate	NA	NA	NA	NA	NA	NA	<5,000
Hardness as CaCO3	NA	NA	NA	NA	NA	NA	320,000

Footnotes on Page 8

Table 6-5. Summary of Alcohols/Aldehydes/Inorganics Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-82A		GMSB-49	GMSB-50	GMSB-111
Sample Depth (ft)	95	114	93	100-105	26
Sample Date	06/02/04	06/05/04	05/19/00	06/01/00	08/19/03
Sample I.D.	GBGWGM-82/95 (6/3/04)	GBGWGM-82/114 (6/5/04)	GBGWGMSB-49/93	GBGWGMSB-50/100-105	GBGWGMSB-111/26
Alcohols					
2-Pentanone	<1,000	<1,000	NA	NA	<1,000
Ethylene glycol	<5,000	1,100 J	NA	NA	<5,000
Methanol	860 J	420 J	<1,000	<1,000	<1,000
n-Butanol	<1,000	<1,000	<1,000	<1,000	<1,000
Aldehydes					
Decanal	26 J	<100	<100	<100 J	<100
Heptanal	45 J	<100	<100	<100 J	<100
Hexanal	<100	<100	<100	<100 J	<100
m-Tolualdehyde	<100	<100	<100	<100 J	<100
Nonanal	36 J	<100	<100	<100	<100
Octanal	31 J	<100	<100	<100 J	<100
Pentanal	<100	<100	<100	<100 J	<100
Inorganics					
Alkalinity	320,000	790,000	140,000	150,000	350,000
Chloride	37,000	26,000	2,500	1,500	17,000
Nitrogen, (Ammonia)	<30	<30	**160**	**57**	**67**
Nitrogen, Nitrate	<50	<50	<50	<50	1,400
Nitrogen, Nitrite	<50	26 B	<50 J	<50	<50
Phosphorus	250	<100	<100	<100	<100
Silica, Dissolved	25,000	45,000	18,000	21,000	17,000
Sulfate	<5,000	<5,000	9,300	5,700	27,000
Hardness as CaCO3	NA	NA	140,000	170,000	NA

Footnotes on Page 8

Table 6-5. Summary of Alcohols/Aldehydes/Inorganics Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-112		GMSB-113		
Sample Depth (ft)	134	192	155	199	27
Sample Date	09/03/03	09/03/03	09/05/03	09/05/03	09/04/03
Sample I.D.	GBGWGMSB-112/134	GBGWGMSB-112/192	GBGWGMSB-113/155	GBGWGMSB-113/199	GBGWGMSB-113/27
Alcohols					
2-Pentanone	<1,000	54,000	<1,000	<1,000	<1,000
Ethylene glycol	<5,000	<5,000	<5,000	<5,000	<5,000
Methanol	<1,000	<5,000	<1,000	<1,000	<1,000
n-Butanol	<1,000	<5,000	8,000	70,000	4,700
Aldehydes					
Decanal	<100	<100	NA	<100	<100
Heptanal	<100	<100	NA	<100	<100
Hexanal	<100	<100	NA	<100	<100
m-Tolualdehyde	<100	<100	NA	<100	<100
Nonanal	<100	<100	NA	<100	<100
Octanal	<100	<100	NA	<100	<100
Pentanal	100	<100	NA	<100	<100
Inorganics					
Alkalinity	1,700,000	180,000	1,300,000	190,000	370,000
Chloride	20,000	5,300	16,000	13,000	72,000
Nitrogen, (Ammonia)	<30	**31**	<30	**49**	**52**
Nitrogen, Nitrate	<50	<50	<50	<50	<50
Nitrogen, Nitrite	<50	<50	<50	<50	<50
Phosphorus	<100	<100	<100	<100	<100
Silica, Dissolved	46,000	18,000	48,000	18,000	30,000
Sulfate	<5,000	5,200	<5,000	<5,000	<5,000
Hardness as CaCO3	NA	NA	NA	NA	NA

Footnotes on Page 8

ARCADIS

Table 6-5. **Summary of Alcohols/Aldehydes/Inorganics Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.**

Well/Boring	**GMSB-116**		**GMSB-117**		**GMSB-118**
Sample Depth (ft)	**122**	**32**	**115**	**154**	**25**
Sample Date	**08/12/03**	**08/11/03**	**08/14/03**	**08/15/03**	**08/16/03**
Sample I.D.	**GBGWGMSB-116/122**	**GBGWGMSB-116/32**	**GBGWGMSB-117/115**	**GBGWGMSB-117/154**	**GBGWGMSB-118/25**
Alcohols					
2-Pentanone	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylene glycol	<5,000	<5,000	<5,000	<5,000	<5,000
Methanol	<1,000	<1,000	<1,000	<1,000	<1,000
n-Butanol	<1,000	<1,000	<1,000	<1,000	<1,000
Aldehydes					
Decanal	<100	<100	<100	<100	<100
Heptanal	<100	<100	<100	<100	<100
Hexanal	<100	<100	<100	<100	<100
m-Tolualdehyde	<100	<100	<100	<100	<100
Nonanal	<100	<100	<100	<100	<100
Octanal	<100	<100	<100	<100	<100
Pentanal	<100	<100	<100	<100	<100
Inorganics					
Alkalinity	690,000	250,000	770,000	210,000	1,200,000
Chloride	8,200	4,900	14,000	17,000	11,000
Nitrogen, (Ammonia)	**92**	<30	<30	<30	<30
Nitrogen, Nitrate	<50	<50	<50	<50	<50
Nitrogen, Nitrite	<50	<50	<50	<50	<50
Phosphorus	<100	<100	<100	<100	<100
Silica, Dissolved	33,000	23,000	23,000	38,000	39,000
Sulfate	<5,000	<5,000	<5,000	<5,000	<5,000
Hardness as CaCO3	NA	NA	NA	NA	NA

Footnotes on Page 8

Table 6-5. Summary of Alcohols/Aldehydes/Inorganics Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-119		GMSB-122	GMSB-123	
Sample Depth (ft)	125	45	145	150	
Sample Date	08/18/03	08/17/03	09/08/03	09/09/03	Groundwater Contact
Sample I.D.	GBGWGMSB-119/125	GBGWGMSB-119/45	GBGWGMSB-122/145	GBGWGMSB-123/150	Criteria
Alcohols					
2-Pentanone	<1,000	<1,000	<1,000	<1,000	--
Ethylene glycol	<5,000	<5,000	<5,000	<5,000	1,000,000,000 S
Methanol	<1,000	<1,000	<1,000	<1,000	29,000,000 S
n-Butanol	<1,000	<1,000	27,000	<1,000	8,800,000 (I)
Aldehydes					
Decanal	<100	<100	<100	<100	--
Heptanal	<100	<100	<100	<100	--
Hexanal	<100	<100	160	<100	--
m-Tolualdehyde	<100	<100	380	<100	--
Nonanal	<100	<100	<100	<100	--
Octanal	<100	<100	<100	<100	--
Pentanal	<100	<100	<100	100	--
Inorganics					
Alkalinity	420,000	310,000	1,900,000	1,000,000	--
Chloride	51,000	63,000	21,000	15,000	ID
Nitrogen, (Ammonia)	<30	<30	<30	<30	ID
Nitrogen, Nitrate	<50	260	<50	<50	310,000,000 (B,N)
Nitrogen, Nitrite	<50	<50	<50	<50	(B,N) ID
Phosphorus	<100	<100	<100	<100	(total),ID
Silica, Dissolved	27,000	22,000	40,000	51,000	--
Sulfate	<5,000	<5,000	<5,000	<5,000	ID
Hardness as CaCO3	NA	NA	NA	NA	--

Footnotes on Page 8

Table 6-5. Summary of Alcohols/Aldehydes/Inorganics Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Depth (ft) Sample Date Sample I.D.	Indoor Air Inhalation Criteria	Residential Drinking Water Criteria	FAV Criteria	FCV Criteria
Alcohols				
2-Pentanone	--	--	--	--
Ethylene glycol	NLV	15,000	3,400,000	190,000
Methanol	29,000,000 S	3,700	2,700,000	590,000
n-Butanol	(I) NLV	950 (I)	--	--
Aldehydes				
Decanal	--	--	--	--
Heptanal	--	--	--	--
Hexanal	--	--	--	--
m-Tolualdehyde	--	--	--	--
Nonanal	--	--	--	--
Octanal	--	--	--	--
Pentanal	--	--	--	--
Inorganics				
Alkalinity	--	--	--	--
Chloride	NLV	250,000 E	--	--
Nitrogen, (Ammonia)	3,200,000	10,000 N	320	29
Nitrogen, Nitrate	(B,N) NLV	10,000 (B,N) A,N	--	--
Nitrogen, Nitrite	(B,N) NLV	1,000 (B,N) A,N	--	--
Phosphorus	(total),NL	63,000 (total)	--	--
Silica, Dissolved	--	--	--	--
Sulfate	NLV	250,000 E	--	--
Hardness as CaCO3	--	--	--	--

Footnotes on Page 8

Table 6-5. Summary of Alcohols/Aldehydes/Inorganics Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Resuls in micrograms per liter (µg/L).

(ft)	Sample depth in feet below ground surface.
$\boxed{}$	Indicates a value above the Residential and Commercial I Drinking Water criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
Bold	Indicates a value above the Final Chronic Values (Michigan Part 4 Rule 323.1057, December 11, 2006).
<	Less than the laboratory method detection limit shown.
B	Constituent was also detected in laboratory blank.
J	Estimated result.
NA	Not analyzed.

State of Michigan Criteria Footnotes:

A	State of Michigan Drinking Water Standard.
B	Background may be substituted if higher than the calculated cleanup criteria.
E	Criterion is the aesthetic drinking water value.
I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.
ID	Inadequate data to develop criterion.
N	Concentrations of all potential nitrate-nitrogen sources must be added together and compared to nitrate criteria.
NLV	Chemical is not likely to volatilize under most soil conditions.
S	Criterion defaults to the chemical-specific water solubility limit.

Table 6-6. Summary of TOC/COD/BOD Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-1					GM-2B		
Sample Depth (ft)	95	95	144	193	290-295	75	135	205
Sample Date	05/12/97	05/13/97	05/13/97	05/14/97	05/16/97	05/02/97	05/03/97	05/04/97
Sample I.D.	GBGM-1/95	GBGM-99/1	GBGM-1/144	GBGM-1/193	GBGM-1/290'-295'	GBGM-2/75	GBGM-2/135	GBGM-2/205
Biochemical Oxygen Demand	NA	NA	NA	NA	NA	NA	NA	NA
Chemical Oxygen Demand	130	51	130	110	20	77	59 J	12
Total Organic Carbon	<1	<1	25	33	15	21	19	<1

Results in micorgrams per liter (µg/L).

<	Less than the laboratory method detection limit shown.
>	Greater than the value shown.
(ft)	Sample depth in feet below land surface.
BOD	Biochemical Oxygen Demand.
COD	Chemical Oxygen Demand.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
H	Sample was prepared or analyzed after the EPA recommended holding time had been exceeded.
NA	Not analyzed.
J	Estimated result.
TOC	Total Organic Carbon.

Table 6-6. Summary of TOC/COD/BOD Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-2B (continued)	GM-3B						GM-5
Sample Depth (ft)	255	69	119	167	207	265	305	115
Sample Date	05/05/97	04/30/97	05/01/97	05/01/97	05/01/97	05/03/97	05/04/97	06/12/97
Sample I.D.	GBGM-2/255	GBGM-3/69	GBGM-3/119	GBGM-3/167	GBGM-3/207	GBGM-3/265	GBGM-3/305	GBGM-5/115
Biochemical Oxygen Demand	NA	NA	NA	NA	NA	NA	NA	<2
Chemical Oxygen Demand	1,400	<10	94	220	270	200	1,000	14
Total Organic Carbon	370	<1	28	57	82	60	310	<2

Results in micorgrams per liter (µg/L).

<	Less than the laboratory method detection limit shown.
>	Greater than the value shown.
(ft)	Sample depth in feet below land surface.
BOD	Biochemical Oxygen Demand.
COD	Chemical Oxygen Demand.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
H	Sample was prepared or analyzed after the EPA recommended holding time had been exceeded.
NA	Not analyzed.
J	Estimated result.
TOC	Total Organic Carbon.

Table 6-6. Summary of TOC/COD/BOD Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-5 (continued)		GM-7		GM-9	GM-10		GM-11
Sample Depth (ft)	173	235	153	153	62	95	155	35
Sample Date	06/12/97	06/13/97	06/11/97	06/11/97	09/12/97	09/16/97	09/22/97	09/27/97
Sample I.D.	GBGM-5/173	GBGM-5/235	GBGM-7/153	GBGM-99/2	GBGM-9/62	GBGM-10/95	GBGM-10/155	GBGM-11/35
Biochemical Oxygen Demand	9	7	3	2	NA	NA	NA	NA
Chemical Oxygen Demand	93	410	11	71	NA	NA	NA	NA
Total Organic Carbon	27	140	6	5	3	<1	<1	4

Results in micorgrams per liter (µg/L).

<	Less than the laboratory method detection limit shown.
>	Greater than the value shown.
(ft)	Sample depth in feet below land surface.
BOD	Biochemical Oxygen Demand.
COD	Chemical Oxygen Demand.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
H	Sample was prepared or analyzed after the EPA recommended holding time had been exceeded.
NA	Not analyzed.
J	Estimated result.
TOC	Total Organic Carbon.

Table 6-6. Summary of TOC/COD/BOD Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-11 (continued)	GM-12		GM-13	GM-14	GM-15	
Sample Depth (ft)	35	65	230	145	85	55	140
Sample Date	09/27/97	09/30/97	10/07/97	09/23/97	09/12/97	09/09/97	09/10/97
Sample I.D.	GBGM-90	GBGM-12/65	GBGM-12/230	GBGM-13/145	GBGM-14/85*	GBGM-15/55*	GBGM-15/140*
Biochemical Oxygen Demand	NA	NA	NA	NA	NA	NA	NA
Chemical Oxygen Demand	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	4	20	13	3,300	3	<1	1

Results in micorgrams per liter (µg/L).
< Less than the laboratory method detection limit shown.
> Greater than the value shown.
(ft) Sample depth in feet below land surface.
BOD Biochemical Oxygen Demand.
COD Chemical Oxygen Demand.
*F26 Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
H Sample was prepared or analyzed after the EPA recommended holding time had been exceeded.
NA Not analyzed.
J Estimated result.
TOC Total Organic Carbon.

Table 6-6. Summary of TOC/COD/BOD Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-16	GM-17	GM-25C	GM-26C		GM-27C	GM-32
Sample Depth (ft)	115	105	105	30	140	105	125
Sample Date	10/12/97	10/21/97	06/10/98	06/15/98	06/16/98	06/24/98	07/08/98
Sample I.D.	GBGM-16/115	GBGM-17/105	GBGM-25/105	GBGM-26/30	GBGM-26/140	GBGM-27/105	GBGM-32/125
Biochemical Oxygen Demand	NA	NA	NA	NA	NA	NA	NA
Chemical Oxygen Demand	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	1	<1	2,300	260	13	7.8	18

Results in micorgrams per liter (µg/L).

<	Less than the laboratory method detection limit shown.
>	Greater than the value shown.
(ft)	Sample depth in feet below land surface.
BOD	Biochemical Oxygen Demand.
COD	Chemical Oxygen Demand.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
H	Sample was prepared or analyzed after the EPA recommended holding time had been exceeded.
NA	Not analyzed.
J	Estimated result.
TOC	Total Organic Carbon.

Table 6-6. Summary of TOC/COD/BOD Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-33	GM-34B	GM-38B		GM-39	GM-53B	GM-67
Sample Depth (ft)	105	95	105	165	95	225	122-127
Sample Date	07/10/98	07/13/98	07/23/98	07/23/98	07/27/98	09/09/98	06/14/00
Sample I.D.	GBGM-33/105	GBGM-34/95	GBGM-38/105	GBGM-38/165	GBGM-39/95	GBGM-53/225	GBGWGM-67/122-127
Biochemical Oxygen Demand	NA	NA	NA	NA	NA	NA	<2.0
Chemical Oxygen Demand	NA	NA	NA	NA	NA	NA	<20
Total Organic Carbon	1.8	1	3.3	0.97	16	10,000	5.7

Results in micorgrams per liter (µg/L).

<	Less than the laboratory method detection limit shown.
>	Greater than the value shown.
(ft)	Sample depth in feet below land surface.
BOD	Biochemical Oxygen Demand.
COD	Chemical Oxygen Demand.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
H	Sample was prepared or analyzed after the EPA recommended holding time had been exceeded.
NA	Not analyzed.
J	Estimated result.
TOC	Total Organic Carbon.

Table 6-6. Summary of TOC/COD/BOD Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-82A		GMSB-1			
Sample Depth (ft)	95	114	85	135	215	275
Sample Date	06/02/04	06/05/04	05/16/97	05/17/97	05/18/97	05/19/97
Sample I.D.	GBGWGM-82/95 (6/3/04)	GBGWGM-82/114 (6/5/04)	GBGMSB-1/85	GBGMSB-1/135	GBGMSB-1/215	GBGMSB-1/275
Biochemical Oxygen Demand	<2.0	5	1,300 J	3 J	1,200	44 J
Chemical Oxygen Demand	<20	140	3,100	33	2,700	180
Total Organic Carbon	<1.0	38	1,100	18	1,000	68

Results in micorgrams per liter (µg/L).

<	Less than the laboratory method detection limit shown.
>	Greater than the value shown.
(ft)	Sample depth in feet below land surface.
BOD	Biochemical Oxygen Demand.
COD	Chemical Oxygen Demand.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
H	Sample was prepared or analyzed after the EPA recommended holding time had been exceeded.
NA	Not analyzed.
J	Estimated result.
TOC	Total Organic Carbon.

Table 6-6. Summary of TOC/COD/BOD Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1 (continued)	GMSB-2			GMSB-4	
Sample Depth (ft)	325	93	265	345	115	183.5
Sample Date	06/02/97	05/18/97	05/20/97	05/31/97	06/04/97	06/09/97
Sample I.D.	GBGMSB-1/325	GBGMSB-2/93	GBGMSB-2/265	GBGMSB-2/345	GBGMSB-4/115	GBGMSB-4/183.5
Biochemical Oxygen Demand	6	3	>4,200	930 J	<2	<2
Chemical Oxygen Demand	73	48	6,200	4,000	23	190
Total Organic Carbon	33	14	2,300	1,700	11	56 H J

Results in micorgrams per liter (µg/L).

<	Less than the laboratory method detection limit shown.
>	Greater than the value shown.
(ft)	Sample depth in feet below land surface.
BOD	Biochemical Oxygen Demand.
COD	Chemical Oxygen Demand.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
H	Sample was prepared or analyzed after the EPA recommended holding time had been exceeded.
NA	Not analyzed.
J	Estimated result.
TOC	Total Organic Carbon.

Table 6-6. Summary of TOC/COD/BOD Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-8			GMSB-49	GMSB-50	GMSB-111
Sample Depth (ft)	85	117	186	93	100-105	26
Sample Date	09/09/97	09/10/97	09/11/97	05/19/00	06/01/00	08/19/03
Sample I.D.	GBGMSB-8/85	GBGMSB-8/117	GBGMSB-8/186	GBGWGMSB-49/93	GBGWGMSB-50/100-105	GBGWGMSB-111/26
Biochemical Oxygen Demand	NA	NA	NA	<2 J	<2.0	<2.0
Chemical Oxygen Demand	NA	NA	NA	<20	<20	<20
Total Organic Carbon	<1	<1	<1	<1	<1.0	1.2

Results in micorgrams per liter (µg/L).

<	Less than the laboratory method detection limit shown.
>	Greater than the value shown.
(ft)	Sample depth in feet below land surface.
BOD	Biochemical Oxygen Demand.
COD	Chemical Oxygen Demand.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
H	Sample was prepared or analyzed after the EPA recommended holding time had been exceeded.
NA	Not analyzed.
J	Estimated result.
TOC	Total Organic Carbon.

Table 6-6. Summary of TOC/COD/BOD Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-112		GMSB-113		
Sample Depth (ft)	134	192	155	199	27
Sample Date	09/03/03	09/03/03	09/05/03	09/05/03	09/04/03
Sample I.D.	GBGWGMSB-112/134	GBGWGMSB-112/192	GBGWGMSB-113/155	GBGWGMSB-113/199	GBGWGMSB-113/27
Biochemical Oxygen Demand	33	<2.0	20	<2.0	<2.0
Chemical Oxygen Demand	990	<20	600	62	<20
Total Organic Carbon	300	3.5	170	20	2.7

Results in micorgrams per liter (µg/L).

<	Less than the laboratory method detection limit shown.
>	Greater than the value shown.
(ft)	Sample depth in feet below land surface.
BOD	Biochemical Oxygen Demand.
COD	Chemical Oxygen Demand.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
H	Sample was prepared or analyzed after the EPA recommended holding time had been exceeded.
NA	Not analyzed.
J	Estimated result.
TOC	Total Organic Carbon.

Table 6-6. Summary of TOC/COD/BOD Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-116				GMSB-117
Sample Depth (ft)	122	122	32	32	115
Sample Date	08/12/03	08/12/03	08/11/03	08/11/03	08/14/03
Sample I.D.	GBGWGMSB-116/122	GBGWGMSB-116/122-RE	GBGWGMSB-116/32	GBGWGMSB-116/32-RE	GBGWGMSB-117/115
Biochemical Oxygen Demand	29 *F26	8.2	<2.0	<2.0	7.3
Chemical Oxygen Demand	230	NA	<20	NA	210
Total Organic Carbon	71	NA	<1.0	NA	65

Results in micorgrams per liter (µg/L).
< Less than the laboratory method detection limit shown.
> Greater than the value shown.
(ft) Sample depth in feet below land surface.
BOD Biochemical Oxygen Demand.
COD Chemical Oxygen Demand.
*F26 Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
H Sample was prepared or analyzed after the EPA recommended holding time had been exceeded.
NA Not analyzed.
J Estimated result.
TOC Total Organic Carbon.

Table 6-6. Summary of TOC/COD/BOD Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-117 (continued)	GMSB-118	GMSB-119		GMSB-122
Sample Depth (ft)	154	25	125	45	145
Sample Date	08/15/03	08/16/03	08/18/03	08/17/03	09/08/03
Sample I.D.	GBGWGMSB-117/154	GBGWGMSB-118/25	GBGWGMSB-119/125	GBGWGMSB-119/45	GBGWGMSB-122/145
Biochemical Oxygen Demand	8.9	19	<2.0	<2.0	11
Chemical Oxygen Demand	400	290	53	<20	1400
Total Organic Carbon	130	88	13	1.3	440

Results in micorgrams per liter (µg/L).

< Less than the laboratory method detection limit shown.
> Greater than the value shown.
(ft) Sample depth in feet below land surface.
BOD Biochemical Oxygen Demand.
COD Chemical Oxygen Demand.
*F26 Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
H Sample was prepared or analyzed after the EPA recommended holding time had been exceeded.
NA Not analyzed.
J Estimated result.
TOC Total Organic Carbon.

Table 6-6. Summary of TOC/COD/BOD Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-123
Sample Depth (ft)	150
Sample Date	09/09/03
Sample I.D.	GBGWGMSB-123/150
Biochemical Oxygen Demand	27
Chemical Oxygen Demand	460
Total Organic Carbon	300

Results in micorgrams per liter (µg/L).

<	Less than the laboratory method detection limit shown.
>	Greater than the value shown.
(ft)	Sample depth in feet below land surface.
BOD	Biochemical Oxygen Demand.
COD	Chemical Oxygen Demand.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
H	Sample was prepared or analyzed after the EPA recommended holding time had been exceeded.
NA	Not analyzed.
J	Estimated result.
TOC	Total Organic Carbon.

Table 6-7. Summary of Dissolved-Phase Methane Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample I.D.	Sample Date	Sample Depth *	Dissolved-Phase Methane	FESL Criteria
GM-5	GBGM-5/115	6/12/1997	115	***6.6***	0.52
GM-5	GBGM-5/173	6/12/1997	173	***30.9***	0.52
GM-7	GBGM-7/153	6/11/1997	153	***52.2***	0.52
GM-7	GBGM-99/2	6/11/1997	153	***56.1***	0.52
GM-9	GBGM-9/62	9/12/1997	62	***1.65***	0.52
GM-10	GBGM-10/95	9/16/1997	95	***1.09***	0.52
GM-10	GBGM-10/155	9/22/1997	155	0.0039	0.52
GM-11	GBGM-11/35	9/27/1997	35	0.13	0.52
GM-11	GBGM-90	9/27/1997	35	0.12	0.52
GM-12	GBGM-12/65	9/30/1997	65	***0.55***	0.52
GM-12	GBGM-12/230	10/7/1997	230	***7.83***	0.52
GM-13	GBGM-13/145	9/23/1997	145	***14.8***	0.52
GM-14	GBGM-14/85*	9/12/1997	85	<0.0011	0.52
GM-15	GBGM-15/55*	9/9/1997	55	<0.0010	0.52
GM-15	GBGM-15/140*	9/10/1997	140	0.35	0.52
GM-16	GBGM-16/115	10/12/1997	115	<0.0009	0.52
GM-17	GBGM-17/105	10/21/1997	105	0.0112	0.52
GM-25C	GBGM-25/105	6/10/1998	105	***91.1***	0.52
GM-26C	GBGM-26/30	6/15/1998	30	***14.8***	0.52
GM-26C	GBGM-26/140	6/16/1998	140	***15.2***	0.52
GM-32	GBGM-32/125	7/8/1998	125	***36.7***	0.52
GM-33	GBGM-33/105	7/10/1998	105	***7.9***	0.52
GM-34B	GBGM-34/95	7/13/1998	95	<0.001	0.52
GM-38B	GBGM-38/105	7/23/1998	105	0.0066	0.52
GM-38B	GBGM-38/165	7/23/1998	165	***1.15***	0.52
GM-39	GBGM-39/95	7/27/1998	95	***22.62***	0.52
GM-67	GBGWGM-67/122-127	6/14/2000	122-127	***8.49***	0.52
GM-82A	GBGWGM-82/95 (6/3/04)	6/2/2004	95	***32***	0.52
GM-82A	GBGWGM-82/114 (6/5/04)	6/5/2004	114	***26.2***	0.52
GMSB-1	GBGMSB-1/135	5/17/1997	135	***7.4***	0.52
GMSB-1	GBGMSB-1/215	5/18/1997	215	***87.2***	0.52
GMSB-1	GBGMSB-1/325	6/2/1997	325	***34***	0.52
GMSB-2	GBGMSB-2/93	5/18/1997	93	***3.6***	0.52
GMSB-2	GBGMSB-2/265'	5/20/1997	265	***155***	0.52
GMSB-2	GBGMSB-2/345	5/31/1997	345	***23.2***	0.52
GMSB-4	GBGMSB-4/115	6/4/1997	115	***10.7***	0.52
GMSB-4	GBGMSB-4/183.5	6/9/1997	183.5	***36.8***	0.52
GMSB-8	GBGMSB-8/85	9/9/1997	85	<0.0011	0.52
GMSB-8	GBGMSB-8/117	9/10/1997	117	<0.0012	0.52
GMSB-8	GBGMSB-8/186	9/11/1997	186	<0.008	0.52
GMSB-50	GBGWGMSB-50/100-105	6/1/2000	100-105	0.35	0.52
GMSB-111	GBGWGMSB-111/26	8/19/2003	26	***1.34***	0.52
GMSB-112	GBGWGMSB-112/192	9/3/2003	192	0.373	0.52
GMSB-113	GBGWGMSB-113/155	9/5/2003	155	***150***	0.52
GMSB-113	GBGWGMSB-113/199	9/5/2003	199	***7.01***	0.52
GMSB-113	GBGWGMSB-113/27	9/4/2003	27	***8.17***	0.52
GMSB-117	GBGWGMSB-117/154	8/15/2003	154	***36.7***	0.52
GMSB-118	GBGWGMSB-118/25	8/16/2003	25	***32.9***	0.52

Footnotes on Page 2.

Table 6-7. Summary of Dissolved-Phase Methane Detected in Groundwater Grab Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample I.D.	Sample Date	Sample Depth *	Dissolved-Phase Methane	FESL Criteria
GMSB-119	GBGWGMSB-119/125	8/18/2003	125	***12.4***	0.52
GMSB-119	GBGWGMSB-119/45	8/17/2003	45	***5.34***	0.52
GMSB-122	GBGWGMSB-122/145	9/8/2003	145	***78.2***	0.52
GMSB-123	GBGWGMSB-123/150	9/9/2003	150	***95.9***	0.52

Results in milligrams per liter (mg/L).

<	Less than laboratory method detection limit shown.
*	Depth in feet below ground surface.
BOLD	Indicates a concentration above the Michigan Part 201 Generic FESL Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
FESL	Flammability and explosively screening level.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	BR-2	BR-3	BR-5A	BR-5B		BR-6	CW-1		
Top of Screen Depth	75	122	88	188	188	149	130	130	130
Sample Date	06/29/97	06/28/97	07/01/97	07/01/97	07/01/97	06/29/97	10/14/97	10/22/98	04/29/99
Sample ID	GWBR-2	GWBR-3	GWBR-5A	GWBR-5B	GWGM-98	GWBR-6	CW-1	GWCW-1	GWCW-1
1,1-Dichloroethane	<2.5	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<2.5	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	<1	<1
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	<1	<1
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	<1	<1
2-Butanone (MEK)	<25	<10	<10	<10	<10	<10	<10	<10	<10 J
2-Hexanone	<25	<10	<10	<10	<10	<10	<10	<10	<10 J
4-Methyl-2-pentanone (MIBK)	<25	<10	<10	<10	<10	<10	<10	<10	<10 J
Acetone	<25	<10	<10	<10	<10	<10	<10	<10	R
Acetonitrile	NA	NA	NA	NA	NA	NA	NA	<50	R
Acrylonitrile	NA	NA	NA	NA	NA	NA	NA	<25	R
Benzene	65	<1	0.56 J	2.2	2.2	0.64 J	6	6	6.2
Bromochloromethane	NA	NA	NA	NA	NA	NA	NA	<1	<1
Bromoform	<2.5	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<2.5	<1	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	2.0 J	0.62 J	0.72 J	<1	<1	<1	<1	<1	<1
Chlorobenzene	<2.5	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<2.5	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	1.9 J	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	<2.5	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<2.5	<1	0.22 J	<1	<1	<1	<1	<1	<1
Diethylether	NA	NA	NA	NA	NA	NA	NA	14	15
Ethylbenzene	<2.5	<1	0.41 J	0.48 J	0.52 J	<1	0.55 J	<1	<1
Furan	NA	NA	NA	NA	NA	NA	NA	<5	<5
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	<1	<1
Methyl iodide	NA	NA	NA	NA	NA	NA	NA	<5	<5
Methyl(tert)butyl ether	NA	NA	NA	NA	NA	NA	NA	<50	<50
Methylene chloride	<2.5	<1	<1	<1	<1	<1	<1	<1	<1
n-Propylbenzene	NA	NA	NA	NA	NA	NA	NA	<1	<1
Propionitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	<2.5	<1	<1	<1	<1	<1	<1	<1	<1

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	BR-2	BR-3	BR-5A	BR-5B		BR-6	CW-1		
Top of Screen Depth	75	122	88	188	188	149	130	130	130
Sample Date	06/29/97	06/28/97	07/01/97	07/01/97	07/01/97	06/29/97	10/14/97	10/22/98	04/29/99
Sample ID	GWBR-2	GWBR-3	GWBR-5A	GWBR-5B	GWGM-98	GWBR-6	CW-1	GWCW-1	GWCW-1
Tetrahydrofuran	NA	NA	NA	NA	NA	NA	NA	<5	R
Toluene	<2.5	0.63 J	1.6	0.62 J	0.63 J	<1	0.65 J	1	<1
trans-1,2-Dichloroethene	<2.5	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<2.5	<1	0.26 J	<1	<1	<1	<1	<1	<1
Vinyl chloride	<2.5	<1	<1	<1	<1	<1	<1	<1	<1
Xylene, o	NA	NA	NA	NA	NA	NA	NA	<1	<1
Xylenes (total)	2.0 J	<1	1.3	1.4	1.5	<1	0.85 J	<3	<3
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA	<2	<2

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-1					GM-2A		GM-2B	
Top of Screen Depth	220	220	220	220	220	40	40	271	271
Sample Date	06/24/97	10/09/97	10/07/98	04/16/99	04/28/04	07/02/97	10/12/97	06/26/97	10/21/97
Sample ID	GWGM-1	GM-1	GWGM-1	GWGM-1	GWGM-1 (4/28/04)	GWGM-2A	GM-2A	GWGM-2B	GM-2B
1,1-Dichloroethane	<1	<1	<1	<1	<1.0	<1	<1	<12	<10
1,1-Dichloroethene	0.098 J	0.10 J	<1	<1	<1.0	<1	<1	<12	<10
1,2,4-Trimethylbenzene	NA	NA	<1	1	1	NA	NA	NA	NA
1,2-Dichloroethene (total)	NA	NA	2.6	5.3	7.7	NA	NA	NA	NA
1,3,5-Trimethylbenzene	NA	NA	<1	<1	0.30 J	NA	NA	NA	NA
2-Butanone (MEK)	9.5 J	12	<10	11	5.9 J	<10	<10	940	1,100
2-Hexanone	11	14	14	13	7.2 J	<10	<10	180	170
4-Methyl-2-pentanone (MIBK)	<10	<10	<10	<10	1.2 J	<10	<10	<120	<100
Acetone	12	<10	<10	R	<100	28	<10	1,000	1,200
Acetonitrile	NA	NA	<50	R	<50	NA	NA	NA	NA
Acrylonitrile	NA	NA	<25	<25 J	<25	NA	NA	NA	NA
Benzene	8.8	10	11	11	14	<1	<1	55	43
Bromochloromethane	NA	NA	<1	<1	<1.0	NA	NA	NA	NA
Bromoform	<1	<1	<1	<1	<1.0	<1	<1	<12	<10
Bromomethane	<1	<1	<1	<1	<1.0	<1	<1	<12	<10
Carbon disulfide	0.42 J	28	2.8	<1	<5.0	<1	0.91 J	<12	6.8 J
Chlorobenzene	<1	<1	<1	<1	<1.0	<1	<1	<12	<10
Chloroethane	<1	<1	<1	<1	<1.0	<1	<1	<12	<10
Chloroform	<1	<1	<1	<1	<1.0	<1	<1	<12	<10
Chloromethane	<1	<1	<1	<1	<1.0	0.21 J	<1	<12	<10
cis-1,2-Dichloroethene	1	1.2	1.5	3.8	6.1	<1	<1	<12	<10
Diethylether	NA	NA	12	27	30	NA	NA	NA	NA
Ethylbenzene	1.1	1.3	1.3	1.8	1.7	<1	<1	12	9.6 J
Furan	NA	NA	<5	<5	0.44 J	NA	NA	NA	NA
Isopropylbenzene	NA	NA	<1	<1	<1.0	NA	NA	NA	NA
Methyl iodide	NA	NA	<5	<5	<5.0	NA	NA	NA	NA
Methyl(tert)butyl ether	NA	NA	<50	<50	<5.0	NA	NA	NA	NA
Methylene chloride	<1	<1	<1	<6.3	<1.0	<1	<1	17	<10
n-Propylbenzene	NA	NA	<1	<1	<1.0	NA	NA	NA	NA
Propionitrile	NA	NA	NA	NA	<25	NA	NA	NA	NA
Tetrachloroethene	<1	<1	<1	<1	4.5	<1	<1	<12	<10

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-1					GM-2A		GM-2B	
Top of Screen Depth	220	220	220	220	220	40	40	271	271
Sample Date	06/24/97	10/09/97	10/07/98	04/16/99	04/28/04	07/02/97	10/12/97	06/26/97	10/21/97
Sample ID	GWGM-1	GM-1	GWGM-1	GWGM-1	GWGM-1 (4/28/04)	GWGM-2A	GM-2A	GWGM-2B	GM-2B
Tetrahydrofuran	NA	NA	<5	13 J	<2.0	NA	NA	NA	NA
Toluene	11	12	16	19	14	0.56 J	<1	42	36
trans-1,2-Dichloroethene	0.73 J	0.89 J	1.1	1.6	1.5	<1	<1	<12	<10
Trichloroethene	5	6.6	7.4	4.8	3	<1	<1	<12	<10
Vinyl chloride	0.070 J	0.094 J	<1	<1	<1.0	<1	<1	<12	<10
Xylene, o	NA	NA	2.5	3	NA	NA	NA	NA	NA
Xylenes (total)	5.6	6.6	6.4	8	8.8	<1	<1	**45**	38
Xylenes, m+p	NA	NA	3.9	5	NA	NA	NA	NA	NA

Footnotes on Page 137.

ARCADIS

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-2B (continued)				GM-2C			GM-3A
Top of Screen Depth	271	271	271	271	64	64	64	74
Sample Date	12/11/97	11/22/98	04/16/99	05/25/04	11/06/98	04/13/99	05/04/04	06/25/97
Sample ID	GM-2B	GWGM-2B	GWGM-2B	GWGM-2B(5/25/04)	GWGM-2C	GWGM-2C	GWGM-2C (5/4/04)	GWGM-3A
1,1-Dichloroethane	<4.2 J	<12	<25	<5.0	<1	<1	<1.0	<1
1,1-Dichloroethene	<4.2 J	<12	<25	<5.0	<1	<1	<1.0	<1
1,2,4-Trimethylbenzene	NA	<12	<25	5.2	<1	<1	<1.0	NA
1,2-Dichloroethene (total)	NA	<12	<25	<10	<1	<1	<2.0	NA
1,3,5-Trimethylbenzene	NA	<12	<25 J	<5.0	<1	<1	<1.0	NA
2-Butanone (MEK)	940 J	950	800	970	<10	<10 J	<50	<10
2-Hexanone	<42 J	140	<250	140 J	<10	<10	<50	<10
4-Methyl-2-pentanone (MIBK)	<42 J	<120	<250	19 J	<10	<10 J	<50	<10
Acetone	750 J	820	780 J	1,200	<10	R	<100	<10
Acetonitrile	NA	<620	R	<250	<50	R	<50	NA
Acrylonitrile	NA	<25	<25 J	<120	<25	R	<25	NA
Benzene	48 J	47	46	24	<1	<1	<1.0	<1
Bromochloromethane	NA	<12	<25	<5.0	<1	<1	<1.0	NA
Bromoform	<4.2 J	<12	<25	<5.0	<1	<1	<1.0	<1
Bromomethane	<4.2 J	<12	<25	<5.0	<1	<1	<1.0	<1
Carbon disulfide	12 J	16	<25	<25	<1	<1	<5.0	<1
Chlorobenzene	<4.2 J	<12	<25	<5.0	<1	<1	<1.0	<1
Chloroethane	<4.2 J	<12	<25	<5.0	<1	<1	<1.0	<1
Chloroform	<4.2 J	<12	<25	<5.0	<1	<1	<1.0	0.54 J
Chloromethane	<4.2 J	<12	<25	<5.0	<1	<1	<1.0	<1
cis-1,2-Dichloroethene	<4.2 J	<12	<25	<5.0	<1	<1	<1.0	<1
Diethylether	NA	<120	<250	34 J	<10	<10	<10	NA
Ethylbenzene	11 J	<12	<25	5.1	<1	<1	<1.0	<1
Furan	NA	<62	<120	7.5 J	<5	<5	<2.0	NA
Isopropylbenzene	NA	<12	<25	<5.0	<1	<1	<1.0	NA
Methyl iodide	NA	<12	<25	<25	<5	<5	<5.0	NA
Methyl(tert)butyl ether	NA	<620	<1,200	<25	<50	<50	<5.0	NA
Methylene chloride	<4.2 J	<12	<44	<5.0	<1	<1	<1.0	<1
n-Propylbenzene	NA	<12	<25 J	<5.0	<1	<1	<1.0	NA
Propionitrile	NA	NA	NA	<120	NA	NA	<25	NA
Tetrachloroethene	<4.2 J	<12	<25	2.5 J	<1	<1	2.5	<1

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-2B (continued)				GM-2C			GM-3A
Top of Screen Depth	271	271	271	271	64	64	64	74
Sample Date	12/11/97	11/22/98	04/16/99	05/25/04	11/06/98	04/13/99	05/04/04	06/25/97
Sample ID	GM-2B	GWGM-2B	GWGM-2B	GWGM-2B(5/25/04)	GWGM-2C	GWGM-2C	GWGM-2C (5/4/04)	GWGM-3A
Tetrahydrofuran	NA	<62	R	20 B	<5	R	<2.0	NA
Toluene	32 J	34	36	18	<1	<1	<1.0	0.42 J
trans-1,2-Dichloroethene	<4.2 J	<12	<25	<5.0	<1	<1	<1.0	<1
Trichloroethene	<4.2 J	<12	<25	<5.0	<1	<1	<1.0	<1
Vinyl chloride	<4.2 J	<12	<25	<5.0	<1	<1	<1.0	<1
Xylene, o	NA	14	<25	NA	<1	<1	NA	NA
Xylenes (total)	**43 J**	40	<75	22	<3	<3	<3.0	<1
Xylenes, m+p	NA	26	<50	NA	<2	<2	NA	NA

Footnotes on Page 137.

ARCADIS

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-3A (continue)				GM-3B				
Top of Screen Depth	74	74	74	74	170	170	170	170	170
Sample Date	10/10/97	10/09/98	04/13/99	05/05/04	06/26/97	10/14/97	10/08/98	04/17/99	04/17/99
Sample ID	GM-3A	GWGM-3A	GWGM-3A	GWGM-3A (5/5/04)	GWGM-3B	GM-3B	GWGM-3B	GWGM-3B	GWGM-88
1,1-Dichloroethane	<1	<1	<1	<1.0	<5	<2.5	<2	<4	<8
1,1-Dichloroethene	<1	<1	<1	<1.0	<5	<2.5	<2	<4	<8
1,2,4-Trimethylbenzene	NA	<1	<1	<1.0	NA	NA	<2	<4 J	<8
1,2-Dichloroethene (total)	NA	<1	<1	<2.0	NA	NA	<2	<4	<8
1,3,5-Trimethylbenzene	NA	<1	<1	<1.0	NA	NA	<2	<4 J	<8 J
2-Butanone (MEK)	<10	<10	<10	<50	400	170	180	130 J	160
2-Hexanone	<10	<10	<10	<50	<50	24 J	27	<40	<80
4-Methyl-2-pentanone (MIBK)	<10	<10	<10	<50	<50	<25	<20	<40 J	<80
Acetone	<10	<10	R	<100	580	280	180	200 J	260 J
Acetonitrile	NA	<50	R	<50	NA	NA	<100	R	R
Acrylonitrile	NA	<25	R	<25	NA	NA	<25	<25 J	<25 J
Benzene	<1	<1	<1	<1.0	20	15	21	20	21
Bromochloromethane	NA	<1	<1	<1.0	NA	NA	<2	<4	<8
Bromoform	<1	<1	<1	<1.0	<5	<2.5	<2	<4	<8
Bromomethane	<1	<1	<1	<1.0	<5	<2.5	<2	<4	<8
Carbon disulfide	<1	<1	<1	<5.0	<5	18	<2	12	<8
Chlorobenzene	<1	<1	<1	<1.0	<5	<2.5	<2	<4	<8
Chloroethane	<1	<1	<1	<1.0	<5	<2.5	<2	<4	<8
Chloroform	0.58 J	<1	<1	<1.0	<5	<2.5	<2	<4	<8
Chloromethane	<1	<1	<1	<1.0	<5	<2.5	<2	<4	<8
cis-1,2-Dichloroethene	<1	<1	<1	<1.0	<5	1.3 J	<2	<4	<8
Diethylether	NA	<10	<10	<10	NA	NA	<20	<40	<80
Ethylbenzene	<1	<1	<1	<1.0	2.6 J	2.1 J	2.5	5	8.2
Furan	NA	<5	<5	<2.0	NA	NA	<10	<20	<40
Isopropylbenzene	NA	<1	<1	<1.0	NA	NA	<2	<4	<8
Methyl iodide	NA	<5	<5	<5.0	NA	NA	<5	<5	<8
Methyl(tert)butyl ether	NA	<50	<50	<5.0	NA	NA	<100	<200	<400
Methylene chloride	<1	<1	<1	<1.0	6.1	<2.5	<2	<4	<13
n-Propylbenzene	NA	<1	<1	<1.0	NA	NA	<2	<4 J	<8 J
Propionitrile	NA	NA	NA	<25	NA	NA	<2	NA	NA
Tetrachloroethene	<1	<1	<1	1.3	<5	<2.5	<2	<4	9.4

Footnotes on Page 137.

Because we care
100% recycled paper produced by wind power energy

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-3A (continue)				GM-3B				
Top of Screen Depth	74	74	74	74	170	170	170	170	170
Sample Date	10/10/97	10/09/98	04/13/99	05/05/04	06/26/97	10/14/97	10/08/98	04/17/99	04/17/99
Sample ID	GM-3A	GWGM-3A	GWGM-3A	GWGM-3A (5/5/04)	GWGM-3B	GM-3B	GWGM-3B	GWGM-3B	GWGM-88
Tetrahydrofuran	NA	<5	R	<2.0	NA	NA	12	R	R
Toluene	<1	<1	<1	<1.0	11	8.7	19	20	22
trans-1,2-Dichloroethene	<1	<1	<1	<1.0	<5	<2.5	<2	<4	<8
Trichloroethene	<1	<1	<1	<1.0	<5	<2.5	<2	4.5	$\boxed{9.2}$
Vinyl chloride	<1	<1	<1	<1.0	<5	<2.5	<2	<4	<8
Xylene, o	NA	<1	<1	NA	NA	NA	<2	5.8	<8
Xylenes (total)	<1	<3	<3	<3.0	9.9	7.4	8.9	16	<24
Xylenes, m+p	NA	<2	<2	NA	NA	NA	<4	9.8	16

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-3B (continued)	GM-4				GM-5			GM-6
Top of Screen Depth	170	76	76	76	76	250	250	250	165
Sample Date	05/11/04	06/26/97	10/14/97	10/20/98	04/21/99	07/02/97	10/15/97	04/18/99	06/28/97
Sample ID	GWGM-3B (5/11/04)	GWGM-4	GM-4	GWGM-4	GWGM-4	GWGM-5	GM-5	GWGM-5	GWGM-6
1,1-Dichloroethane	<1.0	<1	<1	<1	<1	<1	<25	<1	<1
1,1-Dichloroethene	<1.0	<1	<1	<1	<1	<1	<25	<1	<1
1,2,4-Trimethylbenzene	1.5	NA	NA	<1	<1	NA	NA	<1 J	NA
1,2-Dichloroethene (total)	1.3 J	NA	NA	<1	<1	NA	NA	<1	NA
1,3,5-Trimethylbenzene	<1.0	NA	NA	<1	<1	NA	NA	<1 J	NA
2-Butanone (MEK)	<50	<10	<10	<10	<10	<10	<250	<10 J	<10
2-Hexanone	13 J	<10	<10	<10	<10	<10	<250	29	<10
4-Methyl-2-pentanone (MIBK)	8.8 J	<10	<10	<10	<10	<10	<250	<10 J	<10
Acetone	<100	<10	<10	<10	R	<10	<250	R	<10
Acetonitrile	<50	NA	NA	<50	<50 J	NA	NA	R	NA
Acrylonitrile	<25	NA	NA	<25	<25	NA	NA	<25 J	NA
Benzene	15	0.17 J	<1	<1	<1	0.24 J	20 J	29	7.2
Bromochloromethane	<1.0	NA	NA	<1	<1	NA	NA	<1	NA
Bromoform	<1.0	<1	<1	<1	<1	<1	<25	<1	<1
Bromomethane	<1.0	<1	<1	<1	<1	<1	<25	<1	<1
Carbon disulfide	<5.0	<1	<1	<1	<1	<1	<25	<1	<1
Chlorobenzene	<1.0	<1	<1	<1	<1	<1	130	<1	1
Chloroethane	<1.0	<1	<1	<1	<1	<1	<25	<1	<1
Chloroform	<1.0	<1	<1	<1	<1	<1	<25	<1	<1
Chloromethane	<1.0	<1	<1	<1	<1	<1	<25	<1	<1
cis-1,2-Dichloroethene	1.3	<1	<1	<1	<1	<1	<25	<1	0.65 J
Diethylether	19	NA	NA	<10	<10	NA	NA	31	NA
Ethylbenzene	2.6	<1	<1	<1	<1	0.25 J	<25	1.9	1.5
Furan	0.52 J	NA	NA	<5	<5	NA	NA	<5	NA
Isopropylbenzene	<1.0	NA	NA	<1	<1	NA	NA	<1	NA
Methyl iodide	<5.0	NA	NA	<5	<5	NA	NA	<5	NA
Methyl(tert)butyl ether	<5.0	NA	NA	<50	<50	NA	NA	<50	NA
Methylene chloride	<1.0	<1	<1	<1	<1	<1	<25	<1	<1.0
n-Propylbenzene	<1.0	NA	NA	<1	<1	NA	NA	<1 J	NA
Propionitrile	<25	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	3.6	<1	<1	<1	<1	<1	<25	<1	<1

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-3B (continued)	GM-4				GM-5			GM-6
Top of Screen Depth	170	76	76	76	76	250	250	250	165
Sample Date	05/11/04	06/26/97	10/14/97	10/20/98	04/21/99	07/02/97	10/15/97	04/18/99	06/28/97
Sample ID	GWGM-3B (5/11/04)	GWGM-4	GM-4	GWGM-4	GWGM-4	GWGM-5	GM-5	GWGM-5	GWGM-6
Tetrahydrofuran	<2.0	NA	NA	<5	R	NA	NA	28 J	NA
Toluene	11	0.19 J	<1	<1	<1	0.55 J	9.2 J	15	8.2
trans-1,2-Dichloroethene	<1.0	<1	<1	<1	<1	<1	<25	<1	<1
Trichloroethene	<1.0	<1	<1	<1	<1	0.071 J	<25	1.4	0.78 J
Vinyl chloride	<1.0	<1	<1	<1	<1	<1	<25	<1	<1
Xylene, o	NA	NA	NA	<1	<1	NA	NA	3.7	NA
Xylenes (total)	8.5	<1	<1	<3	<3	0.63 J	<25	6.6	5.2
Xylenes, m+p	NA	NA	NA	<2	<2	NA	NA	2.9	NA

Footnotes on Page 137.

ARCADIS

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-6 (continued)				GM-7				
Top of Screen Depth	165	165	165	165	145	145	145	145	145
Sample Date	10/22/97	10/10/98	04/19/99	07/19/00	06/29/97	10/11/97	10/23/98	05/01/99	09/23/03
Sample ID	GM-6	GWGM-6	GWGM-6	GWGM-6	GWGM-7	GM-7	GWGM-7	GWGM-7	GM-7
1,1-Dichloroethane	<5	<1	<1	<1.0	<1	<1	<1	<1	<1.0
1,1-Dichloroethene	<5	<1	<1	<1.0	<1	<1	<1	<1	<1.0
1,2,4-Trimethylbenzene	NA	1	1.1	0.64 J	NA	NA	<1	<1	<1.0
1,2-Dichloroethene (total)	NA	<1	<1	<2.0	NA	NA	<1	<1	<2.0
1,3,5-Trimethylbenzene	NA	<1	<1	<1.0	NA	NA	<1	<1	<1.0
2-Butanone (MEK)	<50	<10	<10	<50 J	<10	<10	<10	<10	<10
2-Hexanone	<50	<10	<10	<50 J	<10	<10	<10	<10 J	<10
4-Methyl-2-pentanone (MIBK)	<50	<10	<10	<50	<10	<10	<10	<10 J	<10
Acetone	<50	<10	R	<100 J	<10	<10	<10	R	<25
Acetonitrile	NA	<50	<50 J	<50	NA	NA	<50	R	<40
Acrylonitrile	NA	<25	<25	R	NA	NA	<25	R	<20
Benzene	6	7.3	6.3	5.6	1.5	2.3	2.1	1.8	<1.0
Bromochloromethane	NA	<1	<1	<1.0	NA	NA	<1	<1	<1.0
Bromoform	<5	<1	<1	<1.0	<1	<1	<1	<1	<1.0
Bromomethane	<5	<1	<1	<1.0	<1	<1	<1	<1	<1.0
Carbon disulfide	9.3	<1	5.9	<5.0	24	1.1	<1	<1	<1.0
Chlorobenzene	<5	<1	<1	<1.0	<1	<1	<1	<1	<1.0
Chloroethane	<5	<1	<1	<1.0	<1	<1	<1	<1	<1.0
Chloroform	<5	<1	<1	<1.0	<1	<1	<1	<1	<1.0
Chloromethane	<5	<1	<1	<1.0	<1	<1	<1	<1	<1.0
cis-1,2-Dichloroethene	<5	<1	<1	0.62 J	<1	<1	<1	<1	<1.0
Diethylether	NA	<10	<10	<10	NA	NA	<10	<10	5
Ethylbenzene	0.63 J	1.5	1.3	1.3	<1	<1	<1	<1	<1.0
Furan	NA	<5	<5	NA	NA	NA	<5	<5	<5.0
Isopropylbenzene	NA	<1	<1	<1.0	NA	NA	<1	<1	<1.0
Methyl iodide	NA	<5	<5	<5.0	NA	NA	<5	<5	<1.0
Methyl(tert)butyl ether	NA	<50	<50	<5.0	NA	NA	<50	<50	<10
Methylene chloride	<5	<1	<1	<1.0	<1	<1	<1	<1	<5.0
n-Propylbenzene	NA	<1	<1	<1.0	NA	NA	<1	<1	<1.0
Propionitrile	NA	NA	NA	<25	NA	NA	NA	NA	<20
Tetrachloroethene	<5	<1	<1	<1.0	<1	<1	<1	<1	5.3

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-6 (continued)				GM-7				
Top of Screen Depth	165	165	165	165	145	145	145	145	145
Sample Date	10/22/97	10/10/98	04/19/99	07/19/00	06/29/97	10/11/97	10/23/98	05/01/99	09/23/03
Sample ID	GM-6	GWGM-6	GWGM-6	GWGM-6	GWGM-7	GM-7	GWGM-7	GWGM-7	GM-7
Tetrahydrofuran	NA	<5	R	NA	NA	NA	<5	R	<5.0
Toluene	6.3	7.6	6.1	5.7	0.92 J	0.45 J	<1	<1	1.4
trans-1,2-Dichloroethene	<5	<1	<1	<1.0	<1	<1	<1	<1	<1.0
Trichloroethene	<5	<1	<1	0.72 J	<1	<1	<1	<1	<1.0
Vinyl chloride	<5	<1	<1	<1.0	<1	<1	<1	<1	<1.0
Xylene, o	NA	<1	2.1	NA	NA	NA	<1	<1	NA
Xylenes (total)	4.3 J	5.3	4.8	4	<1	<1	<3	<3	<2.0
Xylenes, m+p	NA	<2	2.6	NA	NA	NA	<2	<2	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-7 (continued)	GM-8					GM-9		
Top of Screen Depth	145	79	79	79	79	79	164	164	164
Sample Date	05/03/04	06/30/97	10/12/97	10/09/98	04/13/99	10/21/99	10/13/97	10/11/98	04/18/99
Sample ID	GWGM-7 (5/3/04)	GWGM-8	GM-8	GWGM-8	GWGM-8	GM-8	GM-9	GWGM-9	GWGM-9
1,1-Dichloroethane	<1.0	<1	<1	<1	<1	<1.0	<1	<1	<1
1,1-Dichloroethene	<1.0	<1	<1	<1	<1	<1.0	<1	<1	<1
1,2,4-Trimethylbenzene	<1.0	NA	NA	<1	<1	<1.0	NA	<1	<1 J
1,2-Dichloroethene (total)	<2.0	NA	NA	<1	<1	<2.0	NA	<1	<1
1,3,5-Trimethylbenzene	<1.0	NA	NA	<1	<1	<1.0	NA	<1	<1 J
2-Butanone (MEK)	<50	<10	<10	<10	<10	<50	<10	<10	<10 J
2-Hexanone	<50	<10	<10	<10 J	<10	<50	<10	<10	<10
4-Methyl-2-pentanone (MIBK)	<50	<10	<10	<10	<10	<50	<10	<10	<10 J
Acetone	<100	<10	<10	<10 J	R	<100	<10	<10	R
Acetonitrile	<50	NA	NA	<50	R	<50	NA	<50	R
Acrylonitrile	<25	NA	NA	<25	R	<25	NA	<25	<25 J
Benzene	0.60 J	<1	<1	<1	<1	<1.0	0.47 J	<1	<1
Bromochloromethane	<1.0	NA	NA	<1	<1	<1.0	NA	<1	<1
Bromoform	<1.0	<1	<1	<1	<1	<1.0	<1	<1	<1
Bromomethane	<1.0	<1	<1	<1	<1	<1.0	<1	<1	<1
Carbon disulfide	<5.0	<1	<1	<1	<1	<5.0	0.23 J	<1	2.4
Chlorobenzene	<1.0	<1	<1	<1	<1	<1.0	<1	<1	<1
Chloroethane	<1.0	<1	<1	<1	<1	<1.0 J	<1	<1	<1
Chloroform	<1.0	<1	<1	<1	<1	<1.0	<1	<1	<1
Chloromethane	<1.0	<1	<1	<1	<1	<1.0 J	<1	<1	<1
cis-1,2-Dichloroethene	<1.0	<1	<1	<1	<1	<1.0	<1	<1	<1
Diethylether	4.3 J	NA	NA	<10	<10	<10	NA	<10	<10
Ethylbenzene	<1.0	<1	<1	<1	<1	<1.0	<1	<1	<1
Furan	<2.0	NA	NA	<5	<5	NA	NA	<5	<5
Isopropylbenzene	<1.0	NA	NA	<1	<1	<1.0	NA	<1	<1
Methyl iodide	<5.0	NA	NA	<5	<5	<5.0	NA	<5	<5
Methyl(tert)butyl ether	<5.0	NA	NA	<50	<50	<5.0	NA	<50	<50
Methylene chloride	<1.0	<1.0	<1	<1	<1	<1.0	<1	<1	<1
n-Propylbenzene	<1.0	NA	NA	<1	<1	<1.0	NA	<1	<1 J
Propionitrile	<25	NA	NA	NA	NA	<25	NA	NA	NA
Tetrachloroethene	2.5	<1	<1	<1	<1	0.67 J	<1	<1	<1

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-7 (continued)	GM-8					GM-9		
Top of Screen Depth	145	79	79	79	79	79	164	164	164
Sample Date	05/03/04	06/30/97	10/12/97	10/09/98	04/13/99	10/21/99	10/13/97	10/11/98	04/18/99
Sample ID	GWGM-7 (5/3/04)	GWGM-8	GM-8	GWGM-8	GWGM-8	GM-8	GM-9	GWGM-9	GWGM-9
Tetrahydrofuran	<2.0	NA	NA	<5	R	NA	NA	<5	R
Toluene	<1.0	<1	<1	<1	<1	<1.0	<1	<1	<1
trans-1,2-Dichloroethene	<1.0	<1	<1	<1	<1	<1.0	<1	<1	<1
Trichloroethene	<1.0	<1	<1	<1	<1	<1.0	<1	<1	<1
Vinyl chloride	<1.0	<1	<1	<1	<1	<1.0	<1	<1	<1
Xylene, o	NA	NA	NA	<1	<1	NA	NA	<1	<1
Xylenes (total)	<3.0	<1	<1	<3	<3	<3.0	<1	<3	<3
Xylenes, m+p	NA	NA	NA	<2	<2	NA	NA	<2	<2

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-9 (continued)			GM-10			GM-11	GM-12
Top of Screen Depth	164	164	164	170	170	170	174.7	290
Sample Date	09/10/03	05/03/04	07/28/05	10/14/97	11/06/98	04/27/99	10/15/97	10/22/97
Sample ID	GM-9	GWGM-9 (5/3/04)	GWGM-9 (072805)	GM-10	GWGM-10	GWGM-10	GM-11	GM-12
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	NA	<1	<1	NA	NA
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	NA	<1	<1	NA	NA
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	NA	<1	<1	NA	NA
2-Butanone (MEK)	<50	<50	<50	<10	<10	R	<10	<10
2-Hexanone	<50	<50	<50	<10	<10	<10	<10	<10
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<10	<10	<10 J	<10	<10
Acetone	<100	<100	<100	<10	<10	R	<10	<10
Acetonitrile	<50	<50	<50	NA	<50	R	NA	NA
Acrylonitrile	<25	<25	<25	NA	<25	R	NA	NA
Benzene	<1.0	1.3	0.97 J	<1	<1	<1	<1	0.33 J
Bromochloromethane	<1.0	<1.0	<1.0	NA	<1	<1	NA	NA
Bromoform	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1
Bromomethane	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1
Carbon disulfide	<5.0	<5.0	<5.0	<1	<1	3.1	0.54 J	0.40 J
Chlorobenzene	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1
Chloroethane	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1
Chloroform	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1
Chloromethane	1.3	<1.0	<1.0	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1
Diethylether	<10	4.9 J	3.5 J	NA	<10	<10	NA	NA
Ethylbenzene	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1
Furan	<2.0	0.59 J	<10	NA	<5	<5	NA	NA
Isopropylbenzene	<1.0	<1.0	<1.0	NA	<1	<1	NA	NA
Methyl iodide	<5.0	<5.0	<5.0	NA	<5	<5	NA	NA
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	NA	<50	<50	NA	NA
Methylene chloride	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1
n-Propylbenzene	<1.0	<1.0	<1.0	NA	<1	<1	NA	NA
Propionitrile	<25	<25	<25	NA	NA	NA	NA	NA
Tetrachloroethene	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-9 (continued)			GM-10			GM-11	GM-12
Top of Screen Depth	164	164	164	170	170	170	174.7	290
Sample Date	09/10/03	05/03/04	07/28/05	10/14/97	11/06/98	04/27/99	10/15/97	10/22/97
Sample ID	GM-9	GWGM-9 (5/3/04)	GWGM-9 (072805)	GM-10	GWGM-10	GWGM-10	GM-11	GM-12
Tetrahydrofuran	<2.0	<2.0	<10	NA	<5	R	NA	NA
Toluene	<1.0	35	<1.0	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1
Trichloroethene	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1
Vinyl chloride	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1
Xylene, o	NA	NA	NA	NA	<1	<1	NA	NA
Xylenes (total)	<3.0	<3.0	<3.0	<1	<3	<3	<1	<1
Xylenes, m+p	NA	NA	NA	NA	<2	<2	NA	NA

Footnotes on Page 137.

ARCADIS

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-12 (continued)		GM-13			GM-14		
Top of Screen Depth	290	290	325	325	325	135	135	135
Sample Date	10/10/98	04/19/99	10/22/97	04/20/99	05/18/04	10/21/97	10/28/98	05/02/99
Sample ID	GWGM-12	GWGM-12	GM-13	GWGM-13	GWGM-13 (5/18/04)	GM-14	GWGM-14	GWGM-14
1,1-Dichloroethane	<1	<1	<1	<1	<1.0	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1	<1.0	<1	<1	<1
1,2,4-Trimethylbenzene	<1	<1 J	NA	<1	<1.0	NA	<1	<1
1,2-Dichloroethene (total)	<1	<1	NA	<1	<2.0	NA	<1	<1
1,3,5-Trimethylbenzene	<1	<1 J	NA	<1 J	<1.0	NA	<1	<1
2-Butanone (MEK)	<10	<10 J	<10	<10	4.1 J	<10	<10	<10
2-Hexanone	<10	<10	<10	<10	<50	<10	<10	<10 J
4-Methyl-2-pentanone (MIBK)	<10	<10 J	<10	<10	<50	<10	<10	<10 J
Acetone	<10	R	<10	R	9.2 J	<10	<10	R
Acetonitrile	<50	R	NA	R	<50	NA	<50	R
Acrylonitrile	<25	<25 J	NA	R	<25	NA	<25	R
Benzene	<1	<1	5.3	8.8	2.6	<1	<1	<1
Bromochloromethane	<1	<1	NA	<1	<1.0	NA	<1	<1
Bromoform	<1	<1	<1	<1	<1.0	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1.0	<1	<1	<1
Carbon disulfide	<1	<1	0.53 J	8.5	1.7 J	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1.0	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1.0	<1	<1	<1
Chloroform	<1	<1	<1	<1	<1.0	<1	<1	<1
Chloromethane	<1	<1	<1	<1	<1.0	<1	<1	<1
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1.0	<1	<1	<1
Diethylether	<10	<10	NA	18	5.9 J	NA	<10	<10
Ethylbenzene	<1	<1	<1	<1	<1.0	<1	<1	<1
Furan	<5	<5	NA	<5	0.17 J	NA	<5	<5
Isopropylbenzene	<1	<1	NA	<1	<1.0	NA	<1	<1
Methyl iodide	<5	<5	NA	<5	<5.0	NA	<5	<5
Methyl(tert)butyl ether	<50	<50	NA	<50	<5.0	NA	<50	<50
Methylene chloride	<1	<1	<1	<1	<1.0	<1	<1	<1
n-Propylbenzene	<1	<1 J	NA	<1 J	<1.0	NA	<1	<1
Propionitrile	NA	NA	NA	NA	<25	NA	NA	NA
Tetrachloroethene	<1	<1	<1	<1	2.2	<1	<1	<1

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-12 (continued)		GM-13			GM-14		
Top of Screen Depth	290	290	325	325	325	135	135	135
Sample Date	10/10/98	04/19/99	10/22/97	04/20/99	05/18/04	10/21/97	10/28/98	05/02/99
Sample ID	GWGM-12	GWGM-12	GM-13	GWGM-13	GWGM-13 (5/18/04)	GM-14	GWGM-14	GWGM-14
Tetrahydrofuran	<5	R	NA	5.3 J	<2.0	NA	<5	R
Toluene	<1	<1	0.54 J	1	<1.0	0.15 J	<1	<1
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1.0	<1	<1	<1
Trichloroethene	<1	<1	<1	<1	<1.0	<1	<1	<1
Vinyl chloride	<1	<1	<1	<1	<1.0	<1	<1	<1
Xylene, o	<1	<1	NA	<1	NA	NA	<1	<1
Xylenes (total)	<3	<3	<1	<3	<3.0	<1	<3	<3
Xylenes, m+p	<2	<2	NA	<2	NA	NA	<2	<2

Footnotes on Page 137.

ARCADIS

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-15					GM-16		
Top of Screen Depth	165	165	165	165	165	108	108	108
Sample Date	10/20/97	10/11/98	04/20/99	05/10/04	05/10/04	10/22/97	10/22/97	10/09/98
Sample ID	GM-15	GWGM-15	GWGM-15	GWGM-15 (5/10/04)	GWGM-996 (5/10/04)	GM-16	GM-78	GWGM-16
1,1-Dichloroethane	<1	<1	<1	<1.0	<1.0	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1.0	<1.0	<1	<1	<1
1,2,4-Trimethylbenzene	NA	<1	<1	<1.0	<1.0	NA	NA	<1
1,2-Dichloroethene (total)	NA	<1	<1	<2.0	<2.0	NA	NA	<1
1,3,5-Trimethylbenzene	NA	<1	<1	<1.0	<1.0	NA	NA	<1
2-Butanone (MEK)	<10	<10	<10	<50	<50	<10	<10	<10
2-Hexanone	<10	<10	<10	<50	<50	<10	<10	<10
4-Methyl-2-pentanone (MIBK)	<10	<10	<10	<50	<50	<10	<10	<10
Acetone	<10	<10	R	<100	<100	<10	<10	<10
Acetonitrile	NA	<50	<50 J	<50	<50	NA	NA	<50
Acrylonitrile	NA	<25	<25	<25	<25	NA	NA	<25
Benzene	<1	<1	<1	<1.0	<1.0	0.12 J	<1	<1
Bromochloromethane	NA	<1	<1	<1.0	<1.0	NA	NA	<1
Bromoform	<1	<1	<1	<1.0	<1.0	<1	<1	<1
Bromomethane	<1	<1	<1	<1.0	<1.0	<1	<1	<1
Carbon disulfide	1.9	<1	6	<5.0	<5.0	0.21 J	<1	<1
Chlorobenzene	<1	<1	<1	<1.0	<1.0	<1	<1	<1
Chloroethane	<1	<1	<1	<1.0	<1.0	<1	<1	<1
Chloroform	<1	<1	<1	<1.0	<1.0	<1	<1	<1
Chloromethane	<1	<1	<1	<1.0	<1.0	<1	<1	<1
cis-1,2-Dichloroethene	<1	<1	<1	<1.0	<1.0	<1	<1	<1
Diethylether	NA	<10	<10	<10	<10	NA	NA	<10
Ethylbenzene	<1	<1	<1	<1.0	<1.0	<1	<1	<1
Furan	NA	<5	<5	<2.0	<2.0	NA	NA	<5
Isopropylbenzene	NA	<1	<1	<1.0	<1.0	NA	NA	<1
Methyl iodide	NA	<5	<5	<5.0	<5.0	NA	NA	<5
Methyl(tert)butyl ether	NA	<50	<50	<5.0	<5.0	NA	NA	<50
Methylene chloride	<1	<1	<1	<1.0	<1.0	<1	<1	<1
n-Propylbenzene	NA	<1	<1	<1.0	<1.0	NA	NA	<1
Propionitrile	NA	NA	NA	<25	<25	NA	NA	NA
Tetrachloroethene	<1	<1	<1	11	11	<1	<1	<1

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-15					GM-16		
Top of Screen Depth	165	165	165	165	165	108	108	108
Sample Date	10/20/97	10/11/98	04/20/99	05/10/04	05/10/04	10/22/97	10/22/97	10/09/98
Sample ID	GM-15	GWGM-15	GWGM-15	GWGM-15 (5/10/04)	GWGM-996 (5/10/04)	GM-16	GM-78	GWGM-16
Tetrahydrofuran	NA	<5	R	<2.0	<2.0	NA	NA	<5
Toluene	<1	<1	<1	<1.0	<1.0	<1	<1	<1
trans-1,2-Dichloroethene	<1	<1	<1	<1.0	<1.0	<1	<1	<1
Trichloroethene	<1	<1	<1	<1.0	0.54 J	<1	<1	<1
Vinyl chloride	<1	<1	<1	<1.0	<1.0	<1	<1	<1
Xylene, o	NA	<1	<1	NA	NA	NA	NA	<1
Xylenes (total)	<1	<3	<3	<3.0	<3.0	<1	<1	<3
Xylenes, m+p	NA	<2	<2	NA	NA	NA	NA	<2

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-16 (continued)			GM-17			GM-18	
Top of Screen Depth	108	108	108	224.3	224.3	224.3	50	50
Sample Date	04/14/99	09/23/03	04/27/04	10/28/97	10/12/98	04/26/99	12/04/97	11/07/98
Sample ID	GWGM-16	GM-16	GWGM-16 (4/27/04)	GM-17	GWGM-17	GWGM-17	GM-18	GWGM-18
1,1-Dichloroethane	<1	<1.0	<1.0	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1.0	<1.0	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	<1	<1.0	<1.0	NA	<1	<1	NA	<1
1,2-Dichloroethene (total)	<1	<2.0	<2.0	NA	<1	<1	NA	<1
1,3,5-Trimethylbenzene	<1	<1.0	<1.0	NA	<1	<1	NA	<1
2-Butanone (MEK)	<10 J	<10	<50	<10	<10	R	<10	<10
2-Hexanone	<10	<10	<50	<10	<10	<10	<10	<10
4-Methyl-2-pentanone (MIBK)	<10 J	<10	<50	<10	<10	<10 J	<10	<10
Acetone	R	<25	<100	<10	<10	R	<10	<10
Acetonitrile	R	<40	<50	NA	<50	R	NA	<50
Acrylonitrile	R	<20	<25	NA	<25	R	NA	<25
Benzene	<1	<1.0	<1.0	<1	<1	<1	<1	<1
Bromochloromethane	<1	<1.0	<1.0	NA	<1	<1	NA	<1
Bromoform	<1	<1.0	<1.0	<1	<1	<1	<1	<1
Bromomethane	<1	<1.0	<1.0	<1	<1	<1	<1	<1
Carbon disulfide	<1	<1.0	<5.0	0.70 J	<1	3.3	<1	<1
Chlorobenzene	<1	<1.0	<1.0	<1	<1	<1	<1	<1
Chloroethane	<1	<1.0	<1.0	<1	<1	<1	<1	<1
Chloroform	<1	<1.0	<1.0	<1	<1	<1	<1	<1
Chloromethane	<1	<1.0	<1.0	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<1	<1.0	<1.0	<1	<1	<1	<1	<1
Diethylether	<10	<2.0	<10	NA	<10	<10	NA	<10
Ethylbenzene	<1	<1.0	<1.0	<1	<1	<1	<1	<1
Furan	<5	<5.0	<2.0	NA	<5	<5	NA	<5
Isopropylbenzene	<1	<1.0	<1.0	NA	<1	<1	NA	<1
Methyl iodide	<5	<1.0	<5.0	NA	<5	<5	NA	<5
Methyl(tert)butyl ether	<50	<10	2.2 J	NA	<50	<50	NA	<50
Methylene chloride	<1	<5.0	<1.0	0.41 JB	<1	<1	<1	<1
n-Propylbenzene	<1	<1.0	<1.0	NA	<1	<1	NA	<1
Propionitrile	NA	<20	<25	NA	NA	NA	NA	NA
Tetrachloroethene	<1	1.6	5.8	<1	<1	<1	<1	<1

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-16 (continued)			GM-17			GM-18	
Top of Screen Depth	108	108	108	224.3	224.3	224.3	50	50
Sample Date	04/14/99	09/23/03	04/27/04	10/28/97	10/12/98	04/26/99	12/04/97	11/07/98
Sample ID	GWGM-16	GM-16	GWGM-16 (4/27/04)	GM-17	GWGM-17	GWGM-17	GM-18	GWGM-18
Tetrahydrofuran	R	<5.0	<2.0	NA	<5	<5 J	NA	<5
Toluene	<1	<1.0	<1.0	1.1	3.5	<1	<1	<1
trans-1,2-Dichloroethene	<1	<1.0	<1.0	<1	<1	<1	<1	<1
Trichloroethene	<1	<1.0	0.49 J	<1	<1	<1	<1	<1
Vinyl chloride	<1	<1.0	<1.0	<1	<1	<1	<1	<1
Xylene, o	<1	NA	NA	NA	<1	<1	NA	<1
Xylenes (total)	<3	<2.0	<3.0	<1	<3	<3	<1	<3
Xylenes, m+p	<2	NA	NA	NA	<2	<2	NA	<2

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-19	GM-20	GM-21					GM-22	
Top of Screen Depth	46	42	5	5	5	5	5	6	6
Sample Date	12/04/97	12/05/97	12/03/97	12/03/97	10/13/98	01/29/01	09/09/05	12/05/97	10/10/98
Sample ID	GM19	GM-20	GM-21	GM-95	GWGM-21	GWGM-21	GWGM-21 (9/9/05)	GM-22	GWGM-22
1,1-Dichloroethane	<1	<1	<1	<1	<1	<1.0	<1.0	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1	<1	<1.0	<1.0	<1	<1
1,2,4-Trimethylbenzene	NA	NA	NA	NA	<1	<1.0	<1.0	NA	<1
1,2-Dichloroethene (total)	NA	NA	NA	NA	<1	<2.0	<2.0	NA	<1
1,3,5-Trimethylbenzene	NA	NA	NA	NA	<1	<1.0	<1.0	NA	<1
2-Butanone (MEK)	<10	<10	<10	<10	<10	<50	<50	<10	<10
2-Hexanone	<10	<10	<10	<10	<10	<50	<50	<10	<10
4-Methyl-2-pentanone (MIBK)	<10	<10	<10	<10	<10	<50	<50	<10	<10
Acetone	<10	<10	<10	<10	<10	R	<100	<10	<10
Acetonitrile	NA	NA	NA	NA	<50	<50	<50	NA	<50
Acrylonitrile	NA	NA	NA	NA	<25	<25 J	<25	NA	<25
Benzene	<1	<1	<1	<1	<1	<1.0	<1.0	<1	<1
Bromochloromethane	NA	NA	NA	NA	<1	<1.0 J	<1.0	NA	<1
Bromoform	<1	<1	<1	<1	<1	<1.0	<1.0	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1.0	<1.0	<1	<1
Carbon disulfide	0.22 J	<1	<1	0.13 J	<1	<5.0	<5.0	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1.0	<1.0	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1.0	<1.0	<1	<1
Chloroform	<1	<1	<1	<1	<1	<1.0	<1.0	<1	<1
Chloromethane	<1	<1	<1	<1	<1	<1.0	4.5	<1	<1
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1.0	<1.0	<1	<1
Diethylether	NA	NA	NA	NA	<10	<10	<10	NA	<10
Ethylbenzene	<1	<1	<1	<1	<1	<1.0	<1.0	<1	<1
Furan	NA	NA	NA	NA	<5	NA	<10	NA	<5
Isopropylbenzene	NA	NA	NA	NA	<1	<1.0	<1.0	NA	<1
Methyl iodide	NA	NA	NA	NA	<5	<5.0	<5.0	NA	<5
Methyl(tert)butyl ether	NA	NA	NA	NA	<50	<5.0	<5.0	NA	<50
Methylene chloride	<1	<1	<1	<1	<1	<1.0	<1.0	<1	<1
n-Propylbenzene	NA	NA	NA	NA	<1	<1.0	<1.0	NA	<1
Propionitrile	NA	NA	NA	NA	NA	<25	<25	NA	NA
Tetrachloroethene	<1	<1	<1	<1	<1	<1.0	<1.0	<1	<1

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-19	GM-20	GM-21					GM-22	
Top of Screen Depth	46	42	5	5	5	5	5	6	6
Sample Date	12/04/97	12/05/97	12/03/97	12/03/97	10/13/98	01/29/01	09/09/05	12/05/97	10/10/98
Sample ID	GM19	GM-20	GM-21	GM-95	GWGM-21	GWGM-21	GWGM-21 (9/9/05)	GM-22	GWGM-22
Tetrahydrofuran	NA	NA	NA	NA	<5	NA	<2.0	NA	<5
Toluene	<1	<1	<1	<1	<1	<1.0	<1.0	<1	<1
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1.0	<1.0	<1	<1
Trichloroethene	<1	<1	<1	<1	<1	<1.0	<1.0	<1	<1
Vinyl chloride	<1	<1	<1	<1	<1	<1.0	<1.0	<1	<1
Xylene, o	NA	NA	NA	NA	<1	NA	NA	NA	<1
Xylenes (total)	<1	<1	<1	<1	<3	<3.0	<3.0	<1	<3
Xylenes, m+p	NA	NA	NA	NA	<2	NA	NA	NA	<2

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-22 (continued)				GM-23		
Top of Screen Depth	6	6	6	6	3.5	3.5	3.5
Sample Date	04/13/99	01/15/01	09/08/05	09/08/05	12/03/97	10/10/98	01/16/01
Sample ID	GWGM-22	GWGM-22	GWGM-22(9/8/05)	GWGM-999 (GM-22) (9/8/05)	GM-23	GWGM-23	GWGM-23
1,1-Dichloroethane	<1	<1.0	<1.0	<1.0	<1	<1	<1.0
1,1-Dichloroethene	<1	<1.0	<1.0	<1.0	<1	<1	<1.0
1,2,4-Trimethylbenzene	<1	<1.0	<1.0	<1.0	NA	<1	<1.0
1,2-Dichloroethene (total)	<1	<2.0	<2.0	<2.0	NA	<1	<2.0
1,3,5-Trimethylbenzene	<1	<1.0	<1.0	<1.0	NA	<1	<1.0
2-Butanone (MEK)	<10 J	4.6 J	<50	<50	<10	<10	5.3 J
2-Hexanone	<10	<50	<50	<50	<10	<10	<50
4-Methyl-2-pentanone (MIBK)	<10 J	<50	<50	<50	<10	<10	<50
Acetone	R	R	<100	<100	<10	<10	R
Acetonitrile	R	<50	<50	<50	NA	<50	<50
Acrylonitrile	R	<25	<25	<25	NA	<25	<25
Benzene	<1	<1.0	<1.0	<1.0	<1	<1	<1.0
Bromochloromethane	<1	<1.0 J	<1.0	<1.0	NA	<1	<1.0 J
Bromoform	<1	<1.0	<1.0	<1.0	<1	<1	<1.0
Bromomethane	<1	<1.0	<1.0	<1.0	<1	<1	<1.0
Carbon disulfide	<1	<5.0	<5.0	<5.0	0.20 J	<1	<5.0
Chlorobenzene	<1	<1.0	<1.0	<1.0	<1	<1	<1.0
Chloroethane	<1	<1.0	<1.0	<1.0	<1	<1	<1.0
Chloroform	<1	<1.0	<1.0	<1.0	<1	<1	<1.0
Chloromethane	<1	<1.0	2.6	2.3	<1	<1	<1.0
cis-1,2-Dichloroethene	<1	<1.0	<1.0	<1.0	<1	<1	<1.0
Diethylether	<10	<10	<10	<10	NA	<10	<10
Ethylbenzene	<1	<1.0	<1.0	<1.0	<1	<1	<1.0
Furan	<5	NA	<10	<10	NA	<5	NA
Isopropylbenzene	<1	<1.0	<1.0	<1.0	NA	<1	<1.0
Methyl iodide	<5	<5.0	<5.0	<5.0	NA	<5	<5.0
Methyl(tert)butyl ether	<50	<5.0	<5.0	<5.0	NA	<50	<5.0
Methylene chloride	<1	<1.0	<1.0	<1.0	<1	<1	<1.0
n-Propylbenzene	<1	<1.0	<1.0	<1.0	NA	<1	<1.0
Propionitrile	NA	<25	<25	<25	NA	NA	<25
Tetrachloroethene	<1	<1.0	<1.0	<1.0	<1	<1	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-22 (continued)				GM-23		
Top of Screen Depth	6	6	6	6	3.5	3.5	3.5
Sample Date	04/13/99	01/15/01	09/08/05	09/08/05	12/03/97	10/10/98	01/16/01
Sample ID	GWGM-22	GWGM-22	GWGM-22(9/8/05)	GWGM-999 (GM-22) (9/8/05)	GM-23	GWGM-23	GWGM-23
Tetrahydrofuran	R	NA	<10	<10	NA	<5	NA
Toluene	<1	<1.0	<1.0	<1.0	<1	<1	<1.0
trans-1,2-Dichloroethene	<1	<1.0	<1.0	<1.0	<1	<1	<1.0
Trichloroethene	<1	<1.0	<1.0	<1.0	<1	<1	<1.0
Vinyl chloride	<1	<1.0	<1.0	<1.0	<1	<1	<1.0
Xylene, o	<1	NA	NA	NA	NA	<1	NA
Xylenes (total)	<3	<3.0	<3.0	<3.0	<1	<3	<3.0
Xylenes, m+p	<2	NA	NA	NA	NA	<2	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-23 (continued)			GM-24A		GM-24B	
Top of Screen Depth	3.5	3.5	3.5	71	71	104	104
Sample Date	05/12/04	05/12/04	09/08/05	11/09/98	05/04/99	11/17/98	11/17/98
Sample ID	GWGM-23 (5/12/04)	GWGM-995 (5/12/04)	GWGM-23(9/8/05)	GWGM-24A	GWGM-24A	GWGM-24B	GWGM-94
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1	<1	<1	<1
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1	<1	<1	<1
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1	<1	<1	<1
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<1	<1	<1	<1
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1	<1	<1	<1
2-Butanone (MEK)	<50	<50	<50	<10	R	<10	<10
2-Hexanone	<50	<50	<50	<10	<10	<10	<10
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<10	<10 J	<10	<10
Acetone	<100	<100	<100	<10	R	<10	<10
Acetonitrile	<50	<50	<50	<50	R	<50	<50
Acrylonitrile	<25	<25	<25	<25	R	<25	<25
Benzene	<1.0	<1.0	<1.0	<1	<1	<1	<1
Bromochloromethane	<1.0	<1.0	<1.0	<1	<1	<1	<1
Bromoform	<1.0	<1.0	<1.0	<1	<1	<1	<1
Bromomethane	<1.0	<1.0	<1.0	<1	<1	<1	<1
Carbon disulfide	<5.0	<5.0	<5.0	<1	<1	<1	<1
Chlorobenzene	<1.0	<1.0	<1.0	<1	<1	<1	<1
Chloroethane	<1.0	<1.0	<1.0	<1	<1	<1	<1
Chloroform	<1.0	<1.0	<1.0	<1	<1	<1	<1
Chloromethane	<1.0	<1.0	8.5	<1	<1	<1	<1
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1	<1	<1	<1
Diethylether	<10	<10	<10	<10	<10 J	<10	<10
Ethylbenzene	<1.0	<1.0	<1.0	<1	<1	<1	<1
Furan	<2.0	<2.0	<10	<5	<5	<5	<5
Isopropylbenzene	<1.0	<1.0	<1.0	<1	<1	<1	<1
Methyl iodide	<5.0	<5.0	<5.0	<5	<5	<5	<5
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<50	<50	<50	<50
Methylene chloride	<1.0	<1.0	<1.0	<1	<1	<1	<1
n-Propylbenzene	<1.0	<1.0	<1.0	<1	<1	<1	<1
Propionitrile	<25	<25	<25	NA	NA	NA	NA
Tetrachloroethene	<1.0	<1.0	<1.0	<1	<1 J	<1	<1

Footnotes on Page 137.

ARCADIS

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-23 (continued)			GM-24A		GM-24B	
Top of Screen Depth	3.5	3.5	3.5	71	71	104	104
Sample Date	05/12/04	05/12/04	09/08/05	11/09/98	05/04/99	11/17/98	11/17/98
Sample ID	GWGM-23 (5/12/04)	GWGM-995 (5/12/04)	GWGM-23(9/8/05)	GWGM-24A	GWGM-24A	GWGM-24B	GWGM-94
Tetrahydrofuran	<2.0	<2.0	<10	<5	R	<5	<5
Toluene	<1.0	<1.0	<1.0	<1	<1	<1	<1
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1	<1	<1	<1
Trichloroethene	<1.0	<1.0	<1.0	<1	<1	<1	<1
Vinyl chloride	<1.0	<1.0	<1.0	<1	<1	<1	<1
Xylene, o	NA	NA	NA	<1	<1	<1	<1
Xylenes (total)	<3.0	<3.0	<3.0	<3	<3	<3	<3
Xylenes, m+p	NA	NA	NA	<2	<2	<2	<2

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-24B (continued)		GM-24C				
Top of Screen Depth	104	104	193	193	193	193	193
Sample Date	05/05/99	04/29/04	11/20/98	11/20/98	05/13/99	09/24/03	04/29/04
Sample ID	GWGM-24B	GWGM-24B (4/29/04)	GWGM-24C	GWGM-93	GWGM-24C	GM-24C	GWGM-24C (4/29/04)
1,1-Dichloroethane	<1	<1.0	<1	<1	<1	<1.0	<1.0
1,1-Dichloroethene	<1	<1.0	<1	<1	<1	<1.0	<1.0
1,2,4-Trimethylbenzene	<1	<1.0	<1	<1	<1	<1.0	<1.0
1,2-Dichloroethene (total)	<1	<2.0	<1	<1	<1	<2.0	<2.0
1,3,5-Trimethylbenzene	<1	<1.0	<1	<1	<1	<1.0	<1.0
2-Butanone (MEK)	<10	<50	<10	<10	R	<10	<50
2-Hexanone	<10	<50	<10	<10	<10	<10	<50
4-Methyl-2-pentanone (MIBK)	<10	<50	<10	<10	<10	<10	<50
Acetone	R	<100	<10	<10	R	<25	<100
Acetonitrile	R	<50	<50	<50	R	<40	<50
Acrylonitrile	R	<25	<25	<25	R	<20	<25
Benzene	<1	0.39 J	<1	<1	<1	<1.0	<1.0
Bromochloromethane	<1	<1.0	<1	<1	<1	<1.0	<1.0
Bromoform	<1	<1.0	<1	<1	<1	<1.0	<1.0
Bromomethane	<1 J	<1.0	<1	<1	<1 J	<1.0	<1.0
Carbon disulfide	<1	<5.0	<1	<1	5.7	<1.0	0.96 J
Chlorobenzene	<1	<1.0	<1	<1	<1	<1.0	<1.0
Chloroethane	<1 J	<1.0	<1	<1	<1 J	<1.0	<1.0
Chloroform	<1	<1.0	<1	<1	<1	<1.0	<1.0
Chloromethane	<1	<1.0	<1	<1	<1	<1.0	<1.0
cis-1,2-Dichloroethene	<1	<1.0	<1	<1	<1	<1.0	<1.0
Diethylether	<10	1.8 J	<10	<10	<10 J	<2.0	<10
Ethylbenzene	<1	<1.0	<1	<1	<1	<1.0	<1.0
Furan	<5	0.17 J	<5	<5	<5	<5.0	<2.0
Isopropylbenzene	<1	<1.0	<1	<1	<1	<1.0	<1.0
Methyl iodide	<5	<5.0	<5	<5	<5	<1.0	<5.0
Methyl(tert)butyl ether	<50	<5.0	<50	<50	<50	<10	<5.0
Methylene chloride	<1	<1.0	<1	<1	<1	<5.0	<1.0
n-Propylbenzene	<1	<1.0	<1	<1	<1	<1.0	<1.0
Propionitrile	NA	<25	NA	NA	NA	<20	<25
Tetrachloroethene	<1	4.6	<1	<1	<1	<1.0	$\boxed{7.6}$

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-24B (continued)		GM-24C				
Top of Screen Depth	104	104	193	193	193	193	193
Sample Date	05/05/99	04/29/04	11/20/98	11/20/98	05/13/99	09/24/03	04/29/04
Sample ID	GWGM-24B	GWGM-24B (4/29/04)	GWGM-24C	GWGM-93	GWGM-24C	GM-24C	GWGM-24C (4/29/04)
Tetrahydrofuran	R	<2.0	<5	<5	R	<5.0	<2.0
Toluene	<1	<1.0	2.1	1.9	<1	<1.0	<1.0
trans-1,2-Dichloroethene	<1	<1.0	<1	<1	<1	<1.0	<1.0
Trichloroethene	<1	<1.0	<1	<1	<1	<1.0	<1.0
Vinyl chloride	<1	<1.0	<1	<1	<1	<1.0	<1.0
Xylene, o	<1	NA	<1	<1	<1	NA	NA
Xylenes (total)	<3	<3.0	<3	<3	<3	<2.0	<3.0
Xylenes, m+p	<2	NA	<2	<2	<2	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25A				GM-25B			
Top of Screen Depth	19	19	19	19	98	98	98	98
Sample Date	10/06/98	04/16/99	09/09/03	05/12/04	10/06/98	04/27/99	10/20/99	09/09/03
Sample ID	GWGM-25A	GWGM-25A	GM-25A	GWGM-25A (5/12/04)	GWGM-25B	GWGM-25B	GM-25B	GM-25B
1,1-Dichloroethane	<1	<1	<1.0	<1.0	<25	<25	<10	<1.0
1,1-Dichloroethene	<1	<1	<1.0	<1.0	<25	<25	<10	<1.0
1,2,4-Trimethylbenzene	3.4	3.4	2	1.8	<25	<25	6.4 J	<1.0
1,2-Dichloroethene (total)	3.4	2.4	2.3	2.7	<25	<25	<20	<2.0
1,3,5-Trimethylbenzene	1.2	1.1	<1.0	0.66 J	<25	<25	<10	<1.0
2-Butanone (MEK)	10	<10	<50	3.1 J	1,200	1,200 J	<500	160
2-Hexanone	46	36	<50	10 J	<250	<250	<500	<50
4-Methyl-2-pentanone (MIBK)	<10	<10	<50	<50	<250	<250 J	<500	<50
Acetone	<10	R	<100	<100	1,100	1,400 J	<1,000	200
Acetonitrile	<50	R	<50	<50	<1200	R	<500	<50
Acrylonitrile	<25	<25 J	<25	<25	<25	R	<250	<25
Benzene	13	12	5.5	6.1	<25	<25	24	3.5
Bromochloromethane	<1	<1	<1.0	<1.0	<25	<25	<10	<1.0
Bromoform	<1	<1	<1.0	<1.0	<25	<25	<10	<1.0
Bromomethane	<1	<1	<1.0	<1.0	<25	<25	<10	<1.0
Carbon disulfide	<1	<1	<5.0	<5.0	<25	<25	<50	<5.0
Chlorobenzene	<1	<1	<1.0	<1.0	<25	<25	<10	<1.0
Chloroethane	<1	<1	<1.0	<1.0	<25	<25	<10	<1.0
Chloroform	<1	<1	<1.0	<1.0	<25	<25	<10 J	<1.0
Chloromethane	<1	<1	<1.0	<1.0	<25	28	<10 J	<1.0
cis-1,2-Dichloroethene	3.4	1.6	2.3	2.7	<25	<25	<10	<1.0
Diethylether	<10	<10	<10	4.8 J	<250	<250	<100	<10
Ethylbenzene	4.6	4.6	2.4	2.4	<25	<25	12	1.5
Furan	<5	<5	<2.0	0.45 J	<120	<120	NA	3.5
Isopropylbenzene	<1	<1	<1.0	<1.0	<25	<25	<10	<1.0
Methyl iodide	<5	<5	<5.0	<5.0	<25	<25	<50	<5.0
Methyl(tert)butyl ether	<50	<50	<5.0	<5.0	<1,200	<1,200	<50	<5.0
Methylene chloride	<1	<1	<1.0	<1.0	<25	<140	<10	<1.0
n-Propylbenzene	<1	<1	<1.0	<1.0	<25	<25	<10	<1.0
Propionitrile	NA	NA	<25	<25	NA	NA	<250	<25
Tetrachloroethene	<1	<1	<1.0	<1.0	<25	<25	<10	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25A				GM-25B			
Top of Screen Depth	19	19	19	19	98	98	98	98
Sample Date	10/06/98	04/16/99	09/09/03	05/12/04	10/06/98	04/27/99	10/20/99	09/09/03
Sample ID	GWGM-25A	GWGM-25A	GM-25A	GWGM-25A (5/12/04)	GWGM-25B	GWGM-25B	GM-25B	GM-25B
Tetrahydrofuran	14	15 J	<2.0	6.5	<120	<120 J	NA	2.1
Toluene	14	14	7.1	7.4	32	28	32	4.7
trans-1,2-Dichloroethene	<1	<1	<1.0	<1.0	<25	<25	<10	<1.0
Trichloroethene	4	3.6	1.8	1.5	<25	<25	7.2 J	<1.0
Vinyl chloride	<1	<1	<1.0	<1.0	<25	<25	<10	<1.0
Xylene, o	6.1	5.9	NA	NA	<25	<25	NA	NA
Xylenes (total)	16	15	7.7	7.4	<75	<75	34	4.8
Xylenes, m+p	9.5	9.2	NA	NA	<50	<50	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25B (continued)	GM-25C					
Top of Screen Depth	98	206	206	206	206	206	206
Sample Date	05/18/04	11/09/98	11/09/98	04/20/99	08/02/00	09/15/03	05/04/04
Sample ID	GWGM-25B (5/18/04)	GWGM-25C	GWGM-95	GWGM-25C	GWGM-25C	GM-25C	GWGM-25C (5/4/04)
1,1-Dichloroethane	<10	<1	<1	<1	<1.0	<1.0	<1.0
1,1-Dichloroethene	<10	<1	<1	<1	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	3.8 J	<1	<1	<1	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<20	<1	<1	<1	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<10	<1	<1	<1	<1.0	<1.0	<1.0
2-Butanone (MEK)	1,000	<10	<10	<10	<50	<50	4.2 J
2-Hexanone	140 J	<10	<10	<10	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<500	<10	<10	<10	<50	<50	<50
Acetone	1,700	<10	<10	R	<100	<100	7.6 J
Acetonitrile	<500	<50	<50	<50 J	50	<50	<50
Acrylonitrile	<250	<25	<25	<25	<50	<25	<25
Benzene	14	<1	<1	1.1	1.9	<1.0	4
Bromochloromethane	<10	<1	<1	<1	<1.0	<1.0	<1.0
Bromoform	<10	<1	<1	<1	<1.0	<1.0	<1.0
Bromomethane	<10	<1	<1	<1	<1.0	<1.0	<1.0
Carbon disulfide	<50	<1	<1	<1	<5.0	13	<5.0
Chlorobenzene	<10	<1	<1	<1	<1.0	<1.0	<1.0
Chloroethane	<10	<1	<1	<1	<1.0	<1.0	<1.0
Chloroform	<10	<1	<1	<1	<1.0	<1.0	<1.0
Chloromethane	<10	<1	<1	<1	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<10	<1	<1	<1	<1.0	<1.0	<1.0
Diethylether	10 J	25	25	28	35	15	32
Ethylbenzene	6.1 J	<1	<1	<1	<1.0	<1.0	<1.0
Furan	28	<5	<5	<5	NA	<2.0	0.58 J
Isopropylbenzene	<10	<1	<1	<1	<1.0	<1.0	<1.0
Methyl iodide	<50	<5	<5	<5	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<50	<50	<50	<50	<5.0	<5.0	<5.0
Methylene chloride	<10	<1	<1	<1	<1.0	<1.0	<1.0
n-Propylbenzene	<10	<1	<1	<1	<1.0	<1.0	<1.0
Propionitrile	<250	NA	NA	NA	<25	<25	<25
Tetrachloroethene	<10	<1	<1	<1	<1.0	<1.0	<1.0

Footnotes on Page 137.

ARCADIS

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25B (continued)	GM-25C					
Top of Screen Depth	98	206	206	206	206	206	206
Sample Date	05/18/04	11/09/98	11/09/98	04/20/99	08/02/00	09/15/03	05/04/04
Sample ID	GWGM-25B (5/18/04)	GWGM-25C	GWGM-95	GWGM-25C	GWGM-25C	GM-25C	GWGM-25C (5/4/04)
Tetrahydrofuran	46	8.6	8	11 J	NA	6	<2.0
Toluene	30	<1	<1	6.4	18	34	25
trans-1,2-Dichloroethene	<10	<1	<1	<1	<1.0	<1.0	<1.0
Trichloroethene	3.8 J	<1	<1	<1	<1.0	<1.0	<1.0
Vinyl chloride	<10	<1	<1	<1	<1.0	<1.0	<1.0
Xylene, o	NA	<1	<1	<1	NA	NA	NA
Xylenes (total)	22 J	<3	<3	<3	<3	<3.0	<3.0
Xylenes, m+p	NA	<2	<2	<2	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25C (continued)	GM-26A				GM-26B	
Top of Screen Depth	206	30	30	30	30	101	101
Sample Date	08/01/05	10/07/98	04/14/99	09/09/03	05/13/04	10/07/98	04/15/99
Sample ID	GWGM-25C (08/01/05)	GWGM-26A	GWGM-26A	GM-26A	GWGM-26A (5/13/04)-RE	GWGM-26B	GWGM-26B
1,1-Dichloroethane	<1.0	<1	<2	<1.0	<1.0	<1	<1
1,1-Dichloroethene	<1.0	<1	<2	<1.0	<1.0	<1	<1
1,2,4-Trimethylbenzene	<1.0	1.2	2	<1.0	2.1	<1	<1
1,2-Dichloroethene (total)	<2.0	<1	<2	<2.0	<2.0	<1	<1
1,3,5-Trimethylbenzene	<1.0	<1	<2	<1.0	0.66 J	<1	<1
2-Butanone (MEK)	<50	25	51 J	<50	24 J	<10	<10 J
2-Hexanone	2.1 J	26	51	<50	40 J	<10	<10
4-Methyl-2-pentanone (MIBK)	2.8 J	<10	<20	<50	4.9 J	<10	<10 J
Acetone	<100	24	71 J	<100	25 J	<10	R
Acetonitrile	<50	<50	R	<50	<50	<50	R
Acrylonitrile	<25	<25	R	<25	<25	<25	R
Benzene	5.2	22	21	21	23	<1	<1
Bromochloromethane	<1.0	<1	<2	<1.0	<1.0	<1	<1
Bromoform	<1.0	<1	<2	<1.0	<1.0	<1	<1
Bromomethane	<1.0	<1	<2	<1.0	<1.0	<1	<1
Carbon disulfide	<5.0	<1	<2	<5.0	<5.0	<1	<1
Chlorobenzene	<1.0	<1	<2	<1.0	<1.0	<1	<1
Chloroethane	<1.0	<1	<2	<1.0	<1.0	<1	<1
Chloroform	<1.0	<1	<2	<1.0	<1.0	<1	<1
Chloromethane	<1.0	<1	<2	<1.0	<1.0	<1	<1
cis-1,2-Dichloroethene	<1.0	<1	<2	<1.0	<1.0	<1	<1
Diethylether	22	23	39	58	42	<10	<10
Ethylbenzene	<1.0	2.5	5.3	2	4.9	<1	<1
Furan	<10	<5	<10	<2.0	0.86 J	<5	<5
Isopropylbenzene	<1.0	<1	<2	<1.0	<1.0	<1	<1
Methyl iodide	<5.0	<5	<5	<5.0	<5.0	<5	<5
Methyl(tert)butyl ether	<5.0	<50	<100	<5.0	<5.0	<50	<50
Methylene chloride	<1.0	<1	<2	<1.0	<1.0	<1	<1
n-Propylbenzene	<1.0	<1	<2	<1.0	<1.0	<1	<1
Propionitrile	<25	NA	NA	<25	<25	NA	NA
Tetrachloroethene	<1.0	<1	<2	<1.0	<1.0	<1	<1

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25C (continued)	GM-26A				GM-26B	
Top of Screen Depth	206	30	30	30	30	101	101
Sample Date	08/01/05	10/07/98	04/14/99	09/09/03	05/13/04	10/07/98	04/15/99
Sample ID	GWGM-25C (08/01/05)	GWGM-26A	GWGM-26A	GM-26A	GWGM-26A (5/13/04)-RE	GWGM-26B	GWGM-26B
Tetrahydrofuran	11	16	22 J	2.9	22	<5	R
Toluene	1.2	11	16	9.7	17	<1	<1
trans-1,2-Dichloroethene	<1.0	<1	<2	<1.0	<1.0	<1	<1
Trichloroethene	<1.0	<1	<2	<1.0	0.71 J	<1	<1
Vinyl chloride	<1.0	<1	<2	<1.0	<1.0	<1	<1
Xylene, o	NA	4.6	7.1	NA	NA	<1	<1
Xylenes (total)	<3.0	9.5	16	7.3	14	<3	<3
Xylenes, m+p	NA	<2	9.3	NA	NA	<2	<2

Footnotes on Page 137.

ARCADIS

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26B (continued)				GM-26C		
Top of Screen Depth	101	101	101	101	160	160	160
Sample Date	07/18/00	09/09/03	04/27/04	07/28/05	10/25/98	04/17/99	09/16/03
Sample ID	GWGM-26B	GM-26B	GWGM-26B (4/27/04)	GWGM-26B (072805)	GWGM-26C	GWGM-26C	GM-26C
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1	<2	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1	<2	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1	<2	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	<1	<2	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1	<2 J	<1.0
2-Butanone (MEK)	<50 J	<50	<50	<50	10	<20	<50
2-Hexanone	<50 J	<50	<50	<50	70 J	100	120
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50	<10	<20	<50
Acetone	<100 J	<100	<100	<100	<10 J	20 J	<100
Acetonitrile	32 J	<50	<50	<50	<50	R	<50
Acrylonitrile	14 J	<25	<25	<25	<25	<25 J	<25
Benzene	<1.0	<1.0	<1.0	<1.0	28	27	25
Bromochloromethane	<1.0	<1.0	<1.0	<1.0	<1	<2	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0	<1	<2	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1	<2	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	<1	<2	<5.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0	<1	<2	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1	<2	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0	<1	<2	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1	<2	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1	<2	<1.0
Diethylether	<10	<10	<10	<10	39	41	27
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	1.8	3	5.3
Furan	NA	<2.0	<2.0	<10	<5	<10	<2.0
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1	<2	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0	<5	<5	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0	<50	<100	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1	<2	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0	<1	<2 J	<1.0
Propionitrile	16 J	<25	<25	<25	NA	NA	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1	<2	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26B (continued)				GM-26C		
Top of Screen Depth	101	101	101	101	160	160	160
Sample Date	07/18/00	09/09/03	04/27/04	07/28/05	10/25/98	04/17/99	09/16/03
Sample ID	GWGM-26B	GM-26B	GWGM-26B (4/27/04)	GWGM-26B (072805)	GWGM-26C	GWGM-26C	GM-26C
Tetrahydrofuran	NA	<2.0	<2.0	<10	21	33 J	<2.0
Toluene	27	<1.0	<1.0	<1.0	18	23	31
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1	<2	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1	<2	<1.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1	<2	1.9
Xylene, o	NA	NA	NA	NA	<1	5.8	NA
Xylenes (total)	<3.0	<3.0	<3.0	<3.0	7.6	11	20
Xylenes, m+p	NA	NA	NA	NA	<2	5.5	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26C (continued)		GM-27A			
Top of Screen Depth	160	160	30	30	30	30
Sample Date	05/18/04	05/18/04	10/08/98	04/15/99	09/10/03	05/13/04
Sample ID	GWGM-26C (5/18/04)	GWGM-994 (5/18/04)	GWGM-27A	GWGM-27A	GM-27A	GWGM-27A (5/13/04)
1,1-Dichloroethane	<10	<10	<1	<2	<1.0	<1.0
1,1-Dichloroethene	<10	<10	<1	<2	<1.0	<1.0
1,2,4-Trimethylbenzene	<10	<10	1.9	2.1	2.6	2.3
1,2-Dichloroethene (total)	<20	<20	<1	<2	<2.0	<2.0
1,3,5-Trimethylbenzene	<10	<10	<1	<2	1.1	0.83 J
2-Butanone (MEK)	34 J	26 J	<10	<20 J	<50	37 J
2-Hexanone	140 J	150 J	35	30	<50	36 J
4-Methyl-2-pentanone (MIBK)	<500	<500	<10	<20	<50	3.7 J
Acetone	75 J	59 J	<10	R	<100	39 J
Acetonitrile	<500	<500	<50	R	<50	<50
Acrylonitrile	<250	<250	<25	R	<25	<25
Benzene	22	22	24	25	21	23
Bromochloromethane	<10	<10	<1	<2	<1.0	<1.0
Bromoform	<10	<10	<1	<2	<1.0	<1.0
Bromomethane	<10	<10	<1	<2	3	<1.0
Carbon disulfide	<50	<50	<1	<2	<5.0	<5.0
Chlorobenzene	<10	<10	<1	<2	<1.0	<1.0
Chloroethane	<10	<10	<1	<2	<1.0	<1.0
Chloroform	<10	<10	<1	<2	<1.0	<1.0
Chloromethane	<10	<10	<1	<2	1.1	<1.0
cis-1,2-Dichloroethene	<10	<10	<1	<2	<1.0	0.46 J
Diethylether	26 J	26 J	16	34	26	31
Ethylbenzene	4.9 J	4.4 J	4.1	4.9	4.8	4.9
Furan	2.5 J	<20	<5	<10	<2.0	1.1 J
Isopropylbenzene	<10	<10	<1	<2	<1.0	<1.0
Methyl iodide	<50	<50	<5	<5	<5.0	<5.0
Methyl(tert)butyl ether	<50	<50	<50	<100	<5.0	<5.0
Methylene chloride	<10	<10	<1	<2	<1.0	<1.0
n-Propylbenzene	<10	<10	<1	<2	<1.0	<1.0
Propionitrile	<250	<250	NA	NA	<25	<25
Tetrachloroethene	<10	<10	<1	<2	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26C (continued)		GM-27A			
Top of Screen Depth	160	160	30	30	30	30
Sample Date	05/18/04	05/18/04	10/08/98	04/15/99	09/10/03	05/13/04
Sample ID	GWGM-26C (5/18/04)	GWGM-994 (5/18/04)	GWGM-27A	GWGM-27A	GM-27A	GWGM-27A (5/13/04)
Tetrahydrofuran	51	47	17	22 J	3	16
Toluene	78	85	16	19	16	18
trans-1,2-Dichloroethene	<10	<10	<1	<2	<1.0	<1.0
Trichloroethene	<10	<10	1.3	3.2	1.4	1.4
Vinyl chloride	<10	<10	<1	<2	<1.0	<1.0
Xylene, o	NA	NA	<1	7.4	NA	NA
Xylenes (total)	19 J	18 J	15	17	16	16
Xylenes, m+p	NA	NA	<2	9.8	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B						
Top of Screen Depth	145	145	145	145	145	145	145
Sample Date	10/26/98	04/14/99	07/18/00	09/10/03	04/30/04	04/30/04	08/05/05
Sample ID	GWGM-27B	GWGM-27B	GWGM-27B	GM-27B	GWGM-27B (4/30/04)	GWGM-998 (4/30/04)	GWGM-27B (08/05/05)
1,1-Dichloroethane	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<1	<1	<2.0	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<10	<10 J	<50 J	<50	<50	<50	<50
2-Hexanone	<10	<10	<50 J	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<10	<10 J	<50	<50	<50	<50	<50
Acetone	<10	R	<100 J	<100	<100	<100	<100
Acetonitrile	<50	R	<50	<50	<50	<50	<50
Acrylonitrile	<25	R	R	<25	<25	<25	<25
Benzene	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<1	4.7	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Diethylether	<10	<10	<10	<10	<10	<10	<10
Ethylbenzene	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Furan	<5	<5	NA	<2.0	<2.0	<2.0	<1.0
Isopropylbenzene	<1	<1	<1.0	<1.0	<1.0	<1.0	<10
Methyl iodide	<5	<5	<5.0	<5.0	<5.0	<5.0	<1.0
Methyl(tert)butyl ether	<50	<50	<5.0	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1	<1	<1.0	<1.0	<1.0	<1.0	<5.0
n-Propylbenzene	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	NA	NA	<25	<25	<25	<25	<1.0
Tetrachloroethene	<1	<1	<1.0	<1.0	<1.0	<1.0	<25

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B						
Top of Screen Depth	145	145	145	145	145	145	145
Sample Date	10/26/98	04/14/99	07/18/00	09/10/03	04/30/04	04/30/04	08/05/05
Sample ID	GWGM-27B	GWGM-27B	GWGM-27B	GM-27B	GWGM-27B (4/30/04)	GWGM-998 (4/30/04)	GWGM-27B (08/05/05)
Tetrahydrofuran	<5	R	NA	<2.0	<2.0	<2.0	<10
Toluene'	<1	<1	2.7	<1.0	37	34	<1.0
trans-1,2-Dichloroethene	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene, o	<1	<1	NA	NA	NA	NA	NA
Xylenes (total)	<3	<3	<3.0	<3.0	<3.0	<3.0	<3.0
Xylenes, m+p	<2	<2	NA	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)				
Top of Screen Depth	145	145	145	145	145
Sample Date	12/07/06	02/22/07	05/11/07	08/08/07	11/08/07
Sample ID	GWGM27B (12/7/06)	GWGM-27B (2/22/07)	GWGM-27B(5/11/07)	GWGM-27B (8/8/07)	GWGM-27B (11/8/07)
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50	<50
Acetone	<100	<100	<100	<100	<100
Acetonitrile	<50	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25	<25	<25
Benzene	<1.0	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Diethylether	<10	<10	<10	<10	<10
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Furan	<10	<10	<10	<10	<10
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)				
Top of Screen Depth	145	145	145	145	145
Sample Date	12/07/06	02/22/07	05/11/07	08/08/07	11/08/07
Sample ID	GWGM27B (12/7/06)	GWGM-27B (2/22/07)	GWGM-27B(5/11/07)	GWGM-27B (8/8/07)	GWGM-27B (11/8/07)
Tetrahydrofuran	<10	<10	<10	<10	<10
Toluene	<1.0	8.8	2.1	1	11
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	<3.0	<3.0	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27C							
Top of Screen Depth	210	210	210	210	210	210	210	210
Sample Date	11/09/98	12/02/98	04/26/99	04/26/99	08/07/00	09/11/03	04/30/04	08/05/05
Sample ID	GWGM-27C	GWGM-27C	GWGM-27C	GWGM-86	GMGW-27C	GM-27C	GWGM-27C (4/30/04)	GWGM-27C (08/05/05)
1,1-Dichloroethane	<1 J	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1 J	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1 J	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<1 J	<1	<1	<1	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1 J	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<10 J	<10	R	R	<50	<50	<50	<50
2-Hexanone	<10 J	<10	<10	<10	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<10 J	<10	<10 J	<10 J	<50	<50	<50	<50
Acetone	R	<10	R	R	<100	<100	<100	<100
Acetonitrile	R	<50	R	R	<50	<50	<50	<50
Acrylonitrile	<25 J	<25	R	R	<25	<25	<25	<25
Benzene	<1 J	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	<1 J	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Bromoform	<1 J	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1 J	<1	<1	<1	<1.0 J	<1.0	<1.0	<1.0
Carbon disulfide	<1 J	<1	<1	<1	<5.0	7.2	<5.0	<5.0
Chlorobenzene	<1 J	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1 J	<1	<1	<1	<1.0 J	<1.0	<1.0	<1.0
Chloroform	<1 J	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1 J	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1 J	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Diethylether	<10 J	<10	<10	<10	R	<10	0.31 J	1.0 J
Ethylbenzene	<1 J	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Furan	<5 J	<5	<5	<5	NA	<2.0	<2.0	<10
Isopropylbenzene	<1 J	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5 J	<5	<5	<5	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<50 J	<50	<50	<50	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1 J	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1 J	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Propionitrile	NA	NA	NA	NA	<25	<25	<25	<25
Tetrachloroethene	<1 J	<1	<1	<1	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27C							
Top of Screen Depth	210	210	210	210	210	210	210	210
Sample Date	11/09/98	12/02/98	04/26/99	04/26/99	08/07/00	09/11/03	04/30/04	08/05/05
Sample ID	GWGM-27C	GWGM-27C	GWGM-27C	GWGM-86	GMGW-27C	GM-27C	GWGM-27C (4/30/04)	GWGM-27C (08/05/05)
Tetrahydrofuran	<5 J	<5	<5 J	<5 J	NA	<2.0	<2.0	<10
Toluene	33 J	22	6	6.3	39	1.1	34	<1.0
trans-1,2-Dichloroethene	<1 J	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1 J	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1 J	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Xylene, o	<1 J	<1	<1	<1	NA	NA	NA	NA
Xylenes (total)	<3 J	<3	<3	<3	<3.0	<3.0	<3.0	<3.0
Xylenes, m+p	<2 J	<2	<2	<2	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A					
Top of Screen Depth	40	40	40	40	40	40
Sample Date	10/28/98	04/19/99	07/19/00	04/28/04	07/26/05	07/26/05
Sample ID	GWGM-28A	GWGM-28A	GWGM-28A	GWGM-28A (4/28/04)	GWGM28A (072605)	GWGM-999 (7/26/05)
1,1-Dichloroethane	<1	<1	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1	1	<1.0	0.37 J	<1.0	<1.0
1,2,4-Trimethylbenzene	<1	<1 J	<1.0	0.66 J	0.54 J	0.55 J
1,2-Dichloroethene (total)	2.8	3.3	5.7	18	13	13
1,3,5-Trimethylbenzene	<1	<1 J	<1.0	0.64 J	0.55 J	0.55 J
2-Butanone (MEK)	<10	<10 J	<50 J	<50	<50	<50
2-Hexanone	<10	<10	<50 J	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<10	<10 J	<50	<50	<50	<50
Acetone	<10	R	<100 J	<100	<100	<100
Acetonitrile	<50	R	<50	<50	<50	<50
Acrylonitrile	<25	<25 J	R	<25	<25	<25
Benzene	1.9	1.2	3.2	7.3	5.5	5.2
Bromochloromethane	<1	<1	<1.0	<1.0	<1.0	<1.0
Bromoform	<1	<1	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1	<1	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<1	<1	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<1	<1	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1	<1	<1.0	<1.0	<1.0	<1.0
Chloroform	<1	<1	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1	<1	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	2.2	2.2	4.5	15	11	11
Diethylether	<10	<10	<10	0.30 J	<10	<10
Ethylbenzene	<1	1.1	1.4	5.1	3.9	3.8
Furan	<5	<5	NA	<2.0	<10	<10
Isopropylbenzene	<1	<1	<1.0	0.43 J	<1.0	<1.0
Methyl iodide	<5	<5	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<50	<50	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1	<1	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1	<1 J	<1.0	<1.0	<1.0	<1.0
Propionitrile	NA	NA	<25	<25	<25	<25
Tetrachloroethene	<1	<1	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A					
Top of Screen Depth	40	40	40	40	40	40
Sample Date	10/28/98	04/19/99	07/19/00	04/28/04	07/26/05	07/26/05
Sample ID	GWGM-28A	GWGM-28A	GWGM-28A	GWGM-28A (4/28/04)	GWGM28A (072605)	GWGM-999 (7/26/05)
Tetrahydrofuran	<5	R	NA	<2.0	<10	<10
Toluene	<1	<1	2.7	1	0.98 J	0.88 J
trans-1,2-Dichloroethene	<1	1.1	1.2	2.2	1.7	1.7
Trichloroethene	<1	1.3	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1	<1	<1.0	<1.0	<1.0	<1.0
Xylene, o	<1	<1	NA	NA	NA	NA
Xylenes (total)	<3	<3	2.0 J	8.5	6.9	7
Xylenes, m+p	<2	<2	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)				
Top of Screen Depth	40	40	40	40	40
Sample Date	12/05/06	02/21/07	05/10/07	08/07/07	11/05/07
Sample ID	GWGM-28A(12/5/06)	GWGM-28A (2/21/07)	GWGM-28A (5/10/07)	GWGM-28A (8/7/07)	GWGM-28A (11/5/07)
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	3.5	4.7	5.7	7.9	8.4
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50 *	<50	<50	<50	<50
Acetone	<100	<100	<100	<100	<100
Acetonitrile	<50	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25	<25	<25
Benzene	2.2	3.7	4.3	4.4	3.8
Bromochloromethane	<1.0	<1.0	<1.0	<1.0	0.66 J
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	0.43 J	<5.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	0.57 J	<1.0	<1.0	<1.0	1.8
cis-1,2-Dichloroethene	2.8	3.7	4.6	6.7	7.2
Diethylether	<10	<10	<10	<10	<10
Ethylbenzene	0.99 J	1.6	1.7	2.1	1.6
Furan	<10	<10	<10	<10	<10
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)				
Top of Screen Depth	40	40	40	40	40
Sample Date	12/05/06	02/21/07	05/10/07	08/07/07	11/05/07
Sample ID	GWGM-28A(12/5/06)	GWGM-28A (2/21/07)	GWGM-28A (5/10/07)	GWGM-28A (8/7/07)	GWGM-28A (11/5/07)
Tetrahydrofuran	<10	<10	<10	<10	<10
Toluene	<1.0	<1.0	<1.0	3.6 B	<1.0
trans-1,2-Dichloroethene	<1.0	1	1.1	1.2	1.2
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	2.0 J	2.7 J	3.3	2.1 J
Xylenes, m+p	NA	NA	NA	NA	NA

Footnotes on Page 137.

ARCADIS

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B						
Top of Screen Depth	124.5	124.5	124.5	124.5	124.5	124.5	124.5
Sample Date	11/08/98	11/08/98	04/19/99	04/19/99	04/28/04	04/28/04	07/26/05
Sample ID	GWGM-28B	GWGM-96	GWGM-28B	GWGM-87	GWGM-28B (4/28/04)	GWGM-999 (4/28/04)	GWGM28B (072605)
1,1-Dichloroethane	<1	<1	<1	<1	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1	<1	<1	<1	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1	<1	<1	<1	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<1	<1	<1	<1	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1	<1	<1 J	<1 J	<1.0	<1.0	<1.0
2-Butanone (MEK)	<10	<10	<10	<10	<50	<50	<50
2-Hexanone	<10	<10	<10	<10	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<10	<10	<10	<10	<50	<50	<50
Acetone	<10	<10	R	R	<100	<100	<100
Acetonitrile	<50	<50	R	R	<50	<50	<50
Acrylonitrile	<25	<25	R	R	<25	<25	<25
Benzene	<1	<1	<1	<1	<1.0	<1.0	<1.0
Bromochloromethane	<1	<1	<1	<1	<1.0	<1.0	<1.0
Bromoform	<1	<1	<1	<1	<1.0	<1.0	<1.0
Bromomethane	<1	<1	<1	<1	<1.0	<1.0	<1.0
Carbon disulfide	<1	<1	12	16	<5.0	<5.0	<5.0
Chlorobenzene	<1	<1	<1	<1	<1.0	<1.0	<1.0
Chloroethane	<1	<1	<1	<1	<1.0	<1.0	<1.0
Chloroform	<1	<1	<1	<1	<1.0	<1.0	<1.0
Chloromethane	<1	<1	<1	<1	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1.0	<1.0	<1.0
Diethylether	<10	<10	<10	<10	<10	<10	<10
Ethylbenzene	<1	<1	<1	<1	<1.0	<1.0	<1.0
Furan	<5	<5	<5	<5	<2.0	<2.0	<10
Isopropylbenzene	<1	<1	<1	<1	<1.0	<1.0	<1.0
Methyl iodide	<5	<5	<5	<5	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<50	<50	<50	<50	<5.0	<5.0	<5.0
Methylene chloride	<1	<1	<1.4	<1.4	<1.0	<1.0	<1.0
n-Propylbenzene	<1	<1	<1 J	<1 J	<1.0	<1.0	<1.0
Propionitrile	NA	NA	NA	NA	<25	<25	<25
Tetrachloroethene	<1	<1	<1	<1	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B						
Top of Screen Depth	124.5	124.5	124.5	124.5	124.5	124.5	124.5
Sample Date	11/08/98	11/08/98	04/19/99	04/19/99	04/28/04	04/28/04	07/26/05
Sample ID	GWGM-28B	GWGM-96	GWGM-28B	GWGM-87	GWGM-28B (4/28/04)	GWGM-999 (4/28/04)	GWGM28B (072605)
Tetrahydrofuran	<5	<5	R	R	<2.0	<2.0	<10
Toluene	<1	<1	1.6	1.7	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1.0	<1.0	<1.0
Trichloroethene	<1	<1	<1	<1	<1.0	<1.0	<1.0
Vinyl chloride	<1	<1	<1	<1	<1.0	<1.0	<1.0
Xylene, o	<1	<1	<1	<1	NA	NA	NA
Xylenes (total)	<3	<3	<3	<3	<3.0	<3.0	<3.0
Xylenes, m+p	<2	<2	<2	<2	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)				
Top of Screen Depth	124.5	124.5	124.5	124.5	124.5
Sample Date	12/05/06	02/21/07	05/10/07	08/07/07	11/05/07
Sample ID	GWGM-28B(12/5/06)	GWGM-28B (2/21/07)	GWGM-28B (5/10/07)	GWGM-28B (8/7/07)	GWGM-28B (11/5/07)
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50 *	<50	<50	<50	<50
Acetone	<100	<100	<100	<100	<100
Acetonitrile	<50	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25	<25	<25
Benzene	<1.0	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	<1.0	<1.0	<1.0	<1.0	0.59 J
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	0.74 J	<1.0	0.71 J	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Diethylether	<10	<10	<10	<10	<10
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Furan	<10	<10	<10	<10	<10
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)				
Top of Screen Depth	124.5	124.5	124.5	124.5	124.5
Sample Date	12/05/06	02/21/07	05/10/07	08/07/07	11/05/07
Sample ID	GWGM-28B(12/5/06)	GWGM-28B (2/21/07)	GWGM-28B (5/10/07)	GWGM-28B (8/7/07)	GWGM-28B (11/5/07)
Tetrahydrofuran	<10	7.9 J	<10	<10	<10
Toluene	<1.0	5	0.92 J	7.1 B	2.2
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	<3.0	<3.0	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29						
Top of Screen Depth	55	55	55	55	55	55	55
Sample Date	10/09/98	10/09/98	04/16/99	09/10/03	05/03/04	07/28/05	12/08/06
Sample ID	GWGM-29	GWGM-99	GWGM-29	GM-29	GWGM-29 (5/3/04)	GWGM-29 (07/28/05)	GWGM-29 (12/8/06)
1,1-Dichloroethane	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<1	<1	<1	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<10	<10	<10	<50	<50	<50	<50
2-Hexanone	<10	<10	<10	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<10	<10	<10	<50	<50	<50	<50
Acetone	<10	<10	R	<100	<100	<100	<100
Acetonitrile	<50	<50	R	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25 J	<25	<25	<25	<25
Benzene	3.6	3.7	2.8	1.6	0.72 J	0.80 J	<1.0
Bromochloromethane	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Bromoform	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<1	<1	<1	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1	<1	<1	1.1	<1.0	<1.0	<1.0
Chloroform	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1	<1	<1	2.3	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Diethylether	<10	<10	<10	<10	1.8 J	2.1 J	1.8 J
Ethylbenzene	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Furan	<5	<5	<5	<2.0	<2.0	<10	<10
Isopropylbenzene	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5	<5	<5	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<50	<50	<50	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Propionitrile	NA	NA	NA	<25	<25	<25	<25
Tetrachloroethene	<1	<1	<1	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29						
Top of Screen Depth	55	55	55	55	55	55	55
Sample Date	10/09/98	10/09/98	04/16/99	09/10/03	05/03/04	07/28/05	12/08/06
Sample ID	GWGM-29	GWGM-99	GWGM-29	GM-29	GWGM-29 (5/3/04)	GWGM-29 (07/28/05)	GWGM-29 (12/8/06)
Tetrahydrofuran	<5	<5	R	<2.0	<2.0	<10	<10
Toluene	1.6	1.6	1.2	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1	<1	1.1	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
Xylene, o	<1	<1	<1	NA	NA	NA	NA
Xylenes (total)	<3	<3	<3	<3.0	<3.0	<3.0	<3.0
Xylenes, m+p	<2	<2	<2	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)					GM-30
Top of Screen Depth	55	55	55	55	55	75
Sample Date	02/20/07	05/09/07	08/07/07	11/06/07	11/06/07	10/27/98
Sample ID	GWGM-29 (2/20/07)	GWGM-29 (5/9/07)	GWGM-29 (8/7/07)	DUP-999(11/6/07)	GWGM-29(11/6/07)	GWGM-30
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	<2.0	<1
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1
2-Butanone (MEK)	<50	<50	<50	<50	<50	<10
2-Hexanone	<50	<50	<50	<50	<50	<10
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50	<50	<10
Acetone	<100	<100	<100	<100	<100	<10
Acetonitrile	<50	<50	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25	<25	<25	<25
Benzene	1.4	2.4	1.5	0.68 J B	0.69 J B	<1
Bromochloromethane	<1.0 *	<1.0	<1.0	0.39 J	0.41 J	<1
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0	<1
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	<5.0	<1
Chlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1
Chloroform	<1.0	<1.0	<1.0	<1.0	<1.0	<1
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1
Diethylether	2.5 J	4.5 J	2.7 J	2.5 J	2.4 J	<10
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1
Furan	<10	<10	<10	<10	<10	<5
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1
Methyl iodide	<5.0	<5.0	<5.0	<5.0	<5.0	<5
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0	<5.0	<50
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<1
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1
Propionitrile	<25	<25	<25	<25	<25	NA
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)					GM-30
Top of Screen Depth	55	55	55	55	55	75
Sample Date	02/20/07	05/09/07	08/07/07	11/06/07	11/06/07	10/27/98
Sample ID	GWGM-29 (2/20/07)	GWGM-29 (5/9/07)	GWGM-29 (8/7/07)	DUP-999(11/6/07)	GWGM-29(11/6/07)	GWGM-30
Tetrahydrofuran	<10	0.76 J	<10	<10	<10	<5
Toluene	0.65 J	1	0.56 J B	0.37 J	0.35 J	1.2
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<1
Xylene, o	NA	NA	NA	NA	NA	<1
Xylenes (total)	<3.0	<3.0	<3.0	<3.0	<3.0	<3
Xylenes, m+p	NA	NA	NA	NA	NA	<2

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-30 (continued)		GM-31		GM-32				
Top of Screen Depth	75	75	105	105	135	135	135	135	135
Sample Date	05/12/99	05/12/99	10/24/98	05/03/99	10/25/98	04/27/99	09/25/03	05/26/04	09/25/03
Sample ID	GWGM-30	GWGM-83	GWGM-31	GWGM-31	GWGM-32	GWGM-32	GM-32	GWGM-32(5/26/04)	GM-32-DL
1,1-Dichloroethane	<1	<1	<1	<1	<50	<40	<5.0	<10	<10
1,1-Dichloroethene	<1	<1	<1	<1	<50	<40	<5.0	<10	<10
1,2,4-Trimethylbenzene	<1	<1	<1	<1	<50	<40	5.9	6.0 J	17 D
1,2-Dichloroethene (total)	<1	<1	<1	<1	<50	<40	<10	<20	<20
1,3,5-Trimethylbenzene	<1	<1	<1	<1	<50	<40	<5.0	<10	<10
2-Butanone (MEK)	R	R	<10	<10	1,800	1,700	1,900	1,700	1,500 D
2-Hexanone	<10	<10	<10 J	<10 J	<500 J	<400 J	270	160 J	300 D
4-Methyl-2-pentanone (MIBK)	<10	<10	<10	<10 J	<500	<400 J	<50	<500	<100
Acetone	R	R	<10 J	R	**2,900 J**	**2,600 J**	**3,100 E**	**3,200**	**1,800 D**
Acetonitrile	R	R	<50	R	<2500	R	<200	<500	1,700 D
Acrylonitrile	R	R	<25	R	<50	R	<100	<250	<200
Benzene	<1	<1	<1	<1	<50	<40	15	15	19 D
Bromochloromethane	<1	<1	<1	<1	<50	<40	<5.0	<10	<10
Bromoform	<1	<1	<1	<1	<50	<40	<5.0	<10	<10
Bromomethane	<1 J	<1 J	<1	<1	<50	<40	<5.0	<10	<10
Carbon disulfide	<1	<1	<1	3.4	<50	150	7.7	8.2 J	<10
Chlorobenzene	<1	<1	<1	<1	<50	<40	<5.0	<10	<10
Chloroethane	<1 J	<1 J	<1	<1	<50	<40	<5.0	<10	<10
Chloroform	<1	<1	<1	<1	<50	<40	<5.0	<10	<10
Chloromethane	<1	<1	<1	<1	<50	<40	<5.0	<10	<10
cis-1,2-Dichloroethene	<1	<1	<1	<1	<50	<40	<5.0	<10	<10
Diethylether	<10 J	<10 J	<10	<10	<500	<400	<10	4.2 J	<20
Ethylbenzene	<1	<1	<1	<1	<50	<40	5.7	5.9 J	13 D
Furan	<5	<5	<5	<5	<250	<200	<25	24	<50
Isopropylbenzene	<1	<1	<1	<1	<50	<40	<5.0	<10	<10
Methyl iodide	<5	<5	<5	<5	<50	<40	<5.0	<50	<10
Methyl(tert)butyl ether	<50	<50	<50	<50	<2,500	<2,000	<50	<50	<100
Methylene chloride	<1.1	<1.2	<1	<1	<50	<40	<25	<10	<50
n-Propylbenzene	<1	<1	<1	<1	<50	<40	<5.0	<10	<10
Propionitrile	NA	NA	NA	NA	NA	NA	<100	<250	<200
Tetrachloroethene	<1	<1	<1	<1	<50	<40	<5.0	3.7 J	10 D

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-30 (continued)		GM-31		GM-32				
Top of Screen Depth	75	75	105	105	135	135	135	135	135
Sample Date	05/12/99	05/12/99	10/24/98	05/03/99	10/25/98	04/27/99	09/25/03	05/26/04	09/25/03
Sample ID	GWGM-30	GWGM-83	GWGM-31	GWGM-31	GWGM-32	GWGM-32	GM-32	GWGM-32(5/26/04)	GM-32-DL
Tetrahydrofuran	R	R	<5	R	<250	R	<25	38	<50
Toluene	<1	<1	<1	<1	<50	<40	22	21	46 D
trans-1,2-Dichloroethene	<1	<1	<1	<1	<50	<40	<5.0	<10	<10
Trichloroethene	<1	<1	<1	<1	<50	<40	6.7	7.4 J	<10
Vinyl chloride	<1	<1	<1	<1	<50	<40	<5.0	<10	<10
Xylene, o	<1	<1	<1	<1	<50	<40	NA	NA	NA
Xylenes (total)	<3	<3	<3	<3	<150	<120	26	26 J	**68 D**
Xylenes, m+p	<2	<2	<2	<2	<100	<80	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-33		GM-34A			GM-34B		
Top of Screen Depth	74	74	30	30	30	85	85	85
Sample Date	12/03/98	05/10/99	10/08/98	04/17/99	04/29/04	10/12/98	04/14/99	09/24/03
Sample ID	GWGM-33	GWGM-33	GWGM-34A	GWGM-34A	GWGM-34A (4/29/04)	GWGM-34B	GWGM-34B	GM-34B
1,1-Dichloroethane	<1	<1	<1	<1	<1.0	<1	<1	<1.0
1,1-Dichloroethene	<1	<1	<1	<1	<1.0	<1	<1	<1.0
1,2,4-Trimethylbenzene	<1	<1	<1	<1 J	<1.0	<1	<1	<1.0
1,2-Dichloroethene (total)	<1	<1	<1	<1	<2.0	<1	<1	<2.0
1,3,5-Trimethylbenzene	<1	<1	<1	<1 J	<1.0	<1	<1	<1.0
2-Butanone (MEK)	<10	<10	<10	<10 J	<50	<10	<10 J	<10
2-Hexanone	<10	<10	<10	<10	<50	<10	<10	<10
4-Methyl-2-pentanone (MIBK)	<10	<10	<10	<10 J	<50	<10	<10 J	<10
Acetone	<10	R	<10	R	<100	<10	R	<25
Acetonitrile	<50	R	<50	R	<50	<50	R	<40
Acrylonitrile	<25	<25 J	<25	<25 J	<25	<25	R	<20
Benzene	<1	<1	<1	<1	<1.0	<1	<1	<1.0
Bromochloromethane	<1	<1	<1	<1	<1.0	<1	<1	<1.0
Bromoform	<1	<1	<1	<1	<1.0	<1	<1	<1.0
Bromomethane	<1	<1	<1	<1	<1.0	<1	<1	<1.0
Carbon disulfide	1.8	<1	<1	<1	<5.0	<1	<1	<1.0
Chlorobenzene	<1	<1	<1	<1	<1.0	<1	<1	<1.0
Chloroethane	<1	<1	<1	<1	<1.0	<1	<1	<1.0
Chloroform	<1	<1	<1	1	<1.0	<1	1.8	<1.0
Chloromethane	<1	<1	<1	<1	<1.0	<1	<1	<1.0
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1.0	<1	<1	<1.0
Diethylether	<10	<10	<10	<10	<10	<10	<10	<2.0
Ethylbenzene	<1	<1	<1	<1	<1.0	<1	<1	<1.0
Furan	<5	<5	<5	<5	<2.0	<5	<5	<5.0
Isopropylbenzene	<1	<1	<1	<1	<1.0	<1	<1	<1.0
Methyl iodide	<5	<5	<5	<5	<5.0	<5	<5	<1.0
Methyl(tert)butyl ether	<50	<50	<50	<50	<5.0	<50	<50	<10
Methylene chloride	<1	<1	<1	<1	<1.0	<1	<1	<5.0
n-Propylbenzene	<1	<1	<1	<1 J	<1.0	<1	<1	<1.0
Propionitrile	NA	NA	NA	NA	<25	NA	NA	<20
Tetrachloroethene	<1	<1	<1	<1	<1.0	<1	<1	1.5

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-33		GM-34A			GM-34B		
Top of Screen Depth	74	74	30	30	30	85	85	85
Sample Date	12/03/98	05/10/99	10/08/98	04/17/99	04/29/04	10/12/98	04/14/99	09/24/03
Sample ID	GWGM-33	GWGM-33	GWGM-34A	GWGM-34A	GWGM-34A (4/29/04)	GWGM-34B	GWGM-34B	GM-34B
Tetrahydrofuran	<5	R	<5	R	<2.0	<5	R	<5.0
Toluene	<1	<1	<1	<1	<1.0	<1	<1	<1.0
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1.0	<1	<1	<1.0
Trichloroethene	<1	<1	<1	<1	<1.0	<1	<1	<1.0
Vinyl chloride	<1	<1	<1	<1	<1.0	<1	<1	<1.0
Xylene, o	<1	<1	<1	<1	NA	<1	<1	NA
Xylenes (total)	<3	<3	<3	<3	<3.0	<3	<3	<2.0
Xylenes, m+p	<2	<2	<2	<2	NA	<2	<2	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-34B (continued)	GM-35			GM-36			GM-37A
Top of Screen Depth	85	40	40	40	95	95	95	144
Sample Date	04/28/04	11/04/98	05/04/99	05/04/99	11/03/98	05/05/99	05/04/04	11/18/98
Sample ID	GWGM-34B (4/28/04)	GWGM-35	GWGM-35	GWGM-84	GWGM-36	GWGM-36	GWGM-36 (5/4/04)	GWGM-37A
1,1-Dichloroethane	<1.0	<1	<1	<1	<1	<1	<1.0	<12
1,1-Dichloroethene	<1.0	<1	<1	<1	<1	<1	<1.0	<12
1,2,4-Trimethylbenzene	<1.0	1.2	<1	<1	<1	<1	<1.0	<12
1,2-Dichloroethene (total)	<2.0	<1	<1	<1	<1	<1	<2.0	<12
1,3,5-Trimethylbenzene	<1.0	<1	<1	<1	<1	<1	<1.0	<12
2-Butanone (MEK)	<50	<10	<10	<10	<10	<10	<50	760
2-Hexanone	<50	<10	<10	<10	<10	<10	<50	<120
4-Methyl-2-pentanone (MIBK)	<50	<10	<10	<10	<10	<10	<50	<120
Acetone	<100	<10	R	R	<10	R	<100	910
Acetonitrile	<50	<50	R	R	<50	R	<50	<620
Acrylonitrile	<25	<25	R	R	<25	R	<25	<25
Benzene	<1.0	<1	<1	<1	<1	<1	<1.0	<12
Bromochloromethane	<1.0	<1	<1	<1	<1	<1	<1.0	<12
Bromoform	<1.0	<1	<1	<1	<1	<1	<1.0	<12
Bromomethane	<1.0	<1	<1 J	<1 J	<1	<1 J	<1.0	<12
Carbon disulfide	<5.0	<1	<1	<1	<1	<1	<5.0	19
Chlorobenzene	<1.0	<1	<1	<1	<1	<1	<1.0	<12
Chloroethane	<1.0	<1	<1 J	<1 J	<1	<1 J	<1.0	<12
Chloroform	0.45 J	<1	<1	<1	<1	<1	<1.0	<12
Chloromethane	<1.0	<1	<1	<1	<1	<1	<1.0	<12
cis-1,2-Dichloroethene	<1.0	<1	<1	<1	<1	<1	<1.0	<12
Diethylether	1.5 J	<10	<10	<10	<10	<10	<10	<120
Ethylbenzene	<1.0	<1	<1	<1	<1	<1	<1.0	<12
Furan	<2.0	<5	<5	<5	<5	<5	<2.0	<62
Isopropylbenzene	<1.0	<1	<1	<1	<1	<1	<1.0	<12
Methyl iodide	<5.0	<5	<5	<5	<5	<5	<5.0	<12
Methyl(tert)butyl ether	<5.0	<50	<50	<50	<50	<50	<5.0	<620
Methylene chloride	<1.0	<1	<1	<1	<1	<1	<1.0	<12
n-Propylbenzene	<1.0	<1	<1	<1	<1	<1	<1.0	<12
Propionitrile	<25	NA	NA	NA	NA	NA	<25	NA
Tetrachloroethene	7.4	<1	<1	<1	<1	<1	2.5	<12

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-34B (continued)	GM-35			GM-36			GM-37A
Top of Screen Depth	85	40	40	40	95	95	95	144
Sample Date	04/28/04	11/04/98	05/04/99	05/04/99	11/03/98	05/05/99	05/04/04	11/18/98
Sample ID	GWGM-34B (4/28/04)	GWGM-35	GWGM-35	GWGM-84	GWGM-36	GWGM-36	GWGM-36 (5/4/04)	GWGM-37A
Tetrahydrofuran	<2.0	<5	R	R	<5	R	<2.0	<62
Toluene	<1.0	<1	<1	<1	<1	<1	<1.0	<12
trans-1,2-Dichloroethene	<1.0	<1	<1	<1	<1	<1	<1.0	<12
Trichloroethene	0.46 J	<1	<1	<1	<1	<1	<1.0	<12
Vinyl chloride	<1.0	<1	<1	<1	<1	<1	<1.0	<12
Xylene, o	NA	<1	<1	<1	<1	<1	NA	<12
Xylenes (total)	<3.0	<3	<3	<3	<3	<3	<3.0	<38
Xylenes, m+p	NA	<2	<2	<2	<2	<2	NA	<25

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-37A (continued)			GM-37B				
Top of Screen Depth	144	144	144	328	328	328	328	328
Sample Date	05/11/99	09/25/03	05/17/04	10/13/98	05/14/99	09/25/03	05/27/04	09/25/03
Sample ID	GWGM-37A	GM-37A	GWGM-37A (5/17/04)	GWGM-37B	GWGM-37B	GM-37B	GWGM-37B (5/27/04)	GM-37B-DL
1,1-Dichloroethane	<25	<1.0	<1.0	<25	<25	<1.0	<1.0	<4.0
1,1-Dichloroethene	<25	<1.0	<1.0	<25	<25	<1.0	<1.0	<4.0
1,2,4-Trimethylbenzene	<25	<1.0	2.3	<25	<25	3	3.3	<4.0
1,2-Dichloroethene (total)	<25	<2.0	<2.0	<25	<25	<2.0	<2.0	<8.0
1,3,5-Trimethylbenzene	<25	<1.0	<1.0	<25	<25	<1.0	<1.0	<4.0
2-Butanone (MEK)	790 J	210	330	1,100	870 J	480 E	290	540 D
2-Hexanone	<250	35	34 J	<250	<250	120	63	130 D
4-Methyl-2-pentanone (MIBK)	<250	<10	4.6 J	<250	<250	<10	11 J	<40
Acetone	1,100 J	350	300	930	1,200 J	650 E	290	680 D
Acetonitrile	R	<40	<50	<1,200	R	<40	<50	<160
Acrylonitrile	R	<20	<25	<25	R	<20	<25	<80
Benzene	<25	1.8	4.1	<25	<25	9.8	10	8.2 D
Bromochloromethane	<25	<1.0	<1.0	<25	<25	<1.0	<1.0	<4.0
Bromoform	<25	<1.0	<1.0	<25	<25	<1.0	<1.0	<4.0
Bromomethane	<25	<1.0	<1.0	<25	<25 J	<1.0	<1.0	<4.0
Carbon disulfide	40	<1.0	<5.0	42	<25	<1.0	0.94 J	<4.0
Chlorobenzene	<25	<1.0	<1.0	<25	<25	<1.0	<1.0	<4.0
Chloroethane	<25	<1.0	<1.0	<25	<25 J	<1.0	<1.0	<4.0
Chloroform	<25	<1.0	<1.0	<25	<25	<1.0	<1.0	<4.0
Chloromethane	<25	<1.0	<1.0	<25	<25	<1.0	<1.0	<4.0
cis-1,2-Dichloroethene	<25	<1.0	<1.0	<25	<25	<1.0	0.84 J	<4.0
Diethylether	<250	<2.0	3.3 J	<250	<250 J	4.7	3.7 J	<8.0
Ethylbenzene	<25	<1.0	2.4	<25	<25	4.2	4	<4.0
Furan	<120	<5.0	9.4	<120	<120	7.7	9.5	<20
Isopropylbenzene	<25	<1.0	<1.0	<25	<25	<1.0	<1.0	<4.0
Methyl iodide	<25	<1.0	<5.0	<25	<25	<1.0	0.38 JB	<4.0
Methyl(tert)butyl ether	<1,200	<10	<5.0	<1,200	<1,200	<10	<5.0	<40
Methylene chloride	<27 KB	<5.0	<1.0	<25	<25	<5.0	<1.0	<20
n-Propylbenzene	<25	<1.0	<1.0	<25	<25	<1.0	<1.0	<4.0
Propionitrile	NA	<20	<25	NA	NA	<20	<25	<80
Tetrachloroethene	<25	<1.0	2.8	<25	<25	<1.0	1.3	<4.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-37A (continued)			GM-37B				
Top of Screen Depth	144	144	144	328	328	328	328	328
Sample Date	05/11/99	09/25/03	05/17/04	10/13/98	05/14/99	09/25/03	05/27/04	09/25/03
Sample ID	GWGM-37A	GM-37A	GWGM-37A (5/17/04)	GWGM-37B	GWGM-37B	GM-37B	GWGM-37B (5/27/04)	GM-37B-DL
Tetrahydrofuran	R	<5.0	9.9	<120	R	9.2	43	<20
Toluene	<25	2.7	8.2	<25	<25	15	15	12 D
trans-1,2-Dichloroethene	<25	<1.0	<1.0	<25	<25	<1.0	<1.0	<4.0
Trichloroethene	<25	<1.0	<1.0	<25	<25	2.2	2.4	<4.0
Vinyl chloride	<25	<1.0	<1.0	<25	<25	<1.0	<1.0	<4.0
Xylene, o	<25	NA	NA	<25	<25	NA	NA	NA
Xylenes (total)	<75	3.4	10	<75	<75	16	16	13 D
Xylenes, m+p	<50	NA	NA	<50	<50	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-38A			GM-38B		GM-38C			GM-39
Top of Screen Depth	95	95	95	160	160	200	200	200	85
Sample Date	10/13/98	10/13/98	04/15/99	10/14/98	04/29/99	10/20/98	10/20/98	04/30/99	10/12/98
Sample ID	GWGM-38A	GWGM-98	GWGM-38A	GWGM-38B	GWGM-38B	GWGM-38C	GWGM-97	GWGM-38C	GWGM-39
1,1-Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethene (total)	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Butanone (MEK)	<10	<10	<10 J	<10	R	<10	<10	<10	<10
2-Hexanone	<10	<10	<10	<10	<10 J	<10	<10	<10 J	<10
4-Methyl-2-pentanone (MIBK)	<10	<10	<10 J	<10	<10 J	<10	<10	<10 J	<10
Acetone	<10	<10	R	<10	R	<10	<10	R	<10
Acetonitrile	<50	<50	R	<50	R	<50	<50	R	<50
Acrylonitrile	<25	<25	R	<25	R	<25	<25	R	<25
Benzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	<1	<1	<1	<1	<1	<1	1.6	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	2.4	2.5	3.8	<1	<1	<1	<1	<1	<1
Chloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Diethylether	<10	<10	<10	13	24	<10	<10	12	<10
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Furan	<5	<5	<5	<5	<5	<5	<5	<5	<5
Isopropylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl iodide	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl(tert)butyl ether	<50	<50	<50	<50	<50	<50	<50	<50	<50
Methylene chloride	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-Propylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Propionitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	<1	<1	R	<1	<1	<1	<1	<1	<1

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-38A			GM-38B		GM-38C			GM-39
Top of Screen Depth	95	95	95	160	160	200	200	200	85
Sample Date	10/13/98	10/13/98	04/15/99	10/14/98	04/29/99	10/20/98	10/20/98	04/30/99	10/12/98
Sample ID	GWGM-38A	GWGM-98	GWGM-38A	GWGM-38B	GWGM-38B	GWGM-38C	GWGM-97	GWGM-38C	GWGM-39
Tetrahydrofuran	<5	<5	<5	<5	R	<5	<5	R	<5
Toluene	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl chloride	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylene, o	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes (total)	<3	<3	<3	<3	<3	<3	<3	<3	<3
Xylenes, m+p	<2	<2	<2	<2	<2	<2	<2	<2	<2

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-39 (continued)		GM-40A			GM-40B		
Top of Screen Depth	85	85	75	75	75	120	120	120
Sample Date	04/15/99	04/15/99	10/26/98	04/28/99	05/03/04	10/26/98	04/27/99	05/19/04
Sample ID	GWGM-39	GWGM-89	GWGM-40A	GWGM-40A	GWGM-40A (5/3/04)	GWGM-40B	GWGM-40B	GWGM-40B (5/19/04)
1,1-Dichloroethane	<1	<1	<1	<1	<1.0	<25	<25	<10
1,1-Dichloroethene	<1	<1	<1	<1	<1.0	<25	<25	<10
1,2,4-Trimethylbenzene	<1	<1	<1	<1	<1.0	<25	<25	7.8 J
1,2-Dichloroethene (total)	<1	<1	<1	<1	<2.0	<25	93	<20
1,3,5-Trimethylbenzene	<1	<1	<1	<1	<1.0	<25	<25	<10
2-Butanone (MEK)	<10 J	<10 J	<10	R	1.6 J	1,100	1,200 J	1,100
2-Hexanone	<10	<10	<10 J	<10	<50	<250	<250	120
4-Methyl-2-pentanone (MIBK)	<10 J	<10 J	<10	<10 J	<50	<250	<250 J	16 J
Acetone	R	R	<10 J	R	<100	1,500	1,600 J	**1,900**
Acetonitrile	R	R	<50	R	<50	<1,200	R	<400
Acrylonitrile	R	R	<25	R	<25	<25	R	<200
Benzene	<1	<1	<1	<1	<1.0	<25	<25	13
Bromochloromethane	<1	<1	<1	<1	<1.0	<25	<25	<10
Bromoform	<1	<1	<1	<1	<1.0	<25	<25	<10
Bromomethane	<1	<1	<1	<1	<1.0	<25	<25	<10
Carbon disulfide	<1	<1	<1	<1	<5.0	38	<25	<10
Chlorobenzene	<1	<1	<1	<1	<1.0	<25	26	<10
Chloroethane	<1	<1	<1	<1	<1.0	<25	<25	<10
Chloroform	1	<1	<1	<1	<1.0	<25	<25	<10
Chloromethane	<1	<1	<1	<1	<1.0	<25	<25	<10
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1.0	<25	93	<10
Diethylether	<10	<10	<10	<10	<10	<250	<250	6.9 J
Ethylbenzene	<1	<1	<1	<1	<1.0	<25	<25	7.1 J
Furan	<5	<5	<5	<5	<2.0	<120	<120	15 J
Isopropylbenzene	<1	<1	<1	<1	<1.0	<25	<25	<10
Methyl iodide	<5	<5	<5	<5	<5.0	<25	<25	<10
Methyl(tert)butyl ether	<50	<50	<50	<50	<5.0	<1,200	<1,200	<100
Methylene chloride	<1	<1	<1	<1.2	<1.0	<25	<25	<50
n-Propylbenzene	<1	<1	<1	<1	<1.0	<25	<25	<10
Propionitrile	NA	NA	NA	NA	<25	NA	NA	<200
Tetrachloroethene	<1	<1	<1	<1	1.4	<25	<25	<10

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-39 (continued)		GM-40A			GM-40B		
Top of Screen Depth	85	85	75	75	75	120	120	120
Sample Date	04/15/99	04/15/99	10/26/98	04/28/99	05/03/04	10/26/98	04/27/99	05/19/04
Sample ID	GWGM-39	GWGM-89	GWGM-40A	GWGM-40A	GWGM-40A (5/3/04)	GWGM-40B	GWGM-40B	GWGM-40B (5/19/04)
Tetrahydrofuran	R	R	<5	R	<2.0	<120	R	29 J
Toluene	<1	<1	<1	<1	<1.0	28	30	17
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1.0	<25	<25	<10
Trichloroethene	1.2	1.1	<1	<1	<1.0	<25	<25	5.9 J
Vinyl chloride	<1	<1	<1	<1	<1.0	<25	<25	<10
Xylene, o	<1	<1	<1	<1	NA	<25	<25	NA
Xylenes (total)	<3	<3	<3	<3	<3.0	<75	<75	26
Xylenes, m+p	<2	<2	<2	<2	NA	<50	<50	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-41		GM-42		GM-49	GM-50		GM-51	
Top of Screen Depth	40	40	72	72	83.5	80.5	80.5	67	67
Sample Date	10/19/98	04/16/99	10/20/98	04/16/99	04/17/99	10/14/98	04/17/99	10/20/98	04/18/99
Sample ID	GWGM-41	GWGM-41	GWGM-42	GWGM-42	GWGM-49	GWGM-50	GWGM-50	GWGM-51	GWGM-51
1,1-Dichloroethane	1.4	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1	<1	<1	1.5	<1	<1
1,2,4-Trimethylbenzene	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1
1,2-Dichloroethene (total)	<1	<1	<1	<1	<1	11	18	<1	<1
1,3,5-Trimethylbenzene	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1
2-Butanone (MEK)	<10	<10 J	<10	<10 J	<10 J	<10	<10	<10	<10
2-Hexanone	<10	<10	<10	<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone (MIBK)	<10	<10	<10	<10 J	<10 J	<10	<10	<10	<10
Acetone	<10	R	<10	R	R	<10	R	<10	R
Acetonitrile	<50	R	<50	R	R	<50	R	<50	R
Acrylonitrile	<25	R	<25	<25 J	<25 J	<25	<25 J	<25	<25 J
Benzene	<1	<1	<1	<1	<1	4	$\boxed{6.4}$	<1	<1
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1	10	15	<1	<1
Diethylether	<10	<10	<10	<10	<10	<10	<10	<10	<10
Ethylbenzene	<1	<1	<1	<1	<1	2.3	4.3	<1	<1
Furan	<5	<5	<5	<5	<5	<5	<5	<5	<5
Isopropylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl iodide	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl(tert)butyl ether	<50	<50	<50	<50	<50	<50	<50	<50	<50
Methylene chloride	<1	<1	1.7	<1	<1	<1	<1	<1	<1.0
n-Propylbenzene	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1
Propionitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-41		GM-42		GM-49	GM-50		GM-51	
Top of Screen Depth	40	40	72	72	83.5	80.5	80.5	67	67
Sample Date	10/19/98	04/16/99	10/20/98	04/16/99	04/17/99	10/14/98	04/17/99	10/20/98	04/18/99
Sample ID	GWGM-41	GWGM-41	GWGM-42	GWGM-42	GWGM-49	GWGM-50	GWGM-50	GWGM-51	GWGM-51
Tetrahydrofuran	<5	R	<5	R	R	<5	R	<5	R
Toluene	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	1.2	2.5	<1	<1
Trichloroethene	<1	<1	<1	<1	1.2 J	<1	1.4	<1	<1
Vinyl chloride	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylene, o	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes (total)	<3	<3	<3	<3	<3	<3	<3	<3	<3
Xylenes, m+p	<2	<2	<2	<2	<2	<2	<2	<2	<2

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-52	GM-53A	GM-53B		GM-54		GM-55		
Top of Screen Depth	75	79	195	195	80	80	75	75	75
Sample Date	04/19/99	04/19/99	11/05/98	05/01/99	10/24/98	05/01/99	10/24/98	05/01/99	05/01/99
Sample ID	GWGM-52	GWGM-53A	GWGM-53B	GWGM-53B	GWGM-54	GWGM-54	GWGM-55	GWGM-55	GWGM-85
1,1-Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	1.1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	<1 J	<1	1	1	<1	<1	<1	<1	<1
1,2-Dichloroethene (total)	4.7	<1	<1	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	<1 J	<1 J	<1	<1	<1	<1	<1	<1	<1
2-Butanone (MEK)	<10 J	<10	<10	<10	<10	<10	<10	<10	<10
2-Hexanone	<10	<10	<10	<10 J	<10 J	<10 J	<10 J	<10 J	<10 J
4-Methyl-2-pentanone (MIBK)	<10 J	<10	<10	<10 J	<10	<10 J	<10	<10 J	<10 J
Acetone	R	R	<10	R	<10 J	R	<10 J	R	R
Acetonitrile	R	R	<50	R	<50	R	<50	R	R
Acrylonitrile	<25 J	R	<25	R	<25	R	<25	R	R
Benzene	2	<1	7.6	9.2	<1	<1	<1	<1	<1
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	<1	<1	4.3	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	3.4	<1	<1	<1	<1	<1	<1	<1	<1
Diethylether	<10	<10	25	16	<10	<10	<10	<10	<10
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Furan	<5	<5	<5	<5	<5	<5	<5	<5	<5
Isopropylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl iodide	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl(tert)butyl ether	<50	<50	<50	<50	<50	<50	<50	<50	<50
Methylene chloride	<1	<1	<1	<1	<1	<1	<1	<1.6	<1
n-Propylbenzene	<1 J	<1 J	<1	<1	<1	<1	<1	<1	<1
Propionitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-52	GM-53A	GM-53B		GM-54		GM-55		
Top of Screen Depth	75	79	195	195	80	80	75	75	75
Sample Date	04/19/99	04/19/99	11/05/98	05/01/99	10/24/98	05/01/99	10/24/98	05/01/99	05/01/99
Sample ID	GWGM-52	GWGM-53A	GWGM-53B	GWGM-53B	GWGM-54	GWGM-54	GWGM-55	GWGM-55	GWGM-85
Tetrahydrofuran	R	R	9.9	6.0 J	<5	R	<5	R	R
Toluene	<1	<1	2.7	3	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	1.3	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	1.4	1.1	2.7	2.8	<1	<1	<1	<1	<1
Vinyl chloride	<1	<1	<1	NA	<1	<1	<1	<1	<1
Xylene, o	<1	<1	<1	1.7	<1	<1	<1	<1	<1
Xylenes (total)	<3	<3	3.8	4.1	<3	<3	<3	<3	<3
Xylenes, m+p	<2	<2	<2	2.4	<2	<2	<2	<2	<2

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-56		GM-57	GM-58	GM-59		GM-60	GM-61	GM-62A
Top of Screen Depth	32	32	76	75	114	114	102	138	90
Sample Date	10/21/98	04/20/99	04/20/99	04/26/99	11/17/98	04/28/99	05/12/99	05/03/99	08/23/99
Sample ID	GWGM-56	GWGM-56	GWGM-57	GWGM-58	GWGM-59	GWGM-59	GWGM-60	GWGM-61	GWGM-62A
1,1-Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
1,1-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
1,2,4-Trimethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	0.60 J
1,2-Dichloroethene (total)	<1	<1	<1	<1	<1	<1	<1	<1	<2.0
1,3,5-Trimethylbenzene	<1	<1 J	<1	<1	<1	<1	<1	<1	<1.0
2-Butanone (MEK)	<10	<10	<10	R	<10	R	R	R	<50
2-Hexanone	<10	<10	<10	<10	<10	<10	<10	<10 J	<50
4-Methyl-2-pentanone (MIBK)	<10	<10	<10	<10 J	<10	<10 J	<10	<10 J	<50
Acetone	<10	R	R	R	<10	R	R	R	<100
Acetonitrile	<50	R	<50 J	R	<50	R	R	R	<50
Acrylonitrile	<25	R	<25	R	<25	R	R	R	<25
Benzene	<1	<1	<1	<1	<1	<1	<1	<1	1.2
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
Carbon disulfide	<1	<1	<1	<1	<1	<1	<1	<1	<5.0
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
Chloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
Chloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
Diethylether	<10	<10	<10	<10	<10	<10	<10	<10	<10
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	0.85 J
Furan	<5	<5	<5	<5	<5	<5	<5	<5	NA
Isopropylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
Methyl iodide	<5	<5	<5	<5	<5	<5	<5	<5	<5.0
Methyl(tert)butyl ether	<50	<50	<50	<50	<50	<50	<50	<50	<5.0
Methylene chloride	<1	<1	<1	<1	1.2	<1	<1	<1	<1.0
n-Propylbenzene	<1	<1 J	<1	<1	<1	<1	<1	<1	<1.0
Propionitrile	NA	NA	NA	NA	NA	NA	NA	NA	<25
Tetrachloroethene	<1	<1	<1	<1	<1	<1	<1	<1 J	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-56		GM-57	GM-58	GM-59		GM-60	GM-61	GM-62A
Top of Screen Depth	32	32	76	75	114	114	102	138	90
Sample Date	10/21/98	04/20/99	04/20/99	04/26/99	11/17/98	04/28/99	05/12/99	05/03/99	08/23/99
Sample ID	GWGM-56	GWGM-56	GWGM-57	GWGM-58	GWGM-59	GWGM-59	GWGM-60	GWGM-61	GWGM-62A
Tetrahydrofuran	<5	R	<5 J	<5 J	<5	R	R	R	NA
Toluene	<1	<1	<1	<1	<1	<1	<1	21	1.6
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
Trichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
Vinyl chloride	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
Xylene, o	<1	<1	<1	<1	<1	<1	<1	<1	NA
Xylenes (total)	<3	<3	<3	<3	<3	<3	<3	<3	2.4 J
Xylenes, m+p	<2	<2	<2	<2	<2	<2	<2	<2	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-62A (continued)	GM-62B			GM-62C	
Top of Screen Depth	90	195	195	195	315	315
Sample Date	05/11/04	08/24/99	08/24/99	05/19/04	08/24/99	05/18/04
Sample ID	GWGM-62A (5/11/04)	GWGM-62B	GWGM-82	GWGM-62B (5/19/04)	GWGM-62C	GWGM-62C (5/18/04)
1,1-Dichloroethane	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	2	2	<5.0	2.3	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<10	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
2-Butanone (MEK)	<50	1,300 D	1,300 D	540	780	390
2-Hexanone	<50	<50	<50	43 J	<50	38 J
4-Methyl-2-pentanone (MIBK)	<50	130	130	<250	160	<50
Acetone	<100	940	940	660	690	690 E
Acetonitrile	<50	<50	<50	<250	<50	<50
Acrylonitrile	<25	<25	<25	<120	<25	<25
Benzene	0.45 J	13	13	4.7 J	9.1	2.1
Bromochloromethane	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	<25	<5.0	4.2 J
Chlorobenzene	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Chloromethane	<1.0	3.5	3.7	<5.0	3.6	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	0.67 J	<5.0	0.53 J	<1.0
Diethylether	<10	<10	<10	<50	<10	1.3 J
Ethylbenzene	0.40 J	2.6	2.6	<5.0	6.4	1.3
Furan	<2.0	NA	NA	6.4 J	NA	1.6 J
Isopropylbenzene	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<25	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<25	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<120	<25	<25
Tetrachloroethene	3.8	<1.0	<1.0	2.2 J	<1.0	1.9

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-62A (continued)	GM-62B			GM-62C	
Top of Screen Depth	90	195	195	195	315	315
Sample Date	05/11/04	08/24/99	· 08/24/99	05/19/04	08/24/99	05/18/04
Sample ID	GWGM-62A (5/11/04)	GWGM-62B	GWGM-82	GWGM-62B (5/19/04)	GWGM-62C	GWGM-62C (5/18/04)
Tetrahydrofuran	<2.0	NA	NA	45	NA	12
Toluene	0.65 J	16	16	<5.0	15	6.1
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Trichloroethene	0.60 J	1	1.1	<5.0	2.5	0.60 J
Vinyl chloride	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	12	13	<15	15	3.4
Xylenes, m+p	NA	NA	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-62C (continued)	GM-63A				GM-63B	
Top of Screen Depth	315	45	45	45	45	105	105
Sample Date	05/18/04	08/29/00	09/19/00	09/15/03	05/05/04	02/07/01	09/11/03
Sample ID	GWGM-62C (5/18/04)-DL	GWGM-63A	GWGM-63A	GM-63A	GWGM-63A (5/5/04)	GWGM-63B	GM-63B
1,1-Dichloroethane	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<5.0	<1.0	1.4	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<5.0	<1.0	0.53 J	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	190 DJ	<50	<50	<50	<50	<50	<50
2-Hexanone	20 DJ	<50	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<250	<50	<50	<50	<50	<50	<50
Acetone	220 DJ	<100	<100	<100	<100	R	<100
Acetonitrile	<250	<50	<50 J	<50	<50	<50	<50
Acrylonitrile	<120	<25	<25	<25	<25	<25 J	<25
Benzene	1.8 DJ	9.5	17	5.9	8.6	<1.0	<1.0
Bromochloromethane	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	<5.0	<1.0 J	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<5.0	<1.0	<1.0 J	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<25	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.3
cis-1,2-Dichloroethene	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Diethylether	1.1 DJ	<10	41	15	17	<10	<10
Ethylbenzene	<5.0	0.99 J	1.8	<1.0	1.4	<1.0	<1.0
Furan	1.4 DJ	NA	NA	<2.0	0.42 J	NA	<2.0
Isopropylbenzene	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<25	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<25	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<120	<25	<25	<25	<25	<25	<25
Tetrachloroethene	1.8 DJ	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-62C (continued)	GM-63A				GM-63B	
Top of Screen Depth	315	45	45	45	45	105	105
Sample Date	05/18/04	08/29/00	09/19/00	09/15/03	05/05/04	02/07/01	09/11/03
Sample ID	GWGM-62C (5/18/04)-DL	GWGM-63A	GWGM-63A	GM-63A	GWGM-63A (5/5/04)	GWGM-63B	GM-63B
Tetrahydrofuran	8.3 DJ	NA	NA	<2.0	<2.0	NA	<2.0
Toluene	4.7 DJ	5.8	12	4.4	7.4	<1.0	<1.0
trans-1,2-Dichloroethene	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	2.2 DJ	4.5	8.4	3.6	3.3	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-63B (continued)	GM-64A				GM-64B	
Top of Screen Depth	105	33	33	33	33	117	117
Sample Date	04/27/04	08/30/00	10/03/00	09/08/03	05/04/04	07/24/00	09/08/03
Sample ID	GWGM-63B (4/27/04)	GWGM-64A	GWGM-64A	GM-64A	GWGM-64A (5/4/04)	GWGM-64B	GM-64B
1,1-Dichloroethane	<1.0	<1.0	<1.0 J	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0 J	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0 J	<1.0	0.61 J	0.62 J	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	1.2 J	<2.0	4.1	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0 J	<1.0	0.54 J	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50 J	<50	<50	<50 J	<50
2-Hexanone	<50	<50	<50 J	<50	1.5 J	<50 J	<50
4-Methyl-2-pentanone (MIBK)	<50	<50	<50 J	<50	<50	<50	<50
Acetone	<100	<100	<100 J	<100	<100	<100 J	<100
Acetonitrile	<50	<50	<50 J	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25 J	<25	<25	R	<25
Benzene	<1.0	4.8	3.2 J	3.1	5.6	10	9.2
Bromochloromethane	<1.0	<1.0	<1.0 J	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0 J	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0 J	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	8.5 J	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<1.0	<1.0	<1.0 J	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0 J	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0 J	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0 J	1.4	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	0.91 J	0.66 J	<1.0	3.2	<1.0	<1.0
Diethylether	<10	<10	<10 J	<10	4.3 J	<10	17
Ethylbenzene	<1.0	1.8	1.2 J	1.9	2.8	1.2	1.2
Furan	<2.0	NA	NA	<2.0	0.19 J	NA	<2.0
Isopropylbenzene	<1.0	<1.0	<1.0 J	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0 J	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0 J	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<1.0	0.54 J	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0 J	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25 J	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0 J	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-63B (continued)	GM-64A				GM-64B	
Top of Screen Depth	105	33	33	33	33	117	117
Sample Date	04/27/04	08/30/00	10/03/00	09/08/03	05/04/04	07/24/00	09/08/03
Sample ID	GWGM-63B (4/27/04)	GWGM-64A	GWGM-64A	GM-64A	GWGM-64A (5/4/04)	GWGM-64B	GM-64B
Tetrahydrofuran	<2.0	NA	NA	<2.0	<2.0	NA	<2.0
Toluene	<1.0	3	1.7 J	1.8	3.1	6.2	5.4
trans-1,2-Dichloroethene	<1.0	<1.0	0.50 J	<1.0	0.87 J	<1.0	<1.0
Trichloroethene	<1.0	2.8	1.7 J	<1.0	1.2	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0 J	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	1.7 J	1.7 J	<3.0	3.1	5	5.3
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-64B (continued)	GM-66A				GM-66B
Top of Screen Depth	117	27	27	27	27	125
Sample Date	05/11/04	07/18/00	09/16/03	04/27/04	07/27/05	07/19/00
Sample ID	GWGM-64B (5/11/04)	GWGM-66A	GM-66A	GWGM-66A (4/27/04)	GWGM66A (072705)	GWGM-66B
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	0.72 J
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	0.50 J
2-Butanone (MEK)	<50	<50 J	<50	<50	<50	<50 J
2-Hexanone	<50	<50 J	<50	<50	<50	<50 J
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50	<50	<50
Acetone	<100	<100 J	<100	<100	<100	<100 J
Acetonitrile	<50	<50	<50	<50	<50	<50
Acrylonitrile	<25	R	<25	<25	<25	R
Benzene	11	<1.0	<1.0	<1.0	<1.0	7.5
Bromochloromethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	0.62 J
Diethylether	19	<10	<10	<10	<10	<10
Ethylbenzene	1.3	<1.0	<1.0	<1.0	<1.0	1.8
Furan	0.44 J	NA	<2.0	<2.0	<10	NA
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	2.1 J	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-64B (continued)	GM-66A				GM-66B
Top of Screen Depth	117	27	27	27	27	125
Sample Date	05/11/04	07/18/00	09/16/03	04/27/04	07/27/05	07/19/00
Sample ID	GWGM-64B (5/11/04)	GWGM-66A	GM-66A	GWGM-66A (4/27/04)	GWGM66A (072705)	GWGM-66B
Tetrahydrofuran	<2.0	NA	<2.0	<2.0	<10	NA
Toluene	13	<1.0	<1.0	<1.0	<1.0	16
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	0.64 J
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA	NA	NA
Xylenes (total)	5.6	<3.0	<3.0	<3.0	<3.0	5.4
Xylenes, m+p	NA	NA	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)					
Top of Screen Depth	125	125	125	125	125	125
Sample Date	08/03/00	09/11/03	05/10/04	07/27/05	12/08/06	03/01/07
Sample ID	GMGW-66B	GM-66B	GWGM-66B (5/10/04)	GWGM66B (072705)	GWGM-66B (12/8/06)	GWGM-66B (3/1/07)
1,1-Dichloroethane	<1	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1	1.1	0.98 J	1.3	0.66 J	<1.0
1,2-Dichloroethene (total)	<2	<2.0	1.4 J	1.8 J	<2.0	<2.0
1,3,5-Trimethylbenzene	<1	<1.0	<1.0	0.55 J	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	0.84 J	<50	<50
Acetone	<100	<100	<100	<100	<100	<100
Acetonitrile	<50	<50	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25	<25	<25	<25
Benzene	7.9	7.3	6.8	8.3	2.8	2.6
Bromochloromethane	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1 J	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5	5.5	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1 J	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1	1.4	1.4	1.8	1	0.79 J
Diethylether	R	<10	6.4 J	5.0 J	1.6 J	1.1 J
Ethylbenzene	1.5	2	1.5	2	0.88 J	0.72 J
Furan	NA	<2.0	<2.0	<10	<10	<10
Isopropylbenzene	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5	<5.0	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25	<25	<25
Tetrachloroethene	<1	<1.0	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)					
Top of Screen Depth	125	125	125	125	125	125
Sample Date	08/03/00	09/11/03	05/10/04	07/27/05	12/08/06	03/01/07
Sample ID	GMGW-66B	GM-66B	GWGM-66B (5/10/04)	GWGM66B (072705)	GWGM-66B (12/8/06)	GWGM-66B (3/1/07)
Tetrahydrofuran	NA	<2.0	<2.0	3.6 J	<10	<10
Toluene	5.5	5.4	14	5.9	5.3	10
trans-1,2-Dichloroethene	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	0.64 J	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA	NA	NA
Xylenes (total)	4.6	6.1	5.1	6.4	1.5 J	2.2 J
Xylenes, m+p	NA	NA	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)				GM-67	GM-68
Top of Screen Depth	125	125	125	125	122	140
Sample Date	05/14/07	05/14/07	08/14/07	11/09/07	08/07/00	08/31/00
Sample ID	GWGM-66B(5/14/07)	GWGM-999 (5/14/07)	GWGM-66B (8/14/07)	GWGM-66B (11/9/07)	GWGM-67	GWGM-68
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	0.68 J	0.63 J	0.76 J	0.73 J	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0 *	<2.0	1.2 J	1.3 J	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	0.35 J	0.34 J	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50	0.81 J	<50	<50
2-Hexanone	<50	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	0.57 J	<50	<50	<50	<50	<50
Acetone	<100	<100	<100	<100	<100	<100
Acetonitrile	<50	<50	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25	<25	<25	<25
Benzene	2.9	2.8	3.2	3.4	3	<1.0
Bromochloromethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0 J	<1.0
Carbon disulfide	<5.0	<5.0	<5.0 *	<5.0	<5.0	<5.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0 J	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	1.1	1.1	1.2	1.3	<1.0	<1.0
Diethylether	2.0 J	1.9 J	2.1 J	2.7 J	R	<10
Ethylbenzene	0.92 J	0.93 J	1.0 J	1.1	<1.0	<1.0
Furan	<10	<10	<10	<10	NA	NA
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0 *	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	$\boxed{7.5}$

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)				GM-67	GM-68
Top of Screen Depth	125	125	125	125	122	140
Sample Date	05/14/07	05/14/07	08/14/07	11/09/07	08/07/00	08/31/00
Sample ID	GWGM-66B(5/14/07)	GWGM-999 (5/14/07)	GWGM-66B (8/14/07)	GWGM-66B (11/9/07)	GWGM-67	GWGM-68
Tetrahydrofuran	1.3 J	1.3 J	1.7 J	1.0 J	NA	NA
Toluene	4.3	3.9	4.1	14	<1.0	0.99 J
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA	NA	NA
Xylenes (total)	3	2.9 J	3.2	3.5	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-68 (continued)	GM-70	GM-71	GM-72			
Top of Screen Depth	140	42	39	43	43	43	43
Sample Date	09/26/00	08/17/00	08/21/00	08/22/00	09/24/03	01/05/04	04/16/04
Sample ID	GWGM-68	GWGM-70	GWGM-71	GWGM-72	GM-72	GWGM-72	GM-72
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<20 *F65	<5.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<20 *F65	<5.0
1,2,4-Trimethylbenzene	<1.0	1.4	<1.0	17	**19**	<20 *F65	11
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	2.2	<40 *F65	<10
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	4.6	5	<20 *F65	3.2 J
2-Butanone (MEK)	<50	<50	<50	200	<10	<200 *F65	12 J
2-Hexanone	<50	<50	<50	<50	<10	<200 *F65	8.5 J
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50	<10	<200 *F65	10 J
Acetone	<100	<100	<100	260	<25	<500 *F65	<500
Acetonitrile	<50	<50	<50	<50	<40	<800 *F65	<250
Acrylonitrile	<25	<25	<25 J	<25 J	<20	<400 *F65	<120
Benzene	<1.0	0.58 J	<1.0	15	14	<20 *F65	8
Bromochloromethane	<1.0	<1.0 J	<1.0 J	<1.0 J	<1.0	<20 *F65	<5.0
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0	<20 *F65	<5.0
Bromomethane	<1.0 J	<1.0	<1.0	<1.0	<1.0	<20 *F65	<5.0
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	<1.0	<20 *F65	4.4 J
Chlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<20 *F65	<5.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<20 *F65	<5.0
Chloroform	<1.0	<1.0	<1.0	<1.0	<1.0	<20 *F65	<5.0
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1.0	<20 *F65	<5.0
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	2.2	<20 *F65	<5.0
Diethylether	<10	<10	<10	<10	<2.0	<40 *F65	3.7 J
Ethylbenzene	<1.0	0.58 J	<1.0	9.6	7.9	<20 *F65	4.8 J
Furan	NA	NA	NA	NA	<5.0	<200 *F65	<10
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<20 *F65	<5.0
Methyl iodide	<5.0	<5.0 J	<5.0 J	<5.0 J	<1.0	<20 *F65	<25
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0	<10	<200 *F65	<25
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<5.0	<100 *F65	<5.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0	2.8	<20 *F65	<5.0
Propionitrile	<25	<25	<25	<25	<20	<400 *F65	<120
Tetrachloroethene	1.5	1.5	6.8	1.8	<1.0	<20 *F65	<5.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-68 (continued)	GM-70	GM-71	GM-72			
Top of Screen Depth	140	42	39	43	43	43	43
Sample Date	09/26/00	08/17/00	08/21/00	08/22/00	09/24/03	01/05/04	04/16/04
Sample ID	GWGM-68	GWGM-70	GWGM-71	GWGM-72	GM-72	GWGM-72	GM-72
Tetrahydrofuran	NA	NA	NA	NA	<5.0	<200 *F65	40
Toluene	<1.0	0.94 J	<1.0	15	14	<20 *F65	7.8
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<20 *F65	<5.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<20 *F65	<5.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<20 *F65	<5.0
Xylene, o	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	3	<3.0	**53**	36	<40 *F65	23
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-72A			GM-73	GM-74	GM-75
Top of Screen Depth	46	46	46	42	34	24
Sample Date	11/08/07	07/25/05	12/12/06	09/06/00	09/07/00	09/08/00
Sample ID	GWGM-72A (11/8/07)	GWGM-72A (07/25/05)	GWGM-72A (12/12/06)	GWGM-73	GWGM-74	GWGM-75
1,1-Dichloroethane	<1.0	<2.0	<1.0	<1.0	<1.0 J	<1.0
1,1-Dichloroethene	<1.0	<2.0	<1.0	<1.0	<1.0 J	<1.0
1,2,4-Trimethylbenzene	13	15	14	<1.0	0.67 J	<1.0
1,2-Dichloroethene (total)	<2.0	15	5.3	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	3.6	3.9	3.9	<1.0	0.59 J	<1.0
2-Butanone (MEK)	33 J	200	<50	<50	<50	<50
2-Hexanone	12 J	58 J	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	9.9 J	30 J	<50	<50	<50	<50
Acetone	40 J	300	<100	<100	<100	<100
Acetonitrile	<50	<100	<50	<50	<50	<50
Acrylonitrile	<25	<50	<25	<25	<25	<25
Benzene	13	25	18	<1.0	<1.0	<1.0
Bromochloromethane	<1.0	<2.0	<1.0	<1.0	<1.0 J	<1.0
Bromoform	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<2.0	<1.0	<1.0	<1.0 J	<1.0
Carbon disulfide	<5.0	26	2.6 J	<5.0	<5.0	<5.0
Chlorobenzene	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<2.0	<1.0	<1.0	<1.0 J	<1.0
Chloroform	<1.0	<2.0	<1.0	<1.0	<1.0 J	<1.0
Chloromethane	<1.0	<2.0	<1.0	<1.0	<1.0 J	<1.0
cis-1,2-Dichloroethene	<1.0	15	5.3	<1.0	<1.0 J	<1.0
Diethylether	7.1 J	7.6 J	5.7 J	<10	<10	<10
Ethylbenzene	7.8	7.5	7.7	<1.0	<1.0	<1.0
Furan	3.1 J	2.7 J	2.1 J	NA	NA	NA
Isopropylbenzene	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<10	<5.0	<5.0 J	<5.0 J	<5.0 J
Methyl(tert)butyl ether	<5.0	<10	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<2.0	<1.0	<2.2	<1 J	<2.5
n-Propylbenzene	1.8	<2.0	<1.0	<1.0	0.62 J	<1.0
Propionitrile	<25	<50	<25	<25	<25	<25
Tetrachloroethene	<1.0	<2.0	<1.0	11	2.2	2.3

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-72A			GM-73	GM-74	GM-75
Top of Screen Depth	46	46	46	42	34	24
Sample Date	11/08/07	07/25/05	12/12/06	09/06/00	09/07/00	09/08/00
Sample ID	GWGM-72A (11/8/07)	GWGM-72A (07/25/05)	GWGM-72A (12/12/06)	GWGM-73	GWGM-74	GWGM-75
Tetrahydrofuran	<10	23	12	NA	NA	NA
Toluene	14	26	18	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	<1.0	<2.0	<1.0	<1.0	<1.0 J	<1.0
Trichloroethene	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1.0	<2.0	<1.0	<1.0	<1.0 J	<1.0
Xylene, o	NA	NA	NA	NA	NA	NA
Xylenes (total)	36	38	37	<3.0	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-76			GM-77			GM-78
Top of Screen Depth	3	3	3	105	105	105	20
Sample Date	01/29/01	01/29/01	09/09/05	09/22/03	05/11/04	07/28/05	09/18/03
Sample ID	DUP.012901	GWGM-76	GWGM-76 (9/9/05)	GM-77	GWGM-77 (5/11/04)	GWGM-77 (072805)	GM-78 (9/18/03)
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	0.45 J	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50	11	2.5 J	<50	<50
2-Hexanone	<50	<50	<50	<10	1.3 J	1.8 J	<50
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<10	<50	<50	<50
Acetone	R	R	<100	<25	<100	<100	<100
Acetonitrile	<50	<50	<50	<40	<50	<50	<50
Acrylonitrile	<25 J	<25 J	<25	<20	<25	<25	<25
Benzene	<1.0	<1.0	<1.0	8.3	7.2	8.2	<1.0
Bromochloromethane	<1.0 J	<1.0 J	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	<1.0	0.82 J	<5.0	<5.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	0.45 J	<1.0	<1.0
Diethylether	<10	<10	<10	10	8.4 J	9.0 J	<10
Ethylbenzene	<1.0	<1.0	<1.0	1.4	1.1	1.3	<1.0
Furan	NA	NA	<10	<5.0	0.28 J	<10	<2.0
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<1.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<20	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-76			GM-77			GM-78
Top of Screen Depth	3	3	3	105	105	105	20
Sample Date	01/29/01	01/29/01	09/09/05	09/22/03	05/11/04	07/28/05	09/18/03
Sample ID	DUP.012901	GWGM-76	GWGM-76 (9/9/05)	GM-77	GWGM-77 (5/11/04)	GWGM-77 (072805)	GM-78 (9/18/03)
Tetrahydrofuran	NA	NA	<2.0	<5.0	<2.0	5.8 J	<2.0
Toluene	<1.0	<1.0	<1.0	5.7	14	4.8	<1.0
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	<3.0	<3.0	4.7	3.9	4.4	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)				
Top of Screen Depth	20	20	20	20	20
Sample Date	04/29/04	07/29/05	07/29/05	12/08/06	02/28/07
Sample ID	GWGM-78 (4/29/04)	GWGM-78 (7/29/05)	GWGM-998 (7/29/05)	GWGM-78 (12/8/06)	GWGM-78 (2/28/07)
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	0.19 J	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50	<50
Acetone	<100	<100	<100	<100	<100
Acetonitrile	<50	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25	<25	<25
Benzene	0.98 J	1.2	1.2	<1.0	<1.0
Bromochloromethane	<1.0	<1.0	<1.0	<1.0	<1.0 *
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	0.59 J	<1.0	<1.0
Diethylether	0.60 J	0.52 J	0.47 J	<10	<10
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Furan	<2.0	<10	<10	<10	<10
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)				
Top of Screen Depth	20	20	20	20	20
Sample Date	04/29/04	07/29/05	07/29/05	12/08/06	02/28/07
Sample ID	GWGM-78 (4/29/04)	GWGM-78 (7/29/05)	GWGM-998 (7/29/05)	GWGM-78 (12/8/06)	GWGM-78 (2/28/07)
Tetrahydrofuran	<2.0	<10	<10	<10	1.2 J
Toluene	<1.0	0.97 J	0.90 J	<1.0	<1.0
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	<3.0	<3.0	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)				GM-79
Top of Screen Depth	20	20	20	20	25
Sample Date	02/28/07	05/11/07	08/14/07	11/08/07	09/18/03
Sample ID	GWGM-998 (2/28/07)	GWGM-78(5/11/07)	GWGM78 (8/14/07)	GWGM-78 (11/8/07)	GM-79 (9/18/03)
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50	<50
Acetone	<100	<100	<100	<100	<100
Acetonitrile	<50	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25	<25	<25
Benzene	<1.0	<1.0	<1.0	<1.0	1.2
Bromochloromethane	<1.0 *	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0 *	0.34 J	<5.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Diethylether	<10	<10	<10	<10	<10
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Furan	<10	<10	<10	<10	<2.0
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0 *	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)				GM-79
Top of Screen Depth	20	20	20	20	25
Sample Date	02/28/07	05/11/07	08/14/07	11/08/07	09/18/03
Sample ID	GWGM-998 (2/28/07)	GWGM-78(5/11/07)	GWGM78 (8/14/07)	GWGM-78 (11/8/07)	GM-79 (9/18/03)
Tetrahydrofuran	1.2 J	12	0.90 J	<10	<2.0
Toluene	<1.0	<1.0	<1.0	0.77 J	1.2
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	<3.0	<3.0	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)				
Top of Screen Depth	25	25	25	25	25
Sample Date	04/26/04	07/29/05	12/04/06	02/22/07	02/22/07
Sample ID	GWGM-79 (4/26/04)	GWGM-79 (7/29/05)	GWGM-79(12/4/06)	GWGM-79 (2/22/07)	GWGM-999 (2/22/07)
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	0.28 J	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	<50	<50 *	<50	<50
Acetone	<100	<100	<100	<100	<100
Acetonitrile	<50	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25	<25	<25
Benzene	1.1	1.6	<1.0	<1.0	<1.0
Bromochloromethane	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	0.64 J	0.56 J
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Diethylether	0.89 J	1.4 J	<10	<10	<10
Ethylbenzene	0.39 J	<1.0	<1.0	<1.0	<1.0
Furan	<2.0	<10	<10	<10	<10
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	1.46 JB	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)				
Top of Screen Depth	25	25	25	25	25
Sample Date	04/26/04	07/29/05	12/04/06	02/22/07	02/22/07
Sample ID	GWGM-79 (4/26/04)	GWGM-79 (7/29/05)	GWGM-79(12/4/06)	GWGM-79 (2/22/07)	GWGM-999 (2/22/07)
Tetrahydrofuran	<2.0	<10	<10	<10	<10
Toluene	0.99 J	1.5	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	0.80 J	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	1.5 J	<3.0	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)			GM-84	
Top of Screen Depth	25	25	25	77	77
Sample Date	05/09/07	08/07/07	11/06/07	08/19/04	08/01/05
Sample ID	GWGM-79 (5/9/07)	GWGM-79 (8/7/07)	GWGM-79(11/6/07)	GWGM-84 (8/19/04)	GWGM-84 (08/01/05)
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50	<50
Acetone	<100	<100	<100	<100	<100
Acetonitrile	<50	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25	<25	<25
Benzene	<1.0	0.39 J	<1.0	<1.0	<1.0
Bromochloromethane	<1.0	<1.0	0.37 J	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	0.42 J	<1.0	<1.0
Diethylether	<10	0.73 J	<10	<10	<10
Ethylbenzene	<1.0	<1.0	<1.0	0.54 J	<1.0
Furan	<10	<10	<10	<2.0	<10
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	4.8	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)			GM-84	
Top of Screen Depth	25	25	25	77	77
Sample Date	05/09/07	08/07/07	11/06/07	08/19/04	08/01/05
Sample ID	GWGM-79 (5/9/07)	GWGM-79 (8/7/07)	GWGM-79(11/6/07)	GWGM-84 (8/19/04)	GWGM-84 (08/01/05)
Tetrahydrofuran	<10	<10	<10	<2.0	<10
Toluene	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	<3.0	<3.0	2.4 J	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-84 (continued)				
Top of Screen Depth	77	77	77	77	77
Sample Date	12/12/06	03/02/07	05/14/07	08/14/07	11/09/07
Sample ID	GWGM-84 (12/12/06)	GWGM-84 (3/2/07)	GWGM-84 (5/14/07)	GWGM-84 (8/14/07)	GWGM-84(11/9/07)
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50	<50
Acetone	<100	<100	<100	<100	<100
Acetonitrile	<50	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25	<25	<25
Benzene	<1.0	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	<1.0 *	<1.0	<1.0	<1.0	0.35 J B
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	<5.0 *	<5.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	0.72 J	<1.0	<1.0	0.48 J
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Diethylether	<10	<10	<10	<10	<10
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Furan	<10	<10	<10	<10	<10
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0 *	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-84 (continued)				
Top of Screen Depth	77	77	77	77	77
Sample Date	12/12/06	03/02/07	05/14/07	08/14/07	11/09/07
Sample ID	GWGM-84 (12/12/06)	GWGM-84 (3/2/07)	GWGM-84 (5/14/07)	GWGM-84 (8/14/07)	GWGM-84(11/9/07)
Tetrahydrofuran	<10	<10	<10	<10	<10
Toluene	<1.0	<1.0	1.3	1.5	6.1
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	<3.0	<3.0	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A				
Top of Screen Depth	32	32	32	32	32
Sample Date	12/05/06	12/05/06	02/19/07	05/08/07	08/06/07
Sample ID	GWGM-87A (12/5/06)	GWGM-999(12/5/06)	GWGM-87A (02/19/07)	GWGM-87A (5/8/07)	GWGM-87A (8/6/07)
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	1.8 J
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50 *	<50 *	<50	<50	<50
Acetone	<100	<100	<100	<100	<100
Acetonitrile	<50	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25	<25	<25
Benzene	1.3	1.3	1.3	1.4	1.1
Bromochloromethane	<1.0	<1.0	<1.0 *	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0 *
Chloroform	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	0.82 J	0.87 J	0.64 J	1.1	1.8
Diethylether	2.6 J	2.4 J	<10	3.7 J	3.4 J
Ethylbenzene	0.71 J	0.64 J	<1.0	0.71 J	0.81 J
Furan	<10	<10	<10	<10	<10
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A				
Top of Screen Depth	32	32	32	32	32
Sample Date	12/05/06	12/05/06	02/19/07	05/08/07	08/06/07
Sample ID	GWGM-87A (12/5/06)	GWGM-999(12/5/06)	GWGM-87A (02/19/07)	GWGM-87A (5/8/07)	GWGM-87A (8/6/07)
Tetrahydrofuran	0.86 J	0.76 J	<10	<10	<10
Toluene	1.5	1.6	32	1.9	1.3
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	1.8 J	1.8 J	1.6 J	2.2 J	1.8 J
Xylenes, m+p	NA	NA	NA	NA	NA

Footnotes on Page 137.

ARCADIS

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)	GM-87B			
Top of Screen Depth	32	117	117	117	117
Sample Date	11/07/07	12/05/06	02/20/07	05/08/07	08/06/07
Sample ID	GWGM-87A (11/7/07)	GWGM-87A(12/5/06)	GWGM-87B (2/20/07)	GWGM-87B (5/8/07)	GWGM-87B (8/6/07)
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	1.6 J	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	<50 *	<50	<50	<50
Acetone	<100	<100	<100	<100	<100
Acetonitrile	<50	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25	<25	<25
Benzene	0.80 J	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	<1.0	<1.0	<1.0 *	<1.0	<1.0
Bromoform	<1.0	<1.0	0.48 J	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0 *
Chloroform	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	1.6	<1.0	<1.0	<1.0	<1.0
Diethylether	0.77 J	<10	<10	<10	<10
Ethylbenzene	0.36 J	<1.0	<1.0	<1.0	<1.0
Furan	<10	<10	<10	<10	<10
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)	GM-87B			
Top of Screen Depth	32	117	117	117	117
Sample Date	11/07/07	12/05/06	02/20/07	05/08/07	08/06/07
Sample ID	GWGM-87A (11/7/07)	GWGM-87A(12/5/06)	GWGM-87B (2/20/07)	GWGM-87B (5/8/07)	GWGM-87B (8/6/07)
Tetrahydrofuran	<10	<10	<10	<10	<10
Toluene	0.37 J	10	24	<1.0	0.76 J
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	<3.0	<3.0	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87B (continued)	GM-118D		GMEW-1	GMEW-2	GMEW-3
Top of Screen Depth	117	54	54	20	23	135
Sample Date	11/07/07	10/21/98	04/29/99	09/21/00	09/21/00	07/24/00
Sample ID	GWGM-87B (11/7/07)	GWGM-118D	GWGM-118D	GMEWGW-1	GMEWGW-2	GWGMEW-3
1,1-Dichloroethane	<1.0	<1	<1	<1.0	<2.0	<5.0
1,1-Dichloroethene	<1.0	<1	<1	<1.0	<2.0	<5.0
1,2,4-Trimethylbenzene	<1.0	<1	<1	1.9	3.6	<5.0
1,2-Dichloroethene (total)	<2.0	<1	<1	<2.0	<4.0	<10
1,3,5-Trimethylbenzene	<1.0	<1	<1	0.68 J	<2.0	<5.0
2-Butanone (MEK)	<50	<10	R	160	570	760 J
2-Hexanone	<50	<10	<10 J	54	130	<250 J
4-Methyl-2-pentanone (MIBK)	<50	<10	<10 J	<50	<100	<250
Acetone	<100	<10	R	210	650	690 J
Acetonitrile	<50	<50	R	<50 J	<100 J	<250
Acrylonitrile	<25	<25	R	<25	<50	R
Benzene	<1.0	<1	<1	25	17	13
Bromochloromethane	<1.0	<1	<1	<1.0	<2.0	<5.0
Bromoform	<1.0	<1	<1	<1.0	<2.0	<5.0
Bromomethane	<1.0	<1	<1	<1.0 J	<2.0 J	<5.0
Carbon disulfide	<5.0	<1	<1	<5.0	<10	<25
Chlorobenzene	<1.0	<1	<1	<1.0	<2.0	<5.0
Chloroethane	<1.0	<1	<1	<1.0	<2.0	<5.0
Chloroform	<1.0	<1	<1	<1.0	<2.0	<5.0
Chloromethane	<1.0	<1	<1	<1.0	<2.0	<5.0
cis-1,2-Dichloroethene	<1.0	<1	<1	<1.0	<2.0	<5.0
Diethylether	<10	<10	<10	42	12 J	<50
Ethylbenzene	<1.0	<1	<1	4.4	5.5	4.3 J
Furan	<10	<5	<5	NA	NA	NA
Isopropylbenzene	<1.0	<1	<1	<1.0	<2.0	<5.0
Methyl iodide	<5.0	<5	<5	<5.0	<10	<25
Methyl(tert)butyl ether	<5.0	<50	<50	<5.0	<10	<25
Methylene chloride	<1.0	<1	<1	<1.0	<2.0	<5.0
n-Propylbenzene	<1.0	<1	<1	<1.0	<2.0	<5.0
Propionitrile	<25	NA	NA	<25	<50	<120
Tetrachloroethene	<1.0	<1	<1	<1.0	<2.0	<5.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87B (continued)	GM-118D		GMEW-1	GMEW-2	GMEW-3
Top of Screen Depth	117	54	54	20	23	135
Sample Date	11/07/07	10/21/98	04/29/99	09/21/00	09/21/00	07/24/00
Sample ID	GWGM-87B (11/7/07)	GWGM-118D	GWGM-118D	GMEWGW-1	GMEWGW-2	GWGMEW-3
Tetrahydrofuran	<10	<5	R	NA	NA	NA
Toluene	13	<1	<1	15	18	18
trans-1,2-Dichloroethene	<1.0	<1	<1	<1.0	<2.0	<5.0
Trichloroethene	<1.0	<1	<1	1.2	<2.0	<5.0
Vinyl chloride	<1.0	<1	<1	<1.0	<2.0	<5.0
Xylene, o	NA	<1	<1	NA	NA	NA
Xylenes (total)	0.95 J	<3	<3	14	19	16
Xylenes, m+p	NA	<2	<2	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWA-1	GMEWA-2	GMEWA-3	GMEWA-4	
Top of Screen Depth	26	26	25	20	20
Sample Date	04/11/05	04/12/05	04/12/05	04/12/05	08/02/05
Sample ID	GWGMEWA-1	GWGMEWA-2	GWGMEWA-3	GWGMEWA-4	GWGMEWA4 (08/02/05)
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	0.76 J	2	0.48 J	2.2
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	0.57 J
2-Butanone (MEK)	<50	22 J	10 J	<50	78
2-Hexanone	<50	<50	<50	<50	25 J
4-Methyl-2-pentanone (MIBK)	<50	1.8 J	<50	<50	<50
Acetone	<100	23 J	<100	<100	82 J
Acetonitrile	<50	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25	<25	<25
Benzene	<1.0	6.6	12	1.8	7.7
Bromochloromethane	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Diethylether	<10	7.1 J	9.1 J	0.65 J	6.8 J
Ethylbenzene	<1.0	1.7	3.9	1	4.1
Furan	<10	<10	<10	<10	1.6 J
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWA-1	GMEWA-2	GMEWA-3	GMEWA-4	
Top of Screen Depth	26	26	25	20	20
Sample Date	04/11/05	04/12/05	04/12/05	04/12/05	08/02/05
Sample ID	GWGMEWA-1	GWGMEWA-2	GWGMEWA-3	GWGMEWA-4	GWGMEWA4 (08/02/05)
Tetrahydrofuran	<10	5.7 J	13	2.8 J	12 B
Toluene	<1.0	6.2	13	2.7	8.9
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	1.1	<1.0	0.78 J
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	5.3	12	2.6 J	12
Xylenes, m+p	NA	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWA-26		GMEWA-27	
Top of Screen Depth	22	22	21	21
Sample Date	04/15/05	07/27/05	04/13/05	04/13/05
Sample ID	GWGMEWA-26 (4/15/05)	GWGMEWA-26 (072705)	GWGMEWA-27 (4/13/05)	GWGMEWA-999 (4/13/05)
1,1-Dichloroethane	<1.0	<1.0	<1	<1
1,1-Dichloroethene	<1.0	<1.0	<1	<1
1,2,4-Trimethylbenzene	1.4	2.5	<1	<1
1,2-Dichloroethene (total)	2.6	5	<2	<2
1,3,5-Trimethylbenzene	<1.0	0.79 J	<1	<1
2-Butanone (MEK)	<50	6.4 J	<50	<50
2-Hexanone	<50	8.6 J	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	1.5 J	<50	<50
Acetone	<100	27 J	<100	<100
Acetonitrile	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25	<25
Benzene	3.2	6.3	<1	<1
Bromochloromethane	<1.0	<1.0	<1	<1
Bromoform	<1.0	<1.0	<1	<1
Bromomethane	<1.0	<1.0	<1	<1
Carbon disulfide	<5.0	<5.0	<5	<5
Chlorobenzene	<1.0	<1.0	<1	<1
Chloroethane	<1.0	<1.0	<1	<1
Chloroform	<1.0	<1.0	<1	<1
Chloromethane	<1.0	<1.0	<1	<1
cis-1,2-Dichloroethene	2.6	5	<1	<1
Diethylether	1.6 J	2.4 J	<10	<10
Ethylbenzene	1.4	3.2	<1	<1
Furan	<10	<10	<10	<10
Isopropylbenzene	<1.0	<1.0	<1	<1
Methyl iodide	<5.0	<5.0	<5	<5
Methyl(tert)butyl ether	<5.0	<5.0	<5	<5
Methylene chloride	<1.0	<1.0	<1	<1
n-Propylbenzene	<1.0	0.52 J	<1	<1
Propionitrile	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1	<1

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWA-26		GMEWA-27	
Top of Screen Depth	22	22	21	21
Sample Date	04/15/05	07/27/05	04/13/05	04/13/05
Sample ID	GWGMEWA-26 (4/15/05)	GWGMEWA-26 (072705)	GWGMEWA-27 (4/13/05)	GWGMEWA-999 (4/13/05)
Tetrahydrofuran	<10	100	<10	<10
Toluene	3.7	9.1	<1	<1
trans-1,2-Dichloroethene	<1.0	<1.0	<1	<1
Trichloroethene	<1.0	<1.0	<1	<1
Vinyl chloride	<1.0	<1.0	<1	<1
Xylene, o	NA	NA	NA	NA
Xylenes (total)	4.2	9	<3	<3
Xylenes, m+p	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWA-28	GMEWC-1A	GMPZA-26
Top of Screen Depth	25	117.5	20
Sample Date	04/13/05	04/14/05	12/06/06
Sample ID	GWGMEWA-28 (4/13/05)	GWGMEWC-1A (117.5-142.5)	GWGMPZA-26 (12/06/06)
1,1-Dichloroethane	<1	<1	<1.0
1,1-Dichloroethene	<1	<1	<1.0
1,2,4-Trimethylbenzene	<1	<1	0.98 J
1,2-Dichloroethene (total)	<2	<2	<2.0
1,3,5-Trimethylbenzene	<1	<1	<1.0
2-Butanone (MEK)	<50	<50	19 J
2-Hexanone	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	<50	<50
Acetone	<100	<100	24 J
Acetonitrile	<50	<50	<50
Acrylonitrile	<25	<25	<25
Benzene	<1	<1	5.3
Bromochloromethane	<1	<1	<1.0
Bromoform	<1	<1	<1.0
Bromomethane	<1	<1	<1.0
Carbon disulfide	<5	<5	<5.0
Chlorobenzene	<1	<1	<1.0
Chloroethane	<1	<1	<1.0
Chloroform	<1	<1	<1.0
Chloromethane	<1	<1	<1.0
cis-1,2-Dichloroethene	<1	<1	0.75 J
Diethylether	<10	<10	8.8 J
Ethylbenzene	<1	<1	1.4
Furan	<10	<10	<10
Isopropylbenzene	<1	<1	<1.0
Methyl iodide	<5	<5	<5.0
Methyl(tert)butyl ether	<5	<5	<5.0
Methylene chloride	<1	<1	<1.0
n-Propylbenzene	<1	<1	<1.0
Propionitrile	<25	<25	<25
Tetrachloroethene	<1	<1	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWA-28	GMEWC-1A	GMPZA-26
Top of Screen Depth	25	117.5	20
Sample Date	04/13/05	04/14/05	12/06/06
Sample ID	GWGMEWA-28 (4/13/05)	GWGMEWC-1A (117.5-142.5)	GWGMPZA-26 (12/06/06)
Tetrahydrofuran	<10	<10	2.0 J
Toluene	<1	<1	3.4
trans-1,2-Dichloroethene	<1	<1	<1.0
Trichloroethene	<1	<1	<1.0
Vinyl chloride	<1	<1	<1.0
Xylene, o	NA	NA	NA
Xylenes (total)	<3	<3	4.4
Xylenes, m+p	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-26 (continued)		GMPZA-29	
Top of Screen Depth	20	20	18	18
Sample Date	02/27/07	08/13/07	12/06/06	02/26/07
Sample ID	GWGMPZA-26 (2/27/07)	GWGMPZA-26 (8/13/07)	GWGMPZA-29 (12/6/06)	GWGMPZA-29 (2/26/07)
1,1-Dichloroethane	<1.0	<1.0	<2.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<2.0	<1.0
1,2,4-Trimethylbenzene	0.61 J	0.54 J	4.3	1.3
1,2-Dichloroethene (total)	<2.0	<2.0	<4.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<2.0	<1.0
2-Butanone (MEK)	<50	<50	710	180 *
2-Hexanone	<50	<50	170	45 J *
4-Methyl-2-pentanone (MIBK)	<50	<50	18 J	4.9 J *
Acetone	<100	<100	700	210
Acetonitrile	<50	<50	<100	<50
Acrylonitrile	<25	<25	<50	<25
Benzene	3.8	2.5	23	6.7
Bromochloromethane	<1.0	<1.0	<2.0	<1.0
Bromoform	<1.0	<1.0	<2.0	<1.0
Bromomethane	<1.0	<1.0	<2.0	<1.0
Carbon disulfide	<5.0	<5.0 *	<10	<5.0
Chlorobenzene	<1.0	<1.0	<2.0	<1.0
Chloroethane	<1.0	<1.0	<2.0	<1.0
Chloroform	<1.0	<1.0	<2.0	<1.0
Chloromethane	<1.0	<1.0	<2.0	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	<2.0	<1.0
Diethylether	5.5 J	5.1 J	21	5.9 J
Ethylbenzene	0.77 J	0.60 J	12	2.9
Furan	<10	<10	9.0 J	2.4 J
Isopropylbenzene	<1.0	<1.0	<2.0	<1.0
Methyl iodide	<5.0	<5.0	<10	<5.0
Methyl(tert)butyl ether	<5.0	<5.0 *	<10	<5.0
Methylene chloride	<1.0	<1.0	<2.0	<1.0
n-Propylbenzene	<1.0	<1.0	<2.0 *	<1.0
Propionitrile	<25	<25	<50	<25
Tetrachloroethene	<1.0	<1.0	<2.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-26 (continued)		GMPZA-29	
Top of Screen Depth	20	20	18	18
Sample Date	02/27/07	08/13/07	12/06/06	02/26/07
Sample ID	GWGMPZA-26 (2/27/07)	GWGMPZA-26 (8/13/07)	GWGMPZA-29 (12/6/06)	GWGMPZA-29 (2/26/07)
Tetrahydrofuran	1.1 J	1.8 J	54	12
Toluene	2.2	1.4	27	7.8
trans-1,2-Dichloroethene	<1.0	<1.0	<2.0	<1.0
Trichloroethene	<1.0	<1.0	3.6	0.83 J
Vinyl chloride	<1.0	<1.0	<2.0	<1.0
Xylene, o	NA	NA	NA	NA
Xylenes (total)	2.5 J	1.7 J	26	7.6
Xylenes, m+p	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-29 (continued)	GMPZA-34		
Top of Screen Depth	18	25	25	25
Sample Date	08/10/07	12/08/06	02/26/07	08/09/07
Sample ID	GWGMPZA-29(08/10/07)	GWGMPZA-34 (12/8/06)	GWGMPZA-34 (2/26/07)	GWGMPZA-34 (8/9/07)
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50 *	<50
2-Hexanone	<50	<50	<50 *	<50
4-Methyl-2-pentanone (MIBK)	<50	<50	<50 *	<50
Acetone	<100	<100	<100	<100 *
Acetonitrile	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25	<25
Benzene	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0
Diethylether	<10	<10	<10	<10
Ethylbenzene	<1.0	<1.0	<1.0	<1.0
Furan	<10	<10	<10	<10
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-29 (continued)	GMPZA-34		
Top of Screen Depth	18	25	25	25
Sample Date	08/10/07	12/08/06	02/26/07	08/09/07
Sample ID	GWGMPZA-29(08/10/07)	GWGMPZA-34 (12/8/06)	GWGMPZA-34 (2/26/07)	GWGMPZA-34 (8/9/07)
Tetrahydrofuran	<10	<10	<10	<10
Toluene	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA
Xylenes (total)	<3.0	<3.0	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-38			
Top of Screen Depth	25	25	25	25
Sample Date	12/07/06	12/07/06	02/23/07	08/09/07
Sample ID	GWGM-998 (12/7/06)	GWGMPZA38 (12/7/06)	GWGMPZA-38 (2/23/07)	GWGMPZA-38 (8/9/07)
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50
Acetone	<100	<100	<100	<100
Acetonitrile	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25	<25
Benzene	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0
Chloromethane	0.67 J	<1.0	0.63 J	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0
Diethylether	<10	<10	<10	<10
Ethylbenzene	<1.0	<1.0	<1.0	<1.0
Furan	<10	<10	<10	<10
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-38			
Top of Screen Depth	25	25	25	25
Sample Date	12/07/06	12/07/06	02/23/07	08/09/07
Sample ID	GWGM-998 (12/7/06)	GWGMPZA38 (12/7/06)	GWGMPZA-38 (2/23/07)	GWGMPZA-38 (8/9/07)
Tetrahydrofuran	<10	<10	<10	<10
Toluene	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA
Xylenes (total)	<3.0	<3.0	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-41				GMPZC-2
Top of Screen Depth	20	20	20	20	134
Sample Date	12/07/06	02/23/07	08/08/07	08/08/07	05/30/06
Sample ID	GWGMPZA-41 (12/7/06)	GWGMPZA-41 (2/23/07)	DUP-999 (8/8/07)	GWGMPZA-41 (8/8/07)	GMPZC-2 (5/30/06)
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50	<50
Acetone	<100	<100	<100	<100	<100
Acetonitrile	<50	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25	<25	<25
Benzene	<1.0	<1.0	<1.0	<1.0	1.9
Bromochloromethane	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	0.77 J	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Diethylether	<10	<10	<10	<10	<10
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Furan	<10	<10	<10	<10	<10
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-41				GMPZC-2
Top of Screen Depth	20	20	20	20	134
Sample Date	12/07/06	02/23/07	08/08/07	08/08/07	05/30/06
Sample ID	GWGMPZA-41 (12/7/06)	GWGMPZA-41 (2/23/07)	DUP-999 (8/8/07)	GWGMPZA-41 (8/8/07)	GMPZC-2 (5/30/06)
Tetrahydrofuran	<10	<10	<10	<10	2.0 J
Toluene	<1.0	<1.0	<1.0	<1.0	1.6
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	<3.0	<3.0	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-12			GMPZC-14
Top of Screen Depth	137	137	137	111
Sample Date	12/06/06	03/01/07	08/14/07	12/06/06
Sample ID	GWGMPZC-12 (12/06/06)	GWGMPZC-12 (3/1/07)	GWGMPZC-12 (8/14/07)	GWGMPZC-14 (12/06/06)
1,1-Dichloroethane	<1.0	<1.0	<1.0	<2.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<2.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<2.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<4.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<2.0
2-Butanone (MEK)	<50	<50	<50	170
2-Hexanone	<50	<50	<50	87 J
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<100
Acetone	<100	<100	<100	200 J
Acetonitrile	<50	<50	<50	<100
Acrylonitrile	<25	<25	<25	<50
Benzene	1.6	1.3	0.95 J	23
Bromochloromethane	<1.0	<1.0	<1.0	<2.0
Bromoform	<1.0	<1.0	<1.0	<2.0
Bromomethane	<1.0	<1.0	<1.0	<2.0
Carbon disulfide	<5.0	<5.0	<5.0 *	<10
Chlorobenzene	<1.0	<1.0	<1.0	<2.0
Chloroethane	<1.0	<1.0	<1.0	<2.0
Chloroform	<1.0	<1.0	<1.0	<2.0
Chloromethane	<1.0	<1.0	<1.0	<2.0
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	1.1 J
Diethylether	1.4 J	0.71 J	0.58 J	19 J
Ethylbenzene	<1.0	<1.0	0.35 J	7.1
Furan	<10	<10	<10	1.0 J
Isopropylbenzene	<1.0	<1.0	<1.0	<2.0
Methyl iodide	<5.0	<5.0	<5.0	<10
Methyl(tert)butyl ether	<5.0	<5.0	<5.0 *	<10
Methylene chloride	<1.0	<1.0	<1.0	<2.0
n-Propylbenzene	<1.0	<1.0	<1.0	<2.0
Propionitrile	<25	<25	<25	<50
Tetrachloroethene	<1.0	<1.0	<1.0	<2.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-12			GMPZC-14
Top of Screen Depth	137	137	137	111
Sample Date	12/06/06	03/01/07	08/14/07	12/06/06
Sample ID	GWGMPZC-12 (12/06/06)	GWGMPZC-12 (3/1/07)	GWGMPZC-12 (8/14/07)	GWGMPZC-14 (12/06/06)
Tetrahydrofuran	<10	<10	<10	17 J
Toluene	2.2	4.2	1.1	27
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<2.0
Trichloroethene	<1.0	<1.0	<1.0	<2.0
Vinyl chloride	<1.0	<1.0	<1.0	<2.0
Xylene, o	NA	NA	NA	NA
Xylenes (total)	1.6 J	1.4 J	1.1 J	16
Xylenes, m+p	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-14 (continued)		GMPZC-17	
Top of Screen Depth	111	111	125	125
Sample Date	02/28/07	08/10/07	12/07/06	02/27/07
Sample ID	GWGMPZC-14 (2/28/07)	GWGMPZC-14(08/10/07)	GWGMPZC-17 (12/7/2006)	GWGMPZC-17 (2/27/07)
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	0.96 J	1.2	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	0.57 J	<1.0	<1.0
2-Butanone (MEK)	56	79	<50	<50
2-Hexanone	68	73	<50	<50
4-Methyl-2-pentanone (MIBK)	6.2 J	6.7 J	<50	<50
Acetone	72 J	100	<100	<100
Acetonitrile	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25	<25
Benzene	16	26	<1.0	<1.0
Bromochloromethane	<1.0 *	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	1.3
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0
Diethylether	16	24	<10	<10
Ethylbenzene	4.3	6.4	<1.0	<1.0
Furan	0.99 J	1.3 J	<10	<10
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-14 (continued)		GMPZC-17	
Top of Screen Depth	111	111	125	125
Sample Date	02/28/07	08/10/07	12/07/06	02/27/07
Sample ID	GWGMPZC-14 (2/28/07)	GWGMPZC-14(08/10/07)	GWGMPZC-17 (12/7/2006)	GWGMPZC-17 (2/27/07)
Tetrahydrofuran	30	33	<10	<10
Toluene	20	39	1.3	2.4
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0
Trichloroethene	0.90 J	1.4	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA
Xylenes (total)	6	17	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-17 (continued)		Grailer	Hambel	Krans	Michaud
Top of Screen Depth	125	125	NA	NA	NA	NA
Sample Date	08/13/07	08/13/07	08/07/03	08/06/03	08/06/03	08/06/03
Sample ID	DUP-998 (8/13/07)	GWGMPZC-17 (8/13/07)	GBGW-53C	GBGW-101C	GBGW-101F	GBGW-101G
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50	<50	<50
Acetone	<100	<100	<100	<100	<100	<100
Acetonitrile	<50	<50	<50	<50	<50	<50
Acrylonitrile	<25	<25	<25	<25	<25	<25
Benzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0 *	<5.0 *	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Diethylether	<10	<10	<10	<10	<10	<10
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Furan	<10	<10	<2.0	<2.0	<2.0	<2.0
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0 *	<5.0 *	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-17 (continued)		Grailer	Hambel	Krans	Michaud
Top of Screen Depth	125	125	NA	NA	NA	NA
Sample Date	08/13/07	08/13/07	08/07/03	08/06/03	08/06/03	08/06/03
Sample ID	DUP-998 (8/13/07)	GWGMPZC-17 (8/13/07)	GBGW-53C	GBGW-101C	GBGW-101F	GBGW-101G
Tetrahydrofuran	<10	<10	<2.0	<2.0	<2.0	<2.0
Toluene	1.8	1.7	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene, o	NA	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Schnieder	MPMW-4	MW-1B	MW-2B	MW-5		MW-8	
Top of Screen Depth	NA	NA	86	102	83	83	133	133
Sample Date	08/07/03	02/26/02	06/27/97	06/28/97	10/22/98	04/30/99	06/29/97	06/29/97
Sample ID	GBGW-113	GWMPMW-4 (2/26/02)	GWMW-1B	GWMW-2B	GWMW-5	GWMW-5	GWGM-99	GWMW-8
1,1-Dichloroethane	<1.0	<1.0	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1.0	<1.0	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	<1.0	<1.0	NA	NA	<1	<1	NA	NA
1,2-Dichloroethene (total)	<2.0	<2.0	NA	NA	<1	<1	NA	NA
1,3,5-Trimethylbenzene	<1.0	<1.0	NA	NA	<1	<1	NA	NA
2-Butanone (MEK)	<50	<50	<10	<10	<10	<10 J	<10	<10
2-Hexanone	<50	<50	<10	<10	<10	<10 J	10	<10
4-Methyl-2-pentanone (MIBK)	<50	<50	<10	<10	<10	<10 J	<10	<10
Acetone	<100	11 J	<10	<10	<10	R	16	12
Acetonitrile	<50	<50	NA	NA	<50	R	NA	NA
Acrylonitrile	<25	<25	NA	NA	<25	R	NA	NA
Benzene	<1.0	<1.0	<1	<1	<1	<1	5.8	6.7
Bromochloromethane	<1.0	<1.0	NA	NA	<1	<1	NA	NA
Bromoform	<1.0	<1.0	<1	<1	<1	<1	<1	<1
Bromomethane	<1.0	<1.0	<1	<1	<1	<1	<1	<1
Carbon disulfide	<5.0	<5.0	<1	0.95 J	<1	<1	31 J	0.29 J
Chlorobenzene	<1.0	<1.0	<1	<1	<1	<1	<1	<1
Chloroethane	<1.0	<1.0	<1	<1	<1	<1	<1	<1
Chloroform	<1.0	<1.0	<1	<1	<1	<1	<1	<1
Chloromethane	<1.0	<1.0	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<1.0	<1.0	<1	<1	<1	<1	<1	0.11 J
Diethylether	<10	<10	NA	NA	<10	<10	NA	NA
Ethylbenzene	<1.0	<1.0	<1	<1	<1	<1	1.7	2
Furan	<2.0	<2.0	NA	NA	<5	<5	NA	NA
Isopropylbenzene	<1.0	<1.0	NA	NA	<1	<1	NA	NA
Methyl iodide	<5.0	<5.0	NA	NA	<5	<5	NA	NA
Methyl(tert)butyl ether	<5.0	<5.0	NA	NA	<50	<50	NA	NA
Methylene chloride	<1.0	<1.0	<1	<1	<1	<1	<1	<1.0
n-Propylbenzene	<1.0	<1.0	NA	NA	<1	<1	NA	NA
Propionitrile	<25	<25	NA	NA	NA	NA	NA	NA
Tetrachloroethene	<1.0	0.93 J	<1	<1	<1	<1	<1	<1

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Schnieder	MPMW-4	MW-1B	MW-2B	MW-5		MW-8	
Top of Screen Depth	NA	NA	86	102	83	83	133	133
Sample Date	08/07/03	02/26/02	06/27/97	06/28/97	10/22/98	04/30/99	06/29/97	06/29/97
Sample ID	GBGW-113	GWMPMW-4 (2/26/02)	GWMW-1B	GWMW-2B	GWMW-5	GWMW-5	GWGM-99	GWMW-8
Tetrahydrofuran	<2.0	<2.0	NA	NA	<5	R	NA	NA
Toluene	<1.0	0.31 J	0.56 J	0.50 J	<1	<1	5.4	6.4
trans-1,2-Dichloroethene	<1.0	<1.0	<1	<1	<1	<1	<1	<1
Trichloroethene	<1.0	0.22 J	0.48 J	<1	<1	<1	<1	<1
Vinyl chloride	<1.0	<1.0	<1	<1	<1	<1	<1	<1
Xylene, o	NA	NA	NA	NA	<1	<1	NA	NA
Xylenes (total)	<3.0	<3.0	0.41 J	<1	<3	<3	7	8.3
Xylenes, m+p	NA	NA	NA	NA	<2	<2	NA	NA

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	MW-8 (continued)			MW-9A	UG-2		UG-4		
Top of Screen Depth	133	133	133	57	48	48	103	103	103
Sample Date	10/24/98	05/03/99	05/12/04	07/02/97	10/27/98	05/03/99	10/13/97	10/13/97	10/23/98
Sample ID	GWMW-8	GWMW-8	GWMW-8 (5/12/04)	GWMW-9A	GWUG-2	GWUG-2	GM-79	UG-4	GWUG-4
1,1-Dichloroethane	<50	<1	<1.0	<10	<1	<1	<1	<1	<1
1,1-Dichloroethene	<50	<1	<1.0	<10	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	<50	1.8	1.1	NA	<1	<1	NA	NA	<1
1,2-Dichloroethene (total)	<50	<1	4.9	NA	<1	<1	NA	NA	<1
1,3,5-Trimethylbenzene	<50	<1	0.31 J	NA	<1	<1	NA	NA	<1
2-Butanone (MEK)	<500	<10	5.1 J	<100	<10	R	<10	<10	<10
2-Hexanone	<500 J	<10 J	2.4 J	<100	<10	<10 J	<10	<10	<10 J
4-Methyl-2-pentanone (MIBK)	<500	<10 J	1.1 J	<100	<10	<10 J	<10	<10	<10
Acetone	<500 J	R	9.2 J	<100	<10	R	<10	<10	<10 J
Acetonitrile	<2,500	R	<50	NA	<50	R	NA	NA	<50
Acrylonitrile	<50	R	<25	NA	<25	R	NA	NA	<25
Benzene	<50	3.8	3.3	23	<1	<1	<1	<1	<1
Bromochloromethane	<50	<1	<1.0	NA	<1	<1	NA	NA	<1
Bromoform	<50	<1	<1.0	<10	<1	<1	<1	<1	<1
Bromomethane	<50	<1	<1.0	<10	<1	<1	<1	<1	<1
Carbon disulfide	<50	<1	0.98 J	120	<1	<1	<1	<1	<1
Chlorobenzene	<50	<1	<1.0	<10	<1	<1	<1	<1	<1
Chloroethane	<50	<1	<1.0	<10	<1	<1	<1	<1	<1
Chloroform	<50	<1	<1.0	<10	<1	<1	<1	<1	<1
Chloromethane	<50	<1	<1.0	<10	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<50	<1	4.9	<10	<1	<1	<1	<1	<1
Diethylether	<500	<10	3.1 J	NA	<10	<10	NA	NA	<10
Ethylbenzene	<50	1.1	1.2	<10	<1	<1	<1	<1	<1
Furan	<250	<5	0.48 J	NA	<5	<5	NA	NA	<5
Isopropylbenzene	<50	<1	<1.0	NA	<1	<1	NA	NA	<1
Methyl iodide	<50	<5	<5.0	NA	<5	<5	NA	NA	<5
Methyl(tert)butyl ether	<2,500	<50	<5.0	NA	<50	<50	NA	NA	<50
Methylene chloride	<50	<8	<1.0	<10	<1	<1	<1	<1	<1
n-Propylbenzene	<50	<1	<1.0	NA	<1	<1	NA	NA	<1
Propionitrile	NA	NA	<25	NA	NA	NA	NA	NA	NA
Tetrachloroethene	<50	<1	4.5	<10	<1	<1 J	<1	<1	<1

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	MW-8 (continued)			MW-9A	UG-2		UG-4		
Top of Screen Depth	133	133	133	57	48	48	103	103	103
Sample Date	10/24/98	05/03/99	05/12/04	07/02/97	10/27/98	05/03/99	10/13/97	10/13/97	10/23/98
Sample ID	GWMW-8	GWMW-8	GWMW-8 (5/12/04)	GWMW-9A	GWUG-2	GWUG-2	GM-79	UG-4	GWUG-4
Tetrahydrofuran	1400	210 J	160	NA	<5	R	NA	NA	<5
Toluene	<50	3.2	3.2	10	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	<50	<1	<1.0	<10	<1	<1	<1	<1	<1
Trichloroethene	<50	<1	0.41 J	<10	<1	<1	<1	<1	<1
Vinyl chloride	<50	<1	<1.0	<10	<1	<1	<1	<1	<1
Xylene, o	<50	1.7	NA	NA	<1	<1	NA	NA	<1
Xylenes (total)	<150	4.5	4.2	<10	<3	<3	<1	<1	<3
Xylenes, m+p	<100	2.8	NA	NA	<2	<2	NA	NA	<2

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	UG-4 (continued)	UG-6					
Top of Screen Depth	103	236	Groundwater		Residential		
Sample Date	05/02/99	10/21/97	Contact	Indoor Air Inhalation	Drinking Water	FAV	FCV
Sample ID	GWUG-4	UG-6	Criteria	Criteria	Criteria	Criteria	Criteria
1,1-Dichloroethane	<1	<1	2,400,000	1,000,000	880	13,000	740
1,1-Dichloroethene	<1	<1	11,000 (I)	200 (I)	7 (I) A	2,300	130
1,2,4-Trimethylbenzene	<1	NA	56,000 (I) S	56,000 (I) S	63 (I) E	310	17
1,2-Dichloroethene (total)	<1	NA	--	--	--	19,000	7
1,3,5-Trimethylbenzene	<1	NA	61,000 (I) S	61,000 (I) S	72 (I) E	810	45
2-Butanone (MEK)	<10	<10	240,000,000 (I) S	240,000,000 (I) S	13,000 (I)	40,000	2,200 I
2-Hexanone	<10 J	<10	5,200,000	4,200,000	1,000	ID	ID
4-Methyl-2-pentanone (MIBK)	<10 J	<10	13,000,000 (I)	20,000,000 (I) S	1,800 (I)	ID	ID
Acetone	R	<10	31,000,000 (I)	1,000,000,000 (I) D,S	730 (I)	30,000	1,700
Acetonitrile	R	NA	5,600,000	24,000,000	140	--	--
Acrylonitrile	R	NA	14,000 (I)	34,000 (I)	2.6 (I)	1,200	66
Benzene	<1	<1	11,000 (I)	5,600 (I)	5 (I) A	1,900	200
Bromochloromethane	<1	NA	--	--	--	ID	ID
Bromoform	<1	<1	140,000	470,000	80 A,W	ID	ID
Bromomethane	<1	<1	70,000	4,000	10	640	35
Carbon disulfide	<1	2.4	R	R	R	ID	ID
Chlorobenzene	<1	<1	86,000 (I)	210,000 (I)	100 (I) A	850	47
Chloroethane	<1	<1	440,000	5,700,000 S	430	20,000	1,100
Chloroform	<1	<1	150,000	28,000	80 A,W	11,000	630
Chloromethane	<1	<1	490,000 (I)	8,600 (I)	260 (I)	ID	ID
cis-1,2-Dichloroethene	<1	<1	200,000	93,000	70 A	11,000	620
Diethylether	<10	NA	35,000,000	61,000,000 S	10 E	ID	ID
Ethylbenzene	<1	<1	170.000 (I) S	110,000 (I)	74 (I) E	320	18
Furan	<5	NA	--	--	--	--	--
Isopropylbenzene	<1	NA	56,000 S	56,000 S	800	ID	ID
Methyl iodide	<5	NA	--	--	--	--	--
Methyl(tert)butyl ether	<50	NA	610,000	47,000,000 S	40 E	13,000	730
Methylene chloride	<1	<1	220,000	220,000	5 A	17,000	1,500
n-Propylbenzene	<1	NA	15,000 (I)	(I) ID	80 (I)	ID	ID
Propionitrile	NA	NA	--	--	--	--	--
Tetrachloroethene	<1	<1	12,000	25,000	5 A	2,900	190

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	UG-4 (continued)	UG-6					
Top of Screen Depth	103	236	Groundwater		Residential		
Sample Date	05/02/99	10/21/97	Contact	Indoor Air Inhalation	Drinking Water	FAV	FCV
Sample ID	GWUG-4	UG-6	Criteria	Criteria	Criteria	Criteria	Criteria
Tetrahydrofuran	R	NA	1,600,000	6,900,000	95	150,000	11,000
Toluene	<1	<1	530,000 (I) S	530,000 (I) S	790 (I) E	26,000	270
trans-1,2-Dichloroethene	<1	<1	220,000	85,000	100 A	28,000	1,500
Trichloroethene	<1	<1	22,000	15,000	5 A	3,500	200
Vinyl chloride	<1	<1	1,000	1,100	2 A	17,000	930
Xylene, o	<1	NA	--	--	--	--	--
Xylenes (total)	<3	<1	190,000 (I) S	190,000 (I) S	280 (I) E	730	41
Xylenes, m+p	<2	NA	--	--	--	--	--

Footnotes on Page 137.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Results in micrograms per liter (µg/L).
Top of screen depth in feet below ground surface.

<	Less than laboratory method detection limit.
Bold	Indicates a value above the Final Chronic Values (Michigan Part 4 Rule 323.1057, December 11, 2006).
	Indicates a value above the Groundwater Contact Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
Italics	Indicates a value above the Final Acute Values (Michigan Part 4 Rule 323.1057, December 11, 2006).
	Indicates a value above the Residential and Commercial I Drinking Water Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
*	LCS or LCSD exceeds the control limit.
B	Constituent was also detected in laboratory blank.
D	Result was obtained from analysis of a dilution.
E	Analyte was detected at a concentration greater than the calibration range, and is therefore estimated.
J	Estimated result.
R	Rejected result.
VOCs	Volatile Organic Compounds.

State of Michigan Criteria Footnotes:

*	The lowest Human Noncancer Value, Wildlife Value, Human Cancer Value, final chronic value criteria per Michigan Act 451, Part 4, Rule 57 given for this chemical will adequately protect the uses identified with "ID".
A	State of Michigan Drinking Water Standard.
AA	Compound may be adsorbed to particulates rather than dissolved in water; filtered groundwater sample may be more appropriate for comparison to criteria.
B	Background may be substituted if higher than the calculated cleanup criteria.
C	Value presented is a screening level based on the chemical specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat.
CC	The generic groundwater surface water interface criteria are based on the toxicity of unionized ammonia.
D	Calculated criterion exceeds 100%, therefore it is reduced to 100%.
E	Criterion is the aesthetic drinking water value.
EE	Applicable criteria established as required by Section 20120a(15) of the act.
F	Criterion is based on adverse impacts to plant life.
FF	The chloride groundwater surface water interface criteria is 125 mg/l when discharged to surface waters designated as public water supply sources or 50 mg/l when discharged to Great Lakes or connecting waters.
G	GSI value is pH or water hardness dependent.
H*92	Criteria based on water hardness of 92.

Table 6-8. Summary of VOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

State of Michigan Criteria Footnotes (continued):

I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.
ID	Insufficient data.
J	Chemical may be present in several isomer forms. Isomer specific concentrations must be added together for comparison to criteria.
K	Chemical may be flammable and/or explosive.
L	Higher groundwater concentrations, (up to 15 µg/L) may be acceptable if the soil concentration is less than 400 ppm and groundwater migrating offsite will not result in unacceptable exposures.
M	Calculated criterion is below the analytical method detection limit (MDL).
N	Concentrations of all potential nitrate-nitrogen sources must be added together and compared to nitrate criteria.
NA	Criterion or values is not available.
NLS	A literature search has not been conducted.
NLV	Chemical is not likely to volatilize under most soil conditions.
O	All polychlorinated and polybrominated dibenzodioxins, and dibenzofurans are considered as one substance.
P	Amenable or Method OIA-1677 analysis are used to quanitfy cyanide concentrations for compliance with all groundwater criteria.
Q	Criterion for carcinogenic polycyclic aromatic hydrocarbons (PAHs) were developed using "relative potential potencies" (RFPs) to benzo(a)pyrene.
R	Hazardous substance may exhibit the characteristic of reactivity as defined in 40 CFR 261.23.
S	Criterion defaults to the chemical-specific water solubility limit.
T	Refer to Toxic Substances Control Act (TSCA) to determine applicability of TSCA cleanup standards.
Total	Criterion established for total metal only.
V	Criterion is the aesthetic drinking water value, which is a secondary standard.
W	Concentrations of trihalomethanes in groundwater must be added together to detemine compliance with State of Michigan Criteria.
X	The GSI criterion shown is not protective for surface water that is used as a drinking water source.
Z	Data for mercuric chloride serves as the basis for drinking water, groundwater contact, soil direct contact and the groundwater protection criteria.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	BR-2	BR-3	BR-5A	BR-5B		BR-6	CW-1		
Top of Screen Depth (ft bls)	75	122	88	188	188	149	130	130	130
Sample Date	06/29/97	06/28/97	07/01/97	07/01/97	07/01/97	06/29/97	10/14/97	10/22/98	04/29/99
Sample ID	GWBR-2	GWBR-3	GWBR-5A	GWBR-5B	GWGM-98	GWBR-6	CW-1	GWCW-1	GWCW-1
1,4-Dichlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5	<5
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	<10
2,4-Dimethylphenol	<5	3.4 J	R	<5	<5	<5	<5	<5	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	<20
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	<10
2-Methylnaphthalene	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Methylphenol	<5	2.6 J	R	<5	<5	<5	<5	<5	<5
2-Nitrophenol	<5	<5	R	<5	<5	<5	<5	<20	<20
3,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	<10
3-Methylphenol	NA	NA	NA	NA	NA	NA	NA	<10	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	<5	4.8 J	R	<5	<5	<5	<5	<5	<5
Anthracene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Benzo(a)anthracene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Benzo(a)pyrene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Benzo(b)fluoranthene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Benzo(g,h,i)perylene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Benzo(k)fluoranthene	<5	<5	<5	<5	<5	<5	<5	<5	<5
bis(2-Ethylhexyl)phthalate	2.0 J	4.3 J	1.5 J	15	21	7.3	<5	<5	<5
Butylbenzylphthalate	<5	<5	<5	<5	<5	<5	<5	<5	<5
Carbazole	<10	<10	<10	<10	<10	<10	<10	<5	<5 J
Chrysene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dibenzo(a,h)anthracene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Diethylphthalate	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dimethylphthalate	<5	<5	<5	<5	<5	<5	<5	<5	<5
Di-n-butylphthalate	<5	<5	<5	<5	<5	<5	<5	<5	<5
Di-n-octylphthalate	<5	<5	<5	<5	<5	<5	<5	<5	<5
Fluoranthene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hexachlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Indeno(1,2,3-c,d)pyrene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Naphthalene	<5	<5	<5	<5	<5	<5	<5	<10	<10
Phenanthrene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Phenol	<5	<5	R	<5	<5	<5	<5	<5	<5
Pyrene	<5	<5	<5	<5	<5	<5	<5	<5	<5

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-1					GM-2A		GM-2B
Top of Screen Depth (ft bls)	220	220	220	220	220	40	40	271
Sample Date	06/24/97	10/09/97	10/07/98	04/16/99	04/28/04	07/02/97	10/12/97	06/26/97
Sample ID	GWGM-1	GM-1	GWGM-1	GWGM-1	GWGM-1 (4/28/04)	GWGM-2A	GM-2A	GWGM-2B
1,4-Dichlorobenzene	<100	<100	<50	<50	<50	<5	<5	<1,000
2,3-Dimethylphenol	NA	NA	NA	<100	48 J	NA	NA	NA
2,4-Dimethylphenol	**710**	**790**	**950**	**940**	NA	<5	<5	**1,800**
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	**890**	NA	NA	NA
2,5-Dimethylphenol	NA	NA	NA	<200	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	360	220	NA	NA	NA
2-Methylnaphthalene	<100	<100	<50	<50	<50	<5	<5	<1,000
2-Methylphenol	53 J	**84 J**	<50	<50	<50	<5	<5	***1,900***
2-Nitrophenol	<100	<100	<100	<100	<50	<5	<5	<1,000
3,4-Dimethylphenol	NA	NA	NA	<100	39 J	NA	NA	NA
3-Methylphenol	NA	NA	<100	<100	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	<50	NA	NA	NA
4-Methylphenol	**29 J**	22 J	<50	<50	NA	<5	<5	***13,000***
Anthracene	<100	<100	<50	<50	<50	<5	<5	<1,000
Benzo(a)anthracene	<100	<100	<50	<50	<50	<5	<5	<1,000
Benzo(a)pyrene	<100	<100	<50	<50	<50	<5	<5	<1,000
Benzo(b)fluoranthene	<100	<100	<50	<50	<50	<5	<5	<1,000
Benzo(g,h,i)perylene	<100	<100	<50	<50	<50	<5	<5	<1,000
Benzo(k)fluoranthene	<100	<100	<50	<50 J	<50	<5	<5	<1,000
bis(2-Ethylhexyl)phthalate	<100	<100	<50	<50 J	<50	200 D	<5	<1,000
Butylbenzylphthalate	<100	<100	<50	<50 J	<50	<5	<5	<1,000
Carbazole	<200	<200	<50	<50 J	<50	<10	<10	<1,000
Chrysene	<100	<100	<50	<50	<50	<5	<5	<1,000
Dibenzo(a,h)anthracene	<100	<100	<50	<50	<50	<5	<5	<1,000
Diethylphthalate	<100	<100	<50	<50	<50	<5	<5	<1,000
Dimethylphthalate	<100	<100	<50	<50	<50	<5	<5	<1,000
Di-n-butylphthalate	<100	<100	<50	<50	<50	<5	<5	<1,000
Di-n-octylphthalate	<100	<100	<50	<50	<50	<5	<5	<1,000
Fluoranthene	<100	<100	<50	<50	<50	<5	<5	<1,000
Hexachlorobenzene	<100	<100	<50	<50	<50	<5	<5	<1,000
Indeno(1,2,3-c,d)pyrene	<100	<100	<50	<50	<50	<5	<5	<1,000
Naphthalene	<100	<100	<100	<100	<50	<5	<5	<1,000
Phenanthrene	<100	<100	<50	<50	<50	<5	<5	<1,000
Phenol	<100	<100	<50	<50	<50	<5	<5	**1,100**
Pyrene	<100	<100	<50	<50	<50	<5	<5	<1,000

Footnotes on Page 86.

ARCADIS

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-2B (continued)					GM-2C	
Top of Screen Depth (ft bls)	271	271	271	271	271	64	64
Sample Date	10/21/97	12/11/97	11/22/98	04/16/99	05/25/04	11/06/98	04/13/99
Sample ID	GM-2B	GM-2B	GWGM-2B	GWGM-2B	GWGM-2B(5/25/04)	GWGM-2C	GWGM-2C
1,4-Dichlorobenzene	<2,000	<1,200	<500	<250	<500	<5	<5
2,3-Dimethylphenol	NA	NA	NA	<500	<1,000	NA	<10
2,4-Dimethylphenol	***3,200***	**2,400**	***3,000***	**2,600**	NA	<5	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	**2,200**	NA	NA
2,5-Dimethylphenol	NA	NA	NA	<1000	NA	NA	<20
2,6-Dimethylphenol	NA	NA	NA	680	<1,000	NA	<10
2-Methylnaphthalene	<2,000	<1,200	<500	<250	<500	<5	<5
2-Methylphenol	***3,200***	***2,500***	***2,500***	***2,100***	**1,500**	<5	<5
2-Nitrophenol	<2,000	<1,200	<1,000	<500	<500	<20	<20
3,4-Dimethylphenol	NA	NA	NA	790	540 J	NA	<10
3-Methylphenol	NA	NA	***7,900***	***6,600***	NA	<10	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	***8,900***	NA	NA
4-Methylphenol	***22,000***	***16,000***	***7,900***	***6,600***	NA	<5	<5
Anthracene	<2,000	<1,200	<500	<250	98 J	<5	<5
Benzo(a)anthracene	<2,000	<1,200	<500	<250	<500	<5	<5
Benzo(a)pyrene	<2,000	<1,200	<500	<250	120 J	<5	<5
Benzo(b)fluoranthene	<2,000	<1,200	<500	<250	<500	<5	<5
Benzo(g,h,i)perylene	<2,000	<1,200	<500	<250	410 J	<5	<5 J
Benzo(k)fluoranthene	<2,000	<1,200	<500	<250 J	<500	<5	<5 J
bis(2-Ethylhexyl)phthalate	<2,000	<1,200	<500	<250	<500	<5	<5
Butylbenzylphthalate	<2,000	<1,200	<500	<250	<500	<5	<5
Carbazole	<2,000	<1,200	<500	<250 J	***110 J***	<5	<5 J
Chrysene	<2,000	<1,200	<500	<250	<500	<5	<5
Dibenzo(a,h)anthracene	<2,000	<1,200	<500	<250	360 J	<5	<5
Diethylphthalate	<2,000	<1,200	<500	<250	<500	<5	<5
Dimethylphthalate	<2,000	<1,200	<500	<250	<500	<5	<5
Di-n-butylphthalate	<2,000	<1,200	<500	<250	<500	<5	<5
Di-n-octylphthalate	<2,000	<1,200	<500	<250	<500	<5	<5
Fluoranthene	<2,000	<1,200	<500	<250	***130 J***	<5	<5
Hexachlorobenzene	<2,000	<1,200	<500	<250	81 J	<5	<5
Indeno(1,2,3-c,d)pyrene	<2,000	<1,200	<500	<250	330 J	<5	<5
Naphthalene	<2,000	<1,200	<1000	<500	<500	<10	<10
Phenanthrene	<2,000	<1,200	<500	<250	***100 J***	<5	<5
Phenol	**1700 J**	**1,500**	**1,000**	**940**	**560**	<5	<5
Pyrene	<2,000	<1,200	<500	<250	110 J	<5	<5

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-2C (continued)	GM-3A					GM-3B
Top of Screen Depth (ft bls)	64	74	74	74	74	74	170
Sample Date	05/04/04	06/25/97	10/10/97	10/09/98	04/13/99	05/05/04	06/26/97
Sample ID	GWGM-2C (5/4/04)	GWGM-3A	GM-3A	GWGM-3A	GWGM-3A	GWGM-3A (5/5/04)	GWGM-3B
1,4-Dichlorobenzene	<5.0	<5	<5	<5	<5	<5.0	<67
2,3-Dimethylphenol	<10	NA	NA	NA	<10	<10	NA
2,4-Dimethylphenol	NA	<5	<5	<5	<5	NA	310
2,4-Dimethylphenol/2,5-Dimethylphenol	<10	NA	NA	NA	NA	<10	NA
2,5-Dimethylphenol	NA	NA	NA	NA	<20	NA	NA
2,6-Dimethylphenol	<10	NA	NA	NA	<10	<10	NA
2-Methylnaphthalene	<5.0	<5	<5	<5	<5	<5.0	<67
2-Methylphenol	<5.0	<5	<5	<5	<5	<5.0	580
2-Nitrophenol	<5.0	<5	<5	<20	<20	<5.0	<67
3,4-Dimethylphenol	<10	NA	NA	NA	<10	<10	NA
3-Methylphenol	NA	NA	NA	<10	<10	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	NA	NA	NA	NA	<5.0	NA
4-Methylphenol	NA	<5	<5	<5	<5	NA	320
Anthracene	<5.0	<5	<5	<5	<5	<5.0	<67
Benzo(a)anthracene	<5.0	<5	<5	<5	<5	<5.0	<67
Benzo(a)pyrene	<5.0	<5	<5	<5	<5	<5.0	<67
Benzo(b)fluoranthene	<5.0	<5	<5	<5	<5	<5.0	<67
Benzo(g,h,i)perylene	<5.0	<5	<5	<5	<5 J	<5.0	<67
Benzo(k)fluoranthene	<5.0	<5	<5	<5	<5 J	<5.0	<67
bis(2-Ethylhexyl)phthalate	<5.0	3.3 J	<5	<5	<5	<5.0	29 J
Butylbenzylphthalate	<5.0	<5	<5	<5	<5	<5.0	<67
Carbazole	<5.0	<10	<10	<5	<5 J	<5.0	<130
Chrysene	<5.0	<5	<5	<5	<5	<5.0	<67
Dibenzo(a,h)anthracene	<5.0	<5	<5	<5	<5	<5.0	<67
Diethylphthalate	<5.0	<5	<5	<5	<5	<5.0	<67
Dimethylphthalate	<5.0	<5	<5	<5	<5	<5.0	<67
Di-n-butylphthalate	<5.0	<5	<5	<5	<5	<5.0	<67
Di-n-octylphthalate	<5.0	<5	<5	<5	<5	<5.0	<67
Fluoranthene	<5.0	<5	<5	<5	<5	<5.0	<67
Hexachlorobenzene	<5.0	<5	<5	<5	<5	<5.0	<67
Indeno(1,2,3-c,d)pyrene	<5.0	<5	<5	<5	<5	<5.0	<67
Naphthalene	<5.0	<5	<5	<10	<10	<5.0	<67
Phenanthrene	<5.0	<5	<5	<5	<5	<5.0	<67
Phenol	<5.0	<5	<5	<5	<5	<5.0	<67
Pyrene	<5.0	<5	<5	<5	<5	<5.0	<67

Footnotes on Page 86.

ARCADIS

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-3B (continued)						GM-4
Top of Screen Depth (ft bls)	170	170	170	170	170	170	76
Sample Date	10/14/97	10/08/98	04/17/99	04/17/99	05/11/04	05/11/04	06/26/97
Sample ID	GM-3B	GWGM-3B	GWGM-3B	GWGM-88	GWGM-3B (5/11/04)	GWGM-3B (5/11/04)-DL	GWGM-4
1,4-Dichlorobenzene	<20	<25	<25	<25	<10	<20	<5
2,3-Dimethylphenol	NA	NA	<50	<50	42	19 DJ	NA
2,4-Dimethylphenol	100	350	280	190	NA	NA	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	**620 E**	330 D	NA
2,5-Dimethylphenol	NA	NA	<100	100	NA	NA	NA
2,6-Dimethylphenol	NA	NA	100	100	140	64 D	NA
2-Methylnaphthalene	<20	<25	<25	<25	<10	<20	<5
2-Methylphenol	**220**	**690**	**460**	**470**	**320**	**160 D**	<5
2-Nitrophenol	<20	<50	<50	<50	<10	<20	<5
3,4-Dimethylphenol	NA	NA	62	65	<20	<40	NA
3-Methylphenol	NA	**110**	<50	<50	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	<10	<20	NA
4-Methylphenol	**140**	**110**	<25	<25	NA	NA	<5
Anthracene	<20	<25	<25	<25	<10	<20	<5
Benzo(a)anthracene	<20	<25	<25	<25	<10	<20	<5
Benzo(a)pyrene	<20	<25	<25	<25	<10	<20	<5
Benzo(b)fluoranthene	<20	<25	<25	<25	<10	<20	<5
Benzo(g,h,i)perylene	<20	<25	<25	<25	<10	<20	<5
Benzo(k)fluoranthene	<20	<25	<25 J	<25 J	<10	<20	<5
bis(2-Ethylhexyl)phthalate	23	<25	<25	<25	<10	<20	6.9
Butylbenzylphthalate	<20	<25	<25	<25	<10	<20	<5
Carbazole	<40	<25	<25 J	<25 J	<10	<20	<10
Chrysene	<20	<25	<25	<25	<10	<20	<5
Dibenzo(a,h)anthracene	<20	<25	<25	<25	<10	<20	<5
Diethylphthalate	<20	<25	<25	<25	<10	<20	<5
Dimethylphthalate	<20	<25	<25	<25	<10	<20	<5
Di-n-butylphthalate	<20	<25	<25	<25	<10	<20	<5
Di-n-octylphthalate	<20	<25	<25	<25	<10	<20	<5
Fluoranthene	<20	<25	<25	<25	<10	<20	<5
Hexachlorobenzene	<20	<25	<25	<25	<10	<20	<5
Indeno(1,2,3-c,d)pyrene	<20	<25	<25	<25	<10	<20	<5
Naphthalene	<20	<50	<50	<50	<10	<20	<5
Phenanthrene	<20	<25	<25	<25	<10	<20	<5
Phenol	<20	<25	<25	<25	<10	<20	<5
Pyrene	<20	<25	<25	<25	<10	<20	<5

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-4 (continued)			GM-5					
Top of Screen Depth (ft bls)	76	76	76	250	250	250	250	250	250
Sample Date	10/14/97	10/20/98	04/21/99	07/02/97	10/15/97	04/18/99	11/30/99	08/15/00	09/20/00
Sample ID	GM-4	GWGM-4	GWGM-4	GWGM-5	GM-5	GWGM-5	GM-5	GWGM-5	GWGM-5
1,4-Dichlorobenzene	<5	<5	<5	<100	<100	<50	<20	NA	NA
2,3-Dimethylphenol	NA	NA	<10	NA	NA	100	NA	NA	NA
2,4-Dimethylphenol	<5	<5	<5	**1,100**	**910**	**870**	**900**	**1,000**	**1,100**
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,5-Dimethylphenol	NA	NA	<20	NA	NA	<200	NA	NA	NA
2,6-Dimethylphenol	NA	NA	<10	NA	NA	460	NA	NA	NA
2-Methylnaphthalene	<5	<5	<5	<100	<100	<50	<20	NA	NA
2-Methylphenol	<5	<5	<5	<100	<100	<50	<20	<25	<25
2-Nitrophenol	<5	<20	<20	<100	<100	<100	<20	NA	NA
3,4-Dimethylphenol	NA	NA	<10	NA	NA	<100	NA	NA	NA
3-Methylphenol	NA	<10	<10	NA	NA	<100	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	<20	<25	<25
4-Methylphenol	<5	<5	<5	<100	<100	<50	NA	NA	NA
Anthracene	<5	<5	<5	<100	<100	<50	<20	NA	NA
Benzo(a)anthracene	<5	<5	<5	<100	<100	<50	<20	NA	NA
Benzo(a)pyrene	<5	<5	<5	<100	<100	<50	<20	NA	NA
Benzo(b)fluoranthene	<5	<5	<5	<100	<100	<50	<20	NA	NA
Benzo(g,h,i)perylene	<5	<5	<5	<100	<100	<50	<20	NA	NA
Benzo(k)fluoranthene	<5	<5	<5 J	<100	<100	<50 J	<20	NA	NA
bis(2-Ethylhexyl)phthalate	<5	<5	<5 J	<100	<100	<50	<20	NA	NA
Butylbenzylphthalate	<5	<5	<5 J	<100	<100	<50	<20	NA	NA
Carbazole	<10	<5	<5 J	<200	<200	<50 J	<20	NA	NA
Chrysene	<5	<5	<5	<100	<100	<50	<20	NA	NA
Dibenzo(a,h)anthracene	<5	<5	<5	<100	<100	<50	<20	NA	NA
Diethylphthalate	<5	<5	<5	<100	<100	<50	<20	NA	NA
Dimethylphthalate	<5	<5	<5	<100	<100	<50	<20	NA	NA
Di-n-butylphthalate	<5	<5	<5	<100	<100	<50	<20	NA	NA
Di-n-octylphthalate	<5	<5	<5	<100	<100	<50	<20	NA	NA
Fluoranthene	<5	<5	<5	<100	<100	<50	<20	NA	NA
Hexachlorobenzene	<5	<5	<5	<100	<100	<50	<20	NA	NA
Indeno(1,2,3-c,d)pyrene	<5	<5	<5	<100	<100	<50	<20	NA	NA
Naphthalene	<5	<10	<10	<100	<100	<100	<20	NA	NA
Phenanthrene	<5	<5	<5	<100	<100	<50	<20	NA	NA
Phenol	<5	<5	<5	<100	<100	<50	<20	<25	<25
Pyrene	<5	<5	<5	<100	<100	<50	<20	NA	NA

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-6							GM-7	
Top of Screen Depth (ft bls)	165	165	165	165	165	165	165	145	145
Sample Date	06/28/97	10/22/97	10/10/98	04/19/99	02/29/00	07/19/00	09/25/00	06/29/97	10/11/97
Sample ID	GWGM-6	GM-6	GWGM-6	GWGM-6	GWGM-6	GWGM-6	GWGM-6	GWGM-7	GM-7
1,4-Dichlorobenzene	<20	<25	<10	<12	NA	<5.0	NA	<5	<5
2,3-Dimethylphenol	NA	NA	NA	28	NA	NA	NA	NA	NA
2,4-Dimethylphenol	240	250	220	270	210	260	200	<5	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,5-Dimethylphenol	NA	NA	NA	<50	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	200	NA	NA	NA	NA	NA
2-Methylnaphthalene	<20	<25	<10	<12	NA	<5.0	NA	<5	<5
2-Methylphenol	<20	<25	<10	<12	<5	<5.0	<5.0	<5	<5
2-Nitrophenol	<20	<25	<20	<25	NA	<5.0	NA	<5	<5
3,4-Dimethylphenol	NA	NA	NA	<25	NA	NA	NA	NA	NA
3-Methylphenol	NA	NA	<20	<25	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	<5	<5.0	<5.0	NA	NA
4-Methylphenol	<20	<25	<10	<12	NA	NA	NA	<5	<5
Anthracene	<20	<25	<10	<12	NA	<5.0	NA	<5	<5
Benzo(a)anthracene	<20	<25	<10	<12	NA	<5.0	NA	<5	<5
Benzo(a)pyrene	<20	<25	<10	<12	NA	<5.0	NA	<5	<5
Benzo(b)fluoranthene	<20	<25	<10	<12	NA	<5.0	NA	<5	<5
Benzo(g,h,i)perylene	<20	<25	<10	<12	NA	<5.0	NA	<5	<5
Benzo(k)fluoranthene	<20	<25	<10	<12 J	NA	<5.0	NA	<5	<5
bis(2-Ethylhexyl)phthalate	15 J	6.7 J	10	54 J	NA	38 J	NA	7.9	<5
Butylbenzylphthalate	<20	<25	<10	<12 J	NA	<5.0	NA	<5	<5
Carbazole	<40	<50	<10	<12 J	NA	<5.0	NA	<10	<10
Chrysene	<20	<25	<10	<12	NA	<5.0	NA	<5	<5
Dibenzo(a,h)anthracene	<20	<25	<10	<12	NA	<5.0	NA	<5	<5
Diethylphthalate	<20	<25	<10	<12	NA	<5.0	NA	<5	<5
Dimethylphthalate	<20	<25	<10	<12	NA	<5.0	NA	<5	<5
Di-n-butylphthalate	<20	<25	<10	<12	NA	<5.0	NA	<5	<5
Di-n-octylphthalate	<20	<25	<10	<12	NA	<5.0	NA	<5	<5
Fluoranthene	<20	<25	<10	<12	NA	<5.0	NA	<5	<5
Hexachlorobenzene	<20	<25	<10	<12	NA	<5.0	NA	<5	<5
Indeno(1,2,3-c,d)pyrene	<20	<25	<10	<12	NA	<5.0	NA	<5	<5
Naphthalene	<20	<25	<20	<25	NA	<5.0	NA	<5	<5
Phenanthrene	<20	<25	<10	<12	NA	<5.0	NA	<5	<5
Phenol	<20	<25	<10	<12	<5	<5.0	<5.0	<5	<5
Pyrene	<20	<25	<10	<12	NA	<5.0	NA	<5	<5

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-7 (continued)				GM-8				
Top of Screen Depth (ft bls)	145	145	145	145	79	79	79	79	79
Sample Date	10/23/98	05/01/99	09/23/03	05/03/04	06/30/97	10/12/97	10/09/98	04/13/99	10/21/99
Sample ID	GWGM-7	GWGM-7	GM-7	GWGM-7 (5/3/04)	GWGM-8	GM-8	GWGM-8	GWGM-8	GM-8
1,4-Dichlorobenzene	<5	<5	<5.0	<5.0	<5	<5	<5	<5	<5.0
2,3-Dimethylphenol	NA	<10	<10	<10	NA	NA	NA	<10	NA
2,4-Dimethylphenol	<5	<5	NA	NA	<5	<5	<5	<5	<5.0
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	<10	<10	NA	NA	NA	NA	NA
2,5-Dimethylphenol	NA	<20	NA	NA	NA	NA	NA	<20	NA
2,6-Dimethylphenol	NA	<10	<10	<10	NA	NA	NA	<10	NA
2-Methylnaphthalene	<5	<5	<5.0	<5.0	<5	<5	<5	<5	<5.0
2-Methylphenol	<5	<5	<5.0	<5.0	<5	<5	<5	<5	<5.0
2-Nitrophenol	<20	<20	<5.0	<5.0	<5	<5	<20	<20	<5.0
3,4-Dimethylphenol	NA	<10	<10	<10	NA	NA	NA	<10	NA
3-Methylphenol	<10	<10	NA	NA	NA	NA	<10	<10	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	<5.0	<5.0	NA	NA	NA	NA	<5.0
4-Methylphenol	<5	<5	NA	NA	<5	<5	<5	<5	NA
Anthracene	<5	<5	<5.0	<5.0	<5	<5	<5	<5	<5.0
Benzo(a)anthracene	<5	<5	<5.0	<5.0	<5	<5	<5	<5	<5.0
Benzo(a)pyrene	<5	<5	<5.0	<5.0	<5	<5	<5	<5	<5.0
Benzo(b)fluoranthene	<5	<5	<5.0	<5.0	<5	<5	<5	<5	<5.0
Benzo(g,h,i)perylene	<5	<5	<5.0	<5.0	<5	<5	<5	<5 J	<5.0
Benzo(k)fluoranthene	<5	<5	<5.0	<5.0	<5	<5	<5	<5 J	<5.0
bis(2-Ethylhexyl)phthalate	10	<5	<5.0	<5.0	1.9 J	<5	<5	<5	<5.0
Butylbenzylphthalate	<5	<5	<5.0	<5.0	<5	<5	<5	<5	<5.0
Carbazole	<5	<5	<5.0	<5.0	<10	<10	<5	<5 J	<5.0
Chrysene	<5	<5	<5.0	<5.0	<5	<5	<5	<5	<5.0
Dibenzo(a,h)anthracene	<5	<5	<5.0	<5.0	<5	<5	<5	<5	<5.0
Diethylphthalate	<5	<5	<5.0	<5.0	<5	<5	<5	<5	<5.0
Dimethylphthalate	<5	<5	<5.0	<5.0	<5	<5	<5	<5	<5.0
Di-n-butylphthalate	<5	<5	<5.0	<5.0	<5	<5	<5	<5	<5.0
Di-n-octylphthalate	<5	<5	<5.0	<5.0	<5	<5	<5	<5	<5.0
Fluoranthene	<5	<5	<5.0	<5.0	<5	<5	<5	<5	<5.0
Hexachlorobenzene	<5	<5	<5.0	<5.0	<5	<5	<5	<5	<5.0
Indeno(1,2,3-c,d)pyrene	<5	<5	<5.0	<5.0	<5	<5	<5	<5	<5.0
Naphthalene	<10	<10	<5.0	<5.0	<5	<5	<10	<10	<5.0
Phenanthrene	<5	<5	<5.0	<5.0	<5	<5	<5	<5	<5.0
Phenol	<5	<5	<5.0	<5.0	<5	<5	<5	<5	<5.0
Pyrene	<5	<5	<5.0	<5.0	<5	<5	<5	<5	<5.0

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-9						GM-10	
Top of Screen Depth (ft bls)	164	164	164	164	164	164	170	170
Sample Date	10/13/97	10/11/98	04/18/99	09/10/03	05/03/04	07/28/05	10/14/97	11/06/98
Sample ID	GM-9	GWGM-9	GWGM-9	GM-9	GWGM-9 (5/3/04)	GWGM-9 (072805)	GM-10	GWGM-10
1,4-Dichlorobenzene	<5	<5	<5	<5.0	<5.0	<4.9	<5	<5
2,3-Dimethylphenol	NA	NA	<10	<10	<10	<9.8	NA	NA
2,4-Dimethylphenol	<5	<5	<5	NA	NA	<4.9	<5	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	<10	<10	<9.8	NA	NA
2,5-Dimethylphenol	NA	NA	<20	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	<10	<10	<10	<9.8	NA	NA
2-Methylnaphthalene	<5	<5	<5	<5.0	<5.0	<4.9	<5	<5
2-Methylphenol	<5	<5	<5	<5.0	<5.0	<4.9	<5	<5
2-Nitrophenol	<5	<20	<20	<5.0	<5.0	1.8 J	<5	<20
3,4-Dimethylphenol	NA	NA	<10	<10	<10	<9.8	NA	NA
3-Methylphenol	NA	<10	<10	NA	NA	NA	NA	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	<5.0	<5.0	<4.9	NA	NA
4-Methylphenol	<5	<5	<5	NA	NA	NA	<5	<5
Anthracene	<5	<5	<5	<5.0	<5.0	<4.9	<5	<5
Benzo(a)anthracene	<5	<5	<5	<5.0	<5.0	<4.9	<5	<5
Benzo(a)pyrene	<5	<5	<5	<5.0	<5.0	<4.9	<5	<5
Benzo(b)fluoranthene	<5	<5	<5	<5.0	<5.0	<4.9	<5	<5
Benzo(g,h,i)perylene	<5	<5	<5	<5.0	<5.0	<4.9	<5	<5
Benzo(k)fluoranthene	<5	<5	<5 J	<5.0	<5.0	<4.9	<5	<5
bis(2-Ethylhexyl)phthalate	5.2	<5	<5	<5.0	<5.0	<4.9	<5	<5
Butylbenzylphthalate	<5	<5	<5	<5.0	<5.0	<4.9	<5	<5
Carbazole	<10	<5	<5 J	<5.0	<5.0	<4.9	<10	<5
Chrysene	<5	<5	<5	<5.0	<5.0	<4.9	<5	<5
Dibenzo(a,h)anthracene	<5	<5	<5	<5.0	<5.0	<4.9	<5	<5
Diethylphthalate	<5	<5	<5	<5.0	<5.0	<4.9	<5	<5
Dimethylphthalate	<5	<5	<5	<5.0	<5.0	<4.9	<5	<5
Di-n-butylphthalate	<5	<5	<5	<5.0	<5.0	<4.9	<5	<5
Di-n-octylphthalate	<5	<5	<5	<5.0	<5.0	<4.9	<5	<5
Fluoranthene	<5	<5	<5	<5.0	<5.0	<4.9	<5	<5
Hexachlorobenzene	<5	<5	<5	<5.0	<5.0	<4.9	<5	<5
Indeno(1,2,3-c,d)pyrene	<5	<5	<5	<5.0	<5.0	<4.9	<5	<5
Naphthalene	<5	<10	<10	<5.0	<5.0	<4.9	<5	<10
Phenanthrene	<5	<5	<5	<5.0	<5.0	<4.9	<5	<5
Phenol	<5	<5	<5	<5.0	<5.0	<4.9	<5	<5
Pyrene	<5	<5	<5	<5.0	<5.0	<4.9	<5	<5

Footnotes on Page 86.

ARCADIS

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-10 (continued)	GM-11	GM-12			GM-13	
Top of Screen Depth (ft bls)	170	174.7	290	290	290	325	325
Sample Date	04/27/99	10/15/97	10/22/97	10/10/98	04/19/99	10/22/97	04/20/99
Sample ID	GWGM-10	GM-11	GM-12	GWGM-12	GWGM-12	GM-13	GWGM-13
1,4-Dichlorobenzene	<5	<5	<5	<5	<5	<5	<5
2,3-Dimethylphenol	<10	NA	NA	NA	<10	NA	<10
2,4-Dimethylphenol	<5	<5	<5	<5	<5	18	39
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2,5-Dimethylphenol	<20	NA	NA	NA	<20	NA	<20
2,6-Dimethylphenol	<10	NA	NA	NA	<10	NA	32
2-Methylnaphthalene	<5	<5	<5	<5	<5	<5	<5
2-Methylphenol	<5	<5	<5	<5	<5	<5	<5
2-Nitrophenol	<20	<5	<5	<20	<20	<5	<20
3,4-Dimethylphenol	<10	NA	NA	NA	<10	NA	<10
3-Methylphenol	<10	NA	NA	<10	<10	NA	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	<5	<5	<5	<5	<5	<5	<5
Anthracene	<5	<5	<5	<5	<5	<5	<5
Benzo(a)anthracene	<5	<5	<5	<5	<5	<5	<5
Benzo(a)pyrene	<5	<5	<5	<5	<5	<5	<5
Benzo(b)fluoranthene	<5	<5	<5	<5	<5	<5	<5
Benzo(g,h,i)perylene	<5	<5	<5	<5	<5	<5	<5
Benzo(k)fluoranthene	<5	<5	<5	<5	<5 J	<5	<5 J
bis(2-Ethylhexyl)phthalate	<5	<5	5.3	<5	<5	2.0 J	<5 J
Butylbenzylphthalate	<5	<5	<5	<5	<5	<5	<5 J
Carbazole	<5	<10	<10	<5	<5 J	<10	<5 J
Chrysene	<5	<5	<5	<5	<5	<5	<5
Dibenzo(a,h)anthracene	<5	<5	<5	<5	<5	<5	<5
Diethylphthalate	<5	<5	<5	<5	<5	<5	<5
Dimethylphthalate	<5	<5	<5	<5	<5	<5	<5
Di-n-butylphthalate	<5	<5	<5	<5	<5	<5	6.2
Di-n-octylphthalate	<5	<5	<5	<5	<5	<5	<5
Fluoranthene	<5	<5	<5	<5	<5	<5	<5
Hexachlorobenzene	<5	<5	<5	<5	<5	<5	<5
Indeno(1,2,3-c,d)pyrene	<5 J	<5	<5	<5	<5	<5	<5
Naphthalene	<10	<5	<5	<10	<10	<5	<10
Phenanthrene	<5	<5	<5	<5	<5	<5	<5
Phenol	<5	<5	<5	<5	<5	<5	<5
Pyrene	<5	<5	<5	<5	<5	<5	<5

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-13 (continued)	GM-14			GM-15		
Top of Screen Depth (ft bls)	325	135	135	135	165	165	165
Sample Date	05/18/04	10/21/97	10/28/98	05/02/99	10/20/97	10/11/98	04/20/99
Sample ID	GWGM-13 (5/18/04)	GM-14	GWGM-14	GWGM-14	GM-15	GWGM-15	GWGM-15
1,4-Dichlorobenzene	<5.0	<5	<5	<5	<5	<5	<5
2,3-Dimethylphenol	14	NA	NA	<10	NA	NA	<10
2,4-Dimethylphenol	NA	1.3 J	<5	<5	<5	<5	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	20	NA	NA	NA	NA	NA	NA
2,5-Dimethylphenol	NA	NA	NA	<20	NA	NA	<20
2,6-Dimethylphenol	9.9 J	NA	NA	<10	NA	NA	<10
2-Methylnaphthalene	<5.0	<5	<5	<5	<5	<5	<5
2-Methylphenol	<5.0	<5	<5	<5	<5	<5	<5
2-Nitrophenol	<5.0	<5	<20	<20	<5	<20	<20
3,4-Dimethylphenol	<10	NA	NA	<10	NA	NA	<10
3-Methylphenol	NA	NA	<10	<10	NA	<10	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	9.6	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	<5	<5	<5	<5	<5	<5
Anthracene	<5.0	<5	<5	<5	<5	<5	<5
Benzo(a)anthracene	<5.0	<5	<5	<5	<5	<5	<5
Benzo(a)pyrene	<5.0	<5	<5	<5	<5	<5	<5
Benzo(b)fluoranthene	<5.0	<5	<5	<5	<5	<5	<5
Benzo(g,h,i)perylene	<5.0	<5	<5	<5	<5	<5	<5
Benzo(k)fluoranthene	<5.0	<5	<5	<5	<5	<5	<5 J
bis(2-Ethylhexyl)phthalate	<5.0	<5	<5	<5	6	<5	7.1 J
Butylbenzylphthalate	<5.0	<5	<5	<5	<5	<5	<5 J
Carbazole	<5.0	<10	<5	<5	<10	<5	<5 J
Chrysene	<5.0	<5	<5	<5	<5	<5	<5
Dibenzo(a,h)anthracene	<5.0	<5	<5	<5	<5	<5	<5
Diethylphthalate	<5.0	<5	<5	<5	<5	<5	<5
Dimethylphthalate	<5.0	<5	<5	<5	1.9 J	<5	<5
Di-n-butylphthalate	<5.0	<5	<5	<5	<5	<5	<5
Di-n-octylphthalate	<5.0	<5	<5	<5	<5	<5	<5
Fluoranthene	<5.0	<5	<5	<5	<5	<5	<5
Hexachlorobenzene	<5.0	<5	<5	<5	<5	<5	<5
Indeno(1,2,3-c,d)pyrene	<5.0	<5	<5	<5	<5	<5	<5
Naphthalene	<5.0	<5	<10	<10	<5	<10	<10
Phenanthrene	<5.0	<5	<5	<5	<5	<5	<5
Phenol	<5.0	<5	<5	<5	<5	<5	<5
Pyrene	<5.0	<5	<5	<5	<5	<5	<5

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-15 (continued)		GM-16				
Top of Screen Depth (ft bls)	165	165	108	108	108	108	108
Sample Date	05/10/04	05/10/04	10/22/97	10/22/97	10/09/98	04/14/99	09/23/03
Sample ID	GWGM-15 (5/10/04)	GWGM-996 (5/10/04)	GM-16	GM-78	GWGM-16	GWGM-16	GM-16
1,4-Dichlorobenzene	<5.0	<5.0	<5	<5	<5	<5	<5.0
2,3-Dimethylphenol	<10	<10	NA	NA	NA	<10	<10
2,4-Dimethylphenol	NA	NA	<5	<5	<5	<5	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	<10	<10	NA	NA	NA	NA	<10
2,5-Dimethylphenol	NA	NA	NA	NA	NA	<20	NA
2,6-Dimethylphenol	<10	<10	NA	NA	NA	<10	<10
2-Methylnaphthalene	<5.0	<5.0	<5	<5	<5	<5	<5.0
2-Methylphenol	<5.0	<5.0	<5	<5	<5	<5	<5.0
2-Nitrophenol	<5.0	<5.0	<5	<5	<20	<20	<5.0
3,4-Dimethylphenol	<10	<10	NA	NA	NA	<10	<10
3-Methylphenol	NA	NA	NA	NA	<10	<10	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	<5.0	NA	NA	NA	NA	<5.0
4-Methylphenol	NA	NA	<5	<5	<5	<5	NA
Anthracene	<5.0	<5.0	<5	<5	<5	<5	<5.0
Benzo(a)anthracene	<5.0	<5.0	<5	<5	<5	<5	<5.0
Benzo(a)pyrene	<5.0	<5.0	<5	<5	<5	<5	<5.0
Benzo(b)fluoranthene	<5.0	<5.0	<5	<5	<5	<5	<5.0
Benzo(g,h,i)perylene	<5.0	<5.0	<5	<5	<5	<5 J	<5.0
Benzo(k)fluoranthene	<5.0	<5.0	<5	<5	<5	<5 J	<5.0
bis(2-Ethylhexyl)phthalate	<5.0	<5.0	9.5	<5	<5	<5	<5.0
Butylbenzylphthalate	<5.0	<5.0	<5	<5	<5	<5	<5.0
Carbazole	<5.0	<5.0	<10	<10	<5	<5 J	<5.0
Chrysene	<5.0	<5.0	<5	<5	<5	<5	<5.0
Dibenzo(a,h)anthracene	<5.0	<5.0	<5	<5	<5	<5	<5.0
Diethylphthalate	<5.0	<5.0	<5	<5	<5	<5	<5.0
Dimethylphthalate	<5.0	<5.0	<5	<5	<5	<5	<5.0
Di-n-butylphthalate	<5.0	<5.0	<5	<5	<5	<5	<5.0
Di-n-octylphthalate	<5.0	<5.0	<5	<5	<5	<5	<5.0
Fluoranthene	<5.0	<5.0	<5	<5	<5	<5	<5.0
Hexachlorobenzene	<5.0	<5.0	<5	<5	<5	<5	<5.0
Indeno(1,2,3-c,d)pyrene	<5.0	<5.0	<5	<5	<5	<5	<5.0
Naphthalene	<5.0	<5.0	<5	<5	<10	<10	<5.0
Phenanthrene	<5.0	<5.0	<5	<5	<5	<5	<5.0
Phenol	<5.0	<5.0	<5	<5	<5	<5	<5.0
Pyrene	<5.0	<5.0	<5	<5	<5	<5	<5.0

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-16 (continued)	GM-17			GM-18		GM-19
Top of Screen Depth (ft bls)	108	224.3	224.3	224.3	50	50	46
Sample Date	04/27/04	10/28/97	10/12/98	04/26/99	12/04/97	11/07/98	12/11/97
Sample ID	GWGM-16 (4/27/04)	GM-17	GWGM-17	GWGM-17	GM-18	GWGM-18	GM-19
1,4-Dichlorobenzene	<5.0	<5	<5	<5	<5	<5	<5
2,3-Dimethylphenol	<10	NA	NA	<10	NA	NA	NA
2,4-Dimethylphenol	NA	<5	<5	<5	<5	<5	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	<10	NA	NA	NA	NA	NA	NA
2,5-Dimethylphenol	NA	NA	NA	<20	NA	NA	NA
2,6-Dimethylphenol	<10	NA	NA	<10	NA	NA	NA
2-Methylnaphthalene	<5.0	<5	<5	<5	<5	<5	<5
2-Methylphenol	<5.0	<5	<5	<5	<5	<5	<5
2-Nitrophenol	<5.0	<5	<20	<20	<5	<20	<5
3,4-Dimethylphenol	<10	NA	NA	<10	NA	NA	NA
3-Methylphenol	NA	NA	<10	<10	NA	<10	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	<5	<5	<5	<5	<5	<5
Anthracene	<5.0	<5	<5	<5	<5	<5	<5
Benzo(a)anthracene	<5.0	<5	<5	<5	<5	<5	<5
Benzo(a)pyrene	<5.0	<5	<5	<5	<5	<5	<5
Benzo(b)fluoranthene	<5.0	<5	<5	<5	<5	<5	<5
Benzo(g,h,i)perylene	<5.0	<5	<5	<5	<5	<5	<5
Benzo(k)fluoranthene	<5.0	<5	<5	<5	<5	<5	<5
bis(2-Ethylhexyl)phthalate	<5.0	<5	<5	<5	<5	<5	<5
Butylbenzylphthalate	<5.0	1.3 J	<5	<5	<5	<5	<5
Carbazole	<5.0	<10	<5	<5 J	<10	<5	<10
Chrysene	<5.0	<5	<5	<5	<5	<5	<5
Dibenzo(a,h)anthracene	<5.0	<5	<5	<5	<5	<5	<5
Diethylphthalate	<5.0	<5	<5	<5	<5	<5	<5
Dimethylphthalate	<5.0	<5	<5	<5	<5	<5	<5
Di-n-butylphthalate	<5.0	<5	<5	<5	<5	<5	<5
Di-n-octylphthalate	<5.0	<5	<5	<5	<5	<5	<5
Fluoranthene	<5.0	<5	<5	<5	<5	<5	<5
Hexachlorobenzene	<5.0	<5	<5	<5	<5	<5	<5
Indeno(1,2,3-c,d)pyrene	<5.0	<5	<5	<5	<5	<5	<5
Naphthalene	<5.0	<5	<10	<10	<5	<10	<5
Phenanthrene	<5.0	<5	<5	<5	<5	<5	<5
Phenol	<5.0	<5	<5	<5	<5	<5	<5
Pyrene	<5.0	<5	<5	<5	<5	<5	<5

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-20	GM-21					GM-22	
Top of Screen Depth (ft bls)	42	5	5	5	5	5	6	6
Sample Date	12/05/97	12/03/97	12/03/97	10/13/98	01/29/01	09/09/05	12/05/97	10/10/98
Sample ID	GM-20	GM-21	GM-95	GWGM-21	GWGM-21	GWGM-21 (9/9/05)	GM-22	GWGM-22
1,4-Dichlorobenzene	<5	<5	<5	<5	<5.0	<5.0	<5	<5
2,3-Dimethylphenol	NA	NA	NA	NA	NA	<9.9	NA	NA
2,4-Dimethylphenol	<5	<5	<5	<5	<5.0	<5.0	<5	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	<9.9	NA	NA
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	<9.9	NA	NA
2-Methylnaphthalene	<5	<5	<5	<5	<5.0	<5.0	<5	<5
2-Methylphenol	<5	<5	<5	<5	<5.0	<5.0	<5	<5
2-Nitrophenol	<5	<5	<5	<20	<5.0	<5.0	<5	<20
3,4-Dimethylphenol	NA	NA	NA	NA	NA	<9.9	NA	NA
3-Methylphenol	NA	NA	NA	<10	NA	NA	NA	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	<5.0	<5.0	NA	NA
4-Methylphenol	<5	<5	<5	<5	NA	NA	<5	<5
Anthracene	<5	<5	<5	<5	<5.0	<5.0	<5	<5
Benzo(a)anthracene	<5	<5	<5	<5	<5.0	<5.0	<5	<5
Benzo(a)pyrene	<5	<5	<5	<5	<5.0	<5.0	<5	<5
Benzo(b)fluoranthene	<5	<5	<5	<5	<5.0	<5.0	<5	<5
Benzo(g,h,i)perylene	<5	<5	<5	<5	<5.0	<5.0	<5	<5
Benzo(k)fluoranthene	<5	<5	<5	<5	<5.0	<5.0	<5	<5
bis(2-Ethylhexyl)phthalate	<5	<5	<5	<5	<5.0	<5.0	<5	<5
Butylbenzylphthalate	<5	<5	<5	<5	<5.0	<5.0	<5	<5
Carbazole	<10	<10	<10	<5	<5.0	<5.0	<10	<5
Chrysene	<5	<5	<5	<5	<5.0	<5.0	<5	<5
Dibenzo(a,h)anthracene	<5	<5	<5	<5	<5.0	<5.0	<5	<5
Diethylphthalate	<5	<5	<5	<5	<5.0	<5.0	<5	<5
Dimethylphthalate	<5	<5	<5	<5	<5.0	<5.0	<5	<5
Di-n-butylphthalate	<5	<5	<5	<5	<5.0	<5.0	<5	<5
Di-n-octylphthalate	<5	<5	<5	<5	<5.0	<5.0	<5	<5
Fluoranthene	<5	<5	<5	<5	<5.0	<5.0	<5	<5
Hexachlorobenzene	<5	<5	<5	<5	<5.0	<5.0	<5	<5
Indeno(1,2,3-c,d)pyrene	<5	<5	<5	<5	<5.0	<5.0	<5	<5
Naphthalene	<5	<5	<5	<10	<5.0	<5.0	<5	<10
Phenanthrene	<5	<5	<5	<5	<5.0	<5.0	<5	<5
Phenol	<5	<5	<5	<5	<5.0	<5.0	<5	<5
Pyrene	<5	<5	<5	<5	<5.0	<5.0	<5	<5

Footnotes on Page 86.

ARCADIS

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-22 (continued)				GM-23	
Top of Screen Depth (ft bls)	6	6	6	6	3.5	3.5
Sample Date	04/13/99	01/15/01	09/08/05	09/08/05	12/03/97	10/10/98
Sample ID	GWGM-22	GWGM-22-RE	GWGM-22(9/8/05)	GWGM-999 (GM-22) (9/8/05)	GM-23	GWGM-23
1,4-Dichlorobenzene	<5	<5.0 J	<4.7	<4.7	<5	<5
2,3-Dimethylphenol	<10	NA	<9.3	<9.3	NA	NA
2,4-Dimethylphenol	<5	<5.0 J	<4.7	<4.7	<5	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	<9.3	<9.3	NA	NA
2,5-Dimethylphenol	<20	NA	NA	NA	NA	NA
2,6-Dimethylphenol	<10	NA	<9.3	<9.3	NA	NA
2-Methylnaphthalene	<5	<5.0 J	<4.7	<4.7	<5	<5
2-Methylphenol	<5	<5.0 J	<4.7	<4.7	<5	<5
2-Nitrophenol	<20	<5.0 J	<4.7	<4.7	<5	<20
3,4-Dimethylphenol	<10	NA	<9.3	<9.3	NA	NA
3-Methylphenol	<10	NA	NA	NA	NA	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	<5.0 J	<4.7	<4.7	NA	NA
4-Methylphenol	<5	NA	NA	NA	<5	<5
Anthracene	<5	<5.0 J	<4.7	<4.7	<5	<5
Benzo(a)anthracene	<5	0.58 J	<4.7	<4.7	<5	<5
Benzo(a)pyrene	<5	<5.0 J	<4.7	<4.7	<5	<5
Benzo(b)fluoranthene	<5	<5.0 J	<4.7	<4.7	<5	<5
Benzo(g,h,i)perylene	<5 J	<5.0 J	<4.7	<4.7	<5	<5
Benzo(k)fluoranthene	<5 J	<5.0 J	<4.7	<4.7	<5	<5
bis(2-Ethylhexyl)phthalate	<5	<5.0 J	<4.7	<4.7	<5	<5
Butylbenzylphthalate	<5	<5.0 J	<4.7	<4.7	<5	<5
Carbazole	<5 J	<5.0 J	<4.7	<4.7	<10	<5
Chrysene	<5	0.52 J	<4.7	<4.7	<5	<5
Dibenzo(a,h)anthracene	<5	<5.0 J	<4.7	<4.7	<5	<5
Diethylphthalate	<5	<5.0 J	<4.7	<4.7	<5	<5
Dimethylphthalate	<5	<5.0 J	<4.7	<4.7	<5	<5
Di-n-butylphthalate	<5	<5.0 J	<4.7	<4.7	<5	<5
Di-n-octylphthalate	<5	<5.0 J	<4.7	<4.7	<5	<5
Fluoranthene	<5	1.0 J	<4.7	<4.7	<5	<5
Hexachlorobenzene	<5	<5.0 J	<4.7	<4.7	<5	<5
Indeno(1,2,3-c,d)pyrene	<5	<5.0 J	<4.7	<4.7	<5	<5
Naphthalene	<10	<5.0 J	<4.7	<4.7	<5	<10
Phenanthrene	<5	<5.0 J	<4.7	<4.7	<5	<5
Phenol	<5	<5.0 J	<4.7	<4.7	<5	<5
Pyrene	<5	<5.0 J	<4.7	<4.7	<5	<5

Footnotes on Page 86.

ARCADIS

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-23 (continued)				GM-24A	
Top of Screen Depth (ft bls)	3.5	3.5	3.5	3.5	71	71
Sample Date	01/16/01	05/12/04	05/12/04	09/08/05	11/09/98	05/04/99
Sample ID	GWGM-23-RE	GWGM-23 (5/12/04)	GWGM-995 (5/12/04)	GWGM-23(9/8/05)	GWGM-24A	GWGM-24A
1,4-Dichlorobenzene	<5.0 J	<5.0	<5.0	<4.7	<5	<5
2,3-Dimethylphenol	NA	<10	<10	<9.3	NA	<10
2,4-Dimethylphenol	<5.0 J	NA	NA	<4.7	<5	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	<10	<10	<9.3	NA	NA
2,5-Dimethylphenol	NA	NA	NA	NA	NA	<20
2,6-Dimethylphenol	NA	<10	<10	<9.3	NA	<10
2-Methylnaphthalene	<5.0 J	<5.0	<5.0	<4.7	<5	<5
2-Methylphenol	<5.0 J	<5.0	<5.0	<4.7	<5	<5
2-Nitrophenol	<5.0 J	<5.0	<5.0	<4.7	<20	<20
3,4-Dimethylphenol	NA	<10	<10	<9.3	NA	<10
3-Methylphenol	NA	NA	NA	NA	<10	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0 J	<5.0	<5.0	<4.7	NA	NA
4-Methylphenol	NA	NA	NA	NA	<5	<5
Anthracene	<5.0 J	<5.0	<5.0	<4.7	<5	<5
Benzo(a)anthracene	0.57 J	<5.0	<5.0	<4.7	<5	<5
Benzo(a)pyrene	<5.0 J	<5.0	<5.0	<4.7	<5	<5
Benzo(b)fluoranthene	<5.0 J	<5.0	<5.0	<4.7	<5	<5
Benzo(g,h,i)perylene	1.4 J	<5.0	<5.0	<4.7	<5	<5
Benzo(k)fluoranthene	0.53 J	<5.0	<5.0	<4.7	<5	<5
bis(2-Ethylhexyl)phthalate	4.3 J	<5.0	<5.0	1.6 J	<5	<5
Butylbenzylphthalate	<5.0 J	<5.0	<5.0	<4.7	<5	<5
Carbazole	<5.0 J	<5.0	<5.0	<4.7	<5	<5
Chrysene	0.50 J	<5.0	<5.0	<4.7	<5	<5
Dibenzo(a,h)anthracene	1.4 J	<5.0	<5.0	<4.7	<5	<5
Diethylphthalate	<5.0 J	<5.0	<5.0	<4.7	<5	<5
Dimethylphthalate	<5.0 J	<5.0	<5.0	<4.7	<5	<5
Di-n-butylphthalate	<5.0 J	<5.0	<5.0	<4.7	<5	<5
Di-n-octylphthalate	<5.0 J	<5.0	<5.0	<4.7	<5	<5
Fluoranthene	<5.0 J	<5.0	<5.0	<4.7	<5	<5
Hexachlorobenzene	<5.0 J	<5.0	<5.0	<4.7	<5	<5
Indeno(1,2,3-c,d)pyrene	1.4 J	<5.0	<5.0	<4.7	<5	<5 J
Naphthalene	<5.0 J	<5.0	<5.0	<4.7	<10	<10
Phenanthrene	<5.0 J	<5.0	<5.0	<4.7	<5	<5
Phenol	<5.0 J	<5.0	<5.0	<4.7	<5	<5
Pyrene	<5.0 J	<5.0	<5.0	<4.7	<5	<5

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-24B				GM-24C		
Top of Screen Depth (ft bls)	104	104	104	104	193	193	193
Sample Date	11/17/98	11/17/98	05/05/99	04/29/04	11/20/98	11/20/98	05/13/99
Sample ID	GWGM-24B	GWGM-94	GWGM-24B	GWGM-24B (4/29/04)	GWGM-24C	GWGM-93	GWGM-24C
1,4-Dichlorobenzene	<5	<5	<5	<5.0	<5	<5	<5
2,3-Dimethylphenol	NA	NA	<10	<10	NA	NA	<10
2,4-Dimethylphenol	<5	<5	<5	NA	<5	<5	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	<10	NA	NA	NA
2,5-Dimethylphenol	NA	NA	<20	NA	NA	NA	<20
2,6-Dimethylphenol	NA	NA	<10	<10	NA	NA	<10
2-Methylnaphthalene	<5	<5	<5	<5.0	<5	<5	<5
2-Methylphenol	<5	<5	<5	<5.0	<5	<5	<5
2-Nitrophenol	<20	<20	<20	<5.0	<20	<20	<20
3,4-Dimethylphenol	NA	NA	<10	<10	NA	NA	<10
3-Methylphenol	<10	<10	<10	NA	<10	<10	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	<5.0	NA	NA	NA
4-Methylphenol	<5	<5	<5	NA	<5	<5	<5
Anthracene	<5	<5	<5	<5.0	<5	<5	<5
Benzo(a)anthracene	<5	<5	<5	<5.0	<5	<5	<5
Benzo(a)pyrene	<5	<5	<5	<5.0	<5	<5	<5
Benzo(b)fluoranthene	<5	<5	<5	<5.0	<5	<5	<5
Benzo(g,h,i)perylene	<5	<5	<5	<5.0	<5	<5	<5
Benzo(k)fluoranthene	<5	<5	<5	<5.0	<5	<5	<5
bis(2-Ethylhexyl)phthalate	<5	<5	<5	<5.0	12	9.3	11
Butylbenzylphthalate	<5	<5	<5	<5.0	<5	<5	<5
Carbazole	<5	<5	<5 J	<5.0	<5	<5	<5 J
Chrysene	<5	<5	<5	<5.0	<5	<5	<5
Dibenzo(a,h)anthracene	<5	<5	<5	<5.0	<5	<5	<5
Diethylphthalate	<5	<5	<5	<5.0	<5	<5	<5
Dimethylphthalate	<5	<5	<5	<5.0	<5	<5	<5
Di-n-butylphthalate	<5	<5	<5	<5.0	<5	<5	<5
Di-n-octylphthalate	<5	<5	<5	<5.0	<5	<5	<5
Fluoranthene	<5	<5	<5	<5.0	<5	<5	<5
Hexachlorobenzene	<5	<5	<5	<5.0	<5	<5	<5
Indeno(1,2,3-c,d)pyrene	<5	<5	<5	<5.0	<5	<5	<5
Naphthalene	<10	<10	<10	<5.0	<10	<10	<10
Phenanthrene	<5	<5	<5	<5.0	<5	<5	<5
Phenol	<5	<5	<5	<5.0	<5	<5	<5
Pyrene	<5	<5	<5	<5.0	<5	<5	<5

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-24C (continued)		GM-25A				
Top of Screen Depth (ft bls)	193	193	19	19	19	19	19
Sample Date	09/24/03	04/29/04	10/06/98	04/16/99	12/01/99	08/21/00	09/09/03
Sample ID	GM-24C	GWGM-24C (4/29/04)	GWGM-25A	GWGM-25A	GM-25A	GWGM-25A	GM-25A
1,4-Dichlorobenzene	<5.0	<5.0	<50	<50	<20	NA	<25
2,3-Dimethylphenol	<10	<10	NA	140	NA	NA	<50
2,4-Dimethylphenol	NA	NA	**1,300**	**1,100**	**900**	**1,300**	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	<10	<10	NA	NA	NA	NA	**790**
2,5-Dimethylphenol	NA	NA	NA	<200	NA	NA	NA
2,6-Dimethylphenol	<10	<10	NA	550	NA	NA	350
2-Methylnaphthalene	<5.0	<5.0	<50	<50	<20	NA	<25
2-Methylphenol	<5.0	<5.0	<50	<50	<20	<25	<25
2-Nitrophenol	<5.0	<5.0	<100	<100	<20	NA	<25
3,4-Dimethylphenol	<10	<10	NA	<100	NA	NA	78
3-Methylphenol	NA	NA	<100	<100	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	<5.0	NA	NA	<20	<25	<25
4-Methylphenol	NA	NA	<50	<50	NA	NA	NA
Anthracene	<5.0	<5.0	<50	<50	<20	NA	<25
Benzo(a)anthracene	<5.0	<5.0	<50	<50	<20	NA	<25
Benzo(a)pyrene	<5.0	<5.0	<50	<50	<20	NA	<25
Benzo(b)fluoranthene	<5.0	<5.0	<50	<50	<20	NA	<25
Benzo(g,h,i)perylene	<5.0	<5.0	<50	<50	<20	NA	<25
Benzo(k)fluoranthene	<5.0	<5.0	<50	<50 J	<20	NA	<25
bis(2-Ethylhexyl)phthalate	<5.0	<5.0	<50	<50 J	<20	NA	<25
Butylbenzylphthalate	<5.0	<5.0	<50	<50 J	<20	NA	<25
Carbazole	<5.0	<5.0	<50	<50 J	<20	NA	<25
Chrysene	<5.0	<5.0	<50	<50	<20	NA	<25
Dibenzo(a,h)anthracene	<5.0	<5.0	<50	<50	<20	NA	<25
Diethylphthalate	<5.0	<5.0	<50	<50	<20	NA	<25
Dimethylphthalate	<5.0	<5.0	<50	<50	<20	NA	<25
Di-n-butylphthalate	<5.0	<5.0	<50	<50	<20	NA	<25
Di-n-octylphthalate	<5.0	<5.0	<50	<50	<20	NA	<25
Fluoranthene	<5.0	<5.0	<50	<50	<20	NA	<25
Hexachlorobenzene	<5.0	<5.0	<50	<50	<20	NA	<25
Indeno(1,2,3-c,d)pyrene	<5.0	<5.0	<50	<50	<20	NA	<25
Naphthalene	<5.0	<5.0	<100	<100	<20	NA	<25
Phenanthrene	<5.0	<5.0	<50	<50	<20	NA	<25
Phenol	<5.0	<5.0	<50	<50	<20	<25	<25
Pyrene	<5.0	<5.0	<50	<50	<20	NA	<25

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25A (continued)	GM-25B				
Top of Screen Depth (ft bls)	19	98	98	98	98	98
Sample Date	05/12/04	10/06/98	04/27/99	10/20/99	09/09/03	05/18/04
Sample ID	GWGM-25A (5/12/04)	GWGM-25B	GWGM-25B	GM-25B	GM-25B	GWGM-25B (5/18/04)
1,4-Dichlorobenzene	<20	<1,000	<500	<200	<500	<5.0
2,3-Dimethylphenol	28 J	NA	<1,000	NA	<1,000	<10
2,4-Dimethylphenol	NA	***5,300***	***3,400***	***3,900***	NA	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	<40	NA	NA	NA	***3,800***	<10
2,5-Dimethylphenol	NA	NA	<2,000	NA	NA	NA
2,6-Dimethylphenol	100	NA	2,000	NA	1,200	<10
2-Methylnaphthalene	<20	<1,000	<500	<200	<500	<5.0
2-Methylphenol	<20	***6,800***	***6,000***	***4,800***	***4,900***	<5.0
2-Nitrophenol	<20	<2,000	<1,000	<200	<500	<5.0
3,4-Dimethylphenol	<40	NA	<1,000	NA	<1,000	<10
3-Methylphenol	NA	***14,000***	***11,000***	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<20	NA	NA	***13,000***	***16,000***	<5.0
4-Methylphenol	NA	***14,000***	***11,000***	NA	NA	NA
Anthracene	<20	<1,000	<500	<200	<500	<5.0
Benzo(a)anthracene	<20	<1,000	<500	<200	<500	<5.0
Benzo(a)pyrene	<20	<1,000	<500	<200	<500	<5.0
Benzo(b)fluoranthene	<20	<1,000	<500	<200	<500	<5.0
Benzo(g,h,i)perylene	<20	<1,000	<500	<200	<500	<5.0
Benzo(k)fluoranthene	<20	<1,000	<500	<200	<500	<5.0
bis(2-Ethylhexyl)phthalate	<20	<1,000	<500	<200	<500	<5.0
Butylbenzylphthalate	<20	<1,000	<500	<200	<500	<5.0
Carbazole	<20	<1,000	<500 J	<200	<500	<5.0
Chrysene	<20	<1,000	<500	<200	<500	<5.0
Dibenzo(a,h)anthracene	<20	<1,000	<500	<200	<500	<5.0
Diethylphthalate	<20	<1,000	<500	<200	<500	<5.0
Dimethylphthalate	<20	<1,000	<500	<200	<500	<5.0
Di-n-butylphthalate	<20	<1,000	<500	<200	<500	<5.0
Di-n-octylphthalate	<20	<1,000	<500	<200	<500	<5.0
Fluoranthene	<20	<1,000	<500	<200	<500	<5.0
Hexachlorobenzene	<20	<1,000	<500	<200	<500	<5.0
Indeno(1,2,3-c,d)pyrene	<20	<1,000	<500	<200	<500	<5.0
Naphthalene	<20	<2,000	<1,000	<200	<500	<5.0
Phenanthrene	<20	<1,000	<500	<200	<500	<5.0
Phenol	<20	***9,700***	6,700	***8,000***	***6,900***	<5.0
Pyrene	<20	<1,000	<500	<200	<500	<5.0

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25C						GM-26A
Top of Screen Depth (ft bls)	206	206	206	206	206	206	30
Sample Date	11/09/98	11/09/98	04/20/99	08/02/00	09/15/03	05/04/04	10/07/98
Sample ID	GWGM-25C	GWGM-95	GWGM-25C	GWGM-25C	GM-25C	GWGM-25C (5/4/04)	GWGM-26A
1,4-Dichlorobenzene	<5	<5	<5	<5	<5.0	<5.0	<50
2,3-Dimethylphenol	NA	NA	<10	NA	94	25	NA
2,4-Dimethylphenol	<5	<5	<5	<5	NA	NA	**940**
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	51	46	NA
2,5-Dimethylphenol	NA	NA	<20	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	<10	NA	<10	<10	NA
2-Methylnaphthalene	<5	<5	<5	<5	<5.0	<5.0	<50
2-Methylphenol	<5	<5	<5	<5	48	<5.0	81
2-Nitrophenol	<20	<20	<20	<5	<5.0	<5.0	<100
3,4-Dimethylphenol	NA	NA	<10	NA	<10	<10	NA
3-Methylphenol	<10	<10	<10	NA	NA	NA	**210**
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	<5	**180**	<5.0	NA
4-Methylphenol	<5	<5	<5	NA	NA	NA	**210**
Anthracene	<5	<5	<5	<5	<5.0	<5.0	<50
Benzo(a)anthracene	<5	<5	<5	7.6	<5.0	<5.0	<50
Benzo(a)pyrene	<5	<5	<5	7.2	<5.0	<5.0	<50
Benzo(b)fluoranthene	<5	<5	<5	9.2	<5.0	<5.0	<50
Benzo(g,h,i)perylene	<5	<5	<5	2.8 J	<5.0	0.78 J	<50
Benzo(k)fluoranthene	<5	<5	<5 J	6.4	<5.0	<5.0	<50
bis(2-Ethylhexyl)phthalate	<5	<5	<5 J	12	<5.0	<5.0	<50
Butylbenzylphthalate	<5	<5	<5 J	5.1	<5.0	<5.0	<50
Carbazole	<5	<5	<5 J	<5	<5.0	<5.0	<50
Chrysene	<5	<5	<5	9.3	<5.0	<5.0	<50
Dibenzo(a,h)anthracene	<5	<5	<5	1.9 J	<5.0	0.69 J	<50
Diethylphthalate	<5	<5	<5	<5	<5.0	<5.0	<50
Dimethylphthalate	<5	<5	<5	<5	<5.0	<5.0	<50
Di-n-butylphthalate	<5	<5	<5	<5	<5.0	<5.0	<50
Di-n-octylphthalate	<5	<5	<5	10	<5.0	<5.0	<50
Fluoranthene	<5	<5	<5	1.1 J	<5.0	<5.0	<50
Hexachlorobenzene	<5	<5	<5	<5	<5.0	<5.0	<50
Indeno(1,2,3-c,d)pyrene	<5	<5	<5	1.8 J	<5.0	<5.0	<50
Naphthalene	<10	<10	<10	<5	<5.0	<5.0	<100
Phenanthrene	<5	<5	<5	<5	<5.0	<5.0	<50
Phenol	<5	<5	<5	<5	100	<5.0	<50
Pyrene	<5	<5	<5	1.3 J	<5.0	<5.0	<50

Footnotes on Page 86.

ARCADIS

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26A (continued)					GM-26B	
Top of Screen Depth (ft bls)	30	30	30	30	30	101	101
Sample Date	04/14/99	11/29/99	08/16/00	09/09/03	05/13/04	10/07/98	04/15/99
Sample ID	GWGM-26A	GM-26A	GWGM-26A	GM-26A	GWGM-26A (5/13/04)	GWGM-26B	GWGM-26B
1,4-Dichlorobenzene	<100	<20	NA	<50	<50	<5	<5
2,3-Dimethylphenol	<200	NA	NA	<100	<100	NA	<10
2,4-Dimethylphenol	**1,600**	**850**	**1,000**	NA	NA	<5	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	**1,200**	**1,200**	NA	NA
2,5-Dimethylphenol	<400	NA	NA	NA	NA	NA	<20
2,6-Dimethylphenol	700	NA	NA	370	270	NA	<10
2-Methylnaphthalene	<100	<20	NA	<50	<50	<5	<5
2-Methylphenol	**540**	<20	<25	<50	<50	<5	<5
2-Nitrophenol	<200	<20	NA	<50	<50	<20	<20
3,4-Dimethylphenol	<200	NA	NA	<100	<100	NA	<10
3-Methylphenol	**650**	NA	NA	NA	NA	<10	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	**350**	<25	<50	<50	NA	NA
4-Methylphenol	***650***	NA	NA	NA	NA	<5	<5
Anthracene	<100	<20	NA	<50	<50	<5	<5
Benzo(a)anthracene	<100	<20	NA	<50	<50	<5	<5
Benzo(a)pyrene	<100	<20	NA	<50	<50	<5	<5
Benzo(b)fluoranthene	<100	<20	NA	<50	<50	<5	<5 J
Benzo(g,h,i)perylene	<100 J	<20	NA	<50	<50	<5	<5 J
Benzo(k)fluoranthene	<100	<20	NA	<50	<50	<5	<5
bis(2-Ethylhexyl)phthalate	<100	<20	NA	<50	<50	<5	<5
Butylbenzylphthalate	<100	<20	NA	<50	<50	<5	<5
Carbazole	<100 J	<20	NA	<50	<50	<5	<5 J
Chrysene	<100	<20	NA	<50	<50	<5	<5
Dibenzo(a,h)anthracene	<100 J	<20	NA	<50	<50	<5	<5
Diethylphthalate	<100	<20	NA	<50	<50	<5	<5
Dimethylphthalate	<100	<20	NA	<50	<50	<5	<5
Di-n-butylphthalate	<100	<20	NA	<50	<50	<5	<5
Di-n-octylphthalate	<100	<20	NA	<50	<50	<5	<5
Fluoranthene	<100	<20	NA	<50	<50	<5	<5
Hexachlorobenzene	<100	<20	NA	<50	<50	<5	<5
Indeno(1,2,3-c,d)pyrene	<100 J	<20	NA	<50	<50	<5	<5
Naphthalene	<200	<20	NA	<50	<50	<10	<10
Phenanthrene	<100	<20	NA	<50	<50	<5	<5
Phenol	<100	<20	<25	<50	<50	<5	<5
Pyrene	<100	<20	NA	<50	<50	<5	<5

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26B (continued)					GM-26C	
Top of Screen Depth (ft bls)	101	101	101	101	101	160	160
Sample Date	11/30/99	07/18/00	09/09/03	04/27/04	07/28/05	10/25/98	04/17/99
Sample ID	GM-26B	GWGM-26B	GM-26B	GWGM-26B (4/27/04)	GWGM-26B (072805)	GWGM-26C	GWGM-26C
1,4-Dichlorobenzene	<5.0	<5.0	<5.0	<5.0	<4.9	<100	<100
2,3-Dimethylphenol	NA	NA	<10	5.8 J	<9.7	NA	<200
2,4-Dimethylphenol	<5.0	<5.0	NA	NA	<4.9	2,600	1,600
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	<10	2.4 J	<9.7	NA	NA
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	640
2,6-Dimethylphenol	NA	NA	<10	<10	1.5 J	NA	620
2-Methylnaphthalene	<5.0	<5.0	<5.0	<5.0	<4.9	<100	<100
2-Methylphenol	<5.0	<5.0	<5.0	1.7 J	<4.9	<100	<100
2-Nitrophenol	<5.0	<5.0	<5.0	<5.0	<4.9	<200	<200
3,4-Dimethylphenol	NA	NA	<10	<10	<9.7	NA	<200
3-Methylphenol	NA	NA	NA	NA	NA	<200	<200
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	<5.0	<5.0	5.1	<4.9	NA	NA
4-Methylphenol	NA	NA	NA	NA	NA	<100	<100
Anthracene	<5.0	<5.0	<5.0	<5.0	<4.9	<100	<100
Benzo(a)anthracene	<5.0	<5.0	<5.0	<5.0	<4.9	<100	<100
Benzo(a)pyrene	<5.0	<5.0	<5.0	<5.0	<4.9	<100	<100
Benzo(b)fluoranthene	<5.0	<5.0	<5.0	<5.0	<4.9	<100	<100
Benzo(g,h,i)perylene	<5.0	<5.0	<5.0	<5.0	<4.9	<100	<100
Benzo(k)fluoranthene	<5.0	<5.0	<5.0	<5.0	<4.9	<100	<100 J
bis(2-Ethylhexyl)phthalate	6.6	0.86 J	<5.0	<5.0	<4.9	<100	<100
Butylbenzylphthalate	<5.0	<5.0	<5.0	<5.0	<4.9	<100	<100
Carbazole	<5.0	<5.0	<5.0	<5.0	<4.9	<100	<100 J
Chrysene	<5.0	<5.0	<5.0	<5.0	<4.9	<100	<100
Dibenzo(a,h)anthracene	<5.0	<5.0	<5.0	<5.0	<4.9	<100	<100
Diethylphthalate	<5.0	<5.0	<5.0	<5.0	<4.9	<100	<100
Dimethylphthalate	<5.0	<5.0	<5.0	<5.0	<4.9	<100	<100
Di-n-butylphthalate	<5.0	<5.0	<5.0	<5.0	<4.9	<100	<100
Di-n-octylphthalate	<5.0	<5.0	<5.0	<5.0	<4.9	<100	<100
Fluoranthene	<5.0	<5.0	<5.0	<5.0	<4.9	<100	<100
Hexachlorobenzene	<5.0	<5.0	<5.0	<5.0	<4.9	<100	<100
Indeno(1,2,3-c,d)pyrene	<5.0	<5.0 J	<5.0	<5.0	<4.9	<100	<100
Naphthalene	<5.0	<5.0	<5.0	<5.0	<4.9	<200	<200
Phenanthrene	<5.0	<5.0	<5.0	<5.0	<4.9	<100	<100
Phenol	<5.0	1.5 J	<5.0	<5.0	<4.9	<100	<100
Pyrene	<5.0	<5.0	<5.0	<5.0	<4.9	<100	<100

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26C (continued)					GM-27A	
Top of Screen Depth (ft bls)	160	160	160	160	160	30	30
Sample Date	11/30/99	08/16/00	09/16/03	05/18/04	05/18/04	10/08/98	04/15/99
Sample ID	GM-26C	GWGM-26C	GM-26C	GWGM-26C (5/18/04)	GWGM-994 (5/18/04)	GWGM-27A	GWGM-27A
1,4-Dichlorobenzene	<50	NA	<200	<50	<50	<50	<50
2,3-Dimethylphenol	NA	NA	<400	260	260	NA	130
2,4-Dimethylphenol	**2,200**	***3,000***	NA	NA	NA	**1,300**	**1,100**
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	***3,500***	**1,200**	**1,600**	NA	NA
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	<200
2,6-Dimethylphenol	NA	NA	770	230	260	NA	540
2-Methylnaphthalene	<50	NA	<200	<50	<50	<50	<50
2-Methylphenol	<50	<50	<200	<50	<50	<50	70
2-Nitrophenol	<50	NA	<200	<50	<50	<100	<100
3,4-Dimethylphenol	NA	NA	<400	57 J	58 J	NA	<100
3-Methylphenol	NA	NA	NA	NA	NA	<100	<100
3-Methylphenol/4-Methylphenol(m&p-cresol)	<50	<50	<200	<50	<50	NA	NA
4-Methylphenol	NA	NA	NA	NA	NA	<50	<50
Anthracene	<50	NA	<200	<50	<50	<50	<50
Benzo(a)anthracene	<50	NA	<200	<50	<50	<50	<50
Benzo(a)pyrene	28 J	NA	<200	<50	<50	<50	<50
Benzo(b)fluoranthene	<50	NA	<200	<50	<50	<50	<50
Benzo(g,h,i)perylene	27 J	NA	<200	<50	17 J	<50	<50
Benzo(k)fluoranthene	33 J	NA	<200	<50	<50	<50	<50 J
bis(2-Ethylhexyl)phthalate	<50	NA	<200	<50	<50	<50	<50
Butylbenzylphthalate	<50	NA	<200	<50	<50	<50	<50
Carbazole	<50	NA	<200	<50	<50	<50	<50 J
Chrysene	<50	NA	<200	<50	<50	<50	<50
Dibenzo(a,h)anthracene	<50	NA	<200	<50	14 J	<50	<50
Diethylphthalate	<50	NA	<200	<50	<50	<50	<50
Dimethylphthalate	<50	NA	<200	<50	<50	<50	<50
Di-n-butylphthalate	<50	NA	<200	<50	<50	<50	<50
Di-n-octylphthalate	<50	NA	<200	<50	<50	<50	<50
Fluoranthene	<50	NA	<200	<50	<50	<50	<50
Hexachlorobenzene	<50	NA	<200	<50	<50	<50	<50
Indeno(1,2,3-c,d)pyrene	26 J	NA	<200	<50	16 J	<50	<50
Naphthalene	<50	NA	<200	<50	<50	<100	<100
Phenanthrene	<50	NA	<200	<50	<50	<50	<50
Phenol	<50	<50	<200	<50	<50	<50	<50
Pyrene	<50	NA	<200	<50	<50	<50	<50

Footnotes on Page 86.

ARCADIS

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27A (continued)			GM-27B			
Top of Screen Depth (ft bls)	30	30	30	145	145	145	145
Sample Date	12/01/99	09/10/03	05/13/04	10/26/98	04/14/99	07/18/00	09/10/03
Sample ID	GM-27A	GM-27A	GWGM-27A (5/13/04)	GWGM-27B	GWGM-27B	GWGM-27B	GM-27B
1,4-Dichlorobenzene	<20	<50	<25	<5	<5	<5.0	<5.0
2,3-Dimethylphenol	NA	210	<50	NA	<10	NA	<10
2,4-Dimethylphenol	**890**	NA	NA	<5	<5	<5.0	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	**1,900**	**940**	NA	NA	NA	<10
2,5-Dimethylphenol	NA	NA	NA	NA	<20	NA	NA
2,6-Dimethylphenol	NA	630	230	NA	<10	NA	<10
2-Methylnaphthalene	<20	<50	<25	<5	<5	<5.0	<5.0
2-Methylphenol	<20	<50	<25	<5	<5	<5.0	<5.0
2-Nitrophenol	<20	<50	<25	<20	<20	<5.0	<5.0
3,4-Dimethylphenol	NA	130	74	NA	<10	NA	<10
3-Methylphenol	NA	NA	NA	<10	<10	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<20	***570***	***600***	NA	NA	<5.0	<5.0
4-Methylphenol	NA	NA	NA	<5	<5	NA	NA
Anthracene	<20	<50	<25	<5	<5	<5.0	<5.0
Benzo(a)anthracene	<20	<50	<25	<5	<5	<5.0	<5.0
Benzo(a)pyrene	<20	<50	<25	<5	<5	<5.0	<5.0
Benzo(b)fluoranthene	<20	<50	<25	<5	<5	<5.0	<5.0
Benzo(g,h,i)perylene	<20	<50	<25	<5	<5 J	<5.0	<5.0
Benzo(k)fluoranthene	<20	<50	<25	<5	<5	<5.0	<5.0
bis(2-Ethylhexyl)phthalate	<20	<50	<25	<5	<5	0.81 J	<5.0
Butylbenzylphthalate	<20	<50	<25	<5	<5	<5.0	<5.0
Carbazole	<20	<50	<25	<5	<5 J	<5.0	<5.0
Chrysene	<20	<50	<25	<5	<5	<5.0	<5.0
Dibenzo(a,h)anthracene	<20	<50	<25	<5	<5 J	<5.0	<5.0
Diethylphthalate	<20	<50	<25	<5	<5	<5.0	<5.0
Dimethylphthalate	<20	<50	<25	<5	<5	<5.0	<5.0
Di-n-butylphthalate	<20	<50	<25	<5	<5	<5.0	<5.0
Di-n-octylphthalate	<20	<50	<25	<5	<5	<5.0	<5.0
Fluoranthene	<20	<50	<25	<5	<5	<5.0	<5.0
Hexachlorobenzene	<20	<50	<25	<5	<5	<5.0	<5.0
Indeno(1,2,3-c,d)pyrene	<20	<50	<25	<5	<5 J	<5.0 J	<5.0
Naphthalene	<20	<50	<25	<10	<10	<5.0	<5.0
Phenanthrene	<20	<50	<25	<5	<5	<5.0	<5.0
Phenol	<20	<50	<25	22	<5	0.52 J	<5.0
Pyrene	<20	<50	<25	<5	<5	<5.0	<5.0

Footnotes on Page 86.

ARCADIS

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)			
Top of Screen Depth (ft bls)	145	145	145	145
Sample Date	04/30/04	04/30/04	08/05/05	12/07/06
Sample ID	GWGM-27B (4/30/04)	GWGM-998 (4/30/04)	GWGM-27B (08/05/05)	GWGM27B (12/7/06)
1,4-Dichlorobenzene	<5.0	<5.0	<4.8	<5.0
2,3-Dimethylphenol	<10	<10	<9.5	<10
2,4-Dimethylphenol	NA	NA	<4.8	<5.0
2,4-Dimethylphenol/2,5-Dimethylphenol	<10	<10	<9.5	<10
2,5-Dimethylphenol	NA	NA	NA	NA
2,6-Dimethylphenol	<10	<10	<9.5	<10
2-Methylnaphthalene	<5.0	<5.0	<4.8	<5.0
2-Methylphenol	<5.0	<5.0	<4.8	<5.0
2-Nitrophenol	<5.0	<5.0	<4.8	<5.0
3,4-Dimethylphenol	<10	<10	<9.5	<10
3-Methylphenol	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	<5.0	<4.8	<5.0
4-Methylphenol	NA	NA	NA	NA
Anthracene	0.65 J	<5.0	<4.8	<5.0
Benzo(a)anthracene	<5.0	<5.0	<4.8	<5.0
Benzo(a)pyrene	1.4 J	<5.0	<4.8	<5.0
Benzo(b)fluoranthene	<5.0	<5.0	<4.8	<5.0
Benzo(g,h,i)perylene	5.7	<5.0	<4.8	<5.0
Benzo(k)fluoranthene	<5.0	<5.0	<4.8	<5.0
bis(2-Ethylhexyl)phthalate	<5.0	<5.0	<4.8	<5.0
Butylbenzylphthalate	<5.0	<5.0	<4.8	<5.0
Carbazole	0.70 J	<5.0	<4.8	<5.0
Chrysene	<5.0	<5.0	<4.8	<5.0
Dibenzo(a,h)anthracene	4.8 J	<5.0	<4.8	<5.0
Diethylphthalate	<5.0	<5.0	<4.8	<5.0
Dimethylphthalate	<5.0	<5.0	<4.8	<5.0
Di-n-butylphthalate	<5.0	<5.0	<4.8	<5.0
Di-n-octylphthalate	<5.0	<5.0	<4.8	<5.0
Fluoranthene	0.72 J	<5.0	<4.8	<5.0
Hexachlorobenzene	<5.0	<5.0	<4.8	<5.0
Indeno(1,2,3-c,d)pyrene	4.6 J	<5.0	<4.8	<5.0
Naphthalene	<5.0	<5.0	<4.8	<5.0
Phenanthrene	<5.0	<5.0	<4.8	<5.0
Phenol	1.0 J	1.0 J	<4.8	<5.0
Pyrene	<5.0	<5.0	<4.8	<5.0

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)			
Top of Screen Depth (ft bls)	145	145	145	145
Sample Date	02/22/07	02/22/07	05/11/07	08/08/07
Sample ID	GWGM-27B (2/22/07)	GWGM-27B-RE (2/22/07)	GWGM-27B(5/11/07)	GWGM-27B (8/8/07)
1,4-Dichlorobenzene	<4.9	<4.7 H	<4.7	<4.7
2,3-Dimethylphenol	<9.7	<9.4 H	<9.4	<9.4
2,4-Dimethylphenol	<4.9	<4.7 H	<4.7	<4.7
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.7	<9.4 H	<9.4	<9.4
2,5-Dimethylphenol	NA	NA	NA	NA
2,6-Dimethylphenol	<9.7	<9.4 H	<9.4	<9.4
2-Methylnaphthalene	<4.9	<4.7 H	<4.7	<4.7
2-Methylphenol	<4.9	<4.7 H	<4.7	<4.7
2-Nitrophenol	<4.9	<4.7 H	<4.7	<4.7
3,4-Dimethylphenol	<9.7	<9.4 H	<9.4	<9.4
3-Methylphenol	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.9	<4.7 H	<4.7	<4.7
4-Methylphenol	NA	NA	NA	NA
Anthracene	<4.9	<4.7 H	<4.7	<4.7
Benzo(a)anthracene	<4.9	<4.7 H	<4.7	<4.7
Benzo(a)pyrene	<4.9	<4.7 H	<4.7	<4.7
Benzo(b)fluoranthene	<4.9	<4.7 H	<4.7	<4.7
Benzo(g,h,i)perylene	<4.9	<4.7 H	<4.7	<4.7
Benzo(k)fluoranthene	<4.9	<4.7 H	<4.7	<4.7
bis(2-Ethylhexyl)phthalate	<4.9	<4.7 H	<4.7	<4.7
Butylbenzylphthalate	<4.9	<4.7 H	<4.7	<4.7
Carbazole	<4.9	<4.7 H	<4.7	<4.7
Chrysene	<4.9	<4.7 H	<4.7	<4.7
Dibenzo(a,h)anthracene	<4.9	<4.7 H	<4.7	<4.7
Diethylphthalate	<4.9	<4.7 H	<4.7	<4.7
Dimethylphthalate	<4.9	<4.7 H	<4.7	<4.7
Di-n-butylphthalate	<4.9	<4.7 H	<4.7	<4.7
Di-n-octylphthalate	<4.9	<4.7 H	<4.7	<4.7
Fluoranthene	<4.9	<4.7 H	<4.7	<4.7
Hexachlorobenzene	<4.9	<4.7 H	<4.7	<4.7
Indeno(1,2,3-c,d)pyrene	<4.9	<4.7 H	<4.7	<4.7
Naphthalene	<4.9	<4.7 H	<4.7	<4.7
Phenanthrene	<4.9	<4.7 H	<4.7	<4.7
Phenol	<4.9	<4.7 H	<4.7	<4.7
Pyrene	<4.9	<4.7 H	<4.7	<4.7

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)	GM-27C					
Top of Screen Depth (ft bls)	145	210	210	210	210	210	210
Sample Date	11/08/07	11/09/98	04/26/99	04/26/99	08/07/00	09/11/03	04/30/04
Sample ID	GWGM-27B (11/8/07)	GWGM-27C	GWGM-27C	GWGM-86	GMGW-27C	GM-27C	GWGM-27C (4/30/04)
1,4-Dichlorobenzene	<4.7	<5	<5	<5	<5.0	<5.0	<5.0
2,3-Dimethylphenol	<9.4	NA	<10	<10	NA	<10	<10
2,4-Dimethylphenol	<4.7	<5	<5	<5	<5.0	NA	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.4	NA	NA	NA	NA	<10	<10
2,5-Dimethylphenol	NA	NA	<20	<20	NA	NA	NA
2,6-Dimethylphenol	<9.4	NA	<10	<10	NA	<10	<10
2-Methylnaphthalene	<4.7	<5	<5	<5	<5.0	<5.0	<5.0
2-Methylphenol	<4.7	<5	<5	<5	<5.0	<5.0	<5.0
2-Nitrophenol	<4.7	<20	<20	<20	<5.0	<5.0	<5.0
3,4-Dimethylphenol	<9.4	NA	<10	<10	NA	<10	<10
3-Methylphenol	NA	<10	<10	<10	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	NA	NA	NA	<5.0	<5.0	<5.0
4-Methylphenol	NA	<5	<5	<5	NA	NA	NA
Anthracene	<4.7	<5	<5	<5	<5.0	<5.0	<5.0
Benzo(a)anthracene	<4.7	<5	<5	<5	<5.0	<5.0	<5.0
Benzo(a)pyrene	<4.7	<5	<5	<5	<5.0	<5.0	<5.0
Benzo(b)fluoranthene	<4.7	<5	<5	<5	<5.0	<5.0	<5.0
Benzo(g,h,i)perylene	<4.7	<5	<5	<5	<5.0	<5.0	2.4 J
Benzo(k)fluoranthene	<4.7	<5	<5	<5	<5.0	<5.0	<5.0
bis(2-Ethylhexyl)phthalate	<4.7	<5	<5	<5	<5.0	<5.0	<5.0
Butylbenzylphthalate	<4.7	<5	<5	<5	<5.0	<5.0	<5.0
Carbazole	<4.7	<5	<5 J	<5 J	<5.0	<5.0	<5.0
Chrysene	<4.7	<5	<5	<5	<5.0	<5.0	<5.0
Dibenzo(a,h)anthracene	<4.7	<5	<5	<5	<5.0	<5.0	2.1 J
Diethylphthalate	<4.7	<5	<5	<5	<5.0	<5.0	<5.0
Dimethylphthalate	<4.7	<5	<5	<5	<5.0	<5.0	<5.0
Di-n-butylphthalate	<4.7	<5	<5	<5	<5.0	<5.0	<5.0
Di-n-octylphthalate	<4.7	<5	<5	<5	<5.0	<5.0	<5.0
Fluoranthene	<4.7	<5	<5	<5	<5.0	<5.0	<5.0
Hexachlorobenzene	<4.7	<5	<5	<5	<5.0	<5.0	<5.0
Indeno(1,2,3-c,d)pyrene	<4.7	<5	<5	<5	<5.0 J	<5.0	1.7 J
Naphthalene	<4.7	<10	<10	<10	<5.0	<5.0	<5.0
Phenanthrene	<4.7	<5	<5	<5	<5.0	<5.0	<5.0
Phenol	<4.7	<5	<5	<5	<5.0	9.6	1.6 J
Pyrene	<4.7	<5	<5	<5	<5.0	<5.0	<5.0

Footnotes on Page 86.

ARCADIS

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27C (continued)	GM-28A				
Top of Screen Depth (ft bls)	210	40	40	40	40	40
Sample Date	08/05/05	10/28/98	04/19/99	02/29/00	07/19/00	04/28/04
Sample ID	GWGM-27C (08/05/05)	GWGM-28A	GWGM-28A	GWGM-28A	GWGM-28A	GWGM-28A (4/28/04)
1,4-Dichlorobenzene	<4.8	<5	<5	NA	<5.0	<5.0
2,3-Dimethylphenol	<9.5	NA	R	NA	NA	<10
2,4-Dimethylphenol	<4.8	R	R	<5	<5.0	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.5	NA	NA	NA	NA	<10
2,5-Dimethylphenol	NA	NA	R	NA	NA	NA
2,6-Dimethylphenol	<9.5	NA	R	NA	NA	1.6 J
2-Methylnaphthalene	<4.8	<5	<5	NA	<5.0	<5.0
2-Methylphenol	<4.8	R	R	<5	<5.0	<5.0
2-Nitrophenol	<4.8	R	R	NA	<5.0	<5.0
3,4-Dimethylphenol	<9.5	NA	R	NA	NA	<10
3-Methylphenol	NA	R	R	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.8	NA	NA	<5	<5.0	<5.0
4-Methylphenol	NA	R	R	NA	NA	NA
Anthracene	<4.8	<5	<5	NA	<5.0	<5.0
Benzo(a)anthracene	<4.8	<5	<5	NA	<5.0	<5.0
Benzo(a)pyrene	<4.8	<5	<5	NA	<5.0	<5.0
Benzo(b)fluoranthene	<4.8	<5	<5	NA	<5.0	<5.0
Benzo(g,h,i)perylene	<4.8	<5	<5	NA	<5.0	<5.0
Benzo(k)fluoranthene	<4.8	<5	<5 J	NA	<5.0	<5.0
bis(2-Ethylhexyl)phthalate	<4.8	<5	<5	NA	0.84 J	<5.0
Butylbenzylphthalate	<4.8	<5	<5	NA	<5.0	<5.0
Carbazole	<4.8	<5	<5 J	NA	<5.0	<5.0
Chrysene	<4.8	<5	<5	NA	<5.0	<5.0
Dibenzo(a,h)anthracene	<4.8	<5	<5	NA	<5.0	<5.0
Diethylphthalate	<4.8	<5	<5	NA	<5.0	<5.0
Dimethylphthalate	<4.8	<5	<5	NA	<5.0	<5.0
Di-n-butylphthalate	<4.8	<5	<5	NA	<5.0	<5.0
Di-n-octylphthalate	<4.8	<5	<5	NA	<5.0	<5.0
Fluoranthene	<4.8	<5	<5	NA	<5.0	<5.0
Hexachlorobenzene	<4.8	<5	<5	NA	<5.0	<5.0
Indeno(1,2,3-c,d)pyrene	<4.8	<5	<5	NA	<5.0 J	<5.0
Naphthalene	<4.8	<10	<10	NA	<5.0	<5.0
Phenanthrene	<4.8	<5	<5	NA	<5.0	<5.0
Phenol	<4.8	<5	R	<5	<5.0	<5.0
Pyrene	<4.8	<5	<5	NA	<5.0	<5.0

Footnotes on Page 86.

ARCADIS

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)			
Top of Screen Depth (ft bls)	40	40	40	40
Sample Date	07/26/05	07/26/05	12/05/06	12/05/06
Sample ID	GWGM28A (072605)	GWGM-999 (7/26/05)	GWGM-28A(12/5/06)	GWGM-28A-RE (12/5/2006)
1,4-Dichlorobenzene	<5.0	<5.6	<5.0	<5.0 H
2,3-Dimethylphenol	<10	<11	<10	<10 H
2,4-Dimethylphenol	<5.0	<5.6	<5.0 *	<5.0 H
2,4-Dimethylphenol/2,5-Dimethylphenol	<10	<11	<10	<10 H
2,5-Dimethylphenol	NA	NA	NA	NA
2,6-Dimethylphenol	<10	<11	<10	<10 H
2-Methylnaphthalene	<5.0	<5.6	<5.0	<5.0 H
2-Methylphenol	<5.0	<5.6	<5.0	<5.0 H
2-Nitrophenol	<5.0	<5.6	<5.0	<5.0 H
3,4-Dimethylphenol	<10	<11	<10	<10 H
3-Methylphenol	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	<5.6	<5.0	<5.0 H
4-Methylphenol	NA	NA	NA	NA
Anthracene	<5.0	<5.6	<5.0	<5.0 H
Benzo(a)anthracene	<5.0	<5.6	<5.0	<5.0 H
Benzo(a)pyrene	<5.0	<5.6	<5.0	<5.0 H
Benzo(b)fluoranthene	<5.0	<5.6	<5.0	<5.0 H
Benzo(g,h,i)perylene	<5.0	<5.6	<5.0	<5.0 H
Benzo(k)fluoranthene	<5.0	<5.6	<5.0	<5.0 H
bis(2-Ethylhexyl)phthalate	<5.0	<5.6	<5.0	<5.0 H
Butylbenzylphthalate	<5.0	<5.6	<5.0	<5.0 H
Carbazole	<5.0	<5.6	<5.0	<5.0 H
Chrysene	<5.0	<5.6	<5.0	<5.0 H
Dibenzo(a,h)anthracene	<5.0	<5.6	<5.0	<5.0 H
Diethylphthalate	<5.0	<5.6	<5.0	<5.0 H
Dimethylphthalate	<5.0	<5.6	<5.0	<5.0 H
Di-n-butylphthalate	<5.0	<5.6	<5.0	<5.0 H
Di-n-octylphthalate	<5.0	<5.6	<5.0	<5.0 H
Fluoranthene	<5.0	<5.6	<5.0	<5.0 H
Hexachlorobenzene	<5.0	<5.6	<5.0	<5.0 H
Indeno(1,2,3-c,d)pyrene	<5.0	<5.6	<5.0	<5.0 H
Naphthalene	<5.0	<5.6	<5.0	<5.0 H
Phenanthrene	<5.0	<5.6	<5.0	<5.0 H
Phenol	<5.0	<5.6	<5.0	<5.0 H
Pyrene	<5.0	<5.6	<5.0	<5.0 H

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)				GM-28B
Top of Screen Depth (ft bls)	40	40	40	40	124.5
Sample Date	02/21/07	05/10/07	08/07/07	11/05/07	11/08/98
Sample ID	GWGM-28A (2/21/07)	GWGM-28A (5/10/07)	GWGM-28A (8/7/07)	GWGM-28A (11/5/07)	GWGM-28B
1,4-Dichlorobenzene	<4.8	<4.7	<4.9	<4.7	<5
2,3-Dimethylphenol	<9.6	<9.4	<9.7	<9.4	NA
2,4-Dimethylphenol	<4.8 *	<4.7	<4.9	<4.7	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.6	<9.4	<9.7	<9.4	NA
2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	<9.6	<9.4	<9.7	<9.4	NA
2-Methylnaphthalene	<4.8	<4.7	<4.9	<4.7	<5
2-Methylphenol	<4.8	<4.7	<4.9	<4.7	<5
2-Nitrophenol	<4.8	<4.7	<4.9	<4.7	<20
3,4-Dimethylphenol	<9.6	<9.4	<9.7	<9.4	NA
3-Methylphenol	NA	NA	NA	NA	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.8	<4.7	<4.9	<4.7	NA
4-Methylphenol	NA	NA	NA	NA	<5
Anthracene	<4.8	<4.7	<4.9	<4.7	<5
Benzo(a)anthracene	<4.8	<4.7	<4.9	<4.7	<5
Benzo(a)pyrene	<4.8	<4.7	<4.9	<4.7	<5
Benzo(b)fluoranthene	<4.8	<4.7	<4.9	<4.7	<5
Benzo(g,h,i)perylene	<4.8	<4.7	<4.9	<4.7	<5
Benzo(k)fluoranthene	<4.8	<4.7	<4.9	<4.7	<5
bis(2-Ethylhexyl)phthalate	<4.8	1.0 J	1.2 J	<4.7	<5
Butylbenzylphthalate	<4.8	<4.7	<4.9	<4.7	<5
Carbazole	<4.8	<4.7	<4.9	<4.7	<5
Chrysene	<4.8	<4.7	<4.9	<4.7	<5
Dibenzo(a,h)anthracene	<4.8	<4.7	<4.9	<4.7	<5
Diethylphthalate	<4.8	<4.7	<4.9	<4.7	<5
Dimethylphthalate	<4.8	<4.7	<4.9	<4.7	<5
Di-n-butylphthalate	<4.8	<4.7	<4.9	<4.7	<5
Di-n-octylphthalate	<4.8	<4.7	<4.9	<4.7	<5
Fluoranthene	<4.8	<4.7	<4.9	<4.7	<5
Hexachlorobenzene	<4.8	<4.7	<4.9	<4.7	<5
Indeno(1,2,3-c,d)pyrene	<4.8	<4.7	<4.9	<4.7	<5
Naphthalene	<4.8	<4.7	<4.9	<4.7	<10
Phenanthrene	<4.8	<4.7	<4.9	<4.7	<5
Phenol	<4.8	<4.7	<4.9	<4.7	<5
Pyrene	<4.8	<4.7	<4.9	<4.7	<5

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)					
Top of Screen Depth (ft bls)	124.5	124.5	124.5	124.5	124.5	124.5
Sample Date	11/08/98	04/19/99	04/19/99	03/01/00	04/28/04	04/28/04
Sample ID	GWGM-96	GWGM-28B	GWGM-87	GWGM-28B	GWGM-28B (4/28/04)	GWGM-999 (4/28/04)
1,4-Dichlorobenzene	<5	<5	<5	NA	<5.0	<5.0
2,3-Dimethylphenol	NA	<10	<10	NA	<10	<10
2,4-Dimethylphenol	<5	<5	<5	<5	NA	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	<10	<10
2,5-Dimethylphenol	NA	<20	<20	NA	NA	NA
2,6-Dimethylphenol	NA	<10	<10	NA	<10	<10
2-Methylnaphthalene	<5	<5	<5	NA	<5.0	<5.0
2-Methylphenol	<5	<5	<5	<5	<5.0	<5.0
2-Nitrophenol	<20	<20	<20	NA	<5.0	<5.0
3,4-Dimethylphenol	NA	<10	<10	NA	<10	<10
3-Methylphenol	<10	<10	<10	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	<5	<5.0	<5.0
4-Methylphenol	<5	<5	<5	NA	NA	NA
Anthracene	<5	<5	<5	NA	<5.0	<5.0
Benzo(a)anthracene	<5	<5	<5	NA	<5.0	<5.0
Benzo(a)pyrene	<5	<5	<5	NA	<5.0	<5.0
Benzo(b)fluoranthene	<5	<5	<5	NA	<5.0	<5.0
Benzo(g,h,i)perylene	<5	<5	<5	NA	<5.0	<5.0
Benzo(k)fluoranthene	<5	<5 J	<5 J	NA	<5.0	<5.0
bis(2-Ethylhexyl)phthalate	<5	<5 J	<5 J	NA	<5.0	<5.0
Butylbenzylphthalate	<5	<5 J	<5 J	NA	<5.0	<5.0
Carbazole	<5	<5 J	<5 J	NA	<5.0	<5.0
Chrysene	<5	<5	<5	NA	<5.0	<5.0
Dibenzo(a,h)anthracene	<5	<5	<5	NA	<5.0	<5.0
Diethylphthalate	<5	<5	<5	NA	<5.0	<5.0
Dimethylphthalate	<5	<5	<5	NA	<5.0	<5.0
Di-n-butylphthalate	<5	<5	<5	NA	<5.0	<5.0
Di-n-octylphthalate	<5	<5	<5	NA	<5.0	<5.0
Fluoranthene	<5	<5	<5	NA	<5.0	<5.0
Hexachlorobenzene	<5	<5	<5	NA	<5.0	<5.0
Indeno(1,2,3-c,d)pyrene	<5	<5	<5	NA	<5.0	<5.0
Naphthalene	<10	<10	<10	NA	<5.0	<5.0
Phenanthrene	<5	<5	<5	NA	<5.0	<5.0
Phenol	<5	<5	<5	<5	<5.0	<5.0
Pyrene	<5	<5	<5	NA	<5.0	<5.0

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)			
Top of Screen Depth (ft bls)	124.5	124.5	124.5	124.5
Sample Date	07/26/05	12/05/06	12/05/06	02/21/07
Sample ID	GWGM28B (072605)	GWGM-28B(12/5/06)	GWGM-28B-RE (12/5/2006)	GWGM-28B (2/21/07)
1,4-Dichlorobenzene	<5.0	<5.0	<5.0 H	<4.7
2,3-Dimethylphenol	<9.9	<10	<10 H	<9.4
2,4-Dimethylphenol	<5.0	<5.0 *	<5.0 H	<4.7 *
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.9	<10	<10 H	<9.4
2,5-Dimethylphenol	NA	NA	NA	NA
2,6-Dimethylphenol	<9.9	<10	<10 H	<9.4
2-Methylnaphthalene	<5.0	<5.0	<5.0 H	<4.7
2-Methylphenol	<5.0	<5.0	<5.0 H	<4.7
2-Nitrophenol	<5.0	<5.0	<5.0 H	<4.7
3,4-Dimethylphenol	<9.9	<10	<10 H	<9.4
3-Methylphenol	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	<5.0	<5.0 H	<4.7
4-Methylphenol	NA	NA	NA	NA
Anthracene	<5.0	<5.0	<5.0 H	<4.7
Benzo(a)anthracene	<5.0	<5.0	<5.0 H	<4.7
Benzo(a)pyrene	<5.0 *	<5.0	<5.0 H	<4.7
Benzo(b)fluoranthene	<5.0	<5.0	<5.0 H	<4.7
Benzo(g,h,i)perylene	<5.0	<5.0	<5.0 H	<4.7
Benzo(k)fluoranthene	<5.0	<5.0	<5.0 H	<4.7
bis(2-Ethylhexyl)phthalate	<5.0 *	<5.0	<5.0 H	<4.7
Butylbenzylphthalate	<5.0 *	<5.0	<5.0 H	<4.7
Carbazole	<5.0	<5.0	<5.0 H	<4.7
Chrysene	<5.0 *	<5.0	<5.0 H	<4.7
Dibenzo(a,h)anthracene	<5.0	<5.0	<5.0 H	<4.7
Diethylphthalate	<5.0	<5.0	<5.0 H	<4.7
Dimethylphthalate	<5.0	<5.0	<5.0 H	<4.7
Di-n-butylphthalate	<5.0	<5.0	<5.0 H	<4.7
Di-n-octylphthalate	<5.0	<5.0	<5.0 H	<4.7
Fluoranthene	<5.0	<5.0	<5.0 H	<4.7
Hexachlorobenzene	<5.0	<5.0	<5.0 H	<4.7
Indeno(1,2,3-c,d)pyrene	<5.0	<5.0	<5.0 H	<4.7
Naphthalene	<5.0	<5.0	<5.0 H	<4.7
Phenanthrene	<5.0	<5.0	<5.0 H	<4.7
Phenol	<5.0	1.3 J	<5.0 H	<4.7
Pyrene	<5.0	<5.0	<5.0 H	<4.7

Footnotes on Page 86.

ARCADIS

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)			GM-29		
Top of Screen Depth (ft bls)	124.5	124.5	124.5	55	55	55
Sample Date	05/10/07	08/07/07	11/05/07	10/09/98	10/09/98	04/16/99
Sample ID	GWGM-28B (5/10/07)	GWGM-28B (8/7/07)	GWGM-28B (11/5/07)	GWGM-29	GWGM-99	GWGM-29
1,4-Dichlorobenzene	<4.7	<4.7	<4.7	<10	<10	<5
2,3-Dimethylphenol	<9.4	<9.4	<9.4	NA	NA	<10
2,4-Dimethylphenol	<4.7	1.5 J	<4.7	170	170	140
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.4	1.5 J	<9.4	NA	NA	NA
2,5-Dimethylphenol	NA	NA	NA	NA	NA	<20
2,6-Dimethylphenol	<9.4	1.8 J	<9.4	NA	NA	$\boxed{70}$
2-Methylnaphthalene	<4.7	<4.7	<4.7	<10	<10	<5
2-Methylphenol	<4.7	<4.7	<4.7	<10	<10	<5
2-Nitrophenol	<4.7	<4.7	<4.7	<20	<20	<20
3,4-Dimethylphenol	<9.4	<9.4	<9.4	NA	NA	<10
3-Methylphenol	NA	NA	NA	<20	<20	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<4.7	<4.7	NA	NA	NA
4-Methylphenol	NA	NA	NA	<10	<10	<5
Anthracene	<4.7	<4.7	<4.7	<10	<10	<5
Benzo(a)anthracene	<4.7	<4.7	<4.7	<10	<10	<5
Benzo(a)pyrene	<4.7	<4.7	<4.7	<10	<10	<5
Benzo(b)fluoranthene	<4.7	<4.7	<4.7	<10	<10	<5
Benzo(g,h,i)perylene	<4.7	<4.7	<4.7	<10	<10	<5
Benzo(k)fluoranthene	<4.7	<4.7	<4.7	<10	<10	<5 J
bis(2-Ethylhexyl)phthalate	<4.7	<4.7	<4.7	<10	<10	<5
Butylbenzylphthalate	<4.7	<4.7	<4.7	<10	<10	<5
Carbazole	<4.7	<4.7	<4.7	<10	<10	<5 J
Chrysene	<4.7	<4.7	<4.7	<10	<10	<5
Dibenzo(a,h)anthracene	<4.7	<4.7	<4.7	<10	<10	<5
Diethylphthalate	<4.7	<4.7	<4.7	<10	<10	<5
Dimethylphthalate	<4.7	<4.7	<4.7	<10	<10	<5
Di-n-butylphthalate	<4.7	<4.7	<4.7	<10	<10	**32**
Di-n-octylphthalate	<4.7	<4.7	<4.7	<10	<10	<5
Fluoranthene	<4.7	<4.7	<4.7	<10	<10	<5
Hexachlorobenzene	<4.7	<4.7	<4.7	<10	<10	<5
Indeno(1,2,3-c,d)pyrene	<4.7	<4.7	<4.7	<10	<10	<5
Naphthalene	<4.7	<4.7	<4.7	<20	<20	<10
Phenanthrene	<4.7	<4.7	<4.7	<10	<10	<5
Phenol	<4.7	<4.7	<4.7	<10	<10	7
Pyrene	<4.7	<4.7	<4.7	<10	<10	<5

Footnotes on Page 86.

ARCADIS

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)					
Top of Screen Depth (ft bls)	55	55	55	55	55	55
Sample Date	02/29/00	09/10/03	05/03/04	07/28/05	12/08/06	02/20/07
Sample ID	GMGM-29	GM-29	GWGM-29 (5/3/04)	GWGM-29 (07/28/05)	GWGM-29 (12/8/06)	GWGM-29 (2/20/07)
1,4-Dichlorobenzene	NA	<5.0	<5.0	<4.7	<5.0	1.3 J
2,3-Dimethylphenol	NA	<10	<10	<9.4	<10	1.3 J
2,4-Dimethylphenol	48	NA	NA	10	4.8 J	22
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	41	<10	21	4.8 J	22
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	<10	10	14	21	32
2-Methylnaphthalene	NA	<5.0	<5.0	<4.7	<5.0	<4.7
2-Methylphenol	<5	<5.0	<5.0	<4.7	<5.0	0.94 J
2-Nitrophenol	NA	<5.0	<5.0	<4.7	<5.0	<4.7
3,4-Dimethylphenol	NA	<10	<10	<9.4	<10	<9.4
3-Methylphenol	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5	<5.0	<5.0	<4.7	<5.0	<4.7
4-Methylphenol	NA	NA	NA	NA	NA	NA
Anthracene	NA	<5.0	<5.0	<4.7	<5.0	<4.7
Benzo(a)anthracene	NA	<5.0	<5.0	<4.7	<5.0	<4.7
Benzo(a)pyrene	NA	<5.0	<5.0	<4.7	<5.0	<4.7
Benzo(b)fluoranthene	NA	<5.0	<5.0	<4.7	<5.0	<4.7
Benzo(g,h,i)perylene	NA	<5.0	<5.0	<4.7	<5.0	<4.7
Benzo(k)fluoranthene	NA	<5.0	<5.0	<4.7	<5.0	<4.7
bis(2-Ethylhexyl)phthalate	NA	<5.0	<5.0	<4.7	<5.0	<4.7
Butylbenzylphthalate	NA	<5.0	<5.0	<4.7	<5.0	<4.7
Carbazole	NA	<5.0	<5.0	<4.7	<5.0	<4.7
Chrysene	NA	<5.0	<5.0	<4.7	<5.0	<4.7
Dibenzo(a,h)anthracene	NA	<5.0	<5.0	<4.7	<5.0	<4.7
Diethylphthalate	NA	<5.0	<5.0	<4.7	<5.0	<4.7
Dimethylphthalate	NA	<5.0	<5.0	<4.7	<5.0	<4.7
Di-n-butylphthalate	NA	<5.0	<5.0	<4.7	<5.0	<4.7
Di-n-octylphthalate	NA	<5.0	<5.0	<4.7	<5.0	<4.7
Fluoranthene	NA	<5.0	<5.0	<4.7	<5.0	<4.7
Hexachlorobenzene	NA	<5.0	<5.0	<4.7	<5.0	<4.7
Indeno(1,2,3-c,d)pyrene	NA	<5.0	<5.0	<4.7	<5.0	<4.7
Naphthalene	NA	<5.0	<5.0	<4.7	<5.0	<4.7
Phenanthrene	NA	<5.0	<5.0	<4.7	<5.0	<4.7
Phenol	<5	<5.0	<5.0	<4.7	<5.0	<4.7
Pyrene	NA	<5.0	<5.0	<4.7	<5.0	<4.7

Footnotes on Page 86.

ARCADIS

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)				GM-30	
Top of Screen Depth (ft bls)	55	55	55	55	75	75
Sample Date	05/09/07	08/07/07	11/06/07	11/06/07	10/27/98	05/12/99
Sample ID	GWGM-29 (5/9/07)	GWGM-29 (8/7/07)	DUP-999(11/6/07)	GWGM-29(11/6/07)	GWGM-30	GWGM-30
1,4-Dichlorobenzene	<4.7	<4.7	<4.7	<4.7	<5	<5
2,3-Dimethylphenol	<9.4	<9.4	<9.4	<9.4	NA	R
2,4-Dimethylphenol	66	15	<4.7	<4.7	11	R
2,4-Dimethylphenol/2,5-Dimethylphenol	69	15	<9.4	<9.4	NA	NA
2,5-Dimethylphenol	NA	NA	NA	NA	NA	R
2,6-Dimethylphenol	49	23	<9.4	8.0 J	NA	R
2-Methylnaphthalene	<4.7	<4.7	<4.7	<4.7	<5	<5
2-Methylphenol	<4.7	<4.7	<4.7	<4.7	<5	R
2-Nitrophenol	<4.7	<4.7	<4.7	<4.7	<20	R
3,4-Dimethylphenol	<9.4	<9.4	<9.4	<9.4	NA	R
3-Methylphenol	NA	NA	NA	NA	<10	R
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<4.7	<4.7	<4.7	NA	NA
4-Methylphenol	NA	NA	NA	NA	<5	R
Anthracene	<4.7	<4.7	<4.7	<4.7	<5	<5
Benzo(a)anthracene	<4.7	<4.7	<4.7	<4.7	<5	<5
Benzo(a)pyrene	<4.7	<4.7	<4.7	<4.7	<5	<5
Benzo(b)fluoranthene	<4.7	<4.7	<4.7	<4.7	<5	<5
Benzo(g,h,i)perylene	<4.7	<4.7	<4.7	<4.7	<5	<5
Benzo(k)fluoranthene	<4.7	<4.7	<4.7	<4.7	<5	<5
bis(2-Ethylhexyl)phthalate	<4.7	<4.7	<4.7	1.4 J	<5	5.6
Butylbenzylphthalate	<4.7	<4.7	<4.7	<4.7	<5	<5
Carbazole	<4.7	<4.7	<4.7	<4.7	<5	<5 J
Chrysene	<4.7	<4.7	<4.7	<4.7	<5	<5
Dibenzo(a,h)anthracene	<4.7	<4.7	<4.7	<4.7	<5	<5
Diethylphthalate	<4.7	<4.7	<4.7	<4.7	<5	<5
Dimethylphthalate	<4.7	<4.7	<4.7	<4.7	<5	<5
Di-n-butylphthalate	<4.7	<4.7	<4.7	<4.7	<5	<5
Di-n-octylphthalate	<4.7	<4.7	<4.7	<4.7	<5	<5
Fluoranthene	<4.7	<4.7	<4.7	<4.7	<5	<5
Hexachlorobenzene	<4.7	<4.7	<4.7	<4.7	<5	<5
Indeno(1,2,3-c,d)pyrene	<4.7	<4.7	<4.7	<4.7	<5	<5
Naphthalene	<4.7	<4.7	<4.7	<4.7	<10	<10
Phenanthrene	<4.7	<4.7	<4.7	<4.7	<5	<5
Phenol	<4.7	<4.7	<4.7	<4.7	<5	R
Pyrene	<4.7	<4.7	<4.7	<4.7	<5	<5

Footnotes on Page 86.

ARCADIS

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-30 (continued)	GM-31			GM-32		
Top of Screen Depth (ft bls)	75	105	105	105	135	135	135
Sample Date	05/12/99	10/24/98	05/03/99	10/09/00	10/25/98	04/27/99	09/25/03
Sample ID	GWGM-83	GWGM-31	GWGM-31	GWGM-31	GWGM-32	GWGM-32	GM-32
1,4-Dichlorobenzene	<5	<5	<5	NA	<2,000	<120	<500
2,3-Dimethylphenol	R	NA	R	NA	NA	R	<1,000
2,4-Dimethylphenol	R	<5	R	<5.0	***9,200***	**1500 J**	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	***3,100***
2,5-Dimethylphenol	R	NA	R	NA	NA	R	NA
2,6-Dimethylphenol	R	NA	R	NA	NA	650 J	1,100
2-Methylnaphthalene	<5	<5	<5	NA	<2,000	<120	<500
2-Methylphenol	R	<5	R	<5.0	***11,000***	***2,100 J***	***4,800***
2-Nitrophenol	R	<20	R	NA	<4000	R	<500
3,4-Dimethylphenol	R	NA	R	NA	NA	R	<1,000
3-Methylphenol	R	<10	R	NA	***15,000***	***2,700 J***	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	<5.0	NA	NA	***15,000***
4-Methylphenol	R	<5	R	NA	***15,000***	***2,700 J***	NA
Anthracene	<5	<5	<5	NA	<2,000	<120	<500
Benzo(a)anthracene	<5	<5	<5	NA	<2,000	<120	<500
Benzo(a)pyrene	<5	<5	<5	NA	<2,000	<120	<500
Benzo(b)fluoranthene	<5	<5	<5	NA	<2,000	<120	<500
Benzo(g,h,i)perylene	<5	<5	<5	NA	<2,000	<120	<500
Benzo(k)fluoranthene	<5	<5	<5	NA	<2,000	<120	<500
bis(2-Ethylhexyl)phthalate	<5	<5	15	NA	<2,000	<120	<500
Butylbenzylphthalate	<5	<5	<5	NA	<2,000	<120	<500
Carbazole	<5 J	<5	<5	NA	<2,000	<120	<500
Chrysene	<5	<5	<5	NA	<2,000	<120	<500
Dibenzo(a,h)anthracene	<5	<5	<5	NA	<2,000	<120	<500
Diethylphthalate	<5	<5	<5	NA	<2,000	<120	<500
Dimethylphthalate	<5	<5	<5	NA	<2,000	<120	<500
Di-n-butylphthalate	<5	<5	<5	NA	<2,000	<120	<500
Di-n-octylphthalate	<5	<5	<5	NA	<2,000	<120	<500
Fluoranthene	<5	<5	<5	NA	<2,000	<120	<500
Hexachlorobenzene	<5	<5	<5	NA	<2,000	<120	<500
Indeno(1,2,3-c,d)pyrene	<5	<5	<5	NA	<2,000	<120	<500
Naphthalene	<10	<10	<10	NA	<4000	<250	<500
Phenanthrene	<5	<5	<5	NA	<2,000	<120	<500
Phenol	R	<5	R	<5.0	***11,000***	**1,600**	***9,600***
Pyrene	<5	<5	<5	NA	<2,000	<120	<500

Footnotes on Page 86.

ARCADIS

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-32 (continued)	GM-33		GM-34A		
Top of Screen Depth (ft bls)	135	74	74	30	30	30
Sample Date	05/26/04	12/03/98	05/10/99	10/08/98	04/17/99	04/29/04
Sample ID	GWGM-32(5/26/04)	GWGM-33	GWGM-33	GWGM-34A	GWGM-34A	GWGM-34A (4/29/04)
1,4-Dichlorobenzene	<500	<5	<5	<5	<5	<5.0
2,3-Dimethylphenol	190 J	NA	<10	NA	<10	<10
2,4-Dimethylphenol	NA	<5	<5	<5	<5	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	**2,000**	NA	NA	NA	NA	<10
2,5-Dimethylphenol	NA	NA	<20	NA	<20	NA
2,6-Dimethylphenol	510 J	NA	<10	NA	<10	<10
2-Methylnaphthalene	<500	<5	<5	<5	<5	<5.0
2-Methylphenol	<500	<5	<5	<5	<5	<5.0
2-Nitrophenol	<500	<20	<20	<20	<20	<5.0
3,4-Dimethylphenol	<1,000	NA	<10	NA	<10	<10
3-Methylphenol	NA	<10	<10	<10	<10	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	***8,300***	NA	NA	NA	NA	<5.0
4-Methylphenol	NA	<5	<5	<5	<5	NA
Anthracene	<500	<5	<5	<5	<5	<5.0
Benzo(a)anthracene	<500	<5	<5	<5	<5	<5.0
Benzo(a)pyrene	<500	<5	<5	<5	<5	<5.0
Benzo(b)fluoranthene	<500	<5	<5	<5	<5	<5.0
Benzo(g,h,i)perylene	90 J	<5	<5	<5	<5 J	<5.0
Benzo(k)fluoranthene	<500	<5	<5	<5	<5	<5.0
bis(2-Ethylhexyl)phthalate	<500	<5	<5	<5	<5	<5.0
Butylbenzylphthalate	<500	<5	<5	<5	<5	<5.0
Carbazole	<500	<5	<5 J	<5	<5 J	<5.0
Chrysene	<500	<5	<5	<5	<5	<5.0
Dibenzo(a,h)anthracene	71 J	<5	<5	<5	<5	<5.0
Diethylphthalate	<500	<5	<5	<5	<5	<5.0
Dimethylphthalate	<500	<5	<5	<5	<5	<5.0
Di-n-butylphthalate	<500	<5	<5	<5	<5	<5.0
Di-n-octylphthalate	<500	<5	<5	<5	<5	<5.0
Fluoranthene	<500	<5	<5	<5	<5	<5.0
Hexachlorobenzene	<500	<5	<5	<5	<5	<5.0
Indeno(1,2,3-c,d)pyrene	<500	<5	<5	<5	<5 J	<5.0
Naphthalene	<500	<10	<10	<10	<10	<5.0
Phenanthrene	<500	<5	<5	<5	<5	<5.0
Phenol	<500	<5	<5	<5	<5	<5.0
Pyrene	<500	<5	<5	<5	<5	<5.0

Footnotes on Page 86.

ARCADIS

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-34B				GM-35		
Top of Screen Depth (ft bls)	85	85	85	85	40	40	40
Sample Date	10/12/98	04/14/99	09/24/03	04/28/04	11/04/98	05/04/99	05/04/99
Sample ID	GWGM-34B	GWGM-34B	GM-34B	GWGM-34B (4/28/04)	GWGM-35	GWGM-35	GWGM-84
1,4-Dichlorobenzene	<5	<5	<5.0	<5.0	<5	<5	<5
2,3-Dimethylphenol	NA	<10	<10	<10	NA	<10	<10
2,4-Dimethylphenol	<5	<5	NA	NA	<5	<5	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	<10	<10	NA	NA	NA
2,5-Dimethylphenol	NA	<20	NA	NA	NA	<20	<20
2,6-Dimethylphenol	NA	<10	<10	<10	NA	<10	<10
2-Methylnaphthalene	<5	<5	<5.0	<5.0	<5	<5	<5
2-Methylphenol	<5	<5	<5.0	<5.0	<5	<5	<5
2-Nitrophenol	<20	<20	<5.0	<5.0	<20	<20	<20
3,4-Dimethylphenol	NA	<10	<10	<10	NA	<10	<10
3-Methylphenol	<10	<10	NA	NA	<10	<10	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	<5.0	<5.0	NA	NA	NA
4-Methylphenol	<5	<5	NA	NA	<5	<5	<5
Anthracene	<5	<5	<5.0	<5.0	<5	<5	<5
Benzo(a)anthracene	<5	<5	<5.0	<5.0	<5	<5	<5
Benzo(a)pyrene	<5	<5	<5.0	<5.0	<5	<5	<5
Benzo(b)fluoranthene	<5	<5	<5.0	<5.0	<5	<5	<5
Benzo(g,h,i)perylene	<5	<5 J	<5.0	<5.0	<5	<5	<5
Benzo(k)fluoranthene	<5	<5	<5.0	<5.0	<5	<5	<5
bis(2-Ethylhexyl)phthalate	<5	<5	<5.0	<5.0	<5	<5	<5
Butylbenzylphthalate	<5	<5	<5.0	<5.0	<5	<5	<5
Carbazole	<5	<5 J	<5.0	<5.0	<5	<5	<5
Chrysene	<5	<5	<5.0	<5.0	<5	<5	<5
Dibenzo(a,h)anthracene	<5	<5 J	<5.0	<5.0	<5	<5	<5
Diethylphthalate	<5	<5	<5.0	<5.0	<5	<5	<5
Dimethylphthalate	<5	<5	<5.0	<5.0	<5	<5	<5
Di-n-butylphthalate	<5	<5	<5.0	<5.0	<5	<5	<5
Di-n-octylphthalate	<5	<5	<5.0	<5.0	<5	<5	<5
Fluoranthene	<5	<5	<5.0	<5.0	<5	<5	<5
Hexachlorobenzene	<5	<5	<5.0	<5.0	<5	<5	<5
Indeno(1,2,3-c,d)pyrene	<5	<5 J	<5.0	<5.0	<5	<5	<5
Naphthalene	<10	<10	<5.0	<5.0	<10	<10	<10
Phenanthrene	<5	<5	<5.0	<5.0	<5	<5	<5
Phenol	<5	<5	<5.0	<5.0	<5	<5	<5
Pyrene	<5	<5	<5.0	<5.0	<5	<5	<5

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-36			GM-37A			
Top of Screen Depth (ft bls)	95	95	95	144	144	144	144
Sample Date	11/03/98	05/05/99	05/04/04	11/18/98	05/11/99	09/25/03	05/17/04
Sample ID	GWGM-36	GWGM-36	GWGM-36 (5/4/04)	GWGM-37A	GWGM-37A	GM-37A	GWGM-37A (5/17/04)
1,4-Dichlorobenzene	<5	<5	<5.0	<250	<250	<200	<200
2,3-Dimethylphenol	NA	<10	<10	NA	<500	<400	3,400
2,4-Dimethylphenol	<5	<5	NA	**1,100**	**2,200**	NA	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	<10	NA	NA	**920**	**1,200**
2,5-Dimethylphenol	NA	<20	NA	NA	<1,000	NA	NA
2,6-Dimethylphenol	NA	<10	<10	NA	990	<400	<400
2-Methylnaphthalene	<5	<5	<5.0	<250	<250	<200	<200
2-Methylphenol	<5	<5	<5.0	***2,100***	***3,300***	<200	**1,100**
2-Nitrophenol	<20	<20	<5.0	<500	<500	<200	<200
3,4-Dimethylphenol	NA	<10	<10	NA	<500	<400	140 J
3-Methylphenol	<10	<10	NA	***3,100***	***5,900***	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	<5.0	NA	NA	***3,400***	***5,900***
4-Methylphenol	<5	<5	NA	***3,100***	***5,900***	NA	NA
Anthracene	<5	<5	<5.0	<250	<250	<200	<200
Benzo(a)anthracene	<5	<5	<5.0	<250	<250	<200	<200
Benzo(a)pyrene	<5	<5	<5.0	<250	<250	<200	32 J
Benzo(b)fluoranthene	<5	<5	<5.0	<250	<250	<200	<200
Benzo(g,h,i)perylene	<5	<5	<5.0	<250	<250	<200	100 J
Benzo(k)fluoranthene	<5	<5	<5.0	<250	<250	<200	<200
bis(2-Ethylhexyl)phthalate	<5	9.6	<5.0	<250	<250	<200	<200
Butylbenzylphthalate	<5	<5	<5.0	<250	<250	<200	<200
Carbazole	<5	<5	<5.0	<250	<250 J	<200	<200
Chrysene	<5	<5	<5.0	<250	<250	<200	<200
Dibenzo(a,h)anthracene	<5	<5	<5.0	<250	<250	<200	87 J
Diethylphthalate	<5	<5	<5.0	<250	<250	<200	<200
Dimethylphthalate	<5	<5	<5.0	<250	<250	<200	<200
Di-n-butylphthalate	<5	<5	<5.0	<250	<250	<200	<200
Di-n-octylphthalate	<5	<5	<5.0	<250	<250	<200	<200
Fluoranthene	<5	<5	<5.0	<250	<250	<200	<200
Hexachlorobenzene	<5	<5	<5.0	<250	<250	<200	<200
Indeno(1,2,3-c,d)pyrene	<5	<5	<5.0	<250	<250	<200	92 J
Naphthalene	<10	<10	<5.0	<500	<500	<200	<200
Phenanthrene	<5	<5	<5.0	<250	<250	<200	<200
Phenol	<5	<5	<5.0	**1,200**	**2,100**	<200	**1,300**
Pyrene	<5	<5	<5.0	<250	<250	<200	<200

Footnotes on Page 86.

ARCADIS

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-37B				GM-38A		
Top of Screen Depth (ft bls)	328	328	328	328	95	95	95
Sample Date	10/13/98	05/14/99	09/25/03	05/27/04	10/13/98	10/13/98	04/15/99
Sample ID	GWGM-37B	GWGM-37B	GM-37B	GWGM-37B (5/27/04)	GWGM-38A	GWGM-98	GWGM-38A
1,4-Dichlorobenzene	<25	<500	<250	<250	<5	<5	<5 J
2,3-Dimethylphenol	NA	<1,000	<500	3,600	NA	NA	<10 J
2,4-Dimethylphenol	360	**2,700**	NA	NA	<5	<5	<5 J
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	**2,000**	**2,200**	NA	NA	NA
2,5-Dimethylphenol	NA	<2,000	NA	NA	NA	NA	<20 J
2,6-Dimethylphenol	NA	<1,000	720	610	NA	NA	<10 J
2-Methylnaphthalene	<25	<500	<250	<250	<5	<5	<5 J
2-Methylphenol	**380**	***3,800***	**1,400**	***1,700***	<5	<5	<5 J
2-Nitrophenol	<50	<1,000	<250	<250	<20	<20	<20 J
3,4-Dimethylphenol	NA	<1,000	<500	330 J	NA	NA	<10 J
3-Methylphenol	**800**	***8,500***	NA	NA	<10	<10	<10 J
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	***5,700***	***5,200***	NA	NA	NA
4-Methylphenol	***800***	***8,500***	NA	NA	<5	<5	<5 J
Anthracene	<25	<500	<250	<250	<5	<5	<5 J
Benzo(a)anthracene	<25	<500	<250	<250	<5	<5	<5 J
Benzo(a)pyrene	<25	<500	<250	<250	<5	<5	<5 J
Benzo(b)fluoranthene	<25	<500	<250	<250	<5	<5	<5 J
Benzo(g,h,i)perylene	<25	<500	<250	<250	<5	<5	<5 J
Benzo(k)fluoranthene	<25	<500	<250	<250	<5	<5	<5 J
bis(2-Ethylhexyl)phthalate	<25	<500	<250	<250	<5	<5	<5 J
Butylbenzylphthalate	<25	<500	<250	<250	<5	<5	<5 J
Carbazole	<25	<500 J	<250	<250	<5	<5	<5 J
Chrysene	<25	<500	<250	<250	<5	<5	<5 J
Dibenzo(a,h)anthracene	<25	<500	<250	<250	<5	<5	<5 J
Diethylphthalate	<25	<500	<250	<250	<5	<5	<5 J
Dimethylphthalate	<25	<500	<250	<250	<5	<5	<5 J
Di-n-butylphthalate	<25	<500	<250	<250	<5	<5	<5 J
Di-n-octylphthalate	<25	<500	<250	<250	<5	<5	<5 J
Fluoranthene	<25	<500	<250	<250	<5	<5	<5 J
Hexachlorobenzene	<25	<500	<250	<250	<5	<5	<5 J
Indeno(1,2,3-c,d)pyrene	<25	<500	<250	<250	<5	<5	<5 J
Naphthalene	<50	<1,000	<250	<250	<10	<10	<10 J
Phenanthrene	<25	<500	<250	<250	<5	<5	<5 J
Phenol	280	**4,300**	**2,700**	**2,900**	<5	<5	<5 J
Pyrene	<25	<500	<250	<250	<5	<5	<5 J

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-38B		GM-38C			GM-39		
Top of Screen Depth (ft bls)	160	160	200	200	200	85	85	85
Sample Date	10/14/98	04/29/99	10/20/98	10/20/98	04/30/99	10/12/98	04/15/99	04/15/99
Sample ID	GWGM-38B	GWGM-38B	GWGM-38C	GWGM-97	GWGM-38C	GWGM-39	GWGM-39	GWGM-89
1,4-Dichlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
2,3-Dimethylphenol	NA	<10	NA	NA	<10	NA	<10	<10
2,4-Dimethylphenol	<5	<5	<5	<5	<5	<5	<5	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2,5-Dimethylphenol	NA	<20	NA	NA	<20	NA	<20	<20
2,6-Dimethylphenol	NA	<10	NA	NA	<10	NA	<10	<10
2-Methylnaphthalene	<5	<5	<5	<5	<5	<5	<5	<5
2-Methylphenol	<5	<5	<5	<5	<5	<5	<5	<5
2-Nitrophenol	<20	<20	<20	<20	<20	<20	<20	<20
3,4-Dimethylphenol	NA	<10	NA	NA	<10	NA	<10	<10
3-Methylphenol	<10	<10	<10	<10	<10	<10	<10	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	<5	<5	<5	<5	<5	<5	<5	<5
Anthracene	<5	<5	<5	<5	<5	<5	<5	<5
Benzo(a)anthracene	<5	<5	<5	<5	<5	<5	<5	<5
Benzo(a)pyrene	<5	<5	<5	<5	<5	<5	<5	<5
Benzo(b)fluoranthene	<5	<5	<5	<5	<5	<5	<5 J	<5 J
Benzo(g,h,i)perylene	<5	<5	<5	<5	<5	<5	<5 J	<5 J
Benzo(k)fluoranthene	<5	<5	<5	<5	<5	<5	<5	<5
bis(2-Ethylhexyl)phthalate	<5	<5	<5	<5	<5	<5	<5	<5
Butylbenzylphthalate	<5	<5	<5	<5	<5	<5	<5	<5
Carbazole	<5	<5 J	<5	<5	<5	<5	<5 J	<5 J
Chrysene	<5	<5	<5	<5	<5	<5	<5	<5
Dibenzo(a,h)anthracene	<5	<5	<5	<5	<5	<5	<5	<5
Diethylphthalate	<5	<5	<5	<5	<5	<5	<5	<5
Dimethylphthalate	<5	<5	<5	<5	<5	<5	<5	<5
Di-n-butylphthalate	<5	<5	<5	<5	<5	<5	<5	<5
Di-n-octylphthalate	<5	<5	<5	<5	<5	<5	<5	<5
Fluoranthene	<5	<5	<5	<5	<5	<5	<5	<5
Hexachlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
Indeno(1,2,3-c,d)pyrene	<5	<5	<5	<5	<5 J	<5	<5	<5
Naphthalene	<10	<10	<10	<10	<10	<10	<10	<10
Phenanthrene	<5	<5	<5	<5	<5	<5	<5	<5
Phenol	<5	<5	<5	<5	<5	<5	<5	<5
Pyrene	<5	<5	<5	<5	<5	<5	<5	<5

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-40A			GM-40B		
Top of Screen Depth (ft bls)	75	75	75	120	120	120
Sample Date	10/26/98	04/28/99	05/03/04	10/26/98	04/27/99	05/19/04
Sample ID	GWGM-40A	GWGM-40A	GWGM-40A (5/3/04)	GWGM-40B	GWGM-40B	GWGM-40B (5/19/04)
1,4-Dichlorobenzene	<5	<5	<5.0	<500	<500	<500
2,3-Dimethylphenol	NA	<10	<10	NA	<1000	180 J
2,4-Dimethylphenol	<5	<5	NA	**2,400**	**2,700**	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	<10	NA	NA	**2,100**
2,5-Dimethylphenol	NA	<20	NA	NA	<2000	NA
2,6-Dimethylphenol	NA	<10	<10	NA	1400	480 J
2-Methylnaphthalene	<5	<5	<5.0	<500	<500	<500
2-Methylphenol	<5	<5	<5.0	***2,800***	***4,900***	***1,900***
2-Nitrophenol	<20	<20	<5.0	<1,000	<1,000	<500
3,4-Dimethylphenol	NA	<10	<10	NA	<1,000	280 J
3-Methylphenol	<10	<10	NA	***5,000***	***9,400***	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	<5.0	NA	NA	***7,000***
4-Methylphenol	<5	<5	NA	***5,000***	***9,400***	NA
Anthracene	<5	<5	<5.0	<500	<500	<500
Benzo(a)anthracene	<5	<5	<5.0	<500	<500	<500
Benzo(a)pyrene	<5	<5	<5.0	<500	<500	<500
Benzo(b)fluoranthene	<5	<5	<5.0	<500	<500	<500
Benzo(g,h,i)perylene	<5	<5	<5.0	<500	<500	<500
Benzo(k)fluoranthene	<5	<5	<5.0	<500	<500	<500
bis(2-Ethylhexyl)phthalate	<5	<5	<5.0	<500	<500	<500
Butylbenzylphthalate	<5	<5	<5.0	<500	<500	<500
Carbazole	<5	<5	<5.0	<500	<500	<500
Chrysene	<5	<5	<5.0	<500	<500	<500
Dibenzo(a,h)anthracene	<5	<5	<5.0	<500	<500	<500
Diethylphthalate	<5	<5	<5.0	<500	<500	<500
Dimethylphthalate	<5	<5	<5.0	<500	<500	<500
Di-n-butylphthalate	<5	<5	<5.0	<500	<500	<500
Di-n-octylphthalate	<5	<5	<5.0	<500	<500	<500
Fluoranthene	<5	<5	<5.0	<500	<500	<500
Hexachlorobenzene	<5	<5	<5.0	<500	<500	<500
Indeno(1,2,3-c,d)pyrene	<5	<5	<5.0	<500	<500	<500
Naphthalene	<10	<10	<5.0	<1,000	<1,000	<500
Phenanthrene	<5	<5	<5.0	<500	<500	<500
Phenol	<5	<5	<5.0	**3,800**	**4,500**	**2,500**
Pyrene	<5	<5	<5.0	<500	<500	<500

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-41		GM-42		GM-49	GM-50		GM-51
Top of Screen Depth (ft bls)	40	40	72	72	83.5	80.5	80.5	67
Sample Date	10/19/98	04/16/99	10/20/98	04/16/99	04/17/99	10/14/98	04/17/99	10/20/98
Sample ID	GWGM-41	GWGM-41	GWGM-42	GWGM-42	GWGM-49	GWGM-50	GWGM-50	GWGM-51
1,4-Dichlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
2,3-Dimethylphenol	NA	<10	NA	<10	<10	NA	R	NA
2,4-Dimethylphenol	<5	<5	<5	<5	<5	R	R	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2,5-Dimethylphenol	NA	<20	NA	<20	<20	NA	R	NA
2,6-Dimethylphenol	NA	<10	NA	<10	<10	NA	R	NA
2-Methylnaphthalene	<5	<5	<5	<5	<5	<5	<5	<5
2-Methylphenol	<5	<5	<5	<5	<5	R	R	<5
2-Nitrophenol	<20	<20	<20	<20	<20	R	R	<20
3,4-Dimethylphenol	NA	<10	NA	<10	<10	NA	R	NA
3-Methylphenol	<10	<10	<10	<10	<10	R	R	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	<5	<5	<5	<5	<5	R	R	<5
Anthracene	<5	<5	<5	<5	<5	<5	<5	<5
Benzo(a)anthracene	<5	<5	<5	<5	<5	<5	<5	<5
Benzo(a)pyrene	<5	<5	<5	<5	<5	<5	<5	<5
Benzo(b)fluoranthene	<5	<5	<5	<5	<5	<5	<5	<5
Benzo(g,h,i)perylene	<5	<5	<5	<5	<5 J	<5	<5 J	<5
Benzo(k)fluoranthene	<5	<5 J	<5	<5 J	<5	<5	<5	<5
bis(2-Ethylhexyl)phthalate	<5	<5	<5	<5	<5	<5	<5	<5
Butylbenzylphthalate	<5	<5	<5	<5	<5	<5	<5	<5
Carbazole	<5	<5 J	<5	<5 J	<5 J	<5	<5 J	<5
Chrysene	<5	<5	<5	<5	<5	<5	<5	<5
Dibenzo(a,h)anthracene	<5	<5	<5	<5	<5	<5	<5	<5
Diethylphthalate	<5	<5	<5	<5	<5	<5	<5	<5
Dimethylphthalate	<5	<5	<5	<5	<5	<5	<5	<5
Di-n-butylphthalate	<5	<5	<5	<5	<5	<5	<5	<5
Di-n-octylphthalate	<5	<5	<5	<5	<5	<5	<5	<5
Fluoranthene	<5	<5	<5	<5	<5	<5	<5	<5
Hexachlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
Indeno(1,2,3-c,d)pyrene	<5	<5	<5	<5	<5 J	<5	<5 J	<5
Naphthalene	<10	<10	<10	<10	<10	<10	<10	<10
Phenanthrene	<5	<5	<5	<5	<5	<5	<5	<5
Phenol	<5	<5	<5	<5	<5	<5	R	<5
Pyrene	<5	<5	<5	<5	<5	R	<5	<5

Footnotes on Page 86.

ARCADIS

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-51 (continued)	GM-52	GM-53A	GM-53B		GM-54	
Top of Screen Depth (ft bls)	67	75	79	195	195	80	80
Sample Date	04/18/99	04/19/99	04/19/99	11/05/98	05/01/99	10/24/98	05/01/99
Sample ID	GWGM-51	GWGM-52	GWGM-53A	GWGM-53B	GWGM-53B	GWGM-54	GWGM-54
1,4-Dichlorobenzene	<5	<5	<5	<10	<50	<5	<5
2,3-Dimethylphenol	<10	<10	R	NA	<100	NA	<10
2,4-Dimethylphenol	<5	<5	R	270	**410**	<5	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2,5-Dimethylphenol	<20	<20	R	NA	<200	NA	<20
2,6-Dimethylphenol	<10	<10	R	NA	190	NA	<10
2-Methylnaphthalene	<5	<5	<5	<10	<50	<5	<5
2-Methylphenol	<5	<5	R	<10	<50	<5	<5
2-Nitrophenol	<20	<20	R	<20	<100	<20	<20
3,4-Dimethylphenol	<10	<10	R	NA	<100	NA	<10
3-Methylphenol	<10	<10	R	<20	<100	<10	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	<5	<5	R	<10	<50	<5	<5
Anthracene	<5	<5	<5	<10	<50	<5	<5
Benzo(a)anthracene	<5	<5	<5	<10	<50	<5	<5
Benzo(a)pyrene	<5	<5	<5	<10	<50	<5	<5
Benzo(b)fluoranthene	<5	<5	<5	<10	<50	<5	<5
Benzo(g,h,i)perylene	<5 J	<5 J	<5	<10	<50	<5	<5
Benzo(k)fluoranthene	<5	<5	<5 J	<10	<50	<5	<5
bis(2-Ethylhexyl)phthalate	<5	<5	<5 J	<10	<50	9.60 J	<5
Butylbenzylphthalate	<5	<5	<5 J	<10	<50	<5	<5
Carbazole	<5 J	<5 J	<5 J	<10	<50	<5	<5
Chrysene	<5	<5	<5	<10	<50	<5	<5
Dibenzo(a,h)anthracene	<5	<5	<5	<10	<50	<5	<5
Diethylphthalate	<5	<5	<5	<10	<50	<5	<5
Dimethylphthalate	<5	<5	<5	<10	<50	<5	<5
Di-n-butylphthalate	<5	<5	<5	<10	<50	<5	<5
Di-n-octylphthalate	<5	<5	<5	<10	<50	<5	<5
Fluoranthene	<5	<5	<5	<10	<50	<5	<5
Hexachlorobenzene	<5	<5	<5	<10	<50	<5	<5
Indeno(1,2,3-c,d)pyrene	<5 J	<5 J	<5	<10	<50	<5	<5
Naphthalene	<10	<10	<10	<20	<100	<10	<10
Phenanthrene	<5	<5	<5	<10	<50	<5	<5
Phenol	<5	<5	R	<10	<50	<5	<5
Pyrene	<5	<5	<5	<10	<50	<5	<5

Footnotes on Page 86.

ARCADIS

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-55			GM-56		GM-57	GM-58	GM-59
Top of Screen Depth (ft bls)	75	75	75	32	32	76	75	114
Sample Date	10/24/98	05/01/99	05/01/99	10/21/98	04/20/99	04/20/99	04/26/99	11/17/98
Sample ID	GWGM-55	GWGM-55	GWGM-85	GWGM-56	GWGM-56	GWGM-57	GWGM-58	GWGM-59
1,4-Dichlorobenzene	<5	<10	<10	<5	<5	<5	<5	<5
2,3-Dimethylphenol	NA	<20	<20	NA	<10	<10	<10	NA
2,4-Dimethylphenol	13 J	<10	<10	<5	<5	<5	<5	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2,5-Dimethylphenol	NA	<40	<40	NA	<20	<20	<20	NA
2,6-Dimethylphenol	NA	<20	<20	NA	<10	<10	<10	NA
2-Methylnaphthalene	<5	<10	<10	<5	<5	<5	<5	<5
2-Methylphenol	<5	<10	<10	<5	<5	<5	<5	<5
2-Nitrophenol	<20	<20	<20	<20	<20	<20	<20	<20
3,4-Dimethylphenol	NA	<20	<20	NA	<10	<10	<10	NA
3-Methylphenol	<10	<20	<20	<10	<10	<10	<10	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	<5	<10	<10	<5	<5	<5	<5	<5
Anthracene	<5	<10	<10	<5	<5	<5	<5	<5
Benzo(a)anthracene	<5	<10	<10	<5	<5	<5	<5	<5
Benzo(a)pyrene	<5	<10	<10	<5	<5	<5	<5	<5
Benzo(b)fluoranthene	<5	<10	<10	<5	<5	<5	<5	<5
Benzo(g,h,i)perylene	<5	<10	<10	<5	<5	<5	<5	<5
Benzo(k)fluoranthene	<5	<10	<10	<5	<5 J	<5 J	<5	<5
bis(2-Ethylhexyl)phthalate	<5	<10	<10	<5	<5 J	<5 J	<5	<5
Butylbenzylphthalate	<5	<10	<10	<5	<5 J	<5 J	<5	<5
Carbazole	<5	<10	<10	<5	<5 J	<5 J	<5 J	<5
Chrysene	<5	<10	<10	<5	<5	<5	<5	<5
Dibenzo(a,h)anthracene	<5	<10	<10	<5	<5	<5	<5	<5
Diethylphthalate	<5	<10	<10	<5	<5	<5	<5	<5
Dimethylphthalate	<5	<10	<10	<5	<5	<5	<5	<5
Di-n-butylphthalate	<5	<10	<10	<5	<5	<5	<5	<5
Di-n-octylphthalate	<5	<10	<10	<5	<5	<5	<5	<5
Fluoranthene	<5	<10	<10	<5	<5	<5	<5	<5
Hexachlorobenzene	<5	<10	<10	<5	<5	<5	<5	<5
Indeno(1,2,3-c,d)pyrene	<5	<10	<10	<5	<5	<5	<5	<5
Naphthalene	<10	<20	<20	<10	<10	<10	<10	<10
Phenanthrene	<5	<10	<10	<5	<5	<5	<5	<5
Phenol	<5	<10	<10	<5	<5	<5	<5	<5
Pyrene	<5	<10	<10	<5	<5	<5	<5	<5

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-59 (continued)	GM-60	GM-61	GM-62A		GM-62B
Top of Screen Depth (ft bls)	114	102	138	90	90	195
Sample Date	04/28/99	05/12/99	05/03/99	08/23/99	05/11/04	08/24/99
Sample ID	GWGM-59	GWGM-60	GWGM-61	GWGM-62A	GWGM-62A (5/11/04)	GWGM-62B
1,4-Dichlorobenzene	<5	<5	<5	<5.0	<5.0	<100
2,3-Dimethylphenol	<10	<10	<10	NA	<10	NA
2,4-Dimethylphenol	<5	<5	<5	<5.0	NA	$\boxed{\text{1,300 J}}$
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	<10	NA
2,5-Dimethylphenol	<20	<20	<20	NA	NA	NA
2,6-Dimethylphenol	<10	<10	<10	NA	3.3 J	NA
2-Methylnaphthalene	<5	<5	<5	<5.0	<5.0	<100
2-Methylphenol	<5	<5	<5	<5.0	<5.0	$\boxed{\text{2,100 J}}$
2-Nitrophenol	<20	<20	<20	<5.0	<5.0	<100
3,4-Dimethylphenol	<10	<10	<10	NA	<10	NA
3-Methylphenol	<10	<10	<10	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	<5.0	<5.0	$\boxed{\text{6,100 J}}$
4-Methylphenol	<5	<5	<5	NA	NA	NA
Anthracene	<5	<5	<5	<5.0	<5.0	<100
Benzo(a)anthracene	<5	<5	<5	<5.0	<5.0	<100
Benzo(a)pyrene	<5	<5	<5	<5.0	<5.0	<100
Benzo(b)fluoranthene	<5	<5	<5	<5.0	<5.0	<100
Benzo(g,h,i)perylene	<5	<5	<5	<5.0	<5.0	<100
Benzo(k)fluoranthene	<5	<5	<5	<5.0	<5.0	<100
bis(2-Ethylhexyl)phthalate	<5	<5	<5	<5.0	<5.0	<100
Butylbenzylphthalate	<5	<5	<5	<5.0	<5.0	<100
Carbazole	<5 J	<5 J	<5	<5.0	<5.0	<100
Chrysene	<5	<5	<5	<5.0	<5.0	<100
Dibenzo(a,h)anthracene	<5	<5	<5	<5.0	<5.0	<100
Diethylphthalate	<5	<5	<5	<5.0	<5.0	<100
Dimethylphthalate	<5	<5	<5	<5.0	<5.0	<100
Di-n-butylphthalate	<5	<5	<5	<5.0	<5.0	<100
Di-n-octylphthalate	<5	<5	<5	<5.0	<5.0	<100
Fluoranthene	<5	<5	<5	<5.0	<5.0	<100
Hexachlorobenzene	<5	<5	<5	<5.0	<5.0	<100
Indeno(1,2,3-c,d)pyrene	<5	<5	<5	<5.0	<5.0	<100
Naphthalene	<10	<10	<10	<5.0	<5.0	<100
Phenanthrene	<5	<5	<5	<5.0	<5.0	<100
Phenol	<5	<5	<5	<5.0	<5.0	**3,300**
Pyrene	<5	<5	<5	<5.0	<5.0	<100

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-62B (continued)		GM-62C		GM-63A	
Top of Screen Depth (ft bls)	195	195	315	315	45	45
Sample Date	08/24/99	05/19/04	08/24/99	05/18/04	08/29/00	09/19/00
Sample ID	GWGM-82	GWGM-62B (5/19/04)	GWGM-62C	GWGM-62C (5/18/04)	GWGM-63A	GWGM-63A
1,4-Dichlorobenzene	<100	<120	<200	<50	<5.0	<10
2,3-Dimethylphenol	NA	83 J	NA	880	NA	NA
2,4-Dimethylphenol	**970 J**	NA	**1,300**	NA	380 D	**420**
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	**670**	NA	**530**	NA	NA
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	210 J	NA	120	NA	NA
2-Methylnaphthalene	<100	<120	<200	<50	<5.0	<10
2-Methylphenol	***1,600 J***	**610**	**490**	**140**	<5.0	<10
2-Nitrophenol	<100	<120	<200	<50	<5.0	<10
3,4-Dimethylphenol	NA	<250	NA	54 J	NA	NA
3-Methylphenol	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	***4,600 J***	***3,000***	***6,700***	***1,000***	<5.0	<10
4-Methylphenol	NA	NA	NA	NA	NA	NA
Anthracene	<100	<120	<200	<50	<5.0	<10
Benzo(a)anthracene	<100	<120	<200	<50	<5.0	<10
Benzo(a)pyrene	<100	<120	<200	<50	<5.0	<10
Benzo(b)fluoranthene	<100	<120	<200	<50	<5.0	<10
Benzo(g,h,i)perylene	<100	<120	<200	24 J	<5.0	<10
Benzo(k)fluoranthene	<100	<120	<200	<50	<5.0	<10
bis(2-Ethylhexyl)phthalate	<100	<120	<200	<50	<5.0	<10
Butylbenzylphthalate	<100	<120	<200	<50	<5.0	<10
Carbazole	<100	<120	<200	<50	<5.0	<10
Chrysene	<100	<120	<200	<50	<5.0	<10
Dibenzo(a,h)anthracene	<100	<120	<200	20 J	<5.0	<10
Diethylphthalate	<100	<120	<200	<50	<5.0	<10
Dimethylphthalate	<100	<120	<200	<50	<5.0	<10
Di-n-butylphthalate	<100	<120	<200	<50	<5.0	<10
Di-n-octylphthalate	<100	<120	<200	<50	<5.0	<10
Fluoranthene	<100	<120	<200	<50	<5.0	<10
Hexachlorobenzene	<100	<120	<200	<50	<5.0	<10
Indeno(1,2,3-c,d)pyrene	<100	<120	<200	**21 J**	<5.0	<10
Naphthalene	<100	<120	<200	<50	<5.0	<10
Phenanthrene	<100	<120	<200	<50	<5.0	<10
Phenol	**2,600**	**760**	**1,800**	390	<5.0	<10
Pyrene	<100	<120	<200	<50	<5.0	<10

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-63A (continued)			GM-63B		
Top of Screen Depth (ft bls)	45	45	45	105	105	105
Sample Date	09/15/03	05/05/04	05/05/04	02/07/01	09/11/03	04/27/04
Sample ID	GM-63A	GWGM-63A (5/5/04)	GWGM-63A (5/5/04)-DL	GWGM-63B	GM-63B	GWGM-63B (4/27/04)-RE
1,4-Dichlorobenzene	<20	<5.0	<25	<5.0	<5.0	<5.0
2,3-Dimethylphenol	160	260 E	230 D	NA	<10	<10
2,4-Dimethylphenol	NA	NA	NA	<5.0	NA	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	370	<10	<50	NA	<10	<10
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	140	250 E	210 D	NA	<10	<10
2-Methylnaphthalene	<20	<5.0	<25	<5.0	<5.0	<5.0
2-Methylphenol	<20	<5.0	<25	<5.0	<5.0	<5.0
2-Nitrophenol	<20	<5.0	<25	<5.0	<5.0	<5.0
3,4-Dimethylphenol	<40	<10	<50	NA	<10	<10
3-Methylphenol	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<20	<5.0	<25	<5.0	<5.0	<5.0
4-Methylphenol	NA	NA	NA	NA	NA	NA
Anthracene	<20	<5.0	<25	<5.0	<5.0	<5.0
Benzo(a)anthracene	<20	<5.0	<25	<5.0	<5.0	<5.0
Benzo(a)pyrene	<20	<5.0	<25	<5.0	<5.0	0.74 J
Benzo(b)fluoranthene	<20	<5.0	<25	<5.0 J	<5.0	<5.0
Benzo(g,h,i)perylene	<20	<5.0	<25	<5.0	<5.0	2.3 J
Benzo(k)fluoranthene	<20	<5.0	<25	<5.0 J	<5.0	<5.0
bis(2-Ethylhexyl)phthalate	<20	<5.0	<25	1.0 J	<5.0	<5.0
Butylbenzylphthalate	<20	<5.0	<25	<5.0	<5.0	<5.0
Carbazole	<20	<5.0	<25	<5.0	<5.0	<5.0
Chrysene	<20	<5.0	<25	<5.0	<5.0	<5.0
Dibenzo(a,h)anthracene	<20	<5.0	<25	<5.0	<5.0	2.1 J
Diethylphthalate	<20	<5.0	<25	1.5 J	<5.0	<5.0
Dimethylphthalate	<20	<5.0	<25	<5.0	<5.0	<5.0
Di-n-butylphthalate	<20	<5.0	<25	<5.0	<5.0	<5.0
Di-n-octylphthalate	<20	<5.0	<25	<5.0	<5.0	<5.0
Fluoranthene	<20	<5.0	<25	<5.0	<5.0	<5.0
Hexachlorobenzene	<20	<5.0	<25	<5.0	<5.0	<5.0
Indeno(1,2,3-c,d)pyrene	<20	<5.0	<25	<5.0	<5.0	2.2 J
Naphthalene	<20	<5.0	<25	<5.0	<5.0	<5.0
Phenanthrene	<20	<5.0	<25	<5.0	<5.0	<5.0
Phenol	<20	<5.0	<25	<5.0	<5.0	<5.0
Pyrene	<20	<5.0	<25	R	<5.0	<5.0

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-64A				GM-64B		
Top of Screen Depth (ft bls)	33	33	33	33	117	117	117
Sample Date	08/30/00	10/03/00	09/08/03	05/04/04	07/24/00	10/04/00	09/08/03
Sample ID	GWGM-64A	GWGM-64A	GM-64A	GWGM-64A (5/4/04)	GWGM-64B	GWGM-64B	GM-64B
1,4-Dichlorobenzene	<5.0	<5.0	<5.0	<5.0	<25	NA	<20
2,3-Dimethylphenol	NA	NA	<10	<10	NA	NA	<40
2,4-Dimethylphenol	23	<5.0	NA	NA	**430**	**490 DJ**	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	<10	<10	NA	NA	**510**
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	14	<10	NA	NA	<40
2-Methylnaphthalene	<5.0	<5.0	<5.0	<5.0	<25	NA	<20
2-Methylphenol	<5.0	<5.0	<5.0	<5.0	<25	<5.0 J	<20
2-Nitrophenol	<5.0	<5.0	<5.0	<5.0	<25	NA	<20
3,4-Dimethylphenol	NA	NA	<10	<10	NA	NA	<40
3-Methylphenol	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	<5.0	<5.0	<5.0	<25	<5.0 J	<20
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA
Anthracene	<5.0	<5.0	<5.0	<5.0	<25	NA	<20
Benzo(a)anthracene	<5.0	<5.0	<5.0	<5.0	<25	NA	<20
Benzo(a)pyrene	<5.0	<5.0	<5.0	<5.0	<25	NA	<20
Benzo(b)fluoranthene	<5.0	<5.0	<5.0	<5.0	<25	NA	<20
Benzo(g,h,i)perylene	1.2 J	<5.0	<5.0	<5.0	<25	NA	<20
Benzo(k)fluoranthene	<5.0	<5.0	<5.0	<5.0	<25	NA	<20
bis(2-Ethylhexyl)phthalate	<5.0	<5.0	<5.0	<5.0	<25	NA	<20
Butylbenzylphthalate	<5.0	<5.0	<5.0	<5.0	<25	NA	<20
Carbazole	<5.0	<5.0	<5.0	<5.0	<25	NA	<20
Chrysene	<5.0	<5.0	<5.0	<5.0	<25	NA	<20
Dibenzo(a,h)anthracene	<5.0	<5.0	<5.0	<5.0	<25	NA	<20
Diethylphthalate	<5.0	<5.0	<5.0	<5.0	<25	NA	<20
Dimethylphthalate	<5.0	<5.0	<5.0	<5.0	<25	NA	<20
Di-n-butylphthalate	<5.0	<5.0	<5.0	1.2 J	<25	NA	<20
Di-n-octylphthalate	<5.0	<5.0	<5.0	<5.0	<25	NA	<20
Fluoranthene	<5.0	<5.0	<5.0	<5.0	<25	NA	<20
Hexachlorobenzene	<5.0	<5.0	<5.0	<5.0	<25	NA	<20
Indeno(1,2,3-c,d)pyrene	<5.0	<5.0	<5.0	<5.0	<25	NA	<20
Naphthalene	<5.0	<5.0	<5.0	1.0 J	<25	NA	<20
Phenanthrene	<5.0	<5.0	<5.0	<5.0	<25	NA	<20
Phenol	<5.0	<5.0	<5.0	<5.0	<25	<5.0 J	<20
Pyrene	<5.0	<5.0	<5.0	<5.0	<25	NA	<20

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-64B (continued)		GM-66A		
Top of Screen Depth (ft bls)	117	117	27	27	27
Sample Date	05/11/04	05/11/04	07/18/00	09/16/03	04/27/04
Sample ID	GWGM-64B (5/11/04)	GWGM-64B (5/11/04)-DL	GWGM-66A	GM-66A	GWGM-66A (4/27/04)
1,4-Dichlorobenzene	<5.0	<25	<5.0	<5.0	<5.0
2,3-Dimethylphenol	40	37 DJ	NA	<10	<10
2,4-Dimethylphenol	NA	NA	<5.0	NA	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	**490 E**	**610 D**	NA	<10	<10
2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	140	140 D	NA	<10	<10
2-Methylnaphthalene	<5.0	<25	<5.0	<5.0	<5.0
2-Methylphenol	<5.0	<25	<5.0	<5.0	<5.0
2-Nitrophenol	<5.0	<25	<5.0	<5.0	<5.0
3,4-Dimethylphenol	<10	<50	NA	<10	<10
3-Methylphenol	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	<25	<5.0	<5.0	<5.0
4-Methylphenol	NA	NA	NA	NA	NA
Anthracene	<5.0	<25	<5.0	<5.0	<5.0
Benzo(a)anthracene	<5.0	<25	<5.0	<5.0	<5.0
Benzo(a)pyrene	<5.0	<25	<5.0	<5.0	<5.0
Benzo(b)fluoranthene	<5.0	<25	<5.0	<5.0	<5.0
Benzo(g,h,i)perylene	<5.0	<25	<5.0	<5.0	<5.0
Benzo(k)fluoranthene	<5.0	<25	<5.0	<5.0	<5.0
bis(2-Ethylhexyl)phthalate	<5.0	<25	<5.0	<5.0	<5.0
Butylbenzylphthalate	<5.0	<25	<5.0	<5.0	<5.0
Carbazole	<5.0	<25	<5.0	<5.0	<5.0
Chrysene	<5.0	<25	<5.0	<5.0	<5.0
Dibenzo(a,h)anthracene	<5.0	<25	<5.0	<5.0	<5.0
Diethylphthalate	<5.0	<25	<5.0	<5.0	<5.0
Dimethylphthalate	<5.0	<25	<5.0	<5.0	<5.0
Di-n-butylphthalate	<5.0	<25	<5.0	<5.0	<5.0
Di-n-octylphthalate	<5.0	<25	<5.0	<5.0	<5.0
Fluoranthene	<5.0	<25	<5.0	<5.0	<5.0
Hexachlorobenzene	<5.0	<25	<5.0	<5.0	<5.0
Indeno(1,2,3-c,d)pyrene	<5.0	<25	<5.0 J	<5.0	<5.0
Naphthalene	<5.0	<25	<5.0	<5.0	<5.0
Phenanthrene	<5.0	<25	<5.0	<5.0	<5.0
Phenol	<5.0	<25	<5.0	<5.0	<5.0
Pyrene	<5.0	<25	<5.0	<5.0	<5.0

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66A (continued)	GM-66B				
Top of Screen Depth (ft bls)	27	125	125	125	125	125
Sample Date	07/27/05	07/19/00	08/03/00	09/11/03	05/10/04	07/27/05
Sample ID	GWGM66A (072705)	GWGM-66B	GMGW-66B	GM-66B	GWGM-66B (5/10/04)	GWGM66B (072705)
1,4-Dichlorobenzene	<4.7	<5.0	<100	<20	<10	<9.4
2,3-Dimethylphenol	<9.4	NA	NA	<40	<20	<19
2,4-Dimethylphenol	<4.7	<5.0	**510**	NA	NA	240
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.4	NA	NA	**440**	360	240
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	<9.4	NA	NA	<40	120	130
2-Methylnaphthalene	<4.7	<5.0	<100	<20	<10	<9.4
2-Methylphenol	<4.7	<5.0	<100	<20	<10	<9.4
2-Nitrophenol	<4.7	<5.0	<100	<20	<10	<9.4
3,4-Dimethylphenol	<9.4	NA	NA	<40	67	<19
3-Methylphenol	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<5.0	<100	<20	<10	<9.4
4-Methylphenol	NA	NA	NA	NA	NA	NA
Anthracene	<4.7	<5.0	<100	<20	<10	<9.4
Benzo(a)anthracene	<4.7	1.5 J	<100	<20	<10	<9.4
Benzo(a)pyrene	<4.7	**1.7 J**	<100	<20	<10	<9.4
Benzo(b)fluoranthene	<4.7	<5.0	<100	<20	<10	<9.4
Benzo(g,h,i)perylene	<4.7	1.3 J	<100	<20	<10	<9.4
Benzo(k)fluoranthene	<4.7	1.9 J	<100	<20	<10	<9.4
bis(2-Ethylhexyl)phthalate	1.0 J	4.1 J	24 J	<20	<10	<9.4
Butylbenzylphthalate	<4.7	1.9 J	<100	<20	<10	<9.4
Carbazole	<4.7	1.1 J	<100	<20	<10	<9.4
Chrysene	<4.7	1.6 J	<100	<20	<10	<9.4
Dibenzo(a,h)anthracene	<4.7	<5.0	<100	<20	<10	<9.4
Diethylphthalate	<4.7	<5.0	<100	<20	<10	<9.4
Dimethylphthalate	<4.7	<5.0	<100	<20	<10	<9.4
Di-n-butylphthalate	<4.7	1.7 J	<100	<20	<10	<9.4
Di-n-octylphthalate	<4.7	<5.0	<100	<20	<10	<9.4
Fluoranthene	<4.7	0.88 J	<100	<20	<10	<9.4
Hexachlorobenzene	<4.7	<5.0	<100	<20	<10	<9.4
Indeno(1,2,3-c,d)pyrene	<4.7	0.86 J	<100	<20	<10	<9.4
Naphthalene	<4.7	<5.0	<100	<20	<10	<9.4
Phenanthrene	<4.7	<5.0	<100	<20	<10	<9.4
Phenol	<4.7	<5.0	<100	<20	<10	<9.4
Pyrene	<4.7	1.7 J	<100	<20	<10	<9.4

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)			
Top of Screen Depth (ft bls)	125	125	125	125
Sample Date	12/08/06	03/01/07	03/01/07	05/14/07
Sample ID	GWGM-66B (12/8/06)	GWGM-66B (3/1/07)	GWGM-66B (3/1/07)-RE	GWGM-66B(5/14/07)
1,4-Dichlorobenzene	<5.0	<4.7	<4.7 H	<4.7
2,3-Dimethylphenol	<10	<9.4	<9.4 H	<9.4
2,4-Dimethylphenol	11	<4.7	<4.7 H	38
2,4-Dimethylphenol/2,5-Dimethylphenol	24	<9.4	<9.4 H	68
2,5-Dimethylphenol	NA	NA	NA	NA
2,6-Dimethylphenol	70	40	50 H	58
2-Methylnaphthalene	<5.0	<4.7	<4.7 H	<4.7
2-Methylphenol	<5.0	<4.7	<4.7 H	<4.7
2-Nitrophenol	<5.0	<4.7	<4.7 H	<4.7
3,4-Dimethylphenol	<10	<9.4	<9.4 H	<9.4
3-Methylphenol	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	<4.7	<4.7 H	<4.7
4-Methylphenol	NA	NA	NA	NA
Anthracene	<5.0	<4.7	<4.7 H	<4.7
Benzo(a)anthracene	<5.0	<4.7	<4.7 H	<4.7
Benzo(a)pyrene	<5.0	<4.7	<4.7 H	<4.7
Benzo(b)fluoranthene	<5.0	<4.7	<4.7 H	<4.7
Benzo(g,h,i)perylene	<5.0	<4.7	1.5 J H	<4.7
Benzo(k)fluoranthene	<5.0	<4.7	<4.7 H	<4.7
bis(2-Ethylhexyl)phthalate	<5.0	<4.7	1.6 J H	1.1 J
Butylbenzylphthalate	<5.0	<4.7	<4.7 H	<4.7
Carbazole	<5.0	<4.7	<4.7 H	<4.7
Chrysene	<5.0	<4.7	<4.7 H	<4.7
Dibenzo(a,h)anthracene	<5.0	<4.7	1.4 J H	<4.7
Diethylphthalate	<5.0	<4.7	<4.7 H	<4.7
Dimethylphthalate	<5.0	<4.7	<4.7 H	<4.7
Di-n-butylphthalate	<5.0	<4.7	0.96 J H	<4.7
Di-n-octylphthalate	<5.0	<4.7	<4.7 H	<4.7
Fluoranthene	<5.0	<4.7	<4.7 H	<4.7
Hexachlorobenzene	<5.0	<4.7	<4.7 H	<4.7
Indeno(1,2,3-c,d)pyrene	<5.0	<4.7	1.2 J H	<4.7
Naphthalene	<5.0	<4.7	<4.7 H	<4.7
Phenanthrene	<5.0	<4.7	<4.7 H	<4.7
Phenol	<5.0	<4.7	<4.7 H	<4.7
Pyrene	<5.0	<4.7	<4.7 H	<4.7

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B			GM-67	GM-68	
Top of Screen Depth (ft bls)	125	125	125	122	140	140
Sample Date	05/14/07	08/14/07	11/09/07	08/07/00	08/31/00	09/26/00
Sample ID	GWGM-999 (5/14/07)	GWGM-66B (8/14/07)	GWGM-66B (11/9/07)	GWGM-67	GWGM-68	GWGM-68
1,4-Dichlorobenzene	<4.7	<4.7	<4.7	<5.0	<5.0	<5.0
2,3-Dimethylphenol	<9.4	<9.4	<9.4	NA	NA	NA
2,4-Dimethylphenol	36	74	53	<5.0	<5.0	<5.0
2,4-Dimethylphenol/2,5-Dimethylphenol	65	74	53	NA	NA	NA
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	56	65	52	NA	NA	NA
2-Methylnaphthalene	<4.7	<4.7	<4.7	<5.0	<5.0	<5.0
2-Methylphenol	<4.7	<4.7	<4.7	<5.0	<5.0	<5.0
2-Nitrophenol	<4.7	<4.7	<4.7	<5.0	<5.0	<5.0
3,4-Dimethylphenol	<9.4	<9.4	<9.4	NA	NA	NA
3-Methylphenol	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<4.7	<4.7	<5.0	<5.0	<5.0
4-Methylphenol	NA	NA	NA	NA	NA	NA
Anthracene	<4.7	<4.7	<4.7	<5.0	<5.0	<5.0
Benzo(a)anthracene	<4.7	<4.7	<4.7	<5.0	0.41 J	<5.0
Benzo(a)pyrene	<4.7	1.2 J	<4.7	<5.0	<5.0	<5.0
Benzo(b)fluoranthene	<4.7	<4.7	<4.7	<5.0	<5.0	<5.0
Benzo(g,h,i)perylene	<4.7	2.1 J	<4.7	<5.0	<5.0	<5.0
Benzo(k)fluoranthene	<4.7	2.1 J	<4.7	<5.0	<5.0	<5.0
bis(2-Ethylhexyl)phthalate	<4.7	<4.7	<4.7	<5.0	<5.0	<5.0
Butylbenzylphthalate	<4.7	<4.7	<4.7	<5.0	<5.0	0.88 J
Carbazole	<4.7	<4.7	<4.7	<5.0	<5.0	<5.0
Chrysene	<4.7	<4.7	<4.7	<5.0	<5.0	<5.0
Dibenzo(a,h)anthracene	<4.7	1.9 J	<4.7	<5.0	<5.0	<5.0
Diethylphthalate	<4.7	<4.7	<4.7	<5.0	<5.0	<5.0
Dimethylphthalate	<4.7	<4.7	<4.7	<5.0	<5.0	<5.0
Di-n-butylphthalate	<4.7	<4.7	<4.7	<5.0	<5.0	<5.0
Di-n-octylphthalate	<4.7	<4.7	<4.7	<5.0	<5.0	<5.0
Fluoranthene	<4.7	<4.7	<4.7	<5.0	<5.0	<5.0
Hexachlorobenzene	<4.7	<4.7	<4.7	<5.0	<5.0	<5.0
Indeno(1,2,3-c,d)pyrene	<4.7	2.0 J	<4.7	<5.0 J	<5.0	<5.0
Naphthalene	<4.7	<4.7	<4.7	<5.0	<5.0	<5.0
Phenanthrene	<4.7	<4.7	<4.7	<5.0	<5.0	<5.0
Phenol	<4.7	0.61 J	<4.7	<5.0	<5.0	<5.0
Pyrene	<4.7	<4.7	<4.7	<5.0	0.58 J	<5.0

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-70	GM-71	GM-72				GM-72A
Top of Screen Depth (ft bls)	42	39	43	43	43	43	46
Sample Date	08/17/00	08/21/00	08/22/00	09/24/03	01/05/04	04/16/04	11/08/07
Sample ID	GWGM-70	GWGM-71	GWGM-72	GM-72	GWGM-72	GM-72	GWGM-72A (11/8/07)
1,4-Dichlorobenzene	<5.0	<5.0	<50	<100	<100	<5.0	<47
2,3-Dimethylphenol	NA	NA	NA	<200	<200	58	49 J
2,4-Dimethylphenol	<5.0	<5.0	**2,000**	NA	NA	NA	**1,400**
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	**2,600**	**2,700**	**2,400**	***2,900***
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	<200	<200	<10	160
2-Methylnaphthalene	<5.0	20	<50	<100	<100	<5.0	<47
2-Methylphenol	<5.0	<5.0	**180**	<100	<100	18	20 J
2-Nitrophenol	<5.0	<5.0	<50	650	<100	540	<47
3,4-Dimethylphenol	NA	NA	NA	1,700	1,300	1,400	890
3-Methylphenol	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	<5.0	***630***	**340**	**300**	**150**	**83**
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA
Anthracene	<5.0	<5.0	<50	<100	<100	<5.0	<47
Benzo(a)anthracene	<5.0	0.73 J	<50	<100	<100	<5.0	<47
Benzo(a)pyrene	<5.0	**1.2 J**	<50	<100	<100	<5.0	<47
Benzo(b)fluoranthene	<5.0	1.0 J	<50	<100	<100	<5.0	<47
Benzo(g,h,i)perylene	<5.0	<5.0	<50	<100	<100	<5.0	<47
Benzo(k)fluoranthene	<5.0	0.99 J	<50	<100	<100	<5.0	<47
bis(2-Ethylhexyl)phthalate	<5.0	<5.0	<50	<100	<100	<5.0	<47
Butylbenzylphthalate	<5.0	0.75 J	<50	<100	<100	<5.0	<47
Carbazole	<5.0	<5.0	<50	<100	<100	<5.0	<47
Chrysene	<5.0	0.95 J	<50	<100	<100	<5.0	<47
Dibenzo(a,h)anthracene	<5.0	0.94 J	<50	<100	<100	<5.0	<47
Diethylphthalate	<5.0	<5.0	<50	<100	<100	<5.0	<47
Dimethylphthalate	<5.0	<5.0	<50	<100	<100	<5.0	<47
Di-n-butylphthalate	<5.0	<5.0	<50	<100	<100	<5.0	<47
Di-n-octylphthalate	<5.0	<5.0	<50	<100	<100	<5.0	<47
Fluoranthene	<5.0	0.64 J	<50	<100	<100	<5.0	<47
Hexachlorobenzene	<5.0	<5.0	<50	<100	<100	<5.0	<47
Indeno(1,2,3-c,d)pyrene	<5.0	<5.0	<50	<100	<100	<5.0	<47
Naphthalene	<5.0	**44**	**40 J**	<100	<100	**35**	**28 J**
Phenanthrene	<5.0	<5.0	<50	<100	<100	<5.0	<47
Phenol	<5.0	<5.0	180	<100	<100	<5.0	22 J
Pyrene	<5.0	0.84 J	<50	<100	<100	<5.0	<47

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-72A (continued)		GM-73	GM-74	GM-75	GM-76
Top of Screen Depth (ft bls)	46	46	42	34	24	3
Sample Date	07/25/05	12/12/06	09/06/00	09/07/00	09/08/00	01/29/01
Sample ID	GWGM-72A (07/25/05)	GWGM-72A (12/12/06)	GWGM-73	GWGM-74	GWGM-75	DUP.012901
1,4-Dichlorobenzene	<200	<100	<5.0	<5.0	<5.0	<5.0
2,3-Dimethylphenol	<400	510	NA	NA	NA	NA
2,4-Dimethylphenol	***4,600***	***3,000***	<5.0	<5.0	<5.0	<5.0
2,4-Dimethylphenol/2,5-Dimethylphenol	***4,600***	***5,200***	NA	NA	NA	NA
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	<400	<200	NA	NA	NA	NA
2-Methylnaphthalene	<200	<100	<5.0	<5.0	<5.0	<5.0
2-Methylphenol	**290**	20 J	<5.0	<5.0	<5.0	<5.0
2-Nitrophenol	<200	<100	<5.0	<5.0	<5.0	<5.0
3,4-Dimethylphenol	<400	1,600	NA	NA	NA	NA
3-Methylphenol	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	***1,700***	**52 J**	<5.0	<5.0	<5.0	<5.0
4-Methylphenol	NA	NA	NA	NA	NA	NA
Anthracene	<200	<100	<5.0	<5.0	<5.0	<5.0
Benzo(a)anthracene	<200	<100	<5.0	<5.0	<5.0	<5.0
Benzo(a)pyrene	<200	<100	<5.0	<5.0	<5.0	<5.0
Benzo(b)fluoranthene	<200	<100	<5.0	<5.0	<5.0	<5.0
Benzo(g,h,i)perylene	<200	<100	<5.0	<5.0	<5.0	<5.0
Benzo(k)fluoranthene	<200	<100	<5.0	<5.0	<5.0	<5.0
bis(2-Ethylhexyl)phthalate	<200	24 J	<5.0	<5.0	<5.0	<5.0
Butylbenzylphthalate	<200	<100	<5.0	<5.0	<5.0	<5.0
Carbazole	<200	<100	<5.0	<5.0	<5.0	<5.0
Chrysene	<200	<100	<5.0	<5.0	<5.0	<5.0
Dibenzo(a,h)anthracene	<200	<100	<5.0	<5.0	<5.0	<5.0
Diethylphthalate	<200	<100	<5.0	<5.0	<5.0	<5.0
Dimethylphthalate	<200	<100	<5.0	<5.0	<5.0	<5.0
Di-n-butylphthalate	<200	<100	<5.0	<5.0	<5.0	<5.0
Di-n-octylphthalate	<200	<100	<5.0	<5.0	<5.0	<5.0
Fluoranthene	<200	<100	<5.0	<5.0	<5.0	<5.0
Hexachlorobenzene	<200	<100	<5.0	<5.0	<5.0	<5.0
Indeno(1,2,3-c,d)pyrene	<200	<100	<5.0	<5.0	<5.0	<5.0
Naphthalene	**47 J**	**30 J**	<5.0	<5.0	<5.0	<5.0
Phenanthrene	<200	<100	<5.0	<5.0	<5.0	<5.0
Phenol	**720**	<100	<5.0	<5.0	<5.0	<5.0
Pyrene	<200	<100	<5.0	<5.0	<5.0	<5.0

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-76 (continued)		GM-77			GM-78
Top of Screen Depth (ft bls)	3	3	105	105	105	20
Sample Date	01/29/01	09/09/05	09/22/03	05/11/04	07/28/05	09/18/03
Sample ID	GWGM-76	GWGM-76 (9/9/05)	GM-77	GWGM-77 (5/11/04)	GWGM-77 (072805)	GM-78 (9/18/03)
1,4-Dichlorobenzene	<5.0	<5.0	<20	<5.0	<24	<5.0
2,3-Dimethylphenol	NA	<9.9	<40	<10	120	<10
2,4-Dimethylphenol	<5.0	<5.0	NA	NA	310	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	<9.9	340	170	**670**	40
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	<9.9	130	88	<47	<10
2-Methylnaphthalene	<5.0	<5.0	<20	<5.0	<24	<5.0
2-Methylphenol	<5.0	<5.0	<20	<5.0	<24	<5.0
2-Nitrophenol	<5.0	<5.0	<20	<5.0	<24	<5.0
3,4-Dimethylphenol	NA	<9.9	<40	<10	<47	<10
3-Methylphenol	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	<5.0	<20	<5.0	<24	<5.0
4-Methylphenol	NA	NA	NA	NA	NA	NA
Anthracene	<5.0	<5.0	<20	<5.0	<24	<5.0
Benzo(a)anthracene	<5.0	<5.0	<20	<5.0	<24	<5.0
Benzo(a)pyrene	<5.0	<5.0	<20	<5.0	<24	<5.0
Benzo(b)fluoranthene	<5.0	<5.0	<20	<5.0	<24	<5.0
Benzo(g,h,i)perylene	<5.0	<5.0	<20	<5.0	<24	<5.0
Benzo(k)fluoranthene	<5.0	<5.0	<20	<5.0	<24	<5.0
bis(2-Ethylhexyl)phthalate	0.56 J	<5.0	<20	<5.0	<24	<5.0
Butylbenzylphthalate	<5.0	<5.0	<20	<5.0	<24	<5.0
Carbazole	<5.0	<5.0	<20	<5.0	<24	<5.0
Chrysene	<5.0	<5.0	<20	<5.0	<24	<5.0
Dibenzo(a,h)anthracene	<5.0	<5.0	<20	<5.0	<24	<5.0
Diethylphthalate	<5.0	<5.0	<20	<5.0	<24	<5.0
Dimethylphthalate	<5.0	<5.0	<20	<5.0	<24	<5.0
Di-n-butylphthalate	<5.0	<5.0	<20	<5.0	<24	<5.0
Di-n-octylphthalate	<5.0	<5.0	<20	<5.0	<24	<5.0
Fluoranthene	<5.0	<5.0	<20	<5.0	<24	<5.0
Hexachlorobenzene	<5.0	<5.0	<20	<5.0	<24	<5.0
Indeno(1,2,3-c,d)pyrene	<5.0	<5.0	<20	<5.0	<24	<5.0
Naphthalene	<5.0	<5.0	<20	<5.0	<24	<5.0
Phenanthrene	<5.0	<5.0	<20	<5.0	<24	<5.0
Phenol	<5.0	<5.0	<20	<5.0	<24	<5.0
Pyrene	0.78 J	<5.0	<20	<5.0	<24	<5.0

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)			
Top of Screen Depth (ft bls)	20	20	20	20
Sample Date	04/29/04	07/29/05	07/29/05	12/08/06
Sample ID	GWGM-78 (4/29/04)	GWGM-78 (7/29/05)	GWGM-998-RE (7/29/05)	GWGM-78 (12/8/06)
1,4-Dichlorobenzene	<5.0	<5.0	<4.7	<5.0
2,3-Dimethylphenol	<10	<9.9	1.3 J	<10
2,4-Dimethylphenol	NA	56	62	<5.0
2,4-Dimethylphenol/2,5-Dimethylphenol	36	130	120	5.2 J
2,5-Dimethylphenol	NA	NA	NA	NA
2,6-Dimethylphenol	15	<9.9	29	5.7 J
2-Methylnaphthalene	<5.0	<5.0	<4.7	<5.0
2-Methylphenol	<5.0	<5.0	<4.7	<5.0
2-Nitrophenol	<5.0	<5.0	<4.7	<5.0
3,4-Dimethylphenol	<10	<9.9	<9.4	<10
3-Methylphenol	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	<5.0	<4.7	<5.0
4-Methylphenol	NA	NA	NA	NA
Anthracene	<5.0	<5.0	<4.7	<5.0
Benzo(a)anthracene	<5.0	<5.0	<4.7	<5.0
Benzo(a)pyrene	<5.0	<5.0	<4.7	<5.0
Benzo(b)fluoranthene	<5.0	<5.0	<4.7	<5.0
Benzo(g,h,i)perylene	<5.0	<5.0	<4.7	<5.0
Benzo(k)fluoranthene	<5.0	<5.0	<4.7	<5.0
bis(2-Ethylhexyl)phthalate	<5.0	<5.0	<4.7	<5.0
Butylbenzylphthalate	<5.0	<5.0	<4.7	<5.0
Carbazole	<5.0	<5.0	<4.7	<5.0
Chrysene	<5.0	<5.0	<4.7	<5.0
Dibenzo(a,h)anthracene	<5.0	<5.0	<4.7	<5.0
Diethylphthalate	<5.0	<5.0	0.81 J	<5.0
Dimethylphthalate	<5.0	<5.0	<4.7	<5.0
Di-n-butylphthalate	<5.0	<5.0	<4.7	<5.0
Di-n-octylphthalate	<5.0	<5.0	<4.7	<5.0
Fluoranthene	<5.0	<5.0	<4.7	<5.0
Hexachlorobenzene	<5.0	<5.0	<4.7	<5.0
Indeno(1,2,3-c,d)pyrene	<5.0	<5.0	<4.7	<5.0
Naphthalene	<5.0	<5.0	<4.7	<5.0
Phenanthrene	<5.0	<5.0	<4.7	<5.0
Phenol	<5.0	<5.0	<4.7	<5.0
Pyrene	<5.0	<5.0	<4.7	<5.0

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)				
Top of Screen Depth (ft bls)	20	20	20	20	20
Sample Date	02/28/07	02/28/07	02/28/07	05/11/07	08/14/07
Sample ID	GWGM-78 (2/28/07)	GWGM-78 (2/28/07)-RE	GWGM-998 (2/28/07)	GWGM-78(5/11/07)	GWGM78 (8/14/07)
1,4-Dichlorobenzene	<4.7	<4.7 H	<4.7	<4.7	<4.7
2,3-Dimethylphenol	<9.4	<9.4 H	<9.4	<9.4	<9.4
2,4-Dimethylphenol	<4.7	<4.7 H	<4.7	<4.7	<4.7
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.4	<9.4 H	<9.4	<9.4	<9.4
2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	<9.4	<9.4 H	3.4 J	2.6 J	<9.4
2-Methylnaphthalene	<4.7	<4.7 H	<4.7	<4.7	<4.7
2-Methylphenol	<4.7	<4.7 H	<4.7	<4.7	<4.7
2-Nitrophenol	<4.7	<4.7 H	<4.7	<4.7	<4.7
3,4-Dimethylphenol	<9.4	<9.4 H	<9.4	<9.4	<9.4
3-Methylphenol	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<4.7 H	<4.7	<4.7	<4.7
4-Methylphenol	NA	NA	NA	NA	NA
Anthracene	<4.7	<4.7 H	<4.7	<4.7	<4.7
Benzo(a)anthracene	<4.7	<4.7 H	<4.7	<4.7	<4.7
Benzo(a)pyrene	<4.7	<4.7 H	<4.7	<4.7	<4.7
Benzo(b)fluoranthene	<4.7	<4.7 H	<4.7	<4.7	<4.7
Benzo(g,h,i)perylene	<4.7	<4.7 H	<4.7	<4.7	<4.7
Benzo(k)fluoranthene	<4.7	<4.7 H	<4.7	<4.7	<4.7
bis(2-Ethylhexyl)phthalate	<4.7	<4.7 H	<4.7	<4.7	<4.7
Butylbenzylphthalate	<4.7	<4.7 H	<4.7	<4.7	<4.7
Carbazole	<4.7	<4.7 H	<4.7	<4.7	<4.7
Chrysene	<4.7	<4.7 H	<4.7	<4.7	<4.7
Dibenzo(a,h)anthracene	<4.7	<4.7 H	<4.7	<4.7	<4.7
Diethylphthalate	<4.7	<4.7 H	<4.7	<4.7	<4.7
Dimethylphthalate	<4.7	<4.7 H	<4.7	<4.7	<4.7
Di-n-butylphthalate	<4.7	<4.7 H	<4.7	<4.7	<4.7
Di-n-octylphthalate	<4.7	<4.7 H	<4.7	<4.7	<4.7
Fluoranthene	<4.7	<4.7 H	<4.7	<4.7	<4.7
Hexachlorobenzene	<4.7	<4.7 H	<4.7	<4.7	<4.7
Indeno(1,2,3-c,d)pyrene	<4.7	<4.7 H	<4.7	<4.7	<4.7
Naphthalene	<4.7	<4.7 H	<4.7	<4.7	<4.7
Phenanthrene	<4.7	<4.7 H	<4.7	<4.7	<4.7
Phenol	<4.7	<4.7 H	<4.7	<4.7	<4.7
Pyrene	<4.7	<4.7 H	<4.7	<4.7	<4.7

Footnotes on Page 86.

ARCADIS

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)	GM-79			
Top of Screen Depth (ft bls)	20	25	25	25	25
Sample Date	11/08/07	09/18/03	04/26/04	07/29/05	12/04/06
Sample ID	GWGM-78 (11/8/07)	GM-79 (9/18/03)	GWGM-79 (4/26/04)	GWGM-79 (7/29/05)	GWGM-79(12/4/06)
1,4-Dichlorobenzene	<4.7	<5.0	<5.0	<4.9	<4.9
2,3-Dimethylphenol	<9.4	<10	<10	11	<9.8
2,4-Dimethylphenol	<4.7	NA	NA	29	<4.9 *
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.4	19	20	58	<9.8
2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	1.6 J	11	12	15	1.6 J
2-Methylnaphthalene	<4.7	<5.0	<5.0	<4.9	<4.9
2-Methylphenol	<4.7	<5.0	<5.0	<4.9	<4.9
2-Nitrophenol	<4.7	<5.0	<5.0	<4.9	<4.9
3,4-Dimethylphenol	<9.4	<10	<10	<9.7	<9.8
3-Methylphenol	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<5.0	2.0 J	<4.9	<4.9
4-Methylphenol	NA	NA	NA	NA	NA
Anthracene	<4.7	<5.0	<5.0	<4.9	<4.9
Benzo(a)anthracene	<4.7	<5.0	<5.0	<4.9	<4.9
Benzo(a)pyrene	<4.7	<5.0	<5.0	<4.9	<4.9
Benzo(b)fluoranthene	<4.7	<5.0	<5.0	<4.9	<4.9
Benzo(g,h,i)perylene	<4.7	<5.0	<5.0	<4.9	<4.9
Benzo(k)fluoranthene	<4.7	<5.0	<5.0	<4.9	<4.9
bis(2-Ethylhexyl)phthalate	1.0 J	<5.0	<5.0	<4.9	<4.9
Butylbenzylphthalate	<4.7	<5.0	<5.0	<4.9	<4.9
Carbazole	<4.7	<5.0	<5.0	<4.9	<4.9
Chrysene	<4.7	<5.0	<5.0	<4.9	<4.9
Dibenzo(a,h)anthracene	<4.7	<5.0	<5.0	<4.9	<4.9
Diethylphthalate	<4.7	<5.0	<5.0	<4.9	<4.9
Dimethylphthalate	<4.7	<5.0	<5.0	<4.9	<4.9
Di-n-butylphthalate	<4.7	<5.0	<5.0	<4.9	<4.9
Di-n-octylphthalate	<4.7	<5.0	<5.0	<4.9	<4.9
Fluoranthene	<4.7	<5.0	<5.0	<4.9	<4.9
Hexachlorobenzene	<4.7	<5.0	<5.0	<4.9	<4.9
Indeno(1,2,3-c,d)pyrene	<4.7	<5.0	<5.0	<4.9	<4.9
Naphthalene	<4.7	<5.0	<5.0	<4.9	<4.9
Phenanthrene	<4.7	<5.0	<5.0	<4.9	<4.9
Phenol	<4.7	<5.0	<5.0	<4.9	<4.9
Pyrene	<4.7	<5.0	<5.0	<4.9	<4.9

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)			
Top of Screen Depth (ft bls)	25	25	25	25
Sample Date	02/22/07	02/22/07	02/22/07	02/22/07
Sample ID	GWGM-79 (2/22/07)	GWGM-79-RE (2/22/07)	GWGM-999 (2/22/07)	GWGM-999-RE (2/22/07)
1,4-Dichlorobenzene	<4.7	<4.7 H	<4.7	<4.7 H
2,3-Dimethylphenol	<9.4	<9.4 H	<9.4	<9.4 H
2,4-Dimethylphenol	1.1 J	<4.7 H	1.0 J	<4.7 H
2,4-Dimethylphenol/2,5-Dimethylphenol	2.1 J	<9.4 H	<9.4	<9.4 H
2,5-Dimethylphenol	NA	NA	NA	NA
2,6-Dimethylphenol	1.6 J	1.6 J H	<9.4	<9.4 H
2-Methylnaphthalene	<4.7	<4.7 H	<4.7	<4.7 H
2-Methylphenol	<4.7	<4.7 H	<4.7	<4.7 H
2-Nitrophenol	<4.7	<4.7 H	<4.7	<4.7 H
3,4-Dimethylphenol	<9.4	<9.4 H	<9.4	<9.4 H
3-Methylphenol	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<4.7 H	<4.7	<4.7 H
4-Methylphenol	NA	NA	NA	NA
Anthracene	<4.7	<4.7 H	<4.7	<4.7 H
Benzo(a)anthracene	<4.7	<4.7 H	<4.7	<4.7 H
Benzo(a)pyrene	<4.7	<4.7 H	<4.7	<4.7 H
Benzo(b)fluoranthene	<4.7	<4.7 H	<4.7	<4.7 H
Benzo(g,h,i)perylene	<4.7	<4.7 H	<4.7	2.3 J H
Benzo(k)fluoranthene	<4.7	<4.7 H	<4.7	<4.7 H
bis(2-Ethylhexyl)phthalate	<4.7	<4.7 H	<4.7	<4.7 H
Butylbenzylphthalate	<4.7	<4.7 H	<4.7	<4.7 H
Carbazole	<4.7	<4.7 H	<4.7	<4.7 H
Chrysene	<4.7	<4.7 H	<4.7	<4.7 H
Dibenzo(a,h)anthracene	<4.7	<4.7 H	<4.7	2.0 J H
Diethylphthalate	<4.7	<4.7 H	<4.7	<4.7 H
Dimethylphthalate	<4.7	<4.7 H	<4.7	<4.7 H
Di-n-butylphthalate	<4.7	<4.7 H	<4.7	<4.7 H
Di-n-octylphthalate	<4.7	<4.7 H	<4.7	<4.7 H
Fluoranthene	<4.7	<4.7 H	<4.7	<4.7 H
Hexachlorobenzene	<4.7	<4.7 H	<4.7	<4.7 H
Indeno(1,2,3-c,d)pyrene	<4.7	<4.7 H	<4.7	1.9 J H B
Naphthalene	<4.7	<4.7 H	<4.7	<4.7 H
Phenanthrene	<4.7	<4.7 H	<4.7	<4.7 H
Phenol	<4.7	<4.7 H	<4.7	<4.7 H
Pyrene	<4.7	<4.7 H	<4.7	<4.7 H

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)				GM-84
Top of Screen Depth (ft bls)	25	25	25	25	77
Sample Date	05/09/07	08/07/07	11/06/07	11/06/07	08/19/04
Sample ID	GWGM-79 (5/9/07)	GWGM-79 (8/7/07)	GWGM-79(11/6/07)	GWGM-79(11/6/07)-RE	GWGM-84 (8/19/04)-RE
1,4-Dichlorobenzene	<4.7	<4.7	<4.7	<4.7 H	<5.0
2,3-Dimethylphenol	<9.4	<9.4	<9.4	<9.4 H	<10
2,4-Dimethylphenol	1.6 J	<4.7	<4.7	<4.7 H	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.4	<9.4	<9.4	<9.4 H	<15
2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	2.1 J	<9.4	1.0 J	1.1 J H	<10
2-Methylnaphthalene	<4.7	<4.7	<4.7	<4.7 H	<5.0
2-Methylphenol	<4.7	<4.7	<4.7	<4.7 H	<5.0
2-Nitrophenol	<4.7	<4.7	<4.7	<4.7 H	<5.0
3,4-Dimethylphenol	<9.4	<9.4	<9.4	<9.4 H	<10
3-Methylphenol	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<4.7	<4.7	<4.7 H	<5.0
4-Methylphenol	NA	NA	NA	NA	NA
Anthracene	<4.7	<4.7	<4.7	<4.7 H	<5.0
Benzo(a)anthracene	<4.7	<4.7	<4.7	<4.7 H	<5.0
Benzo(a)pyrene	<4.7	<4.7	<4.7	<4.7 H	<5.0
Benzo(b)fluoranthene	<4.7	<4.7	<4.7	<4.7 H	<5.0
Benzo(g,h,i)perylene	<4.7	<4.7	<4.7	<4.7 H	<5.0
Benzo(k)fluoranthene	<4.7	<4.7	<4.7	<4.7 H	<5.0
bis(2-Ethylhexyl)phthalate	<4.7	<4.7	<4.7	<4.7 H	<5.0
Butylbenzylphthalate	<4.7	<4.7	<4.7	<4.7 H	<5.0
Carbazole	<4.7	<4.7	<4.7	<4.7 H	<5.0
Chrysene	<4.7	<4.7	<4.7	<4.7 H	<5.0
Dibenzo(a,h)anthracene	<4.7	<4.7	<4.7	<4.7 H	<5.0
Diethylphthalate	<4.7	<4.7	<4.7	<4.7 H	<5.0
Dimethylphthalate	<4.7	<4.7	<4.7	<4.7 H	<5.0
Di-n-butylphthalate	<4.7	<4.7	<4.7	<4.7 H	<5.0
Di-n-octylphthalate	<4.7	<4.7	<4.7	<4.7 H	<5.0
Fluoranthene	<4.7	<4.7	<4.7	<4.7 H	<5.0
Hexachlorobenzene	<4.7	<4.7	<4.7	<4.7 H	<5.0
Indeno(1,2,3-c,d)pyrene	<4.7	<4.7	<4.7	<4.7 H	<5.0
Naphthalene	<4.7	<4.7	<4.7	<4.7 H	<5.0
Phenanthrene	<4.7	<4.7	<4.7	<4.7 H	<5.0
Phenol	<4.7	<4.7	<4.7	<4.7 H	<5.0
Pyrene	<4.7	<4.7	<4.7	<4.7 H	<5.0

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-84 (continued)				
Top of Screen Depth (ft bls)	77	77	77	77	77
Sample Date	08/01/05	12/12/06	03/02/07	05/14/07	08/14/07
Sample ID	GWGM-84 (08/01/05)	GWGM-84 (12/12/06)	GWGM-84 (3/2/07)	GWGM-84 (5/14/07)	GWGM-84 (8/14/07)
1,4-Dichlorobenzene	<4.8	<5.0	<4.7	<4.7	<4.7
2,3-Dimethylphenol	<9.6	<10	<9.4	<9.4	<9.4
2,4-Dimethylphenol	<4.8	<5.0	<4.7	<4.7	<4.7
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.6	<10	<9.4	<9.4	<9.4
2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	<9.6	<10	<9.4	<9.4	<9.4
2-Methylnaphthalene	<4.8	<5.0	<4.7	<4.7	<4.7
2-Methylphenol	<4.8	<5.0	<4.7	<4.7	<4.7
2-Nitrophenol	<4.8	<5.0	<4.7	<4.7	<4.7
3,4-Dimethylphenol	<9.6	<10	<9.4	<9.4	<9.4
3-Methylphenol	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.8	<5.0	<4.7	<4.7	<4.7
4-Methylphenol	NA	NA	NA	NA	NA
Anthracene	<4.8	<5.0	<4.7	<4.7	<4.7
Benzo(a)anthracene	<4.8	<5.0	<4.7	<4.7	<4.7
Benzo(a)pyrene	<4.8	<5.0	<4.7	<4.7	<4.7
Benzo(b)fluoranthene	<4.8	<5.0	<4.7	<4.7	<4.7
Benzo(g,h,i)perylene	<4.8	<5.0	<4.7	<4.7	<4.7
Benzo(k)fluoranthene	<4.8	<5.0	<4.7	<4.7	<4.7
bis(2-Ethylhexyl)phthalate	<4.8	<5.0	1.0 J B	<4.7	<4.7
Butylbenzylphthalate	<4.8	<5.0	<4.7	<4.7	<4.7
Carbazole	<4.8	<5.0	<4.7	<4.7	<4.7
Chrysene	<4.8	<5.0	<4.7	<4.7	<4.7
Dibenzo(a,h)anthracene	<4.8	<5.0	<4.7	<4.7	<4.7
Diethylphthalate	<4.8	<5.0	<4.7	<4.7	<4.7
Dimethylphthalate	<4.8	<5.0	<4.7	<4.7	<4.7
Di-n-butylphthalate	<4.8	<5.0	<4.7	<4.7	<4.7
Di-n-octylphthalate	<4.8	<5.0	<4.7	<4.7	<4.7
Fluoranthene	<4.8	<5.0	<4.7	<4.7	<4.7
Hexachlorobenzene	<4.8	<5.0	<4.7	<4.7	<4.7
Indeno(1,2,3-c,d)pyrene	<4.8	<5.0	<4.7	<4.7	<4.7
Naphthalene	<4.8	<5.0	<4.7	<4.7	<4.7
Phenanthrene	<4.8	<5.0	<4.7	<4.7	<4.7
Phenol	<4.8	<5.0	<4.7	<4.7	<4.7
Pyrene	<4.8	<5.0	<4.7	<4.7	<4.7

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-84 (continued)	GM-87A		
Top of Screen Depth (ft bls)	77	32	32	32
Sample Date	11/09/07	12/05/06	12/05/06	12/05/06
Sample ID	GWGM-84(11/9/07)	GWGM-87A (12/5/06)	GWGM-87A-RE (12/5/2006)	GWGM-999(12/5/06)
1,4-Dichlorobenzene	<4.7	<5.0	<5.0 H	<5.0
2,3-Dimethylphenol	<9.4	<10	<10 H	<10
2,4-Dimethylphenol	<4.7	13 *	20 H	12 *
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.4	13	20 H	12
2,5-Dimethylphenol	NA	NA	NA	NA
2,6-Dimethylphenol	<9.4	<10	<10 H	<10
2-Methylnaphthalene	<4.7	<5.0	<5.0 H	<5.0
2-Methylphenol	<4.7	<5.0	<5.0 H	<5.0
2-Nitrophenol	<4.7	<5.0	<5.0 H	<5.0
3,4-Dimethylphenol	<9.4	<10	<10 H	<10
3-Methylphenol	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<5.0	<5.0 H	<5.0
4-Methylphenol	NA	NA	NA	NA
Anthracene	<4.7	<5.0	<5.0 H	<5.0
Benzo(a)anthracene	<4.7	<5.0	<5.0 H	<5.0
Benzo(a)pyrene	<4.7	<5.0	<5.0 H	<5.0
Benzo(b)fluoranthene	<4.7	<5.0	<5.0 H	<5.0
Benzo(g,h,i)perylene	<4.7	<5.0	<5.0 H	<5.0
Benzo(k)fluoranthene	<4.7	<5.0	<5.0 H	<5.0
bis(2-Ethylhexyl)phthalate	<4.7	<5.0	<5.0 H	<5.0
Butylbenzylphthalate	<4.7	<5.0	<5.0 H	<5.0
Carbazole	<4.7	<5.0	<5.0 H	<5.0
Chrysene	<4.7	<5.0	<5.0 H	<5.0
Dibenzo(a,h)anthracene	<4.7	<5.0	<5.0 H	<5.0
Diethylphthalate	<4.7	<5.0	<5.0 H	<5.0
Dimethylphthalate	<4.7	<5.0	<5.0 H	<5.0
Di-n-butylphthalate	<4.7	<5.0	<5.0 H	<5.0
Di-n-octylphthalate	<4.7	<5.0	<5.0 H	<5.0
Fluoranthene	<4.7	<5.0	<5.0 H	<5.0
Hexachlorobenzene	<4.7	<5.0	<5.0 H	<5.0
Indeno(1,2,3-c,d)pyrene	<4.7	<5.0	<5.0 H	<5.0
Naphthalene	<4.7	<5.0	<5.0 H	<5.0
Phenanthrene	<4.7	<5.0	<5.0 H	<5.0
Phenol	<4.7	<5.0	<5.0 H	<5.0
Pyrene	<4.7	<5.0	<5.0 H	<5.0

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)			
Top of Screen Depth (ft bls)	32	32	32	32
Sample Date	12/05/06	02/19/07	05/08/07	08/06/07
Sample ID	GWGM-999-RE (12/5/2006)	GWGM-87A (02/19/07)	GWGM-87A (5/8/07)	GWGM-87A (8/6/07)
1,4-Dichlorobenzene	<5.0 H	<4.8	<4.7	<4.9
2,3-Dimethylphenol	<10 H	0.93 J	<9.4	<9.8
2,4-Dimethylphenol	16 H	12	22	12
2,4-Dimethylphenol/2,5-Dimethylphenol	16 H	12	22	12
2,5-Dimethylphenol	NA	NA	NA	NA
2,6-Dimethylphenol	<10 H	7.2 J	12	7.8 J
2-Methylnaphthalene	<5.0 H	<4.8	<4.7	<4.9
2-Methylphenol	<5.0 H	<4.8	<4.7	<4.9
2-Nitrophenol	<5.0 H	<4.8	<4.7	<4.9
3,4-Dimethylphenol	<10 H	<9.6	<9.4	<9.8
3-Methylphenol	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0 H	<4.8	<4.7	<4.9
4-Methylphenol	NA	NA	NA	NA
Anthracene	<5.0 H	<4.8	<4.7	<4.9
Benzo(a)anthracene	<5.0 H	<4.8	<4.7	<4.9
Benzo(a)pyrene	<5.0 H	<4.8	<4.7	<4.9
Benzo(b)fluoranthene	<5.0 H	<4.8	<4.7	<4.9
Benzo(g,h,i)perylene	<5.0 H	<4.8	<4.7	<4.9
Benzo(k)fluoranthene	<5.0 H	<4.8	<4.7	<4.9
bis(2-Ethylhexyl)phthalate	<5.0 H	<4.8	2.2 J	<4.9
Butylbenzylphthalate	<5.0 H	<4.8	<4.7	<4.9
Carbazole	<5.0 H	<4.8	<4.7	<4.9
Chrysene	<5.0 H	<4.8	<4.7	<4.9
Dibenzo(a,h)anthracene	<5.0 H	<4.8	<4.7	<4.9
Diethylphthalate	<5.0 H	<4.8	<4.7	<4.9
Dimethylphthalate	<5.0 H	<4.8	<4.7	<4.9
Di-n-butylphthalate	<5.0 H	<4.8	<4.7	<4.9
Di-n-octylphthalate	<5.0 H	<4.8	<4.7	<4.9
Fluoranthene	<5.0 H	<4.8	<4.7	<4.9
Hexachlorobenzene	<5.0 H	<4.8	<4.7	<4.9
Indeno(1,2,3-c,d)pyrene	<5.0 H	<4.8	<4.7	<4.9
Naphthalene	<5.0 H	<4.8	<4.7	<4.9
Phenanthrene	<5.0 H	<4.8	<4.7	<4.9
Phenol	<5.0 H	<4.8	<4.7	<4.9
Pyrene	<5.0 H	<4.8	<4.7	<4.9

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)	GM-87B		
Top of Screen Depth (ft bls)	32	117	117	117
Sample Date	11/07/07	12/05/06	12/05/06	02/20/07
Sample ID	GWGM-87A (11/7/07)	GWGM-87A(12/5/06)	GWGM-87B-RE (12/5/2006)	GWGM-87B (2/20/07)
1,4-Dichlorobenzene	<4.7	<5.0	<5.0 H	<4.7
2,3-Dimethylphenol	<9.4	<10	<10 H	<9.4
2,4-Dimethylphenol	1.7 J	<5.0 *	<5.0 H	<4.7
2,4-Dimethylphenol/2,5-Dimethylphenol	1.7 J	<10	<10 H	<9.4
2,5-Dimethylphenol	NA	NA	NA	NA
2,6-Dimethylphenol	<9.4	<10	<10 H	<9.4
2-Methylnaphthalene	<4.7	<5.0	<5.0 H	<4.7
2-Methylphenol	<4.7	<5.0	<5.0 H	<4.7
2-Nitrophenol	<4.7	<5.0	<5.0 H	<4.7
3,4-Dimethylphenol	NA	<10	<10 H	<9.4
3-Methylphenol	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<5.0	<5.0 H	<4.7
4-Methylphenol	NA	NA	NA	NA
Anthracene	<4.7	<5.0	<5.0 H	<4.7
Benzo(a)anthracene	<4.7	<5.0	<5.0 H	<4.7
Benzo(a)pyrene	<4.7	<5.0	<5.0 H	<4.7
Benzo(b)fluoranthene	<4.7	<5.0	<5.0 H	<4.7
Benzo(g,h,i)perylene	<4.7	<5.0	<5.0 H	<4.7
Benzo(k)fluoranthene	<4.7	<5.0	<5.0 H	<4.7
bis(2-Ethylhexyl)phthalate	<4.7	<5.0	<5.0 H	<4.7
Butylbenzylphthalate	<4.7	<5.0	<5.0 H	<4.7
Carbazole	<4.7	<5.0	<5.0 H	<4.7
Chrysene	<4.7	<5.0	<5.0 H	<4.7
Dibenzo(a,h)anthracene	<4.7	<5.0	<5.0 H	<4.7
Diethylphthalate	<4.7	<5.0	<5.0 H	<4.7
Dimethylphthalate	<4.7	<5.0	<5.0 H	<4.7
Di-n-butylphthalate	<4.7	<5.0	<5.0 H	<4.7
Di-n-octylphthalate	<4.7	<5.0	<5.0 H	<4.7
Fluoranthene	<4.7	<5.0	<5.0 H	<4.7
Hexachlorobenzene	<4.7	<5.0	<5.0 H	<4.7
Indeno(1,2,3-c,d)pyrene	<4.7	<5.0	<5.0 H	<4.7
Naphthalene	<4.7	<5.0	<5.0 H	<4.7
Phenanthrene	<4.7	<5.0	<5.0 H	<4.7
Phenol	<4.7	<5.0	<5.0 H	<4.7
Pyrene	<4.7	<5.0	<5.0 H	<4.7

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87B (continued)			GM-118D	
Top of Screen Depth (ft bls)	117	117	117	54	54
Sample Date	05/08/07	08/06/07	11/07/07	10/21/98	04/29/99
Sample ID	GWGM-87B (5/8/07)	GWGM-87B (8/6/07)	GWGM-87B (11/7/07)	GWGM-118D	GWGM-118D
1,4-Dichlorobenzene	<4.7	<4.7	<4.7	<5	<5
2,3-Dimethylphenol	<9.4	<9.4	<9.4	NA	<10
2,4-Dimethylphenol	<4.7	<4.7	<4.7	<5	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.4	<9.4	<9.4	NA	NA
2,5-Dimethylphenol	NA	NA	NA	NA	<20
2,6-Dimethylphenol	<9.4	<9.4	<9.4	NA	<10
2-Methylnaphthalene	<4.7	<4.7	<4.7	<5	<5
2-Methylphenol	<4.7	<4.7	<4.7	<5	<5
2-Nitrophenol	<4.7	<4.7	<4.7	<20	<20
3,4-Dimethylphenol	<9.4	<9.4	NA	NA	<10
3-Methylphenol	NA	NA	NA	<10	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<4.7	<4.7	NA	NA
4-Methylphenol	NA	NA	NA	<5	<5
Anthracene	<4.7	<4.7	<4.7	<5	<5
Benzo(a)anthracene	<4.7	<4.7	<4.7	<5	<5
Benzo(a)pyrene	<4.7	<4.7	<4.7	<5	<5
Benzo(b)fluoranthene	<4.7	<4.7	<4.7	<5	<5
Benzo(g,h,i)perylene	<4.7	<4.7	<4.7	<5	<5
Benzo(k)fluoranthene	<4.7	<4.7	<4.7	<5	<5
bis(2-Ethylhexyl)phthalate	<4.7	<4.7	<4.7	<5	<5
Butylbenzylphthalate	<4.7	<4.7	<4.7	<5	<5
Carbazole	<4.7	<4.7	<4.7	<5	<5 J
Chrysene	<4.7	<4.7	<4.7	<5	<5
Dibenzo(a,h)anthracene	<4.7	<4.7	<4.7	<5	<5
Diethylphthalate	<4.7	<4.7	<4.7	<5	<5
Dimethylphthalate	<4.7	<4.7	<4.7	<5	<5
Di-n-butylphthalate	<4.7	<4.7	<4.7	<5	<5
Di-n-octylphthalate	<4.7	<4.7	<4.7	<5	<5
Fluoranthene	<4.7	<4.7	<4.7	<5	<5
Hexachlorobenzene	<4.7	<4.7	<4.7	<5	<5
Indeno(1,2,3-c,d)pyrene	<4.7	<4.7	<4.7	<5	<5
Naphthalene	<4.7	<4.7	<4.7	<10	<10
Phenanthrene	<4.7	<4.7	<4.7	<5	<5
Phenol	<4.7	<4.7	<4.7	<5	<5
Pyrene	<4.7	<4.7	<4.7	<5	<5

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEW-3	GMEWA-1	GMEWA-2	GMEWA-3	GMEWA-4	
Top of Screen Depth (ft bls)	135	26	26	25	20	20
Sample Date	07/24/00	04/11/05	04/12/05	04/12/05	04/12/05	08/02/05
Sample ID	GWGMEW-3	GWGMEWA-1	GWGMEWA-2	GWGMEWA-3	GWGMEWA-4	GWGMEWA4 (08/02/05)
1,4-Dichlorobenzene	<500	<4.7	<24	<24	<4.7	<94
2,3-Dimethylphenol	NA	<9.4	240	29 J	130	<190
2,4-Dimethylphenol	***2,800***	<4.7	230	340	140	<94
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	<19	**420**	**620**	280	**870**
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	<9.4	56	98	64	<190
2-Methylnaphthalene	<500	<4.7	<24	<24	<4.7	<94
2-Methylphenol	***4,100***	<4.7 *	54 *	23 J *	6.7 *	**340**
2-Nitrophenol	<500	<4.7 *	<24	<24 *	<4.7 *	<94
3,4-Dimethylphenol	NA	<9.4	22 J	16 J	5.3 J	<190
3-Methylphenol	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	***13,000***	<4.7	**220**	**81**	**55**	***2,600***
4-Methylphenol	NA	NA	NA	NA	NA	NA
Anthracene	<500	<4.7	<24	<24	<4.7	<94
Benzo(a)anthracene	48 J	<4.7	<24	<24	<4.7	<94
Benzo(a)pyrene	200 J	<4.7	4.9 J	<24	<4.7	<94
Benzo(b)fluoranthene	180 J	<9.4	<47	<48	<9.4	<94
Benzo(g,h,i)perylene	<500	<4.7	8.0 J	<24	<4.7	<94
Benzo(k)fluoranthene	280 J	<4.7	5.4 J	<24	<4.7	<94
bis(2-Ethylhexyl)phthalate	<500	<4.7	<24	<24	1.1 J	<94
Butylbenzylphthalate	51 J	<4.7	<24	<24	<4.7	<94
Carbazole	<500	<4.7	<24	<24	<4.7	<94
Chrysene	65 J	<4.7	<24	<24	<4.7	<94
Dibenzo(a,h)anthracene	76 J	<4.7	6.4 J	<24	<4.7	<94
Diethylphthalate	<500	4.5 J	4.6 J	30	<4.7	<94
Dimethylphthalate	<500	<4.7	<24	<24	<4.7	<94
Di-n-butylphthalate	<500	<4.7	<24	<24	<4.7	<94
Di-n-octylphthalate	340 J	<4.7	<24	<24	<4.7	<94
Fluoranthene	<500	<4.7	<24	<24	<4.7	<94
Hexachlorobenzene	<500	<4.7	<24	<24	<4.7	<94
Indeno(1,2,3-c,d)pyrene	110 J	<4.7	4.8 J	<24	<4.7	<94
Naphthalene	<500	<4.7	<24	<24	2.3 J	<94
Phenanthrene	<500	<4.7	<24	<24	<4.7	<94
Phenol	***7,000***	<4.7	22 J	<24	<4.7	210
Pyrene	<500	<4.7	<24	<24	<4.7	<94

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWA-26		GMEWA-27
Top of Screen Depth (ft bls)	22	22	21
Sample Date	04/15/05	07/27/05	04/13/05
Sample ID	GWGMEWA-26 (4/15/05)	GWGMEWA-26 (072705)	GWGMEWA-27 -RE (4/13/2005)
1,4-Dichlorobenzene	<24	<47	<4.7
2,3-Dimethylphenol	100	<94	<9.4
2,4-Dimethylphenol	260	**540**	8
2,4-Dimethylphenol/2,5-Dimethylphenol	**480**	**540**	14 J
2,5-Dimethylphenol	NA	NA	NA
2,6-Dimethylphenol	98	<94	3.5 J
2-Methylnaphthalene	<24	<47	<4.7
2-Methylphenol	<24	<47	<4.7
2-Nitrophenol	<24	<47	<4.7
3,4-Dimethylphenol	23 J	<94	<9.4
3-Methylphenol	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<24	<47	<4.7
4-Methylphenol	NA	NA	NA
Anthracene	<24	<47	<4.7
Benzo(a)anthracene	<24	<47	<4.7
Benzo(a)pyrene	<24	12 J	<4.7
Benzo(b)fluoranthene	<48	<47	<9.4
Benzo(g,h,i)perylene	<24	20 J	<4.7
Benzo(k)fluoranthene	<24	<47	<4.7
bis(2-Ethylhexyl)phthalate	<24	<47	<4.7
Butylbenzylphthalate	<24	<47	<4.7
Carbazole	<24	<47	<4.7
Chrysene	<24	<47	<4.7
Dibenzo(a,h)anthracene	<24	17 J	<4.7
Diethylphthalate	<24	<47	1.7 J
Dimethylphthalate	<24	<47	<4.7
Di-n-butylphthalate	<24	<47	<4.7
Di-n-octylphthalate	<24	<47	<4.7
Fluoranthene	<24	<47	<4.7
Hexachlorobenzene	<24	<47	<4.7
Indeno(1,2,3-c,d)pyrene	<24	14 J	<4.7
Naphthalene	<24	<47	<4.7
Phenanthrene	<24	<47	<4.7
Phenol	<24	<47	<4.7
Pyrene	<24	<47	<4.7

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWA-27 (continued)	GMEWA-28	GMEWC-1
Top of Screen Depth (ft bls)	21	25	123
Sample Date	04/13/05	04/13/05	07/26/05
Sample ID	GWGMEWA-999 -RE (4/13/2005)	GWGMEWA-28 -RE (4/13/2005)	GWGMEWC-1-RE (072605)
1,4-Dichlorobenzene	<4.7	<4.7	<4.7
2,3-Dimethylphenol	<9.4	<9.4	<9.4
2,4-Dimethylphenol	9.9	12	<4.7
2,4-Dimethylphenol/2,5-Dimethylphenol	18 J	21	<9.4
2,5-Dimethylphenol	NA	NA	NA
2,6-Dimethylphenol	5 J	4.7 J	150
2-Methylnaphthalene	<4.7	<4.7	<4.7
2-Methylphenol	<4.7	<4.7	<4.7
2-Nitrophenol	<4.7	<4.7	<4.7
3,4-Dimethylphenol	<9.4	<9.4	<9.4
3-Methylphenol	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<4.7	<4.7
4-Methylphenol	NA	NA	NA
Anthracene	<4.7	<4.7	<4.7
Benzo(a)anthracene	<4.7	<4.7	<4.7
Benzo(a)pyrene	<4.7	<4.7	<4.7
Benzo(b)fluoranthene	<9.4	<9.4	<4.7
Benzo(g,h,i)perylene	1 J	<4.7	<4.7
Benzo(k)fluoranthene	<4.7	<4.7	<4.7
bis(2-Ethylhexyl)phthalate	<4.7	<4.7	<4.7
Butylbenzylphthalate	<4.7	<4.7	<4.7
Carbazole	<4.7	<4.7	<4.7
Chrysene	<4.7	<4.7	<4.7
Dibenzo(a,h)anthracene	<4.7	<4.7	<4.7
Diethylphthalate	0.67 J	1.6 J	<4.7
Dimethylphthalate	<4.7	<4.7	<4.7
Di-n-butylphthalate	<4.7	<4.7	<4.7
Di-n-octylphthalate	<4.7	<4.7	<4.7
Fluoranthene	<4.7	<4.7	<4.7
Hexachlorobenzene	<4.7	<4.7	<4.7
Indeno(1,2,3-c,d)pyrene	0.71 J	<4.7	<4.7
Naphthalene	<4.7	<4.7	<4.7
Phenanthrene	<4.7	<4.7	<4.7
Phenol	<4.7	<4.7	<4.7
Pyrene	<4.7	<4.7	<4.7

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWC-1A		GMPZA-26
Top of Screen Depth (ft bls)	117.5	117.5	20
Sample Date	04/14/05	04/14/05	12/06/06
Sample ID	GWGMEWC-1A (117.5-142.5)	GWGMEWC-1A (152.5-157.5) -RE	GWGMPZA-26 (12/06/06)
1,4-Dichlorobenzene	<4.7	<4.7	<4.9
2,3-Dimethylphenol	<9.4	33	13
2,4-Dimethylphenol	<4.7	150	290 E
2,4-Dimethylphenol/2,5-Dimethylphenol	<19	290	290
2,5-Dimethylphenol	NA	NA	NA
2,6-Dimethylphenol	1.9 J	54	110
2-Methylnaphthalene	<4.7	<4.7	<4.9
2-Methylphenol	<4.7	<4.7	74
2-Nitrophenol	<4.7	<4.7	<4.9
3,4-Dimethylphenol	<9.4	<9.4	17
3-Methylphenol	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<4.7	**360 E**
4-Methylphenol	NA	NA	NA
Anthracene	<4.7	<4.7	<4.9
Benzo(a)anthracene	<4.7	<4.7	<4.9
Benzo(a)pyrene	<4.7	<4.7	<4.9
Benzo(b)fluoranthene	<9.4	<9.4	<4.9
Benzo(g,h,i)perylene	<4.7	<4.7	<4.9
Benzo(k)fluoranthene	<4.7	<4.7	<4.9
bis(2-Ethylhexyl)phthalate	<4.7	1.8 J	<4.9
Butylbenzylphthalate	<4.7	<4.7	<4.9
Carbazole	<4.7	<4.7	<4.9
Chrysene	<4.7	<4.7	<4.9
Dibenzo(a,h)anthracene	<4.7	<4.7	<4.9
Diethylphthalate	<4.7	2.6 J	<4.9
Dimethylphthalate	<4.7	<4.7	<4.9
Di-n-butylphthalate	<4.7	<4.7	<4.9
Di-n-octylphthalate	<4.7	<4.7	<4.9
Fluoranthene	<4.7	<4.7	<4.9
Hexachlorobenzene	<4.7	<4.7	<4.9
Indeno(1,2,3-c,d)pyrene	<4.7	<4.7	<4.9
Naphthalene	<4.7	<4.7	<4.9
Phenanthrene	<4.7	<4.7	<4.9
Phenol	<4.7	<4.7	120
Pyrene	<4.7	<4.7	<4.9

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-26 (continued)		
Top of Screen Depth (ft bls)	20	20	20
Sample Date	12/06/06	02/27/07	08/13/07
Sample ID	GWGMPZA-26-RE (12/6/2006)	GWGMPZA-26 (2/27/07)	GWGMPZA-26 (8/13/07)
1,4-Dichlorobenzene	<25	<4.7	<4.7
2,3-Dimethylphenol	<49	2.1 J	<9.4
2,4-Dimethylphenol	220 D	110	77
2,4-Dimethylphenol/2,5-Dimethylphenol	220 D	110	78
2,5-Dimethylphenol	NA	NA	NA
2,6-Dimethylphenol	85 D	43	32
2-Methylnaphthalene	<25	<4.7	<4.7
2-Methylphenol	52 D	5.4	<4.7
2-Nitrophenol	<25	<4.7	<4.7
3,4-Dimethylphenol	11 JD	1.2 J	<9.4
3-Methylphenol	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	**270 D**	**27**	1.5 J
4-Methylphenol	NA	NA	NA
Anthracene	<25	<4.7	<4.7
Benzo(a)anthracene	<25	<4.7	<4.7
Benzo(a)pyrene	<25	<4.7	<4.7
Benzo(b)fluoranthene	<25	<4.7	<4.7
Benzo(g,h,i)perylene	<25	<4.7	<4.7
Benzo(k)fluoranthene	<25	<4.7	<4.7
bis(2-Ethylhexyl)phthalate	<25	<4.7	<4.7
Butylbenzylphthalate	<25	<4.7	<4.7
Carbazole	<25	<4.7	<4.7
Chrysene	<25	<4.7	<4.7
Dibenzo(a,h)anthracene	<25	<4.7	<4.7
Diethylphthalate	<25	<4.7	<4.7
Dimethylphthalate	<25	<4.7	<4.7
Di-n-butylphthalate	<25	<4.7	<4.7
Di-n-octylphthalate	<25	<4.7	<4.7
Fluoranthene	<25	<4.7	<4.7
Hexachlorobenzene	<25	<4.7	<4.7
Indeno(1,2,3-c,d)pyrene	<25	<4.7	<4.7
Naphthalene	<25	0.91 J	<4.7
Phenanthrene	<25	<4.7	<4.7
Phenol	84 D	7.2	<4.7
Pyrene	<25	<4.7	<4.7

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-29		
Top of Screen Depth (ft bls)	18	18	18
Sample Date	12/06/06	12/06/06	02/26/07
Sample ID	GWGMPZA-29 (12/6/06)	GWGMPZA-29-RE (12/6/2006)	GWGMPZA-29 (2/26/07)
1,4-Dichlorobenzene	<49	<970	<240
2,3-Dimethylphenol	390	540 JD	52 J
2,4-Dimethylphenol	***3,600 E***	***3,700 D***	**680**
2,4-Dimethylphenol/2,5-Dimethylphenol	***3,600***	***3,700 D***	**1,400**
2,5-Dimethylphenol	NA	NA	NA
2,6-Dimethylphenol	950	1,100 JD	170 J
2-Methylnaphthalene	<49	<970	<240
2-Methylphenol	***3,800 E***	***4,400 D***	**650**
2-Nitrophenol	<49	<970	<240
3,4-Dimethylphenol	700	770 JD	97 J
3-Methylphenol	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	***16,000 E***	***19,000 D***	***2,800***
4-Methylphenol	NA	NA	NA
Anthracene	<49	<970	<240
Benzo(a)anthracene	<49	<970	<240
Benzo(a)pyrene	<49	<970	<240
Benzo(b)fluoranthene	<49	<970	<240
Benzo(g,h,i)perylene	14 J	<970	<240
Benzo(k)fluoranthene	<49	<970	<240
bis(2-Ethylhexyl)phthalate	<49	<970	<240
Butylbenzylphthalate	<49	<970	<240
Carbazole	<49	<970	<240
Chrysene	<49	<970	<240
Dibenzo(a,h)anthracene	<49	<970	<240
Diethylphthalate	<49	<970	<240
Dimethylphthalate	<49	<970	<240
Di-n-butylphthalate	<49	<970	<240
Di-n-octylphthalate	<49	<970	<240
Fluoranthene	<49	<970	<240
Hexachlorobenzene	<49	<970	<240
Indeno(1,2,3-c,d)pyrene	8.7 J	<970	<240
Naphthalene	<49	<970	<240
Phenanthrene	<49	<970	<240
Phenol	**5,100 E**	**5,000 D**	**910**
Pyrene	<49	<970	<240

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-29 (continued)		GMPZA-34	
Top of Screen Depth (ft bls)	18	18	25	25
Sample Date	02/26/07	08/10/07	12/08/06	02/26/07
Sample ID	GWGMPZA-29-RE (2/26/07)	GWGMPZA-29(08/10/07)	GWGMPZA-34 (12/8/06)	GWGMPZA-34 (2/26/07)
1,4-Dichlorobenzene	<250 H	<4.7	<5.0	<4.7
2,3-Dimethylphenol	<490 H	<9.4	<10	<9.4
2,4-Dimethylphenol	**600 ***	1.1 J	<5.0	<4.7
2,4-Dimethylphenol/2,5-Dimethylphenol	**600 H**	1.2 J	<10	<9.4
2,5-Dimethylphenol	NA	NA	NA	NA
2,6-Dimethylphenol	<490 H	1.0 J	<10	<9.4
2-Methylnaphthalene	<250 H	<4.7	<5.0	<4.7
2-Methylphenol	**570**	<4.7	<5.0	<4.7
2-Nitrophenol	<250 H	<4.7	<5.0	<4.7
3,4-Dimethylphenol	<490 H	0.53 J	<10	<9.4
3-Methylphenol	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	***2,500***	<4.7	<5.0	<4.7
4-Methylphenol	NA	NA	NA	NA
Anthracene	<250 H	<4.7	<5.0	<4.7
Benzo(a)anthracene	<250 H	<4.7	<5.0	<4.7
Benzo(a)pyrene	<250 H	<4.7	<5.0	<4.7
Benzo(b)fluoranthene	<250 H	<4.7	<5.0	<4.7
Benzo(g,h,i)perylene	<250 H	<4.7	<5.0	<4.7
Benzo(k)fluoranthene	<250 H	<4.7	<5.0	<4.7
bis(2-Ethylhexyl)phthalate	<250 H	<4.7	<5.0	<4.7
Butylbenzylphthalate	<250 H	<4.7	<5.0	<4.7
Carbazole	<250 H	<4.7	<5.0	<4.7
Chrysene	<250 H	<4.7	<5.0	<4.7
Dibenzo(a,h)anthracene	<250 H	<4.7	<5.0	<4.7
Diethylphthalate	<250 H	<4.7	<5.0	<4.7
Dimethylphthalate	<250 H	<4.7	<5.0	<4.7
Di-n-butylphthalate	<250 H	<4.7	<5.0	<4.7
Di-n-octylphthalate	<250 H	<4.7	<5.0	<4.7
Fluoranthene	<250 H	<4.7	<5.0	<4.7
Hexachlorobenzene	<250 H	<4.7	<5.0	<4.7
Indeno(1,2,3-c,d)pyrene	<250 H	<4.7	<5.0	<4.7
Naphthalene	<250 H	<4.7	<5.0	<4.7
Phenanthrene	<250 H	<4.7	<5.0	<4.7
Phenol	**840**	<4.7	<5.0	<4.7
Pyrene	<250 H	<4.7	<5.0	<4.7

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-34 (continued)		GMPZA-38	
Top of Screen Depth (ft bls)	25	25	25	25
Sample Date	02/26/07	08/09/07	12/07/06	12/07/06
Sample ID	GWGMPZA-34-RE (2/26/07)	GWGMPZA-34 (8/9/07)	GWGM-998 (12/7/06)	GWGM-998-RE (12/7/06)
1,4-Dichlorobenzene	<4.8 H	<4.7	<5.0	<4.7 H
2,3-Dimethylphenol	<9.5 H	<9.4	<10	<9.4 H
2,4-Dimethylphenol	<4.8 H *	<4.7	<5.0	<4.7 H
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.5 H	<9.4	<10	<9.4 H
2,5-Dimethylphenol	NA	NA	NA	NA
2,6-Dimethylphenol	<9.5 H	<9.4	<10	<9.4 H
2-Methylnaphthalene	<4.8 H	<4.7	<5.0	<4.7 H
2-Methylphenol	<4.8 H	<4.7	<5.0	<4.7 H
2-Nitrophenol	<4.8 H	<4.7	<5.0	<4.7 H
3,4-Dimethylphenol	<9.5 H	<9.4	<10	<9.4 H
3-Methylphenol	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.8 H	<4.7	<5.0	<4.7 H
4-Methylphenol	NA	NA	NA	NA
Anthracene	<4.8 H	<4.7	<5.0	<4.7 H
Benzo(a)anthracene	<4.8 H	<4.7	<5.0	<4.7 H
Benzo(a)pyrene	<4.8 H	<4.7	<5.0	<4.7 H
Benzo(b)fluoranthene	<4.8 H	<4.7	<5.0	<4.7 H
Benzo(g,h,i)perylene	<4.8 H	<4.7	<5.0	<4.7 H
Benzo(k)fluoranthene	<4.8 H	<4.7	<5.0	<4.7 H
bis(2-Ethylhexyl)phthalate	<4.8 H	<4.7	<5.0	<4.7 H
Butylbenzylphthalate	<4.8 H	<4.7	<5.0	<4.7 H
Carbazole	<4.8 H	<4.7	<5.0	<4.7 H
Chrysene	<4.8 H	<4.7	<5.0	<4.7 H
Dibenzo(a,h)anthracene	<4.8 H	<4.7	<5.0	<4.7 H
Diethylphthalate	<4.8 H	<4.7	<5.0	<4.7 H
Dimethylphthalate	<4.8 H	<4.7	<5.0	<4.7 H
Di-n-butylphthalate	<4.8 H	<4.7	<5.0	<4.7 H
Di-n-octylphthalate	<4.8 H	<4.7	<5.0	<4.7 H
Fluoranthene	<4.8 H	<4.7	<5.0	<4.7 H
Hexachlorobenzene	<4.8 H	<4.7	<5.0	<4.7 H
Indeno(1,2,3-c,d)pyrene	<4.8 H	<4.7	<5.0	<4.7 H
Naphthalene	<4.8 H	<4.7	<5.0	<4.7 H
Phenanthrene	<4.8 H	<4.7	<5.0	<4.7 H
Phenol	<4.8 H	<4.7	<5.0	<4.7 H
Pyrene	<4.8 H	<4.7	<5.0	<4.7 H

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-38 (continued)			
Top of Screen Depth (ft bls)	25	25	25	25
Sample Date	12/07/06	12/07/06	02/23/07	02/23/07
Sample ID	GWGMPZA38 (12/7/06)	GWGMPZA38-RE (12/7/06)	GWGMPZA-38 (2/23/07)	GWGMPZA-38-RE (2/23/07)
1,4-Dichlorobenzene	<5.0	<4.7 H	<4.7	<4.7 H
2,3-Dimethylphenol	<10	<9.4 H	<9.4	<9.4 H
2,4-Dimethylphenol	<5.0	<4.7 H	<4.7 *	<4.7 H
2,4-Dimethylphenol/2,5-Dimethylphenol	<10	<9.4 H	<9.4	<9.4 H
2,5-Dimethylphenol	NA	NA	NA	NA
2,6-Dimethylphenol	<10	<9.4 H	<9.4	<9.4 H
2-Methylnaphthalene	<5.0	<4.7 H	<4.7	<4.7 H
2-Methylphenol	<5.0	<4.7 H	<4.7	<4.7 H
2-Nitrophenol	<5.0	<4.7 H	<4.7 *	<4.7 H
3,4-Dimethylphenol	<10	<9.4 H	<9.4	<9.4 H
3-Methylphenol	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	<4.7 H	<4.7	<4.7 H
4-Methylphenol	NA	NA	NA	NA
Anthracene	<5.0	<4.7 H	<4.7	<4.7 H
Benzo(a)anthracene	<5.0	<4.7 H	<4.7	<4.7 H
Benzo(a)pyrene	<5.0	<4.7 H	<4.7	<4.7 H
Benzo(b)fluoranthene	<5.0	<4.7 H	<4.7	<4.7 H
Benzo(g,h,i)perylene	<5.0	<4.7 H	<4.7	<4.7 H
Benzo(k)fluoranthene	<5.0	<4.7 H	<4.7	<4.7 H
bis(2-Ethylhexyl)phthalate	<5.0	<4.7 H	<4.7	<4.7 H
Butylbenzylphthalate	<5.0	<4.7 H	<4.7	<4.7 H
Carbazole	<5.0	<4.7 H	<4.7	<4.7 H
Chrysene	<5.0	<4.7 H	<4.7	<4.7 H
Dibenzo(a,h)anthracene	<5.0	<4.7 H	<4.7	<4.7 H
Diethylphthalate	<5.0	<4.7 H	<4.7	<4.7 H
Dimethylphthalate	<5.0	<4.7 H	<4.7	<4.7 H
Di-n-butylphthalate	<5.0	<4.7 H	<4.7	<4.7 H
Di-n-octylphthalate	<5.0	<4.7 H	<4.7	<4.7 H
Fluoranthene	<5.0	<4.7 H	<4.7	<4.7 H
Hexachlorobenzene	<5.0	<4.7 H	<4.7	<4.7 H
Indeno(1,2,3-c,d)pyrene	<5.0	<4.7 H	<4.7	<4.7 H
Naphthalene	<5.0	<4.7 H	<4.7	<4.7 H
Phenanthrene	<5.0	<4.7 H	<4.7	<4.7 H
Phenol	<5.0	<4.7 H	<4.7	<4.7 H
Pyrene	<5.0	<4.7 H	<4.7	<4.7 H

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-38 (continued)	GMPZA-41		
Top of Screen Depth (ft bls)	25	20	20	20
Sample Date	08/09/07	12/07/06	02/23/07	02/23/07
Sample ID	GWGMPZA-38 (8/9/07)	GWGMPZA-41 (12/7/06)	GWGMPZA-41 (2/23/07)	GWGMPZA-41-RE (2/23/07)
1,4-Dichlorobenzene	<4.9	<4.8	<4.7 H	<4.7
2,3-Dimethylphenol	<9.8	<9.6	<9.4 H	<9.4
2,4-Dimethylphenol	<4.9	<4.8	<4.7 H	<4.7 *
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.8	<9.6	<9.4 H	<9.4
2,5-Dimethylphenol	NA	NA	NA	NA
2,6-Dimethylphenol	<9.8	<9.6	<9.4 H	<9.4
2-Methylnaphthalene	<4.9	<4.8	<4.7 H	<4.7
2-Methylphenol	<4.9	<4.8	<4.7 H	<4.7
2-Nitrophenol	<4.9	<4.8	<4.7 H	<4.7 *
3,4-Dimethylphenol	<9.8	<9.6	<9.4 H	<9.4
3-Methylphenol	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.9	<4.8	<4.7 H	<4.7
4-Methylphenol	NA	NA	NA	NA
Anthracene	<4.9	<4.8	<4.7 H	<4.7
Benzo(a)anthracene	<4.9	<4.8	<4.7 H	<4.7
Benzo(a)pyrene	<4.9	<4.8	<4.7 H	<4.7
Benzo(b)fluoranthene	<4.9	<4.8	<4.7 H	<4.7
Benzo(g,h,i)perylene	<4.9	<4.8	<4.7 H	<4.7
Benzo(k)fluoranthene	<4.9	<4.8	<4.7 H	<4.7
bis(2-Ethylhexyl)phthalate	<4.9	<4.8	<4.7 H	2.0 J
Butylbenzylphthalate	<4.9	<4.8	<4.7 H	<4.7
Carbazole	<4.9	<4.8	<4.7 H	<4.7
Chrysene	<4.9	<4.8	<4.7 H	<4.7
Dibenzo(a,h)anthracene	<4.9	<4.8	<4.7 H	<4.7
Diethylphthalate	<4.9	<4.8	<4.7 H	<4.7
Dimethylphthalate	<4.9	<4.8	<4.7 H	<4.7
Di-n-butylphthalate	<4.9	<4.8	<4.7 H	<4.7
Di-n-octylphthalate	<4.9	<4.8	<4.7 H	<4.7
Fluoranthene	<4.9	<4.8	<4.7 H	<4.7
Hexachlorobenzene	<4.9	<4.8	<4.7 H	<4.7
Indeno(1,2,3-c,d)pyrene	<4.9	<4.8	0.78 J H	<4.7
Naphthalene	<4.9	<4.8	<4.7 H	<4.7
Phenanthrene	<4.9	<4.8	<4.7 H	<4.7
Phenol	<4.9	<4.8	<4.7 H	<4.7
Pyrene	<4.9	<4.8	<4.7 H	<4.7

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-41 (continued)		GMPZC-2	GMPZC-12
Top of Screen Depth (ft bls)	20	20	134	137
Sample Date	08/08/07	08/08/07	05/30/06	12/06/06
Sample ID	DUP-999 (8/8/07)	GWGMPZA-41 (8/8/07)	GMPZC-2 (5/30/06)	GWGMPZC-12 (12/06/06)
1,4-Dichlorobenzene	<4.7	<4.7	<4.7	<4.9
2,3-Dimethylphenol	<9.4	<9.4	<9.4	<9.8
2,4-Dimethylphenol	<4.7	<4.7	20	8.2
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.4	<9.4	20	8.2 J
2,5-Dimethylphenol	NA	NA	NA	NA
2,6-Dimethylphenol	<9.4	<9.4	36	23
2-Methylnaphthalene	<4.7	<4.7	<4.7	<4.9
2-Methylphenol	<4.7	<4.7	<4.7	<4.9
2-Nitrophenol	<4.7	<4.7	<4.7	<4.9
3,4-Dimethylphenol	<9.4	<9.4	<9.4	<9.8
3-Methylphenol	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<4.7	<4.7	<4.9
4-Methylphenol	NA	NA	NA	NA
Anthracene	<4.7	<4.7	<4.7	<4.9
Benzo(a)anthracene	<4.7	<4.7	<4.7	<4.9
Benzo(a)pyrene	<4.7	<4.7	<4.7	<4.9
Benzo(b)fluoranthene	<4.7	<4.7	<4.7	<4.9
Benzo(g,h,i)perylene	<4.7	<4.7	<4.7	<4.9
Benzo(k)fluoranthene	<4.7	<4.7	<4.7	<4.9
bis(2-Ethylhexyl)phthalate	<4.7	<4.7	<4.7	<4.9
Butylbenzylphthalate	<4.7	<4.7	<4.7	<4.9
Carbazole	<4.7	<4.7	<4.7	<4.9
Chrysene	<4.7	<4.7	<4.7	<4.9
Dibenzo(a,h)anthracene	<4.7	<4.7	<4.7	<4.9
Diethylphthalate	<4.7	<4.7	<4.7	<4.9
Dimethylphthalate	<4.7	<4.7	<4.7	<4.9
Di-n-butylphthalate	<4.7	<4.7	<4.7	<4.9
Di-n-octylphthalate	<4.7	<4.7	<4.7	<4.9
Fluoranthene	<4.7	<4.7	<4.7	<4.9
Hexachlorobenzene	<4.7	<4.7	<4.7	<4.9
Indeno(1,2,3-c,d)pyrene	<4.7	<4.7	<4.7	<4.9
Naphthalene	<4.7	<4.7	<4.7	<4.9
Phenanthrene	<4.7	<4.7	<4.7	<4.9
Phenol	<4.7	<4.7	<4.7	<4.9
Pyrene	<4.7	<4.7	<4.7	<4.9

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-12 (continued)		
Top of Screen Depth (ft bls)	137	137	137
Sample Date	12/06/06	03/01/07	03/01/07
Sample ID	GWGMPZC-12-RE (12/6/2006)	GWGMPZC-12 (3/1/07)	GWGMPZC-12 (3/1/07)-RE
1,4-Dichlorobenzene	<5.7	<4.7	<4.7 H
2,3-Dimethylphenol	<11	<9.4	<9.4 H
2,4-Dimethylphenol	8.3	3.4 J	<4.7 H
2,4-Dimethylphenol/2,5-Dimethylphenol	8.3 J	7.1 J	<9.4 H
2,5-Dimethylphenol	NA	NA	NA
2,6-Dimethylphenol	22	16	23 H
2-Methylnaphthalene	<5.7	<4.7	<4.7 H
2-Methylphenol	<5.7	<4.7	<4.7 H
2-Nitrophenol	<5.7	2.5 J	<4.7 H
3,4-Dimethylphenol	<11	<9.4	<9.4 H
3-Methylphenol	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.7	<4.7	<4.7 H
4-Methylphenol	NA	NA	NA
Anthracene	<5.7	<4.7	<4.7 H
Benzo(a)anthracene	<5.7	<4.7	<4.7 H
Benzo(a)pyrene	<5.7	<4.7	<4.7 H
Benzo(b)fluoranthene	<5.7	<4.7	<4.7 H
Benzo(g,h,i)perylene	<5.7	<4.7	2.9 J H
Benzo(k)fluoranthene	<5.7	<4.7	<4.7 H
bis(2-Ethylhexyl)phthalate	<5.7	<4.7	<4.7 H
Butylbenzylphthalate	<5.7	<4.7	<4.7 H
Carbazole	<5.7	<4.7	<4.7 H
Chrysene	<5.7	<4.7	<4.7 H
Dibenzo(a,h)anthracene	<5.7	<4.7	2.6 J H
Diethylphthalate	<5.7	<4.7	<4.7 H
Dimethylphthalate	<5.7	<4.7	<4.7 H
Di-n-butylphthalate	<5.7	<4.7	0.85 J H
Di-n-octylphthalate	<5.7	<4.7	<4.7 H
Fluoranthene	<5.7	<4.7	<4.7 H
Hexachlorobenzene	<5.7	<4.7	<4.7 H
Indeno(1,2,3-c,d)pyrene	<5.7	<4.7	2.6 J H
Naphthalene	<5.7	<4.7	<4.7 H
Phenanthrene	<5.7	<4.7	<4.7 H
Phenol	<5.7	<4.7	<4.7 H
Pyrene	<5.7	<4.7	<4.7 H

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-12 (continued)	GMPZC-14	
Top of Screen Depth (ft bls)	137	111	111
Sample Date	08/14/07	12/06/06	12/06/06
Sample ID	GWGMPZC-12 (8/14/07)	GWGMPZC-14 (12/06/06)	GWGMPZC-14-RE (12/6/2006)
1,4-Dichlorobenzene	<4.7	<49	<240
2,3-Dimethylphenol	<9.4	280	260 JD
2,4-Dimethylphenol	6.3	***2,900 E***	***2,900 D***
2,4-Dimethylphenol/2,5-Dimethylphenol	6.3 J	***2,900***	***2,900 D***
2,5-Dimethylphenol	NA	NA	NA
2,6-Dimethylphenol	14	890	770 D
2-Methylnaphthalene	<4.7	<49	<240
2-Methylphenol	<4.7	**540**	**400 D**
2-Nitrophenol	<4.7	<49	<240
3,4-Dimethylphenol	<9.4	310	240 JD
3-Methylphenol	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	***3,000 E***	***2,400 D***
4-Methylphenol	NA	NA	NA
Anthracene	<4.7	<49	<240
Benzo(a)anthracene	<4.7	<49	<240
Benzo(a)pyrene	<4.7	<49	<240
Benzo(b)fluoranthene	<4.7	<49	<240
Benzo(g,h,i)perylene	<4.7	<49	180 JD
Benzo(k)fluoranthene	<4.7	<49	<240
bis(2-Ethylhexyl)phthalate	<4.7	<49	<240
Butylbenzylphthalate	<4.7	<49	<240
Carbazole	<4.7	<49	<240
Chrysene	<4.7	<49	<240
Dibenzo(a,h)anthracene	<4.7	<49	150 JD
Diethylphthalate	<4.7	<49	<240
Dimethylphthalate	<4.7	<49	<240
Di-n-butylphthalate	<4.7	<49	<240
Di-n-octylphthalate	<4.7	<49	<240
Fluoranthene	<4.7	<49	<240
Hexachlorobenzene	<4.7	<49	<240
Indeno(1,2,3-c,d)pyrene	<4.7	<49	140 JD
Naphthalene	<4.7	<49	<240
Phenanthrene	<4.7	<49	<240
Phenol	<4.7	**530**	330 D
Pyrene	<4.7	<49	<240

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-14 (continued)		GMPZC-17	
Top of Screen Depth (ft bls)	111	111	125	125
Sample Date	02/28/07	08/10/07	12/07/06	02/27/07
Sample ID	GWGMPZC-14 (2/28/07)	GWGMPZC-14(08/10/07)	GWGMPZC-17 (12/7/2006)	GWGMPZC-17 (2/27/07)
1,4-Dichlorobenzene	<94	<94	<4.8	<4.7
2,3-Dimethylphenol	<190	180 J	<9.6	<9.4
2,4-Dimethylphenol	***3,100***	**2,500**	<4.8	<4.7
2,4-Dimethylphenol/2,5-Dimethylphenol	***3,100***	**2,600**	<9.6	<9.4
2,5-Dimethylphenol	NA	NA	NA	NA
2,6-Dimethylphenol	<190	590	<9.6	<9.4
2-Methylnaphthalene	<94	<94	<4.8	<4.7
2-Methylphenol	<94	**140**	<4.8	<4.7
2-Nitrophenol	<94	<94	<4.8	<4.7
3,4-Dimethylphenol	<190	120 J	<9.6	<9.4
3-Methylphenol	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	***610***	***740***	<4.8	<4.7
4-Methylphenol	NA	NA	NA	NA
Anthracene	<94	<94	<4.8	<4.7
Benzo(a)anthracene	<94	<94	<4.8	<4.7
Benzo(a)pyrene	<94	<94	<4.8	<4.7
Benzo(b)fluoranthene	<94	<94	<4.8	<4.7
Benzo(g,h,i)perylene	<94	<94	<4.8	<4.7
Benzo(k)fluoranthene	<94	<94	<4.8	<4.7
bis(2-Ethylhexyl)phthalate	<94	<94	<4.8	<4.7
Butylbenzylphthalate	<94	<94	<4.8	<4.7
Carbazole	<94	<94	<4.8	<4.7
Chrysene	<94	<94	<4.8	<4.7
Dibenzo(a,h)anthracene	<94	<94	<4.8	<4.7
Diethylphthalate	<94	<94	<4.8	<4.7
Dimethylphthalate	<94	<94	<4.8	<4.7
Di-n-butylphthalate	<94	<94	<4.8	<4.7
Di-n-octylphthalate	<94	<94	<4.8	<4.7
Fluoranthene	<94	<94	<4.8	<4.7
Hexachlorobenzene	<94	<94	<4.8	<4.7
Indeno(1,2,3-c,d)pyrene	<94	<94	<4.8	<4.7
Naphthalene	<94	<94	<4.8	<4.7
Phenanthrene	<94	<94	<4.8	<4.7
Phenol	44 J	44 J	<4.8	<4.7
Pyrene	<94	<94	<4.8	<4.7

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-17 (continued)		Grailer		Hambel	
Top of Screen Depth (ft bls)	125	125				
Sample Date	08/13/07	08/13/07	05/12/99	08/07/03	05/01/99	08/06/03
Sample ID	DUP-998 (8/13/07)	GWGMPZC-17 (8/13/07)	GBGW-53C	GBGW-53C	GBGW-101C	GBGW-101C
1,4-Dichlorobenzene	<4.7	<4.7	<5.4	<5.0	<5	<5.0
2,3-Dimethylphenol	<9.4	<9.4	<11	<10	<10	<10
2,4-Dimethylphenol	<4.7	<4.7	<5.4	NA	<5	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.4	<9.4	NA	<10	NA	<10
2,5-Dimethylphenol	NA	NA	<22	NA	<20	NA
2,6-Dimethylphenol	<9.4	<9.4	<11	<10	<10	<10
2-Methylnaphthalene	<4.7	<4.7	<5.4	<5.0	<5	<5.0
2-Methylphenol	<4.7	<4.7	<5.4	<5.0	<5	<5.0
2-Nitrophenol	<4.7	<4.7	<20	<5.0	<20	<5.0
3,4-Dimethylphenol	<9.4	<9.4	<11	<10	<10	<10
3-Methylphenol	NA	NA	<11	NA	<10	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<4.7	NA	<5.0	NA	<5.0
4-Methylphenol	NA	NA	<5.4	NA	<5	NA
Anthracene	<4.7	<4.7	<5.4	<5.0	<5	<5.0
Benzo(a)anthracene	<4.7	<4.7	<5.4	<5.0	<5	<5.0
Benzo(a)pyrene	<4.7	<4.7	<5.4	<5.0	<5	<5.0
Benzo(b)fluoranthene	<4.7	<4.7	<5.4	<5.0	<5	<5.0
Benzo(g,h,i)perylene	<4.7	<4.7	<5.4	<5.0	<5	<5.0
Benzo(k)fluoranthene	<4.7	<4.7	<5.4	<5.0	<5	<5.0
bis(2-Ethylhexyl)phthalate	<4.7	<4.7	<5.4	<5.0	<5	<5.0
Butylbenzylphthalate	<4.7	<4.7	<5.4	<5.0	<5	<5.0
Carbazole	<4.7	<4.7	<5.4 J	<5.0	<5	<5.0
Chrysene	<4.7	<4.7	<5.4	<5.0	<5	<5.0
Dibenzo(a,h)anthracene	<4.7	<4.7	<5.4	<5.0	<5	<5.0
Diethylphthalate	<4.7	<4.7	<5.4	<5.0	<5	<5.0
Dimethylphthalate	<4.7	<4.7	<5.4	<5.0	<5	<5.0
Di-n-butylphthalate	<4.7	<4.7	<5.4	<5.0	<5	6.9
Di-n-octylphthalate	<4.7	<4.7	<5.4	<5.0	<5	<5.0
Fluoranthene	<4.7	<4.7	<5.4	<5.0	<5	<5.0
Hexachlorobenzene	<4.7	<4.7	<5.4	<5.0	<5	<5.0
Indeno(1,2,3-c,d)pyrene	<4.7	<4.7	<5.4	<5.0	<5 J	<5.0
Naphthalene	<4.7	<4.7	<11	<5.0	<10	<5.0
Phenanthrene	<4.7	<4.7	<5.4	<5.0	<5	<5.0
Phenol	<4.7	<4.7	<5.4	<5.0	<5	<5.0
Pyrene	<4.7	<4.7	<5.4	<5.0	<5	<5.0

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Krans		Michaud		Schnieder	
Top of Screen Depth (ft bls)						
Sample Date	05/01/99	08/06/03	05/01/99	08/06/03	05/03/99	08/07/03
Sample ID	GBGW-101F	GBGW-101F	GBGW-101G	GBGW-101G	GBGW-113	GBGW-113
1,4-Dichlorobenzene	<5	<5.0	<5	<5.0	<5	<5.0
2,3-Dimethylphenol	<10	<10	<10	<10	<10	<10
2,4-Dimethylphenol	<5	NA	<5	NA	<5	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	<10	NA	<10	NA	<10
2,5-Dimethylphenol	<20	NA	<20	NA	<20	NA
2,6-Dimethylphenol	<10	<10	<10	<10	<10	<10
2-Methylnaphthalene	<5	<5.0	<5	<5.0	<5	<5.0
2-Methylphenol	<5	<5.0	<5	<5.0	<5	<5.0
2-Nitrophenol	<20	<5.0	<20	<5.0	<20	<5.0
3,4-Dimethylphenol	<10	<10	<10	<10	<10	<10
3-Methylphenol	<10	NA	<10	NA	<10	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	<5.0	NA	<5.0	NA	<5.0
4-Methylphenol	<5	NA	<5	NA	<5	NA
Anthracene	<5	<5.0	<5	<5.0	<5	<5.0
Benzo(a)anthracene	<5	<5.0	<5	<5.0	<5	<5.0
Benzo(a)pyrene	<5	<5.0	<5	<5.0	<5	<5.0
Benzo(b)fluoranthene	<5	<5.0	<5	<5.0	<5	<5.0
Benzo(g,h,i)perylene	<5	<5.0	<5	<5.0	<5	<5.0
Benzo(k)fluoranthene	<5	<5.0	<5	<5.0	<5	<5.0
bis(2-Ethylhexyl)phthalate	<5	<5.0	<5	<5.0	<5	<5.0
Butylbenzylphthalate	<5	<5.0	<5	<5.0	<5	<5.0
Carbazole	<5	<5.0	<5	<5.0	<5	<5.0
Chrysene	<5	<5.0	<5	<5.0	<5	<5.0
Dibenzo(a,h)anthracene	<5	<5.0	<5	<5.0	<5	<5.0
Diethylphthalate	<5	<5.0	<5	<5.0	<5	<5.0
Dimethylphthalate	<5	<5.0	<5	<5.0	<5	<5.0
Di-n-butylphthalate	<5	<5.0	<5	<5.0	<5	<5.0
Di-n-octylphthalate	<5	<5.0	<5	<5.0	<5	<5.0
Fluoranthene	<5	<5.0	<5	<5.0	<5	<5.0
Hexachlorobenzene	<5	<5.0	<5	<5.0	<5	<5.0
Indeno(1,2,3-c,d)pyrene	<5 J	<5.0	<5	<5.0	<5	<5.0
Naphthalene	<10	<5.0	<10	<5.0	<10	<5.0
Phenanthrene	<5	<5.0	<5	<5.0	<5	<5.0
Phenol	<5	<5.0	<5	<5.0	<5	<5.0
Pyrene	<5	<5.0	<5	<5.0	<5	<5.0

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	MPMW-4	MW-1B	MW-2B	MW-5		MW-8	
Top of Screen Depth (ft bls)		86	102	83	83	133	133
Sample Date	02/26/02	06/27/97	06/28/97	10/22/98	04/30/99	06/29/97	06/29/97
Sample ID	GWMPMW-4 (2/26/02)	GWMW-1B	GWMW-2B	GWMW-5	GWMW-5	GWGM-99	GWMW-8
1,4-Dichlorobenzene	<5.0	<5	<5	<5	<5	<62	<62
2,3-Dimethylphenol	<10	NA	NA	NA	<10	NA	NA
2,4-Dimethylphenol	NA	<5	<5	<5	<5	790	720
2,4-Dimethylphenol/2,5-Dimethylphenol	<5.0	NA	NA	NA	NA	NA	NA
2,5-Dimethylphenol	NA	NA	NA	NA	<20	NA	NA
2,6-Dimethylphenol	<10	NA	NA	NA	<10	NA	NA
2-Methylnaphthalene	<5.0	<5	<5	<5	<5	<62	<62
2-Methylphenol	<5.0	<5	<5	<5	<5	49 J	46 J
2-Nitrophenol	<5.0	<5	<5	<20	<20	<62	<62
3,4-Dimethylphenol	<10	NA	NA	NA	<10	NA	NA
3-Methylphenol	NA	NA	NA	<10	<10	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	<5	<5	<5	<5	<62	<62
Anthracene	<5.0	<5	<5	<5	<5	<62	<62
Benzo(a)anthracene	<5.0	<5	<5	<5	<5	<62	<62
Benzo(a)pyrene	<5.0	<5	<5	<5	<5	<62	<62
Benzo(b)fluoranthene	<5.0	<5	<5	<5	<5	<62	<62
Benzo(g,h,i)perylene	<5.0	<5	<5	<5	<5	<62	<62
Benzo(k)fluoranthene	<5.0	<5	<5	<5	<5	<62	<62
bis(2-Ethylhexyl)phthalate	0.61 J	<5	1.2 J	<5	<5	<62	87
Butylbenzylphthalate	<5.0	<5	<5	<5	<5	<62	<62
Carbazole	<5.0	<10	<10	<5	<5 J	<120	<120
Chrysene	<5.0	<5	<5	<5	<5	<62	<62
Dibenzo(a,h)anthracene	<5.0	<5	<5	<5	<5	<62	<62
Diethylphthalate	0.51 J	<5	<5	<5	<5	<62	<62
Dimethylphthalate	<5.0	<5	<5	<5	<5	<62	<62
Di-n-butylphthalate	0.57 J	<5	<5	**15**	<5	<62	<62
Di-n-octylphthalate	<5.0	<5	<5	<5	<5	<62	<62
Fluoranthene	<5.0	<5	<5	<5	<5	<62	<62
Hexachlorobenzene	<5.0	<5	<5	<5	<5	<62	<62
Indeno(1,2,3-c,d)pyrene	<5.0	<5	<5	<5	<5	<62	<62
Naphthalene	<5.0	<5	<5	<10	<10	<62	<62
Phenanthrene	<5.0	<5	<5	<5	<5	<62	<62
Phenol	<5.0	<5	1.7 J	<5	<5	<62	<62
Pyrene	<5.0	<5	<5	<5	<5	<62	<62

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	MW-8 (continued)			MW-9A	UG-2		UG-4	
Top of Screen Depth (ft bls)	133	133	133	57	48	48	103	103
Sample Date	10/24/98	05/03/99	05/12/04	07/02/97	10/27/98	05/03/99	10/13/97	10/13/97
Sample ID	GWMW-8	GWMW-8	GWMW-8 (5/12/04)-RE	GWMW-9A	GWUG-2	GWUG-2	GM-79	UG-4
1,4-Dichlorobenzene	<25	<50	<50	<5	<5	<5	<5	<5
2,3-Dimethylphenol	NA	<100	180	NA	NA	<10	NA	NA
2,4-Dimethylphenol	**730 J**	**610**	NA	<5	<5	<5	<5	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	**430**	NA	NA	NA	NA	NA
2,5-Dimethylphenol	NA	<200	NA	NA	NA	<20	NA	NA
2,6-Dimethylphenol	NA	310	170	NA	NA	<10	NA	NA
2-Methylnaphthalene	<25	<50	<50	<5	<5	<5	<5	<5
2-Methylphenol	36 J	<50	18 J	<5	<5	<5	<5	<5
2-Nitrophenol	<50	<100	<50	<5	<20	<20	<5	<5
3,4-Dimethylphenol	NA	140	<100	NA	NA	<10	NA	NA
3-Methylphenol	<50	<100	NA	NA	<10	<10	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	**62**	NA	NA	NA	NA	NA
4-Methylphenol	<25	<50	NA	<5	<5	<5	<5	<5
Anthracene	<25	<50	<50	<5	<5	<5	<5	<5
Benzo(a)anthracene	<25	<50	<50	<5	<5	<5	<5	<5
Benzo(a)pyrene	<25	<50	<50	<5	<5	<5	<5	<5
Benzo(b)fluoranthene	<25	<50	<50	<5	<5	<5	<5	<5
Benzo(g,h,i)perylene	<25	<50	<50	<5	<5	<5	<5	<5
Benzo(k)fluoranthene	<25	<50	<50	<5	<5	<5	<5	<5
bis(2-Ethylhexyl)phthalate	<25	<50	<50	7.3	<5	13	<5	<5
Butylbenzylphthalate	<25	<50	<50	<5	<5	<5	<5	<5
Carbazole	<25	<50	<50	<10	<5	<5	<10	<10
Chrysene	<25	<50	<50	<5	<5	<5	<5	<5
Dibenzo(a,h)anthracene	<25	<50	<50	<5	<5	<5	<5	<5
Diethylphthalate	<25	<50	<50	<5	<5	<5	<5	<5
Dimethylphthalate	<25	<50	<50	<5	<5	<5	<5	<5
Di-n-butylphthalate	<25	<50	<50	<5	<5	<5	<5	<5
Di-n-octylphthalate	<25	<50	<50	<5	<5	<5	<5	<5
Fluoranthene	<25	<50	<50	<5	<5	<5	<5	<5
Hexachlorobenzene	<25	<50	<50	<5	<5	<5	<5	<5
Indeno(1,2,3-c,d)pyrene	<25	<50	<50	<5	<5	<5 J	<5	<5
Naphthalene	<50	<100	<50	<5	<10	<10	<5	<5
Phenanthrene	<25	<50	<50	<5	<5	<5	<5	<5
Phenol	<25	<50	<50	<5	<5	<5	<5	<5
Pyrene	<25	<50	<50	<5	<5	<5	<5	<5

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	UG-4 (continued)		UG-6					
Top of Screen Depth (ft bls)	103	103	236	Groundwater	Indoor Air	Residential		
Sample Date	10/23/98	05/02/99	10/21/97	Contact	Inhalation	Drinking Water	FAV	FCV
Sample ID	GWUG-4	GWUG-4	UG-6	Criteria	Criteria	Criteria	Criteria	Criteria
1,4-Dichlorobenzene	<5	<5	<5	6,400	16,000	75 A	210	17
2,3-Dimethylphenol	NA	<10	NA	NE	NE	NE	NE	NE
2,4-Dimethylphenol	<5	<5	<5	520,000	NLV	370	2,700	380
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	520,000	NLV	370	2,700	380
2,5-Dimethylphenol	NA	<20	NA	NE	NE	NE	NE	NE
2,6-Dimethylphenol	NA	<10	NA	6,300	NLV	4.4	NE	NE
2-Methylnaphthalene	<5	<5	<5	25,000 S	ID	260	ID	ID
2-Methylphenol	<5	<5	<5	810,000 J	J,NLV	370 J	1,500	82
2-Nitrophenol	<20	<20	<5	79,000	NLV	20	ID	ID
3,4-Dimethylphenol	NA	<10	NA	18,000	NLV	10	NE	NE
3-Methylphenol	<10	<10	NA	810,000	J,NLV	370 J	1271	71
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	810,000 J	J,NLV	370 J	450	25
4-Methylphenol	<5	<5	<5	810,000	J,NLV	370 J	450	25
Anthracene	<5	<5	<5	43 S	43 S	43 S	ID	ID
Benzo(a)anthracene	<5	<5	<5	9.4 (Q) S,AA	(Q) NLV	2.1 (Q)	ID	ID
Benzo(a)pyrene	<5	<5	<5	1 (Q) M,AA	(Q) NLV	5 (Q) A	ID	ID
Benzo(b)fluoranthene	<5	<5	<5	1.5 (Q) S,AA	(Q) ID	1.5 (Q) S, AA	ID	ID
Benzo(g,h,i)perylene	<5	<5	<5	1 M,AA	NLV	1 M	NE	NE
Benzo(k)fluoranthene	<5	<5	<5	1 (Q) M,AA	(Q) NLV	1 (Q) M	NE	NE
bis(2-Ethylhexyl)phthalate	<5	<5	1.2 J	320 AA	NLV	6 A	285	ID*
Butylbenzylphthalate	<5	<5	<5	2700 S	NLV	1,200	630	67
Carbazole	<5	<5	<10	7,400	NLV	85	72	4
Chrysene	<5	<5	<5	1.6 (Q) S,AA	(Q) ID	1.6 (Q) S	ID	ID
Dibenzo(a,h)anthracene	<5	<5	<5	2 (Q) M,AA	(Q) NLV	2 (Q) M	ID	ID
Diethylphthalate	<5	<5	<5	1,100,000 S	NLV	5,500	2,000	110
Dimethylphthalate	<5	<5	<5	4,200,000 S	NLV	73,000	NE	NE
Di-n-butylphthalate	<5	<5	<5	11,000 S	NLV	880	75	9.7
Di-n-octylphthalate	<5	<5	<5	400	NLV	130	ID	ID
Fluoranthene	<5	<5	<5	210 S	210 S	210 S	28	1.6
Hexachlorobenzene	<5	<5	<5	4.6 (C-66)	440 (C-66)	1 (C-66) A	ID	ID
Indeno(1,2,3-c,d)pyrene	<5	<5	<5	2 (Q) AA,M	(Q) NLV	2 (Q) M	ID	ID
Naphthalene	<10	<10	<5	31,000 S	31,000 S	520	200	13
Phenanthrene	<5	<5	<5	1,000 S	1,000 S	52	43	2.4
Phenol	<5	<5	<5	29,000,000	NLV	4,400	6,800	450
Pyrene	<5	<5	<5	140 S	140 S	140 S	ID	ID

Footnotes on Page 86.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Results in micrograms per liter (µg/L).

<	Less than the laboratory method detection limit.
Bold	Indicates a value above the Final Chronic Values (Michigan Part 4 Rule 323.1057, December 11, 2006).
	Indicates a value above the Groundwater Contact Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
Italics	Indicates a value above the Final Acute Values (Michigan Part 4 Rule 323.1057, December 11, 2006).
	Indicates a value above the Residential and Commercial I Drinking Water Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
*	LCS or LCSD exceeds the control limit.
B	Constituent was also detected in laboratory blank.
D	Result was obtained from analysis of a dilution.
E	Analyte was detected at a concentration greater than the calibration range, and is therefore estimated.
ft bls	Feet below Land Surface.
H	Sample was prepared or analyzed after the EPA recommended holding time had been exceeded.
J	Estimated result.
K	Reported concentration is proportional to dilution factor and may be exaggerated.
R	Rejected result.
SVOCs	Semi-Volatile Organic Compounds.

State of Michigan Criteria Footnotes

A	State of Michigan Drinking Water Standard.
AA	Compound may be adsorbed to particulates rather than dissolved in water; filtered groundwater sample may be more appropriate for comparison to criteria.
B	Background may be substituted if higher than the calculated cleanup criteria.
C	Value presented is a screening level based on the chemical specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat.
CC	The generic groundwater surface water interface criteria are based on the toxicity of unionized ammonia.
D	Calculated criterion exceeds 100%, therefore it is reduced to 100%.
E	Criterion is the aesthetic drinking water value.
EE	Applicable criteria established as required by Section 20120a(15) of the act.
F	Criterion is based on adverse impacts to plant life.
FF	The chloride groundwater surface water interface criteria is 125 mg/l when discharged to surface waters designated as public water supply sources or 50 mg/l when discharged to Great Lakes or connecting waters.
G	GSI value is pH or water hardness dependent.
H*92	Criteria based on water hardness of 92.

Table 6-9. Summary of SVOCs Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

State of Michigan Criteria Footnotes (continued):

I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.
ID	Inadequate data to develop criterion.
J	Chemical may be present in several isomer forms. Isomer specific concentrations must be added together for comparison to criteria.
K	Chemical may be flammable and/or explosive.
L	Higher groundwater concentrations, (up to 15 μg/L) may be acceptable if the soil concentration is less than 400 ppm and groundwater migrating offsite will not result in unacceptable exposures.
M	Calculated criterion is below the analytical method detection limit (MDL).
N	Concentrations of all potential nitrate-nitrogen sources must be added together and compared to nitrate criteria.
NA	Criterion or values is not available.
NLS	A literature search has not been conducted.
NLV	Chemical is not likely to volatilize under most soil conditions.
O	All polychlorinated and polybrominated dibenzodioxins, and dibenzofurans are considered as one substance.
P	Amenable or Method OIA-1677 analysis are used to quanitfy cyanide concentrations for compliance with all groundwater criteria.
Q	Criterion for carcinogenic polycyclic aromatic hydrocarbons (PAHs) were developed using "relative potential potencies" (RFPs) to benzo(a)pyrene.
R	Hazardous substance may exhibit the characteristic of reactivity as defined in 40 CFR 261.23.
S	Criterion defaults to the chemical-specific water solubility limit.
T	Refer to Toxic Substances Control Act (TSCA) to determine applicability of TSCA cleanup standards.
Total	Criterion established for total metal only.
V	Criterion is the aesthetic drinking water value, which is a secondary standard.
W	Concentrations of trihalomethanes in groundwater must be added together to detemine compliance with State of Michigan Criteria.
X	The GSI criterion shown is not protective for surface water that is used as a drinking water source.
Z	Data for mercuric chloride serves as the basis for drinking water, groundwater contact, soil direct contact and the groundwater protection criteria.
*	The lowest Human Noncancer Value, Wildlife Value, Human Cancer Value, final chronic value criteria per Michigan Act 451, Part 4, Rule 57 given for this chemical will adequately protect the uses identified with "ID".

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	BR-2	BR-3	BR-5A	BR-5B		BR-6	CW-1			GM-1
Top of Screen Depth (ft bls)	75	122	88	188	188	149	130	130	130	220
Sample Date	06/29/97	06/28/97	07/01/97	07/01/97	07/01/97	06/29/97	10/14/97	10/22/98	04/29/99	06/24/97
Sample ID	GWBR-2	GWBR-3	GWBR-5A	GWBR-5B	GWGM-98	GWBR-6	CW-1	GWCW-1	GWCW-1	GWGM-1
Aluminum	NA	NA	NA	NA	NA	NA	NA	<200	<200	150
Aluminum-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	148
Antimony	NA	NA	NA	NA	NA	NA	NA	<50	<50	<5
Antimony-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
Arsenic	NA	NA	NA	NA	NA	NA	NA	16	16	7.2
Arsenic-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.3
Barium	NA	NA	NA	NA	NA	NA	NA	**500**	**530**	325
Barium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	360
Beryllium	NA	NA	NA	NA	NA	NA	NA	<5	<5	<5
Beryllium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
Cadmium	NA	NA	NA	NA	NA	NA	NA	<0.5	<0.5	<0.5
Cadmium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5
Calcium	774,000	51200 J	270,000	154,000	162,000	59,800	76,200	75,000	77,000	105,000
Calcium-DISS	NA	NA	NA	NA	NA	NA	81,600	NA	NA	126,000
Chromium	NA	NA	NA	NA	NA	NA	NA	<50	<50	<50
Chromium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50
Cobalt	NA	NA	NA	NA	NA	NA	NA	<50	<50	<50
Cobalt-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50
Copper	NA	NA	NA	NA	NA	NA	NA	<25	<25	<25
Copper-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25
Iron	617,000	151 J	13,200	5,070	5,270	<100	5,500	4,500	4,400	5,460
Iron-DISS	<100	111 J	11,400	2,180	2,110	<100	3,870	NA	NA	5,110
Lead	NA	NA	NA	NA	NA	NA	NA	<3	<3	<3
Lead-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3
Magnesium	513,000	28,800 J	107,000	61,700	62,200	30,100	45,100	47,000	48,000	69,300
Magnesium-DISS	NA	NA	NA	NA	NA	NA	48,700	NA	NA	78,800
Manganese	***14,000***	150 J	1,440	691	713	<15	994	1,000	1,000	1,220
Manganese-DISS	153	634 J	1,390	638	690	<15	1,050	NA	NA	1,430
Mercury	NA	NA	NA	NA	NA	NA	NA	<0.2	<0.2	<0.2
Mercury-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.2
Molybdenum	NA	NA	NA	NA	NA	NA	NA	<100	<100	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	BR-2	BR-3	BR-5A	BR-5B		BR-6	CW-1			GM-1
Top of Screen Depth (ft bls)	75	122	88	188	188	149	130	130	130	220
Sample Date	06/29/97	06/28/97	07/01/97	07/01/97	07/01/97	06/29/97	10/14/97	10/22/98	04/29/99	06/24/97
Sample ID	GWBR-2	GWBR-3	GWBR-5A	GWBR-5B	GWGM-98	GWBR-6	CW-1	GWCW-1	GWCW-1	GWGM-1
Molybdenum-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA	NA	<50	<50	<50
Nickel-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50
Potassium	62,600	<5,000 J	5,350	6,960	6,800	<5,000	<5,000	2,800	3,000	<5,000
Potassium-DISS	NA	NA	NA	NA	NA	NA	<5,000	NA	NA	<5,000
Selenium	NA	NA	NA	NA	NA	NA	NA	<5	<5	<5
Selenium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
Silver	NA	NA	NA	NA	NA	NA	NA	<0.5	<0.5	<0.5
Silver-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5
Sodium	20,300	24200 J	6,880	16,600	16,000	<5,000	5,960	6,700	7,000	22,700
Sodium-DISS	NA	NA	NA	NA	NA	NA	6,590	NA	NA	23,200
Thallium	NA	NA	NA	NA	NA	NA	NA	<2	<2	<2
Thallium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
Titanium	NA	NA	NA	NA	NA	NA	NA	<50	<50	NA
Titanium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA	<20	<20	<20
Vanadium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20
Zinc	NA	NA	NA	NA	NA	NA	NA	30	<20	<51.4
Zinc-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	<45.1

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-1 (continued)				GM-2A		GM-2B			
Top of Screen Depth (ft bls)	220	220	220	220	40	40	271	271	271	271
Sample Date	10/09/97	10/07/98	04/16/99	04/28/04	07/02/97	10/12/97	06/26/97	10/21/97	12/11/97	11/22/98
Sample ID	GM-1	GWGM-1	GWGM-1	GWGM-1 (4/28/04)	GWGM-2A	GM-2A	GWGM-2B	GM-2B	GM-2B	GWGM-2B
Aluminum	NA	<200	<200	99 B	NA	NA	20,900 J	NA	NA	<200
Aluminum-DISS	NA	NA	NA	<200	NA	NA	<100 J	NA	NA	NA
Antimony	NA	<50	<50	<50	NA	NA	<5 J	NA	NA	<50
Antimony-DISS	NA	NA	NA	<50	NA	NA	<5 J	NA	NA	NA
Arsenic	NA	13	13 J	19 B	NA	NA	11.9 J	NA	NA	8.7
Arsenic-DISS	NA	NA	NA	17 B	NA	NA	<5 J	NA	NA	NA
Barium	NA	**480**	**490**	**560**	NA	NA	**562 J**	NA	NA	**630**
Barium-DISS	NA	NA	NA	**540**	NA	NA	**446 J**	NA	NA	NA
Beryllium	NA	<5	<5	<1.0	NA	NA	<5 J	NA	NA	<5
Beryllium-DISS	NA	NA	NA	<1.0	NA	NA	<5 J	NA	NA	NA
Cadmium	NA	<0.5	<0.5	<0.50	NA	NA	<0.5 J	NA	NA	<0.5
Cadmium-DISS	NA	NA	NA	<0.50	NA	NA	<0.5 J	NA	NA	NA
Calcium	117,000	120,000	120,000	100,000	84,600	86,900	274,000 J	238,000	297,000	250,000 J
Calcium-DISS	123,000	NA	NA	100,000	NA	87,000	194,000 J	228,000	192,000	NA
Chromium	NA	<50	<50	1.5 B	NA	NA	***967 J***	NA	NA	<50
Chromium-DISS	NA	NA	NA	0.66 B	NA	NA	<50 J	NA	NA	NA
Cobalt	NA	<50	<50	2.7 B	NA	NA	<50 J	NA	NA	<50
Cobalt-DISS	NA	NA	NA	2.9 B	NA	NA	<50 J	NA	NA	NA
Copper	NA	***29***	<25	4.5 B	NA	NA	***84.5 J***	NA	NA	<25
Copper-DISS	NA	NA	NA	<25	NA	NA	<25 J	NA	NA	NA
Iron	9,030	14,000	16,000	18,000	494	1,340	33,600 J	38,900	82,900	21,000
Iron-DISS	9,660	NA	NA	18,000	270	1,330	6,430 J	12,200	11,800	NA
Lead	NA	<3	<3	<3.0	NA	NA	7.6 J	NA	NA	<3
Lead-DISS	NA	NA	NA	<3.0	NA	NA	<3 J	NA	NA	NA
Magnesium	88,900	100,000	100,000	100,000	32,600	32,600	175,000 J	187,000	209,000	230,000 J
Magnesium-DISS	92,800	NA	NA	100,000	NA	32,600	158,000 J	183,000	161,000	NA
Manganese	1,220	850	720	200	584	497	**4,040 J**	**2,290**	**2,860**	790 J
Manganese-DISS	1,230	NA	NA	200	618	498	**3,050 J**	**2,050**	1,210	NA
Mercury	NA	<0.2	<0.2	<0.20	NA	NA	<0.2 J	NA	NA	<0.2
Mercury-DISS	NA	NA	NA	<0.20	NA	NA	<0.2 J	NA	NA	NA
Molybdenum	NA	<100	<100	2.7 B	NA	NA	NA	NA	NA	<100

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-1 (continued)				GM-2A		GM-2B			
Top of Screen Depth (ft bls)	220	220	220	220	40	40	271	271	271	271
Sample Date	10/09/97	10/07/98	04/16/99	04/28/04	07/02/97	10/12/97	06/26/97	10/21/97	12/11/97	11/22/98
Sample ID	GM-1	GWGM-1	GWGM-1	GWGM-1 (4/28/04)	GWGM-2A	GM-2A	GWGM-2B	GM-2B	GM-2B	GWGM-2B
Molybdenum-DISS	NA	NA	NA	2.7 B	NA	NA	NA	NA	NA	NA
Nickel	NA	<50	<50	4.7 B	NA	NA	**514 J**	NA	NA	<50
Nickel-DISS	NA	NA	NA	3.9 B	NA	NA	<50 J	NA	NA	NA
Potassium	<5,000	4,900	5,200	16,000	<5,000	<5,000	10,300 J	10,800	15,700	7,300 J
Potassium-DISS	<5,000	NA	NA	14,000	NA	<5,000	6,040 J	6,410	6,400	NA
Selenium	NA	<5	<5	<5.0	NA	NA	<5 J	NA	NA	<5
Selenium-DISS	NA	NA	NA	<5.0	NA	NA	<5 J	NA	NA	NA
Silver	NA	<0.5	<0.5	<0.20	NA	NA	<0.5 J	NA	NA	<0.5
Silver-DISS	NA	NA	NA	<0.20	NA	NA	<0.5 J	NA	NA	NA
Sodium	12,200	11,000	11,000	15,000	26,400	22,600	53,400 J	53,100	54,400	64,000 J
Sodium-DISS	11,000	NA	NA	14,000	NA	22,400	52,800 J	53,300	49,600	NA
Thallium	NA	<2	<2	<2.0	NA	NA	<2 J	NA	NA	<2
Thallium-DISS	NA	NA	NA	<2.0	NA	NA	<2 J	NA	NA	NA
Titanium	NA	<50	<50	4.9 B	NA	NA	NA	NA	NA	<50
Titanium-DISS	NA	NA	NA	1.9 B	NA	NA	NA	NA	NA	NA
Vanadium	NA	<20	<20	2.7 B	NA	NA	**80.6 J**	NA	NA	**40**
Vanadium-DISS	NA	NA	NA	2.6 B	NA	NA	<20 J	NA	NA	NA
Zinc	NA	50	<20	15 B	NA	NA	<112 MBD	NA	NA	92
Zinc-DISS	NA	NA	NA	3.9 B	NA	NA	<108 J	NA	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-2B (continued)			GM-2C			
Top of Screen Depth (ft bls)	271	271	271	64	64	64	64
Sample Date	04/16/99	05/25/04	05/25/04	11/06/98	04/13/99	05/04/04	05/04/04
Sample ID	GWGM-2B	GWGM-2B(5/25/04)	GWGM-2B(5/25/04)-DL	GWGM-2C	GWGM-2C	GWGM-2C (5/4/04)	GWGM-2C (5/4/04)-DL
Aluminum	<200	2,600	NA	<200	<200	840	NA
Aluminum-DISS	NA	14 B	NA	NA	NA	25 B	NA
Antimony	<50	<50	NA	<50	<50	<50	NA
Antimony-DISS	NA	<50	NA	NA	NA	<50	NA
Arsenic	<5	15 B	NA	12	14 J	9.3 B	NA
Arsenic-DISS	NA	14 B	NA	NA	NA	8.0 B	NA
Barium	**430**	**590**	NA	<200	<200	250	NA
Barium-DISS	NA	**570**	NA	NA	NA	240	NA
Beryllium	<5	<1.0	NA	<5	<5	<1.0	NA
Beryllium-DISS	NA	<1.0	NA	NA	NA	<1.0	NA
Cadmium	<0.5	<0.50	NA	<0.5	<0.5	<0.50	NA
Cadmium-DISS	NA	<0.50	NA	NA	NA	<0.50	NA
Calcium	170,000	170,000	NA	53,000	55,000	75,000	NA
Calcium-DISS	NA	170,000	NA	NA	NA	73,000	NA
Chromium	<50	***220***	NA	<50	<50	**17**	NA
Chromium-DISS	NA	3.7 B	NA	NA	NA	<5.0	NA
Cobalt	<50	6.5 B	NA	<50	<50	<10	NA
Cobalt-DISS	NA	4.4 B	NA	NA	NA	<10	NA
Copper	<25	**21 B**	NA	<25	<25	**19 B**	NA
Copper-DISS	NA	<25	NA	NA	NA	2.9 B	NA
Iron	14,000	20,000	NA	2,100	2,800	7,300	NA
Iron-DISS	NA	16,000	NA	NA	NA	6,000	NA
Lead	<3	<3.0	NA	<3	<3	<3.0	NA
Lead-DISS	NA	<3.0	NA	NA	NA	<3.0	NA
Magnesium	160,000	180,000	NA	21,000	23,000	28,000	NA
Magnesium-DISS	NA	180,000	NA	NA	NA	27,000	NA
Manganese	750	260	NA	450	590	**2,500**	NA
Manganese-DISS	NA	180	NA	NA	NA	**2,400**	NA
Mercury	<0.2	<0.20	NA	<0.2	<0.2	<0.20	NA
Mercury-DISS	NA	<0.20	NA	NA	NA	<0.20	NA
Molybdenum	<100	13	NA	<100	<100	1.4 B	NA

Footnotes on Page 143

ARCADIS

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-2B (continued)			GM-2C			
Top of Screen Depth (ft bls)	271	271	271	64	64	64	64
Sample Date	04/16/99	05/25/04	05/25/04	11/06/98	04/13/99	05/04/04	05/04/04
Sample ID	GWGM-2B	GWGM-2B(5/25/04)	GWGM-2B(5/25/04)-DL	GWGM-2C	GWGM-2C	GWGM-2C (5/4/04)	GWGM-2C (5/4/04)-DL
Molybdenum-DISS	NA	6.7 B	NA	NA	NA	<10	NA
Nickel	<50	**120**	NA	<50	<50	9.9 B	NA
Nickel-DISS	NA	9.9 B	NA	NA	NA	3.6 B	NA
Potassium	6,300	8,000	NA	3,200	3,400	5,700	NA
Potassium-DISS	NA	7,300	NA	NA	NA	5,300	NA
Selenium	<5	3.7 B	NA	<5	<5	<5.0	NA
Selenium-DISS	NA	3.9 B	NA	NA	NA	<5.0	NA
Silver	<0.5	<0.20	NA	<0.5	<0.5	<0.20	NA
Silver-DISS	NA	<0.20	NA	NA	NA	<0.20	NA
Sodium	48,000	NA	50,000	34,000	27,000	NA	120,000
Sodium-DISS	NA	NA	50,000	NA	NA	NA	120,000
Thallium	<2	<2.0	NA	<2	<2	<2.0	NA
Thallium-DISS	NA	<2.0	NA	NA	NA	<2.0	NA
Titanium	<50	150	NA	<50	<50	41 B	NA
Titanium-DISS	NA	52	NA	NA	NA	<50	NA
Vanadium	**44**	**43**	NA	<20	<20	2.0 B	NA
Vanadium-DISS	NA	**36**	NA	NA	NA	<20	NA
Zinc	39	15 B	NA	<20	<20	6.8 B	NA
Zinc-DISS	NA	9.5 B	NA	NA	NA	2.9 B	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-3A					GM-3B				
Top of Screen Depth (ft bls)	74	74	74	74	74	170	170	170	170	170
Sample Date	06/25/97	10/10/97	10/09/98	04/13/99	05/05/04	06/26/97	10/14/97	10/08/98	04/17/99	04/17/99
Sample ID	GWGM-3A	GM-3A	GWGM-3A	GWGM-3A	GWGM-3A (5/5/04)	GWGM-3B	GM-3B	GWGM-3B	GWGM-3B	GWGM-88
Aluminum	160	NA	<200	<200	41 B	244 J	NA	<200	<200	<200
Aluminum-DISS	<100 J	NA	NA	NA	25 B	176 J	NA	NA	NA	NA
Antimony	<5	NA	<50	<50	<50	<5 J	NA	<50	<50	<50
Antimony-DISS	<5 J	NA	NA	NA	<50	<5 J	NA	NA	NA	NA
Arsenic	<5	NA	<5	<5 J	<20	<5 J	NA	<5	11	95
Arsenic-DISS	<5 J	NA	NA	NA	7	<5 J	NA	NA	NA	NA
Barium	<200	NA	<200	<200	57 B	311 J	NA	390	380	380
Barium-DISS	<200 J	NA	NA	NA	56 B	288 J	NA	NA	NA	NA
Beryllium	<5	NA	<5	<5	<1.0	<5 J	NA	<5	<5	<5
Beryllium-DISS	<5 J	NA	NA	NA	<1.0	<5 J	NA	NA	NA	NA
Cadmium	<0.5	NA	<0.5	<0.5	<0.50	<0.5 J	NA	<0.5	<0.5	<0.5
Cadmium-DISS	<0.5 J	NA	NA	NA	<0.50	<0.5 J	NA	NA	NA	NA
Calcium	78,900	73,700	71,000	66,000	78,000	131,000 J	169,000	170,000	140,000	140,000
Calcium-DISS	75,000 J	67,200	NA	NA	77,000	142,000 J	164,000	NA	NA	NA
Chromium	<50	NA	<50	<50	2.1 B	<50 J	NA	<50	<50	<50
Chromium-DISS	<50 J	NA	NA	NA	1.4 B	<50 J	NA	NA	NA	NA
Cobalt	<50	NA	<50	<50	<10	<50 J	NA	<50	<50	<50
Cobalt-DISS	<50 J	NA	NA	NA	<10	<50 J	NA	NA	NA	NA
Copper	<25	NA	<25	<25	***37***	<25 J	NA	***43***	<25	<25
Copper-DISS	***27.0 J***	NA	NA	NA	***31***	<25 J	NA	NA	NA	NA
Iron	<100	<100	<20	<20	50 B	4,790 J	9,590	15,000	15,000	15,000
Iron-DISS	<100 J	<100	NA	NA	15 B	3,450 J	8,650	NA	NA	NA
Lead	<3	NA	<3	<3	<3.0	<3 J	NA	<3	<3	<3
Lead-DISS	<3 J	NA	NA	NA	1.4 B	<3 J	NA	NA	NA	NA
Magnesium	27,600	27,300	26,000	25,000	28,000	73,900 J	112,000	110,000	110,000	110,000
Magnesium-DISS	27,600 J	24,800	NA	NA	27,000	78,000 J	109,000	NA	NA	NA
Manganese	744	610	420	400	230	1,140 J	1,540	1,200	570	580
Manganese-DISS	709 J	559	NA	NA	200	1,220 J	1,500	NA	NA	NA
Mercury	<0.2	NA	<0.2	<0.2	<0.20	<0.2 J	NA	<0.2	<0.2	<0.2
Mercury-DISS	<0.2 J	NA	NA	NA	<0.20	<0.2 J	NA	NA	NA	NA
Molybdenum	NA	NA	<100	<100	<10	NA	NA	<100	<100	<100

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-3A					GM-3B				
Top of Screen Depth (ft bls)	74	74	74	74	74	170	170	170	170	170
Sample Date	06/25/97	10/10/97	10/09/98	04/13/99	05/05/04	06/26/97	10/14/97	10/08/98	04/17/99	04/17/99
Sample ID	GWGM-3A	GM-3A	GWGM-3A	GWGM-3A	GWGM-3A (5/5/04)	GWGM-3B	GM-3B	GWGM-3B	GWGM-3B	GWGM-88
Molybdenum-DISS	NA	NA	NA	NA	<10	NA	NA	NA	NA	NA
Nickel	<50	NA	<50	<50	<25	<50 J	NA	<50	<50	<50
Nickel-DISS	<50 J	NA	NA	NA	<25	<50 J	NA	NA	NA	NA
Potassium	<5,000	<5,000	5,800	2,200	2,600	<5,000 J	<5,000	5,400	11,000	11,000
Potassium-DISS	<5,000 J	<5,000	NA	NA	2,600	<5,000 J	<5,000	NA	NA	NA
Selenium	<5	NA	<5	<5	<5.0	<5 J	NA	<5	<5	<5
Selenium-DISS	<5 J	NA	NA	NA	<5.0	<5 J	NA	NA	NA	NA
Silver	<0.5	NA	<0.5	<0.5	<0.20	<0.5 J	NA	<0.5	<0.5	<0.5
Silver-DISS	<0.5 J	NA	NA	NA	<0.20	<0.5 J	NA	NA	NA	NA
Sodium	11,300	10,600	13,000	12,000	24,000	19,000 J	13,500	16,000	17,000	17,000
Sodium-DISS	11,100 J	9,680	NA	NA	24,000	19,900 J	11,500	NA	NA	NA
Thallium	<2	NA	<2	<2	<2.0	<2 J	NA	<2	<2	<2
Thallium-DISS	<2 J	NA	NA	NA	<2.0	<2 J	NA	NA	NA	NA
Titanium	NA	NA	<50	<50	2.1 B	NA	NA	<50	<50	<50
Titanium-DISS	NA	NA	NA	NA	<50	NA	NA	NA	NA	NA
Vanadium	<20	NA	<20	<20	0.67 B	<20 J	NA	<20	<20	<20
Vanadium-DISS	<20 J	NA	NA	NA	0.42 B	<20 J	NA	NA	NA	NA
Zinc	<91.5	NA	28	<20	5.4 B	<63.6 J	NA	27	<20	<20
Zinc-DISS	<73.3 J	NA	NA	NA	5.1 B	<33.2 J	NA	NA	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-3B (continued)		GM-4				GM-5	
Top of Screen Depth (ft bls)	170	170	76	76	76	76	250	250
Sample Date	05/11/04	05/11/04	06/26/97	10/14/97	10/20/98	04/21/99	07/02/97	10/15/97
Sample ID	GWGM-3B (5/11/04)	GWGM-3B (5/11/04)-DL	GWGM-4	GM-4	GWGM-4	GWGM-4	GWGM-5	GM-5
Aluminum	17 B	NA	NA	NA	<200	<200	466 J	NA
Aluminum-DISS	<200	NA	NA	NA	NA	NA	<100 J	NA
Antimony	<50	NA	NA	NA	<50	<50	<5 J	NA
Antimony-DISS	<50	NA	NA	NA	NA	NA	<5	NA
Arsenic	9.4 B	NA	NA	NA	<5	31	86.5 J	NA
Arsenic-DISS	7.4 B	NA	NA	NA	NA	NA	83.0 J	NA
Barium	**550**	NA	NA	NA	<200	<200	288 J	NA
Barium-DISS	**410**	NA	NA	NA	NA	NA	272 J	NA
Beryllium	<1.0	NA	NA	NA	<5	<5	<5 J	NA
Beryllium-DISS	<1.0	NA	NA	NA	NA	NA	<5 J	NA
Cadmium	<0.50 *F5	NA	NA	NA	<0.5	<0.5	<0.5 J	NA
Cadmium-DISS	<0.50 *F5	NA	NA	NA	NA	NA	<0.5 J	NA
Calcium	150,000	NA	45,500	46,300	51,000	42,000	130,000 J	117,000
Calcium-DISS	130,000	NA	NA	49,500	NA	NA	122,000 J	109,000
Chromium	1.4 B	NA	NA	NA	<50	<50	<50 J	NA
Chromium-DISS	<5.0	NA	NA	NA	NA	NA	<50 J	NA
Cobalt	2.0 B	NA	NA	NA	<50	<50	<50 J	NA
Cobalt-DISS	1.2 B	NA	NA	NA	NA	NA	<50 J	NA
Copper	4.1 B	NA	NA	NA	<25	<25	***26.9 J***	NA
Copper-DISS	6.0 B	NA	NA	NA	NA	NA	<25 J	NA
Iron	21,000	NA	191	392	<20	<20	10,500 J	10,600
Iron-DISS	13,000	NA	<100	<100	NA	NA	9,570 J	9,260
Lead	<3.0	NA	NA	NA	<3	<3	<3 J	NA
Lead-DISS	<3.0	NA	NA	NA	NA	NA	<3 J	NA
Magnesium	130,000	NA	21,500	24,500	29,000	23,000	152,000 J	165,000
Magnesium-DISS	110,000	NA	NA	26,400	NA	NA	147,000 J	152,000
Manganese	230	NA	50.5	16.5	<5	<5	181 J	237
Manganese-DISS	170	NA	48.6	<15	NA	NA	149 J	224
Mercury	<0.20	NA	NA	NA	<0.2	<0.2	<0.2 J	NA
Mercury-DISS	<0.20	NA	NA	NA	NA	NA	<0.2 J	NA
Molybdenum	1.6 B	NA	NA	NA	<100	<100	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-3B (continued)		GM-4				GM-5	
Top of Screen Depth (ft bls)	170	170	76	76	76	76	250	250
Sample Date	05/11/04	05/11/04	06/26/97	10/14/97	10/20/98	04/21/99	07/02/97	10/15/97
Sample ID	GWGM-3B (5/11/04)	GWGM-3B (5/11/04)-DL	GWGM-4	GM-4	GWGM-4	GWGM-4	GWGM-5	GM-5
Molybdenum-DISS	8.0 B	NA	NA	NA	NA	NA	NA	NA
Nickel	3.1 B	NA	NA	NA	<50	<50	<50 J	NA
Nickel-DISS	2.9 B	NA	NA	NA	NA	NA	<50 J	NA
Potassium	NA	14,000	7,350	<5,000	2,600	2,100	12,600 J	9,180
Potassium-DISS	NA	25,000	NA	<5,000	NA	NA	11,500 J	8,650
Selenium	<5.0	NA	NA	NA	<5	<5	<5 J	NA
Selenium-DISS	<5.0	NA	NA	NA	NA	NA	<5 J	NA
Silver	<0.20	NA	NA	NA	**0.64**	<0.5	<0.5 J	NA
Silver-DISS	<0.20	NA	NA	NA	NA	NA	<0.5 J	NA
Sodium	16000	NA	7,930	<5,000	2,900	3,000	32,400 J	32,500
Sodium-DISS	22000	NA	NA	<5,000	NA	NA	30,900 J	32,200
Thallium	0.60 B*F5	NA	NA	NA	<2	<2	<2 J	NA
Thallium-DISS	<2.0 *F5	NA	NA	NA	NA	NA	<2 J	NA
Titanium	1.7 B	NA	NA	NA	<50	<50	NA	NA
Titanium-DISS	0.88 B	NA	NA	NA	NA	NA	NA	NA
Vanadium	6.9 B	NA	NA	NA	<20	<20	<20 J	NA
Vanadium-DISS	5.9 B	NA	NA	NA	NA	NA	<20 J	NA
Zinc	8.6 B	NA	NA	NA	<20	<20	36.9 MBD J	NA
Zinc-DISS	7.3 B	NA	NA	NA	NA	NA	59.8 MBD J	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-5 (continued)				GM-6						
Top of Screen Depth (ft bls)	250	250	250	250	165	165	165	165	165	165	165
Sample Date	04/18/99	11/30/99	08/15/00	09/20/00	06/28/97	10/22/97	10/10/98	04/19/99	02/29/00	07/19/00	09/25/00
Sample ID	GWGM-5	GM-5	GWGM-5	GWGM-5	GWGM-6	GM-6	GWGM-6	GWGM-6	GWGM-6	GWGM-6	GWGM-6
Aluminum	<200	NA	NA	NA	NA	373	<200	<200	NA	NA	NA
Aluminum-DISS	NA	25 B	NA	NA	NA	<100	NA	NA	NA	<31	NA
Antimony	<50	NA	NA	NA	NA	<5	<50	<50	NA	NA	NA
Antimony-DISS	NA	<50	NA	NA	NA	<5	NA	NA	NA	<50	NA
Arsenic	7.6	NA	NA	NA	NA	84.3	86	90	NA	NA	NA
Arsenic-DISS	NA	100	NA	NA	NA	85.5	NA	NA	NA	64	NA
Barium	270	NA	NA	NA	NA	<200	<200	<200	NA	NA	NA
Barium-DISS	NA	290	NA	NA	NA	<200	NA	NA	NA	120	NA
Beryllium	<5	NA	NA	NA	NA	<5	<5	<5	NA	NA	NA
Beryllium-DISS	NA	<1.0	NA	NA	NA	<5	NA	NA	NA	<1.0	NA
Cadmium	<0.5	NA	NA	NA	NA	<0.5	<0.5	<0.5	NA	NA	NA
Cadmium-DISS	NA	<0.50 W	NA	NA	NA	<0.5	NA	NA	NA	<0.50	NA
Calcium	110,000	NA	120,000	NA	124,000 J	111,000	110,000	110,000	NA	NA	NA
Calcium-DISS	NA	110,000	NA	120,000	NA	117,000	NA	NA	100,000	100,000	100,000
Chromium	<50	NA	NA	NA	NA	<50	<50	<50	NA	NA	NA
Chromium-DISS	NA	0.65 B	NA	NA	NA	<50	NA	NA	NA	<5.0	NA
Cobalt	<50	NA	NA	NA	NA	<50	<50	<50	NA	NA	NA
Cobalt-DISS	NA	3.3 B	NA	NA	NA	<50	NA	NA	NA	0.70 B	NA
Copper	<25	NA	NA	NA	NA	<25	<25	<25	NA	NA	NA
Copper-DISS	NA	<25	NA	NA	NA	<25	NA	NA	NA	<25	NA
Iron	11,000	NA	11,000	NA	12,700 J	10,500	12,000	12,000	NA	NA	NA
Iron-DISS	NA	11,000	NA	12,000	12,400 J	10,400	NA	NA	12,000 J	8,200	12,000
Lead	<3	NA	NA	NA	NA	<3	<3	<3	NA	NA	NA
Lead-DISS	NA	<3.0	NA	NA	NA	<3	NA	NA	NA	<3.0	NA
Magnesium	170,000	NA	190,000	NA	119,000 J	104,000	110,000	110,000	NA	NA	NA
Magnesium-DISS	NA	170,000	NA	200,000	NA	111,000	NA	NA	100,000	110,000	100,000
Manganese	120	99	NA	NA	998 J	742	700	500	NA	NA	NA
Manganese-DISS	NA	NA	NA	NA	811 J	817	NA	NA	NA	270	NA
Mercury	<0.2	NA	NA	NA	NA	<0.2	<0.2	<0.2	NA	NA	NA
Mercury-DISS	NA	<0.20	NA	NA	NA	<0.2	NA	NA	NA	<0.20	NA
Molybdenum	<100	NA	NA	NA	NA	NA	<100	<100	NA	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-5 (continued)				GM-6						
Top of Screen Depth (ft bls)	250	250	250	250	165	165	165	165	165	165	165
Sample Date	04/18/99	11/30/99	08/15/00	09/20/00	06/28/97	10/22/97	10/10/98	04/19/99	02/29/00	07/19/00	09/25/00
Sample ID	GWGM-5	GM-5	GWGM-5	GWGM-5	GWGM-6	GM-6	GWGM-6	GWGM-6	GWGM-6	GWGM-6	GWGM-6
Molybdenum-DISS	NA	2.7 B	NA	NA	NA	NA	NA	NA	NA	<10	NA
Nickel	<50	NA	NA	NA	NA	<50	<50	<50	NA	NA	NA
Nickel-DISS	NA	3.4 B	NA	NA	NA	<50	NA	NA	NA	<25	NA
Potassium	5,500	NA	7,000	NA	<5,000 J	<5,000	3,400	3,700	NA	NA	NA
Potassium-DISS	NA	6,200	NA	6,100	NA	<5,000	NA	NA	3,800	3,700	3,800
Selenium	<5	NA	NA	NA	NA	<5	<5	<5 J	NA	NA	NA
Selenium-DISS	NA	<5.0	NA	NA	NA	<5	NA	NA	NA	<5.0	NA
Silver	<0.5	NA	NA	NA	NA	<0.5	<0.5	<0.5	NA	NA	NA
Silver-DISS	NA	<0.20	NA	NA	NA	<0.5	NA	NA	NA	<0.20	NA
Sodium	33,000	NA	35,000 J	NA	15,300 J	13,700	14,000	14,000	NA	NA	NA
Sodium-DISS	NA	34,000	NA	36,000	NA	12,900	NA	NA	13,000	13,000	13,000
Thallium	<2	NA	NA	NA	NA	<2	<2	<2	NA	NA	NA
Thallium-DISS	NA	<2.0 W	NA	NA	NA	<2	NA	NA	NA	<2.0	NA
Titanium	<50	NA	NA	NA	NA	NA	<50	<50	NA	NA	NA
Titanium-DISS	NA	0.82 B	NA	NA	NA	NA	NA	NA	NA	0.41 B	NA
Vanadium	<20	NA	NA	NA	NA	<20	<20	<20	NA	NA	NA
Vanadium-DISS	NA	4.1 B	NA	NA	NA	<20	NA	NA	NA	<0.88	NA
Zinc	<20	NA	NA	NA	NA	21.5	<20	<20	NA	NA	NA
Zinc-DISS	NA	1.5 B	NA	NA	NA	<20	NA	NA	NA	<2.7	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-7						GM-8			
Top of Screen Depth (ft bls)	**145**	**145**	**145**	**145**	**145**	**145**	**79**	**79**	**79**	**79**
Sample Date	**06/29/97**	**10/11/97**	**10/23/98**	**05/01/99**	**09/23/03**	**05/03/04**	**06/30/97**	**10/12/97**	**10/09/98**	**04/13/99**
Sample ID	**GWGM-7**	**GM-7**	**GWGM-7**	**GWGM-7**	**GM-7**	**GWGM-7 (5/3/04)**	**GWGM-8**	**GM-8**	**GWGM-8**	**GWGM-8**
Aluminum	NA	NA	<200	<200	760	8.6 B	<200	NA	<200	<200
Aluminum-DISS	NA	NA	NA	NA	<200	<200	NA	NA	NA	NA
Antimony	NA	NA	<50	<50	<50	<50	NA	NA	<50	<50
Antimony-DISS	NA	NA	NA	NA	<50	<50	<10	NA	NA	NA
Arsenic	NA	NA	5.4	11	<20	6.4 B	NA	NA	<5	<5 J
Arsenic-DISS	NA	NA	NA	NA	<20	6.9 B	<10	NA	NA	NA
Barium	NA	NA	<200	<200	150	70 B	<200	NA	<200	<200
Barium-DISS	NA	NA	NA	NA	<100	68 B	NA	NA	NA	NA
Beryllium	NA	NA	<5	<5	<1.0	<1.0	<5	NA	<5	<5
Beryllium-DISS	NA	NA	NA	NA	<1.0	<1.0	NA	NA	NA	NA
Cadmium	NA	NA	<0.5	<0.5	<0.50	<0.50	<1	NA	<0.5	<0.5
Cadmium-DISS	NA	NA	NA	NA	<0.50	<0.50	NA	NA	NA	NA
Calcium	63,600	64,300	53,000	46,000 J	56,000	51,000	61,700	61,600	64,000	58,000
Calcium-DISS	NA	68,700	NA	NA	49,000	50,000	NA	62,600	NA	NA
Chromium	NA	NA	<50	<50	<5.0	0.85 B	<10	NA	<50	<50
Chromium-DISS	NA	NA	NA	NA	<5.0	<5.0	NA	NA	NA	NA
Cobalt	NA	NA	<50	<50	<10	<10	<50	NA	<50	<50
Cobalt-DISS	NA	NA	NA	NA	<10	<10	NA	NA	NA	NA
Copper	NA	NA	R	<25	***43***	3.3 B	<25	NA	<25	<25
Copper-DISS	NA	NA	NA	NA	<25	1.4 B	NA	NA	NA	NA
Iron	4,480	2,740	820	400	2,000	1,000	<100	178	<20	<20
Iron-DISS	550	2,880	NA	NA	540	930	<100	<100	NA	NA
Lead	NA	NA	<3	<3	<3.0	<3.0	NA	NA	<3	<3
Lead-DISS	NA	NA	NA	NA	<3.0	<3.0	<3	NA	NA	NA
Magnesium	30,500	30,800	34,000	32,000	29,000	28,000	32,300	30,700	33,000	30,000
Magnesium-DISS	NA	33,200	NA	NA	30,000	28,000	NA	30,900	NA	NA
Manganese	854	917	1,000 J	850 J	800	740	205	<15	<5	<5
Manganese-DISS	768	988	NA	NA	760	730	218	<15	NA	NA
Mercury	NA	NA	<0.2	<0.2	<0.20	<0.20	<0.2	NA	<0.2	<0.2
Mercury-DISS	NA	NA	NA	NA	<0.20	<0.20	NA	NA	NA	NA
Molybdenum	NA	NA	<100 J	<100	<10	2.8 B	NA	NA	<100	<100

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-7						GM-8			
Top of Screen Depth (ft bls)	145	145	145	145	145	145	79	79	79	79
Sample Date	06/29/97	10/11/97	10/23/98	05/01/99	09/23/03	05/03/04	06/30/97	10/12/97	10/09/98	04/13/99
Sample ID	GWGM-7	GM-7	GWGM-7	GWGM-7	GM-7	GWGM-7 (5/3/04)	GWGM-8	GM-8	GWGM-8	GWGM-8
Molybdenum-DISS	NA	NA	NA	NA	<10	3.5 B	NA	NA	NA	NA
Nickel	NA	NA	<50	<50	<25	1.4 B	<40	NA	<50	<50
Nickel-DISS	NA	NA	NA	NA	<25	1.2 B	NA	NA	NA	NA
Potassium	<5,000	<5,000	19,000	19,000	9,000	4,700	<5,000	<5,000	1,600	1,500
Potassium-DISS	NA	<5,000	NA	NA	8,200	4,500	NA	<5,000	NA	NA
Selenium	NA	NA	<5	<5	<5.0	<5.0	NA	NA	<5	<5
Selenium-DISS	NA	NA	NA	NA	<5.0	<5.0	<5	NA	NA	NA
Silver	NA	NA	<0.5	<0.5	<0.20	<0.20	NA	NA	<0.5	<0.5
Silver-DISS	NA	NA	NA	NA	<0.20	<0.20	<1	NA	NA	NA
Sodium	27,100	11,100	14,000	14,000	10,000	8,200	21,700	20,700	25,000	22,000
Sodium-DISS	NA	10,600	NA	NA	11,000	8,200	NA	20,300	NA	NA
Thallium	NA	NA	<2	<2	<2.0	<2.0	<10	NA	<2	<2
Thallium-DISS	NA	NA	NA	NA	<2.0	<2.0	NA	NA	NA	NA
Titanium	NA	NA	<50	<50	50	1.5 B	NA	NA	<50	<50
Titanium-DISS	NA	NA	NA	NA	<50	<50	NA	NA	NA	NA
Vanadium	NA	NA	<20	<20	<20	0.36 B	NA	NA	<20	<20
Vanadium-DISS	NA	NA	NA	NA	<20	<20	<50	NA	NA	NA
Zinc	NA	NA	<20 J	<20	32	4.5 B	NA	NA	22	<20
Zinc-DISS	NA	NA	NA	NA	<20	3.4 B	<50	NA	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-8 (continued)	GM-9						GM-10
Top of Screen Depth (ft bls)	79	164	164	164	164	164	164	170
Sample Date	10/21/99	10/13/97	10/11/98	04/18/99	09/10/03	05/03/04	07/28/05	10/14/97
Sample ID	GM-8	GM-9	GWGM-9	GWGM-9	GM-9	GWGM-9 (5/3/04)	GWGM-9 (072805)	GM-10
Aluminum	62 B	NA	<200	<200	<200	140 B	41 J	NA
Aluminum-DISS	NA	NA	NA	NA	<200	<200	<200	NA
Antimony	<50	NA	<50	<50	<50	<50	<50	NA
Antimony-DISS	NA	NA	NA	NA	<50	<50	<50	NA
Arsenic	<20	NA	8	7.5	<20	9.0 B	13 J	NA
Arsenic-DISS	NA	NA	NA	NA	<20	11 B	9.3 J	NA
Barium	20 B	NA	<200	<200	<100	89 B	76 J	NA
Barium-DISS	NA	NA	NA	NA	<100	88 B	67 J	NA
Beryllium	<1.0	NA	<5	<5	<1.0	<1.0	<1.0	NA
Beryllium-DISS	NA	NA	NA	NA	<1.0	<1.0	<1.0	NA
Cadmium	<0.50	NA	<0.5	<0.5	<0.50	<0.50	<0.50	NA
Cadmium-DISS	NA	NA	NA	NA	<0.50	<0.50	<0.50	NA
Calcium	64,000	37,700	42,000	43,000	39,000	47,000	46,000	36,300
Calcium-DISS	NA	34,800	NA	NA	43,000	47,000	39,000	33,400
Chromium	1.1 B	NA	<50	<50	<5.0	<5.0	<5.0	NA
Chromium-DISS	NA	NA	NA	NA	<5.0	<5.0	<5.0	NA
Cobalt	<10	NA	<50	<50	<10	<10	0.22 J	NA
Cobalt-DISS	NA	NA	NA	NA	<10	<10	0.12 J	NA
Copper	1.6 B	NA	<25	<25	<25	<25	<25	NA
Copper-DISS	NA	NA	NA	NA	<25	<25	<25	NA
Iron	<100	1,090	24	34	160	260	93 J	1,130
Iron-DISS	NA	121	NA	NA	<100	42 B	<100	<100
Lead	<3.0	NA	<3	<3	<3.0	<3.0	<3.0	NA
Lead-DISS	NA	NA	NA	NA	<3.0	<3.0	0.53 J	NA
Magnesium	34,000	20,200	25,000	25,000	20,000	28,000	27,000	17,600
Magnesium-DISS	NA	18,600	NA	NA	24,000	28,000	24,000	16,100
Manganese	0.46 B	138	82	79	120	85	65	67.1
Manganese-DISS	NA	112	NA	NA	100	82	65	46.3
Mercury	<0.20	NA	<0.2	<0.2	<0.20	<0.20	<0.20	NA
Mercury-DISS	NA	NA	NA	NA	<0.20	<0.20	<0.20	NA
Molybdenum	<10	NA	<100	<100	13	1.7 B	1.5 J	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-8 (continued)	GM-9						GM-10
Top of Screen Depth (ft bls)	79	164	164	164	164	164	164	170
Sample Date	10/21/99	10/13/97	10/11/98	04/18/99	09/10/03	05/03/04	07/28/05	10/14/97
Sample ID	GM-8	GM-9	GWGM-9	GWGM-9	GM-9	GWGM-9 (5/3/04)	GWGM-9 (072805)	GM-10
Molybdenum-DISS	NA	NA	NA	NA	<10	2.8 B	1.6 J	NA
Nickel	<25	NA	<50	<50	<25	<25	1.0 J	NA
Nickel-DISS	NA	NA	NA	NA	<25	<25	<25	NA
Potassium	1,800	<5,000	1,900	2,200	3,100	2,400	1,900	<5,000
Potassium-DISS	NA	<5,000	NA	NA	2,500	2,400	1,800	<5,000
Selenium	<5.0	NA	<5	<5	<5.0	<5.0	<5.0	NA
Selenium-DISS	NA	NA	NA	NA	<5.0	<5.0	<5.0	NA
Silver	<0.20	NA	<0.5	<0.5	<0.20 W	<0.20	<0.20	NA
Silver-DISS	NA	NA	NA	NA	<0.20 W	<0.20	<0.20	NA
Sodium	26,000	6,070	4,000	3,900	15,000	4,300	5,400	<5,000
Sodium-DISS	NA	5,990	NA	NA	8,700	4,400	4,800	<5,000
Thallium	<2.0	NA	<2	<2	<2.0	<2.0	<2.0	NA
Thallium-DISS	NA	NA	NA	NA	<2.0	<2.0	<2.0	NA
Titanium	<50	NA	<50	<50	<50	6.0 B	3.2 J	NA
Titanium-DISS	NA	NA	NA	NA	<50	<50	1.4 J	NA
Vanadium	1.2 B	NA	<20	<20	<20	<20	2.5 J	NA
Vanadium-DISS	NA	NA	NA	NA	<20	<20	<20	NA
Zinc	3.1 B	NA	<20	<20	<20	10 B	<20	NA
Zinc-DISS	NA	NA	NA	NA	<20	5.1 B	5.1 J	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-10		GM-11	GM-12			GM-13		
Top of Screen Depth (ft bls)	170	170	174.7	290	290	290	325	325	325
Sample Date	11/06/98	04/27/99	10/15/97	10/22/97	10/10/98	04/19/99	10/22/97	04/20/99	05/18/04
Sample ID	GWGM-10	GWGM-10	GM-11	GM-12	GWGM-12	GWGM-12	GM-13	GWGM-13	GWGM-13 (5/18/04)
Aluminum	<200	<200	NA	104	<200	<200	NA	<200	320
Aluminum-DISS	NA	NA	NA	<100	NA	NA	NA	NA	<200
Antimony	<50	<50	NA	<5	<50	<50	NA	<50	<50
Antimony-DISS	NA	NA	NA	5.7	NA	NA	NA	NA	<50
Arsenic	19	19	NA	6	5.3	15	NA	6.7	3.3 B
Arsenic-DISS	NA	NA	NA	7.3	NA	NA	NA	NA	<20
Barium	<200	<200	NA	<200	<200	<200	NA	<200	64 B
Barium-DISS	NA	NA	NA	<200	NA	NA	NA	NA	89 B
Beryllium	<5	<5	NA	<5	<5	<5	NA	<5	<1.0
Beryllium-DISS	NA	NA	NA	<5	NA	NA	NA	NA	<1.0
Cadmium	<0.5	<0.5	NA	<0.5	<0.5	<0.5	NA	<0.5	<0.50
Cadmium-DISS	NA	NA	NA	<0.5	NA	NA	NA	NA	<0.50
Calcium	35,000	33,000	33,600	83,800	65,000	60,000	68,800	77,000	40,000
Calcium-DISS	NA	NA	32,900	65,500	NA	NA	61,000	NA	46,000
Chromium	<50	<50	NA	<50	<50	<50	NA	<50	2.4 B
Chromium-DISS	NA	NA	NA	<50	NA	NA	NA	NA	<5.0
Cobalt	<50	<50	NA	<50	<50	<50	NA	<50	<10
Cobalt-DISS	NA	NA	NA	<50	NA	NA	NA	NA	<10
Copper	<25	<25	NA	<25	<25	<25	NA	<25	**12 B**
Copper-DISS	NA	NA	NA	<25	NA	NA	NA	NA	<25
Iron	84	78	4,360	934	1,300	1,200	562	1,000	1,100
Iron-DISS	NA	NA	120	495	NA	NA	471	NA	180
Lead	<3	<3	NA	<3	<3	<3	NA	<3	4
Lead-DISS	NA	NA	NA	<3	NA	NA	NA	NA	<3.0
Magnesium	17,000	17,000	16,100	35,700	35,000	35,000	35,800	42,000	22,000
Magnesium-DISS	NA	NA	15,200	32,900	NA	NA	31,600	NA	28,000
Manganese	33	31	170	101	23	19	140	120	96
Manganese-DISS	NA	NA	109	78.2	NA	NA	120	NA	110
Mercury	<0.2	<0.2	NA	<0.2	<0.2	<0.2	NA	<0.2	<0.20
Mercury-DISS	NA	NA	NA	<0.2	NA	NA	NA	NA	<0.20
Molybdenum	<100	<100	NA	NA	<100	<100	NA	<100	4.1 B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-10		GM-11	GM-12			GM-13		
Top of Screen Depth (ft bls)	170	170	174.7	290	290	290	325	325	325
Sample Date	11/06/98	04/27/99	10/15/97	10/22/97	10/10/98	04/19/99	10/22/97	04/20/99	05/18/04
Sample ID	GWGM-10	GWGM-10	GM-11	GM-12	GWGM-12	GWGM-12	GM-13	GWGM-13	GWGM-13 (5/18/04)
Molybdenum-DISS	NA	NA	NA	NA	NA	NA	NA	NA	5.5 B
Nickel	<50	<50	NA	<50	<50	<50	NA	<50	6.6 B
Nickel-DISS	NA	NA	NA	<50	NA	NA	NA	NA	2.9 B
Potassium	2,000	2,900	<5,000	<5,000	8,100	11,000	<5,000	2,400	NA
Potassium-DISS	NA	NA	<5,000	<5,000	NA	NA	<5,000	NA	NA
Selenium	<5	<5	NA	<5	<5	<5	NA	<5 J	<5.0
Selenium-DISS	NA	NA	NA	<5	NA	NA	NA	NA	<5.0
Silver	<0.5	<0.5	NA	<0.5	<0.5	<0.5	NA	<0.5	<0.20
Silver-DISS	NA	NA	NA	<0.5	NA	NA	NA	NA	<0.20
Sodium	4,600	4,700	<5,000	6,950	8,800	10,000	<5,000	5,300	NA
Sodium-DISS	NA	NA	<5,000	6,770	NA	NA	<5,000	NA	NA
Thallium	<2	<2	NA	<2	<2	<2	NA	<2	<2.0
Thallium-DISS	NA	NA	NA	<2	NA	NA	NA	NA	<2.0
Titanium	<50	<50	NA	NA	<50	<50	NA	<50	15 B
Titanium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	0.97 B
Vanadium	<20	<20	NA	<20	<20	<20	NA	<20	2.0 B
Vanadium-DISS	NA	NA	NA	<20	NA	NA	NA	NA	0.73 B
Zinc	<20	<20	NA	26.8	<20	<20	NA	<20	89
Zinc-DISS	NA	NA	NA	<20	NA	NA	NA	NA	3.5 B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-13 (continued)	GM-14			GM-15			
Top of Screen Depth (ft bls)	325	135	135	135	165	165	165	165
Sample Date	05/18/04	10/21/97	10/28/98	05/02/99	10/20/97	10/11/98	04/20/99	05/10/04
Sample ID	GWGM-13 (5/18/04)-DL	GM-14	GWGM-14	GWGM-14	GM-15	GWGM-15	GWGM-15	GWGM-15 (5/10/04)
Aluminum	NA	NA	<200	<200	NA	<200	<200	44 B
Aluminum-DISS	NA	NA	NA	NA	NA	NA	NA	13 B
Antimony	NA	NA	<50	<50	NA	<50	<50	<50
Antimony-DISS	NA	NA	NA	NA	NA	NA	NA	<50
Arsenic	NA	NA	<5	<5	NA	<5	23	3.1 B
Arsenic-DISS	NA	NA	NA	NA	NA	NA	NA	4.1 B
Barium	NA	NA	<200	<200	NA	<200	<200	73 B
Barium-DISS	NA	NA	NA	NA	NA	NA	NA	85 B
Beryllium	NA	NA	<5	<5	NA	<5	<5	<1.0
Beryllium-DISS	NA	NA	NA	NA	NA	NA	NA	<1.0
Cadmium	NA	NA	<0.5	<0.5	NA	<0.5	*15*	<0.50 *F5
Cadmium-DISS	NA	NA	NA	NA	NA	NA	NA	<0.50 *F5
Calcium	NA	70,300	77,000	52000 J	56,000	32,000	36,000	38,000
Calcium-DISS	NA	72,300	NA	NA	21,900	NA	NA	40,000
Chromium	NA	NA	<50	<50	NA	<50	<50	3.1 B
Chromium-DISS	NA	NA	NA	NA	NA	NA	NA	<5.0
Cobalt	NA	NA	<50	<50	NA	<50	<50	<10
Cobalt-DISS	NA	NA	NA	NA	NA	NA	NA	<10
Copper	NA	NA	<25	<25	NA	<25	<25	***44***
Copper-DISS	NA	NA	NA	NA	NA	NA	NA	3.5 B
Iron	NA	2,670	4,800	3,800	12,900	45	79	140
Iron-DISS	NA	2,810	NA	NA	<100	NA	NA	31 B
Lead	NA	NA	<3	<3	NA	<3	13	<3.0
Lead-DISS	NA	NA	NA	NA	NA	NA	NA	<3.0
Magnesium	NA	24,200	26,000	18,000	24,000	16,000	18,000	19,000
Magnesium-DISS	NA	24,900	NA	NA	12100	NA	NA	20,000
Manganese	NA	487	550	340 J	377	75	84	75
Manganese-DISS	NA	502	NA	NA	21.2	NA	NA	70
Mercury	NA	NA	<0.2	<0.2	NA	<0.2	<0.2	<0.20
Mercury-DISS	NA	NA	NA	NA	NA	NA	NA	<0.20
Molybdenum	NA	NA	<100	<100	NA	<100	<100	2.0 B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-13 (continued)	GM-14			GM-15			
Top of Screen Depth (ft bls)	325	135	135	135	165	165	165	165
Sample Date	05/18/04	10/21/97	10/28/98	05/02/99	10/20/97	10/11/98	04/20/99	05/10/04
Sample ID	GWGM-13 (5/18/04)-DL	GM-14	GWGM-14	GWGM-14	GM-15	GWGM-15	GWGM-15	GWGM-15 (5/10/04)
Molybdenum-DISS	NA	NA	NA	NA	NA	NA	NA	1.9 B
Nickel	NA	NA	<50	<50	NA	<50	<50	2.6 B
Nickel-DISS	NA	NA	NA	NA	NA	NA	NA	2.9 B
Potassium	33,000	<5,000	2,900	1,900	<5,000	2,100	2,200	2,500
Potassium-DISS	26,000	<5,000	NA	NA	<5,000	NA	NA	2,300
Selenium	NA	NA	<5	<5	NA	<5	**38**	<5.0
Selenium-DISS	NA	NA	NA	NA	NA	NA	NA	<5.0
Silver	NA	NA	<0.5	<0.5	NA	<0.5	**0.55**	<0.20
Silver-DISS	NA	NA	NA	NA	NA	NA	NA	**0.095 B**
Sodium	88,000	6,130	6,100	4,100	22,300	18,000	13,000	15,000
Sodium-DISS	75,000	6,090	NA	NA	23,400	NA	NA	8,800
Thallium	NA	NA	<2	<2	NA	<2	<2	<2.0 *F5
Thallium-DISS	NA	NA	NA	NA	NA	NA	NA	<2.0 *F5
Titanium	NA	NA	<50	<50	NA	<50	<50	1.4 B
Titanium-DISS	NA	NA	NA	NA	NA	NA	NA	<50
Vanadium	NA	NA	<20	<20	NA	<20	<20	1.4 B
Vanadium-DISS	NA	NA	NA	NA	NA	NA	NA	1.2 B
Zinc	NA	NA	20	<20	NA	<20	<20	8.6 B
Zinc-DISS	NA	NA	NA	NA	NA	NA	NA	4.9 B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-15 (continued)	GM-16						GM-17	
Top of Screen Depth (ft bls)	165	108	108	108	108	108	108	224.3	224.3
Sample Date	05/10/04	10/22/97	10/22/97	10/09/98	04/14/99	09/23/03	04/27/04	10/28/97	10/12/98
Sample ID	GWGM-996 (5/10/04)	GM-16	GM-78	GWGM-16	GWGM-16	GM-16	GWGM-16 (4/27/04)	GM-17	GWGM-17
Aluminum	37 B	NA	NA	<200	<200	960	930	NA	<200
Aluminum-DISS	<200	NA	NA	NA	NA	<200	<200	NA	NA
Antimony	<50	NA	NA	<50	<50	<50	<50	NA	<50
Antimony-DISS	<50	NA	NA	NA	NA	<50	<50	NA	NA
Arsenic	4.4 B	NA	NA	<5	<5 J	<20	<20	NA	<5
Arsenic-DISS	5.2 B	NA	NA	NA	NA	<20	<20	NA	NA
Barium	73 B	NA	NA	<200	<200	<100	54 B	NA	<200
Barium-DISS	80 B	NA	NA	NA	NA	<100	47 B	NA	NA
Beryllium	<1.0	NA	NA	<5	<5	<1.0	<1.0	NA	<5
Beryllium-DISS	<1.0	NA	NA	NA	NA	<1.0	<1.0	NA	NA
Cadmium	<0.50 *F5	NA	NA	<0.5	<0.5	<0.50	<0.50	NA	<0.5
Cadmium-DISS	<0.50 *F5	NA	NA	NA	NA	<0.50	<0.50	NA	NA
Calcium	38,000	65,600	65,800	65,000	67,000	92,000	76,000	35,600	18,000
Calcium-DISS	38,000	65,700	60,900	NA	NA	84,000	75,000	28,300	NA
Chromium	3.2 B	NA	NA	<50	<50	8.2	**14**	NA	<50
Chromium-DISS	<5.0	NA	NA	NA	NA	<5.0	1.6 B	NA	NA
Cobalt	<10	NA	NA	<50	<50	<10	0.96 B	NA	<50
Cobalt-DISS	<10	NA	NA	NA	NA	<10	<10	NA	NA
Copper	***45***	NA	NA	<25	<25	<25	6.8 B	NA	<25
Copper-DISS	4.3 B	NA	NA	NA	NA	<25	3.4 B	NA	NA
Iron	140	141	153	<20	300	1,500	1,400	193	<20
Iron-DISS	20 B	<100	<100	NA	NA	<100	<100	<100	NA
Lead	<3.0	NA	NA	<3	<3	<3.0	3.2	NA	<3
Lead-DISS	<3.0	NA	NA	NA	NA	<3.0	1.8 B	NA	NA
Magnesium	19,000	30,100	30,700	32,000	34,000	43,000	35,000	17,300	2,500
Magnesium-DISS	19,000	30,600	28,800	NA	NA	40,000	35,000	17,600	NA
Manganese	76	167	169	<5	<5	54	41	<15	<5
Manganese-DISS	67	174	162	NA	NA	<20	0.96 B	<15	NA
Mercury	<0.20	NA	NA	<0.2	<0.2	<0.20	<0.20	NA	<0.2
Mercury-DISS	<0.20	NA	NA	NA	NA	<0.20	<0.20	NA	NA
Molybdenum	2.1 B	NA	NA	<100	<100	<10	1.3 B	NA	<100

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-15 (continued)	GM-16						GM-17	
Top of Screen Depth (ft bls)	165	108	108	108	108	108	108	224.3	224.3
Sample Date	05/10/04	10/22/97	10/22/97	10/09/98	04/14/99	09/23/03	04/27/04	10/28/97	10/12/98
Sample ID	GWGM-996 (5/10/04)	GM-16	GM-78	GWGM-16	GWGM-16	GM-16	GWGM-16 (4/27/04)	GM-17	GWGM-17
Molybdenum-DISS	5.4 B	NA	NA	NA	NA	<10	0.99 B	NA	NA
Nickel	2.5 B	NA	NA	<50	<50	<25	7.6 B	NA	<50
Nickel-DISS	2.5 B	NA	NA	NA	NA	<25	3.4 B	NA	NA
Potassium	2,500	<5,000	<5,000	2,500	2,700	2,600	3,400	24,300	57,000
Potassium-DISS	2,200	<5,000	<5,000	NA	NA	2,400	3,100	23,100	NA
Selenium	<5.0	NA	NA	<5	<5	<5.0	<5.0	NA	<5
Selenium-DISS	<5.0	NA	NA	NA	NA	<5.0	<5.0	NA	NA
Silver	<0.20	NA	NA	**0.58**	<0.5	<0.20	<0.20	NA	<0.5
Silver-DISS	<0.20	NA	NA	NA	NA	<0.20	<0.20	NA	NA
Sodium	15,000	21,800	22,000	23,000	22,000	38,000	34,000	13,800	46,000
Sodium-DISS	8,800	21,500	19,500	NA	NA	38,000	35,000	13,300	NA
Thallium	<2.0 *F5	NA	NA	<2	<2	<2.0	<2.0	NA	<2
Thallium-DISS	<2.0 *F5	NA	NA	NA	NA	<2.0	<2.0	NA	NA
Titanium	1.4 B	NA	NA	<50	<50	<50	36 B	NA	<50
Titanium-DISS	<50	NA	NA	NA	NA	<50	<50	NA	NA
Vanadium	1.2 B	NA	NA	<20	<20	<20	2.8 B	NA	<20
Vanadium-DISS	1.2 B	NA	NA	NA	NA	<20	0.54 B	NA	NA
Zinc	8.7 B	NA	NA	24	<20	<20	13 B	NA	<20
Zinc-DISS	3.9 B	NA	NA	NA	NA	<20	8.1 B	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-17 (continued)	GM-18			GM-19		GM-20		GM-21
Top of Screen Depth (ft bls)	224.3	50	50	50	46	46	42	42	5
Sample Date	04/26/99	35,768	12/04/97	11/07/98	12/04/97	12/04/97	12/05/97	12/05/97	12/03/97
Sample ID	GWGM-17	GM-18	GM-18 RE	GWGM-18	GM19	GM19 RE	GM-20	GM-20 RE	GM-21
Aluminum	<200	1,070	NA	<200	2,650	NA	74,100	NA	<100
Aluminum-DISS	NA	<100	NA	NA	<100	NA	25,600	NA	<100
Antimony	<50	<5	NA	<50	<5	NA	<5	NA	<5
Antimony-DISS	NA	<5	NA	NA	<5	NA	<5	NA	<5
Arsenic	<5	<5	NA	<5	<5	NA	14.7	NA	<5
Arsenic-DISS	NA	<5	NA	NA	<5	NA	<5	NA	<5
Barium	<200	<200	NA	<200	<200	NA	**529**	NA	<200
Barium-DISS	NA	<200	NA	NA	<200	NA	<200	NA	<200
Beryllium	<5	<5	NA	<5	<5	NA	<5	NA	<5
Beryllium-DISS	NA	<5	NA	NA	<5	NA	<5	NA	<5
Cadmium	<0.5	<0.5	NA	<0.5	<0.5	NA	**6.5**	NA	<0.5
Cadmium-DISS	NA	<0.5	NA	NA	<0.5	NA	**7.2**	NA	<0.5
Calcium	28,000	53,000	NA	56,000	102,000	NA	149,000	NA	132,000
Calcium-DISS	NA	54,700	NA	NA	104,000	NA	140,000	NA	133,000
Chromium	<50	<50	NA	<50	***52***	NA	***94***	NA	<50
Chromium-DISS	NA	<50	NA	NA	<50	NA	<50	NA	<50
Cobalt	<50	<50	NA	<50	<50	NA	**311**	NA	<50
Cobalt-DISS	NA	<50	NA	NA	<50	NA	**288**	NA	<50
Copper	<25	<25	NA	<25	<25	NA	***1,540***	NA	<25
Copper-DISS	NA	<25	NA	NA	<25	NA	***1,160***	NA	<25
Iron	<20	1,680	NA	<20	3,500	NA	53,900	NA	1,790
Iron-DISS	NA	<100	NA	NA	<100	NA	1,950	NA	1,750
Lead	<3	<3	NA	<3	<3	NA	**17**	NA	<3
Lead-DISS	NA	<3	NA	NA	<3	NA	<3	NA	<3
Magnesium	14,000	19,900	NA	22,000	33,400	NA	74,900	NA	53,900
Magnesium-DISS	NA	21,500	NA	NA	32,700	NA	56,000	NA	53,900
Manganese	13	89	NA	<5	226	NA	1,570	NA	1,250
Manganese-DISS	NA	41	NA	NA	164	NA	1,110	NA	1,230
Mercury	<0.2	<0.2	NA	<0.2	<0.2	NA	<0.2	NA	<0.2
Mercury-DISS	NA	<0.2	NA	NA	<0.2	NA	<0.2	NA	<0.2
Molybdenum	<100	NA	NA	<100	NA	NA	NA	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-17 (continued)	GM-18			GM-19		GM-20		GM-21
Top of Screen Depth (ft bls)	224.3	50	50	50	46	46	42	42	5
Sample Date	04/26/99	35,768	12/04/97	11/07/98	12/04/97	12/04/97	12/05/97	12/05/97	12/03/97
Sample ID	GWGM-17	GM-18	GM-18 RE	GWGM-18	GM19	GM19 RE	GM-20	GM-20 RE	GM-21
Molybdenum-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	<50	<50	NA	<50	<50	NA	**604**	NA	<50
Nickel-DISS	NA	<50	NA	NA	<50	NA	**538**	NA	<50
Potassium	34,000	<5,000	NA	1,400	<5,000	NA	14,400	NA	8,630
Potassium-DISS	NA	<5,000	NA	NA	<5,000	NA	9,180	NA	9,170
Selenium	<5	<5	NA	<5	<5	NA	<5	NA	<5
Selenium-DISS	NA	<5	NA	NA	<5	NA	<5	NA	<5
Silver	<0.5	<0.5	NA	<0.5	<0.5	NA	<0.5	NA	<0.5
Silver-DISS	NA	<0.5	NA	NA	<0.5	NA	<0.5	NA	<0.5
Sodium	33,000	5,510	NA	2,200	<5,000	NA	10,000	NA	13,200
Sodium-DISS	NA	<5,000	NA	NA	<5,000	NA	7,190	NA	13,200
Thallium	<2	<2	NA	<2	<2	NA	<2	NA	<2
Thallium-DISS	NA	<2	NA	NA	<2	NA	<2	NA	<2
Titanium	<50	NA	NA	<50	NA	NA	NA	NA	NA
Titanium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	<20	<20	NA	<20	<20	NA	**149**	NA	<20
Vanadium-DISS	NA	<20	NA	NA	<20	NA	<20	NA	<20
Zinc	7.5	NA	<20 *	<20	NA	85	NA	***897*** *	NA
Zinc-DISS	NA	NA	<20 *	NA	NA	97.4	NA	***660*** *	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-21 (continued)						GM-22			
Top of Screen Depth (ft bls)	5	5	5	5	5	5	6	6	6	6
Sample Date	12/03/97	12/03/97	12/03/97	10/13/98	01/29/01	09/09/05	12/05/97	12/05/97	10/10/98	04/13/99
Sample ID	GM-21 RE	GM-95	GM-95 RE	GWGM-21	GWGM-21	GWGM-21 (9/9/05)	GM-22	GM-22 RE	GWGM-22	GWGM-22
Aluminum	NA	<100	NA	<200	<33	12 J	1,540	NA	<200	<200
Aluminum-DISS	NA	<100	NA	NA	<35	12 J	<100	NA	NA	NA
Antimony	NA	<5	NA	<50	<50	<50	<5	NA	<50	<50
Antimony-DISS	NA	<5	NA	NA	NA	<50	<5	NA	NA	NA
Arsenic	NA	<5	NA	<5	<20	1.3 J B	5.1	NA	<5	<5 J
Arsenic-DISS	NA	<5	NA	NA	<20	1.0 J	<5	NA	NA	NA
Barium	NA	<200	NA	<200	69 B	34 J	<200	NA	<200	<200
Barium-DISS	NA	<200	NA	NA	61 B	33 J	<200	NA	NA	NA
Beryllium	NA	<5	NA	<5	<1.0	<1.0	<5	NA	<5	<5
Beryllium-DISS	NA	<5	NA	NA	NA	<1.0	<5	NA	NA	NA
Cadmium	NA	<0.5	NA	<0.5	<0.50 J	<0.50	**3**	NA	<0.5	<0.5
Cadmium-DISS	NA	<0.5	NA	NA	<0.50	<0.50	<0.5	NA	NA	NA
Calcium	NA	144,000	NA	120,000	210,000	140,000	59,700	NA	71,000	110,000
Calcium-DISS	NA	138,000	NA	NA	190,000	140,000	56,900	NA	NA	NA
Chromium	NA	<50	NA	<50	<5.0	<5.0	<50	NA	<50	<50
Chromium-DISS	NA	<50	NA	NA	<5.0	<5.0	<50	NA	NA	NA
Cobalt	NA	<50	NA	<50	1.3 B	2.5 J	<50	NA	<50	<50
Cobalt-DISS	NA	<50	NA	NA	NA	2.4 J	<50	NA	NA	NA
Copper	NA	<25	NA	<25	<5.1	1.8 J B	<25	NA	<25	<25
Copper-DISS	NA	<25	NA	NA	<5.1	1.5 J	<25	NA	NA	NA
Iron	NA	1,860	NA	2,800	490 J	2,400	2,080	NA	<20	890
Iron-DISS	NA	<100	NA	NA	310 J	2,300	<100	NA	NA	NA
Lead	NA	<3	NA	<3	<3.0	<3.0	<3	NA	<3	<3
Lead-DISS	NA	<3	NA	NA	<3.0	<3.0	<3	NA	NA	NA
Magnesium	NA	57,800	NA	53,000	62,000	58,000	27,000	NA	33,000	57,000
Magnesium-DISS	NA	55,500	NA	NA	59,000	56,000	24,700	NA	NA	NA
Manganese	NA	1,310	NA	1,600	970	1,600	360	NA	22	1,400
Manganese-DISS	NA	1,270	NA	NA	610	1,700	335	NA	NA	NA
Mercury	NA	<0.2	NA	<0.2	<0.20	<0.20	<0.2	NA	<0.2	<0.2
Mercury-DISS	NA	<0.2	NA	NA	<0.20	0.16 J	<0.2	NA	NA	NA
Molybdenum	NA	NA	NA	<100	<10	<10	NA	NA	<100	<100

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-21 (continued)						GM-22			
Top of Screen Depth (ft bls)	5	5	5	5	5	5	6	6	6	6
Sample Date	12/03/97	12/03/97	12/03/97	10/13/98	01/29/01	09/09/05	12/05/97	12/05/97	10/10/98	04/13/99
Sample ID	GM-21 RE	GM-95	GM-95 RE	GWGM-21	GWGM-21	GWGM-21 (9/9/05)	GM-22	GM-22 RE	GWGM-22	GWGM-22
Molybdenum-DISS	NA	NA	NA	NA	<10	<10	NA	NA	NA	NA
Nickel	NA	<50	NA	<50	1.7 B	1.7 J B	<50	NA	<50	<50
Nickel-DISS	NA	<50	NA	NA	NA	1.6 J	<50	NA	NA	NA
Potassium	NA	9,830	NA	4,900	43,000	11,000	<5,000	NA	1,400	860
Potassium-DISS	NA	9,190	NA	NA	39,000 J	11,000	<5,000	NA	NA	NA
Selenium	NA	<5	NA	<5	<5.0	<5.0	<5	NA	<5	<5
Selenium-DISS	NA	<5	NA	NA	<5.0	<5.0	<5	NA	NA	NA
Silver	NA	<0.5	NA	<0.5	<0.20	<0.20	<0.5	NA	<0.5	<0.5
Silver-DISS	NA	<0.5	NA	NA	<0.20	<0.20	<0.5	NA	NA	NA
Sodium	NA	14,100	NA	14,000	15,000	13,000	6,300	NA	10,000	24,000
Sodium-DISS	NA	14,200	NA	NA	14,000	13,000	<5000	NA	NA	NA
Thallium	NA	<2	NA	<2	<2.0	<2.0	<2	NA	<2	<2
Thallium-DISS	NA	<2	NA	NA	<2.0 W	<2.0	<2	NA	NA	NA
Titanium	NA	NA	NA	<50	<0.42	2.3 J	NA	NA	<50	<50
Titanium-DISS	NA	NA	NA	NA	<50	2.6 J	NA	NA	NA	NA
Vanadium	NA	<20	NA	<20	<20	<20	<20	NA	<20	<20
Vanadium-DISS	NA	<20	NA	NA	<20	<20	<20	NA	NA	NA
Zinc	<20 *	NA	22.1	<20	<3.6	<20	NA	35.8 *	<20	<20
Zinc-DISS	<20 *	NA	89.7	NA	<4.5	<20	NA	53.8 *	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-22 (continued)			GM-23			
Top of Screen Depth (ft bls)	6	6	6	3.5	3.5	3.5	3.5
Sample Date	01/15/01	09/08/05	09/08/05	12/03/97	12/03/97	10/10/98	01/16/01
Sample ID	GWGM-22	GWGM-22(9/8/05)	GWGM-999 (GM-22) (9/8/05)	GM-23	GM-23 RE	GWGM-23	GWGM-23
Aluminum	<45	59 J	60 J	27,200	NA	<200	1,300 J
Aluminum-DISS	<42	<200	<200	<100	NA	NA	<28
Antimony	<50 J	<50	1.8 J	<5	NA	<50	<50
Antimony-DISS	<50	<50	1.5 J	<5	NA	NA	<50
Arsenic	<20	<20	1.3 J B	9.3	NA	<5	<20 J
Arsenic-DISS	<20 J	<20	<20	<5	NA	NA	<20 J
Barium	55 B	22 J	22 J	232	NA	<200	21 B
Barium-DISS	51 B	19 J	18 J	<200	NA	NA	13 B
Beryllium	<1.0	<1.0	<1.0	<5	NA	<5	<1.0
Beryllium-DISS	<1.0	<1.0	<1.0	<5	NA	NA	<1.0
Cadmium	<0.12	<0.50	<0.50	<0.5	NA	<0.5	<0.10
Cadmium-DISS	<0.50	<0.50	<0.50	<0.5	NA	NA	<0.11
Calcium	120,000	81,000	83,000	173,000	NA	87,000	73,000
Calcium-DISS	110,000	81,000	79,000	82,800	NA	NA	67,000
Chromium	**17**	<5.0	<5.0	***61.1***	NA	<50	<2.3
Chromium-DISS	<5.0	<5.0	<5.0	<50	NA	NA	<5.0
Cobalt	2.4 B	0.69 J	0.64 J	<50	NA	<50	0.86 B
Cobalt-DISS	2.2 B	0.43 J	0.48 J	<50	NA	NA	<10
Copper	<2.9	2.6 J B	2.0 J B	***51.8***	NA	<25	<7.6
Copper-DISS	<1.9	1.6 J	0.94 J	<25	NA	NA	<2.2
Iron	8,400	430	400	47,900	NA	59	1,700
Iron-DISS	7,400	110	120	198	NA	NA	28 B
Lead	<3.0	<3.0	<3.0	**15.6**	NA	<3	<3.0
Lead-DISS	<3.0	<3.0	<3.0	<3	NA	NA	<3.0
Magnesium	64,000	38,000	38,000	83,500	NA	39,000	41,000
Magnesium-DISS	61,000	38,000	37,000	35,200	NA	NA	37,000
Manganese	**2,900**	300	290	1,390	NA	300	65
Manganese-DISS	**2,700**	190	200	276	NA	NA	38
Mercury	<0.20	<0.20	<0.20	<0.2	NA	<0.2	<0.20
Mercury-DISS	<0.20	<0.20	0.27	<0.2	NA	NA	<0.20
Molybdenum	<10	<10	<10	NA	NA	<100	<10

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-22 (continued)			GM-23			
Top of Screen Depth (ft bls)	6	6	6	3.5	3.5	3.5	3.5
Sample Date	01/15/01	09/08/05	09/08/05	12/03/97	12/03/97	10/10/98	01/16/01
Sample ID	GWGM-22	GWGM-22(9/8/05)	GWGM-999 (GM-22) (9/8/05)	GM-23	GM-23 RE	GWGM-23	GWGM-23
Molybdenum-DISS	<10	<10	<10	NA	NA	NA	<10
Nickel	12 B	2.7 J B	2.4 J B	**52.6**	NA	<50	2.8 B
Nickel-DISS	6.3 B	2.3 J	1.9 J	<50	NA	NA	<25
Potassium	1,100	1,000	1,100	8,570	NA	1,400	1,000
Potassium-DISS	1,000	1,200	1,100	<5,000	NA	NA	540
Selenium	<5.0 J	0.57 J	1.1 J	<5	NA	<5	<5.0 J
Selenium-DISS	<5.0 J	0.68 J	0.62 J	<5	NA	NA	<5.0 J
Silver	<0.20 J	<0.20	<0.20	<0.5	NA	<0.5	<0.20
Silver-DISS	<0.20 W	<0.20	<0.20	<0.5	NA	NA	<0.20
Sodium	44,000	12,000	11,000	8,140	NA	3,800	5,300
Sodium-DISS	42,000	9,900	9,800	<5,000	NA	NA	4,700
Thallium	<2.0	<2.0	<2.0	<2	NA	<2	<2.0
Thallium-DISS	<2.0	<2.0	<2.0	<2	NA	NA	<2.0
Titanium	<1.0 J	4.2 J	4.3 J	NA	NA	<50	54 J
Titanium-DISS	<0.34 J	1.6 J	1.5 J	NA	NA	NA	<50 J
Vanadium	<20	<20	<20	**83.4**	NA	<20	<4.3
Vanadium-DISS	<20	<20	<20	<20	NA	NA	<20
Zinc	29	<20	<20	NA	**145 ***	<20	12 B
Zinc-DISS	<3.6	<20	<20	NA	<20 *	NA	<5.3

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-23 (continued)			GM-24A		GM-24B	
Top of Screen Depth (ft bls)	3.5	3.5	3.5	71	71	104	104
Sample Date	05/12/04	05/12/04	09/08/05	11/09/98	05/04/99	11/17/98	11/17/98
Sample ID	GWGM-23 (5/12/04)	GWGM-995 (5/12/04)	GWGM-23(9/8/05)	GWGM-24A	GWGM-24A	GWGM-24B	GWGM-94
Aluminum	77 B	68 B	510	<200	<200	<200	<200
Aluminum-DISS	<200	<200	<200	NA	NA	NA	NA
Antimony	<50	<50	<50	<50	<50	<50	<50
Antimony-DISS	<50	<50	1.6 J	NA	NA	NA	NA
Arsenic	<20	<20	0.81 J B	<5	<5	<5	<5
Arsenic-DISS	<20	<20	<20	NA	NA	NA	NA
Barium	7.2 B	7.1 B	25 J	<200	<200	<200	<200
Barium-DISS	5.9 B	6.7 B	21 J	NA	NA	NA	NA
Beryllium	<1.0	<1.0	<1.0	<5	<5	<5	<5
Beryllium-DISS	<1.0	<1.0	<1.0	NA	NA	NA	NA
Cadmium	<0.50	<0.50	<0.50	<0.5	<0.5	<0.5	<0.5
Cadmium-DISS	<0.50	<0.50	<0.50	NA	NA	NA	NA
Calcium	48,000	48,000	87,000	39,000	46,000	61,000	62,000
Calcium-DISS	43,000	50,000	87,000	NA	NA	NA	NA
Chromium	<5.0	<5.0	<5.0	<50	<50	<50	<50
Chromium-DISS	<5.0	<5.0	<5.0	NA	NA	NA	NA
Cobalt	<10	<10	0.40 J	<50	<50	<50	<50
Cobalt-DISS	<10	<10	0.22 J	NA	NA	NA	NA
Copper	2.9 B	2.8 B	3.9 J B	<25	<25	<25	<25
Copper-DISS	2.4 B	4.6 B	1.2 J	NA	NA	NA	NA
Iron	180	160	890	170	600	98 J	75 J
Iron-DISS	<100	22 B	81 J	NA	NA	NA	NA
Lead	<3.0	<3.0	<3.0	<3	<3	<3	<3
Lead-DISS	<3.0	<3.0	<3.0	NA	NA	NA	NA
Magnesium	27,000	27,000	43,000	18,000	19,000	30,000	31,000
Magnesium-DISS	24,000	28,000	44,000	NA	NA	NA	NA
Manganese	2.8 B	2.4 B	140	440	320	250	260
Manganese-DISS	<20	<20	110	NA	NA	NA	NA
Mercury	<0.20	<0.20	<0.20	<0.2	<0.2	<0.2	<0.2
Mercury-DISS	<0.20	<0.20	<0.20	NA	NA	NA	NA
Molybdenum	<10	<10	<10	<100	<100	<100	<100

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-23 (continued)			GM-24A		GM-24B	
Top of Screen Depth (ft bls)	3.5	3.5	3.5	71	71	104	104
Sample Date	05/12/04	05/12/04	09/08/05	11/09/98	05/04/99	11/17/98	11/17/98
Sample ID	GWGM-23 (5/12/04)	GWGM-995 (5/12/04)	GWGM-23(9/8/05)	GWGM-24A	GWGM-24A	GWGM-24B	GWGM-94
Molybdenum-DISS	<10	<10	<10	NA	NA	NA	NA
Nickel	<25	<25	0.92 J B	<50	<50	<50	<50
Nickel-DISS	<25	<25	1.9 J	NA	NA	NA	NA
Potassium	370	370	1,000	2,100	2,000	2,400	2,400
Potassium-DISS	310	350	880	NA	NA	NA	NA
Selenium	<5.0	<5.0	<5.0	<5	<5	<5	<5
Selenium-DISS	<5.0	<5.0	<5.0	NA	NA	NA	NA
Silver	<0.20	<0.20	<0.20	<0.5	<0.5	<0.5	**0.55**
Silver-DISS	<0.20	<0.20	<0.20	NA	NA	NA	NA
Sodium	7,400	7,300	4,600	18,000	3,300	6,300	6,400
Sodium-DISS	6,500	7,300	4,600	NA	NA	NA	NA
Thallium	<2.0	<2.0	<2.0	<2	<2	<2	<2
Thallium-DISS	<2.0	<2.0	<2.0	NA	NA	NA	NA
Titanium	4.1 B	3.8 B	24 J	<50	<50	<50	<50
Titanium-DISS	<50	<50	1.5 J	NA	NA	NA	NA
Vanadium	0.68 B	0.85 B	3.5 J	<20	<20	<20	<20
Vanadium-DISS	<20	0.69 B	<20	NA	NA	NA	NA
Zinc	5.0 B	5.7 B	<20	<20	<20	<20	<20
Zinc-DISS	2.3 B	3.4 B	<20	NA	NA	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-24B (continued)		GM-24C				
Top of Screen Depth (ft bls)	104	104	193	193	193	193	193
Sample Date	05/05/99	04/29/04	11/20/98	11/20/98	05/13/99	09/24/03	04/29/04
Sample ID	GWGM-24B	GWGM-24B (4/29/04)	GWGM-24C	GWGM-93	GWGM-24C	GM-24C	GWGM-24C (4/29/04)
Aluminum	<200	33 B	<200	<200	<200	2,500	100 B
Aluminum-DISS	NA	11 B	NA	NA	NA	<200	<200
Antimony	<50	<50	<50	<50	<50	<50	<50
Antimony-DISS	NA	<50	NA	NA	NA	<50	<50
Arsenic	<5	2.5 B	<5	<5	<5	<20	<20
Arsenic-DISS	NA	<20	NA	NA	NA	<20	2.8 B
Barium	<200 J	90 B	<200	<200	<200	<100	33 B
Barium-DISS	NA	87 B	NA	NA	NA	<100	30 B
Beryllium	<5	<1.0	<5	<5	<5	<1.0	<1.0
Beryllium-DISS	NA	<1.0	NA	NA	NA	<1.0	<1.0
Cadmium	<0.5	<0.50	<0.5	<0.5	<0.5	<0.50	<0.50
Cadmium-DISS	NA	<0.50	NA	NA	NA	<0.50	<0.50
Calcium	58,000 J	79,000	36,000 J	37,000 J	21,000	34,000	22,000
Calcium-DISS	NA	77,000	NA	NA	NA	20,000	20,000
Chromium	<50 J	5.5	<50	<50	<50	8.3	1.6 B
Chromium-DISS	NA	<5.0	NA	NA	NA	5.1	<5.0
Cobalt	<50 J	<10	<50	<50	<50	<10	<10
Cobalt-DISS	NA	<10	NA	NA	NA	<10	<10
Copper	<25 J	2.0 B	<25	<25	<25	<25	1.4 B
Copper-DISS	NA	<25	NA	NA	NA	<25	<25
Iron	56	480	<20	<20	<20	3,800	190
Iron-DISS	NA	360	NA	NA	NA	<100	<100
Lead	<3	<3.0	<3	<3	<3	<3.0	<3.0
Lead-DISS	NA	<3.0	NA	NA	NA	<3.0	<3.0
Magnesium	29,000	20,000	19,000 J	19,000 J	12,000	17,000	11,000
Magnesium-DISS	NA	19,000	NA	NA	NA	11,000	10,000
Manganese	170 J	290	160 J	170 J	44	170	39
Manganese-DISS	NA	280	NA	NA	NA	25	23
Mercury	<0.2	<0.20	<0.2	<0.2	<0.2	<0.20	<0.20
Mercury-DISS	NA	<0.20	NA	NA	NA	<0.20	<0.20
Molybdenum	<100	1.9 B	<100	<100	<100	24	20

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-24B (continued)		GM-24C				
Top of Screen Depth (ft bls)	104	104	193	193	193	193	193
Sample Date	05/05/99	04/29/04	11/20/98	11/20/98	05/13/99	09/24/03	04/29/04
Sample ID	GWGM-24B	GWGM-24B (4/29/04)	GWGM-24C	GWGM-93	GWGM-24C	GM-24C	GWGM-24C (4/29/04)
Molybdenum-DISS	NA	1.7 B	NA	NA	NA	23	21
Nickel	<50 J	3.9 B	<50	<50	<50	<25	2.1 B
Nickel-DISS	NA	3.6 B	NA	NA	NA	<25	1.9 B
Potassium	2,100	3,400	3,000 J	3,000 J	11,000	13,000	12,000
Potassium-DISS	NA	3,300	NA	NA	NA	12,000	12,000
Selenium	<5	<5.0	<5	<5	<5	<5.0	<5.0
Selenium-DISS	NA	<5.0	NA	NA	NA	<5.0	<5.0
Silver	<0.5	<0.20	<0.5	<0.5	<52	<0.20	<0.20
Silver-DISS	NA	<0.20	NA	NA	NA	<0.20	**0.11 B**
Sodium	5,600 J	7,500	6,000 J	6,100 J	29,000	35,000	34,000
Sodium-DISS	NA	7,400	NA	NA	NA	33,000	33,000
Thallium	<2	<2.0	<2	<2	<2	<2.0	<2.0
Thallium-DISS	NA	<2.0	NA	NA	NA	<2.0	<2.0
Titanium	<50	1.5 B	<50	<50	<50	200	3.2 B
Titanium-DISS	NA	<50	NA	NA	NA	<50	<50
Vanadium	<20	1.3 B	<20	<20	<20	<20	0.66 B
Vanadium-DISS	NA	0.90 B	NA	NA	NA	<20	<20
Zinc	<20 J	2.6 B	20	<20	<20	21	4.2 B
Zinc-DISS	NA	2.8 B	NA	NA	NA	<20	<20

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25A						GM-25B		
Top of Screen Depth (ft bls)	19	19	19	19	19	19	98	98	98
Sample Date	10/06/98	04/16/99	12/01/99	08/21/00	09/09/03	05/12/04	10/06/98	04/27/99	10/20/99
Sample ID	GWGM-25A	GWGM-25A	GM-25A	GWGM-25A	GM-25A	GWGM-25A (5/12/04)	GWGM-25B	GWGM-25B	GM-25B
Aluminum	<200	<200	27 B	NA	<200	<200	<200	<200	84 B
Aluminum-DISS	NA	NA	NA	NA	<200	<200	NA	NA	NA
Antimony	<50	<50	<50	NA	<50	<50	<50	<50	4.0 B
Antimony-DISS	NA	NA	NA	NA	<50	<50	NA	NA	NA
Arsenic	55	57 J	56	NA	52	48	65	110	66
Arsenic-DISS	NA	NA	NA	NA	51	39	NA	NA	NA
Barium	**640**	**620**	**660**	NA	**570**	**530**	**2,300**	**2,200**	***2,600***
Barium-DISS	NA	NA	NA	NA	**560**	**510**	NA	NA	NA
Beryllium	<5	<5	<1.0	NA	<1.0	<1.0	<5	<5	<1.0
Beryllium-DISS	NA	NA	NA	NA	<1.0	<1.0	NA	NA	NA
Cadmium	<0.5	<0.5	<0.50 W	NA	<0.50 WN	<0.50	<0.5	<1 M	<0.50
Cadmium-DISS	NA	NA	NA	NA	<0.50 WN	<0.50	NA	NA	NA
Calcium	170,000	180,000	170,000	NA	150,000	140,000	680,000	750,000	740,000
Calcium-DISS	NA	NA	NA	170,000	140,000	140,000	NA	NA	NA
Chromium	<50	<50	1.9 B	NA	<5.0	1.3 B	<50	<50	**18**
Chromium-DISS	NA	NA	NA	NA	<5.0	1.3 B	NA	NA	NA
Cobalt	<50	<50	3.5 B	NA	<10	2.5 B	<50	<50	20
Cobalt-DISS	NA	NA	NA	NA	<10	2.5 B	NA	NA	NA
Copper	<25	<25	<25	NA	<25	<25	***61***	<25	2.5 B
Copper-DISS	NA	NA	NA	NA	<25	3.3 B	NA	NA	NA
Iron	29,000	28,000	28,000	NA	24,000	23,000	110,000	110,000	120,000
Iron-DISS	NA	NA	NA	31,000	23,000	21,000	NA	NA	NA
Lead	<3	<3	<3.0	NA	<3.0	<3.0	<3	<10 M	<3.0
Lead-DISS	NA	NA	NA	NA	<3.0	<3.0	NA	NA	NA
Magnesium	250,000	220,000	230,000	NA	180,000	170,000	520,000	530,000	570,000
Magnesium-DISS	NA	NA	NA	250,000	180,000	160,000	NA	NA	NA
Manganese	180	190	170	NA	200	200	190	190	190
Manganese-DISS	NA	NA	NA	NA	190	200	NA	NA	NA
Mercury	0.2	<0.2	<0.20	NA	<0.20	<0.20	<0.2	<0.2	<0.20
Mercury-DISS	NA	NA	NA	NA	<0.20	<0.20	NA	NA	NA
Molybdenum	<100	<100	<10	NA	<10	<10	<100	<100	<10

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25A						GM-25B		
Top of Screen Depth (ft bls)	19	19	19	19	19	19	98	98	98
Sample Date	10/06/98	04/16/99	12/01/99	08/21/00	09/09/03	05/12/04	10/06/98	04/27/99	10/20/99
Sample ID	GWGM-25A	GWGM-25A	GM-25A	GWGM-25A	GM-25A	GWGM-25A (5/12/04)	GWGM-25B	GWGM-25B	GM-25B
Molybdenum-DISS	NA	NA	NA	NA	<10	<10	NA	NA	NA
Nickel	<50	<50	2.7 B	NA	<25	2.6 B	**78**	**80**	**93**
Nickel-DISS	NA	NA	NA	NA	<25	2.8 B	NA	NA	NA
Potassium	6,000	5,600	6,300	NA	5,800	6,300	12,000	11,000	15,000
Potassium-DISS	NA	NA	NA	7,000	5,700	6,200	NA	NA	NA
Selenium	<5	<5	<5.0	NA	<5.0	<5.0	<5	<5	**7.8**
Selenium-DISS	NA	NA	NA	NA	<5.0	<5.0	NA	NA	NA
Silver	<0.5	<0.5	<0.20	NA	<0.20 WN	<0.20	<0.5	<2.5 M	<0.20
Silver-DISS	NA	NA	NA	NA	<0.20 WN	<0.20	NA	NA	NA
Sodium	24,000	23,000	24,000	NA	19,000	18,000	56,000	54,000	57,000
Sodium-DISS	NA	NA	NA	25,000 J	19,000	18,000	NA	NA	NA
Thallium	<2	<2	<2.0 W	NA	<2.0 WN	0.40 B	<2	<5 M	<2.0
Thallium-DISS	NA	NA	NA	NA	<2.0 WN	<2.0	NA	NA	NA
Titanium	<50	<50	11 B	NA	<50	9.4 B	950	980	1,100
Titanium-DISS	NA	NA	NA	NA	<50	7.6 B	NA	NA	NA
Vanadium	<20	<20	10 B	NA	<20	6.3 B	**35**	**21**	**27**
Vanadium-DISS	NA	NA	NA	NA	<20	5.8 B	NA	NA	NA
Zinc	24	<20	2.1 B	NA	<20	3.1 B	<200 M	<20	25
Zinc-DISS	NA	NA	NA	NA	<20	4.4 B	NA	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25B (continued)				GM-25C				
Top of Screen Depth (ft bls)	98	98	98	98	206	206	206	206	206
Sample Date	04/17/00	09/09/03	05/18/04	09/09/03	11/09/98	11/09/98	04/20/99	08/02/00	09/15/03
Sample ID	GWGM-25B	GM-25B	GWGM-25B (5/18/04)	GM-25B-DL	GWGM-25C	GWGM-95	GWGM-25C	GWGM-25C	GM-25C
Aluminum	NA	<200	<1,000	NA	<200	<200	<200	NA	<200
Aluminum-DISS	NA	<200	<1,000	NA	NA	NA	NA	<28	<200
Antimony	NA	<50	<250	NA	<50	<50	<50	NA	<50
Antimony-DISS	NA	2.9 B	<250	NA	NA	NA	NA	<50	<50
Arsenic	NA	59	62 B	NA	26	25	<5	NA	74
Arsenic-DISS	NA	60	57 B	NA	NA	NA	NA	60 J	67
Barium	NA	**2,300**	**2,100**	NA	<200	<200	<200	NA	<100
Barium-DISS	NA	**2,300**	**2,100**	NA	NA	NA	NA	40 B	<100
Beryllium	NA	<1.0	<5.0	NA	<5	<5	<5	NA	<1.0
Beryllium-DISS	NA	0.16 B	<5.0	NA	NA	NA	NA	<1.0	<1.0
Cadmium	NA	<0.50 WN	<0.50	NA	<0.5	<0.5	<0.5	NA	<0.50 WN
Cadmium-DISS	NA	<0.50 WN	<0.50	NA	NA	NA	NA	<0.50	<0.50 WN
Calcium	760,000	NA	790,000	780,000	37,000	39,000	37,000	NA	7700
Calcium-DISS	770,000	NA	780,000	770,000	NA	NA	NA	34,000	6,500
Chromium	NA	**20**	**19 B**	NA	<50	<50	<50	NA	<5.0
Chromium-DISS	NA	**20**	**18 B**	NA	NA	NA	NA	<5.0	<5.0
Cobalt	NA	16	16 B	NA	<50	<50	<50	NA	<10
Cobalt-DISS	NA	16	17 B	NA	NA	NA	NA	<10	<10
Copper	NA	<25	<120	NA	<25	<25	<25	NA	<25
Copper-DISS	NA	1.7 B	<120	NA	NA	NA	NA	<25	<25
Iron	110,000	110,000	110,000	NA	160	150	120	NA	<100
Iron-DISS	18,000	110,000	110,000	NA	NA	NA	NA	140 J	<100
Lead	NA	<3.0	<15	NA	<3	<3	<3	NA	<3.0
Lead-DISS	NA	<3.0	<15	NA	NA	NA	NA	<3.0	<3.0
Magnesium	570,000	NA	540,000	540,000	22,000	24,000	26,000	NA	27,000
Magnesium-DISS	590,000	NA	540,000	530,000	NA	NA	NA	28,000	26,000
Manganese	NA	NA	170	180	200	200	200	NA	<20
Manganese-DISS	NA	NA	170	180	NA	NA	NA	190	<20
Mercury	NA	<0.20	<0.20	NA	<0.2	<0.2	<0.2	NA	<0.20
Mercury-DISS	NA	<0.20	<0.20	NA	NA	NA	NA	<0.20 J	<0.20
Molybdenum	NA	<10	<50	NA	<100	<100	<100	NA	16

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25B (continued)				GM-25C				
Top of Screen Depth (ft bls)	98	98	98	98	206	206	206	206	206
Sample Date	04/17/00	09/09/03	05/18/04	09/09/03	11/09/98	11/09/98	04/20/99	08/02/00	09/15/03
Sample ID	GWGM-25B	GM-25B	GWGM-25B (5/18/04)	GM-25B-DL	GWGM-25C	GWGM-95	GWGM-25C	GWGM-25C	GM-25C
Molybdenum-DISS	NA	<10	<50	NA	NA	NA	NA	17	15
Nickel	NA	**68**	**71 B**	NA	<50	<50	<50	NA	<25
Nickel-DISS	NA	**68**	**71 B**	NA	NA	NA	NA	1.3 B	<25
Potassium	NA	15,000	13,000	NA	2,600	2,800	3,400	NA	NA
Potassium-DISS	NA	15,000	13,000	NA	NA	NA	NA	9,100	NA
Selenium	NA	<5.0	<25	NA	<5	<5	<5	NA	<5.0
Selenium-DISS	NA	2.7 B	<25	NA	NA	NA	NA	<5.0 J	<5.0
Silver	NA	<0.20 WN	<0.20	NA	<0.5	<0.5	<0.5	NA	<0.20 WN
Silver-DISS	NA	<0.20 WN	<0.20	NA	NA	NA	NA	<0.20 J	<0.20 WN
Sodium	NA	NA	54,000	62,000	9,200	10,000	17,000	NA	NA
Sodium-DISS	NA	NA	54,000	61,000	NA	NA	NA	20,000	NA
Thallium	NA	<2.0 WN	<2.0	NA	<2	<2	<2	NA	<2.0 WN
Thallium-DISS	NA	<2.0 WN	0.50 B	NA	NA	NA	NA	<2.0	<2.0 WN
Titanium	NA	NA	1,400	1,500	<50	<50	<50	NA	<50
Titanium-DISS	NA	NA	1,400	1,400	NA	NA	NA	<0.30	<50
Vanadium	NA	NA	**16 B**	**28**	<20	<20	<20	NA	<20
Vanadium-DISS	NA	NA	**21 B**	**30**	NA	NA	NA	<20	<20
Zinc	NA	<20	16 B	NA	<20	<20	<20	NA	<20
Zinc-DISS	NA	4.5 B	18 B	NA	NA	NA	NA	<4.4	<20

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25C (continued)			GM-26A				
Top of Screen Depth (ft bls)	206	206	206	30	30	30	30	30
Sample Date	05/04/04	08/01/05	09/15/03	10/07/98	04/14/99	11/29/99	08/16/00	09/09/03
Sample ID	GWGM-25C (5/4/04)	GWGM-25C (08/01/05)	GM-25C-DL	GWGM-26A	GWGM-26A	GM-26A	GWGM-26A	GM-26A
Aluminum	75 B	<200	NA	<200	<200	NA	NA	<200
Aluminum-DISS	28 B	<200	NA	NA	NA	31 B	NA	<200
Antimony	<50	<50	NA	<50	<50	NA	NA	<50
Antimony-DISS	<50	<50	NA	NA	NA	<50	NA	<50
Arsenic	100	130	NA	17	34 J	NA	NA	20
Arsenic-DISS	100	130	NA	NA	NA	21	NA	<20
Barium	46 B	41 J	NA	**530**	**740**	NA	NA	**530**
Barium-DISS	42 B	40 J	NA	NA	NA	**580**	NA	**540**
Beryllium	<1.0	<1.0	NA	<5	<5	NA	NA	<1.0
Beryllium-DISS	<1.0	<1.0	NA	NA	NA	<1.0	NA	<1.0
Cadmium	<0.50	0.12 J	NA	<0.5	<0.5	NA	NA	<0.50 WN
Cadmium-DISS	<0.50	<0.50	NA	NA	NA	<0.50 W	NA	<0.50 WN
Calcium	42,000	43,000	NA	160,000	210,000	NA	NA	170,000
Calcium-DISS	40,000	43,000	NA	NA	NA	160,000	160,000	170,000
Chromium	<5.0	<5.0	NA	<50	<50	NA	NA	<5.0
Chromium-DISS	<5.0	<5.0	NA	NA	NA	0.98 B	NA	<5.0
Cobalt	<10	0.22 J	NA	<50	<50	NA	NA	<10
Cobalt-DISS	<10	0.22 J	NA	NA	NA	<10	NA	<10
Copper	<25	<25	NA	<25	<25	NA	NA	<25
Copper-DISS	<25	<25	NA	NA	NA	<25	NA	<25
Iron	820	920	NA	20,000	28,000	NA	NA	17,000
Iron-DISS	580	870	NA	NA	NA	24,000	20,000	17,000
Lead	<3.0	0.55 J	NA	<3	<3	NA	NA	<3.0
Lead-DISS	<3.0	<3.0	NA	NA	NA	<3.0	NA	<3.0
Magnesium	39,000	39,000	NA	130,000	200,000	NA	NA	140,000
Magnesium-DISS	37,000	42,000	NA	NA	NA	160,000	160,000	150,000
Manganese	170	120	NA	94	81	85	NA	80
Manganese-DISS	150	130	NA	NA	NA	NA	NA	80
Mercury	<0.20	<0.20	NA	<0.2	<0.2	NA	NA	<0.20
Mercury-DISS	<0.20	<0.20	NA	NA	NA	<0.20	NA	<0.20
Molybdenum	15	13	NA	<100	<100	NA	NA	<10

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25C (continued)			GM-26A				
Top of Screen Depth (ft bls)	206	206	206	30	30	30	30	30
Sample Date	05/04/04	08/01/05	09/15/03	10/07/98	04/14/99	11/29/99	08/16/00	09/09/03
Sample ID	GWGM-25C (5/4/04)	GWGM-25C (08/01/05)	GM-25C-DL	GWGM-26A	GWGM-26A	GM-26A	GWGM-26A	GM-26A
Molybdenum-DISS	15	13	NA	NA	NA	<10	NA	<10
Nickel	1.6 B	0.44 J B	NA	<50	<50	NA	NA	<25
Nickel-DISS	<25	0.31 J	NA	NA	NA	<25	NA	<25
Potassium	3,500	2,200	41,000	3,600	4,400	NA	NA	4,400
Potassium-DISS	3,400	2,400	41,000	NA	NA	4,400	4,600	4,600
Selenium	<5.0	<5.0	NA	<5	<5	NA	NA	<5.0
Selenium-DISS	<5.0	<5.0	NA	NA	NA	<5.0	NA	<5.0
Silver	<0.20	<0.20	NA	<0.5	<0.5	NA	NA	<0.20 WN
Silver-DISS	<0.20	<0.20	NA	NA	NA	<0.20	NA	<0.20 WN
Sodium	21,000	18,000	43,000	15,000	24,000	NA	NA	15,000
Sodium-DISS	20,000	19,000	42,000	NA	NA	20,000	20,000 J	15,000
Thallium	<2.0	<2.0	NA	<2	<2	NA	NA	<2.0 WN
Thallium-DISS	<2.0	<2.0	NA	NA	NA	<2.0 J	NA	<2.0 WN
Titanium	1.6 B	1.8 J	NA	<50	<50	NA	NA	<50
Titanium-DISS	<50	1.7 J	NA	NA	NA	7.7 B	NA	<50
Vanadium	1.0 B	<20	NA	<20	<20	NA	NA	<20
Vanadium-DISS	0.47 B	<20	NA	NA	NA	6.3 B	NA	<20
Zinc	4.9 B	8.0 J	NA	<20	<20	NA	NA	<20
Zinc-DISS	2.1 B	5.4 J	NA	NA	NA	2.9 B	NA	<20

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26A (continued)	GM-26B					
Top of Screen Depth (ft bls)	30	101	101	101	101	101	101
Sample Date	05/13/04	10/07/98	04/15/99	11/30/99	07/18/00	09/09/03	04/27/04
Sample ID	GWGM-26A (5/13/04)	GWGM-26B	GWGM-26B	GM-26B	GWGM-26B	GM-26B	GWGM-26B (4/27/04)
Aluminum	<200	<200	<200	NA	NA	<200	<200
Aluminum-DISS	<200	NA	NA	28 B	<26	<200	<200
Antimony	<50	<50	<50	NA	NA	<50	<50
Antimony-DISS	<50	NA	NA	<50	<50	<50	<50
Arsenic	31	<5	6.5 J	NA	NA	<20	9.4 B
Arsenic-DISS	29	NA	NA	7.0 B	8.5 B	<20	8.9 B
Barium	**760**	<200	<200	NA	NA	<100	58 B
Barium-DISS	**750**	NA	NA	53 B	55 B	<100	60 B
Beryllium	<1.0	<5	<5	NA	NA	<1.0	<1.0
Beryllium-DISS	<1.0	NA	NA	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	<0.5	<0.5	NA	NA	<0.50 WN	<0.50
Cadmium-DISS	<0.50	NA	NA	<0.50 W	<0.50	<0.50 WN	<0.50
Calcium	200,000	36,000	34,000	NA	NA	29,000	29,000
Calcium-DISS	200,000	NA	NA	33,000	32,000	27,000	30,000
Chromium	1.6 B	<50	<50	NA	NA	<5.0	<5.0
Chromium-DISS	1.4 B	NA	NA	<5.0	<5.0	<5.0	<5.0
Cobalt	1.0 B	<50	<50	NA	NA	<10	<10
Cobalt-DISS	1.0 B	NA	NA	<10	<10	<10	<10
Copper	<25	<25	<25	NA	NA	<25	<25
Copper-DISS	<25	NA	NA	<25	<25	<25	<25
Iron	24,000	25	29	NA	NA	<100	74 B
Iron-DISS	24,000	NA	NA	43 B	93 B	<100	44 B
Lead	<3.0	<3	<3	NA	NA	<3.0	<3.0
Lead-DISS	<3.0	NA	NA	<3.0	<3.0	<3.0	<3.0
Magnesium	210,000	20,000	20,000	NA	NA	20,000	19,000
Magnesium-DISS	210,000	NA	NA	20,000	20,000	20,000	19,000
Manganese	97	68	45	41	NA	34	35
Manganese-DISS	97	NA	NA	NA	36	31	35
Mercury	<0.20	<0.2	<0.2	NA	NA	<0.20	<0.20
Mercury-DISS	<0.20	NA	NA	<0.20	<0.20	<0.20	<0.20
Molybdenum	1.1 B	<100	<100	NA	NA	<10	0.86 B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26A (continued)	GM-26B					
Top of Screen Depth (ft bls)	30	101	101	101	101	101	101
Sample Date	05/13/04	10/07/98	04/15/99	11/30/99	07/18/00	09/09/03	04/27/04
Sample ID	GWGM-26A (5/13/04)	GWGM-26B	GWGM-26B	GM-26B	GWGM-26B	GM-26B	GWGM-26B (4/27/04)
Molybdenum-DISS	<10	NA	NA	<10	<10	<10	1.4 B
Nickel	1.8 B	<50	<50	NA	NA	<25	3.4 B
Nickel-DISS	2.4 B	NA	NA	<25	1.5 B	<25	2.2 B
Potassium	5,800	2,600	4,700	NA	NA	12,000	11,000
Potassium-DISS	5,800	NA	NA	5,200	6,400	12,000	7,800
Selenium	<5.0	<5	<5	NA	NA	<5.0	<5.0
Selenium-DISS	<5.0	NA	NA	<5.0	<5.0	<5.0	<5.0
Silver	<0.20	<0.5	<0.5	NA	NA	<0.20 WN	<0.20
Silver-DISS	<0.20	NA	NA	<0.13	<0.20	<0.20 WN	<0.20
Sodium	29,000	2,600	3,400	NA	NA	8,500	7,300
Sodium-DISS	29,000	NA	NA	4,000	4,900	8,300	5,400
Thallium	<2.0	<2	<2	NA	NA	<2.0 WN	<2.0
Thallium-DISS	<2.0	NA	NA	<2.0	<2.0	<2.0 WN	<2.0
Titanium	16 B	<50	<50	NA	NA	<50	0.98 B
Titanium-DISS	14 B	NA	NA	<50	<50	<50	<50
Vanadium	9.2 B	<20	<20	NA	NA	<20	<20
Vanadium-DISS	9.2 B	NA	NA	<20	<20	<20	<20
Zinc	3.0 B	<20	<20	NA	NA	<20	0.73 B
Zinc-DISS	3.8 B	NA	NA	1.5 B	<1.3	<20	<20

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26B (continued)	GM-26C					
Top of Screen Depth (ft bls)	101	160	160	160	160	160	160
Sample Date	07/28/05	10/25/98	04/17/99	11/30/99	08/16/00	09/16/03	05/18/04
Sample ID	GWGM-26B (072805)	GWGM-26C	GWGM-26C	GM-26C	GWGM-26C	GM-26C	GWGM-26C (5/18/04)
Aluminum	<200	<200	<200	NA	NA	<200	<200
Aluminum-DISS	<200	NA	NA	30 B	NA	<200	<200
Antimony	<50	<50	<50	NA	NA	<50	<50
Antimony-DISS	19 J	NA	NA	<50	NA	<50	<50
Arsenic	12 J	16	6.4	NA	NA	56	56
Arsenic-DISS	8.6 J	NA	NA	28	NA	53	54
Barium	51 J	340 J	<200	NA	NA	**650**	**680**
Barium-DISS	51 J	NA	NA	**450**	NA	**630**	**670**
Beryllium	<1.0	<5	<5	NA	NA	<1.0	<1.0
Beryllium-DISS	<1.0	NA	NA	<1.0	NA	<1.0	<1.0
Cadmium	<0.50	<0.5	<0.5	NA	NA	<0.50 WN	<0.50
Cadmium-DISS	<0.50	NA	NA	<0.50 W	NA	<0.50 WN	<0.50
Calcium	30,000	110,000	91,000	NA	NA	160,000	160,000
Calcium-DISS	28,000	NA	NA	130,000	150,000	160,000	160,000
Chromium	<5.0	<50 J	<50	NA	NA	<5.0	2.9 B
Chromium-DISS	5	NA	NA	1.3 B	NA	<5.0	2.6 B
Cobalt	0.57 J	<50 J	<50	NA	NA	<10	6.7 B
Cobalt-DISS	0.64 J	NA	NA	2.8 B	NA	<10	6.2 B
Copper	<25	<25 J	***34***	NA	NA	<25	<25
Copper-DISS	0.72 J	NA	NA	<25	NA	<25	<25
Iron	52 J	2,800 J	510	NA	NA	21,000	21,000
Iron-DISS	73 J	NA	NA	8,100	13,000	20,000	21,000
Lead	<3.0	<3	<3	NA	NA	<3.0	<3.0
Lead-DISS	0.54 J	NA	NA	<3.0	NA	<3.0	<3.0
Magnesium	21,000	130,000 J	55,000	NA	NA	250,000	280,000
Magnesium-DISS	19,000	NA	NA	160,000	180,000	240,000	270,000
Manganese	29	640	63	310	NA	130	120
Manganese-DISS	33	NA	NA	NA	NA	120	120
Mercury	<0.20	<0.2	<0.2	NA	NA	<0.20	0.084 B
Mercury-DISS	<0.20	NA	NA	<0.20	NA	<0.20	0.10 B
Molybdenum	<10	<100 J	<100	NA	NA	<10	3.7 B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26B (continued)	GM-26C					
Top of Screen Depth (ft bls)	101	160	160	160	160	160	160
Sample Date	07/28/05	10/25/98	04/17/99	11/30/99	08/16/00	09/16/03	05/18/04
Sample ID	GWGM-26B (072805)	GWGM-26C	GWGM-26C	GM-26C	GWGM-26C	GM-26C	GWGM-26C (5/18/04)
Molybdenum-DISS	<10	NA	NA	4.6 B	NA	<10	3.9 B
Nickel	2.8 J	<50 J	<50	NA	NA	<25	9.7 B
Nickel-DISS	6.3 J	NA	NA	2.1 B	NA	<25	9.0 B
Potassium	9,600	6,700	2,500	NA	NA	8,300	8,800
Potassium-DISS	9,100	NA	NA	6,800	7,100	7,900	8,700
Selenium	<5.0	<5	<5	NA	NA	<5.0	2.9 B
Selenium-DISS	<5.0	NA	NA	<5.0	NA	<5.0	2.8 B
Silver	<0.20	<0.5	<0.5	NA	NA	<0.20 WN	<0.20
Silver-DISS	<0.20	NA	NA	<0.20	NA	<0.20 WN	<0.20
Sodium	7,500	40,000	5,800	NA	NA	NA	NA
Sodium-DISS	7,400	NA	NA	46,000	46,000 J	NA	NA
Thallium	<2.0	<2	<2	NA	NA	<2.0 WN	<2.0
Thallium-DISS	<2.0	NA	NA	<2.0 W	NA	<2.0 WN	<2.0
Titanium	2.1 J	<50 J	<50	NA	NA	<50	18 B
Titanium-DISS	1.6 J	NA	NA	2.1 B	NA	<50	16 B
Vanadium	<20	<20 J	<20	NA	NA	<20	**15 B**
Vanadium-DISS	<20	NA	NA	8.9 B	NA	<20	**13 B**
Zinc	<20	<20 J	<20	NA	NA	<20	6.6 B
Zinc-DISS	8.2 J	NA	NA	5.2 B	NA	<20	6.9 B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26C (continued)				GM-27A		
Top of Screen Depth (ft bls)	160	160	160	160	30	30	30
Sample Date	05/18/04	05/18/04	05/18/04	09/16/03	10/08/98	04/15/99	12/01/99
Sample ID	GWGM-26C (5/18/04)-DL	GWGM-994 (5/18/04)	GWGM-994 (5/18/04)-DL	GM-26C-DL	GWGM-27A	GWGM-27A	GM-27A
Aluminum	NA	<200	NA	NA	<200	<200	29 B
Aluminum-DISS	NA	<200	NA	NA	NA	NA	NA
Antimony	NA	<50	NA	NA	<50	<50	<50
Antimony-DISS	NA	<50	NA	NA	NA	NA	NA
Arsenic	NA	55	NA	NA	41	42 J	48
Arsenic-DISS	NA	57	NA	NA	NA	NA	NA
Barium	NA	**670**	NA	NA	**1,600**	**1,600**	**1,700**
Barium-DISS	NA	**680**	NA	NA	NA	NA	NA
Beryllium	NA	<1.0	NA	NA	<5	<5	<1.0
Beryllium-DISS	NA	<1.0	NA	NA	NA	NA	NA
Cadmium	NA	<0.50	NA	NA	<0.5	<0.5	<0.50 W
Cadmium-DISS	NA	<0.50	NA	NA	NA	NA	NA
Calcium	NA	160,000	NA	NA	220,000	220,000	210,000
Calcium-DISS	NA	160,000	NA	NA	NA	NA	NA
Chromium	NA	2.4 B	NA	NA	<50	<50	1.9 B
Chromium-DISS	NA	2.3 B	NA	NA	NA	NA	NA
Cobalt	NA	6.5 B	NA	NA	<50	<50	9.3 B
Cobalt-DISS	NA	6.6 B	NA	NA	NA	NA	NA
Copper	NA	<25	NA	NA	<25	<25	0.93 B
Copper-DISS	NA	<25	NA	NA	NA	NA	NA
Iron	NA	21,000	NA	NA	34,000	36,000	36,000
Iron-DISS	NA	21,000	NA	NA	NA	NA	NA
Lead	NA	<3.0	NA	NA	<3	<3	<3.0
Lead-DISS	NA	<3.0	NA	NA	NA	NA	NA
Magnesium	NA	270,000	NA	NA	180,000	180,000	180,000
Magnesium-DISS	NA	280,000	NA	NA	NA	NA	NA
Manganese	NA	120	NA	NA	300	220	200
Manganese-DISS	NA	120	NA	NA	NA	NA	NA
Mercury	NA	<0.20	NA	NA	<0.2	<0.2	<0.20
Mercury-DISS	NA	<0.20	NA	NA	NA	NA	NA
Molybdenum	NA	3.6 B	NA	NA	<100	<100	<10

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26C (continued)				GM-27A		
Top of Screen Depth (ft bls)	160	160	160	160	30	30	30
Sample Date	05/18/04	05/18/04	05/18/04	09/16/03	10/08/98	04/15/99	12/01/99
Sample ID	GWGM-26C (5/18/04)-DL	GWGM-994 (5/18/04)	GWGM-994 (5/18/04)-DL	GM-26C-DL	GWGM-27A	GWGM-27A	GM-27A
Molybdenum-DISS	NA	4.5 B	NA	NA	NA	NA	NA
Nickel	NA	9.3 B	NA	NA	<50	<50	8.2 B
Nickel-DISS	NA	9.1 B	NA	NA	NA	NA	NA
Potassium	NA	8,800	NA	NA	4,800	4,800	5,100
Potassium-DISS	NA	8,900	NA	NA	NA	NA	NA
Selenium	NA	<5.0	NA	NA	<5	<5	<5.0
Selenium-DISS	NA	<5.0	NA	NA	NA	NA	NA
Silver	NA	<0.20	NA	NA	<0.5	<0.5	<0.20
Silver-DISS	NA	<0.20	NA	NA	NA	NA	NA
Sodium	61,000	NA	61,000	60,000	18,000	18,000	18,000
Sodium-DISS	61,000	NA	62,000	56,000	NA	NA	NA
Thallium	NA	<2.0	NA	NA	<2	<2	<2.0 W
Thallium-DISS	NA	<2.0	NA	NA	NA	NA	NA
Titanium	NA	18 B	NA	NA	<50	<50	12 B
Titanium-DISS	NA	17 B	NA	NA	NA	NA	NA
Vanadium	NA	**15 B**	NA	NA	<20	<20	11 B
Vanadium-DISS	NA	**14 B**	NA	NA	NA	NA	NA
Zinc	NA	5.3 B	NA	NA	<20	<20	4.5 B
Zinc-DISS	NA	5.1 B	NA	NA	NA	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27A		GM-27B				
Top of Screen Depth (ft bls)	30	30	145	145	145	145	145
Sample Date	09/10/03	05/13/04	10/26/98	04/14/99	07/18/00	09/10/03	04/30/04
Sample ID	GM-27A	GWGM-27A (5/13/04)	GWGM-27B	GWGM-27B	GWGM-27B	GM-27B	GWGM-27B (4/30/04)
Aluminum	<200	<200	<200	<200	NA	<200	28 B
Aluminum-DISS	<200	66 B	NA	NA	<33	<200	<200
Antimony	<50	<50	<50	<50	NA	<50	<50
Antimony-DISS	<50	<50	NA	NA	<50	<50	<50
Arsenic	48	45	5.7	20 J	NA	<20	19 B
Arsenic-DISS	47	45	NA	NA	15 B	<20	18 B
Barium	**1,700**	**1,600**	<200	<200	NA	<100	73 B
Barium-DISS	**1,600**	**1,600**	NA	NA	36 B	<100	72 B
Beryllium	<1.0	<1.0	<5	<5	NA	<1.0	<1.0
Beryllium-DISS	<1.0	<1.0	NA	NA	<1.0	<1.0	<1.0
Cadmium	<0.50	<0.50	<0.5	<0.5	NA	<0.50	<0.50
Cadmium-DISS	<0.50	<0.50	NA	NA	<0.50	<0.50	<0.50
Calcium	220,000	210,000	31,000	13,000	NA	25,000	26,000
Calcium-DISS	220,000	210,000	NA	NA	17,000	24,000	24,000
Chromium	<5.0	1.4 B	<50	<50	NA	<5.0	<5.0
Chromium-DISS	<5.0	1.4 B	NA	NA	<5.0	<5.0	<5.0
Cobalt	<10	8.1 B	<50	<50	NA	<10	<10
Cobalt-DISS	<10	8.9 B	NA	NA	<10	<10	<10
Copper	<25	<25	<25	<25	NA	<25	<25
Copper-DISS	<25	<25	NA	NA	<25	<25	<25
Iron	35,000	32,000	300	21	NA	<100	140
Iron-DISS	33,000	32,000	NA	NA	29 B	<100	43 B
Lead	<3.0	<3.0	<3	<3	NA	<3.0	<3.0
Lead-DISS	<3.0	<3.0	NA	NA	<3.0	<3.0	<3.0
Magnesium	190,000	190,000	21,000	8,800	NA	20,000	19,000
Magnesium-DISS	190,000	180,000	NA	NA	13,000	20,000	19,000
Manganese	170	160	300	42	NA	43	47
Manganese-DISS	170	170	NA	NA	34	42	40
Mercury	<0.20	<0.20	<0.2	<0.2	NA	<0.20	<0.20
Mercury-DISS	<0.20	<0.20	NA	NA	<0.20	<0.20	<0.20
Molybdenum	<10	<10	<100	<100	NA	<10	<10

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27A		GM-27B				
Top of Screen Depth (ft bls)	30	30	145	145	145	145	145
Sample Date	09/10/03	05/13/04	10/26/98	04/14/99	07/18/00	09/10/03	04/30/04
Sample ID	GM-27A	GWGM-27A (5/13/04)	GWGM-27B	GWGM-27B	GWGM-27B	GM-27B	GWGM-27B (4/30/04)
Molybdenum-DISS	<10	1.2 B	NA	NA	2.2 B	<10	1.1 B
Nickel	<25	8.3 B	<50	<50	NA	<25	<25
Nickel-DISS	<25	9.8 B	NA	NA	<25	<25	<25
Potassium	5,500	6,000	2,500	3,500	NA	12,000	9,500
Potassium-DISS	5,300	5,900	NA	NA	28,000	12,000	9,500
Selenium	<5.0	<5.0	<5	<5	NA	<5.0	<5.0
Selenium-DISS	<5.0	<5.0	NA	NA	<5.0	<5.0	<5.0
Silver	<0.20 W	<0.20	<0.5	<0.5	NA	<0.20 W	<0.20
Silver-DISS	<0.20 W	<0.20	NA	NA	<0.20	<0.20 W	<0.20
Sodium	23,000	21,000	33,000	31,000	NA	4,200	4,500
Sodium-DISS	22,000	20,000	NA	NA	7,200	4,200	4,500
Thallium	<2.0	<2.0	<2	<2	NA	<2.0	<2.0
Thallium-DISS	<2.0	<2.0	NA	NA	<2.0	<2.0	<2.0
Titanium	<50	13 B	<50	<50	NA	<50	1.4 B
Titanium-DISS	<50	11 B	NA	NA	<50	<50	<50
Vanadium	<20	9.7 B	<20	<20	NA	<20	<20
Vanadium-DISS	<20	9.2 B	NA	NA	<20	<20	<20
Zinc	<20	7.5 B	<20	<20	NA	<20	17 B
Zinc-DISS	<20	5.6 B	NA	NA	<1.3	<20	1.0 B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)				
Top of Screen Depth (ft bls)	145	145	145	145	145
Sample Date	04/30/04	08/05/05	12/07/06	02/22/07	05/11/07
Sample ID	GWGM-998 (4/30/04)	GWGM-27B (08/05/05)	GWGM27B (12/7/06)	GWGM-27B (2/22/07)	GWGM-27B(5/11/07)
Aluminum	11 B	<200	<200	<200	<200
Aluminum-DISS	<200	<200	13 J	<200	<200
Antimony	<50	<50	<50	<50	<50
Antimony-DISS	<50	<50	<50	<50	<50
Arsenic	19 B	20	28	27	29
Arsenic-DISS	18 B	20	32	27	31
Barium	74 B	59 J	65 J	56 J B	61 J B
Barium-DISS	72 B	61 J	71 J B	59 J B	66 J B
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	<0.50	<0.50	<0.50	<0.50
Cadmium-DISS	<0.50	<0.50	<0.50	<0.50	<0.50
Calcium	26,000	23,000	30,000	28,000	29,000
Calcium-DISS	24,000	23,000	34,000	29,000	31,000
Chromium	<5.0	<5.0	<5.0	<5.0	<5.0
Chromium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0
Cobalt	<10	<10	<10	0.098 J	0.11 J
Cobalt-DISS	<10	<10	0.12 J	0.075 J	0.10 J
Copper	<25	<25	0.76 J	0.62 J	<25
Copper-DISS	<25	<25	0.44 J	<25	<25
Iron	83 B	53 J	84 J	77 J	89 J
Iron-DISS	43 B	47 J	91 J	40 J	59 J
Lead	<3.0	<3.0	<3.0	<3.0	<3.0
Lead-DISS	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium	20,000	17,000	21,000	21,000	21,000
Magnesium-DISS	19,000	17,000	25,000	21,000	23,000
Manganese	43	33	45	38	44
Manganese-DISS	40	34	49	41	43
Mercury	<0.20	0.10 J	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	<0.20
Molybdenum	<10	<10	<10	<10	<10

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)				
Top of Screen Depth (ft bls)	145	145	145	145	145
Sample Date	04/30/04	08/05/05	12/07/06	02/22/07	05/11/07
Sample ID	GWGM-998 (4/30/04)	GWGM-27B (08/05/05)	GWGM27B (12/7/06)	GWGM-27B (2/22/07)	GWGM-27B(5/11/07)
Molybdenum-DISS	1.2 B	<10	<10	<10	<10
Nickel	<25	0.19 J	0.45 J	0.78 J	0.17 J
Nickel-DISS	<25	0.37 J	0.70 J	0.72 J	0.29 J
Potassium	9,600	7,100	2,700	3,700	2,000
Potassium-DISS	9,500	6,900	3,100	4,000	2,100
Selenium	<5.0	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	<0.20	<0.20	<0.20	<0.20	<0.20
Silver-DISS	<0.20	<0.20	<0.20	<0.20	<0.20
Sodium	4,600	4,000	3,400	4,100	3,000
Sodium-DISS	4,500	3,900	3,700	3,700	3,300
Thallium	<2.0	<2.0	<2.0	0.36 J	<2.0
Thallium-DISS	<2.0	0.33 J	<2.0	<2.0	<2.0
Titanium	0.54 B	2.1 J	0.78 J	1.6 J	<50
Titanium-DISS	<50	1.2 J	2.1 J	1.4 J	1.6 J
Vanadium	<20	<20	<20	<20	<20
Vanadium-DISS	<20	<20	<20	<20	<20
Zinc	5.3 B	<20	5.2 J	7.1 J	<20
Zinc-DISS	<20	<20	7.3 J B	8.5 J B	5.5 J B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)		GM-27C				
Top of Screen Depth (ft bls)	145	145	210	210	210	210	210
Sample Date	08/08/07	11/08/07	11/09/98	04/26/99	04/26/99	08/07/00	09/11/03
Sample ID	GWGM-27B (8/8/07)	GWGM-27B (11/8/07)	GWGM-27C	GWGM-27C	GWGM-86	GMGW-27C	GM-27C
Aluminum	<200	<200	<200	<200	<200	NA	<200
Aluminum-DISS	<200	<200	NA	NA	NA	<22	<200
Antimony	<50	<50	<50	<50	<50	NA	<50
Antimony-DISS	<50	<50	NA	NA	NA	<50	<50
Arsenic	30	28	13	18	15	NA	23
Arsenic-DISS	31	29 B	NA	NA	NA	20 BJ	22
Barium	65 J	63 J	<200	<200	<200	NA	<100
Barium-DISS	64 J	59 J	NA	NA	NA	23 B	<100
Beryllium	<1.0	<1.0	<5	<5	<5	NA	<1.0
Beryllium-DISS	<1.0	<1.0	NA	NA	NA	<1.0	<1.0
Cadmium	<0.50	<0.50	<0.5	<0.5	<0.5	NA	<0.50
Cadmium-DISS	<0.50	<0.50	NA	NA	NA	<0.50 W	<0.50
Calcium	30,000	29,000	31,000	30,000	30,000	NA	9,600
Calcium-DISS	30,000	31,000	NA	NA	NA	31,000	6,500
Chromium	<5.0	0.76 J	<50	<50	<50	NA	<5.0
Chromium-DISS	<5.0	<5.0	NA	NA	NA	<5.0	<5.0
Cobalt	0.13 J	0.14 J	<50	<50	<50	NA	<10
Cobalt-DISS	0.14 J	0.15 J	NA	NA	NA	<10	<10
Copper	<25	1.4 J	<25	<25	<25	NA	<25
Copper-DISS	<25	<25	NA	NA	NA	<25	<25
Iron	92 J	85 J	89	80	77	NA	<100
Iron-DISS	74 J	81 J	NA	NA	NA	<22	20 B
Lead	<3.0	<3.0	<3	<3	<3	NA	<3.0
Lead-DISS	<3.0	<3.0	NA	NA	NA	<3.0	<3.0
Magnesium	22,000	22,000	20,000	19,000	19,000	NA	19,000
Magnesium-DISS	21,000	22,000	NA	NA	NA	20,000	18,000
Manganese	44	42	64	46	48	NA	<20
Manganese-DISS	43	42	NA	NA	NA	40	<20
Mercury	<0.20	<0.20	<0.2	<0.2	<0.2	NA	<0.20
Mercury-DISS	<0.20	<0.20	NA	NA	NA	<0.20 J	<0.20
Molybdenum	<10	<10	<100	<100	<100	NA	<10

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)		GM-27C				
Top of Screen Depth (ft bls)	145	145	210	210	210	210	210
Sample Date	08/08/07	11/08/07	11/09/98	04/26/99	04/26/99	08/07/00	09/11/03
Sample ID	GWGM-27B (8/8/07)	GWGM-27B (11/8/07)	GWGM-27C	GWGM-27C	GWGM-86	GMGW-27C	GM-27C
Molybdenum-DISS	<10	<10	NA	NA	NA	1.9 B	<10
Nickel	<25	<25	<50	<50	<50	NA	<25
Nickel-DISS	0.33 J	<25	NA	NA	NA	<25	<25
Potassium	2,000	1,900 B	2,900	3,700	3,700	NA	NA
Potassium-DISS	1,900	2,000	NA	NA	NA	2,700	NA
Selenium	<5.0	<5.0	<5 .	<5	<5	NA	<5.0
Selenium-DISS	<5.0	<5.0	NA	NA	NA	<5.0	<5.0
Silver	<0.20	<0.20	<0.5	<0.5	<0.5	NA	<0.20 W
Silver-DISS	<0.20	<0.20	NA	NA	NA	<0.20	<0.20 W
Sodium	3,200	3,100	5,400	5,600	5,800	NA	16,000
Sodium-DISS	3,200	3,200	NA	NA	NA	5,300	23,000
Thallium	<2.0	<2.0	<2	<2	<2	NA	<2.0
Thallium-DISS	<2.0	<2.0	NA	NA	NA	<2.0	<2.0
Titanium	2.2 J	2.6 J	<50	<50	<50	NA	<50
Titanium-DISS	2.4 J	<50	NA	NA	NA	<50	<50
Vanadium	0.93 J	1.6 J B	<20	<20	<20	NA	<20
Vanadium-DISS	0.93 J	<20	NA	NA	NA	<20	<20
Zinc	<20	<20	<20	<20	<20	NA	<20
Zinc-DISS	<20	<20	NA	NA	NA	<9.9 J	<20

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27C (continued)			GM-28A			
Top of Screen Depth (ft bls)	210	210	210	40	40	40	40
Sample Date	04/30/04	08/05/05	09/11/03	10/28/98	04/19/99	02/29/00	07/19/00
Sample ID	GWGM-27C (4/30/04)	GWGM-27C (08/05/05)	GM-27C-DL	GWGM-28A	GWGM-28A	GWGM-28A	GWGM-28A
Aluminum	24 B	<200	NA	<200	<200	NA	NA
Aluminum-DISS	<200	<200	NA	NA	NA	NA	<37
Antimony	<50	<50	NA	<50	<50	NA	NA
Antimony-DISS	<50	<50	NA	NA	NA	NA	<50
Arsenic	24	26	NA	14	<5	NA	NA
Arsenic-DISS	23	26	NA	NA	NA	NA	19 B
Barium	23 B	20 J	NA	240	<200	NA	NA
Barium-DISS	22 B	19 J	NA	NA	NA	NA	250
Beryllium	<1.0	<1.0	NA	<5	<5	NA	NA
Beryllium-DISS	<1.0	<1.0	NA	NA	NA	NA	<1.0
Cadmium	<0.50	<0.50	NA	<0.5	<0.5	NA	NA
Cadmium-DISS	<0.50	<0.50	NA	NA	NA	NA	<0.50
Calcium	34,000	32,000	NA	100,000	88,000	NA	NA
Calcium-DISS	33,000	31,000	NA	NA	NA	91,000	89,000
Chromium	<5.0	<5.0	NA	<50	<50	NA	NA
Chromium-DISS	<5.0	2.1 J	NA	NA	NA	NA	<5.0
Cobalt	<10	<10	NA	<50	<50	NA	NA
Cobalt-DISS	<10	<10	NA	NA	NA	NA	3.7 B
Copper	<25	<25	NA	<25	<25	NA	NA
Copper-DISS	<25	3.2 J	NA	NA	NA	NA	<25
Iron	110	100	NA	6,600	6,600	NA	NA
Iron-DISS	72 B	140	NA	NA	NA	8,200 J	8,300
Lead	<3.0	<3.0	NA	<3	<3	NA	NA
Lead-DISS	<3.0	<3.0	NA	NA	NA	NA	<3.0
Magnesium	20,000	18,000	NA	45,000	40,000	NA	NA
Magnesium-DISS	20,000	18,000	NA	NA	NA	42,000	41,000
Manganese	33	26	NA	**2,100**	1,800	NA	NA
Manganese-DISS	31	24	NA	NA	NA	NA	**2,100**
Mercury	<0.20	<0.20	NA	<0.2	<0.2	NA	NA
Mercury-DISS	<0.20	<0.20	NA	NA	NA	NA	<0.20
Molybdenum	2.4 B	2.0 J	NA	<100	<100	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27C (continued)			GM-28A			
Top of Screen Depth (ft bls)	210	210	210	40	40	40	40
Sample Date	04/30/04	08/05/05	09/11/03	10/28/98	04/19/99	02/29/00	07/19/00
Sample ID	GWGM-27C (4/30/04)	GWGM-27C (08/05/05)	GM-27C-DL	GWGM-28A	GWGM-28A	GWGM-28A	GWGM-28A
Molybdenum-DISS	1.9 B	2.4 J	NA	NA	NA	NA	4.8 B
Nickel	1.1 B	<25	NA	<50	<50	NA	NA
Nickel-DISS	1.7 B	0.19 J	NA	NA	NA	NA	1.6 B
Potassium	2,900	1,700	21,000	3,100	2,600	NA	NA
Potassium-DISS	2,800	1,600	27,000	NA	NA	3,100	3,200
Selenium	<5.0	<5.0	NA	<5	<5	NA	NA
Selenium-DISS	<5.0	<5.0	NA	NA	NA	NA	<5.0
Silver	<0.20	<0.20	NA	<0.5	<0.5	NA	NA
Silver-DISS	<0.20	<0.20	NA	NA	NA	NA	<0.20
Sodium	5,600	4,700	NA	3,300	2,900	NA	NA
Sodium-DISS	5,500	4,600	NA	NA	NA	3,200	3,100
Thallium	<2.0	0.61 J	NA	<2	<2	NA	NA
Thallium-DISS	<2.0	0.44 J	NA	NA	NA	NA	<2.0
Titanium	0.76 B	1.6 J	NA	<50	<50	NA	NA
Titanium-DISS	<50	1.5 J	NA	NA	NA	NA	<50
Vanadium	<20	<20	NA	<20	<20	NA	NA
Vanadium-DISS	<20	<20	NA	NA	NA	NA	<20
Zinc	0.83 B	<20	NA	24	<20	NA	NA
Zinc-DISS	<20	<20	NA	NA	NA	NA	10 BJ

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A				
Top of Screen Depth (ft bls)	40	40	40	40	40
Sample Date	04/28/04	07/26/05	07/26/05	12/05/06	02/21/07
Sample ID	GWGM-28A (4/28/04)	GWGM28A (072605)	GWGM-999 (7/26/05)	GWGM-28A(12/5/06)	GWGM-28A (2/21/07)
Aluminum	100 B	42 J	<200	<200	25 J B
Aluminum-DISS	<200	<200	<200	<200	<200
Antimony	<50	<50	<50	<50	<50
Antimony-DISS	<50	<50	<50	<50	<50
Arsenic	19 B	24 B	21 B	19 J	19 J
Arsenic-DISS	17 B	25 B	23 B	20	19 J
Barium	250	230	240	250 B	240 B
Barium-DISS	240	240	240	240 B	240 B
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	0.10 J	<0.50	<0.50	0.58
Cadmium-DISS	<0.50	0.11 J	<0.50	<0.50	<0.50
Calcium	86,000	89,000	90,000	91,000	78,000
Calcium-DISS	83,000	90,000	89,000	92,000	90,000
Chromium	<5.0	2.7 J B	2.9 J B	<5.0	<5.0
Chromium-DISS	<5.0	2.1 J B	2.1 J B	<5.0	<5.0
Cobalt	4.4 B	4.9 J	5.1 J	4.5 J	4.4 J
Cobalt-DISS	4.4 B	5.1 J	5.1 J	4.3 J	4.2 J
Copper	<25	1.4 J	0.48 J	0.59 J B	1.1 J
Copper-DISS	<25	0.92 J B	0.74 J B	<25	2.3 J
Iron	9,200	12,000	11,000	9,600	9,600
Iron-DISS	8,700	12,000	11,000	9,800	8,900
Lead	<3.0	<3.0	<3.0	<3.0	<3.0
Lead-DISS	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium	37,000	37,000	38,000	39,000	39,000
Magnesium-DISS	36,000	38,000	37,000	38,000	35,000
Manganese	**2,100**	**2,100**	**2,100**	**2,200**	**2,100**
Manganese-DISS	**2,100**	**2,100**	**2,100**	**2,200**	**2,100**
Mercury	<0.20	<0.20	<0.20	<0.20	0.11 J
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	<0.20
Molybdenum	4.1 B	4.8 J	5.1 J	4.2 J	4.8 J

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A				
Top of Screen Depth (ft bls)	40	40	40	40	40
Sample Date	04/28/04	07/26/05	07/26/05	12/05/06	02/21/07
Sample ID	GWGM-28A (4/28/04)	GWGM28A (072605)	GWGM-999 (7/26/05)	GWGM-28A(12/5/06)	GWGM-28A (2/21/07)
Molybdenum-DISS	4.4 B	4.7 J	4.3 J	4.1 J	4.4 J
Nickel	2.4 B	2.4 J B	2.4 J B	1.6 J	1.6 J
Nickel-DISS	2.3 B	2.4 J	2.3 J	1.9 J	1.8 J
Potassium	3,400	3,000	3,000	3,000	2,900
Potassium-DISS	3,200	3,000	2,900	3,000	3,200
Selenium	<5.0	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	<0.20	<0.20	<0.20	<0.20	<0.20
Silver-DISS	<0.20	<0.20	<0.20	<0.20	<0.20
Sodium	4,000	4,400	4,500	5,000 B	4,900 B
Sodium-DISS	3,900	4,400	4,500	5,000	4,400
Thallium	<2.0	0.61 J	0.58 J	<2.0	<2.0
Thallium-DISS	<2.0	0.51 J	<2.0	<2.0	<2.0
Titanium	4.8 B	3.9 J	2.7 J	2.7 J	2.9 J
Titanium-DISS	<50	3.1 J	2.8 J	2.3 J	2.3 J
Vanadium	<20	<20	<20	<20	<20
Vanadium-DISS	<20	<20	<20	<20	<20
Zinc	12 B	3.6 J	<20	<20	5.7 J B
Zinc-DISS	<20	4.6 J	<20	5.8 J B	5.5 J B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)			GM-28B			
Top of Screen Depth (ft bls)	40	40	40	124.5	124.5	124.5	124.5
Sample Date	05/10/07	08/07/07	11/05/07	11/08/98	11/08/98	04/19/99	04/19/99
Sample ID	GWGM-28A (5/10/07)	GWGM-28A (8/7/07)	GWGM-28A (11/5/07)	GWGM-28B	GWGM-96	GWGM-28B	GWGM-87
Aluminum	16 J	<200	30 J	<200	<200	<200	<200
Aluminum-DISS	<200	<200	24 J	NA	NA	NA	NA
Antimony	<50	0.44 J	<50	<50	<50	<50	<50
Antimony-DISS	1.4 J B	<50	<50	NA	NA	NA	NA
Arsenic	19 J	19 J B	20 J	<5	<5	<5	<5
Arsenic-DISS	20	19 J B	22	NA	NA	NA	NA
Barium	230 B	230	220	<200	<200	<200	<200
Barium-DISS	250 B	220	250	NA	NA	NA	NA
Beryllium	<1.0	<1.0	<1.0	<5	<5	<5	<5
Beryllium-DISS	<1.0	<1.0	<1.0	NA	NA	NA	NA
Cadmium	<0.50	<0.50	<0.50	<0.5	<0.5	<0.5	<0.5
Cadmium-DISS	<0.50	<0.50	<0.50	NA	NA	NA	NA
Calcium	82,000	90,000	90,000	32,000	31,000	22,000	21,000
Calcium-DISS	86,000	83,000	86,000	NA	NA	NA	NA
Chromium	<5.0	1.2 J B	<5.0	<50	<50	<50	<50
Chromium-DISS	<5.0	1.1 J B	<5.0	NA	NA	NA	NA
Cobalt	4.2 J	3.8 J	3.6 J	<50	<50	<50	<50
Cobalt-DISS	4.0 J	3.8 J	4.2 J	NA	NA	NA	NA
Copper	<25	<25	<25	<25	<25	<25	<25
Copper-DISS	<25	<25	<25	NA	NA	NA	NA
Iron	8,500	9,100	8,600	<20	<20	<20	<20
Iron-DISS	8,600	8,200	7,800	NA	NA	NA	NA
Lead	<3.0	<3.0	<3.0	<3	<3	<3	<3
Lead-DISS	<3.0	0.16 J	<3.0	NA	NA	NA	NA
Magnesium	34,000	38,000	39,000	10,000	10,000	12,000	12,000
Magnesium-DISS	36,000	36,000	37,000	NA	NA	NA	NA
Manganese	**2,100**	**2,100**	**2,100**	23	21	25	25
Manganese-DISS	**2,100**	**2,000**	**2,100**	NA	NA	NA	NA
Mercury	<0.20	<0.20	<0.20	<0.2	<0.2	<0.2	<0.2
Mercury-DISS	<0.20	0.11 J	<0.20	NA	NA	NA	NA
Molybdenum	4.8 J	5.3 J	5.3 J	<100	<100	<100	<100

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)			GM-28B			
Top of Screen Depth (ft bls)	40	40	40	124.5	124.5	124.5	124.5
Sample Date	05/10/07	08/07/07	11/05/07	11/08/98	11/08/98	04/19/99	04/19/99
Sample ID	GWGM-28A (5/10/07)	GWGM-28A (8/7/07)	GWGM-28A (11/5/07)	GWGM-28B	GWGM-96	GWGM-28B	GWGM-87
Molybdenum-DISS	5.4 J	5.0 J	6.0 J	NA	NA	NA	NA
Nickel	1.6 J	1.6 J	1.5 J	<50	<50	<50	<50
Nickel-DISS	1.6 J	1.6 J	1.3 J	NA	NA	NA	NA
Potassium	3,000	2,900	2,900 B	13,000	13,000	8,000	8,300
Potassium-DISS	2,900	2,800	3,200	NA	NA	NA	NA
Selenium	<5.0	<5.0	<5.0	<5	<5	<5 J	<5 J
Selenium-DISS	<5.0	<5.0	<5.0	NA	NA	NA	NA
Silver	<0.20	<0.20	<0.20	<0.5	<0.5	<0.5	<0.5
Silver-DISS	<0.20	<0.20	**0.092 J B**	NA	NA	NA	NA
Sodium	4,000	4,300	4,200 B	12,000	11,000	11,000	11,000
Sodium-DISS	4,300	4,100	3,900 B	NA	NA	NA	NA
Thallium	<2.0	<2.0	<2.0	<2	<2	<2	<2
Thallium-DISS	<2.0	<2.0	<2.0	NA	NA	NA	NA
Titanium	2.2 J	2.6 J	3.5 J	<50	<50	<50	<50
Titanium-DISS	2.0 J	2.3 J	2.7 J	NA	NA	NA	NA
Vanadium	<20	1.8 J B	<20	<20	<20	<20	<20
Vanadium-DISS	<20	1.9 J B	1.0 J	NA	NA	NA	NA
Zinc	3.7 J	<20	<20	<20	<20	<20	<20
Zinc-DISS	5.9 J B	<20	<20	NA	NA	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)					
Top of Screen Depth (ft bls)	124.5	124.5	124.5	124.5	124.5	124.5
Sample Date	03/01/00	04/28/04	04/28/04	07/26/05	12/05/06	02/21/07
Sample ID	GWGM-28B	GWGM-28B (4/28/04)	GWGM-999 (4/28/04)	GWGM28B (072605)	GWGM-28B(12/5/06)	GWGM-28B (2/21/07)
Aluminum	NA	<200	<200	<200	14 J B	77 J B
Aluminum-DISS	NA	<200	<200	<200	13 J B	<200
Antimony	NA	<50	<50	<50	<50	<50
Antimony-DISS	NA	<50	<50	<50	<50	<50
Arsenic	NA	4.7 B	4.6 B	6.1 J B	5.8 J	5.0 J
Arsenic-DISS	NA	5.3 B	5.3 B	6.2 J B	6.5 J	5.2 J
Barium	NA	94 B	96 B	79 J	91 J B	85 J B
Barium-DISS	NA	88 B	87 B	79 J	98 J B	87 J B
Beryllium	NA	<1.0	<1.0	<1.0	<1.0	<1.0
Beryllium-DISS	NA	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	NA	<0.50	<0.50	<0.50	<0.50	<0.50
Cadmium-DISS	NA	<0.50	<0.50	<0.50	<0.50	<0.50
Calcium	NA	29,000	30,000	29,000	28,000	23,000
Calcium-DISS	18,000	27,000	26,000	28,000	32,000	26,000
Chromium	NA	<5.0	<5.0	2.1 J B	<5.0	2.4 J
Chromium-DISS	NA	<5.0	<5.0	1.9 J B	<5.0	<5.0
Cobalt	NA	<10	<10	0.12 J	0.077 J	0.29 J
Cobalt-DISS	NA	<10	<10	0.10 J	0.12 J	0.17 J
Copper	NA	<25	<25	0.50 J	0.74 J B	2.9 J
Copper-DISS	NA	<25	<25	0.61 J B	<25	1.6 J
Iron	NA	18 B	17 B	<100	<100	180
Iron-DISS	<24 J	12 B	14 B	<100	<100	<100
Lead	NA	<3.0	<3.0	<3.0	<3.0	<3.0
Lead-DISS	NA	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium	NA	18,000	19,000	19,000	17,000	18,000
Magnesium-DISS	13,000	18,000	17,000	18,000	19,000	17,000
Manganese	NA	35	36	28	32	31
Manganese-DISS	NA	31	31	27	35	23
Mercury	NA	<0.20	<0.20	<0.20	<0.20	0.20 J
Mercury-DISS	NA	<0.20	<0.20	<0.20	<0.20	<0.20
Molybdenum	NA	<10	<10	<10	<10	1.6 J

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)					
Top of Screen Depth (ft bls)	124.5	124.5	124.5	124.5	124.5	124.5
Sample Date	03/01/00	04/28/04	04/28/04	07/26/05	12/05/06	02/21/07
Sample ID	GWGM-28B	GWGM-28B (4/28/04)	GWGM-999 (4/28/04)	GWGM28B (072605)	GWGM-28B(12/5/06)	GWGM-28B (2/21/07)
Molybdenum-DISS	NA	1.8 B	1.6 B	<10	<10	1.6 J
Nickel	NA	2.6 B	<25	0.67 J B	0.25 J	3.2 J
Nickel-DISS	NA	2.6 B	2.3 B	0.63 J	0.73 J	2.8 J
Potassium	NA	2,200	2,300	2,200	1,800	5,500
Potassium-DISS	12,000	4,700	4,500	2,200	1,900	5,700
Selenium	NA	<5.0	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	NA	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	NA	<0.20	<0.20	<0.20	<0.20	<0.20
Silver-DISS	NA	<0.20	<0.20	<0.20	<0.20	<0.20
Sodium	NA	2,800	2,900	3,600	2,500 B	9,800 B
Sodium-DISS	13,000	5,900	5,600	3,600	2,900	8,400
Thallium	NA	<2.0	<2.0	<2.0	<2.0	<2.0
Thallium-DISS	NA	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	NA	<50	<50	1.9 J	1.8 J	3.8 J
Titanium-DISS	NA	<50	<50	2.0 J	1.8 J	1.2 J
Vanadium	NA	0.43 B	0.36 B	<20	<20	2.8 J
Vanadium-DISS	NA	0.39 B	<20	<20	<20	2.6 J
Zinc	NA	<20	<20	5.2 J	11 J B	14 J B
Zinc-DISS	NA	<20	<20	<20	18 J B	10 J B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)			GM-29				
Top of Screen Depth (ft bls)	124.5	124.5	124.5	55	55	55	55	55
Sample Date	05/10/07	08/07/07	11/05/07	10/09/98	10/09/98	04/16/99	02/29/00	09/10/03
Sample ID	GWGM-28B (5/10/07)	GWGM-28B (8/7/07)	GWGM-28B (11/5/07)	GWGM-29	GWGM-99	GWGM-29	GMGM-29	GM-29
Aluminum	<200	<200	16 J	<200	<200	<200	NA	<200
Aluminum-DISS	<200	<200	<200	NA	NA	NA	NA	<200
Antimony	<50	<50	<50	<50	<50	<50	NA	<50
Antimony-DISS	<50	<50	<50	NA	NA	NA	NA	<50
Arsenic	5.5 J	6.4 J B	6.1 J	11	10	13 J	NA	<20
Arsenic-DISS	6.4 J	6.2 J B	6.9 J	NA	NA	NA	NA	<20
Barium	94 J B	100	99 J	<200	<200	<200	NA	<100
Barium-DISS	100 B	96 J	110	NA	NA	NA	NA	<100
Beryllium	<1.0	<1.0	<1.0	<5	<5	<5	NA	<1.0
Beryllium-DISS	<1.0	<1.0	<1.0	NA	NA	NA	NA	<1.0
Cadmium	<0.50	<0.50	<0.50	<0.5	<0.5	<0.5	NA	<0.50
Cadmium-DISS	<0.50	<0.50	<0.50	NA	NA	NA	NA	<0.50
Calcium	29,000	36,000	33,000	70,000	72,000	57,000	NA	45,000
Calcium-DISS	31,000	33,000	33,000	NA	NA	NA	46,000	47,000
Chromium	<5.0	1.3 J B	<5.0	<50	<50	<50	NA	<5.0
Chromium-DISS	<5.0	1.3 J B	<5.0	NA	NA	NA	NA	<5.0
Cobalt	0.12 J	0.096 J	0.14 J	<50	<50	<50	NA	<10
Cobalt-DISS	0.11 J	0.12 J	0.14 J	NA	NA	NA	NA	<10
Copper	<25	<25	**28**	<25	<25	<25	NA	<25
Copper-DISS	<25	<25	<25	NA	NA	NA	NA	<25
Iron	<100	27 J	33 J	6,200	6,300	4,700	NA	2,000
Iron-DISS	<100	24 J	16 J	NA	NA	NA	2,700 J	2,100
Lead	0.67 J	<3.0	<3.0	<3	<3	<3	NA	<3.0
Lead-DISS	<3.0	0.16 J	<3.0	NA	NA	NA	NA	<3.0
Magnesium	16,000	19,000	19,000	59,000	59,000	46,000	NA	35,000
Magnesium-DISS	18,000	18,000	19,000	NA	NA	NA	37,000	37,000
Manganese	30	34	31	130	130	83	NA	58
Manganese-DISS	29	32	33	NA	NA	NA	NA	61
Mercury	<0.20	<0.20	<0.20	<0.2	<0.2	<0.2	NA	<0.20
Mercury-DISS	<0.20	<0.20	<0.20	NA	NA	NA	NA	<0.20
Molybdenum	<10	<10	<10	<100	<100	<100	NA	<10

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)			GM-29				
Top of Screen Depth (ft bls)	124.5	124.5	124.5	55	55	55	55	55
Sample Date	05/10/07	08/07/07	11/05/07	10/09/98	10/09/98	04/16/99	02/29/00	09/10/03
Sample ID	GWGM-28B (5/10/07)	GWGM-28B (8/7/07)	GWGM-28B (11/5/07)	GWGM-29	GWGM-99	GWGM-29	GMGM-29	GM-29
Molybdenum-DISS	<10	<10	<10	NA	NA	NA	NA	<10
Nickel	0.37 J	<25	<25	<50	<50	<50	NA	<25
Nickel-DISS	0.53 J	<25	<25	NA	NA	NA	NA	<25
Potassium	2,000	1,800	1,800 B	2,700	2,700	2,600	NA	2,400
Potassium-DISS	2,000	1,800	2,000	NA	NA	NA	2,400	2,500
Selenium	<5.0	<5.0	<5.0	<5	<5	<5	NA	<5.0
Selenium-DISS	<5.0	<5.0	<5.0	NA	NA	NA	NA	<5.0
Silver	<0.20	<0.20	<0.20	<0.5	<0.5	<0.5	NA	<0.20 W
Silver-DISS	<0.20	<0.20	**0.099 J B**	NA	NA	NA	NA	<0.20 W
Sodium	2,900	3,000	2,900 B	7,000	7,300	6,000	NA	4,400
Sodium-DISS	3,200	2,900	2,900 B	NA	NA	NA	5,000	4,700
Thallium	<2.0	<2.0	<2.0	<2	<2	<2	NA	<2.0
Thallium-DISS	<2.0	<2.0	<2.0	NA	NA	NA	NA	<2.0
Titanium	<50	1.5 J	1.9 J	<50	<50	<50	NA	<50
Titanium-DISS	1.2 J	1.4 J	1.9 J	NA	NA	NA	NA	<50
Vanadium	<20	2.4 J B	<20	<20	<20	<20	NA	<20
Vanadium-DISS	<20	2.4 J B	0.93 J	NA	NA	NA	NA	<20
Zinc	5.2 J	<20	19 J	<20	<20	<20	NA	<20
Zinc-DISS	4.7 J B	<20	<20	NA	NA	NA	NA	<20

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)					
Top of Screen Depth (ft bls)	55	55	55	55	55	55
Sample Date	05/03/04	07/28/05	12/08/06	02/20/07	05/09/07	08/07/07
Sample ID	GWGM-29 (5/3/04)	GWGM-29 (07/28/05)	GWGM-29 (12/8/06)	GWGM-29 (2/20/07)	GWGM-29 (5/9/07)	GWGM-29 (8/7/07)
Aluminum	16 B	52 J	<200	46 J	23 J	17 J
Aluminum-DISS	<200	16 J	15 J	<200	<200	<200
Antimony	<50	<50	<50	<50	<50	<50
Antimony-DISS	<50	57	<50	<50	<50	<50
Arsenic	12 B	15 J	12 J	13 J	12 J	14 J B
Arsenic-DISS	11 B	12 J	15 J	12 J	15 J	13 J B
Barium	87 B	81 J	91 J	140 B	140 B	100
Barium-DISS	86 B	79 J	110 B	130 B	170 B	99 J
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cadmium-DISS	<0.50	0.14 J	<0.50	<0.50	<0.50	<0.50
Calcium	42,000	41,000	43,000	60,000	63,000	50,000
Calcium-DISS	42,000	40,000	52,000	54,000	73,000	48,000
Chromium	<5.0	<5.0	<5.0	<5.0	<5.0	1.2 J B
Chromium-DISS	<5.0	**13**	<5.0	<5.0	<5.0	1.0 J B
Cobalt	<10	0.14 J	<10	0.14 J	0.19 J	0.11 J
Cobalt-DISS	<10	0.32 J	0.12 J	0.11 J	0.17 J	0.12 J
Copper	<25	<25	4.8 J	0.40 J	<25	<25
Copper-DISS	<25	1.2 J	0.67 J	0.48 J	0.99 J	<25
Iron	580	930	2,400	4,400	3,400	3,600
Iron-DISS	470	870	2,900	4,200	3,900	3,300
Lead	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Lead-DISS	<3.0	0.72 J	<3.0	<3.0	<3.0	<3.0
Magnesium	30,000	29,000	35,000	48,000	48,000	41,000
Magnesium-DISS	30,000	30,000	43,000	44,000	56,000	40,000
Manganese	49	41	50	80	72	57
Manganese-DISS	49	48	61	75	78	56
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	<0.20	0.088 J
Molybdenum	2.0 B	<10	<10	2.3 J	2.2 J	1.6 J

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)					
Top of Screen Depth (ft bls)	55	55	55	55	55	55
Sample Date	05/03/04	07/28/05	12/08/06	02/20/07	05/09/07	08/07/07
Sample ID	GWGM-29 (5/3/04)	GWGM-29 (07/28/05)	GWGM-29 (12/8/06)	GWGM-29 (2/20/07)	GWGM-29 (5/9/07)	GWGM-29 (8/7/07)
Molybdenum-DISS	2.4 B	1.7 J	1.9 J	2.2 J	2.4 J	1.7 J
Nickel	<25	0.15 J	<25	0.24 J	0.35 J	<25
Nickel-DISS	<25	9.3 J	0.29 J	0.50 J	0.42 J	<25
Potassium	2,500	1,900	2,000	2,900	2,700	2,300
Potassium-DISS	2,500	2,100	2,700	2,600	3,000	2,300
Selenium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silver-DISS	<0.20	**0.29**	<0.20	<0.20	<0.20	<0.20
Sodium	3,900	3,700	4,800	7,100	6,300	6,000
Sodium-DISS	4,000	4,600	6,000	6,400	7,600	6,000
Thallium	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Thallium-DISS	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	1.8 B	2.9 J	1.1 J	4.1 J	2.1 J	2.4 J
Titanium-DISS	<50	2.5 J	3.1 J	2.5 J	2.3 J	1.8 J
Vanadium	<20	<20	<20	<20	<20	3.1 J B
Vanadium-DISS	<20	<20	<20	<20	<20	2.7 J B
Zinc	1.5 B	<20	6.8 J	6.0 J B	3.7 J	<20
Zinc-DISS	<20	15 J	44 B	5.4 J B	5.6 J B	<20

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29		GM-30			GM-31		
Top of Screen Depth (ft bls)	55	55	75	75	75	105	105	105
Sample Date	11/06/07	11/06/07	10/27/98	05/12/99	05/12/99	10/24/98	05/03/99	10/09/00
Sample ID	DUP-999(11/6/07)	GWGM-29(11/6/07)	GWGM-30	GWGM-30	GWGM-83	GWGM-31	GWGM-31	GWGM-31
Aluminum	<200	<200	<200	<200	<200	<200	<200	NA
Aluminum-DISS	<200	<200	NA	NA	NA	NA	NA	NA
Antimony	<50	<50	<50	<50	<50	<50	<50	NA
Antimony-DISS	<50	<50	NA	NA	NA	NA	NA	NA
Arsenic	13 J	15 J	15	<5	<5	13	<5	NA
Arsenic-DISS	15 J	13 J	NA	NA	NA	NA	NA	NA
Barium	84 J	93 J	280	<200	<200	<200 J	<200	NA
Barium-DISS	96 J	88 J	NA	NA	NA	NA	NA	NA
Beryllium	<1.0	<1.0	<5	<5	<5	<5	<5	NA
Beryllium-DISS	<1.0	<1.0	NA	NA	NA	NA	NA	NA
Cadmium	<0.50	<0.50	<0.5	<0.5	<0.5	<0.5	<0.5	NA
Cadmium-DISS	<0.50	<0.50	NA	NA	NA	NA	NA	NA
Calcium	43,000	54,000	110,000	140,000	130,000	62,000	63000 J	NA
Calcium-DISS	47,000	47,000	NA	NA	NA	NA	NA	64,000
Chromium	<5.0	<5.0	<50	<50	<50	<50 J	<50	NA
Chromium-DISS	<5.0	<5.0	NA	NA	NA	NA	NA	NA
Cobalt	0.13 J	0.14 J	<50	<50	<50	<50 J	<50	NA
Cobalt-DISS	0.14 J	0.14 J	NA	NA	NA	NA	NA	NA
Copper	<25	<25	<25	<25	<25	<25 J	<25	NA
Copper-DISS	<25	<25	NA	NA	NA	NA	NA	NA
Iron	1,300	1,600	9,300	2,600	2,400	5,900 J	4,100	NA
Iron-DISS	1,400	1,400	NA	NA	NA	NA	NA	4,800
Lead	<3.0	<3.0	<3	<3	<3	<3	<3	NA
Lead-DISS	<3.0	<3.0	NA	NA	NA	NA	NA	NA
Magnesium	32,000	39,000	48,000	59,000	57,000	28,000 J	29,000	NA
Magnesium-DISS	34,000	35,000	NA	NA	NA	NA	NA	29000
Manganese	34	38	730	1,400	1,300	1,000	940 J	NA
Manganese-DISS	37	38	NA	NA	NA	NA	NA	NA
Mercury	<0.20	<0.20	<0.2	<0.2	<0.2	<0.2	<0.2	NA
Mercury-DISS	<0.20	<0.20	NA	NA	NA	NA	NA	NA
Molybdenum	<10	1.6 J	<100	<100	<100	<100 J	<100	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29		GM-30			GM-31		
Top of Screen Depth (ft bls)	55	55	75	75	75	105	105	105
Sample Date	11/06/07	11/06/07	10/27/98	05/12/99	05/12/99	10/24/98	05/03/99	10/09/00
Sample ID	DUP-999(11/6/07)	GWGM-29(11/6/07)	GWGM-30	GWGM-30	GWGM-83	GWGM-31	GWGM-31	GWGM-31
Molybdenum-DISS	1.5 J	<10	NA	NA	NA	NA	NA	NA
Nickel	<25	<25	<50	<50	<50	<50 J	<50	NA
Nickel-DISS	<25	<25	NA	NA	NA	NA	NA	NA
Potassium	2,300 B	2,200 B	6,600	12,000	12,000	2,300	3,100	NA
Potassium-DISS	2,500	2,300	NA	NA	NA	NA	NA	2,500
Selenium	<5.0	<5.0	<5	<5	<5	<5	<5	NA
Selenium-DISS	<5.0	<5.0	NA	NA	NA	NA	NA	NA
Silver	<0.20	**0.10 J**	<0.5	<0.5	<0.5	<0.5	<0.5	NA
Silver-DISS	<0.20	**0.091 J B**	NA	NA	NA	NA	NA	NA
Sodium	5,100 B	6,200 B	28,000	41,000	40,000	7,900	9,800	NA
Sodium-DISS	5,500 B	5,500 B	NA	NA	NA	NA	NA	10,000 J
Thallium	<2.0	<2.0	<2	<2	<2	<2	<2	NA
Thallium-DISS	<2.0	<2.0	NA	NA	NA	NA	NA	NA
Titanium	2.0 J	2.3 J	<50	<50	<50	<50 J	<50	NA
Titanium-DISS	2.1 J	2.0 J	NA	NA	NA	NA	NA	NA
Vanadium	<20	<20	<20	<20	<20	<20 J	<20	NA
Vanadium-DISS	1.0 J	0.81 J	NA	NA	NA	NA	NA	NA
Zinc	11 J	<20	<20	<20	<20	<20 J	<20	NA
Zinc-DISS	<20	<20	NA	NA	NA	NA	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-32						GM-33	GM-34A
Top of Screen Depth (ft bls)	135	135	135	135	135	135	74	30
Sample Date	10/25/98	04/27/99	09/25/03	05/26/04	05/26/04	09/25/03	05/10/99	10/08/98
Sample ID	GWGM-32	GWGM-32	GM-32	GWGM-32(5/26/04)	GWGM-32(5/26/04)-DL	GM-32-DL	GWGM-33	GWGM-34A
Aluminum	<200	<200	1,000	420	NA	NA	<200	<200
Aluminum-DISS	NA	NA	<200	26 B	NA	NA	NA	NA
Antimony	<50	<50	<50	<50	NA	NA	<50	<50
Antimony-DISS	NA	NA	<50	<50	NA	NA	NA	NA
Arsenic	**170**	62	150	150	NA	NA	<5 J	<5
Arsenic-DISS	NA	NA	140	120	NA	NA	NA	NA
Barium	220 J	200	350	**590**	NA	NA	<200	<200
Barium-DISS	NA	NA	330	**430**	NA	NA	NA	NA
Beryllium	<5	<5	<1.0	0.23 B	NA	NA	<5	<5
Beryllium-DISS	NA	NA	<1.0	0.22 B	NA	NA	NA	NA
Cadmium	<0.5	<1 M	<0.50	<0.50	NA	NA	<0.5	<0.5
Cadmium-DISS	NA	NA	<0.50	<0.50	NA	NA	NA	NA
Calcium	1,500,000	1,600,000	NA	NA	1,000,000	1,200,000	58,000	40,000
Calcium-DISS	NA	NA	NA	NA	1,100,000	1,200,000	NA	NA
Chromium	<50 J	<50	***57***	***86***	NA	NA	<50	<50
Chromium-DISS	NA	NA	***43***	**32**	NA	NA	NA	NA
Cobalt	<50 J	<50	<10	<10	NA	NA	<50	<50
Cobalt-DISS	NA	NA	<10	<10	NA	NA	NA	NA
Copper	***100 J***	<25	<25	**15 B**	NA	NA	<25	<25
Copper-DISS	NA	NA	<25	<25	NA	NA	NA	NA
Iron	220,000 J	230,000	190,000	140,000	NA	NA	410	<20
Iron-DISS	NA	NA	180,000	140,000	NA	NA	NA	NA
Lead	<3	<10 M	<3.0	<3.0	NA	NA	<3	<3
Lead-DISS	NA	NA	<3.0	<3.0	NA	NA	NA	NA
Magnesium	500,000 J	560,000	440,000	370,000	NA	NA	26,000	17,000
Magnesium-DISS	NA	NA	440,000	390,000	NA	NA	NA	NA
Manganese	1,000	1,100	950	730	NA	NA	150	<5
Manganese-DISS	NA	NA	910	810	NA	NA	NA	NA
Mercury	<0.2	<0.2	<0.20	<0.20	NA	NA	<0.2	<0.2
Mercury-DISS	NA	NA	<0.20	<0.20	NA	NA	NA	NA
Molybdenum	<100 J	<100	<10	0.92 B	NA	NA	<100	<100

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-32						GM-33	GM-34A
Top of Screen Depth (ft bls)	135	135	135	135	135	135	74	30
Sample Date	10/25/98	04/27/99	09/25/03	05/26/04	05/26/04	09/25/03	05/10/99	10/08/98
Sample ID	GWGM-32	GWGM-32	GM-32	GWGM-32(5/26/04)	GWGM-32(5/26/04)-DL	GM-32-DL	GWGM-33	GWGM-34A
Molybdenum-DISS	NA	NA	<10	<10	NA	NA	NA	NA
Nickel	<50 J	<50	<25	41	NA	NA	<50	<50
Nickel-DISS	NA	NA	<25	4.3 B	NA	NA	NA	NA
Potassium	9,500	10,000	16,000	13,000	NA	NA	2,300	1,300
Potassium-DISS	NA	NA	16,000	14,000	NA	NA	NA	NA
Selenium	<5	<5	<5.0	**6.4**	NA	NA	<5	<5
Selenium-DISS	NA	NA	<5.0	5.0 B	NA	NA	NA	NA
Silver	<0.5	<2.5 M	<0.20	<0.20	NA	NA	<0.5	<0.5
Silver-DISS	NA	NA	<0.20	<0.20	NA	NA	NA	NA
Sodium	63,000	69,000	NA	NA	51,000	70,000	3,400	34,000
Sodium-DISS	NA	NA	NA	NA	55,000	69,000	NA	NA
Thallium	<2	<5 M	<2.0	1.2 B	NA	NA	<2	<2
Thallium-DISS	NA	NA	<2.0	0.80 B	NA	NA	NA	NA
Titanium	1,900 J	1,600	1,300	760	NA	NA	<50	<50
Titanium-DISS	NA	NA	1200	450	NA	NA	NA	NA
Vanadium	**200 J**	**160**	**130**	**87**	NA	NA	<20	<20
Vanadium-DISS	NA	NA	**130**	**47**	NA	NA	NA	NA
Zinc	48 J	22	43	39	NA	NA	<20	<20
Zinc-DISS	NA	NA	20	13 B	NA	NA	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-34A (continued)			GM-34B			
Top of Screen Depth (ft bls)	30	30	30	85	85	85	85
Sample Date	04/17/99	04/29/04	04/29/04	10/12/98	04/14/99	09/24/03	04/28/04
Sample ID	GWGM-34A	GWGM-34A (4/29/04)	GWGM-34A (4/29/04)-DL	GWGM-34B	GWGM-34B	GM-34B	GWGM-34B (4/28/04)
Aluminum	<200	31 B	NA	<200	<200	<200	66 B
Aluminum-DISS	NA	<200	NA	NA	NA	<200	<200
Antimony	<50	<50	NA	<50	<50	<50	<50
Antimony-DISS	NA	<50	NA	NA	NA	<50	<50
Arsenic	<5	<20	NA	<5	<5 J	<20	<20
Arsenic-DISS	NA	<20	NA	NA	NA	<20	<20
Barium	<200	25 B	NA	<200	<200	<100	86 B
Barium-DISS	NA	24 B	NA	NA	NA	<100	84 B
Beryllium	<5	<1.0	NA	<5	<5	<1.0	<1.0
Beryllium-DISS	NA	<1.0	NA	NA	NA	<1.0	<1.0
Cadmium	<0.5	<0.50	NA	<0.5	<0.5	<0.50	<0.50
Cadmium-DISS	NA	<0.50	NA	NA	NA	<0.50	<0.50
Calcium	53,000	41,000	NA	37,000	45,000	67,000	61,000
Calcium-DISS	NA	40,000	NA	NA	NA	63,000	60,000
Chromium	<50	1.7 B	NA	<50	<50	<5.0	1.4 B
Chromium-DISS	NA	1.5 B	NA	NA	NA	<5.0	<5.0
Cobalt	<50	<10	NA	<50	<50	<10	<10
Cobalt-DISS	NA	<10	NA	NA	NA	<10	<10
Copper	<25	<25	NA	<25	<25	<25	3.3 B
Copper-DISS	NA	<25	NA	NA	NA	<25	2.2 B
Iron	<20	59 B	NA	<20	<20	390	100
Iron-DISS	NA	<100	NA	NA	NA	<100	<100
Lead	<3	<3.0	NA	<3	<3	<3.0	1.8 B
Lead-DISS	NA	<3.0	NA	NA	NA	<3.0	1.6 B
Magnesium	23,000	17,000	NA	16,000	21,000	31,000	28,000
Magnesium-DISS	NA	16,000	NA	NA	NA	30,000	28,000
Manganese	<5	3.2 B	NA	150	200	170	110
Manganese-DISS	NA	<20	NA	NA	NA	62	45
Mercury	<0.2	<0.20	NA	<0.2	<0.2	<0.20	<0.20
Mercury-DISS	NA	<0.20	NA	NA	NA	<0.20	<0.20
Molybdenum	<100	1.1 B	NA	<100	<100	<10	1.1 B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-34A (continued)			GM-34B			
Top of Screen Depth (ft bls)	30	30	30	85	85	85	85
Sample Date	04/17/99	04/29/04	04/29/04	10/12/98	04/14/99	09/24/03	04/28/04
Sample ID	GWGM-34A	GWGM-34A (4/29/04)	GWGM-34A (4/29/04)-DL	GWGM-34B	GWGM-34B	GM-34B	GWGM-34B (4/28/04)
Molybdenum-DISS	NA	<10	NA	NA	NA	<10	2.2 B
Nickel	<50	<25	NA	<50	<50	<25	1.4 B
Nickel-DISS	NA	<25	NA	NA	NA	<25	1.4 B
Potassium	1,100	1,800	NA	8,700	3,300	3,500	3,400
Potassium-DISS	NA	1,800	NA	NA	NA	3,400	3,400
Selenium	<5	<5.0	NA	<5	<5	<5.0	<5.0
Selenium-DISS	NA	<5.0	NA	NA	NA	<5.0	<5.0
Silver	<0.5	<0.20	NA	<0.5	<0.5	<0.20	<0.20
Silver-DISS	NA	**0.065 B**	NA	NA	NA	<0.20	<0.20
Sodium	11,000	NA	62,000	26,000	17,000	NA	NA
Sodium-DISS	NA	NA	63,000	NA	NA	NA	NA
Thallium	<2	<2.0	NA	<2	<2	<2.0	<2.0
Thallium-DISS	NA	<2.0	NA	NA	NA	<2.0	<2.0
Titanium	<50	1.6 B	NA	<50	<50	<50	3.1 B
Titanium-DISS	NA	<50	NA	NA	NA	<50	<50
Vanadium	<20	1.3 B	NA	<20	<20	<20	1.1 B
Vanadium-DISS	NA	0.99 B	NA	NA	NA	<20	0.83 B
Zinc	<20	2.2 B	NA	<20	<20	<20	5.3 B
Zinc-DISS	NA	1.6 B	NA	NA	NA	<20	5.5 B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-34B		GM-35			GM-36		
Top of Screen Depth (ft bls)	85	85	40	40	40	95	95	95
Sample Date	04/28/04	09/24/03	11/04/98	05/04/99	05/04/99	11/03/98	05/05/99	05/04/04
Sample ID	GWGM-34B (4/28/04)-DL	GM-34B-DL	GWGM-35	GWGM-35	GWGM-84	GWGM-36	GWGM-36	GWGM-36 (5/4/04)
Aluminum	NA	NA	<200	<200	<200	<200	<200	590
Aluminum-DISS	NA	NA	NA	NA	NA	NA	NA	30 B
Antimony	NA	NA	<50	<50	<50	<50	<50	<50
Antimony-DISS	NA	NA	NA	NA	NA	NA	NA	<50
Arsenic	NA	NA	<5	<5	<5	<5	<5	<20
Arsenic-DISS	NA	NA	NA	NA	NA	NA	NA	<20
Barium	NA	NA	<200	<200 J	<200 J	<200	<200 J	49 B
Barium-DISS	NA	NA	NA	NA	NA	NA	NA	43 B
Beryllium	NA	NA	<5	<5	<5	<5	<5	<1.0
Beryllium-DISS	NA	NA	NA	NA	NA	NA	NA	<1.0
Cadmium	NA	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50
Cadmium-DISS	NA	NA	NA	NA	NA	NA	NA	<0.50
Calcium	NA	NA	180,000	130,000 J	130,000 J	77,000	64,000 J	81,000
Calcium-DISS	NA	NA	NA	NA	NA	NA	NA	78,000
Chromium	NA	NA	<50	<50 J	<50 J	<50	<50 J	**13**
Chromium-DISS	NA	NA	NA	NA	NA	NA	NA	<5.0
Cobalt	NA	NA	<50	<50 J	<50 J	<50	<50 J	1.2 B
Cobalt-DISS	NA	NA	NA	NA	NA	NA	NA	<10
Copper	NA	NA	<25	<25 J	<25 J	<25	<25 J	***83***
Copper-DISS	NA	NA	NA	NA	NA	NA	NA	***52***
Iron	NA	NA	14,000	5,600	5,500	<20	<20	960
Iron-DISS	NA	NA	NA	NA	NA	NA	NA	12 B
Lead	NA	NA	<3	<3	<3	<3	<3	<3.0
Lead-DISS	NA	NA	NA	NA	NA	NA	NA	<3.0
Magnesium	NA	NA	61,000	43,000	42,000	38,000	32,000	41,000
Magnesium-DISS	NA	NA	NA	NA	NA	NA	NA	40,000
Manganese	NA	NA	1,400	800 J	790 J	18	33 J	190
Manganese-DISS	NA	NA	NA	NA	NA	NA	NA	7.4 B
Mercury	NA	NA	<0.2 J	<0.2	<0.2	***14***	<0.2	<0.20
Mercury-DISS	NA	NA	NA	NA	NA	NA	NA	<0.20
Molybdenum	NA	NA	<100	<100	<100	<100	<100	<10

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-34B		GM-35			GM-36		
Top of Screen Depth (ft bls)	85	85	40	40	40	95	95	95
Sample Date	04/28/04	09/24/03	11/04/98	05/04/99	05/04/99	11/03/98	05/05/99	05/04/04
Sample ID	GWGM-34B (4/28/04)-DL	GM-34B-DL	GWGM-35	GWGM-35	GWGM-84	GWGM-36	GWGM-36	GWGM-36 (5/4/04)
Molybdenum-DISS	NA	NA	NA	NA	NA	NA	NA	<10
Nickel	NA	NA	<50	<50 J	<50 J	<50	<50 J	9.0 B
Nickel-DISS	NA	NA	NA	NA	NA	NA	NA	3.4 B
Potassium	NA	NA	3,300	3,200	3,100	2,000	1,800	2,700
Potassium-DISS	NA	NA	NA	NA	NA	NA	NA	2,600
Selenium	NA	NA	<5	<5	<5	<5	<5	<5.0
Selenium-DISS	NA	NA	NA	NA	NA	NA	NA	<5.0
Silver	NA	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20
Silver-DISS	NA	NA	NA	NA	NA	NA	NA	<0.20
Sodium	45,000	39,000	12,000	10,000 J	11,000 J	23,000	21,000 J	NA
Sodium-DISS	44,000	37,000	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	<2	<2	<2	<2	<2	<2.0
Thallium-DISS	NA	NA	NA	NA	NA	NA	NA	<2.0
Titanium	NA	NA	<50	<50	<50	<50	<50	26 B
Titanium-DISS	NA	NA	NA	NA	NA	NA	NA	<50
Vanadium	NA	NA	<20	<20	<20	<20	<20	2.1 B
Vanadium-DISS	NA	NA	NA	NA	NA	NA	NA	0.58 B
Zinc	NA	NA	<20	<20 J	<20 J	<20	<20 J	7.2 B
Zinc-DISS	NA	NA	NA	NA	NA	NA	NA	4.0 B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-36 (continued)	GM-37A				GM-37B		
Top of Screen Depth (ft bls)	95	144	144	144	144	328	328	328
Sample Date	05/04/04	11/18/98	05/11/99	09/25/03	05/17/04	10/13/98	05/14/99	09/25/03
Sample ID	GWGM-36 (5/4/04)-DL	GWGM-37A	GWGM-37A	GM-37A	GWGM-37A (5/17/04)	GWGM-37B	GWGM-37B	GM-37B
Aluminum	NA	<200	<200	3,100	5,100	<200	<200	<200
Aluminum-DISS	NA	NA	NA	<200	13 B	NA	NA	<200
Antimony	NA	<50	<50	<50	<50	<50	<50	<50
Antimony-DISS	NA	NA	NA	<50	<50	NA	NA	<50
Arsenic	NA	54	74	55	63	81	76	61
Arsenic-DISS	NA	NA	NA	53	57	NA	NA	58
Barium	NA	**840**	**820**	**580**	**620**	**890**	**960**	**820**
Barium-DISS	NA	NA	NA	**540**	**590**	NA	NA	**800**
Beryllium	NA	<5	<5	<1.0	0.24 B	<5	<5	<1.0
Beryllium-DISS	NA	NA	NA	<1.0	<1.0	NA	NA	<1.0
Cadmium	NA	<0.5	<0.5	<0.50	<0.50	<0.5	<0.5	<0.50
Cadmium-DISS	NA	NA	NA	<0.50	<0.50	NA	NA	<0.50
Calcium	NA	350,000	370,000	270,000	270,000	850,000	780,000	NA
Calcium-DISS	NA	NA	NA	270,000	260,000	NA	NA	NA
Chromium	NA	***120***	<50	***36***	**29**	<50	<50	**18**
Chromium-DISS	NA	NA	NA	**18**	**14**	NA	NA	**16**
Cobalt	NA	<50	<50	<10	6.3 B	<50	<50	<10
Cobalt-DISS	NA	NA	NA	<10	1.5 B	NA	NA	<10
Copper	NA	***41***	<25	<25	**22 B**	***52***	<25	***52***
Copper-DISS	NA	NA	NA	<25	<25	NA	NA	<25
Iron	NA	75,000 J	79,000	63,000	66,000	95,000	100,000	64,000
Iron-DISS	NA	NA	NA	56,000	53,000	NA	NA	63,000
Lead	NA	<3	<3	<3.0	1.6 B	<3	<3	<3.0
Lead-DISS	NA	NA	NA	<3.0	<3.0	NA	NA	<3.0
Magnesium	NA	150,000	160,000	110,000	120,000	410,000	450,000	340,000
Magnesium-DISS	NA	NA	NA	110,000	110,000	NA	NA	330,000
Manganese	NA	1,800	1,100	790	770	770	840	470
Manganese-DISS	NA	NA	NA	680	490	NA	NA	470
Mercury	NA	<0.2	<0.2	<0.20	<0.20	<0.2	<0.2	<0.20
Mercury-DISS	NA	NA	NA	<0.20	<0.20	NA	NA	<0.20
Molybdenum	NA	<100	<100	<10	6.3 B	<100	<100	<10

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-36 (continued)	GM-37A				GM-37B		
Top of Screen Depth (ft bls)	95	144	144	144	144	328	328	328
Sample Date	05/04/04	11/18/98	05/11/99	09/25/03	05/17/04	10/13/98	05/14/99	09/25/03
Sample ID	GWGM-36 (5/4/04)-DL	GWGM-37A	GWGM-37A	GM-37A	GWGM-37A (5/17/04)	GWGM-37B	GWGM-37B	GM-37B
Molybdenum-DISS	NA	NA	NA	<10	2.0 B	NA	NA	<10
Nickel	NA	<50	<50	<25	15 B	<50	<50	<25
Nickel-DISS	NA	NA	NA	<25	2.5 B	NA	NA	<25
Potassium	NA	7,900	9,100	15,000	9,400	8,300	19,000	11,000
Potassium-DISS	NA	NA	NA	14,000	7,000	NA	NA	11,000
Selenium	NA	<5	<5	<5.0	<5.0	<5	<5	<5.0
Selenium-DISS	NA	NA	NA	<5.0	<5.0	NA	NA	<5.0
Silver	NA	<0.5	<0.5	<0.20	**0.18 B**	**0.58**	<0.5	<0.20
Silver-DISS	NA	NA	NA	<0.20	<0.20	NA	NA	<0.20
Sodium	43,000	25,000	24,000	25,000	20,000	45,000	51,000	NA
Sodium-DISS	42,000	NA	NA	24,000	19,000	NA	NA	NA
Thallium	NA	<2	<2	<2.0	<2.0	<2	<2	<2.0
Thallium-DISS	NA	NA	NA	<2.0	<2.0	NA	NA	<2.0
Titanium	NA	260	250	190	270	980	1,100	630
Titanium-DISS	NA	NA	NA	53	55	NA	NA	600
Vanadium	NA	**110**	**98**	**45**	**51**	**79**	**79**	**42**
Vanadium-DISS	NA	NA	NA	**32**	**27**	NA	NA	**40**
Zinc	NA	55	<20	25	38	<20	<20	94
Zinc-DISS	NA	NA	NA	<20	10 B	NA	NA	<20

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-37B (continued)			GM-38A			GM-38B
Top of Screen Depth (ft bls)	328	328	328	95	95	95	160
Sample Date	05/27/04	05/27/04	09/25/03	10/13/98	10/13/98	04/15/99	10/14/98
Sample ID	GWGM-37B (5/27/04)	GWGM-37B(5/27/04)-DL	GM-37B-DL	GWGM-38A	GWGM-98	GWGM-38A	GWGM-38B
Aluminum	15 B	NA	NA	<200	<200	<200	<200
Aluminum-DISS	14 B	NA	NA	NA	NA	NA	NA
Antimony	<50	NA	NA	<50	<50	<50	<50
Antimony-DISS	<50	NA	NA	NA	NA	NA	NA
Arsenic	54	NA	NA	<5	<5	<5 J	<5
Arsenic-DISS	57	NA	NA	NA	NA	NA	NA
Barium	**770**	NA	NA	<200	<200	<200	<200
Barium-DISS	**790**	NA	NA	NA	NA	NA	NA
Beryllium	<1.0	NA	NA	<5	<5	<5	<5
Beryllium-DISS	<1.0	NA	NA	NA	NA	NA	NA
Cadmium	<0.50	NA	NA	<0.5	<0.5	<0.5	<0.5
Cadmium-DISS	<0.50	NA	NA	NA	NA	NA	NA
Calcium	NA	600,000	570,000	47,000	48,000	48,000	44,000
Calcium-DISS	NA	600,000	560,000	NA	NA	NA	NA
Chromium	**14**	NA	NA	<50	<50	<50	<50
Chromium-DISS	**15**	NA	NA	NA	NA	NA	NA
Cobalt	<10	NA	NA	<50	<50	<50	<50
Cobalt-DISS	<10	NA	NA	NA	NA	NA	NA
Copper	1.4 B	NA	NA	<25	<25	<25	<25
Copper-DISS	<25	NA	NA	NA	NA	NA	NA
Iron	62,000	NA	NA	<20	<20	<20	35
Iron-DISS	65,000	NA	NA	NA	NA	NA	NA
Lead	<3.0	NA	NA	<3	<3	<3	<3
Lead-DISS	<3.0	NA	NA	NA	NA	NA	NA
Magnesium	320,000	NA	NA	20,000	20,000	20,000	24,000
Magnesium-DISS	330,000	NA	NA	NA	NA	NA	NA
Manganese	480	NA	NA	9.2	11	6	140
Manganese-DISS	480	NA	NA	NA	NA	NA	NA
Mercury	<0.20	NA	NA	<0.2	<0.2	<0.2	<0.2
Mercury-DISS	<0.20	NA	NA	NA	NA	NA	NA
Molybdenum	<10	NA	NA	<100	<100	<100	<100

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-37B (continued)			GM-38A			GM-38B
Top of Screen Depth (ft bls)	328	328	328	95	95	95	160
Sample Date	05/27/04	05/27/04	09/25/03	10/13/98	10/13/98	04/15/99	10/14/98
Sample ID	GWGM-37B (5/27/04)	GWGM-37B(5/27/04)-DL	GM-37B-DL	GWGM-38A	GWGM-98	GWGM-38A	GWGM-38B
Molybdenum-DISS	<10	NA	NA	NA	NA	NA	NA
Nickel	1.7 B	NA	NA	<50	<50	<50	<50
Nickel-DISS	1.6 B	NA	NA	NA	NA	NA	NA
Potassium	11,000	NA	NA	1,500	1,500	1,300	2,300
Potassium-DISS	12,000	NA	NA	NA	NA	NA	NA
Selenium	3.5 B	NA	NA	<5	<5	<5	<5
Selenium-DISS	3.7 B	NA	NA	NA	NA	NA	NA
Silver	<0.20	NA	NA	<0.5	<0.5	<0.5	<0.5
Silver-DISS	<0.20	NA	NA	NA	NA	NA	NA
Sodium	NA	43,000	46,000	12,000	12,000	10,000	3,000
Sodium-DISS	NA	44,000	45,000	NA	NA	NA	NA
Thallium	0.60 B	NA	NA	<2	<2	<2	<2
Thallium-DISS	0.50 B	NA	NA	NA	NA	NA	NA
Titanium	590	NA	NA	<50	<50	<50	<50
Titanium-DISS	620	NA	NA	NA	NA	NA	NA
Vanadium	**41**	NA	NA	<20	<20	<20	<20
Vanadium-DISS	**42**	NA	NA	NA	NA	NA	NA
Zinc	10 B	NA	NA	<20	<20	<20	<20
Zinc-DISS	7.2 B	NA	NA	NA	NA	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-38B (continued)	GM-38C			GM-39			GM-40A	
Top of Screen Depth (ft bls)	160	200	200	200	85	85	85	75	75
Sample Date	04/29/99	10/20/98	10/20/98	04/30/99	10/12/98	04/15/99	04/15/99	10/26/98	04/28/99
Sample ID	GWGM-38B	GWGM-38C	GWGM-97	GWGM-38C	GWGM-39	GWGM-39	GWGM-89	GWGM-40A	GWGM-40A
Aluminum	<200	<200	<200	<200	<200	<200	<200	<200	<200
Aluminum-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	<50	<50	<50	<50	<50	<50	<50	<50	<50
Antimony-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	<5	<5	<5	<5	6.1	6.8 J	6.9 J	<5	<5
Arsenic-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	<200	<200	<200	<200	<200	<200	<200	<200 J	<200
Barium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	<5	<5	<5	<5	<5	<5	<5	<5	<5
Beryllium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cadmium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	38,000	36,000	36,000	30,000 J	47,000	47,000	45,000	19,000	20,000
Calcium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	<50	<50	<50	<50	<50	<50	<50	<50 J	<50
Chromium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	<50	<50	<50	<50	<50	<50	<50	<50 J	<50
Cobalt-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	<25	<25	<25	<25	<25	<25	<25	<25 J	<25
Copper-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	<20	27	29	<20	59	210	160	<20 J	<20
Iron-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	<3	<3	<3	<3	<3	<3	<3	<3	<3
Lead-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	22,000	17,000	17,000	15,000	23,000	25,000	25,000	5,900 J	6,000
Magnesium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	98	150	150	140 J	530	850	840	18	18
Manganese-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	<0.2	<0.2 J	<0.2 J	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Mercury-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum	<100	<100	<100	<100	<100	<100	<100	<100 J	<100

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-38B (continued)	GM-38C			GM-39			GM-40A	
Top of Screen Depth (ft bls)	160	200	200	200	85	85	85	75	75
Sample Date	04/29/99	10/20/98	10/20/98	04/30/99	10/12/98	04/15/99	04/15/99	10/26/98	04/28/99
Sample ID	GWGM-38B	GWGM-38C	GWGM-97	GWGM-38C	GWGM-39	GWGM-39	GWGM-89	GWGM-40A	GWGM-40A
Molybdenum-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	<50	<50	<50	<50	<50	<50	<50	<50 J	<50
Nickel-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	7,100	2,100	2,100	1,800	1,600	2,200	2,000	1,200	1,300
Potassium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	<5	<5	<5	<5	<5	<5	<5	<5	<5
Selenium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Silver-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	5,200	8,900	9,100	5,100	20,000	14,000	14,000	5,200	4,800
Sodium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	<2	<2	<2	<2	<2	<2	<2	<2	<2
Thallium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Titanium	<50	<50	<50	<50	<50	<50	<50	<50 J	<50
Titanium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	<20	<20	<20	<20	<20	<20	<20	<20 J	<20
Vanadium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	<20	<20	<20	<20	<20	<20	<20	<20 J	<20
Zinc-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-40A (continued)	GM-40B				GM-41	
Top of Screen Depth (ft bls)	75	120	120	120	120	40	40
Sample Date	05/03/04	10/26/98	04/27/99	05/19/04	05/19/04	10/19/98	04/16/99
Sample ID	GWGM-40A (5/3/04)	GWGM-40B	GWGM-40B	GWGM-40B (5/19/04)	GWGM-40B (5/19/04)-DL	GWGM-41	GWGM-41
Aluminum	76 B	<200	<200	22 B	NA	<200	<200
Aluminum-DISS	<200	NA	NA	23 B	NA	NA	NA
Antimony	<50	<50	<50	<50	NA	<50	<50
Antimony-DISS	<50	NA	NA	<50	NA	NA	NA
Arsenic	8.4 B	110	150	97	NA	9.5	15 J
Arsenic-DISS	6.9 B	NA	NA	95	NA	NA	NA
Barium	21 B	**580**	**480**	**1,000**	NA	<200	<200
Barium-DISS	22 B	NA	NA	**1,000**	NA	NA	NA
Beryllium	<1.0	<5	<5	<1.0	NA	<5	<5
Beryllium-DISS	<1.0	NA	NA	<1.0	NA	NA	NA
Cadmium	<0.50	<0.5	<1 M	<0.50	NA	<0.5	<0.5
Cadmium-DISS	<0.50	NA	NA	<0.50	NA	NA	NA
Calcium	23,000	1,400,000	960,000	NA	900,000	130,000	110,000
Calcium-DISS	23,000	NA	NA	NA	890,000	NA	NA
Chromium	2.9 B	<50	<50	**14**	NA	<50	<50
Chromium-DISS	<5.0	NA	NA	**13**	NA	NA	NA
Cobalt	<10	<50	<50	<10	NA	<50	<50
Cobalt-DISS	<10	NA	NA	<10	NA	NA	NA
Copper	8.0 B	***50***	<25	<25	NA	<25	<25
Copper-DISS	<25	NA	NA	<25	NA	NA	NA
Iron	180	92,000	57,000	37,000	NA	12,000	14,000
Iron-DISS	23 B	NA	NA	38,000	NA	NA	NA
Lead	<3.0	<3	<10 M	<3.0	NA	<3	<3
Lead-DISS	<3.0	NA	NA	<3.0	NA	NA	NA
Magnesium	7,200	360,000	270,000	270,000	NA	41,000	38,000
Magnesium-DISS	7100	NA	NA	270,000	NA	NA	NA
Manganese	28	680	470	270	NA	710	360
Manganese-DISS	21	NA	NA	270	NA	NA	NA
Mercury	<0.20	<0.2	<0.2	<0.20	NA	<0.2 J	<0.2
Mercury-DISS	<0.20	NA	NA	<0.20	NA	NA	NA
Molybdenum	1.9 B	<100	<100	<10	NA	<100	<100

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-40A (continued)	GM-40B				GM-41	
Top of Screen Depth (ft bls)	75	120	120	120	120	40	40
Sample Date	05/03/04	10/26/98	04/27/99	05/19/04	05/19/04	10/19/98	04/16/99
Sample ID	GWGM-40A (5/3/04)	GWGM-40B	GWGM-40B	GWGM-40B (5/19/04)	GWGM-40B (5/19/04)-DL	GWGM-41	GWGM-41
Molybdenum-DISS	1.8 B	NA	NA	<10	NA	NA	NA
Nickel	1.7 B	<50	<50	3.3 B	NA	<50	<50
Nickel-DISS	2.0 B	NA	NA	3.1 B	NA	NA	NA
Potassium	1,500	12,000	10,000	NA	12,000	<1,000 M	4,500
Potassium-DISS	1,500	NA	NA	NA	13,000	NA	NA
Selenium	<5.0	<5	<5	**8**	NA	<5	<5
Selenium-DISS	<5.0	NA	NA	**7.9**	NA	NA	NA
Silver	<0.20	<0.5	<2.5 M	<0.20	NA	<0.5	<0.5
Silver-DISS	<0.20	NA	NA	<0.20	NA	NA	NA
Sodium	5,100	95,000	75,000	NA	88,000	32,000	38,000
Sodium-DISS	5400	NA	NA	NA	89,000	NA	NA
Thallium	<2.0	<2	<5 M	<2.0	NA	<2	<2
Thallium-DISS	<2.0	NA	NA	<2.0	NA	NA	NA
Titanium	4.9 B	960	480	360	NA	<50	<50
Titanium-DISS	<50	NA	NA	350	NA	NA	NA
Vanadium	0.40 B	**87**	**57**	**39**	NA	<20	<20
Vanadium-DISS	<20	NA	NA	**38**	NA	NA	NA
Zinc	5.1 B	36	<20	3.9 B	NA	<20	<20
Zinc-DISS	<20	NA	NA	4.9 B	NA	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-42		GM-49	GM-50		GM-51		GM-52	GM-53A
Top of Screen Depth (ft bls)	72	72	83.5	80.5	80.5	67	67	75	79
Sample Date	10/20/98	04/16/99	04/17/99	10/14/98	04/17/99	10/20/98	04/18/99	04/19/99	04/19/99
Sample ID	GWGM-42	GWGM-42	GWGM-49	GWGM-50	GWGM-50	GWGM-51	GWGM-51	GWGM-52	GWGM-53A
Aluminum	<200	<200	<200	<200	<200	<200	<200	<200	<200
Aluminum-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	<50	<50	<50	<50	<50	<50	<50	<50	<50
Antimony-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	<5	7	<5	<5	<5	5.4	<5	<5	<5 J
Arsenic-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	<200	<200	<200	<200	370	<200	<200	<200	<200
Barium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	<5	<5	<5	<5	<5	<5	<5	<5	<5
Beryllium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cadmium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	130,000	120,000	91,000	140,000	140,000	65,000	73,000	65,000	53,000
Calcium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	<50	<50	<50	<50	<50	<50	<50	<50	<50
Chromium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	<50	<50	<50	<50	<50	<50	<50	<50	<50
Cobalt-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	<25	<25	<25	<25	<25	<25	<25	<25	<25
Copper-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	3,900	2,800	490	2,500	15,000	75	380	<20	2,300
Iron-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	<3	<3	<3	<3	<3	<3	<3	<3	<3
Lead-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	71,000	65,000	55,000	36,000	100,000	31,000	34,000	24,000	23,000
Magnesium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	660	310	63	1,600	560	70	100	79	**2,000**
Manganese-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	<0.2 J	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Mercury-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum	<100	<100	<100	<100	<100	<100	<100	<100	<100

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-42		GM-49	GM-50		GM-51		GM-52	GM-53A
Top of Screen Depth (ft bls)	72	72	83.5	80.5	80.5	67	67	75	79
Sample Date	10/20/98	04/16/99	04/17/99	10/14/98	04/17/99	10/20/98	04/18/99	04/19/99	04/19/99
Sample ID	GWGM-42	GWGM-42	GWGM-49	GWGM-50	GWGM-50	GWGM-51	GWGM-51	GWGM-52	GWGM-53A
Molybdenum-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	<50	<50	<50	<50	<50	<50	<50	<50	<50
Nickel-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	3,400	2,700	2,600	3,300	11,000	2,500	2,200	1,000	2,300
Potassium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	<5	<5	<5	<5	<5	<5	<5	<5	<5 J
Selenium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	<0.5	<0.5	<0.5	<0.5	<0.5	**0.63**	<0.5	<0.5	<0.5
Silver-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	7,200	6,400	5,900	49,000	17,000	4,200	6,300	1,800	19,000
Sodium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	<2	<2	<2	<2	<2	<2	<2	<2	<2
Thallium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Titanium	<50	<50	<50	<50	<50	<50	<50	<50	<50
Titanium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	<20	<20	<20	<20	<20	<20	<20	<20	<20
Vanadium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	<20	<20	<20	28	<20	<20	<20	<20	<20
Zinc-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-53B		GM-54		GM-55			GM-56		GM-57
Top of Screen Depth (ft bls)	195	195	80	80	75	75	75	32	32	76
Sample Date	11/05/98	05/01/99	10/24/98	05/01/99	10/24/98	05/01/99	05/01/99	10/21/98	04/20/99	04/20/99
Sample ID	GWGM-53B	GWGM-53B	GWGM-54	GWGM-54	GWGM-55	GWGM-55	GWGM-85	GWGM-56	GWGM-56	GWGM-57
Aluminum	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
Aluminum-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Antimony-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	20	<5	<5	15	21	<5	74	<5	<5	<5
Arsenic-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	280	300	<200 J	<200	<200 J	<200	<200	<200	<200	<200
Barium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Beryllium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cadmium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	130,000	110,000 J	27,000	29,000 J	82,000	70,000 J	77,000 J	66,000	85,000	74,000
Calcium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	<50	<50	<50 J	<50	<50 J	<50	<50	<50	<50	<50
Chromium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	<50	<50	<50 J	<50	<50 J	<50	<50	<50	<50	<50
Cobalt-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	<25	<25	<25 J	<25	<25 J	<25	<25	<25	<25	<25
Copper-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	8,300	13,000	<20	400	3,000 J	2,200	2,500	<20	230	44
Iron-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Lead-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	110,000	99,000	10,000 J	11,000	45,000 J	37,000	42,000	27,000	33,000	37,000
Magnesium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	720	120 J	39 J	37 J	630	610 J	670 J	580	570	160
Manganese-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	<0.2 J	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Mercury-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum	<100	<100	<100 J	<100	<100 J	<100	<100	<100	<100	<100

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-53B		GM-54		GM-55			GM-56		GM-57
Top of Screen Depth (ft bls)	195	195	80	80	75	75	75	32	32	76
Sample Date	11/05/98	05/01/99	10/24/98	05/01/99	10/24/98	05/01/99	05/01/99	10/21/98	04/20/99	04/20/99
Sample ID	GWGM-53B	GWGM-53B	GWGM-54	GWGM-54	GWGM-55	GWGM-55	GWGM-85	GWGM-56	GWGM-56	GWGM-57
Molybdenum-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	<50	<50	<50 J	<50	<50 J	<50	<50	<50	<50	<50
Nickel-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	3,700	2,800	1,600	1,500	3,100	2,300	2,500	2,200	2,500	2,200
Potassium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	<5	<5	<5	<5	<5	<5	<5	<5	<5 J	<5
Selenium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Silver-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	7,900	7,800	2,900	2,700	25,000	19,000	21,000	26,000	8,200	22,000
Sodium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Thallium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Titanium	<50	<50	<50 J	<50	<50 J	<50	<50	<50	<50	<50
Titanium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	<20	<20	<20 J	<20	<20 J	<20	<20	<20	<20	<20
Vanadium-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	<20	<20	<20 J	<20	<20 J	<20	<20	<20	<20	<20
Zinc-DISS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-58	GM-59		GM-60	GM-61	GM-62A	
Top of Screen Depth (ft bls)	75	114	114	102	138	90	90
Sample Date	04/26/99	11/17/98	04/28/99	05/12/99	05/03/99	08/23/99	05/11/04
Sample ID	GWGM-58	GWGM-59	GWGM-59	GWGM-60	GWGM-61	GWGM-62A	GWGM-62A (5/11/04)
Aluminum	<200	<200	<200	<200	<200	20 B	39 B
Aluminum-DISS	NA	NA	NA	NA	NA	NA	40 B
Antimony	<50	<50	<50	<50	<50	2.2 B	<50
Antimony-DISS	NA	NA	NA	NA	NA	NA	<50
Arsenic	<5	<5	<5	<5	<5	16 B	10 B
Arsenic-DISS	NA	NA	NA	NA	NA	NA	8.2 B
Barium	<200	<200	<200	<200	<200	160	71 B
Barium-DISS	NA	NA	NA	NA	NA	NA	65 B
Beryllium	<5	<5	<5	<5	<5	<1.0	<1.0
Beryllium-DISS	NA	NA	NA	NA	NA	NA	<1.0
Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50 *F5
Cadmium-DISS	NA	NA	NA	NA	NA	NA	<0.50 *F5
Calcium	65,000	61,000	63,000	110,000	62,000	160,000 J	150,000
Calcium-DISS	NA	NA	NA	NA	NA	NA	140,000
Chromium	<50	<50	<50	<50	<50	6.7	10
Chromium-DISS	NA	NA	NA	NA	NA	NA	2.8 B
Cobalt	<50	<50	<50	<50	<50	2.5 B	1.8 B
Cobalt-DISS	NA	NA	NA	NA	NA	NA	1.6 B
Copper	<25	<25	<25	<25	<25	<25	4.4 B
Copper-DISS	NA	NA	NA	NA	NA	NA	<25
Iron	24	78 J	150	<20	<130	12,000	5,900
Iron-DISS	NA	NA	NA	NA	NA	NA	4,300
Lead	<3	<3	<3	<3	<3	<3.0	<3.0
Lead-DISS	NA	NA	NA	NA	NA	NA	<3.0
Magnesium	33,000	25,000	27,000	60,000	31,000	71,000	62,000
Magnesium-DISS	NA	NA	NA	NA	NA	NA	60,000
Manganese	74	210	150	9.6	730	1,600	910
Manganese-DISS	NA	NA	NA	NA	NA	NA	870
Mercury	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20
Mercury-DISS	NA	NA	NA	NA	NA	NA	<0.20
Molybdenum	<100	<100	<100	<100	<100	14 J	2.2 B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-58	GM-59		GM-60	GM-61	GM-62A	
Top of Screen Depth (ft bls)	75	114	114	102	138	90	90
Sample Date	04/26/99	11/17/98	04/28/99	05/12/99	05/03/99	08/23/99	05/11/04
Sample ID	GWGM-58	GWGM-59	GWGM-59	GWGM-60	GWGM-61	GWGM-62A	GWGM-62A (5/11/04)
Molybdenum-DISS	NA	NA	NA	NA	NA	NA	6.8 B
Nickel	<50	<50	<50	<50	<50	4.5 B	8.3 B
Nickel-DISS	NA	NA	NA	NA	NA	NA	7.8 B
Potassium	2,100	1,700	1,700	2,200	15,000	15,000 J	NA
Potassium-DISS	NA	NA	NA	NA	NA	NA	NA
Selenium	<5	<5	<5	<5	<5	<25	<5.0
Selenium-DISS	NA	NA	NA	NA	NA	NA	<5.0
Silver	<0.5	<0.5	<0.5	<0.5	<36	**0.14 B**	<0.20
Silver-DISS	NA	NA	NA	NA	NA	NA	<0.20
Sodium	12,000	6,700	7,800	43,000	52,000	11,000	17,000
Sodium-DISS	NA	NA	NA	NA	NA	NA	16,000
Thallium	<2	<2	<2	<2	<2	<2.0	0.40 B*F5
Thallium-DISS	NA	NA	NA	NA	NA	NA	<2.0 *F5
Titanium	<50	<50	<50	<50	<50	5.3 B	3.4 B
Titanium-DISS	NA	NA	NA	NA	NA	NA	1.6 B
Vanadium	<20	<20	<20	<20	<20	7.4 B	7.0 B
Vanadium-DISS	NA	NA	NA	NA	NA	NA	6.3 B
Zinc	<20	21	<20	<20	<20	1.8 B	**210**
Zinc-DISS	NA	NA	NA	NA	NA	NA	17 B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-62A (continued)	GM-62B				GM-62C
Top of Screen Depth (ft bls)	90	195	195	195	195	315
Sample Date	05/11/04	08/24/99	08/24/99	05/19/04	05/19/04	08/24/99
Sample ID	GWGM-62A (5/11/04)-DL	GWGM-62B	GWGM-82	GWGM-62B (5/19/04)	GWGM-62B (5/19/04)-DL	GWGM-62C
Aluminum	NA	68 B	77 B	81 B	NA	55 B
Aluminum-DISS	NA	NA	NA	21 B	NA	NA
Antimony	NA	4.1 B	3.4 B	2.0 B	NA	8.7 B
Antimony-DISS	NA	NA	NA	<50	NA	NA
Arsenic	NA	59	63	92	NA	110
Arsenic-DISS	NA	NA	NA	89	NA	NA
Barium	NA	**1,100**	**1,100**	**820**	NA	**950**
Barium-DISS	NA	NA	NA	**780**	NA	NA
Beryllium	NA	<1.0	<1.0	<1.0	NA	0.44 B
Beryllium-DISS	NA	NA	NA	<1.0	NA	NA
Cadmium	NA	<0.50	<0.50	<0.50	NA	<0.50
Cadmium-DISS	NA	NA	NA	<0.50	NA	NA
Calcium	NA	650,000 J	680,000 J	NA	460,000	470,000 J
Calcium-DISS	NA	NA	NA	NA	490,000	NA
Chromium	NA	**30**	**31**	**13**	NA	**22**
Chromium-DISS	NA	NA	NA	**13**	NA	NA
Cobalt	NA	16	17	2.6 B	NA	5.6 B
Cobalt-DISS	NA	NA	NA	1.4 B	NA	NA
Copper	NA	4.7 B	2.6 B	4.0 B	NA	3.9 B
Copper-DISS	NA	NA	NA	<25	NA	NA
Iron	NA	48,000	50,000	39,000	NA	63,000
Iron-DISS	NA	NA	NA	43,000	NA	NA
Lead	NA	<3.0	<3.0	<3.0	NA	5.6
Lead-DISS	NA	NA	NA	<3.0	NA	NA
Magnesium	NA	280,000	290,000	230,000	NA	320,000
Magnesium-DISS	NA	NA	NA	240,000	NA	NA
Manganese	NA	**4,900**	**5,200**	220	NA	380
Manganese-DISS	NA	NA	NA	280	NA	NA
Mercury	NA	<0.20	<0.20	<0.20	NA	<0.20
Mercury-DISS	NA	NA	NA	<0.20	NA	NA
Molybdenum	NA	4.5 J	5.0 J	<10	NA	11 J

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-62A (continued)	GM-62B				GM-62C
Top of Screen Depth (ft bls)	90	195	195	195	195	315
Sample Date	05/11/04	08/24/99	08/24/99	05/19/04	05/19/04	08/24/99
Sample ID	GWGM-62A (5/11/04)-DL	GWGM-62B	GWGM-82	GWGM-62B (5/19/04)	GWGM-62B (5/19/04)-DL	GWGM-62C
Molybdenum-DISS	NA	NA	NA	<10	NA	NA
Nickel	NA	9.4 B	10 B	14 B	NA	7.5 B
Nickel-DISS	NA	NA	NA	8.7 B	NA	NA
Potassium	20,000	9100 J	9300 J	NA	53,000	8,500 J
Potassium-DISS	19,000	NA	NA	NA	41,000	NA
Selenium	NA	<10	<25	**5.4**	NA	<10
Selenium-DISS	NA	NA	NA	**6.3**	NA	NA
Silver	NA	<0.20	<0.20	<0.20	NA	<0.20
Silver-DISS	NA	NA	NA	<0.20	NA	NA
Sodium	NA	29,000	31,000	NA	29,000	30,000
Sodium-DISS	NA	NA	NA	NA	28,000	NA
Thallium	NA	<2.0	<2.0	<2.0	NA	<2.0
Thallium-DISS	NA	NA	NA	<2.0	NA	NA
Titanium	NA	240	250	100	NA	340
Titanium-DISS	NA	NA	NA	98	NA	NA
Vanadium	NA	**83**	**85**	**32**	NA	**16 B**
Vanadium-DISS	NA	NA	NA	**30**	NA	NA
Zinc	NA	20 B	13 B	18 B	NA	11 B
Zinc-DISS	NA	NA	NA	3.0 B	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-62C (continued)		GM-63A				GM-63B
Top of Screen Depth (ft bls)	315	315	45	45	45	45	105
Sample Date	05/18/04	05/18/04	08/29/00	09/19/00	09/15/03	05/05/04	02/07/01
Sample ID	GWGM-62C (5/18/04)	GWGM-62C (5/18/04)-DL	GWGM-63A	GWGM-63A	GM-63A	GWGM-63A (5/5/04)	GWGM-63B
Aluminum	12 B	NA	NA	NA	<200	34 B	<150
Aluminum-DISS	<200	NA	<200	<200	<200	29 B	<66
Antimony	<50	NA	NA	NA	<50	<50	<50
Antimony-DISS	<50	NA	<50	<50	<50	<50	NA
Arsenic	15 B	NA	NA	NA	<20	10 B	30 J
Arsenic-DISS	17 B	NA	3.4 B	<9.7	<20	11 B	30 J
Barium	67 B	NA	NA	NA	**410**	**600**	34 B
Barium-DISS	130	NA	390 J	**620**	**410**	**590**	33 B
Beryllium	<1.0	NA	NA	NA	<1.0	<1.0	<1.0
Beryllium-DISS	<1.0	NA	<1.0	<1.0	<1.0	<1.0	NA
Cadmium	<0.50	NA	NA	NA	<0.50 WN	<0.50	<0.50
Cadmium-DISS	<0.50	NA	<0.50	<0.50	<0.50 WN	<0.50	<0.50
Calcium	23,000	NA	NA	NA	77000	110,000	24,000
Calcium-DISS	35,000	NA	98,000	110,000	79,000	110,000	24,000
Chromium	4.0 B	NA	NA	NA	<5.0	<5.0	<5.0
Chromium-DISS	2.2 B	NA	<5.0	<5.0	<5.0	<5.0	<5.0
Cobalt	9.5 B	NA	NA	NA	<10	<10	<10
Cobalt-DISS	7.6 B	NA	<10	<10	<10	<10	NA
Copper	8.0 B	NA	NA	NA	<25	<25	<1.6
Copper-DISS	<25	NA	<25	<1.5	<25	<25	<1.6
Iron	980	NA	NA	NA	16,000	25,000	170 J
Iron-DISS	650	NA	41 B	23,000	17,000	24,000	32 BJ
Lead	<3.0	NA	NA	NA	<3.0	<3.0	<3.0 J
Lead-DISS	1.4 B	NA	<3.0 J	<3.0	<3.0	<3.0	<3.0 J
Magnesium	68,000	NA	NA	NA	64,000	92,000	16,000
Magnesium-DISS	75,000	NA	81,000	90,000	66,000	91,000	15,000
Manganese	8.0 B	NA	NA	NA	150	190	66
Manganese-DISS	11 B	NA	190 J	210	150	180	62
Mercury	<0.20	NA	NA	NA	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	NA	<0.20	<0.20	<0.20	<0.20	<0.20
Molybdenum	39	NA	NA	NA	<10	<10	16

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-62C (continued)		GM-63A				GM-63B
Top of Screen Depth (ft bls)	315	315	45	45	45	45	105
Sample Date	05/18/04	05/18/04	08/29/00	09/19/00	09/15/03	05/05/04	02/07/01
Sample ID	GWGM-62C (5/18/04)	GWGM-62C (5/18/04)-DL	GWGM-63A	GWGM-63A	GM-63A	GWGM-63A (5/5/04)	GWGM-63B
Molybdenum-DISS	37	NA	1.3 B	<10	<10	<10	15
Nickel	36	NA	NA	NA	<25	<25	<25
Nickel-DISS	32	NA	<25	<25	<25	<25	NA
Potassium	NA	630,000	NA	NA	2,700	3,600	4,000
Potassium-DISS	NA	710,000	3,200	3,400	2,800	3,600	3,800
Selenium	<5.0	NA	NA	NA	<5.0	<5.0	<5.0 J
Selenium-DISS	2.8 B	NA	<5.0	<5.0	<5.0	<5.0	<5.0 J
Silver	<0.20	NA	NA	NA	<0.20 WN	<0.20	<0.20 J
Silver-DISS	<0.20	NA	<0.20	<0.11	<0.20 WN	<0.20	<0.20 J
Sodium	NA	130,000	NA	NA	6,600	10,000	12,000
Sodium-DISS	NA	160,000	9,100	9,900	6,900	10,000	11,000
Thallium	<2.0	NA	NA	NA	<2.0 WN	<2.0	<2.0
Thallium-DISS	<2.0	NA	<2.0	<2.0	<2.0 WN	<2.0	<2.0
Titanium	31 B	NA	NA	NA	<50	2.4 B	1.3 BJ
Titanium-DISS	33 B	NA	0.97 B	<0.82	<50	1.8 B	0.66 BJ
Vanadium	3.2 B	NA	NA	NA	<20	2.2 B	<20
Vanadium-DISS	3.7 B	NA	<20	<2.2	<20	2.1 B	<20
Zinc	6.9 B	NA	NA	NA	<20	3.6 B	<20
Zinc-DISS	8.2 B	NA	<25	<3.6	<20	3.1 B	<20

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-63B (continued)		GM-64A				GM-64B	
Top of Screen Depth (ft bls)	105	105	33	33	33	33	117	117
Sample Date	09/11/03	04/27/04	08/30/00	10/03/00	09/08/03	05/04/04	07/24/00	10/04/00
Sample ID	GM-63B	GWGM-63B (4/27/04)	GWGM-64A	GWGM-64A	GM-64A	GWGM-64A (5/4/04)	GWGM-64B	GWGM-64B
Aluminum	<200	10 B	NA	NA	<200	60 B	NA	NA
Aluminum-DISS	<200	<200	<200	<200	<200	30 B	<26	NA
Antimony	<50	<50	NA	NA	<50	<50	NA	NA
Antimony-DISS	<50	<50	<50	<50	<50	<50	<50	NA
Arsenic	27	16 B	NA	NA	24	27	NA	NA
Arsenic-DISS	29	22	23	22 J	22	27	4.0 B	NA
Barium	<100	30 B	NA	NA	**430**	**550**	NA	NA
Barium-DISS	<100	29 B	**500**	**430 J**	**430**	**530**	260	NA
Beryllium	<1.0	<1.0	NA	NA	<1.0	<1.0	NA	NA
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NA
Cadmium	<0.50	<0.50	NA	NA	<0.50 WN	<0.50	NA	NA
Cadmium-DISS	<0.50	<0.50	<0.50	<0.50	<0.50 WN	<0.50	<0.50	NA
Calcium	25,000	24,000	NA	NA	96,000	100,000	NA	NA
Calcium-DISS	25,000	24,000	100,000	86,000	95,000	100,000	120,000	120,000
Chromium	<5.0	<5.0	NA	NA	<5.0	<5.0	NA	NA
Chromium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA
Cobalt	<10	<10	NA	NA	<10	6.3 B	NA	NA
Cobalt-DISS	<10	<10	5.1 B	4.4 B	<10	6.0 B	1.4 B	NA
Copper	<25	<25	NA	NA	<20	<25	NA	NA
Copper-DISS	<25	<25	<0.60	<25	<20	<25	<0.99	NA
Iron	<100	47 B	NA	NA	11,000	16,000	NA	NA
Iron-DISS	<100	<100	13,000	10,000	11,000	16,000	190	4,300
Lead	<3.0	<3.0	NA	NA	<3.0	<3.0	NA	NA
Lead-DISS	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	NA
Magnesium	17,000	15,000	NA	NA	72,000	96,000	NA	NA
Magnesium-DISS	17,000	16,000	96,000	72,000	71,000	95,000	95,000	95,000
Manganese	44	36	NA	NA	1,600	1,400	NA	NA
Manganese-DISS	42	35	1,700	1,700	1,600	1,400	330	NA
Mercury	<0.20	<0.20	NA	NA	<0.20	<0.20	NA	NA
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	NA
Molybdenum	<10	7.9 B	NA	NA	<10	4.9 B	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-63B (continued)		GM-64A				GM-64B	
Top of Screen Depth (ft bls)	105	105	33	33	33	33	117	117
Sample Date	09/11/03	04/27/04	08/30/00	10/03/00	09/08/03	05/04/04	07/24/00	10/04/00
Sample ID	GM-63B	GWGM-63B (4/27/04)	GWGM-64A	GWGM-64A	GM-64A	GWGM-64A (5/4/04)	GWGM-64B	GWGM-64B
Molybdenum-DISS	<10 B	7.7 B	6.2 B	5.8 B	<10	5.9 B	21	NA
Nickel	<25	<25	NA	NA	<25	3.4 B	NA	NA
Nickel-DISS	<25	<25	1.8 B	1.5 B	<25	3.2 B	<25	NA
Potassium	4,000	4,200	NA	NA	3,300	3,800	NA	NA
Potassium-DISS	4,000	4,000	3,500	3,000	3,300	3,800	4,200	3,700
Selenium	<5.0	<5.0	NA	NA	<5.0	<5.0	NA	NA
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA
Silver	<0.20 W	<0.20	NA	NA	<0.20 WN	<0.20	NA	NA
Silver-DISS	<0.20 W	<0.20	<0.20	<0.15 WN	<0.20 WN	<0.20	<0.20	NA
Sodium	8,900	8,200	NA	NA	9,200	11,000	NA	NA
Sodium-DISS	9,100	8,100	9,400	7,500 J	9,300	11,000	43,000	31,000 J
Thallium	<2.0	<2.0	NA	NA	<2.0 WN	<2.0	NA	NA
Thallium-DISS	<2.0	<2.0	<2.0 J	<2.0 J	<2.0 WN	<2.0	<2.0	NA
Titanium	<50	0.61 B	NA	NA	<10	2.6 B	NA	NA
Titanium-DISS	<50	<50	1.0 B	0.54 B	<10	1.5 B	0.26 B	NA
Vanadium	<20	0.65 B	NA	NA	<10	3.7 B	NA	NA
Vanadium-DISS	<20	0.51 B	<5.2	<2.8	<10	3.0 B	<20	NA
Zinc	<20	3.4 B	NA	NA	<20	24	NA	NA
Zinc-DISS	<20	1.8 B	<4.9	<1.4	<20	0.72 B	<1.8	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-64B (continued)		GM-66A			
Top of Screen Depth (ft bls)	117	117	27	27	27	27
Sample Date	09/08/03	05/11/04	07/18/00	09/16/03	04/27/04	04/27/04
Sample ID	GM-64B	GWGM-64B (5/11/04)	GWGM-66A	GM-66A	GWGM-66A (4/27/04)	GWGM-66A (4/27/04)-DL
Aluminum	<200	15 B	NA	<200	<200	NA
Aluminum-DISS	<200	<200	<29	<200	<200	NA
Antimony	<50	<50	NA	<50	<50	NA
Antimony-DISS	<50	<50	<50	<50	<50	NA
Arsenic	<10	12 B	NA	70	78	NA
Arsenic-DISS	<10	13 B	33	72	74	NA
Barium	**410**	**410**	NA	<100	68 B	NA
Barium-DISS	**410**	**420**	49 B	<100	65 B	NA
Beryllium	<1.0	<1.0	NA	<1.0	<1.0	NA
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	<1.0	NA
Cadmium	<0.50 WN	<0.50 *F5	NA	<0.50 WN	<0.50	NA
Cadmium-DISS	<0.50 WN	<0.50 *F5	<0.50	<0.50 WN	<0.50	NA
Calcium	150,000	140,000	NA	96,000	100,000	NA
Calcium-DISS	150,000	150,000	89,000	97,000	99,000	NA
Chromium	<5.0	0.59 B	NA	<5.0	<5.0	NA
Chromium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0	NA
Cobalt	<10	2.1 B	NA	<10	<10	NA
Cobalt-DISS	<10	1.9 B	<10	<10	<10	NA
Copper	<20	<25	NA	<25	<25	NA
Copper-DISS	<20	<25	<25	<25	<25	NA
Iron	8,300	8,800	NA	4700	5,300	NA
Iron-DISS	8,000	8,900	320	4700	4,900	NA
Lead	<3.0	<3.0	NA	<3.0	<3.0	NA
Lead-DISS	<3.0	<3.0	<3.0	<3.0	<3.0	NA
Magnesium	120,000	110,000	NA	55,000	56,000	NA
Magnesium-DISS	120,000	110,000	51,000	55,000	55,000	NA
Manganese	330	280	NA	540	550	NA
Manganese-DISS	320	270	520	540	550	NA
Mercury	<0.20	<0.20	NA	<0.20	<0.20	NA
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	<0.20	NA
Molybdenum	<10	3.0 B	NA	<10	2.8 B	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-64B (continued)		GM-66A			
Top of Screen Depth (ft bls)	117	117	27	27	27	27
Sample Date	09/08/03	05/11/04	07/18/00	09/16/03	04/27/04	04/27/04
Sample ID	GM-64B	GWGM-64B (5/11/04)	GWGM-66A	GM-66A	GWGM-66A (4/27/04)	GWGM-66A (4/27/04)-DL
Molybdenum-DISS	<10	4.9 B	3.3 B	<10	3.1 B	NA
Nickel	<25	1.8 B	NA	<25	<25	NA
Nickel-DISS	<25	1.1 B	<25	<25	1.3 B	NA
Potassium	4,100	4,500	NA	3,100	3,400	NA
Potassium-DISS	4,200	4,700	2,700	3,100	3,300	NA
Selenium	<5.0	<5.0	NA	<5.0	<5.0	NA
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0	NA
Silver	<0.20 WN	<0.20	NA	<0.20 WN	<0.20	NA
Silver-DISS	<0.20 WN	<0.20	<0.20	<0.20 WN	<0.20	NA
Sodium	12,000	11,000	NA	NA	NA	43,000
Sodium-DISS	12,000	11,000	24,000	NA	NA	42,000
Thallium	<2.0 WN	0.35 B*F5	NA	<2.0 WN	<2.0	NA
Thallium-DISS	<2.0 WN	0.55 B*F5	<2.0	<2.0 WN	<2.0	NA
Titanium	<10	1.5 B	NA	<50	<50	NA
Titanium-DISS	<10	1.3 B	<50	<50	0.51 B	NA
Vanadium	<10	8.1 B	NA	<20	<20	NA
Vanadium-DISS	<10	7.8 B	<20	<20	<20	NA
Zinc	27	3.9 B	NA	<20	<20	NA
Zinc-DISS	<20	8.6 B	1.7 BJ	<20	<20	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66A (continued)		GM-66B				
Top of Screen Depth (ft bls)	27	27	125	125	125	125	125
Sample Date	07/27/05	09/16/03	07/19/00	08/03/00	09/11/03	05/10/04	07/27/05
Sample ID	GWGM66A (072705)	GM-66A-DL	GWGM-66B	GMGW-66B	GM-66B	GWGM-66B (5/10/04)	GWGM66B (072705)
Aluminum	<200	NA	NA	NA	<200	390	300
Aluminum-DISS	<200	NA	<29	<21	<200	20 B	<200
Antimony	<50	NA	NA	NA	<50	<50	<50
Antimony-DISS	<50	NA	<50	<50	<50	<50	<50
Arsenic	82	NA	NA	NA	57	60	65
Arsenic-DISS	74	NA	11	<11	57	54	56
Barium	64 J	NA	NA	NA	280	290	250
Barium-DISS	62 J	NA	220	200	280	270	240
Beryllium	<1.0	NA	NA	NA	<1.0	<1.0	<1.0
Beryllium-DISS	<1.0	NA	<1.0	<1	<1.0	<1.0	<1.0
Cadmium	<0.50	NA	NA	NA	<0.50	<0.50 *F5	<0.50
Cadmium-DISS	0.11 J	NA	<0.50	<0.5 W	<0.50	<0.50 *F5	0.12 J
Calcium	98,000	NA	NA	NA	110,000	110,000	110,000
Calcium-DISS	98,000	NA	110,000	110,000	110,000	100,000	100,000
Chromium	7	NA	NA	NA	<5.0	1.9 B	1.9 J
Chromium-DISS	<5.0	NA	<5.0	<0.82	<5.0	0.56 B	<5.0
Cobalt	0.71 J	NA	NA	NA	<10	0.88 B	1.3 J
Cobalt-DISS	0.60 J	NA	1.1 B	0.72 B	<10	<10	1.1 J
Copper	<25	NA	NA	NA	<25	<25	0.59 J
Copper-DISS	<25	NA	<25	0.51 B	<25	<25	0.61 J
Iron	6,600	NA	NA	NA	14,000	14,000	15,000
Iron-DISS	5,900	NA	170	330 J	14,000	12,000	12,000
Lead	<3.0	NA	NA	NA	<3.0	<3.0	<3.0
Lead-DISS	0.50 J	NA	<3.0	<3	<3.0	<3.0	0.60 J
Magnesium	53,000	NA	NA	NA	110,000	110,000	110,000
Magnesium-DISS	55,000	NA	130,000	130,000	120,000	110,000	100,000
Manganese	530	NA	NA	NA	36	52	39
Manganese-DISS	590	NA	240	140	36	33	33
Mercury	<0.20	NA	NA	NA	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	NA	<0.20	<0.2 J	<0.20	<0.20	<0.20
Molybdenum	1.9 J	NA	NA	NA	<10	1.4 B	1.7 J

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66A (continued)		GM-66B				
Top of Screen Depth (ft bls)	27	27	125	125	125	125	125
Sample Date	07/27/05	09/16/03	07/19/00	08/03/00	09/11/03	05/10/04	07/27/05
Sample ID	GWGM66A (072705)	GM-66A-DL	GWGM-66B	GMGW-66B	GM-66B	GWGM-66B (5/10/04)	GWGM66B (072705)
Molybdenum-DISS	2.4 J	NA	4.9 B	2.9 B	<10	1.6 B	2.1 J
Nickel	0.59 J	NA	NA	NA	<25	2.1 B	1.6 J
Nickel-DISS	0.91 J	NA	1.1 B	<25	<25	1.7 B	1.7 J
Potassium	2,400	NA	NA	NA	4,300	5,000	3,600
Potassium-DISS	2,600	NA	6,000	5,500	4,400	4,600	3,600
Selenium	<5.0	NA	NA	NA	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	NA	<5.0	<5 J	<5.0	<5.0	<5.0
Silver	<0.20	NA	NA	NA	<0.20 W	<0.20	<0.20
Silver-DISS	<0.20	NA	<0.20	<0.2 J	<0.20 W	**0.12 B**	<0.20
Sodium	40,000	39,000	NA	NA	17,000	18,000	16,000
Sodium-DISS	42,000	39,000	18,000	18,000	18,000	17,000	16,000
Thallium	0.46 J	NA	NA	NA	<2.0	0.50 B*F5	<2.0
Thallium-DISS	0.25 J	NA	<2.0	<2	<2.0	0.60 B*F5	<2.0
Titanium	2.6 J	NA	NA	NA	<50	7.7 B	11 J
Titanium-DISS	2.0 J	NA	0.29 B	<0.27	<50	2.0 B	4.6 J
Vanadium	**22**	NA	NA	NA	<20	7.6 B	3.8 J
Vanadium-DISS	<20	NA	<1.1	<2	<20	6.3 B	<20
Zinc	<20	NA	NA	NA	<20	11 B	15 J
Zinc-DISS	<20	NA	4.0 BJ	<1.4	<20	3.2 B	6.4 J

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)				
Top of Screen Depth (ft bls)	125	125	125	125	125
Sample Date	12/08/06	03/01/07	05/14/07	05/14/07	08/14/07
Sample ID	GWGM-66B (12/8/06)	GWGM-66B (3/1/07)	GWGM-66B(5/14/07)	GWGM-999 (5/14/07)	GWGM-66B (8/14/07)
Aluminum	34 J	390	270	270	240
Aluminum-DISS	<200	30 J	<200	<200	<200
Antimony	<50	<50	<50	<50	<50
Antimony-DISS	<50	<50	<50	<50	<50
Arsenic	78	76	82	73	84 B
Arsenic-DISS	92	73	67	64	84 B
Barium	190	190 B	240 B	220 B	210
Barium-DISS	210 B	190 B	180 B	170 B	200
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	<0.50	<0.50	<0.50	<0.50
Cadmium-DISS	<0.50	<0.50	<0.50	<0.50	<0.50
Calcium	80,000	65,000	97,000	86,000	85,000
Calcium-DISS	92,000	76,000	78,000	74,000	81,000
Chromium	<5.0	<5.0	<5.0	<5.0	3.0 J B
Chromium-DISS	<5.0	<5.0	<5.0	<5.0	1.7 J B
Cobalt	0.54 J	0.91 J	0.80 J	0.76 J	0.92 J
Cobalt-DISS	0.73 J	0.55 J	0.61 J	0.54 J	0.67 J
Copper	0.83 J	1.2 J	0.85 J	0.98 J	1.2 J
Copper-DISS	<25	<25	<25	<25	5.5 J
Iron	9,700	10,000	12,000	11,000	10,000
Iron-DISS	11,000	9,400	9,400	9,000	9,600
Lead	<3.0	<3.0	<3.0	<3.0	<3.0
Lead-DISS	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium	79,000	72,000	94,000	83,000	81,000
Magnesium-DISS	91,000	72,000	80,000	75,000	78,000
Manganese	35	59	49	45	47
Manganese-DISS	38	39	33	31	35
Mercury	<0.20	<0.20	<0.20	0.093 J	<0.20
Mercury-DISS	<0.20	<0.20	0.12 J	<0.20	<0.20
Molybdenum	<10	<10	1.7 J	1.5 J	1.6 J

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)				
Top of Screen Depth (ft bls)	125	125	125	125	125
Sample Date	12/08/06	03/01/07	05/14/07	05/14/07	08/14/07
Sample ID	GWGM-66B (12/8/06)	GWGM-66B (3/1/07)	GWGM-66B(5/14/07)	GWGM-999 (5/14/07)	GWGM-66B (8/14/07)
Molybdenum-DISS	1.7 J	<10	<10	1.5 J	<10
Nickel	0.97 J	1.4 J	1.3 J	1.2 J	1.3 J
Nickel-DISS	1.1 J	<25	0.70 J	0.62 J	0.89 J
Potassium	2,900	3,200	3,200	3,300	3,200
Potassium-DISS	3,600	3,000	3,000	3,200	3,000
Selenium	<5.0	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	<0.20	<0.20	<0.20	<0.20	**0.099 J**
Silver-DISS	<0.20	<0.20	<0.20	<0.20	<0.20
Sodium	14,000	13,000	17,000	15,000	14,000
Sodium-DISS	17,000	13,000	14,000	14,000	13,000
Thallium	<2.0	<2.0	<2.0	<2.0	<2.0
Thallium-DISS	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	2.9 J	11 J	6.1 J	6.0 J	7.3 J
Titanium-DISS	4.3 J	2.5 J	2.6 J	2.9 J	3.2 J
Vanadium	<20	<20	2.6 J	<20	$\boxed{\text{5.6 J B}}$
Vanadium-DISS	<20	<20	<20	<20	4.2 J B
Zinc	9.1 J	8.1 J B	5.0 J	5.4 J	7.3 J
Zinc-DISS	17 J B	7.6 J B	<20	4.9 J	<20

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)	GM-67	GM-68		GM-70	GM-71	GM-72		
Top of Screen Depth (ft bls)	125	122	140	140	42	39	43	43	43
Sample Date	11/09/07	08/07/00	08/31/00	09/26/00	08/17/00	08/21/00	08/22/00	09/24/03	01/05/04
Sample ID	GWGM-66B (11/9/07)	GWGM-67	GWGM-68	GWGM-68	GWGM-70	GWGM-71	GWGM-72	GM-72	GWGM-72
Aluminum	210	<33	NA	NA	NA	NA	NA	1,200	300
Aluminum-DISS	<200	NA	<200	<200	<36	<49	<200	<200	<200
Antimony	<50	<50	NA	NA	NA	NA	NA	<50	<50
Antimony-DISS	<50	NA	<50	<50	<50	<50	<50	<50	<50
Arsenic	86	9.7 BJ	NA	NA	NA	NA	NA	30	26
Arsenic-DISS	85 B	NA	<20 J	<2.6	7.0 B	11 B	40	28	28
Barium	200	180	NA	NA	NA	NA	NA	210	140
Barium-DISS	180	NA	69 B	63 BJ	180	87 BJ	190 J	140	100
Beryllium	<1.0	<1.0	NA	NA	NA	NA	NA	<1.0	<1.0
Beryllium-DISS	<1.0	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	<0.50	NA	NA	NA	NA	NA	<0.50	<0.50
Cadmium-DISS	<0.50	NA	<0.12 W	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Calcium	83,000	68,000	NA	NA	NA	NA	NA	NA	NA
Calcium-DISS	82,000	NA	52,000	51,000	130,000	120,000	680,000	NA	NA
Chromium	1.5 J	<5.0	NA	NA	NA	NA	NA	**14**	10
Chromium-DISS	<5.0	NA	<5.0	<5.0	<4.6	<3.3	9.9	8.9	9.2
Cobalt	0.98 J	<10	NA	NA	NA	NA	NA	<10	<10
Cobalt-DISS	0.81 J	NA	<10	<10	2.2 B	14	1.2 B	<10	<10
Copper	<25	<25	NA	NA	NA	NA	NA	***37***	<25
Copper-DISS	1.3 J	NA	<1.0	<25	<25 J	<25	<25	<25	<25
Iron	9,600	3,800	NA	NA	NA	NA	NA	4,200	1,600
Iron-DISS	9,500	NA	<100	<100	5,700	34,000	1,300	190	210
Lead	<3.0	<3.0	NA	NA	NA	NA	NA	<3.0	<3.0
Lead-DISS	<3.0	NA	<3.0	<3.0	<3.0	<3.0 J	<3.0 J	<3.0	<3.0
Magnesium	83,000	37,000	NA	NA	NA	NA	NA	27,000	27,000
Magnesium-DISS	77,000	NA	24,000	25,000	35,000	34,000	27,000	27,000	26,000
Manganese	46	1,300	NA	NA	NA	NA	NA	**2,500**	**2,200**
Manganese-DISS	33	NA	120	49 J	1,600	**2,000 J**	1,800 J	**2,400**	**2,200**
Mercury	<0.20	<0.20 J	NA	NA	NA	NA	NA	<0.20	<0.20
Mercury-DISS	<0.20	NA	<0.20	<0.20	<0.20	<0.20	**1.4**	<0.20	<0.20
Molybdenum	<10	8.1 B	NA	NA	NA	NA	NA	<10	<10

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)	GM-67	GM-68		GM-70	GM-71	GM-72		
Top of Screen Depth (ft bls)	125	122	140	140	42	39	43	43	43
Sample Date	11/09/07	08/07/00	08/31/00	09/26/00	08/17/00	08/21/00	08/22/00	09/24/03	01/05/04
Sample ID	GWGM-66B (11/9/07)	GWGM-67	GWGM-68	GWGM-68	GWGM-70	GWGM-71	GWGM-72	GM-72	GWGM-72
Molybdenum-DISS	<10	NA	28	20	6.2 B	<10	3.0 B	<10	<10
Nickel	0.84 J	<25	NA	NA	NA	NA	NA	<25	<25
Nickel-DISS	0.61 J	NA	<25	<25	<25	5.8 B	2.8 B	<25	<25
Potassium	3,100 B	2,600	NA	NA	NA	NA	NA	16,000	14,000
Potassium-DISS	3,000	NA	2,600	2,300	5,500	5,400	12,000	16,000	14,000
Selenium	<5.0	<5.0	NA	NA	NA	NA	NA	<5.0	<5.0
Selenium-DISS	<5.0	NA	<5.0 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	<0.20	<0.20	NA	NA	NA	NA	NA	<0.20	<0.20
Silver-DISS	<0.20	NA	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Sodium	14,000	17,000	NA	NA	NA	NA	NA	NA	NA
Sodium-DISS	13,000	NA	20,000 J	9,300	49,000 J	5,300	76,000	NA	NA
Thallium	<2.0	<2.0	NA	NA	NA	NA	NA	<2.0	<2.0
Thallium-DISS	<2.0	NA	<2.0 J	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	9.3 J	<0.62	NA	NA	NA	NA	NA	130	NA
Titanium-DISS	<50	NA	<0.30	<50	4.3 B	<0.49	45 B	69	NA
Vanadium	2.9 J B	1.4 B	NA	NA	NA	NA	NA	**29**	**26**
Vanadium-DISS	1.6 J	NA	<0.78	<20	<7.0	<2.4	**27**	**24**	**24**
Zinc	<20	<3.3 J	NA	NA	NA	NA	NA	<20	<20
Zinc-DISS	11 J	NA	<24	<20	3.4 B	<5.3	<9.1	<20	<20

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-72 (continued)				GM-72A		
Top of Screen Depth (ft bls)	43	43	43	43	46	46	46
Sample Date	04/16/04	04/16/04	09/24/03	01/05/04	11/08/07	07/25/05	12/12/06
Sample ID	GM-72	GM-72-DL	GM-72-DL	GWGM-72-DL	GWGM-72A (11/8/07)	GWGM-72A (07/25/05)	GWGM-72A (12/12/06)
Aluminum	990	NA	NA	NA	170 J	2,800	1,000
Aluminum-DISS	<200	NA	NA	NA	<200	16 J	77 J B
Antimony	<50	NA	NA	NA	0.39 J	2.5 J	3.2 J
Antimony-DISS	<50	NA	NA	NA	<50	<50	<50
Arsenic	21	NA	NA	NA	10 J	60 B	28
Arsenic-DISS	20	NA	NA	NA	9.0 J B	50 B	25
Barium	180	NA	NA	NA	240	390	260
Barium-DISS	110	NA	NA	NA	190	180	160 B
Beryllium	<1.0	NA	NA	NA	<1.0	0.17 J	<1.0
Beryllium-DISS	<1.0	NA	NA	NA	<1.0	<1.0	<1.0
Cadmium	<0.50	NA	NA	NA	<0.50	0.31 J	<0.50
Cadmium-DISS	<0.50	NA	NA	NA	<0.50	<0.50	<0.50
Calcium	NA	650,000	630,000	630,000	600,000	750,000	690,000
Calcium-DISS	NA	650,000	620,000	640,000	540,000	730,000	780,000 B
Chromium	**14**	NA	NA	NA	11	**21 B**	**15**
Chromium-DISS	8.3	NA	NA	NA	8.2	**12 B**	9.3
Cobalt	4.4 B	NA	NA	NA	4.1 J	12	6.1 J
Cobalt-DISS	<10	NA	NA	NA	2.7 J	1.9 J	2.1 J
Copper	***30***	NA	NA	NA	1.6 J	**15 J**	**11 J**
Copper-DISS	<25	NA	NA	NA	<25	0.81 J B	0.99 J
Iron	9,100	NA	NA	NA	14,000	15,000	35,000
Iron-DISS	170	NA	NA	NA	400	55 J	1,600
Lead	<3.0	NA	NA	NA	0.17 J	3.4	1.1 J
Lead-DISS	<3.0	NA	NA	NA	<3.0	<3.0	<3.0
Magnesium	27,000	NA	NA	NA	28,000	33,000	28,000
Magnesium-DISS	27,000	NA	NA	NA	27,000	32,000	27,000 B
Manganese	**2,300**	NA	NA	NA	**2,400**	**2,400**	**2,400**
Manganese-DISS	**2,300**	NA	NA	NA	**2,200**	**2,500**	**2,300**
Mercury	<0.20	NA	NA	NA	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	NA	NA	NA	<0.20	<0.20	<0.20
Molybdenum	1.3 B	NA	NA	NA	<10	4.5 J	1.8 J

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-72 (continued)				GM-72A		
Top of Screen Depth (ft bls)	43	43	43	43	46	46	46
Sample Date	04/16/04	04/16/04	09/24/03	01/05/04	11/08/07	07/25/05	12/12/06
Sample ID	GM-72	GM-72-DL	GM-72-DL	GWGM-72-DL	GWGM-72A (11/8/07)	GWGM-72A (07/25/05)	GWGM-72A (12/12/06)
Molybdenum-DISS	<10	NA	NA	NA	<10	<10	<10
Nickel	7.7 B	NA	NA	NA	4.5 J	17 J B	14 J
Nickel-DISS	3.6 B	NA	NA	NA	2.1 J	6.9 J	4.5 J B
Potassium	16,000	NA	NA	NA	13,000 B	10,000	11,000
Potassium-DISS	15,000	NA	NA	NA	12,000	9,800	11,000
Selenium	<5.0	NA	NA	NA	0.62 J	0.64 J	0.64 J
Selenium-DISS	<5.0	NA	NA	NA	<5.0	0.51 J	<5.0
Silver	**0.095 B*F5**	NA	NA	NA	<0.20	<0.20	<0.20
Silver-DISS	**0.085 B*F5**	NA	NA	NA	<0.20	<0.20	<0.20
Sodium	NA	140,000	120,000	120,000	230,000	88,000	170,000
Sodium-DISS	NA	140,000	120,000	120,000	220,000	88,000	170,000
Thallium	<2.0 *F5	NA	NA	NA	<2.0	<2.0	<2.0
Thallium-DISS	<2.0 *F5	NA	NA	NA	<2.0	<2.0	<2.0
Titanium	120	NA	NA	<130	120	300	190
Titanium-DISS	65	NA	NA	<130	75	140	100
Vanadium	**24**	NA	NA	NA	**32 B**	**42**	**35**
Vanadium-DISS	**22**	NA	NA	NA	**30**	**35**	**28**
Zinc	29	NA	NA	NA	7.5 J	29	67
Zinc-DISS	11 B	NA	NA	NA	9.7 J	<20	14 J

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-73	GM-74	GM-75	GM-76			GM-77	
Top of Screen Depth (ft bls)	42	34	24	3	3	3	105	105
Sample Date	09/06/00	09/07/00	09/08/00	01/29/01	01/29/01	09/09/05	09/22/03	05/11/04
Sample ID	GWGM-73	GWGM-74	GWGM-75	DUP.012901	GWGM-76	GWGM-76 (9/9/05)	GM-77	GWGM-77 (5/11/04)
Aluminum	NA	NA	NA	<99	<89	200	<200	86 B
Aluminum-DISS	<9.7	<18	<200	<32	<45	<200	<200	<200
Antimony	NA	NA	NA	<50	<50	<50	<50	<50
Antimony-DISS	<50	<50	<50	<50	<50	<50	<50	<50
Arsenic	NA	NA	NA	<20	<20	<20	<20	8.5 B
Arsenic-DISS	<20 J	<20 J	<20 J	<20	<20	<20	<20	8.4 B
Barium	NA	NA	NA	81 B	82 B	38 J	160	130
Barium-DISS	200	58 B	39 B	81 B	81 B	37 J	160	120
Beryllium	NA	NA	NA	<1.0	<1.0	<1.0	<1.0	<1.0
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	NA	NA	NA	<0.50 J	<0.50 J	<0.50	<0.50	<0.50 *F5
Cadmium-DISS	<0.11	<0.11	<0.50	<0.50 W	<0.50	<0.50	<0.50	<0.50 *F5
Calcium	NA	NA	NA	96,000	96,000	93,000	94,000	85,000
Calcium-DISS	210,000	53,000	35,000	95,000	95,000	85,000	94,000	83,000
Chromium	NA	NA	NA	<5.0	<5.0	<5.0	<5.0	1.7 B
Chromium-DISS	<5.0	<3.4	<5.0	<5.0	<5.0	<5.0	<5.0	1.3 B
Cobalt	NA	NA	NA	<10	<10	0.38 J	<10	1.3 B
Cobalt-DISS	<10	<10	<10	<10	<10	0.21 J	<10	1.1 B
Copper	NA	NA	NA	2.0 B	<2.5	1.3 J B	<25	<25
Copper-DISS	<2.5	<1.1	<2.6	<1.6	<1.5	0.65 J	<25	<25
Iron	NA	NA	NA	100 J	96 BJ	240	9,000	6,100
Iron-DISS	19 B	<15	13 B	<100 J	<100 J	<100	9,700	6,200
Lead	NA	NA	NA	<3.0	<3.0	<3.0	<3.0	<3.0
Lead-DISS	<1.4	<1.7	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium	NA	NA	NA	53,000	53,000	45,000	110,000	100,000
Magnesium-DISS	42,000	19,000	14,000	52,000	52,000	43,000	110,000	98,000
Manganese	NA	NA	NA	79	80	98	540	590
Manganese-DISS	69	16 B	170	76	76	69	490	570
Mercury	NA	NA	NA	<0.20	<0.20	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Molybdenum	NA	NA	NA	<10	<10	<10	16	18

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-73	GM-74	GM-75	GM-76			GM-77	
Top of Screen Depth (ft bls)	42	34	24	3	3	3	105	105
Sample Date	09/06/00	09/07/00	09/08/00	01/29/01	01/29/01	09/09/05	09/22/03	05/11/04
Sample ID	GWGM-73	GWGM-74	GWGM-75	DUP.012901	GWGM-76	GWGM-76 (9/9/05)	GM-77	GWGM-77 (5/11/04)
Molybdenum-DISS	<10	9.4 B	<10	<10	<10	<10	14	17
Nickel	NA	NA	NA	<25	<25	1.1 J B	<25	1.4 B
Nickel-DISS	<2.4	<25	<1.2	<25	<25	0.82 J	<25	<25
Potassium	NA	NA	NA	1,000	1,000	1,200	5,300	4,600
Potassium-DISS	19,000	3,500	1,300	960 J	970 J	1,100	5,200	4,500
Selenium	NA	NA	NA	<5.0	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	<5.0 J	<5.0 J	<5.0 J	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	NA	NA	NA	<0.20	<0.20	<0.20	<0.20	<0.20
Silver-DISS	<0.20 J	<0.20	<0.13	<0.20 W	<0.20	<0.20	<0.20	<0.20
Sodium	NA	NA	NA	4,600	4,600	7,300	20,000	17,000
Sodium-DISS	31,000 J	2,700 J	2,600 J	4,400	4,600	6,800	20,000	17,000
Thallium	NA	NA	NA	<2.0	<2.0	<2.0	<2.0	0.35 B*F5
Thallium-DISS	<2.0	<2.0	1.5 BJ	<2.0 W	<2.0	<2.0	<2.0	<2.0 *F5
Titanium	NA	NA	NA	3.1 B	3.0 B	8.6 J	<50	4.7 B
Titanium-DISS	<0.51	<0.43	<0.38	<50	<50	1.7 J	<50	1.3 B
Vanadium	NA	NA	NA	<20	<20	3.1 J	<20	8.4 B
Vanadium-DISS	<20	<1.1	<20	<20	<20	<20	<20	7.6 B
Zinc	NA	NA	NA	<6.9	<5.4	<20	<20	8.0 B
Zinc-DISS	<7.7	2.2 BJ	<3.6	<3.3	<7.9	<20	<20	1.7 B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-77 (continued)	GM-78				
Top of Screen Depth (ft bls)	105	20	20	20	20	20
Sample Date	07/28/05	09/18/03	04/29/04	07/29/05	07/29/05	12/08/06
Sample ID	GWGM-77 (072805)	GM-78 (9/18/03)	GWGM-78 (4/29/04)	GWGM-78 (7/29/05)	GWGM-998 (7/29/05)	GWGM-78 (12/8/06)
Aluminum	<200	<200	20 B	<200	17 J	41 J
Aluminum-DISS	<200	<200	<200	13 J	<200	<200
Antimony	<50	<50	<50	<50	<50	<50
Antimony-DISS	<50	<50	<50	14 J	<50	<50
Arsenic	16 J	<20	12 B	12 J	13 J	9.3 J
Arsenic-DISS	11 J	<20	6.8 B	12 J	11 J	9.3 J
Barium	120	310	280	360	380	320
Barium-DISS	110	330	280	360	340	330 B
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	<0.50 WN	<0.50	0.14 J	0.18 J	<0.50
Cadmium-DISS	<0.50	<0.50 WN	<0.50	0.10 J	<0.50	<0.50
Calcium	100,000	110,000	100,000	20,000	21,000	83,000
Calcium-DISS	99,000	110,000	110,000	100,000	99,000	87,000
Chromium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chromium-DISS	<5.0	<5.0	<5.0	4.0 J	<5.0	<5.0
Cobalt	1.6 J	<10	<10	0.25 J	0.27 J	<10
Cobalt-DISS	1.5 J	<10	<10	0.37 J	0.26 J	0.24 J
Copper	<25	<25	<25	<25	1.5 J	0.66 J
Copper-DISS	<25	<25	<25	0.47 J	<25	<25
Iron	11,000	5,200	10,000	2,200	2,300	7,600
Iron-DISS	10,000	5,500	8,900	11,000	11,000	7,900
Lead	<3.0	<3.0	<3.0	0.67 J	0.65 J	<3.0
Lead-DISS	0.50 J	<3.0	<3.0	0.66 J	<3.0	<3.0
Magnesium	110,000	56,000	48,000	47,000	51,000	48,000
Magnesium-DISS	110,000	59,000	50,000	54,000	53,000	50,000
Manganese	320	1,800	**1,900**	1,400	1,500	820
Manganese-DISS	330	1,700	**2,000**	1,500	1,500	890
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Molybdenum	5.5 J	<10	1.9 B	1.7 J	1.7 J	<10

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-77 (continued)	GM-78				
Top of Screen Depth (ft bls)	105	20	20	20	20	20
Sample Date	07/28/05	09/18/03	04/29/04	07/29/05	07/29/05	12/08/06
Sample ID	GWGM-77 (072805)	GM-78 (9/18/03)	GWGM-78 (4/29/04)	GWGM-78 (7/29/05)	GWGM-998 (7/29/05)	GWGM-78 (12/8/06)
Molybdenum-DISS	5.4 J	<10	2.0 B	1.6 J	<10	1.5 J
Nickel	0.54 J	<25	<25	0.56 J B	0.42 J B	0.23 J
Nickel-DISS	0.55 J	<25	<25	3.1 J	0.28 J	0.35 J
Potassium	4,000	3,900	3,500	2,900	3,200	2,600
Potassium-DISS	4,000	3,900	3,600	3,300	3,200	2,900
Selenium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	<0.20	<0.20 WN	<0.20	<0.20	<0.20	<0.20
Silver-DISS	<0.20	<0.20 WN	<0.20	<0.20	<0.20	<0.20
Sodium	18,000	30,000	29,000	49,000	53,000	20,000
Sodium-DISS	18,000	30,000	30,000	55,000	54,000	22,000
Thallium	<2.0	<2.0 WN	<2.0	<2.0	<2.0	<2.0
Thallium-DISS	<2.0	<2.0 WN	<2.0	<2.0	<2.0	<2.0
Titanium	4.7 J	<50	1.3 B	3.6 J	4.0 J	2.1 J
Titanium-DISS	3.8 J	<50	0.65 B	2.7 J	2.5 J	2.8 J
Vanadium	5.0 J	<20	<20	<20	<20	<20
Vanadium-DISS	4.1 J	<20	<20	<20	<20	<20
Zinc	<20	<20	38	5.4 J	5.2 J	3.7 J
Zinc-DISS	8.3 J	<20	0.83 B	8.3 J	5.9 J	6.7 J B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)					GM-79
Top of Screen Depth (ft bls)	20	20	20	20	20	25
Sample Date	02/28/07	02/28/07	05/11/07	08/14/07	11/08/07	09/18/03
Sample ID	GWGM-78 (2/28/07)	GWGM-998 (2/28/07)	GWGM-78(5/11/07)	GWGM78 (8/14/07)	GWGM-78 (11/8/07)	GM-79 (9/18/03)
Aluminum	18 J	15 J	<200	<200	<200	<200
Aluminum-DISS	13 J	<200	<200	<200	<200	<200
Antimony	<50	<50	<50	<50	<50	<50
Antimony-DISS	<50	<50	<50	<50	<50	<50
Arsenic	9.4 J	9.6 J	10 J	10 J B	11 J	<20
Arsenic-DISS	8.9 J	8.8 J	9.9 J	10 J B	10 J B	<20
Barium	310 B	320 B	320 B	350	390	230
Barium-DISS	320 B	300 B	340 B	340	360	220
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50 WN
Cadmium-DISS	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50 WN
Calcium	67,000	71,000	78,000	83,000	97,000	90,000
Calcium-DISS	80,000	80,000	86,000	82,000	90,000	84,000
Chromium	<5.0	<5.0	<5.0	1.8 J B	0.71 J	<5.0
Chromium-DISS	<5.0	<5.0	<5.0	1.5 J B	<5.0	<5.0
Cobalt	0.29 J	0.22 J	0.23 J	0.22 J	0.40 J	<10
Cobalt-DISS	0.25 J	0.22 J	0.25 J	0.22 J	0.41 J	<10
Copper	<25	<25	<25	2.3 J	<25	<25
Copper-DISS	<25	0.41 J	<25	<25	<25	<25
Iron	7,400	7,500	7,100	6,600	7,100	4,300
Iron-DISS	7,000	7,000	7,000	6,400	6,700	4,300
Lead	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Lead-DISS	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium	43,000	44,000	42,000	42,000	50,000	37,000
Magnesium-DISS	45,000	44,000	46,000	43,000	45,000	35,000
Manganese	850	860	860	840	900	1,500
Manganese-DISS	870	900	860	820	810	1,400
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Molybdenum	<10	1.5 J	<10	1.9 J	1.6 J	<10

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)					GM-79
Top of Screen Depth (ft bls)	20	20	20	20	20	25
Sample Date	02/28/07	02/28/07	05/11/07	08/14/07	11/08/07	09/18/03
Sample ID	GWGM-78 (2/28/07)	GWGM-998 (2/28/07)	GWGM-78(5/11/07)	GWGM78 (8/14/07)	GWGM-78 (11/8/07)	GM-79 (9/18/03)
Molybdenum-DISS	1.5 J	<10	1.6 J	1.6 J	1.5 J	<10
Nickel	0.21 J	0.24 J	<25	1.3 J	<25	<25
Nickel-DISS	0.33 J	<25	0.39 J	<25	<25	<25
Potassium	2,700	2,800	2,700	2,700	3,200 B	3,200
Potassium-DISS	2,700	2,700	2,800	2,700	3,000	3,000
Selenium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	<0.20	<0.20	<0.20	**0.13 J**	<0.20	<0.20 WN
Silver-DISS	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20 WN
Sodium	19,000	19,000	19,000	22,000	27,000	4,800
Sodium-DISS	20,000	20,000	21,000	22,000	24,000	4,400
Thallium	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0 WN
Thallium-DISS	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0 WN
Titanium	3.1 J	3.3 J	1.9 J	2.7 J	4.2 J	<50
Titanium-DISS	2.3 J	2.5 J	2.0 J	2.4 J	<50	<50
Vanadium	<20	<20	<20	3.9 J B	1.7 J B	<20
Vanadium-DISS	<20	<20	<20	3.6 J B	0.83 J	<20
Zinc	6.8 J B	5.2 J B	3.5 J	50	<20	<20
Zinc-DISS	5.7 J B	5.0 J B	5.7 J B	<20	<20	<20

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)					
Top of Screen Depth (ft bls)	25	25	25	25	25	25
Sample Date	04/26/04	07/29/05	12/04/06	02/22/07	02/22/07	05/09/07
Sample ID	GWGM-79 (4/26/04)	GWGM-79 (7/29/05)	GWGM-79(12/4/06)	GWGM-79 (2/22/07)	GWGM-999 (2/22/07)	GWGM-79 (5/9/07)
Aluminum	200 B	29 J	<200	15 J	14 J	<200
Aluminum-DISS	<200	<200	<200	<200	<200	<200
Antimony	<50	<50	<50	<50	<50	<50
Antimony-DISS	<50	5.4 J	<50	<50	<50	<50
Arsenic	17 B	19 J	18 J	14 J	15 J	18 J
Arsenic-DISS	15 B	19 J	19 J	13 J	14 J	20 J
Barium	280	260	160 B	180 B	200 B	180 B
Barium-DISS	290	270	170 B	190 B	190 B	230 B
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cadmium-DISS	<0.50	<0.50	<0.50	<0.50	<0.50	<0 50
Calcium	81,000	18,000	64,000	62,000	68,000	64,000
Calcium-DISS	87,000	97,000	70,000	62,000	63,000	77,000
Chromium	0.77 B	<5.0	<5.0	<5.0	<5.0	<5.0
Chromium-DISS	<5.0	2.0 J	<5.0	<5.0	<5.0	<5.0
Cobalt	4.8 B	6.1 J	3.3 J	2.8 J	3.1 J	2.9 J
Cobalt-DISS	5.0 B	6.7 J	3.5 J	3.1 J	3.1 J	3.3 J
Copper	<25	0.39 J	0.71 J B	0.67 J	0.72 J	0.80 J
Copper-DISS	<25	0.54 J	<25	0.78 J	<25	0.67 J
Iron	9,700	2,300	6,800	5,100	5,700	6,300
Iron-DISS	10,000	12,000	7,400	4,800	4,900	7,000
Lead	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Lead-DISS	<3.0	0.58 J	<3.0	<3.0	<3.0	<3.0
Magnesium	35,000	40,000	27,000	27,000	29,000	27,000
Magnesium-DISS	37,000	43,000	29,000	24,000	24,000	33,000
Manganese	1,000	1,100	840	780	860	800
Manganese-DISS	1,100	1,200	930	780	780	940
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Molybdenum	2.4 B	2.5 J	3.6 J	3.3 J	3.5 J	3.5 J

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)					
Top of Screen Depth (ft bls)	**25**	**25**	**25**	**25**	**25**	**25**
Sample Date	**04/26/04**	**07/29/05**	**12/04/06**	**02/22/07**	**02/22/07**	**05/09/07**
Sample ID	**GWGM-79 (4/26/04)**	**GWGM-79 (7/29/05)**	**GWGM-79(12/4/06)**	**GWGM-79 (2/22/07)**	**GWGM-999 (2/22/07)**	**GWGM-79 (5/9/07)**
Molybdenum-DISS	2.6 B	2.3 J	4.0 J	3.3 J	3.3 J	4.4 J
Nickel	3.5 B	3.1 J B	1.5 J	1.6 J	1.6 J	1.6 J
Nickel-DISS	3.0 B	4.3 J	1.9 J	1.7 J	1.6 J	2.0 J
Potassium	2,600	2,200	2,300	4,700	5,000	2,300
Potassium-DISS	2,800	2,400	2,400	4,900	5,000	2,600
Selenium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silver-DISS	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Sodium	4,300	4,700	3,700 B	48,000	52,000	4,900
Sodium-DISS	4,600	5,100	4,000	41,000	41,000	6,000
Thallium	<2.0	0.32 J	<2.0	<2.0	<2.0	<2.0
Thallium-DISS	<2.0	<2.0	<2.0	<2.0	<2.0	0.36 J
Titanium	9.0 B	3.7 J	2.1 J	2.1 J	2.1 J	1.2 J
Titanium-DISS	0.79 B	3.2 J	2.3 J	1.8 J	1.9 J	1.9 J
Vanadium	1.0 B	<20	<20	<20	<20	<20
Vanadium-DISS	0.58 B	<20	<20	<20	<20	<20
Zinc	1.5 B	6.4 J	5.2 J B	8.5 J	7.2 J	7.3 J
Zinc-DISS	0.98 B	10 J	10 J B	7.6 J B	7.0 J B	6.6 J B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)		GM-84		
Top of Screen Depth (ft bls)	25	25	77	77	77
Sample Date	08/07/07	11/06/07	08/19/04	08/01/05	12/12/06
Sample ID	GWGM-79 (8/7/07)	GWGM-79(11/6/07)	GWGM-84 (8/19/04)	GWGM-84 (08/01/05)	GWGM-84 (12/12/06)
Aluminum	<200	<200	660	480	22 J
Aluminum-DISS	20 J	<200	<100	16 J	20 J B
Antimony	<50	<50	<25	<50	5.0 J
Antimony-DISS	<50	<50	<25	<50	<50
Arsenic	18 J B	16 J	<10	4.0 J	4.2 J
Arsenic-DISS	17 J B	15 J	2.6 B	3.7 J	4.1 J
Barium	210	210	120	96 J	110
Barium-DISS	210	220	110	95 J	110 B
Beryllium	<1.0	<1.0	<0.50	<1.0	<1.0
Beryllium-DISS	<1.0	<1.0	<0.50	<1.0	<1.0
Cadmium	<0.50	<0.50	<0.50	0.22 J	<0.50
Cadmium-DISS	<0.50	<0.50	<0.50	<0.50	<0.50
Calcium	71,000	82,000	68,000	15,000	71,000
Calcium-DISS	72,000	75,000	65,000	68,000	71,000 B
Chromium	1.2 J B	<5.0	4.2	<5.0	<5.0
Chromium-DISS	1.0 J B	<5.0	<2.5	<5.0	<5.0
Cobalt	2.9 J	2.9 J	<5.0	0.23 J	0.10 J
Cobalt-DISS	3.1 J	3.1 J	<5.0	0.22 J	0.24 J
Copper	<25	1.3 J	6.6 B	2.3 J	2.7 J
Copper-DISS	<25	<25	2.7 B	2.6 J	0.45 J
Iron	6,700	5,600	890	13 J	<100
Iron-DISS	6,500	4,800	<50	<100	<100
Lead	<3.0	<3.0	<1.5	0.88 J	<3.0
Lead-DISS	<3.0	<3.0	<1.5	0.51 J	<3.0
Magnesium	29,000	35,000	37,000	41,000	38,000
Magnesium-DISS	30,000	33,000	36,000	38,000	37,000 B
Manganese	930	940	170	100	60
Manganese-DISS	940	930	150	89	67
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20
Mercury-DISS	0.091 J	<0.20	0.081 B	<0.20	<0.20
Molybdenum	3.4 J	2.9 J	3.2 B	4.5 J	<10

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)		GM-84		
Top of Screen Depth (ft bls)	**25**	**25**	**77**	**77**	**77**
Sample Date	**08/07/07**	**11/06/07**	**08/19/04**	**08/01/05**	**12/12/06**
Sample ID	**GWGM-79 (8/7/07)**	**GWGM-79(11/6/07)**	**GWGM-84 (8/19/04)**	**GWGM-84 (08/01/05)**	**GWGM-84 (12/12/06)**
Molybdenum-DISS	3.8 J	3.5 J	3.4 B	2.1 J	<10
Nickel	1.6 J	1.6 J	3.0 B	1.3 J B	1.6 J
Nickel-DISS	1.5 J	1.4 J	<12	0.66 J	0.87 J B
Potassium	2,300	2,500 B	3,000	2,000	2,500
Potassium-DISS	2,400	2,500	2,800	2,200	2,600
Selenium	<5.0	<5.0	<2.5	<5.0	<5.0
Selenium-DISS	<5.0	<5.0	<2.5	<5.0	<5.0
Silver	<0.20	<0.20	<0.20	<0.20	<0.20
Silver-DISS	<0.20	**0.14 J B**	<0.20	<0.20	<0.20
Sodium	5,800	7,000 B	6,800	6,800	9,300
Sodium-DISS	6,000	6,600 B	6,600	7,900	9,000
Thallium	<2.0	<2.0	<2.0	<2.0	<2.0
Thallium-DISS	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	1.8 J	1.9 J	29	2.2 J	<50
Titanium-DISS	2.2 J	2.0 J	<25	1.0 J	1.1 J
Vanadium	2.2 J B	<20	1.9 B	2.9 J	<20
Vanadium-DISS	1.9 J B	<20	0.59 B	<20	<20
Zinc	<20	<20	21	6.2 J	37
Zinc-DISS	<20	<20	17	<20	11 J

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-84 (continued)				GM-87A
Top of Screen Depth (ft bls)	77	77	77	77	32
Sample Date	03/02/07	05/14/07	08/14/07	11/09/07	12/05/06
Sample ID	GWGM-84 (3/2/07)	GWGM-84 (5/14/07)	GWGM-84 (8/14/07)	GWGM-84(11/9/07)	GWGM-87A (12/5/06)
Aluminum	120 J	28 J	28 J	150 J	18 J B
Aluminum-DISS	<200	<200	<200	<200	<200
Antimony	<50	<50	<50	<50	<50
Antimony-DISS	<50	<50	<50	<50	<50
Arsenic	4.0 J	4.4 J	5.2 J B	4.8 J	20
Arsenic-DISS	3.7 J	4.6 J	5.3 J B	4.2 J B	20 J
Barium	110 B	120 B	110	120	220 B
Barium-DISS	110 B	110 B	110	100	230 B
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	<0.50	<0.50	<0.50	<0.50
Cadmium-DISS	<0.50	<0.50	<0.50	<0.50	<0.50
Calcium	57,000	70,000	70,000	71,000	82,000
Calcium-DISS	65,000	72,000	72,000	74,000	85,000
Chromium	<5.0	<5.0	1.8 J B	1.0 J	<5.0
Chromium-DISS	<5.0	<5.0	1.4 J B	<5.0	<5.0
Cobalt	0.29 J	0.25 J	0.32 J	0.52 J	2.5 J
Cobalt-DISS	0.15 J	0.24 J	0.27 J	0.39 J	2.5 J
Copper	0.71 J	<25	<25	<25	0.74 J B
Copper-DISS	**21 J**	<25	<25	<25	0.64 J
Iron	140	49 J	55 J	450	5,600
Iron-DISS	<100	<100	28 J	31 J	5,800
Lead	<3.0	<3.0	<3.0	<3.0	<3.0
Lead-DISS	0.91 J	0.88 J	<3.0	<3.0	<3.0
Magnesium	34,000	36,000	36,000	36,000	44,000
Magnesium-DISS	33,000	39,000	37,000	37,000	45,000
Manganese	110	100	100	110	1,500
Manganese-DISS	100	97	100	91	1,500
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	<0.20
Molybdenum	<10	<10	1.5 J	<10	5.7 J

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-84 (continued)				GM-87A
Top of Screen Depth (ft bls)	77	77	77	77	32
Sample Date	03/02/07	05/14/07	08/14/07	11/09/07	12/05/06
Sample ID	GWGM-84 (3/2/07)	GWGM-84 (5/14/07)	GWGM-84 (8/14/07)	GWGM-84(11/9/07)	GWGM-87A (12/5/06)
Molybdenum-DISS	<10	<10	<10	<10	6.0 J
Nickel	0.75 J	0.20 J	0.35 J	0.75 J	1.2 J
Nickel-DISS	<25	0.25 J	<25	0.46 J	1.8 J
Potassium	2,600	2,600	2,600	2,800 B	2,800
Potassium-DISS	2,600	2,600	2,600	2,900	2,700
Selenium	<5.0	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	<0.20	<0.20	<0.20	<0.20	<0.20
Silver-DISS	<0.20	<0.20	<0.20	<0.20	<0.20
Sodium	8,700	9,300	9,700	11,000	7,900 B
Sodium-DISS	8,500	9,700	9,800	10,000	7,900
Thallium	<2.0	0.33 J	<2.0	<2.0	<2.0
Thallium-DISS	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	3.0 J	<50	1.9 J	5.3 J	2.7 J
Titanium-DISS	<50	0.79 J	1.2 J	<50	2.6 J
Vanadium	<20	<20	4.0 J B	2.1 J B	<20
Vanadium-DISS	<20	<20	3.8 J B	0.93 J	<20
Zinc	7.1 J B	<20	<20	<20	6.1 J B
Zinc-DISS	18 J B	4.3 J	<20	<20	9.4 J B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)				
Top of Screen Depth (ft bls)	32	32	32	32	32
Sample Date	12/05/06	02/19/07	05/08/07	08/06/07	11/07/07
Sample ID	GWGM-999(12/5/06)	GWGM-87A (02/19/07)	GWGM-87A (5/8/07)	GWGM-87A (8/6/07)	GWGM-87A (11/7/07)
Aluminum	16 J B	170 J	71 J	32 J	120 J
Aluminum-DISS	<200	<200	16 J	<200	<200
Antimony	<50	<50	<50	2.0 J	<50
Antimony-DISS	<50	<50	<50	<50	<50
Arsenic	20	16 J	16 J	26 B	15 J
Arsenic-DISS	19 J	17 J	17 J	19 J B	18 J
Barium	230 B	180 B	180	220	140
Barium-DISS	210 B	180 B	180	200	160
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	<0.50	<0.50	<0.50	<0.50
Cadmium-DISS	<0.50	<0.50	<0.50	<0.50	<0.50
Calcium	84,000	77,000	80,000	91,000	81,000
Calcium-DISS	79,000	78,000	78,000	84,000	88,000
Chromium	<5.0	<5.0	<5.0	1.3 J B	0.79 J
Chromium-DISS	<5.0	<5.0	<5.0	1.1 J B	<5.0
Cobalt	2.5 J	2.0 J	2.0 J	2.3 J	1.7 J
Cobalt-DISS	2.4 J	2.0 J	1.9 J	2.2 J	1.7 J
Copper	0.76 J B	1.3 J	3.2 J	<25	<25
Copper-DISS	<25	<25	0.56 J	<25	<25
Iron	5,700	4,800	4,700	6,100	3,300
Iron-DISS	5,600	4,600	4,500	5,200	3,500
Lead	<3.0	<3.0	<3.0	<3.0	<3.0
Lead-DISS	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium	45,000	37,000	40,000	45,000	37,000
Magnesium-DISS	42,000	38,000	38,000	42,000	41,000
Manganese	1,500	1,500	1,200	1,500	1,200
Manganese-DISS	1,400	1,500	1,200	1,400	1,300
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	<0.20
Molybdenum	5.7 J	5.8 J	5.2 J	5.4 J	4.7 J

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)				
Top of Screen Depth (ft bls)	32	32	32	32	32
Sample Date	12/05/06	02/19/07	05/08/07	08/06/07	11/07/07
Sample ID	GWGM-999(12/5/06)	GWGM-87A (02/19/07)	GWGM-87A (5/8/07)	GWGM-87A (8/6/07)	GWGM-87A (11/7/07)
Molybdenum-DISS	5.9 J	6.1 J	4.8 J	5.5 J	4.6 J
Nickel	1.2 J	1.4 J	1.0 J B	1.2 J	0.64 J
Nickel-DISS	1.6 J	1.2 J	1.4 J	1.2 J	0.71 J
Potassium	2,800	2,700	2,400	2,600	2,200 B
Potassium-DISS	2,500	3,000	2,300	2,500	2,400
Selenium	<5.0	<5.0	<5.0	1.7 J	<5.0
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	<0.20	<0.20	<0.20	<0.20	<0.20
Silver-DISS	<0.20	<0.20	<0.20	<0.20	**0.12 J B**
Sodium	8,000 B	7,000	7,600	7,600	6,800
Sodium-DISS	7,400	7,100	7,300	7,400	7,300 B
Thallium	<2.0	<2.0	<2.0	<2.0	<2.0
Thallium-DISS	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	2.9 J	9.5 J	4.7 J	3.7 J	8.3 J
Titanium-DISS	2.5 J	1.5 J	2.1 J	2.4 J	2.6 J
Vanadium	<20	<20	<20	3.2 J B	2.2 J B
Vanadium-DISS	<20	<20	<20	2.5 J B	1.1 J
Zinc	6.9 J B	11 J	14 J B	<20	<20
Zinc-DISS	5.1 J B	6.6 J B	4.7 J	<20	6.8 J

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87B					GM-118D
Top of Screen Depth (ft bls)	117	117	117	117	117	54
Sample Date	12/05/06	02/20/07	05/08/07	08/06/07	11/07/07	10/21/98
Sample ID	GWGM-87A(12/5/06)	GWGM-87B (2/20/07)	GWGM-87B (5/8/07)	GWGM-87B (8/6/07)	GWGM-87B (11/7/07)	GWGM-118D
Aluminum	17 J B	120 J	77 J	60 J	140 J	<200
Aluminum-DISS	16 J B	<200	52 J	<200	<200	NA
Antimony	<50	<50	<50	0.68 J	<50	<50
Antimony-DISS	<50	<50	<50	<50	<50	NA
Arsenic	9.2 J	5.0 J	6.8 J	10 J B	7.4 J	<5
Arsenic-DISS	8.8 J	5.0 J	6.8 J	8.8 J B	4.5 J	NA
Barium	48 J B	46 J B	43 J	43 J	40 J	<200
Barium-DISS	46 J B	46 J B	41 J	40 J	23 J	NA
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0	<5
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	<1.0	NA
Cadmium	<0.50	<0.50	<0.50	<0.50	<0.50	<0.5
Cadmium-DISS	<0.50	<0.50	<0.50	<0.50	<0.50	NA
Calcium	31,000	29,000	29,000	31,000	26,000	69,000
Calcium-DISS	28,000	28,000	28,000	28,000	16,000	NA
Chromium	<5.0	<5.0	<5.0	1.7 J B	1.9 J	<50
Chromium-DISS	<5.0	<5.0	<5.0	1.2 J B	<5.0	NA
Cobalt	0.11 J	0.19 J	0.17 J	0.14 J	0.24 J	<50
Cobalt-DISS	0.13 J	0.094 J	0.16 J	0.13 J	0.072 J	NA
Copper	0.58 J B	0.61 J	0.41 J	<25	<25	<25
Copper-DISS	<25	0.44 J	<25	<25	<25	NA
Iron	980	1,100	980	1,100	1,000	<20
Iron-DISS	860	830	800	870	480	NA
Lead	<3.0	<3.0	<3.0	<3.0	<3.0	<3
Lead-DISS	<3.0	<3.0	<3.0	<3.0	<3.0	NA
Magnesium	21,000	19,000	19,000	20,000	17,000	32,000
Magnesium-DISS	18,000	18,000	18,000	18,000	11,000	NA
Manganese	240	220	210	190	150	<5
Manganese-DISS	220	210	210	170	92	NA
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20	<0.2
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	<0.20	NA
Molybdenum	7.8 J	8.2 J	7.0 J	5.5 J	5.3 J	<100

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87B					GM-118D
Top of Screen Depth (ft bls)	117	117	117	117	117	54
Sample Date	12/05/06	02/20/07	05/08/07	08/06/07	11/07/07	10/21/98
Sample ID	GWGM-87A(12/5/06)	GWGM-87B (2/20/07)	GWGM-87B (5/8/07)	GWGM-87B (8/6/07)	GWGM-87B (11/7/07)	GWGM-118D
Molybdenum-DISS	7.4 J	7.6 J	7.5 J	4.7 J	1.7 J	NA
Nickel	0.17 J	0.57 J	0.37 J B	<25	0.36 J	<50
Nickel-DISS	<25	0.20 J	0.39 J	<25	<25	NA
Potassium	3,200	2,900	2,800	2,600	2,300 B	1,800
Potassium-DISS	2,800	2,800	2,700	2,400	1,400	NA
Selenium	<5.0	<5.0	<5.0	<5.0	<5.0	<5
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0	NA
Silver	<0.20	<0.20	<0.20	<0.20	<0.20	<0.5
Silver-DISS	<0.20	<0.20	<0.20	<0.20	<0.20	NA
Sodium	3,400 B	3,300	7,500	7,500	6,300	8,200
Sodium-DISS	2,900	3,200	7,400	6,900	4,000 B	NA
Thallium	<2.0	<2.0	<2.0	<2.0	<2.0	<2
Thallium-DISS	<2.0	<2.0	0.28 J	<2.0	<2.0	NA
Titanium	2.4 J	6.0 J	4.4 J	3.3 J	6.7 J	<50
Titanium-DISS	2.0 J	2.0 J	1.4 J	1.7 J	<50	NA
Vanadium	<20	<20	<20	2.6 J B	1.9 J B	<20
Vanadium-DISS	<20	<20	<20	2.3 J B	<20	NA
Zinc	4.6 J B	5.6 J B	6.3 J B	<20	7.3 J	<20
Zinc-DISS	4.1 J B	7.5 J B	3.7 J	10 J	<20	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-118D (continued)	GMEW-3	GMEWA-1	GMEWA-2	GMEWA-3	GMEWA-4
Top of Screen Depth (ft bls)	54	135	26	26	25	20
Sample Date	04/29/99	07/24/00	04/11/05	04/12/05	04/12/05	04/12/05
Sample ID	GWGM-118D	GWGMEW-3	GWGMEWA-1	GWGMEWA-2	GWGMEWA-3	GWGMEWA-4
Aluminum	<200	NA	3,500	44 J	<200	<200
Aluminum-DISS	NA	<96	19 J	<200	17 J	17 J
Antimony	<50	NA	<50	<50	<50	<50
Antimony-DISS	NA	<50	<50	<50	<50	<50
Arsenic	<5	NA	3.3 J	23	46	25
Arsenic-DISS	NA	70	1.9 J	63	45	24
Barium	<200	NA	72 J	**430**	**1,600**	330
Barium-DISS	NA	**1,600**	44 J	**450**	**1,600**	320
Beryllium	<5	NA	<1.0	<1.0	<1.0	<1.0
Beryllium-DISS	NA	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.5	NA	<0.50	<0.50	<0.50	<0.50
Cadmium-DISS	NA	<0.50	0.11 J	<0.50	<0.50	<0.50
Calcium	73,000	NA	38,000	120,000	210,000	110,000
Calcium-DISS	NA	900,000	39,000	130,000	220,000	110,000
Chromium	<50	NA	7.5	2.5 J	4.7 J	2.3 J
Chromium-DISS	NA	**32**	<5.0	2.0 J	4.4 J	2.0 J
Cobalt	<50	NA	2.2 J	7.1 J	15	13
Cobalt-DISS	NA	15	0.36 J	7.5 J	16	12
Copper	<25	NA	7.9 J	<25	<25	<25
Copper-DISS	NA	2.2 W	<25	<25	<25	<25
Iron	<20	NA	5,600	23,000	43,000	24,000
Iron-DISS	NA	99,000	48 J	23,000	44,000	23,000
Lead	<3	NA	1.8 J	<3.0	2.5 J	<3.0
Lead-DISS	NA	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium	33,000	NA	19,000	83,000	140,000	46,000
Magnesium-DISS	NA	560,000	18,000	88,000	140,000	46,000
Manganese	<5	NA	140	340	210	220
Manganese-DISS	NA	1300	61	360	220	210
Mercury	<0.2	NA	<0.20	<0.20	<0.20	<0.20
Mercury-DISS	NA	<0.20	<0.20	<0.20	<0.20	<0.20
Molybdenum	<100	NA	2.7 J	1.9 J	2.1 J	1.6 J

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-118D (continued)	GMEW-3	GMEWA-1	GMEWA-2	GMEWA-3	GMEWA-4
Top of Screen Depth (ft bls)	54	135	26	26	25	20
Sample Date	04/29/99	07/24/00	04/11/05	04/12/05	04/12/05	04/12/05
Sample ID	GWGM-118D	GWGMEW-3	GWGMEWA-1	GWGMEWA-2	GWGMEWA-3	GWGMEWA-4
Molybdenum-DISS	NA	4.4 B	2.9 J	2.2 J	1.8 J	1.5 J
Nickel	<50	NA	5.5 J	5.8 J	15 J	13 J
Nickel-DISS	NA	29	0.45 J	6.0 J	15 J	12 J
Potassium	1,800	NA	2,200	2,900	4,400	2,600
Potassium-DISS	NA	14,000	1,600	8,700	4,500	2,500
Selenium	<5	NA	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	NA	**8**	<5.0	<5.0	<5.0	<5.0
Silver	<0.5	NA	<0.20	<0.20	<0.20	<0.20
Silver-DISS	NA	<0.20	<0.20	<0.20	<0.20	<0.20
Sodium	10,000	NA	3,900	11,000	20,000	6,900
Sodium-DISS	NA	59,000	4,100	12,000	20,000	6,700
Thallium	<2	NA	<2.0	0.26 J	<2.0	<2.0
Thallium-DISS	NA	<2.0 W	<2.0	<2.0	<2.0	<2.0
Titanium	<50	NA	180	11 J	24 J	7.7 J
Titanium-DISS	NA	1300	1.9 J	7.7 J	22 J	6.3 J
Vanadium	<20	NA	12 J	6.4 J	**13 J**	5.0 J
Vanadium-DISS	NA	**35**	2.6 J	5.5 J	12 J	4.6 J
Zinc	<20	NA	17 J	22	7.8 J	<20
Zinc-DISS	NA	***940 J***	<20	<20	<20	<20

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWA-4 (continued)	GMEWA-26		GMEWA-27
Top of Screen Depth (ft bls)	20	22	22	21
Sample Date	08/02/05	04/15/05	07/27/05	04/13/05
Sample ID	GWGMEWA4 (08/02/05)	GWGMEWA-26 (4/15/05)	GWGMEWA-26 (072705)	GWGMEWA-27 (4/13/05)
Aluminum	25 J	<200	<200	71 J
Aluminum-DISS	<200	<200	<200	<200
Antimony	<50	<50	<50	<50
Antimony-DISS	<50	<50	<50	<50
Arsenic	53	35	54	15 J
Arsenic-DISS	44	31	50	14 J
Barium	**750**	**460**	**530**	290
Barium-DISS	**690**	**460**	**530**	300
Beryllium	<1.0	<1.0	<1.0	<1
Beryllium-DISS	<1.0	<1.0	<1.0	<1
Cadmium	0.12 J	<0.50	<0.50	<0.5
Cadmium-DISS	0.12 J	<0.50	<0.50	<0.5
Calcium	200,000	110,000	140,000	76,000
Calcium-DISS	200,000	110,000	140,000	77,000
Chromium	5.1	2.1 J	2.2 J	<5
Chromium-DISS	4.0 J	2.1 J	2.2 J	<5
Cobalt	19	2.1 J	2.2 J	0.38 J
Cobalt-DISS	19	2.0 J	2.0 J	0.44 J
Copper	<25	<25	<25	<25
Copper-DISS	<25	<25	<25	<25
Iron	43,000	23,000	29,000	9,200
Iron-DISS	40,000	22,000	25,000	8,400
Lead	0.53 J	<3.0	<3.0	<3
Lead-DISS	0.61 J	<3.0	0.51 J	<3
Magnesium	140,000	100,000	160,000	43,000
Magnesium-DISS	120,000	110,000	170,000	44,000
Manganese	260	290	210	410
Manganese-DISS	260	300	220	420
Mercury	<0.20	<0.20	<0.20	<0.2
Mercury-DISS	<0.20	<0.20	<0.20	<0.2
Molybdenum	1.8 J	<10	<10	1.5 J

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWA-4 (continued)	GMEWA-26		GMEWA-27
Top of Screen Depth (ft bls)	20	22	22	21
Sample Date	08/02/05	04/15/05	07/27/05	04/13/05
Sample ID	GWGMEWA4 (08/02/05)	GWGMEWA-26 (4/15/05)	GWGMEWA-26 (072705)	GWGMEWA-27 (4/13/05)
Molybdenum-DISS	<10	<10	<10	1.5 J
Nickel	20 J B	1.4 J	1.2 J	0.48 J
Nickel-DISS	18 J	1.3 J	1.2 J	0.48 J
Potassium	4,300	3,700	4,400	2,400
Potassium-DISS	4,100	3,800	4,700	2,500
Selenium	<5.0	<5.0	<5.0	<5
Selenium-DISS	<5.0	<5.0	<5.0	<5
Silver	<0.20	<0.20	<0.20	<0.2
Silver-DISS	<0.20	<0.20	<0.20	<0.2
Sodium	17,000	11,000	15,000	11,000
Sodium-DISS	15,000	11,000	16,000	12,000
Thallium	0.28 J	<2.0	<2.0	<2
Thallium-DISS	<2.0	<2.0	<2.0	<2
Titanium	24 J	9.6 J	15 J	3.4 J
Titanium-DISS	19 J	8.2 J	13 J	3.6 J
Vanadium	**13 J**	5.6 J	7.0 J	2.7 J
Vanadium-DISS	10 J	5.1 J	7.2 J	2.5 J
Zinc	6.2 J	3.5 J	25	17 J
Zinc-DISS	8.7 J	<20	8.7 J	<20

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWA-27 (continued)	GMEWA-28	GMEWC-1	GMEWC-1A
Top of Screen Depth (ft bls)	21	25	123	117.5
Sample Date	04/13/05	04/13/05	07/26/05	04/14/05
Sample ID	GWGMEWA-999 (4/13/05)	GWGMEWA-28 (4/13/05)	GWGMEWC-1 (072605)	GWGMEWC-1A (117.5-142.5)
Aluminum	110 J	<200	77 J	<200
Aluminum-DISS	<200	<200	<200	<200
Antimony	<50	<50	<50	<50
Antimony-DISS	<50	<50	8.3 J	<50
Arsenic	15 J	12 J	29	4.4 J
Arsenic-DISS	14 J	12 J	19 J	3.5 J
Barium	300	**530**	120	40 J
Barium-DISS	310	**530**	110	38 J
Beryllium	<1	<1	<1.0	<1
Beryllium-DISS	<1	<1	<1.0	<1
Cadmium	<0.5	<0.5	<0.50	<0.5
Cadmium-DISS	<0.5	<0.5	0.11 J	<0.5
Calcium	77,000	99,000	96,000	71,000
Calcium-DISS	80,000	100,000	100,000	70,000
Chromium	<5	<5	2.3 J	<5
Chromium-DISS	<5	<5	**30**	<5
Cobalt	0.4 J	0.25 J	3.5 J	0.68 J
Cobalt-DISS	0.49 J	0.31 J	3.7 J	0.64 J
Copper	<25	<25	5.2 J	<25
Copper-DISS	<25	<25	1.6 J	<25
Iron	9,500	11,000	21,000	810
Iron-DISS	8,800	11,000	14,000	440
Lead	<3	<3	0.94 J	<3
Lead-DISS	<3	<3	0.64 J	<3
Magnesium	44,000	63,000	100,000	46,000
Magnesium-DISS	46,000	65,000	110,000	46,000
Manganese	420	590	89	130
Manganese-DISS	430	600	96	130
Mercury	<0.2	<0.2	<0.20	<0.2
Mercury-DISS	<0.2	<0.2	<0.20	<0.2
Molybdenum	<10	<10	2.1 J	2.9 J

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	**GMEWA-27 (continued)**	**GMEWA-28**	**GMEWC-1**	**GMEWC-1A**
Top of Screen Depth (ft bls)	**21**	**25**	**123**	**117.5**
Sample Date	**04/13/05**	**04/13/05**	**07/26/05**	**04/14/05**
Sample ID	**GWGMEWA-999 (4/13/05)**	**GWGMEWA-28 (4/13/05)**	**GWGMEWC-1 (072605)**	**GWGMEWC-1A (117.5-142.5)**
Molybdenum-DISS	<10	1.6 J	2.5 J	3.1 J
Nickel	0.44 J	2.1 J	6.2 J	0.81 J
Nickel-DISS	0.41 J	1.8 J	22 J	0.74 J
Potassium	2,500	5,100	3,200	2,400
Potassium-DISS	2,600	5,200	3,600	2,400
Selenium	<5	<5	<5.0	<5
Selenium-DISS	<5	<5	<5.0	<5
Silver	<0.2	<0.2	<0.20	<0.2
Silver-DISS	<0.2	<0.2	<0.20	<0.2
Sodium	12,000	37,000	16,000	16,000
Sodium-DISS	12,000	38,000	17,000	15,000
Thallium	<2	<2	<2.0	<2
Thallium-DISS	<2	<2	<2.0	<2
Titanium	3.5 J	3 J	11 J	1.6 J
Titanium-DISS	3.4 J	3.4 J	3.7 J	1.7 J
Vanadium	2.6 J	2.8 J	5.5 J	2.6 J
Vanadium-DISS	2.5 J	2.7 J	4.1 J	<20
Zinc	3.7 J	5.9 J	***260***	51
Zinc-DISS	<20	<20	**200**	5 J

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWC-1A (continued)	GMPZA-26		
Top of Screen Depth (ft bls)	117.5	20	20	20
Sample Date	04/14/05	12/06/06	39,140	08/13/07
Sample ID	GWGMEWC-1A (152.5-157.5)	GWGMPZA-26 (12/06/06)	GWGMPZA-26 (2/27/07)	GWGMPZA-26 (8/13/07)
Aluminum	<200	47 J	63 J	27 J
Aluminum-DISS	<200	<200	<200	<200
Antimony	<50	<50	<50	<50
Antimony-DISS	<50	<50	<50	<50
Arsenic	29	23	21	22 B
Arsenic-DISS	29	23	17 J	23 B
Barium	51 J	**420 B**	320 B	330
Barium-DISS	54 J	**410 B**	300 B	330
Beryllium	<1	<1.0	<1.0	<1.0
Beryllium-DISS	<1	<1.0	<1.0	<1.0
Cadmium	<0.5	<0.50	<0.50	<0.50
Cadmium-DISS	<0.5	<0.50	<0.50	<0.50
Calcium	81,000	100,000	67,000	83,000
Calcium-DISS	85,000	100,000	72,000	84,000
Chromium	<5	<5.0	<5.0	2.3 J B
Chromium-DISS	<5	<5.0	<5.0	2.0 J B
Cobalt	1.6 J	2.1 J	2.2 J	1.6 J
Cobalt-DISS	1.8 J	2.1 J	1.9 J	1.6 J
Copper	1.6 J	0.64 J	0.69 J	1.3 J
Copper-DISS	<25	<25	<25	<25
Iron	9,900	16,000	12,000	11,000
Iron-DISS	10,000	16,000	11,000	11,000
Lead	<3	<3.0	<3.0	<3.0
Lead-DISS	<3	<3.0	<3.0	<3.0
Magnesium	77,000	120,000	76,000	68,000
Magnesium-DISS	81,000	110,000	74,000	69,000
Manganese	61	120	160	190
Manganese-DISS	62	110	130	190
Mercury	<0.2	<0.20	0.15 J B	<0.20
Mercury-DISS	<0.2	<0.20	<0.20	<0.20
Molybdenum	1.6 J	<10	<10	2.4 J

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWC-1A (continued)	GMPZA-26		
Top of Screen Depth (ft bls)	117.5	20	20	20
Sample Date	04/14/05	12/06/06	39,140	08/13/07
Sample ID	GWGMEWC-1A (152.5-157.5)	GWGMPZA-26 (12/06/06)	GWGMPZA-26 (2/27/07)	GWGMPZA-26 (8/13/07)
Molybdenum-DISS	<10	<10	<10	2.1 J
Nickel	2.2 J	1.7 J	1.4 J	1.6 J
Nickel-DISS	2.2 J	1.5 J	1.2 J	1.6 J
Potassium	2,800	5,000	3,600	3,600
Potassium-DISS	2,900	4,700	3,400	3,600
Selenium	<5	<5.0	<5.0	<5.0
Selenium-DISS	<5	<5.0	<5.0	<5.0
Silver	<0.2	<0.20	<0.20	**0.098 J**
Silver-DISS	<0.2	<0.20	<0.20	**0.13 J**
Sodium	15,000	17,000	11,000	11,000
Sodium-DISS	16,000	16,000	11,000	11,000
Thallium	<2	<2.0	<2.0	<2.0
Thallium-DISS	<2	<2.0	<2.0	<2.0
Titanium	3.4 J	11 J	6.2 J	4.0 J
Titanium-DISS	4.2 J	8.4 J	2.9 J	3.3 J
Vanadium	4.4 J	2.6 J	<20	4.4 J B
Vanadium-DISS	4.3 J	<20	<20	4.1 J B
Zinc	46	4.8 J	13 J B	<20
Zinc-DISS	24	16 J B	5.8 J B	<20

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-29			GMPZA-34
Top of Screen Depth (ft bls)	18	18	18	25
Sample Date	12/06/06	02/26/07	08/10/07	12/08/06
Sample ID	GWGMPZA-29 (12/6/06)	GWGMPZA-29 (2/26/07)	GWGMPZA-29(08/10/07)	GWGMPZA-34 (12/8/06)
Aluminum	13 J	<200	<200	<200
Aluminum-DISS	<200	<200	<200	<200
Antimony	2.2 J	<50	<50	<50
Antimony-DISS	1.8 J	<50	<50	<50
Arsenic	78	25	17 J	8.5 J
Arsenic-DISS	66	20	15 J	9.3 J
Barium	**1,700 B**	390 B	150	150
Barium-DISS	**1,400 B**	340 B	130	170 B
Beryllium	<1.0	<1.0	<1.0	<1.0
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0
Cadmium	0.11 J	<0.50	<0.50	<0.50
Cadmium-DISS	<0.50	<0.50	<0.50	<0.50
Calcium	390,000	100,000	36,000	34,000
Calcium-DISS	320,000	82,000	33,000	40,000
Chromium	9.4	2.3 J	<5.0	<5.0
Chromium-DISS	7.8	1.8 J	<5.0	<5.0
Cobalt	4.5 J	0.97 J	0.33 J	0.41 J
Cobalt-DISS	4.0 J	1.0 J	0.33 J	0.61 J
Copper	<25	0.43 J	<25	1.3 J
Copper-DISS	<25	<25	<25	0.51 J
Iron	73,000	20,000	3,800	1,600
Iron-DISS	61,000	17,000	3,200	1,800
Lead	<3.0	<3.0	0.17 J	<3.0
Lead-DISS	<3.0	<3.0	<3.0	<3.0
Magnesium	600,000	170,000	35,000	28,000
Magnesium-DISS	530,000	130,000	32,000	34,000
Manganese	240	130	210	47
Manganese-DISS	200	110	190	54
Mercury	<0.20	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	<0.20	<0.20	<0.20
Molybdenum	<10	<10	2.0 J B	<10

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-29			GMPZA-34
Top of Screen Depth (ft bls)	18	18	18	25
Sample Date	12/06/06	02/26/07	08/10/07	12/08/06
Sample ID	GWGMPZA-29 (12/6/06)	GWGMPZA-29 (2/26/07)	GWGMPZA-29(08/10/07)	GWGMPZA-34 (12/8/06)
Molybdenum-DISS	<10	<10	<10	1.8 J
Nickel	4.7 J	0.97 J	0.44 J	0.48 J
Nickel-DISS	4.1 J	0.81 J	<25	0.70 J
Potassium	9,800	3,300	2,200	1,700
Potassium-DISS	8,200	3,000	2,100	2,200
Selenium	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	<5.0	<5.0	<5.0
Silver	<0.20	<0.20	<0.20	<0.20
Silver-DISS	<0.20	<0.20	<0.20	<0.20
Sodium	72,000	21,000	3,800	4,400
Sodium-DISS	60,000	17,000	3,300	5,100
Thallium	<2.0	<2.0	<2.0	<2.0
Thallium-DISS	<2.0	<2.0	<2.0	<2.0
Titanium	320	78	3.5 J	0.90 J
Titanium-DISS	230	70	2.7 J	2.4 J
Vanadium	**57**	**14 J**	1.0 J	<20
Vanadium-DISS	**46**	11 J	0.95 J	<20
Zinc	9.4 J	6.5 J	**140**	4.1 J
Zinc-DISS	11 J B	6.2 J B	7.3 J	9.8 J B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-34 (continued)		GMPZA-38		
Top of Screen Depth (ft bls)	25	25	25	25	25
Sample Date	02/26/07	08/09/07	12/07/06	12/07/06	02/23/07
Sample ID	GWGMPZA-34 (2/26/07)	GWGMPZA-34 (8/9/07)	GWGM-998 (12/7/06)	GWGMPZA38 (12/7/06)	GWGMPZA-38 (2/23/07)
Aluminum	15 J	17 J	<200	<200	19 J
Aluminum-DISS	18 J	<200	<200	<200	<200
Antimony	<50	<50	<50	<50	<50
Antimony-DISS	<50	<50	<50	<50	<50
Arsenic	9.3 J	7.9 J	17 J	16 J	18 J
Arsenic-DISS	6.8 J	7.1 J	17 J	16 J	13 J
Barium	140 B	140	98 J	96 J	100 B
Barium-DISS	120 B	120	100 B	95 J B	91 J B
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	<0.50	<0.50	<0.50	<0.50
Cadmium-DISS	<0.50	<0.50	<0.50	<0.50	<0.50
Calcium	35,000	40,000	44,000	43,000	50,000
Calcium-DISS	30,000	38,000	47,000	44,000	42,000
Chromium	<5.0	<5.0	<5.0	<5.0	<5.0
Chromium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0
Cobalt	0.43 J	0.42 J	0.14 J	0.11 J	0.20 J
Cobalt-DISS	0.45 J	0.38 J	0.28 J	0.29 J	0.23 J
Copper	1.3 J	2.7 J B	1.5 J	1.4 J	1.5 J
Copper-DISS	0.74 J	<25	0.65 J	0.55 J	0.42 J
Iron	1,800	1,100	920	890	1,200
Iron-DISS	1,100	920	820	760	580
Lead	<3.0	0.35 J	<3.0	<3.0	<3.0
Lead-DISS	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium	29,000	24,000	21,000	20,000	23,000
Magnesium-DISS	24,000	22,000	23,000	21,000	19,000
Manganese	43	31	31	30	28
Manganese-DISS	42	28	33	31	25
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	<0.20
Molybdenum	<10	1.5 J B	<10	<10	<10

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-34 (continued)		GMPZA-38		
Top of Screen Depth (ft bls)	25	25	25	25	25
Sample Date	02/26/07	08/09/07	12/07/06	12/07/06	02/23/07
Sample ID	GWGMPZA-34 (2/26/07)	GWGMPZA-34 (8/9/07)	GWGM-998 (12/7/06)	GWGMPZA38 (12/7/06)	GWGMPZA-38 (2/23/07)
Molybdenum-DISS	<10	<10	<10	1.6 J	<10
Nickel	0.45 J	0.59 J	0.33 J	0.30 J	0.29 J
Nickel-DISS	0.38 J	0.38 J	0.33 J	0.41 J	0.42 J
Potassium	1,700	1,700	1,900	1,900	2,100
Potassium-DISS	1,600	1,600	2,200	2,100	1,900
Selenium	<5.0	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	<0.20	<0.20	<0.20	<0.20	<0.20
Silver-DISS	<0.20	<0.20	<0.20	<0.20	<0.20
Sodium	4,600	3,900	6,900	6,400	7,100
Sodium-DISS	4,500	3,500	7,100	6,600	5,900
Thallium	<2.0	<2.0	<2.0	<2.0	<2.0
Thallium-DISS	<2.0	<2.0	<2.0	0.29 J	<2.0
Titanium	2.1 J	2.7 J	<50	<50	1.7 J
Titanium-DISS	1.9 J	2.1 J	2.4 J	2.0 J	1.1 J
Vanadium	<20	1.0 J	<20	<20	<20
Vanadium-DISS	<20	0.94 J	<20	<20	<20
Zinc	4.3 J	<20	22	<20	4.1 J
Zinc-DISS	6.9 J B	<20	5.3 J B	8.3 J B	12 J B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-38 (continued)	GMPZA-41			
Top of Screen Depth (ft bls)	25	20	20	20	20
Sample Date	08/09/07	12/07/06	02/23/07	08/08/07	08/08/07
Sample ID	GWGMPZA-38 (8/9/07)	GWGMPZA-41 (12/7/06)	GWGMPZA-41 (2/23/07)	DUP-999 (8/8/07)	GWGMPZA-41 (8/8/07)
Aluminum	20 J	61 J	62 J	41 J	48 J
Aluminum-DISS	<200	<200	<200	<200	<200
Antimony	<50	<50	<50	<50	<50
Antimony-DISS	<50	<50	<50	<50	<50
Arsenic	16 J	12 J	23	12 J	13 J
Arsenic-DISS	15 J	12 J	11 J	12 J	12 J
Barium	100	120	130 B	110	120
Barium-DISS	94 J	120 B	110 B	110	110
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	<0.50	<0.50	<0.50	<0.50
Cadmium-DISS	<0.50	<0.50	<0.50	<0.50	<0.50
Calcium	48,000	31,000	40,000	41,000	43,000
Calcium-DISS	47,000	32,000	34,000	40,000	40,000
Chromium	0.67 J	<5.0	<5.0	<5.0	0.65 J
Chromium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0
Cobalt	0.31 J	0.12 J	0.18 J	0.19 J	0.19 J
Cobalt-DISS	0.27 J	0.20 J	0.14 J	0.14 J	0.15 J
Copper	<25	1.8 J	1.2 J	1.3 J B	1.2 J B
Copper-DISS	<25	0.62 J	<25	<25	<25
Iron	630	1,900	3,100	1,000	1,100
Iron-DISS	560	1,700	1,200	930	910
Lead	<3.0	<3.0	<3.0	0.17 J	0.20 J
Lead-DISS	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium	22,000	26,000	25,000	20,000	21,000
Magnesium-DISS	21,000	28,000	21,000	19,000	19,000
Manganese	22	54	50	34	36
Manganese-DISS	20	50	41	29	29
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	<0.20
Molybdenum	<10	<10	<10	<10	<10

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-38 (continued)	GMPZA-41			
Top of Screen Depth (ft bls)	25	20	20	20	20
Sample Date	08/09/07	12/07/06	02/23/07	08/08/07	08/08/07
Sample ID	GWGMPZA-38 (8/9/07)	GWGMPZA-41 (12/7/06)	GWGMPZA-41 (2/23/07)	DUP-999 (8/8/07)	GWGMPZA-41 (8/8/07)
Molybdenum-DISS	<10	<10	<10	<10	<10
Nickel	0.44 J	0.41 J	0.31 J	0.40 J	0.52 J
Nickel-DISS	<25	0.51 J	<25	<25	<25
Potassium	2,000	1,500	1,500	1,500	1,600
Potassium-DISS	2,000	1,700	1,500	1,500	1,500
Selenium	<5.0	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	<0.20	<0.20	<0.20	<0.20	<0.20
Silver-DISS	<0.20	<0.20	<0.20	<0.20	<0.20
Sodium	6,600	4,100	4,400	4,000	4,200
Sodium-DISS	6,000	4,100	4,000	3,800	3,800
Thallium	<2.0	<2.0	<2.0	<2.0	<2.0
Thallium-DISS	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	2.3 J	3.9 J	3.1 J	3.1 J	3.3 J
Titanium-DISS	1.7 J	1.5 J	1.2 J	1.4 J	1.4 J
Vanadium	0.96 J	<20	<20	1.1 J	1.2 J
Vanadium-DISS	0.81 J	<20	<20	0.94 J	0.89 J
Zinc	19 J	9.9 J	5.2 J	8.4 J	<20
Zinc-DISS	<20	11 J B	5.8 J B	<20	<20

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-2	GMPZC-12			GMPZC-14
Top of Screen Depth (ft bls)	134	137	137	137	111
Sample Date	05/30/06	12/06/06	03/01/07	08/14/07	12/06/06
Sample ID	GMPZC-2 (5/30/06)	GWGMPZC-12 (12/06/06)	GWGMPZC-12 (3/1/07)	GWGMPZC-12 (8/14/07)	GWGMPZC-14 (12/06/06)
Aluminum	730	750	150 J	1,100	57 J
Aluminum-DISS	<200	<200	<200	<200	13 J
Antimony	<50	<50	<50	<50	1.5 J
Antimony-DISS	<50	<50	<50	<50	5.4 J
Arsenic	29	13 J	11 J	12 J B	21
Arsenic-DISS	28	14 J	12 J	12 J B	21
Barium	55 J	79 J B	74 J B	82 J	**860 B**
Barium-DISS	54 J	85 J B	73 J B	78 J	**930 B**
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	<0.50	<0.50	<0.50	<0.50
Cadmium-DISS	<0.50	<0.50	<0.50	<0.50	<0.50
Calcium	81,000	68,000	52,000	68,000	210,000
Calcium-DISS	91,000	77,000	64,000	68,000	220,000
Chromium	2.5 J	2.3 J	<5.0	4.3 J B	4.8 J
Chromium-DISS	<5.0	<5.0	<5.0	1.4 J B	4.9 J
Cobalt	0.66 J	1.7 J	1.4 J	1.8 J	4.2 J
Cobalt-DISS	0.38 J	1.3 J	1.1 J	1.0 J	4.6 J
Copper	2.6 J B	2.0 J	0.49 J	3.6 J	0.43 J
Copper-DISS	<25	<25	<25	<25	<25
Iron	6,400	8,000	6,500	7,900	19,000
Iron-DISS	5,400	7,800	6,200	6,100	20,000
Lead	<3.0	<3.0	<3.0	0.44 J	<3.0
Lead-DISS	<3.0	<3.0	<3.0	<3.0	0.55 J
Magnesium	61,000	69,000	59,000	63,000	280,000
Magnesium-DISS	66,000	77,000	61,000	64,000	290,000
Manganese	280	63	53	64	42
Manganese-DISS	260	52	49	41	47
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	<0.20
Molybdenum	<10	2.1 J	1.9 J	2.5 J	<10

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-2	GMPZC-12			GMPZC-14
Top of Screen Depth (ft bls)	134	137	137	137	111
Sample Date	05/30/06	12/06/06	03/01/07	08/14/07	12/06/06
Sample ID	GMPZC-2 (5/30/06)	GWGMPZC-12 (12/06/06)	GWGMPZC-12 (3/1/07)	GWGMPZC-12 (8/14/07)	GWGMPZC-14 (12/06/06)
Molybdenum-DISS	<10	2.5 J	1.7 J	2.3 J	1.6 J
Nickel	1.7 J	2.6 J	1.4 J	3.3 J	17 J
Nickel-DISS	0.83 J	1.8 J	0.46 J	1.3 J	18 J
Potassium	2,700	3,900	3,700	3,200	8,000
Potassium-DISS	2,600	4,000	3,600	3,000	8,300
Selenium	<5.0	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	<0.20	<0.20	<0.20	<0.20	<0.20
Silver-DISS	<0.20	<0.20	<0.20	<0.20	<0.20
Sodium	21,000	19,000	16,000	17,000	58,000
Sodium-DISS	23,000 B	21,000	17,000	18,000	61,000
Thallium	<2.0	<2.0	<2.0	<2.0	<2.0
Thallium-DISS	0.35 J	<2.0	<2.0	<2.0	<2.0
Titanium	54	27 J	8.4 J	40 J	77
Titanium-DISS	<50	3.2 J	1.8 J	2.0 J	69
Vanadium	<20	<20	<20	6.7 J B	7.6 J
Vanadium-DISS	<20	<20	<20	3.9 J B	8.0 J
Zinc	42	18 J	5.2 J B	9.1 J	11 J
Zinc-DISS	7.8 J	4.3 J B	10 J B	<20	22 B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-14 (continued)		GMPZC-17	
Top of Screen Depth (ft bls)	111	111	125	125
Sample Date	02/28/07	08/10/07	12/07/06	02/27/07
Sample ID	GWGMPZC-14 (2/28/07)	GWGMPZC-14(08/10/07)	GWGMPZC-17 (12/7/2006)	GWGMPZC-17 (2/27/07)
Aluminum	1,000	87 J	<200	53 J
Aluminum-DISS	<200	<200	<200	<200
Antimony	1.1 J	1.1 J	<50	<50
Antimony-DISS	1.1 J	1.0 J	<50	<50
Arsenic	21	19 J	11 J	11 J
Arsenic-DISS	17 J	18 J	11 J	10 J
Barium	**680 B**	**770**	69 J	68 J B
Barium-DISS	**740 B**	**720**	70 J B	66 J B
Beryllium	<1.0	<1.0	<1.0	<1.0
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	<0.50	<0.50	<0.50
Cadmium-DISS	<0.50	<0.50	<0.50	<0.50
Calcium	120,000	170,000	47,000	39,000
Calcium-DISS	160,000	160,000	50,000	45,000
Chromium	5.8	3.7 J	<5.0	<5.0
Chromium-DISS	3.5 J	3.3 J	<5.0	<5.0
Cobalt	5.1 J	3.5 J	<10	0.18 J
Cobalt-DISS	3.8 J	3.5 J	0.15 J	0.11 J
Copper	4.0 J	2.0 J B	2.2 J	2.3 J
Copper-DISS	<25	<25	0.87 J	<25
Iron	18,000	15,000	110	180
Iron-DISS	16,000	14,000	110	98 J
Lead	<3.0	0.37 J	<3.0	<3.0
Lead-DISS	<3.0	<3.0	<3.0	<3.0
Magnesium	200,000	220,000	27,000	23,000
Magnesium-DISS	220,000	210,000	29,000	24,000
Manganese	130	32	32	38
Manganese-DISS	44	28	34	32
Mercury	<0.20	<0.20	<0.20	0.11 J B
Mercury-DISS	<0.20	<0.20	<0.20	<0.20
Molybdenum	2.0 J	1.6 J B	<10	<10

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-14 (continued)		GMPZC-17	
Top of Screen Depth (ft bls)	111	111	125	125
Sample Date	02/28/07	08/10/07	12/07/06	02/27/07
Sample ID	GWGMPZC-14 (2/28/07)	GWGMPZC-14(08/10/07)	GWGMPZC-17 (12/7/2006)	GWGMPZC-17 (2/27/07)
Molybdenum-DISS	<10	<10	<10	<10
Nickel	14 J	15 J	0.29 J	0.37 J
Nickel-DISS	14 J	14 J	0.46 J	<25
Potassium	9,200	7,100	2,000	1,900
Potassium-DISS	6,900	6,800	2,200	1,900
Selenium	0.52 J	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	<5.0	<5.0	<5.0
Silver	<0.20	**0.23 B**	<0.20	<0.20
Silver-DISS	<0.20	<0.20	<0.20	<0.20
Sodium	56,000	51,000	2,700	2,300
Sodium-DISS	49,000	48,000	2,800	2,400
Thallium	<2.0	<2.0	<2.0	<2.0
Thallium-DISS	<2.0	<2.0	<2.0	<2.0
Titanium	100	54	0.94 J	3.2 J
Titanium-DISS	56	45 J	2.0 J	1.3 J
Vanadium	12 J	6.5 J	<20	<20
Vanadium-DISS	6.1 J	5.9 J	<20	<20
Zinc	15 J B	45	6.7 J	5.9 J B
Zinc-DISS	6.0 J B	25	48 B	6.8 J B

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-17 (continued)		MPMW-4	MW-1B	MW-2B	MW-5	
Top of Screen Depth (ft bls)	125	125		86	102	83	83
Sample Date	08/13/07	08/13/07	02/26/02	06/27/97	06/28/97	10/22/98	04/30/99
Sample ID	DUP-998 (8/13/07)	GWGMPZC-17 (8/13/07)	GWMPMW-4 (2/26/02)	GWMW-1B	GWMW-2B	GWMW-5	GWMW-5
Aluminum	25 J	39 J	2,100 J	NA	NA	<200	<200
Aluminum-DISS	<200	<200	NA	NA	NA	NA	NA
Antimony	<50	<50	<50	NA	NA	<50	<50
Antimony-DISS	<50	<50	NA	NA	NA	NA	NA
Arsenic	8.8 J B	11 J B	3.5 B	NA	NA	7.1	5.9
Arsenic-DISS	11 J B	11 J B	NA	NA	NA	NA	NA
Barium	63 J	72 J	42 B	NA	NA	<200	<200
Barium-DISS	66 J	71 J	NA	NA	NA	NA	NA
Beryllium	<1.0	<1.0	<0.11	NA	NA	<5	<5
Beryllium-DISS	<1.0	0.074 J	NA	NA	NA	NA	NA
Cadmium	<0.50	<0.50	<0.50	NA	NA	<0.5	<0.5
Cadmium-DISS	<0.50	<0.50	NA	NA	NA	NA	NA
Calcium	44,000	50,000	36,000	83,000	66,200	28,000	31,000
Calcium-DISS	48,000	50,000	NA	NA	NA	NA	NA
Chromium	1.8 J B	2.1 J B	11	NA	NA	<50	<50
Chromium-DISS	1.4 J B	1.6 J B	NA	NA	NA	NA	NA
Cobalt	0.13 J	0.16 J	<1.4	NA	NA	<50	<50
Cobalt-DISS	0.14 J	0.16 J	NA	NA	NA	NA	NA
Copper	1.2 J	1.5 J	6.3 B	NA	NA	R	<25
Copper-DISS	<25	<25	NA	NA	NA	NA	NA
Iron	130	170	2,700	9,820	16,400	47	27
Iron-DISS	110	120	NA	6,250	16,100	NA	NA
Lead	<3.0	<3.0	1.4 B	NA	NA	<3	<3
Lead-DISS	<3.0	<3.0	NA	NA	NA	NA	NA
Magnesium	21,000	24,000	19,000	27,000	27,000	22,000	24,000
Magnesium-DISS	23,000	24,000	NA	NA	NA	NA	NA
Manganese	30	36	74	354	1,310	7 J	8.3
Manganese-DISS	32	33	NA	344	1,300	NA	NA
Mercury	<0.20	<0.20	<0.20	NA	NA	<0.2	<0.2
Mercury-DISS	<0.20	<0.20	NA	NA	NA	NA	NA
Molybdenum	<10	<10	1.9 B	NA	NA	<100 J	<100

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-17 (continued)		MPMW-4	MW-1B	MW-2B	MW-5	
Top of Screen Depth (ft bls)	125	125		86	102	83	83
Sample Date	08/13/07	08/13/07	02/26/02	06/27/97	06/28/97	10/22/98	04/30/99
Sample ID	DUP-998 (8/13/07)	GWGMPZC-17 (8/13/07)	GWMPMW-4 (2/26/02)	GWMW-1B	GWMW-2B	GWMW-5	GWMW-5
Molybdenum-DISS	<10	<10	NA	NA	NA	NA	NA
Nickel	<25	<25	8.6 B	NA	NA	<50	<50
Nickel-DISS	<25	<25	NA	NA	NA	NA	NA
Potassium	1,700	1,900	2,300	<5,000	<5,000	1,900	2,100
Potassium-DISS	1,800	1,900	NA	NA	NA	NA	NA
Selenium	<5.0	<5.0	<5.0	NA	NA	<5	<5
Selenium-DISS	<5.0	<5.0	NA	NA	NA	NA	NA
Silver	<0.20	<0.20	<0.20	NA	NA	<0.5	<0.5
Silver-DISS	<0.20	<0.20	NA	NA	NA	NA	NA
Sodium	2,300	2,600	4,000	8,930	9,880	3,600	4,100
Sodium-DISS	2,500	2,600	NA	NA	NA	NA	NA
Thallium	<2.0	<2.0	<2.0	NA	NA	<2	<2
Thallium-DISS	<2.0	<2.0	NA	NA	NA	NA	NA
Titanium	1.9 J	3.1 J	84 J	NA	NA	<50	<50
Titanium-DISS	1.4 J	1.8 J	NA	NA	NA	NA	NA
Vanadium	3.4 J B	3.7 J B	<7.0	NA	NA	<20	<20
Vanadium-DISS	3.6 J B	3.5 J B	NA	NA	NA	NA	NA
Zinc	9.4 J	<20	<13	NA	NA	***450 J***	<20
Zinc-DISS	<20	<20	NA	NA	NA	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	MW-8					MW-9A	MW-10	UG-2	
Top of Screen Depth (ft bls)	133	133	133	133	133	57	95	48	48
Sample Date	06/29/97	06/29/97	10/24/98	05/03/99	05/12/04	07/02/97	06/30/97	07/01/97	10/27/98
Sample ID	GWGM-99	GWMW-8	GWMW-8	GWMW-8	GWMW-8 (5/12/04)	GWMW-9A	GWMW-10	GWUG-2	GWUG-2
Aluminum	NA	NA	<200	<200	430	NA	NA	NA	<200
Aluminum-DISS	NA	NA	NA	NA	<200	NA	NA	NA	NA
Antimony	NA	NA	<50	<50	<50	NA	NA	NA	<50
Antimony-DISS	NA	NA	NA	NA	<50	NA	NA	NA	NA
Arsenic	NA	NA	16	21	10 B	NA	NA	NA	<5
Arsenic-DISS	NA	NA	NA	NA	12 B	NA	NA	NA	NA
Barium	NA	NA	270 J	300	260	NA	NA	NA	<200
Barium-DISS	NA	NA	NA	NA	240	NA	NA	NA	NA
Beryllium	NA	NA	<5	<5	<1.0	NA	NA	NA	<5
Beryllium-DISS	NA	NA	NA	NA	<1.0	NA	NA	NA	NA
Cadmium	NA	NA	<0.5	***20***	<0.50 *F5	NA	NA	NA	<0.5
Cadmium-DISS	NA	NA	NA	NA	<0.50 *F5	NA	NA	NA	NA
Calcium	82,500 J	84,500 J	46,000	55,000 J	46,000	49,500	80,400	83,200	79,000
Calcium-DISS	NA	NA	NA	NA	44,000	NA	NA	NA	NA
Chromium	NA	NA	<50 J	<50	5.4	NA	NA	NA	<50
Chromium-DISS	NA	NA	NA	NA	1.2 B	NA	NA	NA	NA
Cobalt	NA	NA	<50 J	<50	<10	NA	NA	NA	<50
Cobalt-DISS	NA	NA	NA	NA	<10	NA	NA	NA	NA
Copper	NA	NA	<25 J	<25	5.5 B	NA	NA	NA	<25
Copper-DISS	NA	NA	NA	NA	<25	NA	NA	NA	NA
Iron	24,600 J	24,500 J	7,300 J	8,700	14,000	1,140	1,410 L	<100	<20
Iron-DISS	2,800 J	3,640 J	NA	NA	5,300	890	154	<100	NA
Lead	NA	NA	<3	**21**	1.9 B	NA	NA	NA	<3
Lead-DISS	NA	NA	NA	NA	<3.0	NA	NA	NA	NA
Magnesium	169,000 J	169,000 J	150,000 J	150,000	140,000	13,900	41,100	38,200	39,000
Magnesium-DISS	NA	NA	NA	NA	140,000	NA	NA	NA	NA
Manganese	330 J	341 J	28	32 J	110	547	93.6	<15	<5
Manganese-DISS	38.1 J	36.6 J	NA	NA	39	532	87.4	<15	NA
Mercury	NA	NA	<0.2	<0.2	<0.20	NA	NA	NA	<0.2
Mercury-DISS	NA	NA	NA	NA	<0.20	NA	NA	NA	NA
Molybdenum	NA	NA	<100 J	<100	0.95 B	NA	NA	NA	<100

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	MW-8					MW-9A	MW-10	UG-2	
Top of Screen Depth (ft bls)	133	133	133	133	133	57	95	48	48
Sample Date	06/29/97	06/29/97	10/24/98	05/03/99	05/12/04	07/02/97	06/30/97	07/01/97	10/27/98
Sample ID	GWGM-99	GWMW-8	GWMW-8	GWMW-8	GWMW-8 (5/12/04)	GWMW-9A	GWMW-10	GWUG-2	GWUG-2
Molybdenum-DISS	NA	NA	NA	NA	1.5 B	NA	NA	NA	NA
Nickel	NA	NA	<50 J	<50	4.6 B	NA	NA	NA	<50
Nickel-DISS	NA	NA	NA	NA	2.6 B	NA	NA	NA	NA
Potassium	6,330 J	6,400 J	4,900	4,800	5,600	<5,000	<5,000	<5,000	1,700
Potassium-DISS	NA	NA	NA	NA	5,500	NA	NA	NA	NA
Selenium	NA	NA	<5	**19**	<5.0	NA	NA	NA	<5
Selenium-DISS	NA	NA	NA	NA	<5.0	NA	NA	NA	NA
Silver	NA	NA	<0.5	<0.5	<0.20	NA	NA	NA	**0.88**
Silver-DISS	NA	NA	NA	NA	<0.20	NA	NA	NA	NA
Sodium	19,700 J	19,200 J	18,000	16,000	16,000	7,590	17,500	12,000	9,300
Sodium-DISS	NA	NA	NA	NA	16,000	NA	NA	NA	NA
Thallium	NA	NA	<2	**22**	0.45 B*F5	NA	NA	NA	<2
Thallium-DISS	NA	NA	NA	NA	0.60 B*F5	NA	NA	NA	NA
Titanium	NA	NA	<50 J	<50	17 B	NA	NA	NA	<50
Titanium-DISS	NA	NA	NA	NA	1.9 B	NA	NA	NA	NA
Vanadium	NA	NA	<20 J	<20	10 B	NA	NA	NA	<20
Vanadium-DISS	NA	NA	NA	NA	7.7 B	NA	NA	NA	NA
Zinc	NA	NA	<20 J	<20	14 B	NA	NA	NA	<20
Zinc-DISS	NA	NA	NA	NA	3.9 B	NA	NA	NA	NA

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	UG-2 (continued)	UG-4				UG-6		
Top of Screen Depth (ft bls)	48	103	103	103	103	236	Groundwater	Indoor Air
Sample Date	05/03/99	10/13/97	10/13/97	10/23/98	05/02/99	10/21/97	Contact	Inhalation
Sample ID	GWUG-2	GM-79	UG-4	GWUG-4	GWUG-4	UG-6	Criteria	Criteria
Aluminum	<200	NA	NA	<200	<200	NA	64,000,000 (B)	(B) NLV
Aluminum-DISS	NA	NA	NA	NA	NA	NA	64,000,000 (B)	(B) NLV
Antimony	<50	NA	NA	<50	<50	NA	68,000	NLV
Antimony-DISS	NA	NA	NA	NA	NA	NA	68,000	NLV
Arsenic	<5	NA	NA	<5	45	NA	4,300	NLV
Arsenic-DISS	NA	NA	NA	NA	NA	NA	4,300	NLV
Barium	<200	NA	NA	<200 J	<200	NA	14,000,000 (B)	(B) NLV
Barium-DISS	NA	NA	NA	NA	NA	NA	14,000,000 (B)	(B) NLV
Beryllium	<5	NA	NA	<5	<5	NA	290,000	NLV
Beryllium-DISS	NA	NA	NA	NA	NA	NA	290,000	NLV
Cadmium	<0.5	NA	NA	<0.5	***41***	NA	190,000 (B)	(B) NLV
Cadmium-DISS	NA	NA	NA	NA	NA	NA	190,000 (B)	(B) NLV
Calcium	80,000	65,200	64,700	55,000	51,000 J	75,100	NA	NA
Calcium-DISS	NA	63,000	64,200	NA	NA	64,900	NA	NA
Chromium	<50	NA	NA	<50 J	<50	NA	460,000	NLV
Chromium-DISS	NA	NA	NA	NA	NA	NA	460,000	NLV
Cobalt	<50	NA	NA	<50 J	<50	NA	2,400,000	NLV
Cobalt-DISS	NA	NA	NA	NA	NA	NA	2,400,000	NLV
Copper	<25	NA	NA	<25 J	<25	NA	7,400,000 (B)	(B) NLV
Copper-DISS	NA	NA	NA	NA	NA	NA	7,400,000 (B)	(B) NLV
Iron	<34	4,630	5,040	1,600 J	1,400	9,870	58,000,000 (B)	(B) NLV
Iron-DISS	NA	1,780	1,930	NA	NA	334	58,000,000 (B)	(B) NLV
Lead	<3	NA	NA	<3	**47**	NA	(B) ID	(B) NLV
Lead-DISS	NA	NA	NA	NA	NA	NA	(B) ID	(B) NLV
Magnesium	41,000	30,800	31,000	27,000 J	26,000	36,000	1,000,000,000 (B) D	(B) NLV
Magnesium-DISS	NA	29,800	30,300	NA	NA	30,200	1,000,000,000 (B) D	(B) NLV
Manganese	<5	252	254	180	160 J	488	9,100,000 (B)	(B) NLV
Manganese-DISS	NA	195	203	NA	NA	313	9,100,000 (B)	(B) NLV
Mercury	<0.2	NA	NA	<0.2	<0.2	NA	56 B,Z (total	56 B,Z (total
Mercury-DISS	NA	NA	NA	NA	NA	NA	56 B,Z (total),S	56 B,Z (total),S
Molybdenum	<100	NA	NA	<100 J	<100	NA	970,000 (B)	(B) NLV

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring	UG-2 (continued)	UG-4				UG-6		
Top of Screen Depth (ft bls)	48	103	103	103	103	236	Groundwater Contact Criteria	Indoor Air Inhalation Criteria
Sample Date	05/03/99	10/13/97	10/13/97	10/23/98	05/02/99	10/21/97		
Sample ID	GWUG-2	GM-79	UG-4	GWUG-4	GWUG-4	UG-6		
Molybdenum-DISS	NA	NA	NA	NA	NA	NA	970,000 (B)	(B) NLV
Nickel	<50	NA	NA	<50 J	<50	NA	74,000,000 (B)	(B) NLV
Nickel-DISS	NA	NA	NA	NA	NA	NA	74,000,000 (B)	(B) NLV
Potassium	2,000	<5,000	<5,000	2,300	1,300	<5,000	NA	NA
Potassium-DISS	NA	<5,000	<5,000	NA	NA	<5,000	NA	NA
Selenium	<5	NA	NA	<5	**41**	NA	970,000 (B)	(B) NLV
Selenium-DISS	NA	NA	NA	NA	NA	NA	970,000 (B)	(B) NLV
Silver	<0.5	NA	NA	<0.5	<0.5	NA	1,500,000 (B)	(B) NLV
Silver-DISS	NA	NA	NA	NA	NA	NA	1,500,000 (B)	(B) NLV
Sodium	12,000	16,500	15,900	27,000	20,000	10,300	1,000,000,000 D	NLV
Sodium-DISS	NA	15,400	15,500	NA	NA	8,890	1,000,000,000 D	NLV
Thallium	<2	NA	NA	<2	**47**	NA	13,000 (B)	(B) NLV
Thallium-DISS	NA	NA	NA	NA	NA	NA	13,000 (B)	(B) NLV
Titanium	<50	NA	NA	<50 J	<50	NA	NA	NA
Titanium-DISS	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	<20	NA	NA	<20 J	<20	NA	970,000	NLV
Vanadium-DISS	NA	NA	NA	NA	NA	NA	970,000	NLV
Zinc	<20	NA	NA	<20 J	<20	NA	110,000,000 (B)	(B) NLV
Zinc-DISS	NA	NA	NA	NA	NA	NA	110,000,000 (B)	(B) NLV

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring Top of Screen Depth (ft bls) Sample Date Sample ID	Residential Drinking Water Criteria	FAV Criteria	FCV Criteria
Aluminum	50 (B) V	NA	NA
Aluminum-DISS	50 (B) V	NA	NA
Antimony	6 A	2,300	240
Antimony-DISS	6 A	2,300	240
Arsenic	10 A	680	150
Arsenic-DISS	10 A	680	150
Barium	2,000 (B) A	2,300 H*92	400 H*92
Barium-DISS	2,000 (B) A	2,300 H*92	400 H*92
Beryllium	4 A	35 H*92	1.9 H*92
Beryllium-DISS	4 A	35 H*92	1.9 H*92
Cadmium	5 (B) A	7.8 H*92	2.1 H*92
Cadmium-DISS	5 (B) A	7.8 H*92	2.1 H*92
Calcium	NA	NA	NA
Calcium-DISS	NA	NA	NA
Chromium	100 A	32 Dissolved	11 Dissolved
Chromium-DISS	100 A	32 Dissolved	11 Dissolved
Cobalt	40	740	100
Cobalt-DISS	40	740	100
Copper	1,000 (B) E	25 H*92	8.3 H*92
Copper-DISS	1,000 (B) E	25 H*92	8.3 H*92
Iron	300 (B) E	NA	NA
Iron-DISS	300 (B) E	NA	NA
Lead	4 (B) L	170 H*92	9.4 H*92
Lead-DISS	4 (B) L	170 H*92	9.4 H*92
Magnesium	400,000 (B)	NA	NA
Magnesium-DISS	400,000 (B)	NA	NA
Manganese	50 (B) E	7,700 H*92	1,800 H*92
Manganese-DISS	50 (B) E	7,700 H*92	1,800 H*92
Mercury	2 B,Z (total	2.8 D	0.77 D
Mercury-DISS	2 B,Z (total),A	2.8 D	0.77 D
Molybdenum	73 (B)	58,000	3,200

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Well/Boring Top of Screen Depth (ft bls) Sample Date Sample ID	Residential Drinking Water Criteria	FAV Criteria	FCV Criteria
Molybdenum-DISS	73 (B)	58,000	3,200
Nickel	100 (B) A	870 H*92	48 H*92
Nickel-DISS	100 (B) A	870 H*92	48 H*92
Potassium	NA	NA	NA
Potassium-DISS	NA	NA	NA
Selenium	50 (B) A	R	R
Selenium-DISS	50 (B) A	R	R
Silver	34 (B)	1.1	0.06
Silver-DISS	34 (B)	1.1	0.06
Sodium	120,000	NA	NA
Sodium-DISS	120,000	NA	NA
Thallium	2 (B) A	94	7.2
Thallium-DISS	2 (B) A	94	7.2
Titanium	NA	ID	ID
Titanium-DISS	NA	ID	ID
Vanadium	4.5	220	12
Vanadium-DISS	4.5	220	12
Zinc	2,400 (B)	220 H*92	110 H*92
Zinc-DISS	2,400 (B)	220 H*92	110 H*92

Footnotes on Page 143

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

Results in microgram per liter (µg/L).

<	Less than the laboratory method detection limit.
Bold	Indicates a value above the Final Chronic Values (Michigan Part 4 Rule 323.1057, December 11, 2006).
	Indicates a value above the Groundwater Contact Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
Italics	Indicates a value above the Final Acute Values (Michigan Part 4 Rule 323.1057, December 11, 2006).
	Indicates a value above the Residential and Commercial I Drinking Water Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
*	LCS or LCSD exceeds the control limit.
B	Constituent was also detected in laboratory blank.
ft bls	Feet below land surface.
J	Estimated result.
L	Serial dilution indicates that interference is present.
M	Matrix interference reported by laboratory.
MBD	This analyte is present in the associated method blank at an amount that is less than two times the reporting limit.
R	Rejected result.
W	Post-digestion spike for furnace A-A analysis is out of control limits while sample absorbance is less than 50% of spike absorbance.

State of Michigan Criteria Footnotes:

A	State of Michigan Drinking Water Standard.
AA	Compound may be adsorbed to particulates rather than dissolved in water; filtered groundwater sample may be more appropriate for comparison to criteria.
B	Background may be substituted if higher than the calculated cleanup criteria.
CC	The generic groundwater surface water interface criteria are based on the toxicity of unionized ammonia.
D	Calculated criterion exceeds 100%, therefore it is reduced to 100%.
E	Criterion is the aesthetic drinking water value.
EE	Applicable criteria established as required by Section 20120a(15) of the act.
F	Criterion is based on adverse impacts to plant life.
FF	The chloride groundwater surface water interface criteria is 125 mg/l when discharged to surface waters designated as public water supply sources or 50 mg/l when discharged to Great Lakes or connecting waters.
G	GSI value is pH or water hardness dependent.
H*92	Criteria based on water hardness of 92.
I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.
ID	Inadequate data to develop criterion.
J	Chemical may be present in several isomer forms. Isomer specific concentrations must be added together for comparison to criteria.

Table 6-10. Summary of Metals Detected in Groundwater Samples, Ford-Kindsford Products Facility, Kingsford, Michigan.

State of Michigan Criteria Footnotes (continued):

K	Chemical may be flammable and/or explosive.
L	Higher groundwater concentrations, (up to 15 µg/L) may be acceptable if the soil concentration is less than 400 ppm and groundwater migrating offsite will not result in unacceptable exposures.
M	Calculated criterion is below the analytical method detection limit (MDL).
N	Concentrations of all potential nitrate-nitrogen sources must be added together and compared to nitrate criteria.
NA	Criterion or values is not available.
NLS	A literature search has not been conducted.
NLV	Chemical is not likely to volatilize under most soil conditions.
O	All polychlorinated and polybrominated dibenzodioxins, and dibenzofurans are considered as one substance.
P	Amenable or Method OIA-1677 analysis are used to quanitfy cyanide concentrations for compliance with all groundwater criteria.
Q	Criterion for carcinogenic polycyclic aromatic hydrocarbons (PAHs) were developed using "relative potential potencies" (RFPs) to benzo(a)pyrene.
R	Hazardous substance may exhibit the characteristic of reactivity as defined in 40 CFR 261.23.
S	Criterion defaults to the chemical-specific water solubility limit.
T	Refer to Toxic Substances Control Act (TSCA) to determine applicability of TSCA cleanup standards.
Total	Criterion established for total metal only.
V	Criterion is the aesthetic drinking water value, which is a secondary standard.
W	Concentrations of trihalomethanes in groundwater must be added together to detemine compliance with State of Michigan Criteria.
X	The GSI criterion shown is not protective for surface water that is used as a drinking water source.
*	The lowest Human Noncancer Value, Wildlife Value, Human Cancer Value, final chronic value criteria per Michigan Act 451, Part 4, Rule 57 given for this chemical will adequately protect the uses identified with "ID".

ARCADIS

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	BR-2	BR-3	BR-5A	BR-5B		BR-6	CW-1		
Top of Screen Depth (ft bls)	75	122	88	188	188	149	130	130	130
Sample Date	06/29/97	06/28/97	07/01/97	07/01/97	07/01/97	06/29/97	10/14/97	10/22/98	04/29/99
Sample ID	GWBR-2	GWBR-3	GWBR-5A	GWBR-5B	GWGM-98	GWBR-6	CW-1	GWCW-1	GWCW-1
Alkalinity	200,000	320,000	460,000	330,000	320,000	210,000	440,000	380,000	380,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	53,000	11,000	40,000	35,000	35,000	6,000	8,000	7,200	7,600
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	<200	***1,000***	***900***	***1,200***	<200	<200	<200	<200
Nitrogen, Nitrate	<100 J	100 J	<100	<100	<100	5,800	<100	<100	<100
Nitrogen, Nitrite	<100 J	<100 J	<100	<100	<100	<100	<100	<100	<100
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA	NA	NA	<100	<100
Ortho-Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	<100	600	<100	<100	<100	<100	500	<100	<100
Silica	20,000	21,000	56,000	26,000	41,000	8,300	36,000	<100	18300
Silica, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	13,000	52,000	320,000	2,600,000	390,000	22,000	<5,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	2,000	12,000	2,000	1,600	1,600	1,700	840	<1,000	1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-1					GM-2A		GM-2B	
Top of Screen Depth (ft bls)	220	220	220	220	220	40	40	271	271
Sample Date	06/24/97	10/09/97	10/07/98	04/16/99	04/28/04	07/02/97	10/12/97	06/26/97	10/21/97
Sample ID	GWGM-1	GM-1	GWGM-1	GWGM-1	GWGM-1 (4/28/04)	GWGM-2A	GM-2A	GWGM-2B	GM-2B
Alkalinity	650,000	720,000	670,000	690,000	690,000	180,000	220,000	970,000	1,100,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	13,000	11,000	<40,000 M	9,700	13,000	150,000	140,000	54,000	60,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	<200	<200	<200	<30	<200	<200	<200	<200
Nitrogen, Nitrate	<100	<100	<100	<100	<50	<100	<100	<100	<100
Nitrogen, Nitrite	<100	<100	<100	<100	<50	<100	<100	<100	<100
Nitrogen, Nitrite and Nitrate	NA	NA	<100	<100	NA	NA	NA	NA	NA
Ortho-Phosphate	NA	NA	NA	NA	<50	NA	NA	NA	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	<100	1700	<100	130	140	<100	600	1,200	1,400
Silica	43,000	33,000	<100	23,000	NA	29,000	23,000	27,000	26,000
Silica, Dissolved	NA	NA	NA	NA	34,000	NA	NA	NA	NA
Sulfate	14,000	<5,000	<5,000	<10,000 M	<5,000	24,000	16,000	<5,000	6,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	1,700	<500	2,600	1,400	<1,000	2,600	780	9,000	1,500

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-2B (continued)				GM-2C			GM-3A
Top of Screen Depth (ft bls)	271	271	271	271	64	64	64	74
Sample Date	12/11/97	11/22/98	04/16/99	05/25/04	11/06/98	04/13/99	05/04/04	06/25/97
Sample ID	GM-2B	GWGM-2B	GWGM-2B	GWGM-2B(5/25/04)	GWGM-2C	GWGM-2C	GWGM-2C (5/4/04)	GWGM-3A
Alkalinity	3,000,000	1,000,000	850,000	1,100,000	190,000	190,000	190,000	200,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	54,000	47,000	40,000	40,000	60,000	65,000	230,000	53,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	**220**	<200	<150 *F65	<200	<200	**71**	<200
Nitrogen, Nitrate	<100	<100	<100	<50	<100	<100 J	<250 *F65	2,500
Nitrogen, Nitrite	<100	<100	<100 J	64	<100 J	<100	<50	100
Nitrogen, Nitrite and Nitrate	NA	<100	<100	NA	<100	<100	NA	NA
Ortho-Phosphate	NA	NA	NA	<50	NA	NA	<50	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	1,800	270	320	230	<100	<100	82 B	700
Silica	25,000	<100	20,000	NA	19,000	31,000	NA	26,000
Silica, Dissolved	NA	NA	NA	20,000	NA	NA	32,000	NA
Sulfate	120,000	<5,000	<20,000 M	<5,000	20,000	11,000	25,000	42,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	5,700	<2,000 M	2,200	<1,000	<1,000	<1,000	<1,000	1,900

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-3A (continued)				GM-3B				
Top of Screen Depth (ft bls)	74	74	74	74	170	170	170	170	170
Sample Date	10/10/97	10/09/98	04/13/99	05/05/04	06/26/97	10/14/97	10/08/98	04/17/99	04/17/99
Sample ID	GM-3A	GWGM-3A	GWGM-3A	GWGM-3A (5/5/04)	GWGM-3B	GM-3B	GWGM-3B	GWGM-3B	GWGM-88
Alkalinity	210,000	200,000	200,000	220,000	730,000	940,000	820,000	810,000	800,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	51,000	44,000	42,000	72,000	17,000	16,000	16,000	16,000	15,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	<200	<200	<30	<200	<200	<200	<200	<200
Nitrogen, Nitrate	3,300	4,100	4,000	<50	<100	<100	<100	<100	<100
Nitrogen, Nitrite	<100	<100	<100	<50	<100	<100	<100	<100 J	<100 J
Nitrogen, Nitrite and Nitrate	NA	4,100	4,000	NA	NA	NA	<100	<100	<100
Ortho-Phosphate	NA	NA	NA	<50	NA	NA	NA	NA	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	1,300	<100	<100	<100	<100	100	230	160	160
Silica	16,000	<100	12,000	NA	34,000	32,000	<100	21,000	19,000
Silica, Dissolved	NA	NA	NA	17,000	NA	NA	NA	NA	NA
Sulfate	38,000	47,000	<10,000 M	20,000	<5,000	<5,000	14000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	570	<1,000	<1,000	<1,000	1,700	1,300	3,600	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-3B (continued)	GM-4				GM-5			
Top of Screen Depth (ft bls)	170	76	76	76	76	250	250	250	250
Sample Date	05/11/04	06/26/97	10/14/97	10/20/98	04/21/99	07/02/97	10/15/97	04/18/99	08/15/00
Sample ID	GWGM-3B (5/11/04)	GWGM-4	GM-4	GWGM-4	GWGM-4	GWGM-5	GM-5	GWGM-5	GWGM-5
Alkalinity	940,000	220,000	240,000	230,000	210,000	970,000	1,100,000	1,000,000	NA
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA	1,100,000
Chloride	15,000	2,000	1,000	3,900	1,400	17,000	18,000	17,000	18,000 J
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<30	<200	<200	<200	<200	<200	<200	<200	NA
Nitrogen, Nitrate	<50	100	100	140	160	<100	<100	<100	NA
Nitrogen, Nitrite	<50	<100	<100	<100	<100	<100	<100	<100 J	NA
Nitrogen, Nitrite and Nitrate	NA	NA	NA	140	160	NA	NA	<100	NA
Ortho-Phosphate	<50	NA	NA	NA	NA	NA	NA	NA	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	130	100	100	<100	400	<100	200	<100	NA
Silica	NA	5,900	17,000	<100	13,000	32,000	36,000	34,000	NA
Silica, Dissolved	32,000	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	<5,000	<5,000	22,000	20,000	18,000	23,000	<5,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	1,600	1,200	<1,000	<1,000	2,000	1,000	1,800	NA

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-5 (continued)	GM-6							GM-7
Top of Screen Depth (ft bls)	250	165	165	165	165	165	165	165	145
Sample Date	09/20/00	06/28/97	10/22/97	10/10/98	04/19/99	02/29/00	07/19/00	09/25/00	06/29/97
Sample ID	GWGM-5	GWGM-6	GM-6	GWGM-6	GWGM-6	GWGM-6	GWGM-6	GWGM-6	GWGM-7
Alkalinity	NA	710,000	870,000	690,000	670,000	NA	630,000	NA	260,000
Bicarbonate	1,100,000	NA	NA	NA	NA	630,000	NA	750,000	NA
Chloride	18,000	12,000	11,000	<40,000 M	14,000	NA	240,000	18,000	23,000
Chlorides Soluble	NA	NA	NA	NA	NA	16,000	NA	NA	NA
Nitrogen, (Ammonia)	NA	<200	<200	<200	<200	NA	<30	NA	<200
Nitrogen, Nitrate	NA	<100 J	<100	<100	<100	NA	<50	NA	300
Nitrogen, Nitrite	NA	<100 J	<100	<100 J	<100	NA	<50	NA	<100
Nitrogen, Nitrite and Nitrate	NA	NA	NA	<100	<100	NA	NA	NA	NA
Ortho-Phosphate	NA	NA	NA	NA	NA	NA	230	NA	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	NA	<100	<100	<100	<100	NA	NA	NA	<100
Silica	NA	20,000	40,000	<100	26,000	NA	NA	NA	31,000
Silica, Dissolved	NA	NA	NA	NA	NA	NA	37,000 J	NA	NA
Sulfate	<5,000	<5,000	24,000	<5,000	<20,000 M	NA	<5,000	<5,000	23,000
Sulfate Soluble	NA	NA	NA	NA	NA	<5,000	NA	NA	NA
Sulfide	NA	1,500	<500	2,400	<1000	NA	<100 J	NA	2,800

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-7					GM-8				GM-9
Top of Screen Depth (ft bls)	145	145	145	145	145	79	79	79	79	164
Sample Date	10/11/97	10/23/98	05/01/99	09/23/03	05/03/04	06/30/97	10/12/97	10/09/98	04/13/99	10/13/97
Sample ID	GM-7	GWGM-7	GWGM-7	GM-7	GWGM-7 (5/3/04)	GWGM-8	GM-8	GWGM-8	GWGM-8	GM-9
Alkalinity	300,000	300,000	300,000	250,000	230,000	200,000	220,000	200,000	210,000	190,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	19,000	18,000	18,000	19,000	18,000	58,000	58,000	63,000	63,000	4,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	<200	<200	<30	28 B	<200	***400***	<200	<200	***400***
Nitrogen, Nitrate	600	320	220	200	150	3,900	4,300	4,600	4,500	<100
Nitrogen, Nitrite	<100	<100	<100	<50	<50	<100	<100	<100	<100	<100
Nitrogen, Nitrite and Nitrate	NA	320	220	NA	NA	NA	NA	4,600	4,500	NA
Ortho-Phosphate	NA	NA	NA	<50	<50	NA	NA	NA	NA	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	100	370	120	190	<100	<100	<100	<100	<100	200
Silica	30,000	<100	21700	NA	NA	16,000	14,000	<100	11,000	17,000
Silica, Dissolved	NA	NA	NA	32,000	29,000	NA	NA	NA	NA	NA
Sulfate	12,000	11,000	7,000	7,100	5,000 B	25,000	24,000	27,000	<10,000 M	13,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	1,100	<1,000	<1,000	<1,000	<1,000	<500	1,000	3,600	<1,000	<500

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	**GM-9 (continued)**					**GM-10**			**GM-11**
Top of Screen Depth (ft bls)	**164**	**164**	**164**	**164**	**164**	**170**	**170**	**170**	**174.7**
Sample Date	**10/11/98**	**04/18/99**	**09/10/03**	**05/03/04**	**07/28/05**	**10/14/97**	**11/06/98**	**04/27/99**	**10/15/97**
Sample ID	**GWGM-9**	**GWGM-9**	**GM-9**	**GWGM-9 (5/3/04)**	**GWGM-9 (072805)**	**GM-10**	**GWGM-10**	**GWGM-10**	**GM-11**
Alkalinity	190,000	200,000	180,000	230,000	200,000	150,000	140,000	140,000	140,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	1,700	1,900	7,300	2,300	1,000	<1000	1,300	1,200	1,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	<200	**200**	**89**	**72**	***400***	<200	<200	<200
Nitrogen, Nitrate	<100	<100	<50	<50	<50	<100	<100	<100	<100
Nitrogen, Nitrite	<100 J	<100 J	<50	<50	<50	<100	<100 J	<100 J	<100
Nitrogen, Nitrite and Nitrate	<100	<100	NA	NA	NA	NA	<100	<100	NA
Ortho-Phosphate	NA	NA	<50	37 B	NA	NA	NA	NA	NA
Phosphate	NA	NA	NA	NA	<50	NA	NA	NA	NA
Phosphorus	<100	<100	<100	<100	<100	600	190	<100	400
Silica	<100	16,000	NA	NA	NA	18,000	<100	100	16,000
Silica, Dissolved	NA	NA	18,000	26,000	22,000	NA	NA	NA	NA
Sulfate	11,000	10,000	17,000	8,700	8,000	14,000	14,000	14,000	10,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	<1,000	2,300	<1,000	<1,200	2,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	**GM-12**			**GM-13**			**GM-14**		
Top of Screen Depth (ft bls)	**290**	**290**	**290**	**325**	**325**	**325**	**135**	**135**	**135**
Sample Date	**10/22/97**	**10/10/98**	**04/19/99**	**10/22/97**	**04/20/99**	**05/18/04**	**10/21/97**	**10/28/98**	**05/02/99**
Sample ID	**GM-12**	**GWGM-12**	**GWGM-12**	**GM-13**	**GWGM-13**	**GWGM-13 (5/18/04)**	**GM-14**	**GWGM-14**	**GWGM-14**
Alkalinity	260,000	280,000	260,000	300,000	340,000	250,000	280,000	270,000	250,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	33,000	37,000	33,000	14,000	16,000	110,000	14,000	13,000	13,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**200**	**210**	**210**	<200	<200	***1,200***	***3,300***	***3,700***	***3,300***
Nitrogen, Nitrate	<100	<100	<100	<100	<100	<50	<100	<100	<100
Nitrogen, Nitrite	<100	<100 J	<100	<100	<100 J	<50	<100	<100	<100
Nitrogen, Nitrite and Nitrate	NA	<100	<100	NA	<100	NA	NA	<100	<100
Ortho-Phosphate	NA	NA	NA	NA	NA	76	NA	NA	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	200	<100	<100	200	<100	190	1,800	<100	<100
Silica	17,000	<100	12,000	20,000	13,000	NA	20,000	<100	16,300
Silica, Dissolved	NA	NA	NA	NA	NA	9,800	NA	NA	NA
Sulfate	34,000	26,000	20,000	10,000	<5,000	<5,000	<5,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	<500	<1,000	<1,000	<500	<1,000	<1,000	<500	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	**GM-15**					**GM-16**		
Top of Screen Depth (ft bls)	**165**	**165**	**165**	**165**	**165**	**108**	**108**	**108**
Sample Date	**10/20/97**	**10/11/98**	**04/20/99**	**05/10/04**	**05/10/04**	**10/22/97**	**10/22/97**	**10/09/98**
Sample ID	**GM-15**	**GWGM-15**	**GWGM-15**	**GWGM-15 (5/10/04)**	**GWGM-996 (5/10/04)**	**GM-16**	**GM-78**	**GWGM-16**
Alkalinity	180,000	180,000	200,000	210,000	210,000	260,000	260,000	230,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	2,000	1,600	1,200	940 B	1,100	60,000	58,000	58,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**300**	**240**	**250**	**130**	**130**	<200	<200	<200
Nitrogen, Nitrate	<100	<100	<100	<50	27 B	2,900	2,900	3,100
Nitrogen, Nitrite	<100	<100 J	<100 J	<50	<50	<100	<100	<100
Nitrogen, Nitrite and Nitrate	NA	<100	<100	NA	NA	NA	NA	3100
Ortho-Phosphate	NA	NA	NA	58	56	NA	NA	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	300	120	150	88 J	66 J	<100	<200	<100
Silica	23,000	<100	20,000	NA	NA	16,000	16,000	<100
Silica, Dissolved	NA	NA	NA	29,000	27,000	NA	NA	NA
Sulfate	10,000	6,000	<5,000	<5,000	<5,000	22,000	<10,000 G	24,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	<500	<1,000	<1,000	<1,000	<1,000	800	<500	5,500

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-16 (continued)			GM-17			GM-18		GM-19
Top of Screen Depth (ft bls)	108	108	108	224.3	224.3	224.3	50	50	46
Sample Date	04/14/99	09/23/03	04/27/04	10/28/97	10/12/98	04/26/99	12/04/97	11/07/98	12/04/97
Sample ID	GWGM-16	GM-16	GWGM-16 (4/27/04)	GM-17	GWGM-17	GWGM-17	GM-18	GWGM-18	GM19
Alkalinity	250,000	53,000	260,000	130,000	150,000	200,000	220,000	210,000	440,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	62,000	110,000	100,000	24,000	19,000	28,000	13,000	6,000	1,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	<30	<30	**200**	**320**	<200	<200	<200	<200
Nitrogen, Nitrate	2,900	2,900	2,500	<100	<100	<100	700	490	500
Nitrogen, Nitrite	<100	<50	34 B	<100	790	<100 J	<100	<100 J	<100
Nitrogen, Nitrite and Nitrate	2,900	NA	NA	NA	260	<100	NA	490	NA
Ortho-Phosphate	NA	<50	31 B	NA	NA	NA	NA	NA	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	<100	<100	<100	<100	<100	<100	600	<100	<100
Silica	12,000	NA	NA	14,000	<100	3,860	9,700	<100	13,000
Silica, Dissolved	NA	19,000	17,000	NA	NA	NA	NA	NA	NA
Sulfate	20,000	23,000	25,000	7,000	23,000	<5,000	140,000	19,000	36,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	1,400	<500	<1,000	<1,000	<1,000	1,300	1,500

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-20	GM-21			GM-22			GM-23	
Top of Screen Depth (ft bls)	42	5	5	5	6	6	6	3.5	3.5
Sample Date	12/05/97	12/03/97	12/03/97	10/13/98	12/05/97	10/10/98	04/13/99	12/03/97	10/10/98
Sample ID	GM-20	GM-21	GM-95	GWGM-21	GM-22	GWGM-22	GWGM-22	GM-23	GWGM-23
Alkalinity	<5,000	470,000	440,000	390,000	230,000	200,000	420,000	550,000	350,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	1,000	13,000	14,000	10,000	43,000	74,000	100,000	5,000	4,800
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	<200	<200	<200	<200	<200	***670***	<200	<200
Nitrogen, Nitrate	40,000	<100	<100	<100	<100	340	<100 J	<100	<100
Nitrogen, Nitrite	<100	<100	<100	<100	<100	<100 J	<100	<100	<100 J
Nitrogen, Nitrite and Nitrate	NA	NA	NA	<100	NA	340	<100	NA	<100
Ortho-Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	1000	<100	1,100	<100	1,000	<100	<100	<100	630
Silica	99,000	19,000	24,000	<100	16,000	<100	15,000	20,000	<100
Silica, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	260,000	180,000	170,000	160,000	30,000	18,000	11,000	25,000	29,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	1,500	1,200	1,000	<1,000	720	<1,000	<1,000	1,200	<2,000 M

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-23 (continued)		GM-24A		GM-24B	GM-24B	
Top of Screen Depth (ft bls)	3.5	3.5	71	71	104	104	104
Sample Date	05/12/04	05/12/04	11/09/98	05/04/99	11/17/98	11/17/98	05/05/99
Sample ID	GWGM-23 (5/12/04)	GWGM-995 (5/12/04)	GWGM-24A	GWGM-24A	GWGM-24B	GWGM-94	GWGM-24B
Alkalinity	160,000	160,000	180,000	150,000	230,000	230,000	210,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA
Chloride	57,000	56,000	6,800	18,000	15,000	16,000	18,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<30	<30	<200	<200	<200	<200	<200
Nitrogen, Nitrate	<50	<50	<100	<100	2,000	1,800	2,700
Nitrogen, Nitrite	<50	<50	<100	<100	<100	100	<100
Nitrogen, Nitrite and Nitrate	NA	NA	<100	<100	2,000	1,900	2,700
Ortho-Phosphate	<50	31 B	NA	NA	NA	NA	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA
Phosphorus	<100	<100	<100	<100	<100	<100	<100
Silica	NA	NA	<100	<100	<100	<100	10,500
Silica, Dissolved	8,700	9,000	NA	NA	NA	NA	NA
Sulfate	23,000	23,000	33,000	12,000	21,000	31,000	32,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	**GM-24B (continued)**		**GM-24C**				
Top of Screen Depth (ft bls)	**104**	**104**	**193**	**193**	**193**	**193**	**193**
Sample Date	**04/29/04**	**05/04/04**	**11/20/98**	**11/20/98**	**05/13/99**	**09/24/03**	**04/29/04**
Sample ID	**GWGM-24B (4/29/04)**	**GWGM-24B (5/4/04)**	**GWGM-24C**	**GWGM-93**	**GWGM-24C**	**GM-24C**	**GWGM-24C (4/29/04)**
Alkalinity	220,000	NA	160,000	140,000	150,000	170,000	160,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA
Chloride	20,000	NA	4,500	4,400	5,000	3,200	2,600
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	***810***	NA	<200	<200	<200	**290**	**280**
Nitrogen, Nitrate	1,300	NA	<100	<100	<100	<50	<50
Nitrogen, Nitrite	100	NA	<100	<100	<100	<50	<50
Nitrogen, Nitrite and Nitrate	NA	NA	<100	<100	<100	NA	NA
Ortho-Phosphate	56	NA	NA	NA	NA	280	350
Phosphate	NA	NA	NA	NA	NA	NA	NA
Phosphorus	<100	NA	<100	<100	270	630	330
Silica	NA	NA	<100	<100	11,000	NA	NA
Silica, Dissolved	NA	13,000	NA	NA	NA	14,000	14,000
Sulfate	34,000	NA	9,400	11,000	24,000	16,000	17,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	NA	<1,000	<1,000	<1,000	1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25A					GM-25B			
Top of Screen Depth (ft bls)	19	19	19	19	19	98	98	98	98
Sample Date	10/06/98	04/16/99	08/21/00	09/09/03	05/12/04	10/06/98	04/27/99	04/17/00	09/09/03
Sample ID	GWGM-25A	GWGM-25A	GWGM-25A	GM-25A	GWGM-25A (5/12/04)	GWGM-25B	GWGM-25B	GWGM-25B	GM-25B
Alkalinity	1,400,000	1,400,000	NA	1,100,000	1,100,000	2,200,000	2,300,000	2,700,000	2,900,000
Bicarbonate	NA	NA	1,400,000	NA	NA	NA	NA	NA	NA
Chloride	<160,000 M	11,000	11,000 J	9,900	17,000	<80,000 M	<64,000 M	NA	19,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	<200	NA	**150**	<60 *F65	<200	**250**	NA	***2,200***
Nitrogen, Nitrate	<100	<100	NA	<50	<50	<200	<1000	NA	<50
Nitrogen, Nitrite	<100	<100	NA	<50	<50	<200 M	<1,000 M	NA	<50
Nitrogen, Nitrite and Nitrate	<100	<100	NA	NA	NA	<100	<100	NA	NA
Ortho-Phosphate	NA	NA	NA	<50	<50	NA	NA	NA	<50
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	220	<100	NA	<100	<100	140	<100	NA	<100
Silica	<100	38,000	NA	NA	NA	<100	16,000	NA	NA
Silica, Dissolved	NA	NA	NA	46,000	42,000	NA	NA	NA	56,000
Sulfate	52,000	<10,000 M	<5,000	<5,000	<5,000	17,000	<20,000 M	NA	13,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	<6,000 M	1,900	NA	<1,000	<1,000	<1,000	6,600	NA	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25B (continued)	GM-25C					
Top of Screen Depth (ft bls)	98	206	206	206	206	206	206
Sample Date	05/18/04	11/09/98	11/09/98	04/20/99	08/02/00	09/15/03	05/04/04
Sample ID	GWGM-25B (5/18/04)	GWGM-25C	GWGM-95	GWGM-25C	GWGM-25C	GM-25C	GWGM-25C (5/4/04)
Alkalinity	2,900,000	170,000	170,000	200,000	47,000	240,000	270,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA
Chloride	20,000	12,000	12,000	14,000	14000 J	14,000	16,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<1,500 *F65	<200	<200	<200	**89**	**120**	**35**
Nitrogen, Nitrate	<50	<100	<100	<100	<50 J	<50	<50
Nitrogen, Nitrite	<50	<100	<100	<100 J	<50	<50	<50
Nitrogen, Nitrite and Nitrate	NA	<100	<100	<100	NA	NA	NA
Ortho-Phosphate	<50	NA	NA	NA	160	<50	74
Phosphate	NA	NA	NA	NA	NA	NA	NA
Phosphorus	<100	330	<100	<100	NA	<100	160
Silica	NA	<100	<100	12,000	NA	NA	NA
Silica, Dissolved	55,000	NA	NA	NA	14,000	16,000	17,000
Sulfate	<5,000	7,300	7,400	12,000	<5,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	180	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25C (continued)	GM-26A					GM-26B	
Top of Screen Depth (ft bls)	206	30	30	30	30	30	101	101
Sample Date	08/01/05	10/07/98	04/14/99	08/16/00	09/09/03	05/13/04	10/07/98	04/15/99
Sample ID	GWGM-25C (08/01/05)	GWGM-26A	GWGM-26A	GWGM-26A	GM-26A	GWGM-26A (5/13/04)	GWGM-26B	GWGM-26B
Alkalinity	280,000	840,000	1,300,000	NA	920,000	1,300,000	170,000	170,000
Bicarbonate	NA	NA	NA	1,200,000	NA	NA	NA	NA
Chloride	15,000	<40,000 M	19,000	21,000 J	25,000	22,000	1,200	<1,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**36**	<200	<200	NA	**110**	<60 *F65	<200	<200
Nitrogen, Nitrate	36 J	<200	<100	NA	<50	<50	<100	<100
Nitrogen, Nitrite	<50	<200 M	<100	NA	<50	<50	<100	<100
Nitrogen, Nitrite and Nitrate	NA	<100	<100	NA	NA	NA	<100	<100
Ortho-Phosphate	NA	NA	NA	NA	<50	<50	NA	NA
Phosphate	97	NA	NA	NA	NA	NA	NA	NA
Phosphorus	240	<100	<100	NA	<100	<100	<100	<100
Silica	NA	<100	33,000	NA	NA	NA	<100	17,000
Silica, Dissolved	16,000	NA	NA	NA	33,000	37,000	NA	NA
Sulfate	<5,000	17,000	<5,000	<5,000	<5,000	<5,000	9,400	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	3,200	2,600	NA	<1,000	<1,000	4,200	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26B (continued)				GM-26C			
Top of Screen Depth (ft bls)	**101**	**101**	**101**	**101**	**160**	**160**	**160**	**160**
Sample Date	**07/18/00**	**09/09/03**	**04/27/04**	**07/28/05**	**10/25/98**	**04/17/99**	**08/16/00**	**09/16/03**
Sample ID	**GWGM-26B**	**GM-26B**	**GWGM-26B (4/27/04)**	**GWGM-26B (072805)**	**GWGM-26C**	**GWGM-26C**	**GWGM-26C**	**GM-26C**
Alkalinity	150,000	170,000	180,000	170,000	840,000	920,000	NA	1,500,000
Bicarbonate	NA	NA	NA	NA	NA	NA	1,200,000	NA
Chloride	<1,000	<1,000	740 B	<1,000	20,000	18,000	23,000 J	20,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**64**	**180**	**85**	**48**	**270**	**240**	NA	**64**
Nitrogen, Nitrate	<50	<50	<50	<50	<200	<100	NA	<50
Nitrogen, Nitrite	<50	<50	<50	<50	<200 M	<100 J	NA	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	<100	<100	NA	NA
Ortho-Phosphate	74	<50	<50	NA	NA	NA	NA	<50
Phosphate	NA	NA	NA	<50	NA	NA	NA	NA
Phosphorus	NA	<100	<100	<100	<100	<100	NA	150
Silica	NA	NA	NA	NA	<100	32,000	NA	NA
Silica, Dissolved	22,000	24,000	24,000	18,000	NA	NA	NA	55,000
Sulfate	38,000 J	8,300	7,700	6,500	<5,000	<20,000 M	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	<100 J	<1,000	<1,000	<1,000	1,800	2,500	NA	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26C (continued)		GM-27A				GM-27B
Top of Screen Depth (ft bls)	160	160	30	30	30	30	145
Sample Date	05/18/04	05/18/04	10/08/98	04/15/99	09/10/03	05/13/04	10/26/98
Sample ID	GWGM-26C (5/18/04)	GWGM-994 (5/18/04)	GWGM-27A	GWGM-27A	GM-27A	GWGM-27A (5/13/04)	GWGM-27B
Alkalinity	1,600,000	1,600,000	1,200,000	1,200,000	1,300,000	1,300,000	140,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA
Chloride	21,000	21,000	<160,000 M	16,000	<1,000	20,000	5,100
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**56**	**50**	<200	<200	**42**	<60 *F65	<200
Nitrogen, Nitrate	<50	<50	<100	<100	<50	28 B	<100 J
Nitrogen, Nitrite	<50	<50	<100	<100 J	<50	<50	<100
Nitrogen, Nitrite and Nitrate	NA	NA	<100	<100	NA	NA	<100
Ortho-Phosphate	<50	<50	NA	NA	<50	<50	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA
Phosphorus	170	150	<100	<100	<100	70 J	170
Silica	NA	NA	<100	39,000	NA	NA	<100
Silica, Dissolved	46,000	49,000	NA	NA	54,000	49,000	NA
Sulfate	<5,000	<5,000	5,200	<10,000 JM	<5,000	<5,000	61,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	1,200	2,000	<1,000	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)						
Top of Screen Depth (ft bls)	145	145	145	145	145	145	145
Sample Date	04/14/99	07/18/00	09/10/03	04/30/04	04/30/04	08/05/05	12/07/06
Sample ID	GWGM-27B	GWGM-27B	GM-27B	GWGM-27B (4/30/04)	GWGM-998 (4/30/04)	GWGM-27B (08/05/05)	GWGM27B (12/7/06)
Alkalinity	130,000	130,000	160,000	150,000	150,000	140,000	160,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA
Chloride	1,500	<1,000	18,000	880 B	750 B	<1,000	<1,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	***370***	**140**	**210**	**100**	**100**	**88**	**110**
Nitrogen, Nitrate	<100	<50	<50	<50 *F70	<50 *F70	<50	<50
Nitrogen, Nitrite	<100	<50	<50	<50 *F70	<50 *F70	<50	<50
Nitrogen, Nitrite and Nitrate	<100	NA	NA	NA	NA	NA	NA
Ortho-Phosphate	NA	110	<50	47 B*F70	35 B*F70	NA	31 J
Phosphate	NA	NA	NA	NA	NA	30 J	NA
Phosphorus	200	NA	<100	<100	<100	76 J	51 J
Silica	15,000	NA	NA	NA	NA	NA	23,600
Silica, Dissolved	NA	18,000	21,000	23,000	22,000	19,000	NA
Sulfate	5,200	<5,000	8,100	6,800	6,900	7,400	7,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<100 J	<1,000	<1,000	<1,000	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	**GM-27B (continued)**				**GM-27C**	
Top of Screen Depth (ft bls)	**145**	**145**	**145**	**145**	**210**	**210**
Sample Date	**02/22/07**	**05/11/07**	**08/08/07**	**11/08/07**	**11/09/98**	**04/26/99**
Sample ID	**GWGM-27B (2/22/07)**	**GWGM-27B(5/11/07)**	**GWGM-27B (8/8/07)**	**GWGM-27B (11/8/07)**	**GWGM-27C**	**GWGM-27C**
Alkalinity	140,000	160,000	160,000	170,000	150,000	150,000
Bicarbonate	NA	NA	NA	NA	NA	NA
Chloride	520 J	18,000	720 J	570 J	1,500	1,600
Chlorides Soluble	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**270**	**120**	**210**	**130 B**	<200	<200
Nitrogen, Nitrate	59 B	62	<50	<50	<100	<100
Nitrogen, Nitrite	<50	<50	<50	11 J B	<100	<100 J
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	<100 J	<100
Ortho-Phosphate	NA	NA	NA	NA	NA	NA
Phosphate	35 J	<50	32 J	26 J	NA	NA
Phosphorus	63 J	<100	<100	84 J	<100	<100
Silica	19,000	20,900	23,300	22,000	<100	4,200
Silica, Dissolved	NA	NA	NA	NA	NA	NA
Sulfate	7,400	64,000	6,700	7,000	5,500	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27C (continued)					GM-28A		
Top of Screen Depth (ft bls)	**210**	**210**	**210**	**210**	**210**	**40**	**40**	**40**
Sample Date	**04/26/99**	**08/07/00**	**09/11/03**	**04/30/04**	**08/05/05**	**10/28/98**	**04/19/99**	**02/29/00**
Sample ID	**GWGM-86**	**GMGW-27C**	**GM-27C**	**GWGM-27C (4/30/04)**	**GWGM-27C (08/05/05)**	**GWGM-28A**	**GWGM-28A**	**GWGM-28A**
Alkalinity	150,000	170,000	160,000	170,000	160,000	350,000	330,000	NA
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	310000
Chloride	1,500	1,500	1,500	1,800	1,300	50,000	44,000	NA
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	49000
Nitrogen, (Ammonia)	<200	**120**	**170**	**130**	**96**	<200	<200	NA
Nitrogen, Nitrate	<100	<50	190	<50 *F70	<50	<100	<100	NA
Nitrogen, Nitrite	<100 J	<50	<50	<50 *F70	<50	<100	<100	NA
Nitrogen, Nitrite and Nitrate	<100	NA	NA	NA	NA	<100	<100	NA
Ortho-Phosphate	NA	110	<50	26 B*F70	NA	NA	NA	NA
Phosphate	NA	NA	NA	NA	<50	NA	NA	NA
Phosphorus	<100	NA	<100	<100	72 J	<100	<100	NA
Silica	5,890	NA	NA	NA	NA	<100	21000	NA
Silica, Dissolved	NA	21,000	24,000	24,000	15,000	NA	NA	NA
Sulfate	5,900	<5,000	8,600	6,600	6,800	<5,000	<5,000	NA
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	<5000
Sulfide	<1,000	<100	<1,000	<1,000	<1,000	<1,000	<1,000	NA

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)					
Top of Screen Depth (ft bls)	40	40	40	40	40	40
Sample Date	07/19/00	04/28/04	07/26/05	07/26/05	12/05/06	02/21/07
Sample ID	GWGM-28A	GWGM-28A (4/28/04)	GWGM28A (072605)	GWGM-999 (7/26/05)	GWGM-28A(12/5/06)	GWGM-28A (2/21/07)
Alkalinity	320,000	380,000	330,000	330,000	300,000	340,000
Bicarbonate	NA	NA	NA	NA	NA	NA
Chloride	28,000	18,000	23,000	23,000	66,000	34,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<30	<30	<30	<30	**50**	**140**
Nitrogen, Nitrate	<50	<50	27 J	31 J	<50	<50
Nitrogen, Nitrite	<50	<50	<50	<50	<50	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA	NA
Ortho-Phosphate	100	<50	NA	NA	<50	NA
Phosphate	NA	NA	<50	<50	NA	<50
Phosphorus	NA	<100	<100	<100	120	53 J
Silica	NA	NA	NA	NA	29,200	27,100
Silica, Dissolved	33,000	36,000	28,000	31,000	NA	NA
Sulfate	<5,000	<5,000	<5,000	<5,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA
Sulfide	<100 J	<1,000	<1,000	<1,000	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)			GM-28B			
Top of Screen Depth (ft bls)	**40**	**40**	**40**	**124.5**	**124.5**	**124.5**	**124.5**
Sample Date	**05/10/07**	**08/07/07**	**11/05/07**	**11/08/98**	**11/08/98**	**04/19/99**	**04/19/99**
Sample ID	**GWGM-28A (5/10/07)**	**GWGM-28A (8/7/07)**	**GWGM-28A (11/5/07)**	**GWGM-28B**	**GWGM-96**	**GWGM-28B**	**GWGM-87**
Alkalinity	350,000	360,000	350,000	120,000	120,000	120,000	120,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA
Chloride	14,000	6,700	5,500	1,400	1,200	1,200	<1000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**140**	***740***	**59**	<200	<200	<200	<200
Nitrogen, Nitrate	<50	<50	<50	<100	<100	<100	<100
Nitrogen, Nitrite	<50	<50	<50	<100	<100	<100 J	<100 J
Nitrogen, Nitrite and Nitrate	NA	NA	NA	<100	<100	<100	<100
Ortho-Phosphate	NA	NA	NA	NA	NA	NA	NA
Phosphate	<50	<50	<50	NA	NA	NA	NA
Phosphorus	<100	<100	<100	<100	690	<100	<100
Silica	28,600	31,400	30,300	<100	<100	15,000	15,000
Silica, Dissolved	NA	NA	NA	NA	NA	NA	NA
Sulfate	<5,000	<5,000	<5,000	11,000	11,000	8,100	9,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)					
Top of Screen Depth (ft bls)	**124.5**	**124.5**	**124.5**	**124.5**	**124.5**	**124.5**
Sample Date	**03/01/00**	**04/28/04**	**04/28/04**	**07/26/05**	**12/05/06**	**02/21/07**
Sample ID	**GWGM-28B**	**GWGM-28B (4/28/04)**	**GWGM-999 (4/28/04)**	**GWGM28B (072605)**	**GWGM-28B(12/5/06)**	**GWGM-28B (2/21/07)**
Alkalinity	NA	150,000	150,000	130,000	140,000	140,000
Bicarbonate	110,000	NA	NA	NA	NA	NA
Chloride	NA	590 B	740 B	<1,000	<1,000	2,800
Chlorides Soluble	<1,000	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	NA	**61**	**61**	**60**	**190**	**160**
Nitrogen, Nitrate	NA	<50	<50	<50	41 J	83
Nitrogen, Nitrite	NA	<50	<50	<50	<50	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA	NA
Ortho-Phosphate	NA	<50	25 B	NA	26 J	NA
Phosphate	NA	NA	NA	<50	NA	30 J
Phosphorus	NA	<100	<100	<100	55 J	64 J
Silica	NA	NA	NA	NA	21,100	18,400
Silica, Dissolved	NA	24,000	24,000	26,000	NA	NA
Sulfate	NA	9,700	9,800	8,200	8,900	10,000
Sulfate Soluble	8,600	NA	NA	NA	NA	NA
Sulfide	NA	<1,000	<1,000	<1,000	3,100	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring		GM-28B (continued)				GM-29		
Top of Screen Depth (ft bls)	**124.5**	**124.5**	**124.5**	**55**	**55**	**55**	**55**	**55**
Sample Date	**05/10/07**	**08/07/07**	**11/05/07**	**10/09/98**	**10/09/98**	**04/16/99**	**02/29/00**	**09/10/03**
Sample ID	**GWGM-28B (5/10/07)**	**GWGM-28B (8/7/07)**	**GWGM-28B (11/5/07)**	**GWGM-29**	**GWGM-99**	**GWGM-29**	**GMGM-29**	**GM-29**
Alkalinity	150,000	160,000	150,000	400,000	400,000	360,000	NA	260,000
Bicarbonate	NA	NA	NA	NA	NA	NA	240,000	NA
Chloride	<1,000	560 J	800 J	4,300	4,300	3,500	NA	2,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	2,800	NA
Nitrogen, (Ammonia)	**190**	***450***	**120**	<200	<200	<200	NA	**200**
Nitrogen, Nitrate	<50	<50	<50	<100	<100	<100	NA	<50
Nitrogen, Nitrite	<50	<50	<50	<100	<100	<100	NA	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	<100	<100	<100	NA	NA
Ortho-Phosphate	NA	NA	NA	NA	NA	NA	NA	<50
Phosphate	27 J	26 J	<50	NA	NA	NA	NA	NA
Phosphorus	<100	<100	58 J	<100	<100	<100	NA	<100
Silica	20,400	20,100	19,000	<100	<100	18,000	NA	NA
Silica, Dissolved	NA	NA	NA	NA	NA	NA	NA	32,000
Sulfate	9,200	7,300	9,400	11,000	11,000	<10,000 M	NA	5,600
Sulfate Soluble	NA	NA	NA	NA	NA	NA	<5,000	NA
Sulfide	<1,000	<1,000	<1,000	4,200	4,200	<1,000	NA	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	**GM-29 (continued)**					
Top of Screen Depth (ft bls)	**55**	**55**	**55**	**55**	**55**	**55**
Sample Date	**05/03/04**	**07/28/05**	**12/08/06**	**02/20/07**	**05/09/07**	**08/07/07**
Sample ID	**GWGM-29 (5/3/04)**	**GWGM-29 (07/28/05)**	**GWGM-29 (12/8/06)**	**GWGM-29 (2/20/07)**	**GWGM-29 (5/9/07)**	**GWGM-29 (8/7/07)**
Alkalinity	230,000	220,000	290,000	340,000	370,000	280,000
Bicarbonate	NA	NA	NA	NA	NA	NA
Chloride	1,800	1,400	2,000	3,700	4,800	2,800
Chlorides Soluble	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**88**	**75**	**190**	**210**	**130**	**250**
Nitrogen, Nitrate	<50	31 J	<250	26 J	52	<50
Nitrogen, Nitrite	<50	<50	<50	<50	<50	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA	NA
Ortho-Phosphate	<50	NA	<50	NA	NA	NA
Phosphate	NA	<50	NA	<50	<50	<50
Phosphorus	<100	<100	<100	<100	<100	<100
Silica	NA	NA	29,200	24,100	27,200	26,600
Silica, Dissolved	29,000	29,000	NA	NA	NA	NA
Sulfate	4,800 B	18,000	<5,000	<5,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)		GM-30			GM-31		
Top of Screen Depth (ft bls)	55	55	75	75	75	105	105	105
Sample Date	11/06/07	11/06/07	10/27/98	05/12/99	05/12/99	10/24/98	05/03/99	10/09/00
Sample ID	DUP-999(11/6/07)	GWGM-29(11/6/07)	GWGM-30	GWGM-30	GWGM-83	GWGM-31	GWGM-31	GWGM-31
Alkalinity	240,000	240,000	420,000	400,000	400,000	250,000	240,000	NA
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	260,000
Chloride	2,700	2,700	63,000	46,000	43,000	40,000	40,000	36,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	***360***	**160**	<200	<200	<200	<200	<200	NA
Nitrogen, Nitrate	<50	<50	<100	<100	<100	<200	<100	NA
Nitrogen, Nitrite	<50	<50	<100	<100	<100	<200 JM	<100	NA
Nitrogen, Nitrite and Nitrate	NA	NA	<100	<100	<100	<100	<100	NA
Ortho-Phosphate	NA	NA	NA	NA	NA	NA	NA	NA
Phosphate	<50	<50	NA	NA	NA	NA	NA	NA
Phosphorus	76 J	55 J	<100	<100	140	110	<100	NA
Silica	24,500	24,200	<100	9,900	9,900	<100	19100	NA
Silica, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	<5,000	<5,000	5,900	230,000	240,000	<5,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	NA

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-32				GM-33	GM-34A		
Top of Screen Depth (ft bls)	135	135	135	135	74	30	30	30
Sample Date	10/25/98	04/27/99	09/25/03	05/26/04	05/10/99	10/08/98	04/17/99	04/29/04
Sample ID	GWGM-32	GWGM-32	GM-32	GWGM-32(5/26/04)	GWGM-33	GWGM-34A	GWGM-34A	GWGM-34A (4/29/04)
Alkalinity	2,700,000	2,700,000	3,200,000	2,800,000	160,000	160,000	170,000	170,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	<80,000 M	<32,000 M	18,000	17,000	50,000	35,000	45,000	79,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	***890***	**300**	***410***	<1,500 *F65	<200	<200	<200	**37**
Nitrogen, Nitrate	<200	<1,000	<50	<50	<100	1,100	560	1,300
Nitrogen, Nitrite	<200 M	<1,000 M	<50	27 B	<100	<100	<100 J	<50
Nitrogen, Nitrite and Nitrate	<100	<100	NA	NA	<100	1,100	560	NA
Ortho-Phosphate	NA	NA	<50	46 B	NA	NA	NA	<50
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	670	<100	230	110	1,300	<100	<100	<100
Silica	<100	200,400	NA	NA	14,000	<100	9,500	NA
Silica, Dissolved	NA	NA	80,000	54,000	NA	NA	NA	13,000
Sulfate	$\boxed{270,000}$	200,000	140,000	86,000	18,000	17,000	11,000	11,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	<25,000 M	9,400	<1,000	<1,000	<1,000	3,400	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-34B				GM-35			GM-36	
Top of Screen Depth (ft bls)	85	85	85	85	40	40	40	95	95
Sample Date	10/12/98	04/14/99	09/24/03	04/28/04	11/04/98	05/04/99	05/04/99	11/03/98	05/05/99
Sample ID	GWGM-34B	GWGM-34B	GM-34B	GWGM-34B (4/28/04)	GWGM-35	GWGM-35	GWGM-84	GWGM-36	GWGM-36
Alkalinity	170,000	180,000	180,000	190,000	240,000	280,000	290,000	240,000	240,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	18,000	24,000	99,000	98,000	7,100	11,000	11,000	88,000	67,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	<200	<30	<30	***550***	**250**	**250**	<200	<200
Nitrogen, Nitrate	350	550	610	520	<100	<100 J	<100 J	800	630
Nitrogen, Nitrite	<100	<100	<50	<50	<100	<100	<100	<100	<100
Nitrogen, Nitrite and Nitrate	350	550	NA	NA	<100	<100	<100	800	630
Ortho-Phosphate	NA	NA	<50	36 B	NA	NA	NA	NA	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	120	<100	<100	<100	<100	<100	<100	250	<100
Silica	<100	14,000	NA	NA	<100	19,300	18,100	<100	9,900
Silica, Dissolved	NA	NA	22,000	18,000	NA	NA	NA	NA	NA
Sulfate	20,000	12,000	15,000	16,000	$\boxed{510,000}$	220,000	230,000	10,000	7,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-36 (continued)	GM-37A				GM-37B		
Top of Screen Depth (ft bls)	95	144	144	144	144	328	328	328
Sample Date	05/04/04	11/18/98	05/11/99	09/25/03	05/17/04	10/13/98	05/14/99	09/25/03
Sample ID	GWGM-36 (5/4/04)	GWGM-37A	GWGM-37A	GM-37A	GWGM-37A (5/17/04)	GWGM-37B	GWGM-37B	GM-37B
Alkalinity	250,000	1,300,000	1,100,000	1,100,000	1,100,000	2,200,000	250,000	2,400,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	120,000	<40,000 M	12,000	8,800	12,000	<40,000 M	22,000	24,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<30	<200	***910***	<30	<300 *F65	***2,700***	***330***	<150 *F65
Nitrogen, Nitrate	400	<200	<100 J	<50	<50	<1,000	<200	<50
Nitrogen, Nitrite	<50	<200 M	<100	<50	<50	<1,000 M	<200 M	<50
Nitrogen, Nitrite and Nitrate	NA	<100	<100	NA	NA	<200 M	<100	NA
Ortho-Phosphate	<50	NA	NA	<50	<50	NA	NA	<50
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	<100	640	2,100	530	540	<100	310	<100
Silica	NA	<100	52,000	NA	NA	<100	54,000	NA
Silica, Dissolved	16,000	NA	NA	62,000	63,000	NA	NA	58,000
Sulfate	7,600	<5,000	20,000	<5,000	<5,000	30,000	7,900	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	1,000	<1,000	<1,000	8,000	7,300	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-37B (continued)	GM-38A			GM-38B		GM-38C	
Top of Screen Depth (ft bls)	328	95	95	95	160	160	200	200
Sample Date	05/27/04	10/13/98	10/13/98	04/15/99	10/14/98	04/29/99	10/20/98	10/20/98
Sample ID	GWGM-37B (5/27/04)	GWGM-38A	GWGM-98	GWGM-38A	GWGM-38B	GWGM-38B	GWGM-38C	GWGM-97
Alkalinity	2,500,000	150,000	160,000	160,000	190,000	180,000	160,000	170,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	24,000	37,000	36,000	23,000	2,500	2,700	3,100	3,100
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<750 *F65	<200	<200	<200	<200	<200	<200	<200
Nitrogen, Nitrate	<50	1,800	1,800	1,300	<100	<100	<100	<100
Nitrogen, Nitrite	<50	<100	<100	<100	<100	<100	<100	<100
Nitrogen, Nitrite and Nitrate	NA	1,800	1,800	1,300	<100	<100	<100	<100
Ortho-Phosphate	27 B	NA	NA	NA	NA	NA	NA	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	75	<100	<100	<100	190	<100	<100	<100
Silica	NA	<100	<100	11,000	<100	16,100	<100	<100
Silica, Dissolved	46,000	NA	NA	NA	NA	NA	NA	NA
Sulfate	<5,000	14,000	14,000	13,000	14,000	10,000	13,000	13,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-38C (continued)	GM-39			GM-40A			GM-40B
Top of Screen Depth (ft bls)	200	85	85	85	75	75	75	120
Sample Date	04/30/99	10/12/98	04/15/99	04/15/99	10/26/98	04/28/99	05/03/04	10/26/98
Sample ID	GWGM-38C	GWGM-39	GWGM-39	GWGM-89	GWGM-40A	GWGM-40A	GWGM-40A (5/3/04)	GWGM-40B
Alkalinity	170,000	190,000	200,000	190,000	68,000	62,000	72,000	2,400,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	1,900	29,000	35,000	35,000	2,300	2,000	3,400	<40,000 M
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	<200	<200	<200	<200	<200	**43**	**280**
Nitrogen, Nitrate	<100	140	<100	<100	<100	<100	<50	<200 J
Nitrogen, Nitrite	<100	<100	<100	<100	<100	<100	<50	<200 M
Nitrogen, Nitrite and Nitrate	<100	140	<100	<100	<100	<100	NA	<100
Ortho-Phosphate	NA	NA	NA	NA	NA	NA	25 B	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	<100	<100	<100	<100	<100	<100	<100	170
Silica	13,900	<100	23,000	22,000	<100	100	NA	<100
Silica, Dissolved	NA	NA	NA	NA	NA	NA	15,000	NA
Sulfate	11,000	7400	<5,000	<5,000	18,000	16,000	19,000	100,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	1,100	<1,000	<1,000	<1,000	1400	<1,000	<1,000	<25,000 M

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-40B (continued)		GM-41		GM-42		GM-49	GM-50	
Top of Screen Depth (ft bls)	120	120	40	40	72	72	83.5	80.5	80.5
Sample Date	04/27/99	05/19/04	10/19/98	04/16/99	10/20/98	04/16/99	04/17/99	10/14/98	04/17/99
Sample ID	GWGM-40B	GWGM-40B (5/19/04)	GWGM-41	GWGM-41	GWGM-42	GWGM-42	GWGM-49	GWGM-50	GWGM-50
Alkalinity	2,300,000	2,600,000	420,000	430,000	340,000	350,000	420,000	360,000	360,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	21,000	24,000	60,000	52,000	47,000	44,000	5,900	130,000	110,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	**49**	<200	<200	***360***	***410***	<200	<200	<200
Nitrogen, Nitrate	<100	<50	<100	<100	<100	<100	<100	120	<100
Nitrogen, Nitrite	<100 J	<50	<100	<100	<100	<100 J	<100 J	<100	<100 J
Nitrogen, Nitrite and Nitrate	<100	NA	<100	<100	<100	<100	<100	120	<100
Ortho-Phosphate	NA	<50	NA	NA	NA	NA	NA	NA	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	<100	91 J	<100	<100	<100	<100	<100	<100	<100
Silica	100	NA	<100	32,000	<100	27,000	14,000	<100	21,000
Silica, Dissolved	NA	85,000	NA	NA	NA	NA	NA	NA	NA
Sulfate	62,000	<5,000	<5,000	<10,000 M	160,000	66,000	55,000	7,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	6,200	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-51		GM-52	GM-53A	GM-53B		GM-54		GM-55
Top of Screen Depth (ft bls)	67	67	75	79	195	195	80	80	75
Sample Date	10/20/98	04/18/99	04/19/99	04/19/99	11/05/98	05/01/99	10/24/98	05/01/99	10/24/98
Sample ID	GWGM-51	GWGM-51	GWGM-52	GWGM-53A	GWGM-53B	GWGM-53B	GWGM-54	GWGM-54	GWGM-55
Alkalinity	170,000	200,000	230,000	200,000	670,000	710,000	92,000	98,000	310,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	7,400	15,000	3,200	45,000	11,000	12,000	<1,000	1,000	110,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	<200	<200	<200	<200	<200	<200	<200	<200
Nitrogen, Nitrate	<100	<100	880	<100	<100	<100	<100	<100	<200
Nitrogen, Nitrite	<100	<100 J	<100	<100	<100	<100	<100	<100	<200 JM
Nitrogen, Nitrite and Nitrate	<100	<100	880	<100	<100	<100	<100	<100	<100
Ortho-Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	<100	<100	<100	<100	<100	<100	<100	580	<100
Silica	<100	15,000	10,000	11,000	<100	28,600	<100	13,600	<100
Silica, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	110,000	130,000	25,000	5,600	14,000	<5,000	28,000	34,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	<1,000	1,800	1,200	1,200	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-55 (continued)		GM-56		GM-57	GM-58	GM-59		GM-60	GM-61
Top of Screen Depth (ft bls)	75	75	32	32	76	75	114	114	102	138
Sample Date	05/01/99	05/01/99	10/21/98	04/20/99	04/20/99	04/26/99	11/17/98	04/28/99	05/12/99	05/03/99
Sample ID	GWGM-55	GWGM-85	GWGM-56	GWGM-56	GWGM-57	GWGM-58	GWGM-59	GWGM-59	GWGM-60	GWGM-61
Alkalinity	<10,000	330,000	290,000	300,000	260,000	210,000	210,000	210,000	320,000	250,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	76,000	75,000	16,000	25,000	79,000	48,000	34,000	34,000	140,000	110,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
Nitrogen, Nitrate	<100	<100	320	<100	<100	1,200	<100	130	200	1,500
Nitrogen, Nitrite	<100	<100	<100	<100 J	<100 J	<100 J	<100	<100	130	<100 J
Nitrogen, Nitrite and Nitrate	<100	<100	320	<100	<100	1200	<100	130	330	1,500
Ortho-Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Silica	21,300	23,300	<100	10,000	21,000	24,740	<100	100	15,000	<100
Silica, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	<5,000	<5,000	42,000	200,000	6,700	25,000	14,000	11,000	25,000	37,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-62A		GM-62B			GM-62C	
Top of Screen Depth (ft bls)	**90**	**90**	**195**	**195**	**195**	**315**	**315**
Sample Date	**08/23/99**	**05/11/04**	**08/24/99**	**08/24/99**	**05/19/04**	**08/24/99**	**05/18/04**
Sample ID	**GWGM-62A**	**GWGM-62A (5/11/04)**	**GWGM-62B**	**GWGM-82**	**GWGM-62B (5/19/04)**	**GWGM-62C**	**GWGM-62C (5/18/04)**
Alkalinity	440,000	480,000	2,000,000	2,000,000	2,000,000	2,100,000	1,300,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA
Chloride	14,000	13,000	23,000	22,000	24,000	23,000	19,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<150	**100**	**86**	**71**	<150 *F65	<60	***380***
Nitrogen, Nitrate	<50	<50	<100	<100	<50	<100	<50
Nitrogen, Nitrite	<50	<50	<50	<50	27 B	<50	39 J
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate	NA	<50	NA	NA	<50	NA	<50
Phosphate	NA	NA	NA	NA	NA	NA	NA
Phosphorus	130	250	<100	<100	410	<100	63 J
Silica	NA	NA	NA	NA	NA	NA	NA
Silica, Dissolved	NA	48,000	NA	NA	75,000	NA	6,100
Sulfate	130,000	200,000	<5,000	<5,000	<5,000	<5,000	100,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA
Sulfide	<100	<1,000	<100	<100	<1,000	110	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-63A				GM-63B			GM-64A
Top of Screen Depth (ft bls)	45	45	45	45	105	105	105	33
Sample Date	08/29/00	09/19/00	09/15/03	05/05/04	02/07/01	09/11/03	04/27/04	08/30/00
Sample ID	GWGM-63A	GWGM-63A	GM-63A	GWGM-63A (5/5/04)	GWGM-63B	GM-63B	GWGM-63B (4/27/04)	GWGM-64A
Alkalinity	670,000	650,000	480,000	640,000	130,000	150,000	150,000	640,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	10,000	11,000	5,500	8,600	1,300	1,400	1,500	20,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<30	<30	<30	<30	**110**	**180**	**44**	<30
Nitrogen, Nitrate	<50	<50	<50	3,200	<50	<50	<50	<50
Nitrogen, Nitrite	<50	<50	<50	<50	<50	<50	<50	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate	NA	NA	<50	<50	NA	<50	52	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	<100	<100	<100	<100	<100	<100	<100	<100
Silica	NA	NA	NA	NA	NA	NA	NA	NA
Silica, Dissolved	36,000	19,000	31,000	31,000	21,000	17,000	15,000	37,000
Sulfate	<5,000	<5,000	<5,000	<5,000	NA	7,100	6,800	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	240 J	280	<1,000	600 B	<1,000	<1,000	<1,000	<100 J

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-64A			GM-64B				GM-66A
Top of Screen Depth (ft bls)	33	33	33	117	117	117	117	27
Sample Date	10/03/00	09/08/03	05/04/04	07/24/00	10/04/00	09/08/03	05/11/04	07/18/00
Sample ID	GWGM-64A	GM-64A	GWGM-64A (5/4/04)	GWGM-64B	GWGM-64B	GM-64B	GWGM-64B (5/11/04)	GWGM-66A
Alkalinity	480,000	490,000	660,000	720,000	NA	820,000	850,000	320,000
Bicarbonate	NA	NA	NA	NA	780,000	NA	NA	NA
Chloride	19,000	24,000	25,000	9,100	7,300	8,600	9,700	110,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<30	**35**	<30	<30	NA	**42**	29 B	<30
Nitrogen, Nitrate	190	<50	<50	<50	NA	<50	<50	<50
Nitrogen, Nitrite	<50	<50	<50	<50	NA	<50	<50	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate	NA	<50	<50	190	NA	<50	<50	74
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	<100	<100	52 B	NA	NA	<100	89 J	NA
Silica	NA	NA	NA	NA	NA	NA	NA	NA
Silica, Dissolved	37,000	35,000	41,000	28,000	NA	36,000	34,000	26,000
Sulfate	<5,000	<5,000	<5,000	<5,000	<5,000	<5,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	100	<1,000	<1,000	<100 J	NA	<1,000	<1,000	<100 J

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	**GM-66A (continued)**			**GM-66B**			
Top of Screen Depth (ft bls)	**27**	**27**	**27**	**125**	**125**	**125**	**125**
Sample Date	**09/16/03**	**04/27/04**	**07/27/05**	**07/19/00**	**08/03/00**	**09/11/03**	**09/11/03**
Sample ID	**GM-66A**	**GWGM-66A (4/27/04)**	**GWGM66A (072705)**	**GWGM-66B**	**GMGW-66B**	**GM-66B**	**GM-66B (09/11/03)**
Alkalinity	350,000	380,000	370,000	690,000	780,000	740,000	NA
Bicarbonate	NA	NA	NA	NA	NA	NA	NA
Chloride	130,000	140,000	150,000	14,000	14000 J	17,000	NA
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**55**	**45**	**35**	<30	**32**	**250**	NA
Nitrogen, Nitrate	<50	<50	52	<50	<50	<50	NA
Nitrogen, Nitrite	<50	<50	<50	<50	<50	<50	NA
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate	<50	<50	NA	180	210	<50	NA
Phosphate	NA	NA	<50	NA	NA	NA	NA
Phosphorus	<100	<100	<100	NA	NA	<100	NA
Silica	NA	NA	NA	NA	NA	NA	NA
Silica, Dissolved	31,000	28,000	24,000	43,000	43,000	NA	48,000
Sulfate	<5,000	<5,000	<5,000	<5,000	<5,000	<5,000	NA
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	310 J	200	<1,000	NA

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring			**GM-66B (continued)**		
Top of Screen Depth (ft bls)	**125**	**125**	**125**	**125**	**125**
Sample Date	**05/10/04**	**07/27/05**	**12/08/06**	**03/01/07**	**05/14/07**
Sample ID	**GWGM-66B (5/10/04)**	**GWGM66B (072705)**	**GWGM-66B (12/8/06)**	**GWGM-66B (3/1/07)**	**GWGM-66B(5/14/07)**
Alkalinity	710,000	680,000	470,000	480,000	490,000
Bicarbonate	NA	NA	NA	NA	NA
Chloride	19,000	20,000	57,000	53,000	45,000
Chlorides Soluble	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**30**	**59**	**91**	**83 B**	**140**
Nitrogen, Nitrate	34 B	33 J	<250	<50 H	<50
Nitrogen, Nitrite	<50	<50	<50	<50 H	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA
Ortho-Phosphate	<50	NA	<50	NA	NA
Phosphate	NA	<50	NA	<50 H	<50
Phosphorus	160	94 J	67 J	<100	140
Silica	NA	NA	39,800	32,700	34,500
Silica, Dissolved	46,000	30,000	NA	NA	NA
Sulfate	<5,000	<5,000	<5,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	2,000	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)			GM-67	GM-68		GM-70
Top of Screen Depth (ft bls)	125	125	125	122	140	140	42
Sample Date	05/14/07	08/14/07	11/09/07	08/07/00	08/31/00	09/26/00	08/17/00
Sample ID	GWGM-999 (5/14/07)	GWGM-66B (8/14/07)	GWGM-66B (11/9/07)	GWGM-67	GWGM-68	GWGM-68	GWGM-70
Alkalinity	510,000	500,000	520,000	360,000	160,000	170,000	370,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA
Chloride	45,000	43,000	43,000	23,000	39,000	34,000	5,200 J
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**150**	**190**	**56 B**	**42**	<30	<30	**150**
Nitrogen, Nitrate	<50	<50	<50	<50	3,000 J	3,700	<50
Nitrogen, Nitrite	<50	<50	<50	<50	<50	<50	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate	NA	NA	NA	NA	NA	NA	200
Phosphate	<50	<50	<50	NA	NA	NA	NA
Phosphorus	94 J	62 J	75 J	<100	<100	<100	NA
Silica	30,300	36,900	33,800	NA	NA	NA	NA
Silica, Dissolved	NA	NA	NA	30,000	12,000	12,000	36,000
Sulfate	<5,000	<5,000	<5,000	<5,000	20,000	13,000	160,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	<100 J	<100	<100

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-71	GM-72				GM-72A	
Top of Screen Depth (ft bls)	39	43	43	43	43	46	46
Sample Date	08/21/00	08/22/00	09/24/03	01/05/04	04/16/04	11/08/07	07/25/05
Sample ID	GWGM-71	GWGM-72	GM-72	GWGM-72	GM-72	GWGM-72A (11/8/07)	GWGM-72A (07/25/05)
Alkalinity	140,000	1,000,000	1,300,000	1,300,000	1,200,000	1,200,000	1,900,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA
Chloride	8,100 J	200,000	210,000	190,000	260,000	290,000	46,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**140**	**62**	***680***	***16,000***	***430***	***490 B***	**280**
Nitrogen, Nitrate	<50	<50	<50	700	<50	<50	<500
Nitrogen, Nitrite	<50	<50	88	82	<50	<50	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate	NA	NA	910	820	1,200	NA	NA
Phosphate	NA	NA	NA	NA	NA	1,100	820
Phosphorus	<100	780	1,800	2,000	1,400	1,300	1,600
Silica	NA	NA	NA	NA	NA	36,100	NA
Silica, Dissolved	28,000	44,000	53,000	47,000	50,000	NA	47,000
Sulfate	220,000	360,000	280,000	320,000	410,000	410,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA
Sulfide	<100 J	7,800 J	4,400	6,800	9,700	14,000	21,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-72A (continued)	GM-73		GM-74	GM-75	GM-77	
Top of Screen Depth (ft bls)	46	42	42	34	24	105	105
Sample Date	12/12/06	09/06/00	09/06/00	09/07/00	09/08/00	09/22/03	05/11/04
Sample ID	GWGM-72A (12/12/06)	GMGW-73	GWGM-73	GWGM-74	GWGM-75	GM-77	GWGM-77 (5/11/04)
Alkalinity	1,500,000	NA	390,000	180,000	130,000	710,000	630,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA
Chloride	290,000	NA	59,000	2,400	4,500	19,000	25,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**290**	NA	<30 J	<30	**55**	**62**	<30
Nitrogen, Nitrate	<50	NA	4,900	<50	<50	<50	<50
Nitrogen, Nitrite	<50	NA	<50	<50	<50	<50	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate	660	NA	NA	NA	NA	<50	<50
Phosphate	NA	NA	NA	NA	NA	NA	NA
Phosphorus	1,500	NA	<100	<100	<100	<100	85 J
Silica	21,000	NA	NA	NA	NA	NA	NA
Silica, Dissolved	NA	16,000	NA	19,000	9,000	37,000	32,000
Sulfate	190,000	NA	280,000	16,000	12,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA
Sulfide	15,000	NA	<100 J	<100 J	<100 J	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-77 (continued)	GM-78				
Top of Screen Depth (ft bls)	105	20	20	20	20	20
Sample Date	07/28/05	09/18/03	04/29/04	07/29/05	07/29/05	12/08/06
Sample ID	GWGM-77 (072805)	GM-78 (9/18/03)	GWGM-78 (4/29/04)	GWGM-78 (7/29/05)	GWGM-998 (7/29/05)	GWGM-78 (12/8/06)
Alkalinity	680,000	390,000	400,000	410,000	420,000	330,000
Bicarbonate	NA	NA	NA	NA	NA	NA
Chloride	24,000	120,000	82,000	120,000	120,000	78,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<30	**46**	<30	**41**	24 J	**100**
Nitrogen, Nitrate	50	<50	<50	47 J	<50	<250
Nitrogen, Nitrite	<50	<50	<50	<50	<50	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA	NA
Ortho-Phosphate	NA	<50	<50	NA	NA	<50
Phosphate	<50	NA	NA	<50	<50	NA
Phosphorus	150	<100	<100	100	70 J	<100
Silica	NA	NA	NA	NA	NA	32,500
Silica, Dissolved	33,000	32,000	32,000	19,000	30,000	NA
Sulfate	<5,000	<5,000	<5,000	<5,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)					GM-79
Top of Screen Depth (ft bls)	20	20	20	20	20	25
Sample Date	02/28/07	02/28/07	05/11/07	08/14/07	11/08/07	09/18/03
Sample ID	GWGM-78 (2/28/07)	GWGM-998 (2/28/07)	GWGM-78(5/11/07)	GWGM78 (8/14/07)	GWGM-78 (11/8/07)	GM-79 (9/18/03)
Alkalinity	330,000	330,000	330,000	290,000	300,000	360,000
Bicarbonate	NA	NA	NA	NA	NA	NA
Chloride	80,000	80,000	78,000	83,000	81,000	10,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**230 B**	**180 B**	**43**	**180**	**50 B**	**57**
Nitrogen, Nitrate	30 J B	35 J B	<50	28 J	<50	<50
Nitrogen, Nitrite	<50	<50	<50	11 J	11 J B	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA	NA
Ortho-Phosphate	NA	NA	NA	NA	NA	<50
Phosphate	<50	<50	28 J	<50	<50	NA
Phosphorus	<100	56 J	<100	<100	<100	<100
Silica	29,300	28,900	27,600	30,800	27,200	NA
Silica, Dissolved	NA	NA	NA	NA	NA	37,000
Sulfate	19,000	19,000	15,000	<5,000	8,600	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)					
Top of Screen Depth (ft bls)	25	25	25	25	25	25
Sample Date	04/26/04	07/29/05	12/04/06	02/22/07	02/22/07	05/09/07
Sample ID	GWGM-79 (4/26/04)	GWGM-79 (7/29/05)	GWGM-79(12/4/06)	GWGM-79 (2/22/07)	GWGM-999 (2/22/07)	GWGM-79 (5/9/07)
Alkalinity	380,000	380,000	240,000	230,000	220,000	260,000
Bicarbonate	NA	NA	NA	NA	NA	NA
Chloride	12,000	12,000	26,000	99,000	96,000	27,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<30	<30	**230**	***390***	***420***	**57**
Nitrogen, Nitrate	<50	95	59	280 B	290 B	620
Nitrogen, Nitrite	<50	<50	<50	<50	<50	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA	NA
Ortho-Phosphate	<50	NA	NA	NA	NA	NA
Phosphate	NA	<50	<50	<50	<50	<50
Phosphorus	54 J	80 J	<100	74 J	66 J	<100
Silica	NA	NA	27,600	22,400	23,200	24,000
Silica, Dissolved	32,000	28,000	NA	NA	NA	NA
Sulfate	<5,000	<5,000	<5,000	<5,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	1,300	<1,000	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)		GM-84		
Top of Screen Depth (ft bls)	25	25	77	77	77
Sample Date	08/07/07	11/06/07	08/19/04	08/01/05	12/12/06
Sample ID	GWGM-79 (8/7/07)	GWGM-79(11/6/07)	GWGM-84 (8/19/04)	GWGM-84 (08/01/05)	GWGM-84 (12/12/06)
Alkalinity	260,000	280,000	250,000	290,000	230,000
Bicarbonate	NA	NA	NA	NA	NA
Chloride	28,000	30,000	35,000	42,000	46,000
Chlorides Soluble	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**260**	**39**	<30	<30	**33**
Nitrogen, Nitrate	810	1200	<50	<50	<50 H
Nitrogen, Nitrite	24 J	21 J	<50	<50	<50 H
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA
Ortho-Phosphate	NA	NA	<50	NA	<50
Phosphate	<50	<50	NA	<50	NA
Phosphorus	<100	<100	110	81 J	53 J
Silica	23,700	24,500	NA	NA	14,100
Silica, Dissolved	NA	NA	11,000	16,000	NA
Sulfate	<5,000	<5,000	46,000	44,000	39,000
Sulfate Soluble	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	1,700

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-84				GM-87A	
Top of Screen Depth (ft bls)	**77**	**77**	**77**	**77**	**32**	**32**
Sample Date	**03/02/07**	**05/14/07**	**08/14/07**	**11/09/07**	**12/05/06**	**12/05/06**
Sample ID	**GWGM-84 (3/2/07)**	**GWGM-84 (5/14/07)**	**GWGM-84 (8/14/07)**	**GWGM-84(11/9/07)**	**GWGM-87A (12/5/06)**	**GWGM-999(12/5/06)**
Alkalinity	230,000	230,000	190,000	220,000	330,000	330,000
Bicarbonate	NA	NA	NA	NA	NA	NA
Chloride	48,000	44,000	48,000	51,000	33,000	33,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**150 B**	**43**	**78**	***2,000 B***	**49**	**82**
Nitrogen, Nitrate	<50	<50	180	<50	260	390
Nitrogen, Nitrite	<50	<50	11 J	15 J B	<50	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA	NA
Ortho-Phosphate	NA	NA	NA	NA	<50 H	<50 H
Phosphate	<50	<50	<50	<50	NA	NA
Phosphorus	<100	<100	<100	<100	86 J	82 J
Silica	12,800	12,900	14,500	11,900	25,900	26,500
Silica, Dissolved	NA	NA	NA	NA	NA	NA
Sulfate	41,000	38,000	38,000	36,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	1,100	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)				GM-87B
Top of Screen Depth (ft bls)	32	32	32	32	117
Sample Date	02/19/07	05/08/07	08/06/07	11/07/07	12/05/06
Sample ID	GWGM-87A (02/19/07)	GWGM-87A (5/8/07)	GWGM-87A (8/6/07)	GWGM-87A (11/7/07)	GWGM-87A(12/5/06)
Alkalinity	320,000	330,000	310,000	310,000	150,000
Bicarbonate	NA	NA	NA	NA	NA
Chloride	32,000	29,000	34,000 B	29,000	560 J
Chlorides Soluble	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**160 B**	**38**	**190**	**33**	19 J
Nitrogen, Nitrate	63	<50	<50 H	<50	32 J
Nitrogen, Nitrite	<50	<50	<50 H	<50	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA
Ortho-Phosphate	NA	NA	NA	NA	240
Phosphate	<50	<50	<50	<50	NA
Phosphorus	100	120 B	<100	86 J	270
Silica	22,600	22,900	26,800	25,300	19,000
Silica, Dissolved	NA	NA	NA	NA	NA
Sulfate	<5,000	<5,000	<5,000	21,000	5,000
Sulfate Soluble	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87B (continued)				GM-118D	
Top of Screen Depth (ft bls)	117	117	117	117	54	54
Sample Date	02/20/07	05/08/07	08/06/07	11/07/07	10/21/98	04/29/99
Sample ID	GWGM-87B (2/20/07)	GWGM-87B (5/8/07)	GWGM-87B (8/6/07)	GWGM-87B (11/7/07)	GWGM-118D	GWGM-118D
Alkalinity	160,000	150,000	160,000	150,000	250,000	250,000
Bicarbonate	NA	NA	NA	NA	NA	NA
Chloride	<1,000	5,500	3,600 B	2,300	35,000	37,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**260**	**39**	**220**	**46**	<200	<200
Nitrogen, Nitrate	<50	<50	<50	<50	4,500	4,300
Nitrogen, Nitrite	<50	<50	12 J H B	<50	<100	<100
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	4,500	4,300
Ortho-Phosphate	NA	NA	NA	NA	NA	NA
Phosphate	270	170	260	280	NA	NA
Phosphorus	450	310 B	260	350	<100	<100
Silica	15,800	17,900	19,300	19,700	<100	9,800
Silica, Dissolved	NA	NA	NA	NA	NA	NA
Sulfate	<5,000	<5,000	5,500	<5,000	12,000	8,900
Sulfate Soluble	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	<1,000	1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEW-3	GMEWA-1	GMEWA-2	GMEWA-3	GMEWA-4		GMEWA-26
Top of Screen Depth (ft bls)	135	26	26	25	20	20	22
Sample Date	07/24/00	04/11/05	04/12/05	04/12/05	04/12/05	08/02/05	04/15/05
Sample ID	GWGMEW-3	GWGMEWA-1	GWGMEWA-2	GWGMEWA-3	GWGMEWA-4	GWGMEWA4 (08/02/05)	GWGMEWA-26 (4/15/05)
Alkalinity	2,600,000	160,000	680,000	1,300,000	480,000	1,100,000	720,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA
Chloride	32,000	790 J	14,000	19,000	11,000	17,000	15,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**41**	**38**	23 J	<30	<30	<30	<30
Nitrogen, Nitrate	68 J	<50	<50	<50	28 J	<50	61
Nitrogen, Nitrite	<50	<50	<50	<50	<50	<50	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate	150	NA	NA	NA	NA	NA	NA
Phosphate	NA	27 J	<50	<50	<50	<50	<50
Phosphorus	NA	160	170	400	110	170	73 J
Silica	NA	NA	NA	NA	NA	NA	NA
Silica, Dissolved	62,000	19,000	38,000	50,000	39,000	43,000	42,000
Sulfate	<5,000	23,000	<5,000	<5,000	<5,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA
Sulfide	<100 J	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWA-26 (continued)	GMEWA-27		GMEWA-28
Top of Screen Depth (ft bls)	22	21	21	25
Sample Date	07/27/05	04/13/05	04/13/05	04/13/05
Sample ID	GWGMEWA-26 (072705)	GWGMEWA-27 (4/13/05)	GWGMEWA-999 (4/13/05)	GWGMEWA-28 (4/13/05)
Alkalinity	1,100,000	300,000	300,000	410,000
Bicarbonate	NA	NA	NA	NA
Chloride	11,000	58,000	58,000	130,000
Chlorides Soluble	NA	NA	NA	NA
Nitrogen, (Ammonia)	<30	**30**	**45**	**40**
Nitrogen, Nitrate	53	43 J	37 J	44 J
Nitrogen, Nitrite	<50	<50	<50	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA
Ortho-Phosphate	NA	NA	NA	NA
Phosphate	<50	<50	<50	<50
Phosphorus	71 J	<100	51 J	<100
Silica	NA	NA	NA	NA
Silica, Dissolved	40,000	37,000	34,000	34,000
Sulfate	<5,000	<5,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWC-1	GMEWC-1A		GMPZA-26
Top of Screen Depth (ft bls)	123	117.5	117.5	20
Sample Date	07/26/05	04/14/05	04/14/05	12/06/06
Sample ID	GWGMEWC-1 (072605)	GWGMEWC-1A (117.5-142.5)	GWGMEWC-1A (152.5-157.5)	GWGMPZA-26 (12/06/06)
Alkalinity	710,000	300,000	510,000	620,000
Bicarbonate	NA	NA	NA	NA
Chloride	14,000	74,000	42,000	32,000
Chlorides Soluble	NA	NA	NA	NA
Nitrogen, (Ammonia)	<30	**56**	**49**	**40**
Nitrogen, Nitrate	42 J	<50	<50	<250 H
Nitrogen, Nitrite	<50	<50	<50	<50 H
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA
Ortho-Phosphate	NA	NA	NA	<50
Phosphate	<50	<50	<50	NA
Phosphorus	200	<100	57 J	56 J
Silica	NA	NA	NA	38,500
Silica, Dissolved	29,000	16,000	33,000	NA
Sulfate	<5,000	<5,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	**GMPZA-26 (continued)**		**GMPZA-29**	
Top of Screen Depth (ft bls)	**20**	**20**	**18**	**18**
Sample Date	**02/27/07**	**08/13/07**	**12/06/06**	**02/26/07**
Sample ID	**GWGMPZA-26 (2/27/07)**	**GWGMPZA-26 (8/13/07)**	**GWGMPZA-29 (12/6/06)**	**GWGMPZA-29 (2/26/07)**
Alkalinity	500,000	460,000	2,500,000	680,000
Bicarbonate	NA	NA	NA	NA
Chloride	41,000	39,000	21,000	7,400
Chlorides Soluble	NA	NA	NA	NA
Nitrogen, (Ammonia)	**150 B**	**160**	<300	**47**
Nitrogen, Nitrate	48 J	45 J	<500 H	<250
Nitrogen, Nitrite	<50	<50	<50 H	<250
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA
Ortho-Phosphate	NA	NA	<50	NA
Phosphate	<50	48 J	NA	150 H
Phosphorus	<100	<100	78 J	68 J
Silica	29,500	36,000	39,700	25,800
Silica, Dissolved	NA	NA	NA	NA
Sulfate	<5,000	3,400,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-29 (continued)	GMPZA-34			GMPZA-38
Top of Screen Depth (ft bls)	18	25	25	25	25
Sample Date	08/10/07	12/08/06	02/26/07	08/09/07	12/07/06
Sample ID	GWGMPZA-29(08/10/07)	GWGMPZA-34 (12/8/06)	GWGMPZA-34 (2/26/07)	GWGMPZA-34 (8/9/07)	GWGM-998 (12/7/06)
Alkalinity	210,000	190,000	180,000	190,000	170,000
Bicarbonate	NA	NA	NA	NA	NA
Chloride	4,400	3,800	3,100	3,900	9,700
Chlorides Soluble	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**260**	**150**	**250**	**250**	**53**
Nitrogen, Nitrate	30 J	<250	<50	<50	<50
Nitrogen, Nitrite	<50	<50	<50	<50	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA
Ortho-Phosphate	NA	<50	NA	NA	28 J
Phosphate	<50	NA	45 J H	<50	NA
Phosphorus	<100	<100	56 J	<100	<100
Silica	29,100	25,600	18,700	18,700	23,100
Silica, Dissolved	NA	NA	NA	NA	NA
Sulfate	8,800	10,000	11,000	11,000	13,000
Sulfate Soluble	NA	NA	NA	NA	NA
Sulfide	<1,000	1,300	<1,000	<1,000	2,100

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-38 (continued)			GMPZA-41	
Top of Screen Depth (ft bls)	**25**	**25**	**25**	**20**	**20**
Sample Date	**12/07/06**	**02/23/07**	**08/09/07**	**12/07/06**	**02/23/07**
Sample ID	**GWGMPZA38 (12/7/06)**	**GWGMPZA-38 (2/23/07)**	**GWGMPZA-38 (8/9/07)**	**GWGMPZA-41 (12/7/06)**	**GWGMPZA-41 (2/23/07)**
Alkalinity	180,000	180,000	180,000	160,000	170,000
Bicarbonate	NA	NA	NA	NA	NA
Chloride	9,700	11,000	11,000	4,400	3,700
Chlorides Soluble	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	29 J	**130**	**170**	**69**	**150**
Nitrogen, Nitrate	<50	<50	<50	<50	38 J B
Nitrogen, Nitrite	<50	<50	<50	<50	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA
Ortho-Phosphate	30 J	NA	NA	<50	NA
Phosphate	NA	34 J	<50	NA	<50
Phosphorus	<100	62 J	99 J	<100	62 J
Silica	24,100	12,000	19,400	17,400	12,800
Silica, Dissolved	NA	NA	NA	NA	NA
Sulfate	13,000	15,000	15,000	16,000	17,000
Sulfate Soluble	NA	NA	NA	NA	NA
Sulfide	1,000	<1,000	<1,000	1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	**GMPZA-41 (continued)**		**GMPZC-2**	**GMPZC-12**	
Top of Screen Depth (ft bls)	**20**	**20**	**134**	**137**	**137**
Sample Date	**08/08/07**	**08/08/07**	**05/30/06**	**12/06/06**	**03/01/07**
Sample ID	**DUP-999 (8/8/07)**	**GWGMPZA-41 (8/8/07)**	**GMPZC-2 (5/30/06)**	**GWGMPZC-12 (12/06/06)**	**GWGMPZC-12 (3/1/07)**
Alkalinity	150,000	160,000	390,000	380,000	360,000
Bicarbonate	NA	NA	NA	NA	NA
Chloride	3,800	3,800	69,000	72,000	72,000
Chlorides Soluble	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**190**	**170**	**52**	**130**	**110 B**
Nitrogen, Nitrate	<50	<50	<50	<250 H	25 J H
Nitrogen, Nitrite	<50	<50	<50	<50 H	<50 H
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA
Ortho-Phosphate	NA	NA	NA	<50	NA
Phosphate	<50	28 J	<50	NA	<50 H
Phosphorus	<100	<100	<100	<100	<100
Silica	14,800	14,900	NA	27,900	27,300
Silica, Dissolved	NA	NA	NA	NA	NA
Sulfate	17,000	17,000	<5,000	<10,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	1,100	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-12 (continued)	GMPZC-14		
Top of Screen Depth (ft bls)	137	111	111	111
Sample Date	08/14/07	12/06/06	02/28/07	08/10/07
Sample ID	GWGMPZC-12 (8/14/07)	GWGMPZC-14 (12/06/06)	GWGMPZC-14 (2/28/07)	GWGMPZC-14(08/10/07)
Alkalinity	300,000	1,700,000	1,400,000	1,400,000
Bicarbonate	NA	NA	NA	NA
Chloride	84,000	20,000	22,000	20,000
Chlorides Soluble	NA	NA	NA	NA
Nitrogen, (Ammonia)	**210**	<30	**53 B**	22 J
Nitrogen, Nitrate	<50	<500 H	28 J B	<50
Nitrogen, Nitrite	<50	<50 H	<50	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA
Ortho-Phosphate	NA	<50	NA	NA
Phosphate	<50	NA	<50	<50
Phosphorus	<100	83 J	140	76 J
Silica	26,800	46,200	42,500	41,800
Silica, Dissolved	NA	NA	NA	NA
Sulfate	8,200	<5,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-17				MPMW-4
Top of Screen Depth (ft bls)	125	125	125	125	
Sample Date	12/07/06	02/27/07	08/13/07	08/13/07	02/26/02
Sample ID	GWGMPZC-17 (12/7/2006)	GWGMPZC-17 (2/27/07)	DUP-998 (8/13/07)	GWGMPZC-17 (8/13/07)	GWMPMW-4 (2/26/02)
Alkalinity	210,000	210,000	210,000	210,000	140,000
Bicarbonate	NA	NA	NA	NA	NA
Chloride	720 J	1,500	2,100	2,000	2,700
Chlorides Soluble	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**71**	**210 B**	**110**	**260**	<88
Nitrogen, Nitrate	<50	26 J	<50	<50	190
Nitrogen, Nitrite	<50	<50	12 J	12 J	<50
Nitrogen, Nitrite and Nitrate	NA	NA	NA	NA	NA
Ortho-Phosphate	<50	NA	NA	NA	67
Phosphate	NA	<50	<50	<50	NA
Phosphorus	<100	<100	360	<100	82 B
Silica	21,000	18,400	19,000	19,300	NA
Silica, Dissolved	NA	NA	NA	NA	16,000
Sulfate	16,000	17,000	18,000	21,000	18,000
Sulfate Soluble	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	NA

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	MW-1B	MW-2B	MW-5		MW-8				
Top of Screen Depth (ft bls)	86	102	83	83	133	133	133	133	133
Sample Date	06/27/97	06/28/97	10/22/98	04/30/99	06/29/97	06/29/97	10/24/98	05/03/99	05/12/04
Sample ID	GWMW-1B	GWMW-2B	GWMW-5	GWMW-5	GWGM-99	GWMW-8	GWMW-8	GWMW-8	GWMW-8 (5/12/04)
Alkalinity	280,000	240,000	150,000	150,000	820,000	840,000	770,000	760,000	660,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	55,000	24,000	14,000	14,000	6,000	6,000	5,300	5,300	4,700
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	<200	<200	<200	<200	<200	<200	<200	<30
Nitrogen, Nitrate	<100	<100 J	<100	<100	<100	<100	<200	<100	<50
Nitrogen, Nitrite	<100	<100 J	<100	<100	<100	<100	<200 M	<100	<50
Nitrogen, Nitrite and Nitrate	NA	NA	<100	<100	NA	NA	<100	<100	NA
Ortho-Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	<50
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	700	<100	100	<100	200	200	130	<100	<100
Silica	29,000	33,000	<100	11,100	52,000	29,000	<100	34,500	NA
Silica, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	37,000
Sulfate	<5,000	<5,000	12,000	7,800	20,000	20,000	<5000	32,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	2,200	2,500	<1,000	<1,000	6,300	8,000	2,200	1,400	<1,000

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	MW-9A	MW-10	UG-2			UG-4				UG-6
Top of Screen Depth (ft bls)	57	95	48	48	48	103	103	103	103	236
Sample Date	07/02/97	06/30/97	07/01/97	10/27/98	05/03/99	10/13/97	10/13/97	10/23/98	05/02/99	10/21/97
Sample ID	GWMW-9A	GWMW-10	GWUG-2	GWUG-2	GWUG-2	GM-79	UG-4	GWUG-4	GWUG-4	UG-6
Alkalinity	130,000	250,000	270,000	270,000	280,000	220,000	220,000	210,000	220,000	250,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	19,000	82,000	43,000	46,000	57,000	71,000	74,000	66,000	62,000	42,000
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	<200	<200	<200	<200	***700***	***600***	***460***	***440***	<200
Nitrogen, Nitrate	<100	1,100	1,800	2,200	2,100	<100	<100	<200	<100	<100
Nitrogen, Nitrite	<100	<100	<100	<100	<100 J	<100	<100	<200 MJ	<100	<100
Nitrogen, Nitrite and Nitrate	NA	NA	NA	2,200	2,100	NA	NA	<100	<100	NA
Ortho-Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	100	<100	<100	<100	<100	300	500	<100	<100	200
Silica	16,000	7,500	25,000	<100	<100	17,000	16,000	<100	12,700	16,000
Silica, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	21,000	26,000	22,000	17,000	15,000	10,000	10,000	7,400	7,800	14,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	2,000	2,500	1,800	<1,000	<1,000	<500	650	1,100	<1,000	520

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Top of Screen Depth (ft bls) Sample Date Sample ID	Groundwater Contact Criteria	Indoor Air Inhalation Criteria	Residential Drinking Water Criteria	FAV Criteria	FCV Criteria
Alkalinity	NE	NE	NE	NE	NE
Bicarbonate	NE	NE	NE	NE	NE
Chloride	ID	NLV	250,000 E	NE	NE
Chlorides Soluble	ID	NLV	250,000 E	NE	NE
Nitrogen, (Ammonia)	ID	3,200,000	10,000 N	320	29
Nitrogen, Nitrate	310,000,000 (B,N)	(B,N) NLV	10,000 (B,N) A,N	NE	NE
Nitrogen, Nitrite	(B,N) ID	(B,N) NLV	1,000 (B,N) A,N	NE	NE
Nitrogen, Nitrite and Nitrate	NE	NE	NE	NE	NE
Ortho-Phosphate	NE	NE	NE	NE	NE
Phosphate	NE	NE	NE	NE	NE
Phosphorus	(total),ID	(total),NL	63,000 (total)	NE	NE
Silica	NE	NE	NE	NE	NE
Silica, Dissolved	NE	NE	NE	NE	NE
Sulfate	ID	NLV	250,000 E	NE	NE
Sulfate Soluble	ID	NLV	250,000 E	NE	NE
Sulfide	NE	NE	NE	NE	NE

Footnotes on Page 64.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Results in micrograms per liter (µg/L).

<	Less than the laboratory method detection limit.
Bold	Indicates a value above the Final Chronic Values (Michigan Part 4 Rule 323.1057, December 11, 2006).
	Indicates a value above the Groundwater Contact Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
Italics	Indicates a value above the Final Acute Values (Michigan Part 4 Rule 323.1057, December 11, 2006).
Underline	Indicates a value above the Groundwater/Surface Water Interface Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
	Indicates a value above the Residential and Commercial I Drinking Water Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
B	Constituent was also detected in laboratory blank.
ft bls	Feet below land surface.
G	Result is greater than the reported numerical value.
H	Sample was prepared or analyzed after the EPA recommended holding time had been exceeded.
J	Estimated result.
K	Reported concentration is proportional to dilution factor and may be exaggerated.
M	Matrix interference reported by laboratory.
*F65	Elevated detection limits were reported due to sample matrix interference which required sample or extract dilution.
*F70	Received and analyzed outside hold time criteria per client request.

State of Michigan Criteria Footnotes:

A	State of Michigan Drinking Water Standard.
AA	Compound may be adsorbed to particulates rather than dissolved in water; filtered groundwater sample may be more appropriate for comparison to criteria.
B	Background may be substituted if higher than the calculated cleanup criteria.
C	Value presented is a screening level based on the chemical specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat.
CC	The generic groundwater surface water interface criteria are based on the toxicity of unionized ammonia.
D	Calculated criterion exceeds 100%, therefore it is reduced to 100%.
E	Criterion is the aesthetic drinking water value.
EE	Applicable criteria established as required by Section 20120a(15) of the act.
F	Criterion is based on adverse impacts to plant life.
FF	The chloride groundwater surface water interface criteria is 125 mg/l when discharged to surface waters designated as public water supply sources or 50 mg/l when discharged to Great Lakes or connecting waters.
G	GSI value is pH or water hardness dependent.
H*92	Criteria based on water hardness of 92.
I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.

Table 6-11. Summary of Inorganics Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

State of Michigan Criteria Footnotes (continued):

ID	Inadequate data to develop criterion.
J	Chemical may be present in several isomer forms. Isomer specific concentrations must be added together for comparison to criteria.
K	Chemical may be flammable and/or explosive.
L	Higher groundwater concentrations, (up to 15 µg/L) may be acceptable if the soil concentration is less than 400 ppm and groundwater migrating offsite will not result in unacceptable exposures.
M	Calculated criterion is below the analytical method detection limit (MDL).
N	Concentrations of all potential nitrate-nitrogen sources must be added together and compared to nitrate criteria.
NA	Criterion or values is not available.
NLV	Chemical is not likely to volatilize under most soil conditions.
O	All polychlorinated and polybrominated dibenzodioxins, and dibenzofurans are considered as one substance.
P	Amenable or Method OIA-1677 analysis are used to quanitfy cyanide concentrations for compliance with all groundwater criteria.
Q	Criterion for carcinogenic polycyclic aromatic hydrocarbons (PAHs) were developed using "relative potential potencies" (RFPs) to benzo(a)pyrene.
R	Hazardous substance may exhibit the characteristic of reactivity as defined in 40 CFR 261.23.
S	Criterion defaults to the chemical-specific water solubility limit.
T	Refer to Toxic Substances Control Act (TSCA) to determine applicability of TSCA cleanup standards.
Total	Criterion established for total metal only.
V	Criterion is the aesthetic drinking water value, which is a secondary standard.
W	Concentrations of trihalomethanes in groundwater must be added together to detemine compliance with State of Michigan Criteria.
X	The GSI criterion shown is not protective for surface water that is used as a drinking water source.
*	The lowest Human Noncancer Value, Wildlife Value, Human Cancer Value, final chronic value criteria per Michigan Act 451, Part 4, Rule 57 given for this chemical will adequately protect the uses identified with "ID".

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	CW-1		GM-1			GM-2B		
Top of Screen Depth (ft bls)	130	130	220	220	220	271	271	271
Sample Date	10/22/98	04/29/99	10/07/98	04/16/99	04/28/04	11/22/98	04/16/99	05/25/04
Sample ID	GWCW-1	GWCW-1	GWGM-1	GWGM-1	GWGM-1 (4/28/04)	GWGM-2B	GWGM-2B	GWGM-2B(5/25/04)
Alcohols								
1,4-Dioxane	<300	R	<300	R	<50	R	R	<500
2-Pentanone	NA	<100	NA	<100	<1,000	NA	<2,500	<1,000
2-Picoline	<80	<80	<500	<500	<100	<5,000	<2,500	<1,000
Acetonitrile	<50	R	<50	R	<50	<620	R	<250
Ethanol	<1,000	<1,000	<1,000	4,600 J	<1,000	<1,000 J	<1,000 J	<1,000
Ethylacetate	<10	R	<10	R	<5,000	R	R	1,600 J
Ethylene glycol	<20,000	<20,000	<20,000	<20,000 J	<5,000	47,000 J	<20,000 J	<5,000
Isobutanol	<1,000	<1,000	<1,000	<1,000 J	<1,000	<1,000 J	<1,000 J	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000 J	<1,000	<1,000 J	2,100 J	800 J
Methanol	<800	<800	<800	<800	290 J	<800 J	<800 J	780 J
n-Butanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000 J	<1,000 J	<1,000
n-Propanol	NA	R	NA	R	<1,000	NA	R	<1,000
Tert-Butyl Alcohol	NA	R	NA	R	<1,000	NA	R	<1,000
Aldehydes								
Acetaldehyde	<100 J	<100	<100 J	**210**	<100	<100 J	**460**	<100
Butanal	<100 J	<100	<100 J	<100	<100	1,600 J	<100	1900
Crotonaldehyde	<100 J	<100	110 J	<100	<100	<100 J	<100	54 J
Cyclohexanone	<100 J	<100	<100 J	<100	<100	<100 J	500	1400
Decanal	<100 J	<100	<100 J	<100	<100	<100 J	<100	<100
Formaldehyde	<100 J	<100	<100 J	<100	<100	120 J	<100	<100
Heptanal	<100 J	<100	<100 J	<100	30 J	<100 J	<100	<100
Hexanal	<100 J	<100	<100 J	<100	84 J	<100 J	<100	<100
m-Tolualdehyde	<100 J	<100	200 J	<100	<100	460 J	<100	1700
Nonanal	<100 J	<100	<100 J	<100	<100	<100 J	<100	<100
Octanal	<100 J	<100	<100 J	<100	<100	<100 J	<100	<100
Paraldehyde	<100 J	<100	<100 J	<100	<100	<100	<100	<100
Pentanal	<100 J	<100	<100 J	<100	<100	200 J	<100	<100
Propanal	<100 J	<100	<100 J	<100	<100	<100 J	<100	<100
Acetic Acid/Acetate	750	<500	9,600	<500	2,000	1,400,000	2,600,000	260,000 B

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-2C			GM-3A			GM-3B		
Top of Screen Depth (ft bls)	64	64	64	74	74	74	170	170	170
Sample Date	11/06/98	04/13/99	05/04/04	10/09/98	04/13/99	05/05/04	10/08/98	04/17/99	04/17/99
Sample ID	GWGM-2C	GWGM-2C	GWGM-2C (5/4/04)	GWGM-3A	GWGM-3A	GWGM-3A (5/5/04)	GWGM-3B	GWGM-3B	GWGM-88
Alcohols									
1,4-Dioxane	<300	R	<5.0	R	R	<5.0	<600	R	R
2-Pentanone	NA	<100	<1000	NA	<100	<1000	NA	<400 J	<800
2-Picoline	<80	<80	<10	<80	<80	<10	<250	<250	<250
Acetonitrile	<50	R	<50	<50	R	<50	<100	R	R
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	<10	R	<5,000	R	R	<5,000	<20	R	R
Ethylene glycol	<20,000	<20,000 J	<5,000	<20,000	<20,000 J	<5,000	<20,000	<20,000 J	<20,000 J
Isobutanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	6,800 J	<1,000
Methanol	<800	<800	640 J	<800	<800	520 J	<800	<800 J	<800 J
n-Butanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000 J	<1,000 J
n-Propanol	NA	R	<1,000	NA	R	<1,000	NA	R	R
Tert-Butyl Alcohol	NA	R	<1,000	NA	R	1,000	NA	R	R
Aldehydes									
Acetaldehyde	<100 J	NA	<100	<100 J	<100	<100	<100 J	100	**170**
Butanal	<100 J	NA	<100	<100 J	<100	<100	<100 J	<100	<100
Crotonaldehyde	<100 J	NA	<100	<100 J	<100	<100	<100 J	<100	<100
Cyclohexanone	<100 J	NA	<100	<100 J	<100	<100	520 J	320	400
Decanal	<100 J	NA	<100	<100 J	<100	<100	<100 J	<100	<100
Formaldehyde	<100 J	NA	<100	<100 J	<100	<100	<100 J	<100	<100
Heptanal	<100 J	NA	<100	<100 J	<100	<100	<100 J	<100	<100
Hexanal	<100 J	NA	<100	<100 J	<100	<100	190 J	<100	<100
m-Tolualdehyde	<100 J	NA	<100	<100 J	<100	<100	880 J	<100	<100
Nonanal	<100 J	NA	<100	<100 J	<100	<100	<100 J	<100	<100
Octanal	<100 J	NA	<100	<100 J	<100	<100	<100 J	<100	<100
Paraldehyde	<100	NA	<100	<100 J	<100	<100	<100	<100	<100
Pentanal	<100 J	NA	<100	<100 J	<100	<100	<100 J	<100	<100
Propanal	<100 J	NA	<100	<100 J	<100	<100	<100 J	<100	<100
Acetic Acid/Acetate	<650	<500	210 I	<200	<500	<500	100,000	3,000	9,800

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-3B (continued)		GM-4		GM-5		GM-6		
Top of Screen Depth (ft bls)	170	170	76	76	250	250	165	165	165
Sample Date	05/11/04	05/11/04	10/20/98	04/21/99	04/18/99	11/30/99	10/10/98	04/19/99	07/19/00
Sample ID	GWGM-3B (5/11/04)	GWGM-3B (5/11/04)-DL	GWGM-4	GWGM-4	GWGM-5	GM-5	GWGM-6	GWGM-6	GWGM-6
Alcohols									
1,4-Dioxane	<10	<20	R	R	R	<20 J	R	R	<5.0
2-Pentanone	<1,000	NA	NA	<100	<100 J	NA	NA	<100	NA
2-Picoline	<20	<40	<80	<80	<500	<40	<100	<120	<10
Acetonitrile	<50	NA	<50	<50 J	R	NA	<50	<50 J	<50
Ethanol	<1,000	NA	<1,000	<1,000	<1,000 J	NA	<1,000	<1,000	<1,000
Ethylacetate	<5,000	NA	<10	R	R	NA	R	R	<5,000
Ethylene glycol	<5,000	NA	<20,000	<20,000	<20,000 J	NA	<20,000	<20,000 J	NA
Isobutanol	<1,000	NA	<1,000	<1,000 J	<1,000 J	NA	<1,000	<1,000	<1,000
Isopropanol	<1,000	NA	<1,000	<1,000 J	<1,000 J	NA	<1,000	<1,000	<1,000 J
Methanol	1,100	NA	<800	<800	<800 J	NA	<800	<800	<1,000
n-Butanol	<1,000	NA	<1,000	<1,000	<1,000 J	NA	<1,000	<1,000	<1,000
n-Propanol	<1,000	NA	NA	R	R	NA	NA	R	<1,000
Tert-Butyl Alcohol	<1,000	NA	NA	R	R	NA	NA	R	<1,000
Aldehydes									
Acetaldehyde	<100	NA	<100 J	<100	**320**	**140**	<100 J	130	<100 J
Butanal	<100	NA	<100 J	<100	<100	<100	<100 J	<100	<100 J
Crotonaldehyde	<100	NA	<100 J	<100	<100	<100	<100 J	<100	<100 J
Cyclohexanone	1,000	NA	<100 J	<100	<100	<100	<100 J	<100	<100 J
Decanal	<100	NA	<100 J	<100	<100	<100	<100 J	<100	<100 J
Formaldehyde	<100	NA	<100 J	<100	<100	<100	<100 J	<100	<100 J
Heptanal	75 J	NA	<100 J	<100	<100	<100	<100 J	<100	<100 J
Hexanal	<100	NA	<100 J	<100	<100	<100	<100 J	<100	<100 J
m-Tolualdehyde	1,400	NA	<100 J	<100	<100	<100	<100 J	<100	<100 J
Nonanal	<100	NA	<100 J	<100	<100	<100	<100 J	<100	<100 J
Octanal	<100	NA	<100 J	<100	<100	<100	<100 J	<100	<100 J
Paraldehyde	<100	NA	<100	<100	<100	<100	<100 J	<100	<100
Pentanal	160	NA	<100 J	<100	130	<100	<100 J	<100	<100 J
Propanal	<100	NA	<100 J	<100	<100	<100	<100 J	<100	<100 J
Acetic Acid/Acetate	2,600	NA	220	<500	500	<1,000	<1,000	<500	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-7				GM-8			GM-9	
Top of Screen Depth (ft bls)	145	145	145	145	79	79	79	164	164
Sample Date	10/23/98	05/01/99	09/23/03	05/03/04	10/09/98	04/13/99	10/21/99	10/11/98	10/11/98
Sample ID	GWGM-7	GWGM-7	GM-7	GWGM-7 (5/3/04)	GWGM-8	GWGM-8	GM-8	GWGM-9	GWGM-9MS
Alcohols									
1,4-Dioxane	<300	R	<5.0	<5.0	R	R	<5.0	R	NA
2-Pentanone	NA	<100	<1,000	<1,000	NA	<100	NA	NA	NA
2-Picoline	<80	<80	<10	<10	<80	<80	<10	<80	NA
Acetonitrile	<50	R	<40	<50	<50	R	<50	<50	NA
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000 J	NA
Ethylacetate	<10	R	<5,000	<5,000	R	R	<5,000	R	NA
Ethylene glycol	<20,000	<20,000 J	<5,000	<5,000	<20,000	<20,000 J	NA	<20,000 J	NA
Isobutanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000 J	NA
Isopropanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000 J	NA
Methanol	<800	<800	<1,000	910 J	<800	<800	<1,000	<800 J	NA
n-Butanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000 J	NA
n-Propanol	NA	R	<1,000	<1,000	NA	R	91 J	NA	NA
Tert-Butyl Alcohol	NA	R	<1,000	<1,000	NA	R	<1,000	NA	NA
Aldehydes									
Acetaldehyde	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	NA
Butanal	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	NA
Crotonaldehyde	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	NA
Cyclohexanone	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	NA
Decanal	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	NA
Formaldehyde	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	NA
Heptanal	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	NA
Hexanal	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	NA
m-Tolualdehyde	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	NA
Nonanal	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	NA
Octanal	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	NA
Paraldehyde	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	NA
Pentanal	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	NA
Propanal	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	NA
Acetic Acid/Acetate	410	<500	<1,000	<500	<200	$\boxed{11,000}$	<5,000	240	<200

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-9 (continued)					GM-10		GM-12
Top of Screen Depth (ft bls)	164	164	164	164	164	170	170	290
Sample Date	10/11/98	04/18/99	09/10/03	05/03/04	07/28/05	11/06/98	04/27/99	10/10/98
Sample ID	GWGM-9MSD	GWGM-9	GM-9	GWGM-9 (5/3/04)	GWGM-9 (072805)	GWGM-10	GWGM-10	GWGM-12
Alcohols								
1,4-Dioxane	NA	R	<5.0	<5.0	<4.9	<300	R	R
2-Pentanone	NA	<100 J	<1,000	<1,000	<1,000	NA	<100	NA
2-Picoline	NA	<80	<10	<10	<9.8	<80	<80	<80
Acetonitrile	NA	R	<50	<50	<50	<50	R	<50
Ethanol	NA	R	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	NA	R	<5,000	<5,000	<5,000	<10	R	R
Ethylene glycol	NA	R	<5,000	<5,000	<10,000	<20,000	<20,000	<20,000
Isobutanol	NA	R	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Isopropanol	NA	R	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Methanol	NA	R	<1,000	790 J	<1,000	<800	<800	<800
n-Butanol	NA	R	$\boxed{60,000}$	<1,000	<1,000	<1,000	<1,000	<1,000
n-Propanol	NA	R	<1,000	<1,000	<1,000	NA	R	NA
Tert-Butyl Alcohol	NA	R	<1,000	<1,000	<1,000	NA	R	NA
Aldehydes								
Acetaldehyde	NA	<100	<100	<100	<100	<100 J	<100	<100 J
Butanal	NA	<100	<100	<100	<100	<100 J	<100	<100 J
Crotonaldehyde	NA	<100	<100	<100	<100	<100 J	<100	<100 J
Cyclohexanone	NA	<100	<100	<100	<100	<100 J	<100	<100 J
Decanal	NA	<100	<100	<100	<100	<100 J	<100	<100 J
Formaldehyde	NA	<100	<100	<100	<100	<100 J	<100	<100 J
Heptanal	NA	<100	<100	<100	<100	<100 J	<100	<100 J
Hexanal	NA	<100	<100	<100	<100	<100 J	<100	<100 J
m-Tolualdehyde	NA	<100	<100	<100	<100	<100 J	<100	<100 J
Nonanal	NA	<100	<100	<100	<100	<100 J	<100	<100 J
Octanal	NA	<100	<100	<100	<100	<100 J	<100	<100 J
Paraldehyde	NA	<100	<100	<100	<100	<100	<100	<100 J
Pentanal	NA	<100	<100	<100	<100	<100 J	<100	<100 J
Propanal	NA	<100	<100	<100	<100	<100 J	<100	<100 J
Acetic Acid/Acetate	1,200	<500	<1,000	<500	300 J	<200	<500	NA

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-12 (continued)		GM-13		GM-14		GM-15	
Top of Screen Depth (ft bls)	290	290	325	325	135	135	165	165
Sample Date	10/11/98	04/19/99	04/20/99	05/18/04	10/28/98	05/02/99	10/11/98	04/20/99
Sample ID	GWGM-12	GWGM-12	GWGM-13	GWGM-13 (5/18/04)	GWGM-14	GWGM-14	GWGM-15	GWGM-15
Alcohols								
1,4-Dioxane	NA	R	R	<5.0	R	R	R	R
2-Pentanone	NA	<100 J	<100	<1,000	NA	<100	NA	<100
2-Picoline	NA	<80	<80	<10	<80	<80	<80	<80
Acetonitrile	NA	R	R	<50	<50	R	<50	<50 J
Ethanol	NA	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	NA	R	R	<5,000	<10	R	R	R
Ethylene glycol	NA	<20,000 J	<20,000 J	<5,000	<20,000	<20,000 J	<20,000	<20,000
Isobutanol	NA	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Isopropanol	NA	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Methanol	NA	<800 J	<800	1,200	<800	<800	<800	<800
n-Butanol	NA	<1,000 J	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
n-Propanol	NA	R	R	<1,000	NA	R	NA	R
Tert-Butyl Alcohol	NA	R	R	<1,000	NA	R	NA	R
Aldehydes								
Acetaldehyde	NA	<100	<100	<100	<100	<100	<100 J	<100
Butanal	NA	<100	<100	<100	<100	<100	<100 J	<100
Crotonaldehyde	NA	<100	<100	<100	<100	<100	<100 J	<100
Cyclohexanone	NA	<100	<100	<100	<100	<100	<100 J	<100
Decanal	NA	<100	<100	<100	<100	<100	<100 J	<100
Formaldehyde	NA	<100	<100	<100	<100	<100	<100 J	<100
Heptanal	NA	<100	<100	<100	<100	<100	<100 J	<100
Hexanal	NA	<100	<100	<100	<100	<100	<100 J	<100
m-Tolualdehyde	NA	<100	<100	<100	<100	<100	<100 J	<100
Nonanal	NA	<100	<100	<100	<100	<100	<100 J	<100
Octanal	NA	<100	<100	<100	<100	<100	<100 J	<100
Paraldehyde	NA	<100	<100	<100	<100	<100	<100 J	<100
Pentanal	NA	<100	<100	<100	<100	<100	<100 J	<100
Propanal	NA	<100	<100	<100	<100	<100	<100 J	<100
Acetic Acid/Acetate	410	<500	$\boxed{18,000}$	$\boxed{15,000}$	<200	<500	300	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-15 (continued)		GM-16				GM-17
Top of Screen Depth (ft bls)	165	165	108	108	108	108	224.3
Sample Date	05/10/04	05/10/04	10/09/98	04/14/99	09/23/03	04/27/04	10/12/98
Sample ID	GWGM-15 (5/10/04)	GWGM-996 (5/10/04)	GWGM-16	GWGM-16	GM-16	GWGM-16 (4/27/04)	GWGM-17
Alcohols							
1,4-Dioxane	<5.0	<5.0	R	R	<5.0	<5.0	R
2-Pentanone	<1,000	<1,000	NA	<100	<1,000	<1,000	NA
2-Picoline	<10	<10	<80	<80	<10	<10	<80
Acetonitrile	<50	<50	<50	R	<40	<50	<50
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	<5,000	<5,000	R	R	<5,000	<5,000	R
Ethylene glycol	<5,000	<5,000	<20,000	<20,000 J	<5,000	<5,000	<20,000
Isobutanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Methanol	700 J	670 J	<800	<800	<1,000	350 J	2500
n-Butanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
n-Propanol	<1,000	<1,000	NA	R	<1,000	<1,000	NA
Tert-Butyl Alcohol	<1,000	<1,000	NA	R	<1,000	<1,000	NA
Aldehydes							
Acetaldehyde	<100	<100	<100 J	<100	<100	<100	<100 J
Butanal	<100	<100	<100 J	<100	<100	<100	<100 J
Crotonaldehyde	<100	<100	<100 J	<100	<100	<100	<100 J
Cyclohexanone	<100	<100	<100 J	<100	<100	<100	<100 J
Decanal	<100	<100	<100 J	<100	<100	<100	<100 J
Formaldehyde	<100	<100	<100 J	<100	<100	<100	<100 J
Heptanal	<100	<100	<100 J	<100	<100	<100	<100 J
Hexanal	<100	<100	<100 J	<100	<100	<100	<100 J
m-Tolualdehyde	<100	<100	<100 J	<100	<100	<100	<100 J
Nonanal	<100	<100	<100 J	<100	<100	<100	<100 J
Octanal	<100	<100	<100 J	<100	<100	<100	<100 J
Paraldehyde	<100	<100	<100 J	<100	<100	<100	<100 J
Pentanal	<100	<100	<100 J	<100	<100	<100	<100 J
Propanal	<100	<100	<100 J	<100	<100	<100	<100 J
Acetic Acid/Acetate	<500	240 J	<200	<500	<1,000	<500	650

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-17 (continued)	GM-18	GM-21			GM-22		
Top of Screen Depth (ft bls)	224.3	50	5	5	5	6	6	6
Sample Date	04/26/99	11/07/98	10/13/98	01/29/01	09/09/05	10/10/98	04/13/99	01/15/01
Sample ID	GWGM-17	GWGM-18	GWGM-21	GWGM-21	GWGM-21 (9/9/05)	GWGM-22	GWGM-22	GWGM-22
Alcohols								
1,4-Dioxane	R	<300	<300 J	<5.0	<5.0	R	R	<5.0
2-Pentanone	<100	NA	NA	NA	NA	NA	<100	NA
2-Picoline	<80	<80	<80	<10	<9.9	<80	<80	<10
Acetonitrile	R	<50	<50	<50	<50	<50	R	<50
Ethanol	<1,000	<1,000	<1,000	NA	NA	<1,000	<1,000	NA
Ethylacetate	R	<10	<10	NA	NA	R	R	NA
Ethylene glycol	<20,000	<20,000	<20,000	NA	NA	<20,000	<20,000 J	NA
Isobutanol	<1,000	<1,000	<1,000	NA	NA	<1,000	<1,000	NA
Isopropanol	<1,000	<1,000	<1,000	NA	NA	<1,000	<1,000	NA
Methanol	<800	<800	<800	NA	NA	<800	<800	NA
n-Butanol	<1,000	<1,000	<1,000	NA	NA	<1,000	<1,000	NA
n-Propanol	R	NA	NA	NA	NA	NA	R	NA
Tert-Butyl Alcohol	R	NA	NA	NA	NA	NA	R	NA
Aldehydes								
Acetaldehyde	<100	<100 J	<100	NA	NA	<100 J	<100	NA
Butanal	<100	<100 J	<100	NA	NA	<100 J	<100	NA
Crotonaldehyde	<100	<100 J	<100	NA	NA	<100 J	<100	NA
Cyclohexanone	<100	<100 J	<100	NA	NA	<100 J	<100	NA
Decanal	<100	<100 J	<100	NA	NA	<100 J	<100	NA
Formaldehyde	<100	<100 J	<100	NA	NA	<100 J	<100	NA
Heptanal	<100	<100 J	<100	NA	NA	<100 J	<100	NA
Hexanal	<100	<100 J	<100	NA	NA	<100 J	<100	NA
m-Tolualdehyde	<100	<100 J	<100	NA	NA	<100 J	<100	NA
Nonanal	<100	<100 J	<100	NA	NA	<100 J	<100	NA
Octanal	<100	<100 J	<100	NA	NA	<100 J	<100	NA
Paraldehyde	<100	<100	<100	NA	NA	<100	<100	NA
Pentanal	<100	<100 J	<100	NA	NA	<100 J	<100	NA
Propanal	<100	<100 J	<100	NA	NA	<100 J	<100	NA
Acetic Acid/Acetate	<500	NA	<200	NA	NA	210	<500	NA

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-22 (continued)			GM-23		
Top of Screen Depth (ft bls)	6	6	6	3.5	3.5	3.5
Sample Date	01/15/01	09/08/05	09/08/05	10/10/98	01/16/01	01/16/01
Sample ID	GWGM-22-RE	GWGM-22(9/8/05)	GWGM-999 (GM-22) (9/8/05)	GWGM-23	GWGM-23	GWGM-23-RE
Alcohols						
1,4-Dioxane	<5.0 J	<4.7	<4.7	R	<5.0	<5.0 J
2-Pentanone	NA	NA	NA	NA	NA	NA
2-Picoline	<10 J	<9.3	<9.3	<80	<10	<10 J
Acetonitrile	NA	<50	<50	<50	<50	NA
Ethanol	NA	NA	NA	<1,000	NA	NA
Ethylacetate	NA	NA	NA	R	NA	NA
Ethylene glycol	NA	NA	NA	<20,000	NA	NA
Isobutanol	NA	NA	NA	<1,000	NA	NA
Isopropanol	NA	NA	NA	<1,000	NA	NA
Methanol	NA	NA	NA	<800	NA	NA
n-Butanol	NA	NA	NA	<1,000	NA	NA
n-Propanol	NA	NA	NA	NA	NA	NA
Tert-Butyl Alcohol	NA	NA	NA	NA	NA	NA
Aldehydes						
Acetaldehyde	NA	NA	NA	<100 J	NA	NA
Butanal	NA	NA	NA	<100 J	NA	NA
Crotonaldehyde	NA	NA	NA	<100 J	NA	NA
Cyclohexanone	NA	NA	NA	<100 J	NA	NA
Decanal	NA	NA	NA	<100 J	NA	NA
Formaldehyde	NA	NA	NA	<100 J	NA	NA
Heptanal	NA	NA	NA	<100 J	NA	NA
Hexanal	NA	NA	NA	<100 J	NA	NA
m-Tolualdehyde	NA	NA	NA	<100 J	NA	NA
Nonanal	NA	NA	NA	<100 J	NA	NA
Octanal	NA	NA	NA	<100 J	NA	NA
Paraldehyde	NA	NA	NA	<100 J	NA	NA
Pentanal	NA	NA	NA	<100 J	NA	NA
Propanal	NA	NA	NA	<100 J	NA	NA
Acetic Acid/Acetate	NA	NA	NA	<200	NA	NA

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-23 (continued)			GM-24A		GM-24B	
Top of Screen Depth (ft bls)	3.5	3.5	3.5	71	71	104	104
Sample Date	05/12/04	05/12/04	09/08/05	11/09/98	05/04/99	11/17/98	11/17/98
Sample ID	GWGM-23 (5/12/04)	GWGM-995 (5/12/04)	GWGM-23(9/8/05)	GWGM-24A	GWGM-24A	GWGM-24B	GWGM-94
Alcohols							
1,4-Dioxane	<5.0	<5.0	<4.7	<300	R	<300 J	<300 J
2-Pentanone	<1,000	<1,000	NA	NA	<100	NA	NA
2-Picoline	<10	<10	<9.3	<80	NA	<80	<80
Acetonitrile	<50	<50	<50	<50	R	<50	<50
Ethanol	<1,000	<1,000	NA	<1,000	<1,000	<1,000 J	<1,000 J
Ethylacetate	<5,000	<5,000	NA	<10	<10	<10	<10
Ethylene glycol	<5,000	<5,000	NA	<20,000	<20,000	<20,000 J	<20,000 J
Isobutanol	<1,000	<1,000	NA	<1,000	<1,000	<1,000 J	<1,000 J
Isopropanol	<1,000	<1,000	NA	<1,000	<1,000	<1,000 J	<1,000 J
Methanol	940 J	820 J	NA	<800	<800	<800 J	<800 J
n-Butanol	<1,000	<1,000	NA	<1,000	<1,000	<1,000 J	<1,000 J
n-Propanol	<1,000	<1,000	NA	NA	R	NA	NA
Tert-Butyl Alcohol	<1,000	<1,000	NA	NA	R	NA	NA
Aldehydes							
Acetaldehyde	<100	<100	NA	<100 J	<100	<100	<100
Butanal	<100	<100	NA	<100 J	<100	<100	<100
Crotonaldehyde	<100	<100	NA	<100 J	<100	<100	<100
Cyclohexanone	<100	<100	NA	<100 J	<100	<100	<100
Decanal	<100	<100	NA	<100 J	<100	<100	<100
Formaldehyde	<100	<100	NA	<100 J	<100	<100	<100
Heptanal	<100	<100	NA	<100 J	<100	<100	<100
Hexanal	<100	<100	NA	<100 J	<100	<100	<100
m-Tolualdehyde	<100	<100	NA	<100 J	<100	<100	<100
Nonanal	<100	<100	NA	<100 J	<100	<100	<100
Octanal	<100	<100	NA	<100 J	<100	<100	<100
Paraldehyde	<500	<100	NA	<100	<100	<100	<100
Pentanal	<100	<100	NA	<100 J	<100	<100	<100
Propanal	<100	<100	NA	<100 J	<100	<100	<100
Acetic Acid/Acetate	<500	<500	NA	1,300	<500	<200	320

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-24B (continued)			GM-24C			
Top of Screen Depth (ft bls)	104	104	104	193	193	193	193
Sample Date	05/05/99	04/29/04	05/04/04	11/20/98	11/20/98	05/13/99	09/24/03
Sample ID	GWGM-24B	GWGM-24B (4/29/04)	GWGM-24B (5/4/04)	GWGM-24C	GWGM-93	GWGM-24C	GM-24C
Alcohols							
1,4-Dioxane	R	<5.0	NA	R	R	R	<5.0
2-Pentanone	<100	<1,000	NA	NA	NA	<100	<1,000
2-Picoline	<80	<10	NA	<80	<80	<80	<10
Acetonitrile	R	<50	NA	<50	<50	R	<40
Ethanol	<1,000	<1,000	NA	<1,000 J	<1,000 J	<1,000	<1,000
Ethylacetate	R	<5000	NA	R	R	R	<5,000
Ethylene glycol	<20,000	1,200 J	NA	<20,000 J	<20,000 J	<20,000	<5,000
Isobutanol	<1,000	<1,000	NA	<1,000 J	1,100 J	<1,000	<1,000
Isopropanol	<1,000	<1,000	NA	<1,000 J	<1,000 J	<1,000	<1,000
Methanol	<800	430 J	NA	<800 J	<800 J	<800	<1,000
n-Butanol	<1,000	<1,000	NA	1,200 J	3,100 J	<1,000	<1,000
n-Propanol	R	<1,000	NA	NA	NA	R	<1,000
Tert-Butyl Alcohol	R	<1,000	NA	NA	NA	R	<1,000
Aldehydes							
Acetaldehyde	<100	NA	<100	<100	<100	<100	<100
Butanal	<100	NA	<100	<100	<100	<100	<100
Crotonaldehyde	<100	NA	<100	<100	<100	<100	<100
Cyclohexanone	<100	NA	<100	<100	<100	<100	<100
Decanal	<100	NA	<100	<100	<100	<100	<100
Formaldehyde	<100	NA	<100	<100	<100	<100	<100
Heptanal	<100	NA	<100	<100	<100	<100	<100
Hexanal	<100	NA	<100	<100	<100	<100	<100
m-Tolualdehyde	<100	NA	<100	<100	<100	<100	<100
Nonanal	<100	NA	<100	<100	<100	<100	<100
Octanal	<100	NA	<100	<100	<100	<100	<100
Paraldehyde	<100	NA	<100	<100	<100	<100	<100
Pentanal	<100	NA	<100	<100	<100	<100	<100
Propanal	<100	NA	<100	<100	<100	<100	<100
Acetic Acid/Acetate	<500	<500	NA	1,000	6,600	1,300	<1,000

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-24C (continued)	GM-25A					GM-25B	
Top of Screen Depth (ft bls)	193	19	19	19	19	19	98	98
Sample Date	04/29/04	10/06/98	04/16/99	12/01/99	09/09/03	05/12/04	10/06/98	04/27/99
Sample ID	GWGM-24C (4/29/04)	GWGM-25A	GWGM-25A	GM-25A	GM-25A	GWGM-25A (5/12/04)	GWGM-25B	GWGM-25B
Alcohols								
1,4-Dioxane	<5.0	<300	R	<20 J	<25	<20	<7,500	R
2-Pentanone	<1,000	NA	<100	NA	<1,000	<1,000	NA	<2,500
2-Picoline	<10	<500	<500	<40	<50	<40	<10,000	<5,000
Acetonitrile	<50	<50	R	NA	<50	<50	<1,200	R
Ethanol	<1,000	<1,000	<1,000	NA	<1,000	<1,000	<1,000	<50,000
Ethylacetate	<5,000	<10	R	NA	<5,000	<5,000	<250	R
Ethylene glycol	1,500 J	<20,000	<20,000 J	NA	<5,000	<5,000	$\boxed{\textbf{290,000}}$	<20,000
Isobutanol	<1,000	<1,000	<1,000 J	NA	<1,000	<1,000	<1,000	<50,000
Isopropanol	<1,000	<1,000	<1,000 J	NA	<1,000	<1,000	$\boxed{\text{2,400}}$	$\boxed{\textbf{360,000 J}}$
Methanol	320 J	<800	<800	NA	<1,000	2,000	<800	<50,000
n-Butanol	<1,000	<1,000	<1,000	NA	<1,000	<1,000	<1,000	<50,000
n-Propanol	<1,000	NA	R	NA	<1,000	<1,000	NA	R
Tert-Butyl Alcohol	<1,000	NA	R	NA	<1,000	<1,000	NA	R
Aldehydes								
Acetaldehyde	<100	120 J	**420**	**250**	<100	<100	$\boxed{\textbf{1,200 J}}$	$\boxed{\textbf{2,000}}$
Butanal	<100	<100 J	<100	<100	<100	<100	1,500 J	<500
Crotonaldehyde	<100	<100 J	<100	<100	<100	<100	<100 J	<500
Cyclohexanone	<100	<100 J	<100	<100	<100	61 J	160 J	940
Decanal	<100	<100 J	<100	<100	<100	<100	<100 J	<500
Formaldehyde	<100	<100 J	<100	<100	<100	<100	**220 J**	<500
Heptanal	<100	<100 J	<100	<100	<100	58 J	<100 J	<500
Hexanal	<100	140 J	<100	<100	<100	<100	<100 J	<500
m-Tolualdehyde	<100	300 J	<100	<100	<100	120	560 J	<500
Nonanal	<100	<100 J	<100	<100	<100	<100	<100 J	<500
Octanal	<100	<100 J	<100	<100	<100	<100	<100 J	<500
Paraldehyde	<100	<100	<100	<100	<100	<500	<100 J	<100
Pentanal	<100	<100 J	120	<100	<100	79 J	<100 J	<500
Propanal	<100	<100 J	<100	<100	<100	<100	120 J	<500
Acetic Acid/Acetate	<500	<1,000	<500	<1,000	<1,000	140 J	$\boxed{\text{6,700,000}}$	$\boxed{\text{1,400,000}}$

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25B (continued)			GM-25C					
Top of Screen Depth (ft bls)	98	98	98	206	206	206	206	206	206
Sample Date	10/20/99	09/09/03	05/18/04	10/26/98	11/09/98	11/09/98	04/20/99	08/02/00	09/15/03
Sample ID	GM-25B	GM-25B	GWGM-25B (5/18/04)	GWGM-25C	GWGM-25C	GWGM-95	GWGM-25C	GWGM-25C	GM-25C
Alcohols									
1,4-Dioxane	<200	<500	<5.0	NA	<300	<300	R	<5	<5.0
2-Pentanone	NA	<1,000	<1,000	NA	NA	NA	<100	NA	<1,000
2-Picoline	<400	<1,000	<10	NA	<80	<80	<80	<10	<10
Acetonitrile	<500	<50	<500	NA	<50	<50	<50 J	50	<50
Ethanol	58 J	<1,000	<1,000	NA	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	1,700 J	<5,000	1,200 J	NA	<10	<10	R	<5,000	<5,000
Ethylene glycol	NA	12,000	3,400 J	NA	<20,000	<20,000	<20,000	NA	<5,000
Isobutanol	42 J	<1,000	<1,000	NA	<1,000	<1,000	<1,000	<1,000 J	<1,000
Isopropanol	790 J	<1,000	960 J	NA	<1,000	<1,000	<1,000	<1,000	<1,000
Methanol	<1,000	<1,000	920 J	NA	<800	<800	<800	<1,000	<1,000
n-Butanol	110 J	44,000	<1,000	NA	<1,000	<1,000	<1,000	<1,000	9,000
n-Propanol	<1,000	<1,000	<1,000	NA	NA	NA	R	<1,000	<1,000
Tert-Butyl Alcohol	<1,000	<1,000	<1,000	NA	NA	NA	R	<1,000	<1,000
Aldehydes									
Acetaldehyde	**2,200**	<100	**890**	NA	<100 J	<100	<100	<100	<100
Butanal	<500	<100	<100	NA	<100 J	<100	<100	<100	<100
Crotonaldehyde	<500	<100	<100	NA	<100 J	<100	<100	<100	<100
Cyclohexanone	520	510	<100	NA	<100 J	<100	<100	<100	<100
Decanal	<500	<100	<100	NA	<100 J	<100	<100	<100	<100
Formaldehyde	<500	<100	<100	NA	<100 J	<100	<100	<100	<100
Heptanal	<500	<100	140	NA	<100 J	<100	<100	<100	<100
Hexanal	640	<100	<100	NA	<100 J	<100	<100	<100	<100
m-Tolualdehyde	1,100	1,400	<100	NA	<100 J	<100	<100	<100	<100
Nonanal	<500	<100	<100	NA	<100 J	<100	<100	<100	<100
Octanal	<500	<100	130	NA	<100 J	<100	<100	<100	<100
Paraldehyde	<100	<100	<500	NA	<100	<100	<100	<100	<100
Pentanal	550	<100	<100	NA	<100 J	<100	<100	<100	<100
Propanal	<500	<100	<100	NA	<100 J	<100	<100	<100	<100
Acetic Acid/Acetate	3,700,000	2,800,000	3,500,000	<4,000	1,700	<1,000	<500	1,900	30,000

Footnotes on Page 73.

ARCADIS

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25C (continued)			GM-26A			
Top of Screen Depth (ft bls)	206	206	206	30	30	30	30
Sample Date	05/04/04	08/01/05	09/15/03	10/07/98	04/14/99	11/29/99	09/09/03
Sample ID	GWGM-25C (5/4/04)	GWGM-25C (08/01/05)	GM-25C-DL	GWGM-26A	GWGM-26A	GM-26A	GM-26A
Alcohols							
1,4-Dioxane	<5.0	NA	NA	<300	R	R	<50
2-Pentanone	<1,000	<1,000	NA	NA	<200	NA	<1,000
2-Picoline	<10	NA	NA	<500	<1,000	<40	<100
Acetonitrile	<50	<50	NA	<50	R	NA	<50
Ethanol	<1,000	<1,000	NA	<1,000	<1,000	NA	<1,000
Ethylacetate	<5,000	<5,000	NA	<10	R	NA	<5,000
Ethylene glycol	840 J	<10,000	NA	<20,000	<20,000 J	NA	9,800
Isobutanol	<1,000	<1,000	NA	<1,000	<1,000	NA	<1,000
Isopropanol	<1,000	<1,000	NA	<1,000	<1,000	NA	<1,000
Methanol	1,000	<1,000	NA	<800	<800	NA	<1,000
n-Butanol	<1,000	<1,000	NA	<1,000	<1,000	NA	<1,000
n-Propanol	<1,000	<1,000	NA	NA	R	NA	<1,000
Tert-Butyl Alcohol	<1,000	<1,000	NA	NA	R	NA	<1,000
Aldehydes							
Acetaldehyde	<100	<100	NA	<100 J	**430**	**170**	<100
Butanal	<100	<100	NA	150 J	<100	<100	<100
Crotonaldehyde	<100	<100	NA	<100 J	<100	<100	<100
Cyclohexanone	<100	<100	NA	<100 J	<100	<100	<100
Decanal	<100	<100	NA	<100 J	<100	<100	<100
Formaldehyde	<100	<100	NA	<100 J	<100	<100	<100
Heptanal	35 J	<100	NA	<100 J	<100	<100	<100
Hexanal	<100	<100	NA	120 J	<100	<100	<100
m-Tolualdehyde	45 J	<100	NA	140 J	<100	<100	<100
Nonanal	<100	<100	NA	<100 J	<100	<100	<100
Octanal	<100	<100	NA	<100 J	<100	<100	<100
Paraldehyde	<100	<100	NA	<100 J	<100	<100	<100
Pentanal	54 J	<100	NA	<100 J	150	<100	<100
Propanal	<100	<100	NA	<100 J	<100	<100	<100
Acetic Acid/Acetate	410 I	660		$\boxed{4,800}$	$\boxed{16,000}$	$\boxed{15,000}$	<1,000

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26A (continued)		GM-26B				
Top of Screen Depth (ft bls)	30	30	101	101	101	101	101
Sample Date	05/13/04	05/13/04	10/07/98	04/15/99	11/30/99	07/18/00	09/09/03
Sample ID	GWGM-26A (5/13/04)	GWGM-26A (5/13/04)-RE	GWGM-26B	GWGM-26B	GM-26B	GWGM-26B	GM-26B
Alcohols							
1,4-Dioxane	<50	NA	<300	R	<5.0	<5.0 J	<5.0
2-Pentanone	<1,000	NA	NA	<100	NA	NA	<1,000
2-Picoline	<100	NA	<80	<80	<10	<10	<10
Acetonitrile	<50	<50	<50	R	NA	32 J	<50
Ethanol	<1,000	NA	<1,000	<1,000	NA	<1,000	<1,000
Ethylacetate	<5,000	NA	<10	R	NA	<5,000	<5,000
Ethylene glycol	1,000 J	NA	<20,000	<20,000 J	NA	NA	<5,000
Isobutanol	<1,000	NA	<1,000	<1,000	NA	<1,000	<1,000
Isopropanol	<1,000	NA	<1,000	<1,000	NA	<1,000 J	<1,000
Methanol	1,800	NA	<800	<800	NA	<1,000	<1,000
n-Butanol	<1,000	NA	<1,000	<1,000	NA	<1,000	<1,000
n-Propanol	<1,000	NA	NA	R	NA	<1,000	<1,000
Tert-Butyl Alcohol	<1,000	NA	NA	R	NA	<1,000	<1,000
Aldehydes							
Acetaldehyde	<100	NA	<100 J	<100	<100	<100 J	<100
Butanal	<100	NA	<100 J	<100	<100	<100 J	<100
Crotonaldehyde	30 J	NA	<100 J	<100	<100	<100 J	<100
Cyclohexanone	560	NA	<100 J	<100	<100	<100 J	<100
Decanal	<100	NA	<100 J	<100	<100	<100 J	<100
Formaldehyde	<100	NA	<100 J	<100	<100	<100 J	<100
Heptanal	120	NA	<100 J	<100	<100	<100 J	<100
Hexanal	<100	NA	<100 J	<100	<100	<100 J	<100
m-Tolualdehyde	1,300	NA	<100 J	<100	<100	<100 J	<100
Nonanal	<100	NA	<100 J	<100	<100	<100 J	<100
Octanal	40 J	NA	<100 J	<100	<100	<100 J	<100
Paraldehyde	<100	NA	<100 J	<100	<100	<100	<100
Pentanal	<100	NA	<100 J	<100	<100	<100 J	<100
Propanal	<100	NA	<100 J	<100	<100	<100 J	<100
Acetic Acid/Acetate	520	NA	<200	<500	<1,000	<500	<1,000

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26B (continued)		GM-26C				
Top of Screen Depth (ft bls)	101	101	160	160	160	160	160
Sample Date	04/27/04	07/28/05	10/25/98	04/17/99	11/30/99	09/16/03	05/18/04
Sample ID	GWGM-26B (4/27/04)	GWGM-26B (072805)	GWGM-26C	GWGM-26C	GM-26C	GM-26C	GWGM-26C (5/18/04)
Alcohols							
1,4-Dioxane	<5.0	<4.9	<300 J	R	<50	$\boxed{600}$	<50
2-Pentanone	<1,000	<1,000	NA	<200	NA	<1,000	<1,000
2-Picoline	<10	<9.7	<1,000	<1,000	<100	<400	<100
Acetonitrile	<50	<50	<50	R	NA	<50	<500
Ethanol	<1,000	<1,000	<1,000	<1,000 J	NA	<1,000	<1,000
Ethylacetate	<5,000	<5,000	<10	R	NA	<5,000	<5,000
Ethylene glycol	<5,000	<10,000	<20,000	<20,000 J	NA	<5,000	2,000 J
Isobutanol	<1,000	<1,000	<1,000	<1,000 J	NA	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000 J	NA	<1,000	<1,000
Methanol	320 J	<1,000	<800	<800 J	NA	<1,000	1,600
n-Butanol	<1,000	<1,000	<1,000	<1,000 J	NA	<1,000	<1,000
n-Propanol	<1,000	<1,000	NA	R	NA	<1,000	<1,000
Tert-Butyl Alcohol	<1,000	<1,000	NA	R	NA	<1,000	<1,000
Aldehydes							
Acetaldehyde	<100	<100	<100	**230**	130	<100	<100
Butanal	<100	<100	<100	<100	<100	<100	<100
Crotonaldehyde	<100	<100	<100	<100	<100	<100	100
Cyclohexanone	<100	<100	<100	<100	110	<100	<100
Decanal	<100	<100	<100	<100	<100	<100	<100
Formaldehyde	<100	<100	<100	<100	<100	<100	<100
Heptanal	<100	<100	<100	<100	<100	<100	180
Hexanal	<100	<100	130	<100	<100	<100	<100
m-Tolualdehyde	<100	<100	<100	<100	<100	<100	430
Nonanal	<100	<100	<100	<100	<100	<100	17 J
Octanal	<100	<100	<100	<100	<100	<100	120
Paraldehyde	<100	<100	<100	<100	<100	<100	<100
Pentanal	<100	<100	<100	180	<100	<100	140
Propanal	<100	<100	<100	<100	<100	<100	<100
Acetic Acid/Acetate	<500	320 J	3,400	2,100	<1000	1,400	690

Footnotes on Page 73.

ARCADIS

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26C (continued)	GM-27A					GM-27B	
Top of Screen Depth (ft bls)	160	30	30	30	30	30	145	145
Sample Date	05/18/04	10/08/98	04/15/99	12/01/99	09/10/03	05/13/04	10/26/98	04/14/99
Sample ID	GWGM-994 (5/18/04)	GWGM-27A	GWGM-27A	GM-27A	GM-27A	GWGM-27A (5/13/04)	GWGM-27B	GWGM-27B
Alcohols								
1,4-Dioxane	<50	<300	R	<20 J	<50	<25	R	R
2-Pentanone	<1,000	NA	<200	NA	<1,000	<1,000	NA	<100
2-Picoline	<100	<500	<500	<40	<100	<50	<80	<80
Acetonitrile	<500	<50	R	NA	<50	<50	<50	R
Ethanol	<1,000	<1,000	<1,000	NA	<1,000	<1,000	<1,000	<1,000
Ethylacetate	<5,000	<10	R	NA	<5,000	<5,000	<10	R
Ethylene glycol	2,100 J	<20,000	<20,000 J	NA	<5,000	940 J	38,000	<20,000 J
Isobutanol	<1,000	<1,000	<1,000 J	NA	<1,000	<1,000	<1,000	<1,000 J
Isopropanol	<1,000	<1,000	<1,000 J	NA	<1,000	<1,000	<1,000	<1,000 J
Methanol	3,000	<800	<800	NA	<1,000	3,600	<800	<800
n-Butanol	<1,000	<1,000	<1,000	NA	23,000	<1,000	<5,000 M	<1,000
n-Propanol	<1,000	NA	R	NA	<1,000	<1,000	NA	R
Tert-Butyl Alcohol	<1,000	NA	R	NA	<1,000	<1,000	NA	R
Aldehydes								
Acetaldehyde	<100	100 J	**350**	<100	<100	<100	<100 J	<100
Butanal	<100	<100 J	<100	<100	<100	<100	<100 J	<100
Crotonaldehyde	80 J	<100 J	<100	<100	<100	<100	<100 J	<100
Cyclohexanone	<100	<100 J	<100	<100	<100	670	<100 J	<100
Decanal	<100	<100 J	<100	<100	<100	<100	<100 J	<100
Formaldehyde	<100	<100 J	<100	<100	<100	<100	<100 J	<100
Heptanal	120	<100 J	<100	<100	<100	120	<100 J	<100
Hexanal	480	110 J	<100	<100	<100	<100	<100 J	<100
m-Tolualdehyde	<100	<100 J	<100	<100	<100	1,500	<100 J	<100
Nonanal	<100	<100 J	<100	<100	<100	<100	<100 J	<100
Octanal	<100	<100 J	<100	<100	<100	43 J	<100 J	<100
Paraldehyde	<100	<100	<100	<100	<100	<500	<100 J	<100
Pentanal	<100	<100 J	<100	<100	<100	<100	<100 J	<100
Propanal	<100	<100 J	<100	<100	<100	<100	<100 J	<100
Acetic Acid/Acetate	840	920,000	3,600	<1,000	<1,000	420 I	<2,000	16,000

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)					
Top of Screen Depth (ft bls)	145	145	145	145	145	145
Sample Date	07/18/00	09/10/03	04/30/04	04/30/04	08/05/05	12/07/06
Sample ID	GWGM-27B	GM-27B	GWGM-27B (4/30/04)	GWGM-998 (4/30/04)	GWGM-27B (08/05/05)	GWGM27B (12/7/06)
Alcohols						
1,4-Dioxane	<5.0 J	<5.0	<5.0	<5.0	<4.8	<5.0
2-Pentanone	NA	<1,000	<1,000	<1,000	<1,000	<1,000
2-Picoline	<10	<10	<10	<10	<9.5	<10
Acetonitrile	<50	<50	<50	<50	<50	<50
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	<5,000	<5,000	<5,000	<5,000	<5,000	<5,000
Ethylene glycol	NA	<5,000	<5,000	<5,000	<10,000	<10,000
Isobutanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Isopropanol	<1,000 J	<1,000	<1,000	<1,000	<1,000	<1,000
Methanol	<1,000	<1,000	800 J	980 J	<1,000	<1,000
n-Butanol	<1,000	$\boxed{18,000}$	<1,000	<1,000	<1,000	<1,000
n-Propanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Tert-Butyl Alcohol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Aldehydes						
Acetaldehyde	<100 J	<100	<100	<100	<100	<100
Butanal	<100 J	<100	<100	<100	<100	<100
Crotonaldehyde	<100 J	<100	<100	<100	<100	<100
Cyclohexanone	<100 J	<100	<100	<100	<100	<100
Decanal	<100 J	<100	<100	<100	<100	<100
Formaldehyde	<100 J	100	<100	<100	<100	<100
Heptanal	<100 J	<100	<100	<100	<100	<100
Hexanal	<100 J	<100	<100	<100	<100	<100
m-Tolualdehyde	<100 J	<100	<100	<100	<100	<100
Nonanal	<100 J	<100	<100	<100	<100	<100
Octanal	<100 J	<100	<100	<100	<100	<100
Paraldehyde	<100	<100	<100	<100	<100	<100
Pentanal	<100 J	<100	<100	<100	<100	<100
Propanal	<100 J	<100	<100	<100	<100	<100
Acetic Acid/Acetate	<500	<1,000	<500	<500	180 J	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)					GM-27C
Top of Screen Depth (ft bls)	145	145	145	145	145	210
Sample Date	02/22/07	02/22/07	05/11/07	08/08/07	11/08/07	11/09/98
Sample ID	WGM-27B (2/22/0	GWGM-27B-RE (2/22/07)	GWGM-27B(5/11/07)	GWGM-27B (8/8/07)	GWGM-27B (11/8/07)	GWGM-27C
Alcohols						
1,4-Dioxane	<4.9	<4.7 H	<4.7	<4.7	<4.7	R
2-Pentanone	<1,000	NA	<1,000	<1,000	<1,000	NA
2-Picoline	<9.7	<9.4 H	<9.4	<9.4	<9.4	<80
Acetonitrile	<50	NA	<50	<50	<50	R
Ethanol	<1,000	NA	<1,000	<1,000	<1,000	<1,000
Ethylacetate	<5,000	NA	<5,000	<5,000	<5,000	<10 J
Ethylene glycol	<10,000	NA	<10,000	<10,000	<10,000	<20,000
Isobutanol	<1,000	NA	<1,000	<1,000	<1,000	<1,000
Isopropanol	<1,000	NA	<1,000	<1,000	<1,000	<1,000
Methanol	<1,000	NA	<1,000	<1,000	<1,000	<800
n-Butanol	<1,000	NA	<1,000	<1,000	<1,000	<1,000
n-Propanol	<1,000	NA	<1,000	<1,000	<1,000	NA
Tert-Butyl Alcohol	<1,000	NA	<1,000	<1,000	<1,000	NA
Aldehydes						
Acetaldehyde	<100	NA	<100	<100	<100	<100 J
Butanal	<100	NA	<100	<100	<100	<100 J
Crotonaldehyde	<100	NA	<100	<100	<100	<100 J
Cyclohexanone	<100	NA	<100	<100	<100	<100 J
Decanal	<100	NA	7.6 J	<100	<100	<100 J
Formaldehyde	<100	NA	<100	<100	<100	<100 J
Heptanal	<100	NA	<100	<100	<100	<100 J
Hexanal	<100	NA	<100	<100	<100	<100 J
m-Tolualdehyde	<100	NA	<100	<100	15 J	<100 J
Nonanal	6.4 J	NA	5.8 J	<100	<100	<100 J
Octanal	<100	NA	<100	<100	<100	<100 J
Paraldehyde	<100	NA	<100	<100	<100	<100 J
Pentanal	7.8 J	NA	5.4 J	9.4 J	<100	<100 J
Propanal	<100	NA	<100	<100	<100	<100 J
Acetic Acid/Acetate	<500	NA	<500	<500	<500	640

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27C (continued)							GM-28A
Top of Screen Depth (ft bls)	210	210	210	210	210	210	210	40
Sample Date	12/02/98	04/26/99	04/26/99	08/07/00	09/11/03	04/30/04	08/05/05	10/28/98
Sample ID	GWGM-27C	GWGM-27C	GWGM-86	GMGW-27C	GM-27C	GWGM-27C (4/30/04)	GWGM-27C (08/05/05)	GWGM-28A
Alcohols								
1,4-Dioxane	R	R	R	<5.0	<5.0	<5.0	<4.8	R
2-Pentanone	NA	<100	<100	NA	<1,000	<1,000	<1,000	NA
2-Picoline	NA	<80	<80	<10	<10	<10	<9.5	<80
Acetonitrile	<50	R	R	<50	<50	<50	<50	<50
Ethanol	NA	<1,000 J	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	<10	R	R	<5,000	<5,000	<5,000	<5,000	<10
Ethylene glycol	NA	<20,000	<20,000	NA	<5,000	890 J	<10,000	$\boxed{38,000}$
Isobutanol	NA	<1,000 J	<1,000	<1000 J	<1,000	<1,000	<1,000	<1,000
Isopropanol	NA	<1,000 J	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Methanol	NA	<800 J	<800	<1,000	<1,000	810 J	<1,000	<800
n-Butanol	NA	<1,000 J	<1,000	<1,000	$\boxed{8,300}$	<1,000	<1,000	<1,000
n-Propanol	NA	R	R	<1,000	<1,000	<1,000	<1,000	NA
Tert-Butyl Alcohol	NA	R	R	<1,000	<1,000	<1,000	<1,000	NA
Aldehydes								
Acetaldehyde	NA	<100	<100	<100	<100	<100	<100	<100
Butanal	NA	<100	<100	<100	<100	<100	<100	<100
Crotonaldehyde	NA	<100	<100	<100	<100	<100	<100	<100
Cyclohexanone	NA	<100	<100	<100	<100	<100	<100	<100
Decanal	NA	<100	<100	<100	<100	<100	<100	<100
Formaldehyde	NA	<100	**160**	<100	<100	<100	<100	<100
Heptanal	NA	<100	<100	<100	<100	<100	<100	<100
Hexanal	NA	<100	<100	<100	<100	<100	<100	<100
m-Tolualdehyde	NA	<100	<100	<100	<100	<100	<100	<100
Nonanal	NA	<100	<100	<100	<100	<100	<100	<100
Octanal	NA	<100	<100	<100	<100	<100	<100	<100
Paraldehyde	NA	<100	<100	<100	<100	34 J	<100	<100
Pentanal	NA	<100	<100	<100	<100	<100	<100	<100
Propanal	NA	<100	<100	<100	<100	<100	<100	<100
Acetic Acid/Acetate	NA	600	500	<1,000	<1,000	<500	150 J	<200

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)					
Top of Screen Depth (ft bls)	40	40	40	40	40	40
Sample Date	04/19/99	07/19/00	04/28/04	07/26/05	07/26/05	12/05/06
Sample ID	GWGM-28A	GWGM-28A	GWGM-28A (4/28/04)	GWGM28A (072605)	GWGM-999 (7/26/05)	GWGM-28A(12/5/06)
Alcohols						
1,4-Dioxane	R	<5.0 J	<5.0	<5.0 *	<5.6 *	<5.0
2-Pentanone	<100 J	NA	<1,000	<1,000	<1,000	<1,000
2-Picoline	<80	<10	<10	<10	<11	<10
Acetonitrile	R	<50	<50	<50	<50	<50
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	R	<5,000	<5,000	<5,000	<5,000	<5,000
Ethylene glycol	<20,000 J	NA	<5,000	<10,000	<10,000	<10,000
Isobutanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Isopropanol	<1,000	<1,000 J	<1,000	<1,000	<1,000	<1,000
Methanol	<800 J	<1,000	260 J	<1,000	<1,000	1,600
n-Butanol	<1,000 J	<1,000	<1,000	<1,000	<1,000	<1,000
n-Propanol	R	<1,000	<1,000	<1,000	<1,000	<1,000
Tert-Butyl Alcohol	R	<1,000	<1,000	<1,000	<1,000	<1,000
Aldehydes						
Acetaldehyde	<100	<100 J	<100	<100	<100	<100
Butanal	<100	<100 J	<100	<100	<100	<100
Crotonaldehyde	<100	<100 J	<100	<100	<100	<100
Cyclohexanone	<100	<100 J	<100	<100	<100	<100
Decanal	<100	<100 J	<100	<100	<100	18 J
Formaldehyde	<100	<100 J	<100	<100	<100	<100
Heptanal	<100	<100 J	<100	<100	<100	<100
Hexanal	<100	<100 J	<100	<100	<100	<100
m-Tolualdehyde	<100	<100 J	<100	<100	<100	<100
Nonanal	<100	<100 J	<100	<100	<100	5.9 J
Octanal	<100	<100 J	<100	<100	<100	<100
Paraldehyde	<100	<100	<100	<100	<100	<100
Pentanal	<100	<100 J	<100	<100	<100	3.2 J
Propanal	<100	<100 J	<100	<100	<100	<100
Acetic Acid/Acetate	<500	<500	<500	410 J	410 J	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)				
Top of Screen Depth (ft bls)	40	40	40	40	40
Sample Date	12/05/06	02/21/07	05/10/07	08/07/07	11/05/07
Sample ID	GWGM-28A-RE (12/5/2006)	GWGM-28A (2/21/07)	GWGM-28A (5/10/07)	GWGM-28A (8/7/07)	GWGM-28A (11/5/07)
Alcohols					
1,4-Dioxane	<5.0 H	<4.8	<4.7	<4.9	<4.7
2-Pentanone	NA	<1,000	<1,000	<1,000	<1,000
2-Picoline	<10 H	<9.6	<9.4	<9.7	<9.4
Acetonitrile	NA	<50	<50	<50	<50
Ethanol	NA	<1,000	<1,000	<1,000	<1,000
Ethylacetate	NA	<5,000	<5,000	<5,000	<5,000
Ethylene glycol	NA	<10,000	<10,000	<10,000	<10,000
Isobutanol	NA	<1,000	<1,000	<1,000	<1,000
Isopropanol	NA	<1,000	<1,000	<1,000	<1,000
Methanol	NA	<1,000	1,400	<1,000	<1,000
n-Butanol	NA	<1,000	<1,000	<1,000	<1,000
n-Propanol	NA	<1,000	<1,000	<1,000	<1,000
Tert-Butyl Alcohol	NA	<1,000	<1,000	<1,000	<1,000
Aldehydes					
Acetaldehyde	NA	<100	<100	<100	<100
Butanal	NA	<100	<100	<100	<100
Crotonaldehyde	NA	<100	<100	<100	<100
Cyclohexanone	NA	<100	<100	<100	<100
Decanal	NA	<100	10 J	<100	<100
Formaldehyde	NA	29 J	41 J	32 J	<100
Heptanal	NA	<100	<100	<100	<100
Hexanal	NA	<100	3.1 J	<100	<100
m-Tolualdehyde	NA	<100	<100	<100	<100
Nonanal	NA	<100	6.0 J	<100	<100
Octanal	NA	<100	<100	<100	<100
Paraldehyde	NA	<100	<100	<100	<100
Pentanal	NA	<100	6.1 J	10 J	<100
Propanal	NA	<100	<100	<100	<100
Acetic Acid/Acetate	NA	<500	<500 *	<500	<500

Footnotes on Page 73.

ARCADIS

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B						
Top of Screen Depth (ft bls)	124.5	124.5	124.5	124.5	124.5	124.5	124.5
Sample Date	10/26/98	11/08/98	11/08/98	04/19/99	04/19/99	04/28/04	04/28/04
Sample ID	GWGM-96	GWGM-28B	GWGM-96	GWGM-28B	GWGM-87	GWGM-28B (4/28/04)	GWGM-999 (4/28/04)
Alcohols							
1,4-Dioxane	NA	<300	<300	R	R	<5.0	<5.0
2-Pentanone	NA	NA	NA	<100	<100	<1,000	<1,000
2-Picoline	NA	<80	<80	<80	<80	<10	<10
Acetonitrile	NA	<50	<50	R	R	<50	<50
Ethanol	NA	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	NA	<10	<10	R	R	<5,000	<5,000
Ethylene glycol	NA	<20,000	<20,000	<20,000 J	<20000 J	<5,000	<5,000
Isobutanol	NA	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Isopropanol	NA	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Methanol	NA	<800	<800	<800	<800	260 J	<1,000
n-Butanol	NA	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
n-Propanol	NA	NA	NA	R	R	<1,000	<1,000
Tert-Butyl Alcohol	NA	NA	NA	R	R	<1,000	<1,000
Aldehydes							
Acetaldehyde	NA	<100 J	<100	<100	<100	<100	<100
Butanal	NA	<100 J	<100	<100	<100	<100	<100
Crotonaldehyde	NA	<100 J	<100	<100	<100	<100	<100
Cyclohexanone	NA	<100 J	<100	<100	<100	<100	<100
Decanal	NA	<100 J	<100	<100	<100	<100	<100
Formaldehyde	NA	<100 J	<100	<100	<100	<100	<100
Heptanal	NA	<100 J	<100	<100	<100	<100	<100
Hexanal	NA	<100 J	<100	<100	<100	<100	<100
m-Tolualdehyde	NA	<100 J	<100	<100	<100	<100	<100
Nonanal	NA	<100 J	<100	<100	<100	<100	<100
Octanal	NA	<100 J	<100	<100	<100	<100	<100
Paraldehyde	NA	<100	<100	<100	<100	<100	<100
Pentanal	NA	<100 J	<100	<100	<100	<100	<100
Propanal	NA	<100 J	<100	<100	<100	<100	<100
Acetic Acid/Acetate	<200	<200	390	500	900	<500	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)				
Top of Screen Depth (ft bls)	124.5	124.5	124.5	124.5	124.5
Sample Date	07/26/05	12/05/06	12/05/06	02/21/07	05/10/07
Sample ID	GWGM28B (072605)	GWGM-28B(12/5/06)	GWGM-28B-RE (12/5/2006)	GWGM-28B (2/21/07)	GWGM-28B (5/10/07)
Alcohols					
1,4-Dioxane	<5.0 *	<5.0	<5.0 H	<4.7	<4.7
2-Pentanone	<1,000	<1,000	NA	<1,000	<1,000
2-Picoline	<9.9	<10	<10 H	<9.4	<9.4
Acetonitrile	<50	<50	NA	<50	<50
Ethanol	<1,000	<1,000	NA	<1,000	<1,000
Ethylacetate	<5,000	<5,000	NA	<5,000	<5,000
Ethylene glycol	<10,000	<10,000	NA	<10,000	<10,000
Isobutanol	<1,000	<1,000	NA	<1,000	<1,000
Isopropanol	<1,000	<1,000	NA	<1,000	<1,000
Methanol	<1,000	<1,000	NA	<1,000	<1,000
n-Butanol	<1,000	<1,000	NA	<1,000	<1,000
n-Propanol	<1,000	<1,000	NA	<1,000	<1,000
Tert-Butyl Alcohol	<1,000	<1,000	NA	<1,000	<1,000
Aldehydes					
Acetaldehyde	<100	<100	NA	<100	<100
Butanal	<100	<100	NA	<100	<100
Crotonaldehyde	<100	<100	NA	<100	<100
Cyclohexanone	<100	<100	NA	<100	<100
Decanal	<100	8.4 J	NA	<100	4.8 J
Formaldehyde	<100	<100	NA	<100	<100
Heptanal	<100	<100	NA	<100	<100
Hexanal	<100	<100	NA	<100	<100
m-Tolualdehyde	<100	<100	NA	<100	<100
Nonanal	<100	3.8 J	NA	<100	5.4 J
Octanal	<100	3.8 J	NA	<100	<100
Paraldehyde	<100	<100	NA	<100	<100
Pentanal	<100	<100	NA	<100	5.6 J
Propanal	<100	<100	NA	<100	<100
Acetic Acid/Acetate	370 J	<500	NA	<500	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)		GM-29				
Top of Screen Depth (ft bls)	124.5	124.5	55	55	55	55	55
Sample Date	08/07/07	11/05/07	10/09/98	10/09/98	04/16/99	09/10/03	05/03/04
Sample ID	GWGM-28B (8/7/07)	GWGM-28B (11/5/07)	GWGM-29	GWGM-99	GWGM-29	GM-29	GWGM-29 (5/3/04)
Alcohols							
1,4-Dioxane	<4.7	<4.7	R	R	R	<5.0	<5.0
2-Pentanone	<1,000	<1,000	NA	NA	<100	<1,000	<1,000
2-Picoline	<9.4	<9.4	<100	<100	<80	<10	<10
Acetonitrile	<50	<50	<50	<50	R	<50	<50
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	<5,000	<5,000	R	R	R	<5,000	<5,000
Ethylene glycol	<10,000	<10,000	<20,000	<20,000	<20,000 J	<5,000	<5,000
Isobutanol	<1,000	<1,000	<1,000	<1,000	<1,000 J	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000	<1,000 J	<1,000	<1,000
Methanol	<1,000	<1,000	<800	<800	<800	<1,000	1,200
n-Butanol	<1,000	<1,000	<1,000	<1,000	<1,000	$\boxed{30,000}$	<1,000
n-Propanol	<1,000	<1,000	NA	NA	R	<1,000	<1,000
Tert-Butyl Alcohol	<1,000	<1,000	NA	NA	R	<1,000	<1,000
Aldehydes							
Acetaldehyde	<100	<100	<100 J	<100 J	<100	<100	<100
Butanal	<100	<100	<100 J	<100 J	<100	<100	<100
Crotonaldehyde	<100	<100	<100 J	<100 J	<100	<100	<100
Cyclohexanone	<100	<100	<100 J	<100 J	<100	<100	<100
Decanal	<100	<100	<100 J	<100 J	<100	<100	<100
Formaldehyde	<100	<100	<100 J	<100 J	<100	<100	<100
Heptanal	<100	<100	<100 J	<100 J	<100	<100	<100
Hexanal	<100	<100	<100 J	<100 J	<100	<100	<100
m-Tolualdehyde	<100	<100	160 J	150 J	<100	<100	<100
Nonanal	<100	<100	<100 J	<100 J	<100	<100	<100
Octanal	<100	<100	<100 J	<100 J	<100	<100	<100
Paraldehyde	<100	<100	<100 J	<100 J	<100	<100	<100
Pentanal	10 J	<100	<100 J	<100 J	<100	<100	<100
Propanal	<100	<100	<100 J	<100 J	<100	<100	<100
Acetic Acid/Acetate	<500	<500	<1,000	<2,000	<500	<1,000	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)					
Top of Screen Depth (ft bls)	55	55	55	55	55	55
Sample Date	07/28/05	12/08/06	02/20/07	05/09/07	08/07/07	11/06/07
Sample ID	GWGM-29 (07/28/05)	GWGM-29 (12/8/06)	GWGM-29 (2/20/07)	GWGM-29 (5/9/07)	GWGM-29 (8/7/07)	DUP-999(11/6/07)
Alcohols						
1,4-Dioxane	<4.7	<5.0	<4.7	<4.7	<4.7	<4.7
2-Pentanone	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
2-Picoline	<9.4	<10	<9.4	<9.4	<9.4	<9.4
Acetonitrile	<50	<50	<50	<50	<50	<50
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	<5,000	<5,000	<5,000	<5,000	<5,000	<5,000
Ethylene glycol	<10,000	<10,000	<10,000	<10,000	<10,000	<10,000
Isobutanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Methanol	<1,000	980 J	<1,000	<1,000	<1,000	570 J
n-Butanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
n-Propanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Tert-Butyl Alcohol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Aldehydes						
Acetaldehyde	<100	<100	<100	<100	<100	<100
Butanal	<100	<100	<100	<100	<100	<100
Crotonaldehyde	<100	<100	<100	<100	<100	<100
Cyclohexanone	<100	<100	<100	<100	<100	<100
Decanal	<100	<100	5.4 J	17 J	<100	<100
Formaldehyde	<100	<100	<100	<100	<100	<100
Heptanal	<100	3.2 J	3.2 J	9.4 J	7.7 J	<100
Hexanal	<100	<100	13 J	13 J	<100	<100
m-Tolualdehyde	<100	<100	<100	17 J	<100	<100
Nonanal	<100	4.0 J	5.7 J	7.4 J	<100	<100
Octanal	<100	3.2 J	2.5 J	5.6 J	<100	<100
Paraldehyde	<100	<100	<100	<100	<100	<100
Pentanal	<100	4.9 J	<100	<100	12 J	<100
Propanal	<100	<100	<100	<100	<100	<100
Acetic Acid/Acetate	420 J	<500	<500	<500	<500	<500

Footnotes on Page 73.

ARCADIS

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)	GM-30			GM-31		GM-32	
Top of Screen Depth (ft bls)	55	75	75	75	105	105	135	135
Sample Date	11/06/07	10/27/98	05/12/99	05/12/99	10/24/98	05/03/99	10/25/98	04/27/99
Sample ID	GWGM-29(11/6/07)	GWGM-30	GWGM-30	GWGM-83	GWGM-31	GWGM-31	GWGM-32	GWGM-32
Alcohols								
1,4-Dioxane	<4.7	R	R	R	<300 J	R	<15,000 J	R
2-Pentanone	<1,000	NA	<100	<100	NA	<100	NA	<4,000
2-Picoline	<9.4	<80	<80	<80	<80	<80	<20,000	<1,200
Acetonitrile	<50	<50	R	R	<50	R	<2,500	R
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<50,000
Ethylacetate	<5,000	<10	R	R	<10	R	<500	R
Ethylene glycol	<10,000	37,000	<20,000	<20,000	<20,000	<20,000 J	<200,000 M	<20,000
Isobutanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<50,000
Isopropanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	2,800	**680,000 J**
Methanol	590 J	<800	<800	<800	<800	2,400 J	24,000	<50,000
n-Butanol	<1,000	<1,000	<1,000	1,700 J	<1,000	<1,000	<1,000	<50,000
n-Propanol	<1,000	NA	R	R	NA	R	NA	R
Tert-Butyl Alcohol	<1,000	NA	R	R	NA	R	NA	R
Aldehydes								
Acetaldehyde	<100	<100	<100	<100	<100 J	<100	***2,500 J***	***3,600***
Butanal	<100	<100	<100	<100	<100 J	<100	2,300 J	<500
Crotonaldehyde	<100	<100	<100	<100	<100 J	<100	<400 J	<500
Cyclohexanone	<100	<100	<100	<100	<100 J	<100	<400 J	<500
Decanal	<100	<100	<100	<100	<100 J	<100	<400 J	<500
Formaldehyde	<100	<100	<100	<100	<100 J	<100	**500 J**	<500
Heptanal	<100	<100	<100	<100	<100 J	<100	<400 J	<500
Hexanal	<100	<100	<100	<100	<100 J	<100	<400 J	<500
m-Tolualdehyde	<100	<100	<100	<100	<100 J	<100	560 J	<500
Nonanal	<100	<100	<100	<100	<100 J	<100	<400 J	<500
Octanal	<100	<100	<100	<100	<100 J	<100	<400 J	<500
Paraldehyde	<100	<100	<100	<100	<100 J	<100	<100 J	<100
Pentanal	<100	<100	<100	<100	<100 J	<100	500 J	550
Propanal	<100	<100	<100	<100	<100 J	<100	<400 J	<500
Acetic Acid/Acetate	<500	290	<500	<500	340	<500	3,400,000	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-32 (continued)			GM-33		GM-34A		
Top of Screen Depth (ft bls)	135	135	135	74	74	30	30	30
Sample Date	09/25/03	05/26/04	09/25/03	12/03/98	05/10/99	10/08/98	04/17/99	04/29/04
Sample ID	GM-32	GWGM-32(5/26/04)	GM-32-DL	GWGM-33	GWGM-33	GWGM-34A	GWGM-34A	GWGM-34A (4/29/04)
Alcohols								
1,4-Dioxane	<500	<500	NA	R	R	<300	R	<5.0
2-Pentanone	<10,000	<1,000	NA	NA	<100	NA	<100 J	<1,000
2-Picoline	<1,000	<1,000	NA	<80	<80	<80	<80	<10
Acetonitrile	<200	<500	1,700 D	<50	R	<50	R	<50
Ethanol	<10,000	<1,000	NA	NA	<1,000	<1,000 M	<1,000	<1,000
Ethylacetate	<50,000	1,600 J	NA	<10	R	<10	R	<5,000
Ethylene glycol	<5,000	4,800 J	NA	NA	<20,000	<20,000	<20,000 J	1,700 J
Isobutanol	<10,000	<1,000	NA	NA	<1,000	<1,000 M	<1,000	<1,000
Isopropanol	<10,000	630 J	NA	NA	<1,000	<1,000 M	<1,000	<1,000
Methanol	140,000	2,800	NA	NA	<800	<1,000 M	<800 J	420 J
n-Butanol	<10,000	<1,000	NA	NA	<1,000	<1,000 M	<1,000 J	<1,000
n-Propanol	<10,000	340 J	NA	NA	R	NA	R	<1,000
Tert-Butyl Alcohol	<10,000	<1,000	NA	NA	R	NA	R	<1,000
Aldehydes								
Acetaldehyde	**560**	**1,200**	NA	NA	<100	<100 J	<100	<100
Butanal	<100	2,500	NA	NA	<100	<100 J	<100	<100
Crotonaldehyde	<100	<100	NA	NA	<100	<100 J	<100	<100
Cyclohexanone	<100	<100	NA	NA	<100	<100 J	<100	<100
Decanal	<100	<100	NA	NA	<100	<100 J	<100	<100
Formaldehyde	**480**	**240**	NA	NA	<100	<100 J	<100	<100
Heptanal	<100	<100	NA	NA	<100	<100 J	<100	<100
Hexanal	<100	<100	NA	NA	<100	<100 J	<100	<100
m-Tolualdehyde	480	3,400	NA	NA	<100	<100 J	<100	<100
Nonanal	<100	<100	NA	NA	<100	<100 J	<100	<100
Octanal	<100	<100	NA	NA	<100	<100 J	<100	<100
Paraldehyde	<500	<100	NA	NA	<100	<100	<100	<100
Pentanal	550	2,000	NA	NA	<100	<100 J	<100	<100
Propanal	<100	63 J	NA	NA	<100	<100 J	<100	<100
Acetic Acid/Acetate	3,500,000	2,600,000 B	NA	NA	<500	<200	<500	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-34B				GM-35			GM-36	
Top of Screen Depth (ft bls)	85	85	85	85	40	40	40	95	95
Sample Date	10/12/98	04/14/99	09/24/03	04/28/04	11/04/98	05/04/99	05/04/99	11/03/98	05/05/99
Sample ID	GWGM-34B	GWGM-34B	GM-34B	GWGM-34B (4/28/04)	GWGM-35	GWGM-35	GWGM-84	GWGM-36	GWGM-36
Alcohols									
1,4-Dioxane	R	R	<5.0	<5.0	<300	R	R	<300	R
2-Pentanone	NA	<100	<1,000	<1,000	NA	<100	<100	NA	<100
2-Picoline	<80	<80	<10	<10	<80	<80	<80	<80	<80
Acetonitrile	<50	R	<40	<50	<50	R	R	<50	R
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	R	R	<5,000	<5,000	R	R	R	<10	R
Ethylene glycol	<20,000	<20,000 J	<5,000	<5,000	<20,000	<20,000	<20,000	<20,000	<20,000
Isobutanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Methanol	<800	<800	<1,000	330 J	<800	<800	<800	<800	<800
n-Butanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
n-Propanol	NA	R	<1,000	<1,000	NA	R	R	NA	R
Tert-Butyl Alcohol	NA	R	<1,000	<1,000	NA	R	R	NA	R
Aldehydes									
Acetaldehyde	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	<100
Butanal	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	<100
Crotonaldehyde	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	<100
Cyclohexanone	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	<100
Decanal	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	<100
Formaldehyde	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	<100
Heptanal	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	<100
Hexanal	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	<100
m-Tolualdehyde	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	<100
Nonanal	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	<100
Octanal	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	<100
Paraldehyde	<100 J	<100	<100	<100	<100	<100	<100	<100 J	<100
Pentanal	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	<100
Propanal	<100 J	<100	<100	<100	<100 J	<100	<100	<100 J	<100
Acetic Acid/Acetate	<200	<500	<1000	<500	<1500	<500	<500	<200	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-36 (continued)	GM-37A				GM-37B		
Top of Screen Depth (ft bls)	95	144	144	144	144	328	328	328
Sample Date	05/04/04	11/18/98	05/11/99	09/25/03	05/17/04	10/13/98	05/14/99	09/25/03
Sample ID	GWGM-36 (5/4/04)	GWGM-37A	GWGM-37A	GM-37A	GWGM-37A (5/17/04)	GWGM-37B	GWGM-37B	GM-37B
Alcohols								
1,4-Dioxane	<5.0	<3,800 J	R	<200	<200	<7,500 J	R	<250
2-Pentanone	<1,000	NA	<2,500	<1,000	<1,000	NA	<2,500	<1,000
2-Picoline	<10	<2,500	<2,500	<400	<400	<250	<5,000	<500
Acetonitrile	<50	<620	R	<40	<50	<1,200	R	<40
Ethanol	<1,000	<1,000 J	<2,500	<1,000	<1,000	<50,000	<10,000	<1,000
Ethylacetate	<5,000	<120	R	<5,000	<5,000	<250	R	<5,000
Ethylene glycol	980 J	35,000 J	<100,000	<5,000	1,600 J	<200,000	46,000 J	<5,000
Isobutanol	<1,000	<1,000 J	<2,500	<1,000	<1,000	<50,000	<10,000	<1,000
Isopropanol	<1,000	1,100 J	<2,500	<1,000	<1,000	<50,000	<10,000	<1,000
Methanol	980 J	<800 J	<2,500	<1,000	1,100	<50,000	<10,000	2,600
n-Butanol	<1,000	11,000 J	15,000 J	<1,000	<1,000	640,000	<14,000	<1,000
n-Propanol	<1,000	NA	R	<1,000	<1,000	NA	R	<1,000
Tert-Butyl Alcohol	<1,000	NA	R	<1,000	<1,000	NA	R	<1,000
Aldehydes								
Acetaldehyde	<100	<500 J	<100	<100	<100	**1,100**	**2,400**	110
Butanal	<100	5,100 J	<100	<100	370	1,600	<500	<100
Crotonaldehyde	<100	<500 J	<100	<100	<100	<100	<500	<100
Cyclohexanone	<100	<500 J	<100	<100	<100	190	<500	<100
Decanal	<100	<500 J	<100	<100	<100	<100	<500	<100
Formaldehyde	<100	<500 J	**130**	<100	<100	**340**	<500	**160**
Heptanal	<100	<500 J	<100	<100	34 J	<100	<500	<100
Hexanal	<100	<500 J	<100	<100	<100	<100	<500	<100
m-Tolualdehyde	<100	<2,100 J	<100	<100	260	470	<500	310
Nonanal	<100	<500 J	<100	<100	22 J	<100	<500	<100
Octanal	<100	<500 J	<100	<100	54 J	<100	<500	<100
Paraldehyde	<100	<100	<100	<100	<100	<100	<100	<100
Pentanal	<100	<500 J	510	<100	120	380	<500	<100
Propanal	<100	<500 J	<100	<100	<100	120	<500	<100
Acetic Acid/Acetate	<500	1,600,000	1,710,000	3,100	270,000	15,000,000	9,100,000	870,000

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-37B (continued)		GM-38A			GM-38B		GM-38C
Top of Screen Depth (ft bls)	328	328	95	95	95	160	160	200
Sample Date	05/27/04	09/25/03	10/13/98	10/13/98	04/15/99	10/14/98	04/29/99	10/20/98
Sample ID	GWGM-37B (5/27/04)	GM-37B-DL	GWGM-38A	GWGM-98	GWGM-38A	GWGM-38B	GWGM-38B	GWGM-38C
Alcohols								
1,4-Dioxane	<250	NA	<300 J	<300 J	R	<300 J	R	<300
2-Pentanone	<1,000	NA	NA	NA	<100	NA	<100	NA
2-Picoline	<500	NA	<80	<80	<80 J	<80	<80	<80
Acetonitrile	<50	<160	<50	<50	R	<50	R	<50
Ethanol	<1,000	NA	<1,000	<1,000	<1,000	<1,000	<1,000 J	<1,000
Ethylacetate	<5,000	NA	<10	<10	R	<10	R	<10
Ethylene glycol	980 J	NA	<20,000	<20,000	<20,000 J	<20,000	<20,000	<20,000
Isobutanol	<1,000	NA	<1,000	<1,000	<1,000 J	<1,000	<1,000 J	<1,000
Isopropanol	<1,000	NA	<1,000	<1,000	<1,000 J	<1,000	<1,000 J	<1,000
Methanol	1,700	NA	<800	<800	<800	<800	<800 J	<800
n-Butanol	<1,000	NA	<1,000	<1,000	<1,000	<1,000	<1,000 J	<1,000
n-Propanol	<1,000	NA	NA	NA	R	NA	R	NA
Tert-Butyl Alcohol	<1,000	NA	NA	NA	R	NA	R	NA
Aldehydes								
Acetaldehyde	<100	NA	<100	<100	<100	<100	<100	<100 J
Butanal	84	NA	<100	<100	<100	<100	<100	<100 J
Crotonaldehyde	30	NA	<100	<100	<100	<100	<100	<100 J
Cyclohexanone	<100	NA	<100	<100	<100	<100	<100	<100 J
Decanal	<100	NA	<100	<100	<100	<100	<100	<100 J
Formaldehyde	<100	NA	<100	<100	<100	<100	<100	<100 J
Heptanal	50	NA	<100	<100	<100	<100	<100	<100 J
Hexanal	150	NA	<100	<100	<100	<100	<100	<100 J
m-Tolualdehyde	<100	NA	<100	<100	<100	<100	<100	<100 J
Nonanal	17	NA	<100	<100	<100	<100	<100	<100 J
Octanal	78	NA	<100	<100	<100	<100	<100	<100 J
Paraldehyde	<100	NA	<100	<100	<100	<100	<100	<100 J
Pentanal	<100	NA	<100	<100	<100	<100	<100	<100 J
Propanal	<100	NA	<100	<100	<100	<100	<100	<100 J
Acetic Acid/Acetate	1,100,000 B	NA	500	<200	<500	290	<500	730

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-38C (continued)		GM-39			GM-40A		
Top of Screen Depth (ft bls)	200	200	85	85	85	75	75	75
Sample Date	10/20/98	04/30/99	10/12/98	04/15/99	04/15/99	10/26/98	04/28/99	05/03/04
Sample ID	GWGM-97	GWGM-38C	GWGM-39	GWGM-39	GWGM-89	GWGM-40A	GWGM-40A	GWGM-40A (5/3/04)
Alcohols								
1,4-Dioxane	<300	R	R	R	R	<300 J	R	<5.0
2-Pentanone	NA	<100	NA	<100	<100	NA	<100	<1,000
2-Picoline	<80	<80	<80	<80	<80	<80	<80	<10
Acetonitrile	<50	R	<50	R	R	<50	R	<50
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	<10	R	R	R	R	<10	R	<5,000
Ethylene glycol	<20,000	<20,000 J	<20,000	<20,000 J	<20,000 J	<20,000	<20,000	<5,000
Isobutanol	<1,000	<1,000	1,200	<1,000 J	<1,000 J	<1,000	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	2,300 J	<1,000 J	<1,000	<1,000	<1,000
Methanol	<800	1700 J	<800	<800	<800	<800	<800	990 J
n-Butanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
n-Propanol	NA	R	NA	R	R	NA	R	<1,000
Tert-Butyl Alcohol	NA	R	NA	<1,000	R	NA	R	<1,000
Aldehydes								
Acetaldehyde	<100 J	<100	<100 J	<100	<100	<100	<100	<100
Butanal	<100 J	<100	<100 J	<100	<100	<100	<100	<100
Crotonaldehyde	<100 J	<100	<100 J	<100	<100	<100	<100	<100
Cyclohexanone	<100 J	<100	<100 J	<100	<100	<100	<100	<100
Decanal	<100 J	<100	<100 J	<100	<100	<100	<100	<100
Formaldehyde	<100 J	<100	<100 J	<100	<100	<100	<100	<100
Heptanal	<100 J	<100	<100 J	<100	<100	<100	<100	<100
Hexanal	<100 J	<100	<100 J	<100	<100	<100	<100	<100
m-Tolualdehyde	<100 J	<100	<100 J	<100	<100	<100	<100	<100
Nonanal	<100 J	<100	<100 J	<100	<100	<100	<100	<100
Octanal	<100 J	<100	<100 J	<100	<100	<100	<100	<100
Paraldehyde	<100 J	<100	<100 J	<100	<100	<100	<100	<100
Pentanal	<100 J	<100	<100 J	<100	<100	<100	<100	<100
Propanal	<100 J	<100	<100 J	<100	<100	<100	<100	<100
Acetic Acid/Acetate	<200	<500	<200	500	<500	<200	<500	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-40B			GM-41		GM-42		GM-49
Top of Screen Depth (ft bls)	120	120	120	40	40	72	72	83.5
Sample Date	10/26/98	04/27/99	05/19/04	10/19/98	04/16/99	10/20/98	04/16/99	04/17/99
Sample ID	GWGM-40B	GWGM-40B	GWGM-40B (5/19/04)	GWGM-41	GWGM-41	GWGM-42	GWGM-42	GWGM-49
Alcohols								
1,4-Dioxane	R	R	<500	<300	R	<300	R	R
2-Pentanone	NA	<2,500	<1,000	NA	<100	NA	<100 J	<100 J
2-Picoline	<5,000	<5,000	<1,000	<80	<80	<80	<80	<80
Acetonitrile	<1,200	R	<400	<50	R	<50	R	R
Ethanol	<1,000	<250,000	<1,000	<1,000	<5,000 M	<1,000	<1,000 J	<1,000
Ethylacetate	<250	R	1,400 J	<10	R	<10	R	R
Ethylene glycol	84,000	<20,000	1,200 J	<20,000	<20,000 J	<20,000	<20,000 J	<20,000 J
Isobutanol	<1,000	<250,000	<1,000	<1,000	<1,000 J	<1,000	<1,000 J	<1,000
Isopropanol	2,400	**1,000,000 J**	470 J	<1,000	<1,000 J	<1,000	<1,000 J	<1,000
Methanol	1,400	<250,000	2,100	<800	<800	<800	<800 J	<800 J
n-Butanol	<5,000 M	1,500,000 J	<1,000	<1,000	<1,000	<1,000	<1,000 J	<1,000 J
n-Propanol	NA	R	<1,000	NA	R	NA	R	R
Tert-Butyl Alcohol	NA	R	<1,000	NA	R	NA	R	R
Aldehydes								
Acetaldehyde	**1,200 J**	**1,600**	**150**	<100 J	<100	<100 J	<100	<100
Butanal	2,100 J	<500	1,700	<100 J	<100	<100 J	<100	<100
Crotonaldehyde	<100 J	<500	120	<100 J	<100	<100 J	<100	<100
Cyclohexanone	120 J	<500	<100	<100 J	<100	<100 J	<100	<100
Decanal	<100 J	<500	<100	<100 J	<100	<100 J	<100	<100
Formaldehyde	**280 J**	<500	<100	<100 J	<100	<100 J	<100	<100
Heptanal	<100 J	<500	<100	<100 J	<100	<100 J	<100	<100
Hexanal	<100 J	<500	<100	<100 J	<100	<100 J	<100	<100
m-Tolualdehyde	500 J	<500	3,000	<100 J	<100	<100 J	<100	<100
Nonanal	<100 J	<500	<100	<100 J	<100	<100 J	<100	<100
Octanal	<100 J	<500	82 J	<100 J	<100	<100 J	<100	<100
Paraldehyde	<100 J	<100	<500	<100 J	<100	<100 J	<100	<100
Pentanal	250 J	<500	700	<100 J	<100	<100 J	<100	<100
Propanal	110 J	<500	<100	<100 J	<100	<100 J	<100	<100
Acetic Acid/Acetate	8,100,000	14,600,000	2,000,000	<200	<500	460	<500	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-50		GM-51		GM-52	GM-53A	GM-53B		GM-54
Top of Screen Depth (ft bls)	80.5	80.5	67	67	75	79	195	195	80
Sample Date	10/14/98	04/17/99	10/20/98	04/18/99	04/19/99	04/19/99	11/05/98	05/01/99	10/24/98
Sample ID	GWGM-50	GWGM-50	GWGM-51	GWGM-51	GWGM-52	GWGM-53A	GWGM-53B	GWGM-53B	GWGM-54
Alcohols									
1,4-Dioxane	<300 J	R	R	R	R	R	<300	R	<300 J
2-Pentanone	NA	<100	NA	<100	<100 J	<100	NA	<100	NA
2-Picoline	<80	<80	<80	<80	<80	<80	<100	<500	<80
Acetonitrile	<50	R	<50	R	R	R	<50	R	<50
Ethanol	<1,000	<1,000	<1,000	3,600 J	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	<10	R	<10	R	R	R	R	R	<10
Ethylene glycol	<20,000	<20,000 J	<20,000	<20,000 J	<20,000 J	<20,000 J	<20,000	<20,000 J	<20,000
Isobutanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Methanol	<800	<800 J	<800	<800 J	<800 J	<800	<800	<800	<800
n-Butanol	<1,000	<1,000 J	<1,000	<1,000 J	<1,000 J	<1,000	<1,000	<1,000	$\boxed{28,000}$
n-Propanol	NA	R	NA	R	R	R	NA	R	NA
Tert-Butyl Alcohol	NA	R	NA	R	R	R	NA	R	NA
Aldehydes									
Acetaldehyde	<100	<100	<100	<100	<100	<100	<100 J	100	<100 J
Butanal	<100	<100	<100	<100	<100	<100	<100 J	<100	<100 J
Crotonaldehyde	<100	<100	<100	<100	<100	<100	<100 J	<100	<100 J
Cyclohexanone	<100	<100	<100	<100	<100	<100	<100 J	<100	<100 J
Decanal	<100	<100	<100	<100	<100	<100	<100 J	<100	<100 J
Formaldehyde	<100	<100	<100	<100	<100	<100	<100 J	<100	<100 J
Heptanal	<100	<100	<100	<100	<100	<100	<100 J	<100	<100 J
Hexanal	<100	<100	<100	<100	<100	<100	<100 J	<100	<100 J
m-Tolualdehyde	<100	<100	<100	<100	<100	<100	480 J	<100	<100 J
Nonanal	<100	<100	<100	<100	<100	<100	<100 J	<100	<100 J
Octanal	<100	<100	<100	<100	<100	<100	<100 J	<100	<100 J
Paraldehyde	<100	<100	<100	<100	<100	<100	<100	<100	<100 J
Pentanal	<100	<100	<100	<100	<100	<100	<100 J	<100	<100 J
Propanal	<100	<100	<100	<100	<100	<100	<100 J	<100	<100 J
Acetic Acid/Acetate	<200	<500	250	<500	<500	<500	1,300	<500	<200

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-54 (continued)	GM-55			GM-56			GM-57	GM-58
Top of Screen Depth (ft bls)	80	75	75	75	32	32	32	76	75
Sample Date	05/01/99	10/24/98	05/01/99	05/01/99	10/21/98	10/24/98	04/20/99	04/20/99	04/26/99
Sample ID	GWGM-54	GWGM-55	GWGM-55	GWGM-85	GWGM-56	GWGM-56	GWGM-56	GWGM-57	GWGM-58
Alcohols									
1,4-Dioxane	R	<300 J	R	R	R	NA	R	R	R
2-Pentanone	<100	NA	<100	<100	NA	NA	<100	<100	<100
2-Picoline	<80	<80	<100	<100	<80	NA	<80	<80	<80
Acetonitrile	R	<50	R	R	<50	NA	R	<50 J	R
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000	NA	<1,000 J	<1,000	<1,000
Ethylacetate	R	<10	R	R	<10	NA	R	R	R
Ethylene glycol	<20,000 J	<20,000	<20,000 J	<20,000 J	<20,000	NA	<20,000 J	<20,000	<20,000
Isobutanol	<1,000	<1,000	<1,000	<1,000	<1,000	NA	<1,000 J	<1,000 J	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000	<1,000	NA	<1,000 J	<1,000 J	<1,000
Methanol	<800	<800	<800	<800	<800	NA	<800 J	<800	<800
n-Butanol	1,000 J	41,000	<1,000	<1,000	<1,000	NA	<1,000 J	<1,000	<1,000
n-Propanol	R	NA	R	R	NA	NA	R	R	R
Tert-Butyl Alcohol	R	NA	R	R	NA	NA	R	R	R
Aldehydes									
Acetaldehyde	<100	<100 J	<100	<100	<100 J	NA	<100	<100	<100
Butanal	<100	<100 J	<100	<100	<100 J	NA	<100	<100	<100
Crotonaldehyde	<100	<100 J	<100	<100	<100 J	NA	<100	<100	<100
Cyclohexanone	<100	<100 J	<100	<100	<100 J	NA	<100	<100	<100
Decanal	<100	<100 J	<100	<100	<100 J	NA	<100	<100	<100
Formaldehyde	<100	<100 J	<100	<100	<100 J	NA	<100	<100	<100
Heptanal	<100	<100 J	<100	<100	<100 J	NA	<100	<100	<100
Hexanal	<100	<100 J	<100	<100	<100 J	NA	<100	<100	<100
m-Tolualdehyde	<100	<100 J	<100	<100	<100 J	NA	<100	<100	<100
Nonanal	<100	<100 J	<100	<100	<100 J	NA	<100	<100	<100
Octanal	<100	<100 J	<100	<100	<100 J	NA	<100	<100	<100
Paraldehyde	<100	<100 J	<100	<100	<100 J	NA	<100	<100	<100
Pentanal	<100	<100 J	<100	<100	<100 J	NA	<100	<100	<100
Propanal	<100	<100 J	<100	<100	<100 J	NA	<100	<100	<100
Acetic Acid/Acetate	<500	430	<500	<500	NA	320	<500	<500	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-59		GM-60	GM-61	GM-62A		GM-62B	
Top of Screen Depth (ft bls)	114	114	102	138	90	90	195	195
Sample Date	11/17/98	04/28/99	05/12/99	05/03/99	08/23/99	05/11/04	08/24/99	08/24/99
Sample ID	GWGM-59	GWGM-59	GWGM-60	GWGM-61	GWGM-62A	GWGM-62A (5/11/04)	GWGM-62B	GWGM-62B-DL
Alcohols								
1,4-Dioxane	<300 J	R	R	R	<5.0	<5.0	<100	NA
2-Pentanone	NA	<100	<100	<100	NA	<1,000	NA	NA
2-Picoline	<80	<80	<80	<80	<10	<10	<200	NA
Acetonitrile	<50	R	R	R	<50	<50	<50	<100
Ethanol	<1,000 J	<10,000 J	<1,000	<1,000	<1,000	<1,000	120 J	NA
Ethylacetate	<10	R	R	<10	<5,000	<5,000	1,100 J	NA
Ethylene glycol	<20,000 J	<20,000	<20,000	<20,000	NA	<5,000	NA	NA
Isobutanol	<1,000 J	19,000 J	<1,000	<1,000	<1,000	<1,000	<1,000	NA
Isopropanol	<1,000 J	<10,000	<1,000	<1,000	<1,000	<1,000	220 J	NA
Methanol	<800 J	<10,000 J	<800	<800	<1,000	1,800	10,000 BJ	NA
n-Butanol	<1,000 J	<10,000	<1,000	<1,000	<1,000	<1,000	R	NA
n-Propanol	NA	R	R	R	<1,000	<1,000	110 J	NA
Tert-Butyl Alcohol	NA	R	R	R	<1,000	<1,000	<1,000 J	NA
Aldehydes								
Acetaldehyde	<100	<100	<100	<100	<100	<100	**1,100**	NA
Butanal	<100	<100	<100	<100	<100	<100	<100	NA
Crotonaldehyde	<100	<100	<100	<100	<100	<100	<100	NA
Cyclohexanone	<100	<100	<100	<100	<100	<100	<100	NA
Decanal	<100	<100	<100	<100	<100	<100	<100	NA
Formaldehyde	<100	<100	<100	<100	<100	<100	<100	NA
Heptanal	<100	<100	<100	<100	<100	<100	**210**	NA
Hexanal	<100	<100	<100	<100	<100	<100	<100	NA
m-Tolualdehyde	<100	<100	<100	<100	<100	50 J	<100	NA
Nonanal	<100	<100	<100	<100	<100	21 J	<100	NA
Octanal	<100	<100	<100	<100	<100	26 J	<100	NA
Paraldehyde	<100	<100	<100	<100	<100	<100	<100	NA
Pentanal	<100	<100	<100	<100	<100	<100	410	NA
Propanal	<100	<100	<100	<100	<100	<100	<100	NA
Acetic Acid/Acetate	260	<500	<500	4,000	<500	360 J	1,420,000	NA

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-62B (continued)			GM-62C		
Top of Screen Depth (ft bls)	195	195	195	315	315	315
Sample Date	08/24/99	08/24/99	05/19/04	08/24/99	05/18/04	05/18/04
Sample ID	GWGM-82	GWGM-82-DL	GWGM-62B (5/19/04)	GWGM-62C	GWGM-62C (5/18/04)	GWGM-62C (5/18/04)-DL
Alcohols						
1,4-Dioxane	<100	NA	<120	<200	<50	NA
2-Pentanone	NA	NA	<1,000	NA	<1,000	NA
2-Picoline	<200	NA	<250	<400	<100	NA
Acetonitrile	<50	<100	<250	<50	<50	<250
Ethanol	73 J	NA	<1,000	<1,000	<1,000	NA
Ethylacetate	980 J	NA	3,300 J	820 J	<5,000	NA
Ethylene glycol	NA	NA	<5,000	NA	<5,000	NA
Isobutanol	<1,000	NA	<1,000	<1,000	<1,000	NA
Isopropanol	200 J	NA	<1,000	320 J	<1,000	NA
Methanol	9,700 BJ	NA	6,800 J	<1,000	2,400	NA
n-Butanol	R	NA	200,000	<1,000	<1,000	NA
n-Propanol	140 J	NA	340 J	110 J	<1,000	NA
Tert-Butyl Alcohol	<1,000 J	NA	<1,000	<1,000	<1,000	NA
Aldehydes						
Acetaldehyde	**940**	NA	<100	**1,100**	<100	NA
Butanal	<100	NA	1,400	<100	<100	NA
Crotonaldehyde	<100	NA	56 J	<100	<100	NA
Cyclohexanone	<100	NA	1,400	<100	<100	NA
Decanal	<100	NA	<100	<100	<100	NA
Formaldehyde	**130**	NA	<100	120	<100	NA
Heptanal	<100	NA	<100	<100	45 J	NA
Hexanal	<100	NA	<100	<100	160	NA
m-Tolualdehyde	<100	NA	2,800	<100	<100	NA
Nonanal	<100	NA	<100	<100	19 J	NA
Octanal	<100	NA	81 J	<100	55 J	NA
Paraldehyde	<100	NA	<500	<100	<100	NA
Pentanal	370	NA	<100	420	<100	NA
Propanal	<100	NA	<100	<100	<100	NA
Acetic Acid/Acetate	905,000	NA	670,000	738,000	130,000	NA

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-63A						GM-63B	
Top of Screen Depth (ft bls)	45	45	45	45	45	45	105	105
Sample Date	08/29/00	08/29/00	09/19/00	09/15/03	05/05/04	05/05/04	02/07/01	09/11/03
Sample ID	GWGM-63A	GWGM-63A-DL	GWGM-63A	GM-63A	GWGM-63A (5/5/04)	GWGM-63A (5/5/04)-DL	GWGM-63B	GM-63B
Alcohols								
1,4-Dioxane	<5.0	<10	<10	<20	<5.0	<25	<5.0	<5.0
2-Pentanone	NA	NA	NA	<1,000	<1,000	NA	NA	<1,000
2-Picoline	<10	<20	<20	<40	<10	<50	<10 J	<10
Acetonitrile	<50	NA	<50 J	<50	<50	NA	<50	<50
Ethanol	<1,000	NA	<1,000	<1,000	<1,000	NA	<1,000	<1,000
Ethylacetate	<5,000	NA	<5,000	<5,000	<5,000	NA	<5,000	<5,000
Ethylene glycol	NA	NA	NA	<5,000	<5,000	NA	NA	<5,000
Isobutanol	<1,000	NA	<1,000 J	<1,000	<1,000	NA	<1,000	<1,000
Isopropanol	<1,000	NA	<1,000	<1,000	<1,000	NA	<1,000	<1,000
Methanol	1,300	NA	<1,000	<1,000	650 J	NA	<1,000	1,300
n-Butanol	<1,000 J	NA	<1,000 J	<1,000	<1,000	NA	<1,000 J	$\boxed{10,000}$
n-Propanol	<1,000	NA	<1,000	<1,000	<1,000	NA	<1,000	<1,000
Tert-Butyl Alcohol	<1,000	NA	<1,000	<1,000	<1,000	NA	<1,000	<1,000
Aldehydes								
Acetaldehyde	**160 J**	NA	**230**	<100	<100	NA	<100	<100
Butanal	<100 J	NA	<100	<100	<100	NA	<100	<100
Crotonaldehyde	<100 J	NA	<100	<100	<100	NA	<100	<100
Cyclohexanone	<100 J	NA	<100	<100	<100	NA	<100	<100
Decanal	<100 J	NA	<100	<100	<100	NA	<100	<100
Formaldehyde	<100 J	NA	<100	<100	<100	NA	<100	<100
Heptanal	<100 J	NA	<100	<100	38 J	NA	<100	<100
Hexanal	<100 J	NA	<100	<100	<100	NA	<100	<100
m-Tolualdehyde	<100 J	NA	<100	<100	<100	NA	<100	<100
Nonanal	<100 J	NA	<100	<100	<100	NA	<100	<100
Octanal	<100 J	NA	<100	<100	<100	NA	<100	<100
Paraldehyde	<100	NA	<100	<100	<500	NA	<100	<100
Pentanal	<100 J	NA	<100	<100	25 J	NA	<100	<100
Propanal	<100 J	NA	<100	<100	<100	NA	<100	<100
Acetic Acid/Acetate	NA	NA	<1,000	<1,000	200 J	NA	<500	<1,000

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-63B (continued)		GM-64A				
Top of Screen Depth (ft bls)	105	105	33	33	33	33	33
Sample Date	04/27/04	04/27/04	08/30/00	08/30/00	10/03/00	09/08/03	05/04/04
Sample ID	GWGM-63B (4/27/04)	GWGM-63B (4/27/04)-RE	GWGM-64A (?)	GWGM-64A	GWGM-64A	GM-64A	GWGM-64A (5/4/04)
Alcohols							
1,4-Dioxane	<5.0	<5.0	NA	<5.0	<5.0	<5.0	<5.0
2-Pentanone	<1,000	NA	NA	NA	NA	<1,000	<1,000
2-Picoline	<10	<10	NA	<10	<10	<10	<10
Acetonitrile	<50	NA	<50	<50	<50 J	<50	<50
Ethanol	<1,000	NA	NA	<1,000	<1,000 J	<1,000	<1,000
Ethylacetate	<5,000	NA	NA	<5,000	<5,000 J	<5,000	<5,000
Ethylene glycol	<5,000	NA	NA	NA	NA	<5,000	1,100 J
Isobutanol	<1,000	NA	NA	<1,000	<1,000 J	<1,000	<1,000
Isopropanol	<1,000	NA	NA	<1,000	<1,000 J	<1,000	<1,000
Methanol	460 J	NA	NA	<1,000	<1,000 J	<1,000	920 J
n-Butanol	<1,000	NA	NA	<1,000 J	<1,000 J	17,000	<1,000
n-Propanol	<1,000	NA	NA	<1,000	<1,000 J	<1,000	<1,000
Tert-Butyl Alcohol	<1,000	NA	NA	<1,000	<1,000 J	<1,000	<1,000
Aldehydes							
Acetaldehyde	<100	NA	NA	<100	<100	<100	<100
Butanal	<100	NA	NA	<100	<100	<100	<100
Crotonaldehyde	<100	NA	NA	<100	<100	<100	<100
Cyclohexanone	<100	NA	NA	<100	<100	<100	<100
Decanal	<100	NA	NA	<100	<100	<100	<100
Formaldehyde	<100	NA	NA	<100	<100	<100	<100
Heptanal	<100	NA	NA	<100	<100	<100	30 J
Hexanal	<100	NA	NA	<100	<100	<100	<100
m-Tolualdehyde	<100	NA	NA	<100	<100	<100	<100
Nonanal	<100	NA	NA	<100	<100	<100	<100
Octanal	<100	NA	NA	<100	<100	<100	13 J
Paraldehyde	<100	NA	NA	<100	<100	<100	<100
Pentanal	<100	NA	NA	<100	<100	<100	58 J
Propanal	<100	NA	NA	<100	<100	<100	<100
Acetic Acid/Acetate	<500	NA	NA	NA	<500	<1,000	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-64B				GM-66A		
Top of Screen Depth (ft bls)	117	117	117	117	27	27	27
Sample Date	07/24/00	09/08/03	05/11/04	05/11/04	07/18/00	09/16/03	04/27/04
Sample ID	GWGM-64B	GM-64B	GWGM-64B (5/11/04)	GWGM-64B (5/11/04)-DL	GWGM-66A	GM-66A	GWGM-66A (4/27/04)
Alcohols							
1,4-Dioxane	<25	<20	<5.0	<25	<5.0 J	<5.0	<5.0
2-Pentanone	NA	<1,000	<1,000	NA	NA	<1,000	<1,000
2-Picoline	<50	<40	<10	<50	<10	<10	<10
Acetonitrile	<50	<50	<50	NA	<50	<50	<50
Ethanol	<1,000	<1,000	<1,000	NA	<1,000	<1,000	<1,000
Ethylacetate	<5,000	<5,000	<5,000	NA	<5,000	<5,000	<5,000
Ethylene glycol	NA	<5,000	<5,000	NA	NA	<5,000	<5,000
Isobutanol	<1,000	<1,000	<1,000	NA	<1,000	<1,000	<1,000
Isopropanol	<1,000 J	<1,000	<1,000	NA	<1,000 J	<1,000	<1,000
Methanol	<1,000	<1,000	2,400	NA	<1,000	<1,000	<1,000
n-Butanol	<1,000	19,000	<1,000	NA	<1,000	3,000	<1,000
n-Propanol	<1,000	<1,000	<1,000	NA	<1,000	<1,000	<1,000
Tert-Butyl Alcohol	<1,000	<1,000	<1,000	NA	<1,000	<1,000	<1,000
Aldehydes							
Acetaldehyde	130	<100	<100	NA	100 J	<100	<100
Butanal	<100	<100	<100	NA	<100 J	<100	<100
Crotonaldehyde	<100	<100	<100	NA	<100 J	<100	<100
Cyclohexanone	<100	<100	<100	NA	<100 J	<100	<100
Decanal	<100	<100	<100	NA	<100 J	<100	<100
Formaldehyde	<100	<100	<100	NA	<100 J	<100	<100
Heptanal	<100	<100	<100	NA	<100 J	<100	<100
Hexanal	<100	<100	120	NA	<100 J	<100	<100
m-Tolualdehyde	<100	<100	51 J	NA	<100 J	<100	<100
Nonanal	<100	<100	<100	NA	<100 J	<100	<100
Octanal	<100	<100	<100	NA	<100 J	<100	<100
Paraldehyde	<100	<100	<100	NA	<100	<100	<100
Pentanal	<100	<100	26 J	NA	<100 J	<100	<100
Propanal	<100	<100	<100	NA	<100 J	<100	<100
Acetic Acid/Acetate	<500	<1000	400 J	NA	<500	<1,000	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66A (continued)	GM-66B					
Top of Screen Depth (ft bls)	27	125	125	125	125	125	125
Sample Date	07/27/05	07/19/00	08/03/00	09/11/03	09/11/03	05/10/04	07/27/05
Sample ID	GWGM66A (072705)	GWGM-66B	GMGW-66B	GM-66B	GM-66B (09/11/03)	GWGM-66B (5/10/04)	GWGM66B (072705)
Alcohols							
1,4-Dioxane	<4.7	<5.0 J	<100 J	<20	NA	<10	<9.4
2-Pentanone	<1,000	NA	NA	<1,000	NA	<1,000	<1,000
2-Picoline	<9.4	<10	<200	<40	NA	<20	<19
Acetonitrile	<50	<50	<50	<50	NA	<50	<50
Ethanol	<1,000	<1,000	<1,000	<1,000	NA	<1,000	<1,000
Ethylacetate	<5,000	<5,000	<5,000	<5,000	NA	<5,000	<5,000
Ethylene glycol	<10,000	NA	NA	<5,000	NA	<5,000	<10,000
Isobutanol	<1,000	<1,000 J	<1,000 J	<1,000	NA	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000	NA	<1,000	<1,000
Methanol	<1,000	<1,000	<1,000	<1,000	NA	1,900	<1,000
n-Butanol	<1,000	<1,000	<1,000	$\boxed{20,000}$	NA	<1,000	<1,000
n-Propanol	<1,000	<1,000	<1,000	<1,000	NA	<1,000	<1,000
Tert-Butyl Alcohol	<1,000	<1,000	<1,000	<1,000	NA	<1,000	<1,000
Aldehydes							
Acetaldehyde	<100	<100 J	**160 J**	NA	<100	<100	<100
Butanal	<100	<100 J	<100 J	NA	<100	<100	<100
Crotonaldehyde	<100	<100 J	<100 J	NA	<100	<100	<100
Cyclohexanone	<100	<100 J	<100 J	NA	<100	<100	<100
Decanal	<100	<100 J	<100 J	NA	<100	<100	<100
Formaldehyde	<100	<100 J	<100 J	NA	<100	<100	<100
Heptanal	<100	<100 J	<100 J	NA	<100	19 J	22 J
Hexanal	<100	<100 J	<100 J	NA	<100	<100	61 J
m-Tolualdehyde	<100	<100 J	<100 J	NA	<100	<100	<100
Nonanal	<100	<100 J	<100 J	NA	<100	<100	<100
Octanal	<100	<100 J	<100 J	NA	<100	17 J	14 J
Paraldehyde	<100	<100	<100	NA	<100	<100	<100
Pentanal	<100	<100 J	<100 J	NA	<100	<100	63 J
Propanal	<100	<100 J	<100 J	NA	<100	<100	<100
Acetic Acid/Acetate	<500	2,000	<1,000	<1,000	NA	200 J	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)				
Top of Screen Depth (ft bls)	125	125	125	125	125
Sample Date	12/08/06	03/01/07	03/01/07	05/14/07	05/14/07
Sample ID	GWGM-66B (12/8/06)	GWGM-66B (3/1/07)	GWGM-66B (3/1/07)-RE	GWGM-66B(5/14/07)	GWGM-999 (5/14/07)
Alcohols					
1,4-Dioxane	<5.0	<4.7	<4.7 H	<4.7	<4.7
2-Pentanone	<1,000	<1,000	NA	<1,000	<1,000
2-Picoline	<10	<9.4	<9.4 H	<9.4	<9.4
Acetonitrile	<50	<50	NA	<50	<50
Ethanol	<1,000	<1,000	NA	<1,000	<1,000
Ethylacetate	<5,000	<5,000	NA	<5,000	<5,000
Ethylene glycol	<10,000	<10,000	NA	<10,000	<10,000
Isobutanol	<1,000	<1,000	NA	<1,000	<1,000
Isopropanol	<1,000	<1,000	NA	<1,000	<1,000
Methanol	<1,000	<1,000	NA	<1,000	<1,000
n-Butanol	<1,000	<1,000	NA	<1,000	<1,000
n-Propanol	<1,000	<1,000	NA	<1,000	<1,000
Tert-Butyl Alcohol	<1,000	<1,000	NA	<1,000	<1,000
Aldehydes					
Acetaldehyde	<100	<100	NA	<100	<100
Butanal	<100	<100	NA	<100	<100
Crotonaldehyde	<100	<100	NA	<100	16 J
Cyclohexanone	<100	<100	NA	<100	<100
Decanal	7.1 J	<100	NA	<100	<100
Formaldehyde	<100	<100	NA	21 J	21 J
Heptanal	7.2 J	<100	NA	15 J	19 J
Hexanal	<100	<100	NA	<100	<100
m-Tolualdehyde	7.0 J	<100	NA	<100	<100
Nonanal	4.4 J	10 J	NA	<100	<100
Octanal	5.4 J	6.9 J	NA	14 J	14 J
Paraldehyde	<100	<100	NA	<100	<100
Pentanal	7.9 J	17 J	NA	16 J	18 J
Propanal	<100	<100	NA	<100	<100
Acetic Acid/Acetate	<500	740	NA	<500	<500 *

Footnotes on Page 73.

ARCADIS

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)		GM-67	GM-68		GM-70	GM-71	GM-72
Top of Screen Depth (ft bls)	125	125	122	140	140	42	39	43
Sample Date	08/14/07	11/09/07	08/07/00	08/31/00	09/26/00	08/17/00	08/21/00	08/22/00
Sample ID	GWGM-66B (8/14/07)	GWGM-66B (11/9/07)	GWGM-67	GWGM-68	GWGM-68	GWGM-70	GWGM-71	GWGM-72
Alcohols								
1,4-Dioxane	<4.7	<4.7	<5.0	<5.0	<5.0	<5.0	<5.0	<50
2-Pentanone	<1,000	<1,000	NA	NA	NA	NA	NA	NA
2-Picoline	<9.4	<9.4	<10	<10	<10	<10	<10	<100
Acetonitrile	<50	<50	<50	<50	<50	<50	<50	<50
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000 J	<1,000	<1,000	<1,000
Ethylacetate	<5,000	<5,000	<5,000	<5,000	<5,000 J	<5,000	<5,000	<5,000
Ethylene glycol	<10,000	<10,000	NA	NA	NA	NA	NA	NA
Isobutanol	<1,000	<1,000	<1,000 J	<1,000	<1,000 J	<1,000	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000	<1,000 J	<1,000	<1,000	<1,000
Methanol	<1,000	460 J	<1,000	<1,000 J	<1,000 J	41,000	<1,000	<1000
n-Butanol	<1,000	<1,000	<1,000	<1,000 J	<1,000 J	<1,000 J	<1,000 J	<1,000 J
n-Propanol	<1,000	<1,000	<1,000	<1,000	<1,000 J	<1,000	<1,000	<1,000
Tert-Butyl Alcohol	<1,000	<1,000	<1,000	<1,000	<1,000 J	<1,000	<1,000	<1,000
Aldehydes								
Acetaldehyde	<100	<100	<100	<100 J	<100	<100 J	<100 J	<100
Butanal	<100	<100	<100	<100 J	<100	<100 J	<100 J	<100
Crotonaldehyde	<100	<100	<100	<100 J	<100	<100 J	<100 J	<100
Cyclohexanone	<100	2.6 J	<100	<100 J	<100	<100 J	<100 J	<100
Decanal	<100	<100	<100	<100 J	<100	<100 J	<100 J	<100
Formaldehyde	15 J	<100	<100	<100 J	<100	<100 J	<100 J	<100
Heptanal	<100	<100	<100	<100 J	<100	<100 J	<100 J	<100
Hexanal	<100	12 J	<100	<100 J	<100	<100 J	<100 J	<100
m-Tolualdehyde	<100	<100	<100	<100 J	<100	<100 J	<100 J	<100
Nonanal	<100	<100	<100	<100 J	<100	<100 J	<100 J	<100
Octanal	<100	<100	<100	<100 J	<100	<100 J	<100 J	<100
Paraldehyde	<100	<100	<100	<100	<100	<100 J	<100 J	<100
Pentanal	18 J	6.5 J	<100	<100 J	<100	<100 J	<100 J	160
Propanal	<100	<100	<100	<100 J	<100	<100 J	<100 J	250
Acetic Acid/Acetate	<500	<500	<1,000	NA	<1,000	1,700	210	31,000

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-72 (continued)			GM-72A			GM-73
Top of Screen Depth (ft bls)	43	43	43	46	46	46	42
Sample Date	09/24/03	01/05/04	04/16/04	11/08/07	07/25/05	12/12/06	09/06/00
Sample ID	GM-72	GWGM-72	GM-72	GWGM-72A (11/8/07)	GWGM-72A (07/25/05)	GWGM-72A (12/12/06)	GMGW-73
Alcohols							
1,4-Dioxane	<100	<100	<5.0	<47	<200 *	<100	NA
2-Pentanone	<1,000	<1,000	<1,000	2,900	<1,000	<1,000	NA
2-Picoline	<200	<200	<10	86 J	<400	<200	NA
Acetonitrile	<40	<800 *F65	<250	<50	<100	<50	NA
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	NA
Ethylacetate	<5,000	<5,000	790 J	<5,000	<5,000	<5,000	NA
Ethylene glycol	<5,000	<5,000	930 JB	<10,000	<10,000	<10,000	NA
Isobutanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	NA
Isopropanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	NA
Methanol	<1,000	<1,000	1,300	1,500	<1,000	940 J	NA
n-Butanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	NA
n-Propanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	NA
Tert-Butyl Alcohol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	NA
Aldehydes							
Acetaldehyde	<100	24 J	<100	<100	<100	<100	<100
Butanal	<100	<100	<100	48 J	180	<100	<100
Crotonaldehyde	<100	<100	230	110	710	1,600	<100
Cyclohexanone	<100	<100	<100	4.9 J	<100	<100	<100
Decanal	<100	<100	<100	<100	<100	<100	<100
Formaldehyde	<100	29 J	<100	<100	<100	<100	<100
Heptanal	<100	<100	92 J	17 J	39 J	68 J	<100
Hexanal	<100	<100	<100	<100	260	230	<100
m-Tolualdehyde	<100	<100	220	26 J	940	250	<100
Nonanal	<100	<100	<100	<100	<100	<100	<100
Octanal	<100	25 J	130	32 J	78 J	160	<100
Paraldehyde	<100	<500	<100	<100	<100	<100	<100
Pentanal	<100	60 J	<100	20 J	530	100	<100
Propanal	<100	<100	180	79 J	<100	<100	<100
Acetic Acid/Acetate	<1000	<1000	1,000	3,500	$\boxed{30,000\ B}$	550	<1,000

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-73 (continued)	GM-74		GM-75	GM-76			GM-77
Top of Screen Depth (ft bls)	42	34	34	24	3	3	3	105
Sample Date	09/06/00	09/07/00	09/07/00	09/08/00	01/29/01	01/29/01	09/09/05	09/22/03
Sample ID	GWGM-73	GWGM-74	GWGM-74-RE	GWGM-75	DUP.012901	GWGM-76	GWGM-76 (9/9/05)	GM-77
Alcohols								
1,4-Dioxane	<5.0	<5.0	NA	<5.0	<5.0	<5.0	<5.0	<20
2-Pentanone	NA	NA	NA	NA	NA	NA	NA	<1,000
2-Picoline	<10	<10	NA	<10	<10	<10	<9.9	<40
Acetonitrile	<50	<50	<50	<50	<50	<50	<50	<40
Ethanol	<1,000	<1,000	NA	<1,000	NA	NA	NA	<1,000
Ethylacetate	<5,000	<5,000	NA	<5,000	NA	NA	NA	<5,000
Ethylene glycol	NA	NA	NA	NA	NA	NA	NA	<5,000
Isobutanol	<1,000	<1,000	NA	<1,000	NA	NA	NA	<1,000
Isopropanol	<1,000	<1,000	NA	<1,000	NA	NA	NA	<1,000
Methanol	1,100	<1,000	NA	1,400	NA	NA	NA	<1,000
n-Butanol	<1,000 J	<1,000 J	NA	<1,000 J	NA	NA	NA	<1,000
n-Propanol	<1,000	<1,000	NA	<1,000	NA	NA	NA	<1,000
Tert-Butyl Alcohol	<1,000	<1,000	NA	<1,000	NA	NA	NA	<1,000
Aldehydes								
Acetaldehyde	NA	<100	NA	<100	NA	NA	NA	<100
Butanal	NA	<100	NA	<100	NA	NA	NA	<100
Crotonaldehyde	NA	<100	NA	<100	NA	NA	NA	<100
Cyclohexanone	NA	<100	NA	<100	NA	NA	NA	<100
Decanal	NA	<100	NA	<100	NA	NA	NA	<100
Formaldehyde	NA	<100	NA	<100	NA	NA	NA	<100
Heptanal	NA	<100	NA	<100	NA	NA	NA	<100
Hexanal	NA	<100	NA	<100	NA	NA	NA	<100
m-Tolualdehyde	NA	<100	NA	<100	NA	NA	NA	<100
Nonanal	NA	<100	NA	<100	NA	NA	NA	<100
Octanal	NA	<100	NA	<100	NA	NA	NA	<100
Paraldehyde	NA	<100	NA	<100	NA	NA	NA	<100
Pentanal	NA	<100	NA	<100	NA	NA	NA	<100
Propanal	NA	<100	NA	<100	NA	NA	NA	<100
Acetic Acid/Acetate	NA	<1,000	NA	<1,000	NA	NA	NA	<1,000

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-77 (continued)		GM-78		
Top of Screen Depth (ft bls)	105	105	20	20	20
Sample Date	05/11/04	07/28/05	09/18/03	04/29/04	07/29/05
Sample ID	GWGM-77 (5/11/04)	GWGM-77 (072805)	GM-78 (9/18/03)	GWGM-78 (4/29/04)	GWGM-78 (7/29/05)
Alcohols					
1,4-Dioxane	<5.0	<24	<5.0	<5.0	<5.0
2-Pentanone	<1,000	<1,000	<1,000	<1,000	<1,000
2-Picoline	<10	<47	<10	<10	<9.9
Acetonitrile	<50	<50	<50	<50	<50
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	<5,000	<5,000	<5,000	<5,000	<5,000
Ethylene glycol	<5,000	<10,000	<5,000	1,000 J	<10,000
Isobutanol	<1,000	<1,000	<1,000	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000	<1,000
Methanol	<1,000	<1,000	<1,000	320 J	<1,000
n-Butanol	<1,000	<1,000	2,400	<1,000	<1,000
n-Propanol	<1,000	<1,000	<1,000	<1,000	<1,000
Tert-Butyl Alcohol	<1,000	<1,000	<1,000	<1,000	<1,000
Aldehydes					
Acetaldehyde	<100	<100	<100	<100	<100
Butanal	<100	<100	<100	<100	<100
Crotonaldehyde	<100	<100	<100	<100	<100
Cyclohexanone	<100	<100	<100	<100	<100
Decanal	<100	<100	<100	<100	<100
Formaldehyde	<100	<100	<100	<100	<100
Heptanal	51 J	22 J	<100	<100	<100
Hexanal	<100	<100	<100	<100	<100
m-Tolualdehyde	41 J	<100	<100	<100	<100
Nonanal	18 J	<100	<100	<100	<100
Octanal	30 J	13 J	<100	<100	<100
Paraldehyde	<100	<100	<100	<100	<100
Pentanal	<100	61 J	<100	<100	<100
Propanal	<100	<100	<100	<100	<100
Acetic Acid/Acetate	860	590	<1,000	<500	360 J

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)				
Top of Screen Depth (ft bls)	20	20	20	20	20
Sample Date	07/29/05	07/29/05	12/08/06	02/28/07	02/28/07
Sample ID	GWGM-998 (7/29/05)	GWGM-998-RE (7/29/05)	GWGM-78 (12/8/06)	GWGM-78 (2/28/07)	GWGM-78 (2/28/07)-RE
Alcohols					
1,4-Dioxane	<5.0	<4.7	<5.0	<4.7	<4.7 H
2-Pentanone	<1,000	NA	<1,000	<1,000	NA
2-Picoline	<10	<9.4	<10	<9.4	<9.4 H
Acetonitrile	<50	NA	<50	<50	NA
Ethanol	<1,000	NA	<1,000	<1,000	NA
Ethylacetate	<5,000	NA	<5,000	<5,000	NA
Ethylene glycol	<10,000	NA	<10,000	<10,000	NA
Isobutanol	<1,000	NA	<1,000	<1,000	NA
Isopropanol	<1,000	NA	<1,000	<1,000	NA
Methanol	<1,000	NA	<1,000	<1,000	NA
n-Butanol	<1,000	NA	<1,000	<1,000	NA
n-Propanol	<1,000	NA	<1,000	<1,000	NA
Tert-Butyl Alcohol	<1,000	NA	<1,000	<1,000	NA
Aldehydes					
Acetaldehyde	<100	NA	<100	<100	NA
Butanal	<100	NA	<100	<100	NA
Crotonaldehyde	<100	NA	<100	<100	NA
Cyclohexanone	<100	NA	<100	<100	NA
Decanal	<100	NA	<100	<100	NA
Formaldehyde	<100	NA	<100	<100	NA
Heptanal	52 J	NA	<100	<100	NA
Hexanal	120	NA	<100	<100	NA
m-Tolualdehyde	<100	NA	<100	<100	NA
Nonanal	40 J	NA	4.1 J	<100	NA
Octanal	13 J	NA	<100	<100	NA
Paraldehyde	<100	NA	<100	<100	NA
Pentanal	81 J	NA	<100	13 J	NA
Propanal	<100	NA	<100	<100	NA
Acetic Acid/Acetate	360 J	NA	<500	<500	NA

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)				GM-79
Top of Screen Depth (ft bls)	20	20	20	20	25
Sample Date	02/28/07	05/11/07	08/14/07	11/08/07	09/18/03
Sample ID	GWGM-998 (2/28/07)	GWGM-78(5/11/07)	GWGM78 (8/14/07)	GWGM-78 (11/8/07)	GM-79 (9/18/03)
Alcohols					
1,4-Dioxane	<4.7	<4.7	<4.7	<4.7	<5.0
2-Pentanone	<1,000	<1,000	<1,000	<1,000	<1,000
2-Picoline	<9.4	<9.4	<9.4	<9.4	<10
Acetonitrile	<50	<50	<50	<50	<50
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	<5,000	<5,000	<5,000	<5,000	<5,000
Ethylene glycol	<10,000	<10,000	<10,000	<10,000	<5,000
Isobutanol	<1,000	<1,000	<1,000	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000	<1,000
Methanol	<1,000	<1,000	<1,000	700 J	<1,000
n-Butanol	<1,000	<1,000	<1,000	<1,000	<1,000
n-Propanol	<1,000	<1,000	<1,000	<1,000	<1,000
Tert-Butyl Alcohol	<1,000	<1,000	<1,000	<1,000	<1,000
Aldehydes					
Acetaldehyde	<100	<100	<100	<100	<100
Butanal	<100	<100	<100	<100	<100
Crotonaldehyde	<100	<100	<100	<100	<100
Cyclohexanone	<100	<100	<100	<100	<100
Decanal	<100	14 J	<100	<100	<100
Formaldehyde	<100	<100	<100	<100	<100
Heptanal	<100	<100	<100	<100	<100
Hexanal	<100	<100	<100	<100	<100
m-Tolualdehyde	<100	<100	<100	13 J	<100
Nonanal	<100	6.6 J	<100	<100	<100
Octanal	<100	<100	<100	<100	<100
Paraldehyde	<100	<100	<100	<100	<100
Pentanal	<100	5.7 J	9.8 J	<100	<100
Propanal	<100	<100	<100	<100	<100
Acetic Acid/Acetate	36,000	<500 *	510	<500	<1,000

Footnotes on Page 73.

ARCADIS

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)				
Top of Screen Depth (ft bls)	25	25	25	25	25
Sample Date	04/26/04	07/29/05	12/04/06	02/22/07	02/22/07
Sample ID	GWGM-79 (4/26/04)	GWGM-79 (7/29/05)	GWGM-79(12/4/06)	GWGM-79 (2/22/07)	GWGM-79-RE (2/22/07)
Alcohols					
1,4-Dioxane	<5.0	<4.9	<4.9	<4.7	<4.7 H
2-Pentanone	<1,000	<1,000	<1,000	<1,000	NA
2-Picoline	<10	<9.7	<9.8	<9.4	<9.4 H
Acetonitrile	<50	<50	<50	<50	NA
Ethanol	<1,000	<1,000	<1,000	<1,000	NA
Ethylacetate	<5,000	<5,000	<5,000	<5,000	NA
Ethylene glycol	<5,000	<10,000	<10,000	<10,000	NA
Isobutanol	<1,000	<1,000	<1,000	<1,000	NA
Isopropanol	<1,000	<1,000	<1,000	<1,000	NA
Methanol	580 J	<1,000	1,400	<1,000	NA
n-Butanol	<1,000	<1,000	<1,000	<1,000	NA
n-Propanol	<1,000	<1,000	<1,000	<1,000	NA
Tert-Butyl Alcohol	<1,000	<1,000	<1,000	<1,000	NA
Aldehydes					
Acetaldehyde	<100	<100	<100	<100	NA
Butanal	<100	<100	<100	<100	NA
Crotonaldehyde	<100	<100	<100	<100	NA
Cyclohexanone	<100	<100	<100	<100	NA
Decanal	<100	<100	6.2 J	<100	NA
Formaldehyde	<100	<100	<100	<100	NA
Heptanal	<100	<100	<100	<100	NA
Hexanal	<100	<100	<100	<100	NA
m-Tolualdehyde	<100	<100	<100	<100	NA
Nonanal	<100	<100	3.4 J	7.1 J	NA
Octanal	<100	<100	3.5 J	<100	NA
Paraldehyde	<100	<100	<100	<100	NA
Pentanal	<100	<100	<100	6.8 J	NA
Propanal	<100	<100	<100	<100	NA
Acetic Acid/Acetate	<500	310 J	<500	<500	NA

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)				
Top of Screen Depth (ft bls)	25	25	25	25	25
Sample Date	02/22/07	02/22/07	05/09/07	08/07/07	11/06/07
Sample ID	GWGM-999 (2/22/07)	GWGM-999-RE (2/22/07)	GWGM-79 (5/9/07)	GWGM-79 (8/7/07)	GWGM-79(11/6/07)
Alcohols					
1,4-Dioxane	<4.7	<4.7 H	<4.7	<4.7	<4.7
2-Pentanone	<1,000	NA	<1,000	<1,000	<1,000
2-Picoline	<9.4	<9.4 H	<9.4	<9.4	<9.4
Acetonitrile	<50	NA	<50	<50	<50
Ethanol	<1,000	NA	<1,000	<1,000	<1,000
Ethylacetate	<5,000	NA	<5,000	<5,000	<5,000
Ethylene glycol	<10,000	NA	<10,000	<10,000	<10,000
Isobutanol	<1,000	NA	<1,000	<1,000	<1,000
Isopropanol	<1,000	NA	<1,000	<1,000	<1,000
Methanol	<1,000	NA	<1,000	<1,000	580 J
n-Butanol	<1,000	NA	<1,000	<1,000	<1,000
n-Propanol	<1,000	NA	<1,000	<1,000	<1,000
Tert-Butyl Alcohol	<1,000	NA	<1,000	<1,000	<1,000
Aldehydes					
Acetaldehyde	<100	NA	<100	<100	<100
Butanal	<100	NA	<100	<100	<100
Crotonaldehyde	<100	NA	<100	<100	<100
Cyclohexanone	<100	NA	<100	<100	<100
Decanal	<100	NA	8.0 J	<100	<100
Formaldehyde	<100	NA	<100	13 J	<100
Heptanal	<100	NA	<100	<100	<100
Hexanal	<100	NA	<100	7.2 J	<100
m-Tolualdehyde	<100	NA	<100	<100	<100
Nonanal	6.4 J	NA	7.3 J	<100	<100
Octanal	<100	NA	<100	<100	<100
Paraldehyde	<100	NA	<100	<100	<100
Pentanal	8.2 J	NA	<100	10 J	<100
Propanal	<100	NA	<100	<100	<100
Acetic Acid/Acetate	<500	NA	<500	<500	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)	GM-84			
Top of Screen Depth (ft bls)	25	77	77	77	77
Sample Date	11/06/07	08/19/04	08/19/04	08/01/05	12/12/06
Sample ID	GWGM-79(11/6/07)-RE	GWGM-84 (8/19/04)	GWGM-84 (8/19/04)-RE	GWGM-84 (08/01/05)	GWGM-84 (12/12/06)
Alcohols					
1,4-Dioxane	<4.7 H	<5.0	<5.0	<4.8	<5.0
2-Pentanone	NA	<5,000	NA	<1,000	<1,000
2-Picoline	<9.4 H	<10	<10	<9.6	<10
Acetonitrile	NA	<50	NA	<50	<50
Ethanol	NA	<1,000	NA	<1,000	<1,000
Ethylacetate	NA	<5,000	NA	<5,000	<5,000
Ethylene glycol	NA	790 J	NA	<10,000	<10,000
Isobutanol	NA	<1,000	NA	<1,000	<1,000
Isopropanol	NA	<1,000	NA	<1,000	<1,000
Methanol	NA	<1,000	NA	<1,000	<1,000
n-Butanol	NA	<1,000	NA	<1,000	<1,000
n-Propanol	NA	<1,000	NA	<1,000	<1,000
Tert-Butyl Alcohol	NA	<1,000	NA	<1,000	<1,000
Aldehydes					
Acetaldehyde	NA	<100	NA	<100	<100
Butanal	NA	<100	NA	<100	<100
Crotonaldehyde	NA	<100	NA	39 J	<100
Cyclohexanone	NA	<100	NA	790	<100
Decanal	NA	<100	NA	<100	<100
Formaldehyde	NA	<100	NA	37 J	<100
Heptanal	NA	<100	NA	23 J	<100
Hexanal	NA	<100	NA	<100	<100
m-Tolualdehyde	NA	<100	NA	2100	<100
Nonanal	NA	<100	NA	<100	<100
Octanal	NA	<100	NA	39 J	<100
Paraldehyde	NA	<100	NA	<100	<100
Pentanal	NA	<100	NA	<100	<100
Propanal	NA	<100	NA	<100	<100
Acetic Acid/Acetate	NA	820 B	NA	360 J	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-84 (continued)				GM-87A
Top of Screen Depth (ft bls)	77	77	77	77	32
Sample Date	03/02/07	05/14/07	08/14/07	11/09/07	12/05/06
Sample ID	GWGM-84 (3/2/07)	GWGM-84 (5/14/07)	GWGM-84 (8/14/07)	GWGM-84(11/9/07)	GWGM-87A (12/5/06)
Alcohols					
1,4-Dioxane	<4.7	<4.7	<4.7	<4.7	<5.0
2-Pentanone	<1,000	<1,000	<1,000	<1,000	<1,000
2-Picoline	<9.4	<9.4	<9.4	<9.4	<10
Acetonitrile	<50	<50	<50	<50	<50
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	<5,000	<5,000	<5,000	<5,000	<5,000
Ethylene glycol	<10,000	<10,000	<10,000	<10,000	<10,000
Isobutanol	<1,000	<1,000	<1,000	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000	<1,000
Methanol	<1,000	<1,000	<1,000	<1,000	<1,000
n-Butanol	<1,000	<1,000	<1,000	<1,000	<1,000
n-Propanol	<1,000	<1,000	<1,000	<1,000	<1,000
Tert-Butyl Alcohol	<1,000	<1,000	<1,000	<1,000	<1,000
Aldehydes					
Acetaldehyde	<100	<100	<100	<100	<100
Butanal	<100	<100	<100	<100	<100
Crotonaldehyde	<100	<100	<100	<100	<100
Cyclohexanone	<100	<100	<100	<100	<100
Decanal	<100	<100	<100	<100	12 J
Formaldehyde	<100	<100	<100	<100	<100
Heptanal	<100	<100	<100	<100	3.9 J
Hexanal	<100	<100	<100	7.7 J	<100
m-Tolualdehyde	<100	<100	<100	<100	<100
Nonanal	12 J	<100	<100	<100	3.9 J
Octanal	<100	<100	<100	<100	2.9 J
Paraldehyde	<100	<100	<100	<100	<100
Pentanal	<100	4.6 J	9.4 J	<100	3.5 J
Propanal	<100	<100	<100	<100	<100
Acetic Acid/Acetate	<500	<500	400 J	<500	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)			
Top of Screen Depth (ft bls)	32	32	32	32
Sample Date	12/05/06	12/05/06	12/05/06	02/19/07
Sample ID	GWGM-87A-RE (12/5/2006)	GWGM-999(12/5/06)	GWGM-999-RE (12/5/2006)	GWGM-87A (02/19/07)
Alcohols				
1,4-Dioxane	<5.0 H	<5.0	<5.0 H	<4.8
2-Pentanone	NA	<1,000	NA	<1,000
2-Picoline	<10 H	<10	<10 H	<9.6
Acetonitrile	NA	<50	NA	<50
Ethanol	NA	<1,000	NA	<1,000
Ethylacetate	NA	<5,000	NA	<5,000
Ethylene glycol	NA	<10,000	NA	<10,000
Isobutanol	NA	<1,000	NA	<1,000
Isopropanol	NA	<1,000	NA	<1,000
Methanol	NA	1,700	NA	<1,000
n-Butanol	NA	<1,000	NA	<1,000
n-Propanol	NA	<1,000	NA	<1,000
Tert-Butyl Alcohol	NA	<1,000	NA	<1,000
Aldehydes				
Acetaldehyde	NA	<100	NA	<100
Butanal	NA	<100	NA	<100
Crotonaldehyde	NA	<100	NA	<100
Cyclohexanone	NA	<100	NA	<100
Decanal	NA	6.6 J	NA	<100
Formaldehyde	NA	<100	NA	<100
Heptanal	NA	3.5 J	NA	2.8 J
Hexanal	NA	<100	NA	8.7 J
m-Tolualdehyde	NA	<100	NA	<100
Nonanal	NA	3.5 J	NA	5.8 J
Octanal	NA	2.6 J	NA	2.7 J
Paraldehyde	NA	<100	NA	<100
Pentanal	NA	3.3 J	NA	<100
Propanal	NA	<100	NA	<100
Acetic Acid/Acetate	NA	<500	NA	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)			GM-87B	
Top of Screen Depth (ft bls)	32	32	32	117	117
Sample Date	05/08/07	08/06/07	11/07/07	12/05/06	12/05/06
Sample ID	GWGM-87A (5/8/07)	GWGM-87A (8/6/07)	GWGM-87A (11/7/07)	GWGM-87A(12/5/06)	GWGM-87B-RE (12/5/2006)
Alcohols					
1,4-Dioxane	<4.7	<4.9	<4.7	<5.0	<5.0 H
2-Pentanone	<1,000	<1,000	<1,000	<1,000	NA
2-Picoline	<9.4	<9.8	<9.4	<10	<10 H
Acetonitrile	<50	<50	<50	<50	NA
Ethanol	<1,000	<1,000	<1,000	<1,000	NA
Ethylacetate	<5,000	<5,000	<5,000	<5,000	NA
Ethylene glycol	<10,000	<10,000	<10,000	<10,000	NA
Isobutanol	<1,000	<1,000	<1,000	<1,000	NA
Isopropanol	<1,000	<1,000	<1,000	<1,000	NA
Methanol	<1,000	1,500	530 J	880 J	NA
n-Butanol	<1,000	<1,000	<1,000	<1,000	NA
n-Propanol	<1,000	<1,000	<1,000	<1,000	NA
Tert-Butyl Alcohol	<1,000	<1,000	<1,000	<1,000	NA
Aldehydes					
Acetaldehyde	<100	<100	<100	<100	NA
Butanal	<100	<100	<100	<100	NA
Crotonaldehyde	<100	<100	<100	<100	NA
Cyclohexanone	<100	<100	<100	<100	NA
Decanal	9.4 J	<100	<100	<100	NA
Formaldehyde	<100	13 J	<100	<100	NA
Heptanal	4.5 J	<100	<100	<100	NA
Hexanal	11 J	<100	<100	<100	NA
m-Tolualdehyde	<100	<100	<100	<100	NA
Nonanal	8.0 J	<100	<100	3.1 J	NA
Octanal	3.9 J	<100	<100	3.8 J	NA
Paraldehyde	<100	<100	<100	<100	NA
Pentanal	<100	<100	<100	<100	NA
Propanal	<100	<100	<100	<100	NA
Acetic Acid/Acetate	$\boxed{4,300}$	<500	<500	1,000	NA

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87B (continued)				GM-118D	
Top of Screen Depth (ft bls)	117	117	117	117	54	54
Sample Date	02/20/07	05/08/07	08/06/07	11/07/07	10/21/98	04/29/99
Sample ID	GWGM-87B (2/20/07)	GWGM-87B (5/8/07)	GWGM-87B (8/6/07)	GWGM-87B (11/7/07)	GWGM-118D	GWGM-118D
Alcohols						
1,4-Dioxane	<4.7	<4.7	<4.7	<4.7	R	R
2-Pentanone	<1,000	<1,000	<1,000	<1,000	NA	<100
2-Picoline	<9.4	<9.4	<9.4	<9.4	<80	<80
Acetonitrile	<50	<50	<50	<50	<50	R
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000 J
Ethylacetate	<5,000	<5,000	<5,000	<5,000	<10	R
Ethylene glycol	<10,000	<10,000	<10,000	<10,000	<20,000	<20,000
Isobutanol	<1,000	<1,000	<1,000	<1,000	3,000	<1,000 J
Isopropanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Methanol	<1,000	<1,000	<1,000	490 J	<800	<800
n-Butanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
n-Propanol	<1,000	<1,000	<1,000	<1,000	NA	R
Tert-Butyl Alcohol	<1,000	<1,000	<1,000	<1,000	NA	R
Aldehydes						
Acetaldehyde	<100	<100	<100	<100	<100 J	<100
Butanal	<100	<100	<100	<100	<100 J	<100
Crotonaldehyde	<100	<100	<100	<100	<100 J	<100
Cyclohexanone	<100	<100	<100	<100	<100 J	<100
Decanal	<100	40 J	<100	<100	<100 J	<100
Formaldehyde	<100	<100	<100	<100	<100 J	<100
Heptanal	<100	<100	<100	<100	<100 J	<100
Hexanal	5.1 J	<100	<100	<100	<100 J	<100
m-Tolualdehyde	<100	<100	<100	<100	<100 J	<100
Nonanal	6.0 J	7.2 J	<100	<100	<100 J	<100
Octanal	<100	<100	<100	<100	<100 J	<100
Paraldehyde	<100	<100	<100	<100	<100 J	<100
Pentanal	<100	<100	11 J	<100	<100 J	<100
Propanal	<100	<100	<100	<100	<100 J	<100
Acetic Acid/Acetate	3,100	<500	1,100	<500	<200	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEW-1	GMEW-2	GMEW-3	GMEWA-1	GMEWA-2	GMEWA-3	GMEWA-4
Top of Screen Depth (ft bls)	20	23	135	26	26	25	20
Sample Date	09/21/00	09/21/00	07/24/00	04/11/05	04/12/05	04/12/05	04/12/05
Sample ID	GMEWGW-1	GMEWGW-2	GWGMEW-3	GWGMEWA-1	GWGMEWA-2	GWGMEWA-3	GWGMEWA-4
Alcohols							
1,4-Dioxane	NA	NA	<500	<4.7	<24	<24	<4.7
2-Pentanone	NA	NA	NA	<1,000	<1,000	<1,000	<1,000
2-Picoline	NA	NA	<1,000	<9.4	<47	<48	<9.4
Acetonitrile	<50 J	<100 J	<250	<50	<50	<50	<50
Ethanol	NA	NA	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	NA	NA	<5,000	<5,000	<5,000	<5,000	<5,000
Ethylene glycol	NA	NA	NA	<10,000	<10,000	<10,000	<10,000
Isobutanol	NA	NA	<1,000	<1,000	<1,000	<1,000	<1,000
Isopropanol	NA	NA	<1,000 J	<1,000	<1,000	<1,000	<1,000
Methanol	NA	NA	<1,000	<1,000	<1,000	<1,000	<1,000
n-Butanol	NA	NA	<1,000	<1,000	<1,000	<1,000	<1,000
n-Propanol	NA	NA	<1,000	<1,000	<1,000	<1,000	<1,000
Tert-Butyl Alcohol	NA	NA	<1,000	<1,000	<1,000	<1,000	<1,000
Aldehydes							
Acetaldehyde	NA	NA	***3,000***	<100	<100	**240**	<100
Butanal	NA	NA	<500	<100	<100	150	<100
Crotonaldehyde	NA	NA	<500	<100	<100	<100	<100
Cyclohexanone	NA	NA	<500	<100	810	3,200	<100
Decanal	NA	NA	<500	<100	<100	12 J	<100
Formaldehyde	NA	NA	<500	<100	<100	**450**	<100
Heptanal	NA	NA	<500	<100	67 J	220	78 J
Hexanal	NA	NA	<500	<100	200	<100	<100
m-Tolualdehyde	NA	NA	<500	<100	100	670	<100
Nonanal	NA	NA	<500	<100	23 J	40 J	26 J
Octanal	NA	NA	<500	<100	<100	150	<100
Paraldehyde	NA	NA	<100	<100	<100	<100	<100
Pentanal	NA	NA	<500	<100	<100	<100	<100
Propanal	NA	NA	<500	<100	<100	<100	<100
Acetic Acid/Acetate	NA	NA	3,300,000	360 J B	950 B	670 B	970 B

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWA-4 (continued)	GMEWA-26		GMEWA-27
Top of Screen Depth (ft bls)	20	22	22	21
Sample Date	08/02/05	04/15/05	07/27/05	04/13/05
Sample ID	GWGMEWA4 (08/02/05)	GWGMEWA-26 (4/15/05)	GWGMEWA-26 (072705)	GWGMEWA-27 (4/13/05)
Alcohols				
1,4-Dioxane	<94	<24	<47	<4.7
2-Pentanone	<1,000	<1,000	<1,000	<1,000
2-Picoline	<190	<48	<94	<9.4
Acetonitrile	<50	<50	<50	<50
Ethanol	<1,000	<1,000	<1,000	<1,000
Ethylacetate	<5,000	<5,000	<5,000	<5,000
Ethylene glycol	<10,000	<10,000	<10,000	<10,000
Isobutanol	<1,000	<1,000	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000
Methanol	<1,000	<1,000	<1,000	<1,000
n-Butanol	<1,000	<1,000	<1,000	<1,000
n-Propanol	<1,000	<1,000	<1,000	<1,000
Tert-Butyl Alcohol	<1,000	<1,000	<1,000	<1,000
Aldehydes				
Acetaldehyde	<100	<100	<100	<100
Butanal	<100	<100	<100	<100
Crotonaldehyde	81 J	<100	<100	<100
Cyclohexanone	<100	<100	<100	<100
Decanal	<100	<100	<100	<100
Formaldehyde	<100	<100	<100	<100
Heptanal	91 J	<100	38 J	<100
Hexanal	<100	<100	<100	<100
m-Tolualdehyde	<100	<100	<100	<100
Nonanal	<100	40 J	<100	28 J
Octanal	<100	83 J	<100	<100
Paraldehyde	<100	<100	<100	<100
Pentanal	98 J	<100	120	<100
Propanal	<100	<100	<100	<100
Acetic Acid/Acetate	80,000	270 J B	810	250 J B

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWA-27 (continued)			GMEWA-28
Top of Screen Depth (ft bls)	21	21	21	25
Sample Date	04/13/05	04/13/05	04/13/05	04/13/05
Sample ID	GWGMEWA-27 -RE (4/13/2005)	GWGMEWA-999 (4/13/05)	GWGMEWA-999 -RE (4/13/2005)	GWGMEWA-28 (4/13/05)
Alcohols				
1,4-Dioxane	<4.7	<4.7	<4.7	<4.7
2-Pentanone	NA	<1,000	NA	<1,000
2-Picoline	<9.4	<9.4	<9.4	<9.4
Acetonitrile	NA	<50	NA	<50
Ethanol	NA	<1,000	NA	<1,000
Ethylacetate	NA	<5,000	NA	<5,000
Ethylene glycol	NA	<10,000	NA	<10,000
Isobutanol	NA	<1,000	NA	<1,000
Isopropanol	NA	<1,000	NA	<1,000
Methanol	NA	<1,000	NA	<1,000
n-Butanol	NA	<1,000	NA	<1,000
n-Propanol	NA	<1,000	NA	<1,000
Tert-Butyl Alcohol	NA	<1,000	NA	<1,000
Aldehydes				
Acetaldehyde	NA	<100	NA	<100
Butanal	NA	<100	NA	<100
Crotonaldehyde	NA	<100	NA	<100
Cyclohexanone	NA	<100	NA	<100
Decanal	NA	12 J	NA	14 J
Formaldehyde	NA	<100	NA	<100
Heptanal	NA	<100	NA	<100
Hexanal	NA	<100	NA	<100
m-Tolualdehyde	NA	<100	NA	<100
Nonanal	NA	30 J	NA	30 J
Octanal	NA	<100	NA	11 J
Paraldehyde	NA	<100	NA	<100
Pentanal	NA	<100	NA	<100
Propanal	NA	<100	NA	<100
Acetic Acid/Acetate	NA	320 J B	NA	230 J B

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWA-28 (continued)	GMEWC-1		GMEWC-1A
Top of Screen Depth (ft bls)	25	123	123	117.5
Sample Date	04/13/05	07/26/05	07/26/05	04/14/05
Sample ID	GWGMEWA-28 -RE (4/13/2005)	GWGMEWC-1 (072605)	GWGMEWC-1-RE (072605)	GWGMEWC-1A (117.5-142.5)
Alcohols				
1,4-Dioxane	<4.7	<9.4	<4.7	<4.7
2-Pentanone	NA	<1,000	NA	<1,000
2-Picoline	<9.4	<19	<9.4	<9.4
Acetonitrile	NA	<1,000	NA	<50
Ethanol	NA	<1,000	NA	<1,000
Ethylacetate	NA	<5,000	NA	<5,000
Ethylene glycol	NA	<10,000	NA	<10,000
Isobutanol	NA	<1,000	NA	<1,000
Isopropanol	NA	<1,000	NA	<1,000
Methanol	NA	<1,000	NA	<1,000
n-Butanol	NA	<1,000	NA	<1,000
n-Propanol	NA	<1,000	NA	<1,000
Tert-Butyl Alcohol	NA	<1,000	NA	<1,000
Aldehydes				
Acetaldehyde	NA	<100	NA	<100
Butanal	NA	<100	NA	<100
Crotonaldehyde	NA	<100	NA	<100
Cyclohexanone	NA	<100	NA	<100
Decanal	NA	<100	NA	12 J
Formaldehyde	NA	<100	NA	<100
Heptanal	NA	19 J	NA	<100
Hexanal	NA	<100	NA	<100
m-Tolualdehyde	NA	<100	NA	<100
Nonanal	NA	<100	NA	33 J
Octanal	NA	14 J	NA	13 J
Paraldehyde	NA	<100	NA	<100
Pentanal	NA	150	NA	<100
Propanal	NA	<100	NA	<100
Acetic Acid/Acetate	NA	<500	NA	390 J

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWC-1A (continued)		GMPZA-26	
Top of Screen Depth (ft bls)	117.5	117.5	20	20
Sample Date	04/14/05	04/14/05	12/06/06	12/06/06
Sample ID	GWGMEWC-1A (152.5-157.5)	GWGMEWC-1A (152.5-157.5)-RE	GWGMPZA-26 (12/06/06)	GWGMPZA-26-RE (12/6/2006)
Alcohols				
1,4-Dioxane	<4.7	<4.7	<4.9	<25
2-Pentanone	<1,000	NA	<1,000	NA
2-Picoline	<9.4	<9.4	<9.8	<49
Acetonitrile	<50	NA	<50	NA
Ethanol	<1,000	NA	<1,000	NA
Ethylacetate	<5,000	NA	<5,000	NA
Ethylene glycol	<10,000	NA	<10,000	NA
Isobutanol	<1,000	NA	<1,000	NA
Isopropanol	<1,000	NA	<1,000	NA
Methanol	<1,000	NA	<1,000	NA
n-Butanol	<1,000	NA	<1,000	NA
n-Propanol	<1,000	NA	<1,000	NA
Tert-Butyl Alcohol	<1,000	NA	<1,000	NA
Aldehydes				
Acetaldehyde	<100	NA	12 J	NA
Butanal	<100	NA	<100	NA
Crotonaldehyde	<100	NA	<100	NA
Cyclohexanone	<100	NA	12 J	NA
Decanal	15 J	NA	13 J	NA
Formaldehyde	<100	NA	<100	NA
Heptanal	51 J	NA	16 J	NA
Hexanal	<100	NA	<100	NA
m-Tolualdehyde	<100	NA	51 J	NA
Nonanal	33 J	NA	6.6 J	NA
Octanal	32 J	NA	12 J	NA
Paraldehyde	<100	NA	<100	NA
Pentanal	<100	NA	23 J	NA
Propanal	<100	NA	<100	NA
Acetic Acid/Acetate	380 J	NA	$\boxed{36,000}$	NA

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-26 (continued)		GMPZA-29	
Top of Screen Depth (ft bls)	**20**	**20**	**18**	**18**
Sample Date	**02/27/07**	**08/13/07**	**12/06/06**	**12/06/06**
Sample ID	**GWGMPZA-26 (2/27/07)**	**GWGMPZA-26 (8/13/07)**	**GWGMPZA-29 (12/6/06)**	**GWGMPZA-29-RE (12/6/2006)**
Alcohols				
1,4-Dioxane	<4.7	<4.7	<49	<970
2-Pentanone	<1,000	<1,000	<1,000	NA
2-Picoline	<9.4	<9.4	<97	<1900
Acetonitrile	<50	<50	<100	NA
Ethanol	<1,000	<1,000	<1,000	NA
Ethylacetate	<5,000	<5,000	1,400 J	NA
Ethylene glycol	<10,000	<10,000	<10,000	NA
Isobutanol	<1,000	<1,000	<1,000	NA
Isopropanol	<1,000	<1,000	<1,000	NA
Methanol	<1,000	<1,000	<1,000	NA
n-Butanol	<1,000	<1,000	<1,000	NA
n-Propanol	<1,000	<1,000	<1,000	NA
Tert-Butyl Alcohol	<1,000	<1,000	<1,000	NA
Aldehydes				
Acetaldehyde	<100	<100	**150 J**	NA
Butanal	13 J	<100	<500	NA
Crotonaldehyde	<100	<100	<500	NA
Cyclohexanone	<100	<100	670	NA
Decanal	<100	<100	<500	NA
Formaldehyde	<100	20 J	**170 J**	NA
Heptanal	7.4 J	5.7 J	210 J	NA
Hexanal	<100	<100	<500	NA
m-Tolualdehyde	<100	<100	3,800	NA
Nonanal	13 J	<100	21 J	NA
Octanal	9.9 J	<100	<500	NA
Paraldehyde	<100	<100	<100	NA
Pentanal	13 J	12 J	650	NA
Propanal	<100	<100	50 J	NA
Acetic Acid/Acetate	3,200	<500	$\boxed{1,700,000}$	NA

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-29 (continued)			GMPZA-34
Top of Screen Depth (ft bls)	18	18	18	25
Sample Date	02/26/07	02/26/07	08/10/07	12/08/06
Sample ID	GWGMPZA-29 (2/26/07)	GWGMPZA-29-RE (2/26/07)	GWGMPZA-29(08/10/07)	GWGMPZA-34 (12/8/06)
Alcohols				
1,4-Dioxane	<240	<250 H	<4.7	<5.0
2-Pentanone	30,000	NA	<1,000	<1,000
2-Picoline	<480	<490 H	<9.4	<10
Acetonitrile	<50	NA	<50	<50
Ethanol	<1,000	NA	<1,000	<1,000
Ethylacetate	<5,000	NA	<5,000	<5,000
Ethylene glycol	<10,000	NA	<10,000	<10,000
Isobutanol	<1,000	NA	<1,000	<1,000
Isopropanol	<1,000	NA	<1,000	<1,000
Methanol	2,300	NA	<1,000	<1,000
n-Butanol	<1,000	NA	<1,000	<1,000
n-Propanol	<1,000	NA	<1,000	<1,000
Tert-Butyl Alcohol	<1,000	NA	<1,000	<1,000
Aldehydes				
Acetaldehyde	<100	NA	<100	<100
Butanal	<100	NA	<100	<100
Crotonaldehyde	<100	NA	<100	<100
Cyclohexanone	<100	NA	<100	<100
Decanal	<100	NA	<100	11 J
Formaldehyde	<100	NA	<100	<100
Heptanal	16 J	NA	<100	<100
Hexanal	<100	NA	7.4 J	<100
m-Tolualdehyde	580	NA	<100	<100
Nonanal	6.5 J	NA	<100	9.7 J
Octanal	<100	NA	<100	3.0 J
Paraldehyde	<100	NA	<100	<100
Pentanal	120	NA	<100	<100
Propanal	8.5 J	NA	<100	<100
Acetic Acid/Acetate	$\boxed{370,000}$	NA	<500	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-34 (continued)			GMPZA-38
Top of Screen Depth (ft bls)	25	25	25	25
Sample Date	02/26/07	02/26/07	08/09/07	12/07/06
Sample ID	GWGMPZA-34 (2/26/07)	GWGMPZA-34-RE (2/26/07)	GWGMPZA-34 (8/9/07)	GWGM-998 (12/7/06)
Alcohols				
1,4-Dioxane	<4.7	<4.8 H	<4.7	<5.0
2-Pentanone	8,400	NA	<1,000	<1,000
2-Picoline	<9.4	<9.5 H	<9.4	<10
Acetonitrile	<50	NA	<50	<50
Ethanol	<1,000	NA	<1,000	<1,000
Ethylacetate	<5,000	NA	<5,000	<5,000
Ethylene glycol	<10,000	NA	<10,000	<10,000
Isobutanol	<1,000	NA	<1,000	<1,000
Isopropanol	<1,000	NA	<1,000	<1,000
Methanol	870 J	NA	<1,000	<1,000
n-Butanol	<1,000	NA	<1,000	<1,000
n-Propanol	<1,000	NA	<1,000	<1,000
Tert-Butyl Alcohol	<1,000	NA	<1,000	<1,000
Aldehydes				
Acetaldehyde	<100	NA	<100	<100
Butanal	<100	NA	<100	<100
Crotonaldehyde	<100	NA	<100	<100
Cyclohexanone	<100	NA	<100	3.2 J
Decanal	15 J	NA	<100	<100
Formaldehyde	<100	NA	<100	<100
Heptanal	<100	NA	<100	<100
Hexanal	<100	NA	<100	<100
m-Tolualdehyde	<100	NA	<100	<100
Nonanal	9.9 J	NA	<100	7.1 J
Octanal	<100	NA	<100	<100
Paraldehyde	<100	NA	<100	<100
Pentanal	9.9 J	NA	6.9 J	<100
Propanal	<100	NA	<100	<100
Acetic Acid/Acetate	<500	NA	<500	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-38 (continued)			
Top of Screen Depth (ft bls)	25	25	25	25
Sample Date	12/07/06	12/07/06	12/07/06	02/23/07
Sample ID	GWGM-998-RE (12/7/06)	GWGMPZA38 (12/7/06)	GWGMPZA38-RE (12/7/06)	GWGMPZA-38 (2/23/07)
Alcohols				
1,4-Dioxane	<4.7 H	<5.0	<4.7 H	<4.7
2-Pentanone	NA	<1,000	NA	<1,000
2-Picoline	<9.4 H	<10	<9.4 H	<9.4
Acetonitrile	NA	<50	NA	<50
Ethanol	NA	<1,000	NA	<1,000
Ethylacetate	NA	<5,000	NA	<5,000
Ethylene glycol	NA	<10,000	NA	<10,000
Isobutanol	NA	<1,000	NA	<1,000
Isopropanol	NA	<1,000	NA	<1,000
Methanol	NA	<1,000	NA	<1,000
n-Butanol	NA	<1,000	NA	<1,000
n-Propanol	NA	<1,000	NA	<1,000
Tert-Butyl Alcohol	NA	<1,000	NA	<1,000
Aldehydes				
Acetaldehyde	NA	<100	NA	<100
Butanal	NA	<100	NA	<100
Crotonaldehyde	NA	<100	NA	<100
Cyclohexanone	NA	<100	NA	<100
Decanal	NA	<100	NA	<100
Formaldehyde	NA	<100	NA	<100
Heptanal	NA	<100	NA	<100
Hexanal	NA	<100	NA	<100
m-Tolualdehyde	NA	8.5 J	NA	<100
Nonanal	NA	<100	NA	6.3 J
Octanal	NA	<100	NA	<100
Paraldehyde	NA	<100	NA	<100
Pentanal	NA	<100	NA	7.1 J
Propanal	NA	<100	NA	<100
Acetic Acid/Acetate	NA	<500	NA	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-38 (continued)		GMPZA-41	
Top of Screen Depth (ft bls)	25	25	20	20
Sample Date	02/23/07	08/09/07	12/07/06	02/23/07
Sample ID	GWGMPZA-38-RE (2/23/07)	GWGMPZA-38 (8/9/07)	GWGMPZA-41 (12/7/06)	GWGMPZA-41 (2/23/07)
Alcohols				
1,4-Dioxane	<4.7 H	<4.9	<4.8	<4.7 H
2-Pentanone	NA	<1,000	2,900	<1,000
2-Picoline	<9.4 H	<9.8	<9.6	<9.4 H
Acetonitrile	NA	<50	<50	<50
Ethanol	NA	<1,000	<1,000	<1,000
Ethylacetate	NA	<5,000	<5,000	<5,000
Ethylene glycol	NA	<10,000	<10,000	<10,000
Isobutanol	NA	<1,000	<1,000	<1,000
Isopropanol	NA	<1,000	<1,000	<1,000
Methanol	NA	<1,000	<1,000	<1,000
n-Butanol	NA	<1,000	<1,000	<1,000
n-Propanol	NA	<1,000	<1,000	<1,000
Tert-Butyl Alcohol	NA	<1,000	<1,000	<1,000
Aldehydes				
Acetaldehyde	NA	<100	<100	<100
Butanal	NA	<100	<100	<100
Crotonaldehyde	NA	<100	<100	<100
Cyclohexanone	NA	<100	2.6 J	<100
Decanal	NA	<100	<100	3.8 J
Formaldehyde	NA	<100	<100	<100
Heptanal	NA	<100	<100	<100
Hexanal	NA	<100	<100	<100
m-Tolualdehyde	NA	<100	<100	<100
Nonanal	NA	<100	<100	7.3 J
Octanal	NA	<100	<100	<100
Paraldehyde	NA	<100	<100	<100
Pentanal	NA	6.7 J	<100	7.9 J
Propanal	NA	<100	<100	<100
Acetic Acid/Acetate	NA	990	<500	<500

Footnotes on Page 73.

ARCADIS

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-41 (continued)			GMPZC-2	GMPZC-12
Top of Screen Depth (ft bls)	20	20	20	134	137
Sample Date	02/23/07	08/08/07	08/08/07	05/30/06	12/06/06
Sample ID	GWGMPZA-41-RE (2/23/07)	DUP-999 (8/8/07)	GWGMPZA-41 (8/8/07)	GMPZC-2 (5/30/06)	GWGMPZC-12 (12/06/06)
Alcohols					
1,4-Dioxane	<4.7	<4.7	<4.7	<4.7	<4.9
2-Pentanone	NA	<1,000	<1,000	<1,000	<1,000
2-Picoline	<9.4	<9.4	<9.4	<9.4	<9.8
Acetonitrile	NA	<50	<50	<50	<50
Ethanol	NA	<1,000	<1,000	<1,000	<1,000
Ethylacetate	NA	<5,000	<5,000	<5,000	<5,000
Ethylene glycol	NA	<10,000	<10,000	5,200 J	<10,000
Isobutanol	NA	<1,000	<1,000	<1,000	<1,000
Isopropanol	NA	<1,000	<1,000	<1,000	<1,000
Methanol	NA	<1,000	<1,000	<1,000	<1,000
n-Butanol	NA	<1,000	<1,000	<1,000	<1,000
n-Propanol	NA	<1,000	<1,000	<1,000	<1,000
Tert-Butyl Alcohol	NA	<1,000	<1,000	<1,000	<1,000
Aldehydes					
Acetaldehyde	NA	<100	<100	NA	<100
Butanal	NA	<100	<100	NA	<100
Crotonaldehyde	NA	<100	<100	NA	<100
Cyclohexanone	NA	<100	<100	NA	<100
Decanal	NA	<100	<100	NA	12 J
Formaldehyde	NA	<100	<100	NA	<100
Heptanal	NA	<100	<100	NA	<100
Hexanal	NA	<100	<100	NA	<100
m-Tolualdehyde	NA	<100	<100	NA	<100
Nonanal	NA	<100	<100	NA	6.3 J
Octanal	NA	<100	<100	NA	4.1 J
Paraldehyde	NA	<100	<100	NA	<100
Pentanal	NA	9.3 J	8.9 J	NA	5.1 J
Propanal	NA	<100	<100	NA	<100
Acetic Acid/Acetate	NA	<500	<500	120 J B	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-12 (continued)			
Top of Screen Depth (ft bls)	137	137	137	137
Sample Date	12/06/06	03/01/07	03/01/07	08/14/07
Sample ID	GWGMPZC-12-RE (12/6/2006)	GWGMPZC-12 (3/1/07)	GWGMPZC-12 (3/1/07)-RE	GWGMPZC-12 (8/14/07)
Alcohols				
1,4-Dioxane	<5.7	<4.7	<4.7 H	<4.7
2-Pentanone	NA	<1,000	NA	<1,000
2-Picoline	<11	<9.4	<9.4 H	<9.4
Acetonitrile	NA	<50	NA	<50
Ethanol	NA	<1,000	NA	<1,000
Ethylacetate	NA	<5,000	NA	<5,000
Ethylene glycol	NA	<10,000	NA	<10,000
Isobutanol	NA	<1,000	NA	<1,000
Isopropanol	NA	<1,000	NA	<1,000
Methanol	NA	<1,000	NA	<1,000
n-Butanol	NA	<1,000	NA	<1,000
n-Propanol	NA	<1,000	NA	<1,000
Tert-Butyl Alcohol	NA	<1,000	NA	<1,000
Aldehydes				
Acetaldehyde	NA	<100	NA	<100
Butanal	NA	<100	NA	<100
Crotonaldehyde	NA	<100	NA	<100
Cyclohexanone	NA	<100	NA	<100
Decanal	NA	<100	NA	<100
Formaldehyde	NA	<100	NA	<100
Heptanal	NA	<100	NA	<100
Hexanal	NA	<100	NA	<100
m-Tolualdehyde	NA	<100	NA	<100
Nonanal	NA	<100	NA	<100
Octanal	NA	<100	NA	<100
Paraldehyde	NA	<100	NA	<100
Pentanal	NA	9.8 J	NA	<100
Propanal	NA	<100	NA	<100
Acetic Acid/Acetate	NA	430 J	NA	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-14			
Top of Screen Depth (ft bls)	111	111	111	111
Sample Date	12/06/06	12/06/06	02/28/07	08/10/07
Sample ID	GWGMPZC-14 (12/06/06)	GWGMPZC-14-RE (12/6/2006)	GWGMPZC-14 (2/28/07)	GWGMPZC-14(08/10/07)
Alcohols				
1,4-Dioxane	<49	<240	<94	<94
2-Pentanone	<1,000	NA	<1,000	<1,000
2-Picoline	<97	<490	<190	<190
Acetonitrile	<100	NA	<50	<50
Ethanol	<1,000	NA	<1,000	<1,000
Ethylacetate	<5,000	NA	<5,000	<5,000
Ethylene glycol	<10,000	NA	<10,000	<10,000
Isobutanol	<1,000	NA	<1,000	<1,000
Isopropanol	<1,000	NA	<1,000	<1,000
Methanol	<1,000	NA	<1,000	<1,000
n-Butanol	<1,000	NA	<1,000	<1,000
n-Propanol	<1,000	NA	<1,000	<1,000
Tert-Butyl Alcohol	<1,000	NA	<1,000	<1,000
Aldehydes				
Acetaldehyde	18 J	NA	<100	18 J
Butanal	<100	NA	<100	<100
Crotonaldehyde	200	NA	170	140
Cyclohexanone	220	NA	<100	<100
Decanal	<100	NA	<100	<100
Formaldehyde	64 J	NA	36 J	31 J
Heptanal	170	NA	89 J	91 J
Hexanal	370	NA	<100	<100
m-Tolualdehyde	1,300	NA	220	260
Nonanal	28 J	NA	<100	16 J
Octanal	54 J	NA	<100	80 J
Paraldehyde	<100	NA	<100	<100
Pentanal	270	NA	160	120
Propanal	24 J	NA	21 J	18 J
Acetic Acid/Acetate	120,000	NA	<500	11,000

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-17				Grailer
Top of Screen Depth (ft bls)	125	125	125	125	
Sample Date	12/07/06	02/27/07	08/13/07	08/13/07	05/12/99
Sample ID	GWGMPZC-17 (12/7/2006)	GWGMPZC-17 (2/27/07)	DUP-998 (8/13/07)	GWGMPZC-17 (8/13/07)	GBGW-53C
Alcohols					
1,4-Dioxane	<4.8	<4.7	<4.7	<4.7	NA
2-Pentanone	2,400	<1,000	<1,000	<1,000	NA
2-Picoline	<9.6	<9.4	<9.4	<9.4	<80
Acetonitrile	<50	<50	<50	<50	NA
Ethanol	<1,000	<1,000	<1,000	<1,000	NA
Ethylacetate	<5,000	<5,000	<5,000	<5,000	NA
Ethylene glycol	<10,000	<10,000	<10,000	<10,000	NA
Isobutanol	<1,000	<1,000	<1,000	<1,000	NA
Isopropanol	<1,000	<1,000	<1,000	<1,000	NA
Methanol	<1,000	<1,000	<1,000	<1,000	NA
n-Butanol	<1,000	<1,000	<1,000	<1,000	NA
n-Propanol	<1,000	<1,000	<1,000	<1,000	NA
Tert-Butyl Alcohol	<1,000	<1,000	<1,000	<1,000	NA
Aldehydes					
Acetaldehyde	<100	<100	<100	<100	NA
Butanal	<100	<100	<100	<100	NA
Crotonaldehyde	<100	<100	<100	<100	NA
Cyclohexanone	<100	<100	<100	<100	NA
Decanal	7.7 J	21 J	53 J	<100	NA
Formaldehyde	<100	<100	<100	<100	NA
Heptanal	<100	<100	<100	<100	NA
Hexanal	2.2 J	<100	11 J	<100	NA
m-Tolualdehyde	<100	<100	<100	<100	NA
Nonanal	6.4 J	12 J	<100	<100	NA
Octanal	<100	<100	<100	<100	NA
Paraldehyde	<100	<100	<100	<100	NA
Pentanal	<100	12 J	<100	8.9 J	NA
Propanal	<100	<100	<100	<100	NA
Acetic Acid/Acetate	<500	<500	<500	<500	NA

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Grailer (continued)	Hambel	Krans	Michaud	Schnieder	MPMW-4	MW-5
Top of Screen Depth (ft bls)							83
Sample Date	08/07/03	08/06/03	08/06/03	08/06/03	08/07/03	02/26/02	10/22/98
Sample ID	GBGW-53C	GBGW-101C	GBGW-101F	GBGW-101G	GBGW-113	GWMPMW-4 (2/26/02)	GWMW-5
Alcohols							
1,4-Dioxane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<300
2-Pentanone	NA	NA	NA	NA	NA	<1,000	NA
2-Picoline	<10	<10	<10	<10	<10	<10	<80
Acetonitrile	<50	<50	<50	<50	<50	<50	<50
Ethanol	NA	NA	NA	NA	NA	<1,000	<1,000
Ethylacetate	NA	NA	NA	NA	NA	<5,000	<10
Ethylene glycol	NA	NA	NA	NA	NA	NA	<20,000
Isobutanol	NA	NA	NA	NA	NA	<1,000	<1,000
Isopropanol	NA	NA	NA	NA	NA	<1,000	<1,000
Methanol	NA	NA	NA	NA	NA	<1,000	1,300
n-Butanol	NA	NA	NA	NA	NA	<1,000	<1,000
n-Propanol	NA	NA	NA	NA	NA	<1,000	NA
Tert-Butyl Alcohol	NA	NA	NA	NA	NA	<1,000	NA
Aldehydes							
Acetaldehyde	NA	NA	NA	NA	NA	NA	<100 J
Butanal	NA	NA	NA	NA	NA	NA	<100 J
Crotonaldehyde	NA	NA	NA	NA	NA	NA	<100 J
Cyclohexanone	NA	NA	NA	NA	NA	NA	<100 J
Decanal	NA	NA	NA	NA	NA	NA	<100 J
Formaldehyde	NA	NA	NA	NA	NA	NA	<100 J
Heptanal	NA	NA	NA	NA	NA	NA	<100 J
Hexanal	NA	NA	NA	NA	NA	NA	<100 J
m-Tolualdehyde	NA	NA	NA	NA	NA	NA	<100 J
Nonanal	NA	NA	NA	NA	NA	NA	<100 J
Octanal	NA	NA	NA	NA	NA	NA	<100 J
Paraldehyde	NA	NA	NA	NA	NA	NA	<100 J
Pentanal	NA	NA	NA	NA	NA	NA	<100 J
Propanal	NA	NA	NA	NA	NA	NA	<100 J
Acetic Acid/Acetate	NA	NA	NA	NA	NA	<500	260

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	MW-5 (continued)	MW-8				UG-2	
Top of Screen Depth (ft bls)	83	133	133	133	133	48	48
Sample Date	04/30/99	10/24/98	05/03/99	05/12/04	05/12/04	10/27/98	05/03/99
Sample ID	GWMW-5	GWMW-8	GWMW-8	GWMW-8 (5/12/04)	GWMW-8 (5/12/04)-RE	GWUG-2	GWUG-2
Alcohols							
1,4-Dioxane	R	<15,000 J	R	<50	<50	R	R
2-Pentanone	<100	NA	<100	<1,000	NA	NA	<100
2-Picoline	<80	<250	<500	<100	<100	<80	<80
Acetonitrile	R	<2,500	R	<50	NA	<50	R
Ethanol	<1,000	<1,000	<1,000	<1,000	NA	<1,000	<1,000
Ethylacetate	R	<500	R	<5,000	NA	<10	<10
Ethylene glycol	<20,000	<40,000 M	<20,000 J	<5,000	NA	$\boxed{82,000}$	<20,000
Isobutanol	<1,000	<1,000	<1,000	<1,000	NA	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000	NA	<1,000	<1,000
Methanol	<800	<800	<800	2,000	NA	<800	<800
n-Butanol	<1,000	<1,000	<1,000	<1,000	NA	<1,000	<1,000
n-Propanol	R	NA	R	<1,000	NA	NA	R
Tert-Butyl Alcohol	R	NA	R	<1,000	NA	NA	R
Aldehydes							
Acetaldehyde	<100	<100 J	<100	<100	NA	<100	<100
Butanal	<100	<100 J	<100	<100	NA	<100	<100
Crotonaldehyde	<100	<100 J	<100	<100	NA	<100	<100
Cyclohexanone	<100	<100 J	<100	<100	NA	<100	<100
Decanal	<100	<100 J	<100	<100	NA	<100	<100
Formaldehyde	<100	<100 J	<100	<100	NA	<100	<100
Heptanal	<100	<100 J	<100	81 J	NA	<100	<100
Hexanal	<100	<100 J	<100	<100	NA	<100	<100
m-Tolualdehyde	<100	130 J	<100	140	NA	<100	<100
Nonanal	<100	<100 J	<100	<100	NA	<100	<100
Octanal	<100	<100 J	<100	<100	NA	<100	<100
Paraldehyde	<100	<100 J	<100	<100	NA	<100	<100
Pentanal	<100	<100 J	<100	87 J	NA	<100	<100
Propanal	<100	<100 J	<100	<100	NA	<100	<100
Acetic Acid/Acetate	<500	2,500	<500	<500	NA	210	<500

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	UG-4						
Top of Screen Depth (ft bls)	103	103	Groundwater	Indoor Air	Residential		
Sample Date	10/23/98	05/02/99	Contact	Inhalation	Drinking Water	FAV	FCV
Sample ID	GWUG-4	GWUG-4	Criteria	Criteria	Criteria	Criteria	Criteria
Alcohols							
1,4-Dioxane	<300 J	R	1,700,000 (I)	(I) NLV	85 (I)	390,000	22,000
2-Pentanone	NA	<100	NA	NA	NA	NA	NA
2-Picoline	<80	<80	NA	NA	NA	NA	NA
Acetonitrile	<50	R	5,600,000	24,000,000	140	NA	NA
Ethanol	<1,000	<1,000	1,000,000,000 (I) S	(I) NLV	1,900,000 (I)	NLS	NLS
Ethylacetate	<10	R	64,000,000 (I) S	64,000,000 (I) S	6,600 (I)	NA	NA
Ethylene glycol	<20,000	<20,000 J	1,000,000,000 S	NLV	15,000	3,400,000	190,000
Isobutanol	<1,000	<1,000	25,000,000 (I)	76,000,000 (I) S	2,300 (I)	NA	NA
Isopropanol	<1,000	<1,000	13,000,000 (I)	(I) NLV	470 (I)	1,000,000	57,000
Methanol	<800	<800	29,000,000 S	29,000,000 S	3,700	2,700,000	590,000
n-Butanol	<1,000	<1,000	8,800,000 (I)	(I) NLV	950 (I)	NA	NA
n-Propanol	NA	R	28,000,000 (I)	(I) NLV	1,400 (I)	NA	NA
Tert-Butyl Alcohol	NA	R	79,000,000	1,000,000,000 D,S	3,900	NA	NA
Aldehydes							
Acetaldehyde	<100 J	<100	42,000,000 (I)	1,100,000 (I)	950 (I)	2,400	130
Butanal	<100 J	<100	NA	NA	NA	NA	NA
Crotonaldehyde	<100 J	<100	NA	NA	NA	NA	NA
Cyclohexanone	<100 J	<100	23,000,000 S	1,500	33,000	NA	NA
Decanal	<100 J	<100	NA	NA	NA	NA	NA
Formaldehyde	<100 J	<100	30,000,000	63,000	1,300	2,100	120
Heptanal	<100 J	<100	NA	NA	NA	NA	NA
Hexanal	<100 J	<100	NA	NA	NA	NA	NA
m-Tolualdehyde	<100 J	<100	NA	NA	NA	NA	NA
Nonanal	<100 J	<100	NA	NA	NA	NA	NA
Octanal	<100 J	<100	NA	NA	NA	NA	NA
Paraldehyde	<100 J	<100	NA	NA	NA	NA	NA
Pentanal	<100 J	<100	NA	NA	NA	NA	NA
Propanal	<100 J	<100	NA	NA	NA	NA	NA
Acetic Acid/Acetate	<200	<500	180,000,000	NLV	4,200	R	R

Footnotes on Page 73.

Table 6-12. Summary of Alcohols/Aldehydes/Acetic Acid/Acetate Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Results in micrograms per liter (µg/L).

<	Less than the laboratory method detection limit.
Bold	Indicates a value above the Final Chronic Values (Michigan Part 4 Rule 323.1057, December 11, 2006).
	Indicates a value above the Groundwater Contact Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
Italics	Indicates a value above the Final Acute Values (Michigan Part 4 Rule 323.1057, December 11, 2006).
	Indicates a value above the Residential and Commercial I Drinking Water Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
B	Constituent was also detected in laboratory blank.
ft bls	Feet below land surface.
I	Estimated result.
K	Reported concentration is proportional to dilution factor and may be exaggerated.
L	Serial dilution indicates that interference is present.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
R	Rejected result.

State of Michigan Criteria Footnotes:

D	Calculated criterion exceeds 100%, therefore it is reduced to 100%.
I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.
NLS	A literature search has not been conducted.
NLV	Chemical is not likely to volatilize under most soil conditions.
S	Criterion defaults to the chemical-specific water solubility limit.
X	The GSI criterion shown is not protective for surface water that is used as a drinking water source.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	BR-2	BR-3	BR-5A	BR-5B		BR-6	CW-1		
Top of Screen Depth (ft bls)	75	122	88	188	188	149	130	130	130
Sample Date	06/29/97	06/28/97	07/01/97	07/01/97	07/01/97	06/29/97	10/14/97	10/22/98	04/29/99
Sample I.D.	GWBR-2	GWBR-3	GWBR-5A	GWBR-5B	GWGM-98	GWBR-6	CW-1	GWCW-1	GWCW-1
Biochemical Oxygen Demand	NA	NA	NA	NA	NA	NA	NA	12 J	14
Chemical Oxygen Demand	37	47	35	52	50	32	58	42	49
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	2 J	4 J	6	12	13	<1 J	14	17	19

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-1					GM-2A		GM-2B		
Top of Screen Depth (ft bls)	220	220	220	220	220	40	40	271	271	271
Sample Date	06/24/97	10/09/97	10/07/98	04/16/99	04/28/04	07/02/97	10/12/97	06/26/97	10/21/97	12/11/97
Sample I.D.	GWGM-1	GM-1	GWGM-1	GWGM-1	GWGM-1 (4/28/04)	GWGM-2A	GM-2A	GWGM-2B	GM-2B	GM-2B
Biochemical Oxygen Demand	NA	NA	42 J	18	33	NA	NA	NA	NA	NA
Chemical Oxygen Demand	270	310	250	<500 M	310	<10	200	3,100	3,600	2,400
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	25	55	84	11	84	2	1	9	460	590

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-2B (continued)			GM-2C			GM-3A	
Top of Screen Depth (ft bls)	271	271	271	64	64	64	74	74
Sample Date	11/22/98	04/16/99	05/25/04	11/06/98	04/13/99	05/04/04	06/25/97	10/10/97
Sample I.D.	GWGM-2B	GWGM-2B	GWGM-2B(5/25/04)	GWGM-2C	GWGM-2C	GWGM-2C (5/4/04)	GWGM-3A	GM-3A
Biochemical Oxygen Demand	510 J	550	420	<2 J	3.7	<2.0	NA	NA
Chemical Oxygen Demand	1,700	1,300	1,500	<10	<10	19 J	<10	20
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	640	53	430	1.5	1.8	<1.0	<2	1

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-3A (continued)			GM-3B					
Top of Screen Depth (ft bls)	74	74	74	170	170	170	170	170	170
Sample Date	10/09/98	04/13/99	05/05/04	06/26/97	10/14/97	10/08/98	04/17/99	04/17/99	05/11/04
Sample I.D.	GWGM-3A	GWGM-3A	GWGM-3A (5/5/04)	GWGM-3B	GM-3B	GWGM-3B	GWGM-3B	GWGM-88	GWGM-3B (5/11/04)
Biochemical Oxygen Demand	<2 J	<1.0	<2.0	NA	NA	38 J	30	27	27
Chemical Oxygen Demand	<10	<10	<20	300	260	260	<500 M	<500 M	340
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	<1	1.3	<1.0	73	59	81	90	84	96

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-4						GM-5		
Top of Screen Depth (ft bls)	76	76	76	76	76	76	250	250	250
Sample Date	06/26/97	10/14/97	10/20/98	04/21/99	05/01/04	05/02/04	07/02/97	10/15/97	04/18/99
Sample I.D.	GWGM-4	GM-4	GWGM-4	GWGM-4	GWGM-997 (5/1/04)	GWGM-4 (5/2/04)	GWGM-5	GM-5	GWGM-5
Biochemical Oxygen Demand	NA	NA	<2	<1.0	NA	NA	NA	NA	22
Chemical Oxygen Demand	<10	110	<10	<10	NA	NA	460	500	550
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	<1	<1	<1	<1	0.60 B	<1.0	130	110	140

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-6					GM-7				
Top of Screen Depth (ft bls)	165	165	165	165	165	145	145	145	145	145
Sample Date	06/28/97	10/22/97	10/10/98	04/19/99	07/19/00	06/29/97	10/11/97	10/23/98	05/01/99	09/23/03
Sample I.D.	GWGM-6	GM-6	GWGM-6	GWGM-6	GWGM-6	GWGM-7	GM-7	GWGM-7	GWGM-7	GM-7
Biochemical Oxygen Demand	NA	NA	5.8 J	16	19	NA	NA	13 J	9.1	<2.0
Chemical Oxygen Demand	190	150	130	<500 M	160 J	17	17	<10	14	33
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	57 J	44	47	43	47	4 J	4	4.3	4	1.9

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-7 (continued)	GM-8					GM-9			
Top of Screen Depth (ft bls)	145	79	79	79	79	79	164	164	164	164
Sample Date	05/03/04	06/30/97	10/12/97	10/09/98	04/13/99	10/21/99	10/13/97	10/11/98	04/18/99	09/10/03
Sample I.D.	GWGM-7 (5/3/04)	GWGM-8	GM-8	GWGM-8	GWGM-8	GM-8	GM-9	GWGM-9	GWGM-9	GM-9
Biochemical Oxygen Demand	<2.0	NA	NA	<2 J	<1.0	<2.0	NA	<2 J	<1.0	<2.0
Chemical Oxygen Demand	<20	12	53	<10	100	<20	17	<10	15	<20
Dissolved Organic Carbon	NA	NA	NA	NA	NA	<1.0	NA	NA	NA	NA
Total Organic Carbon	0.76 B	1	<1	1	<1	<1.0	2	3.5	4.5	2.4

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-9 (continued)		GM-10			GM-11	GM-12	
Top of Screen Depth (ft bls)	164	164	170	170	170	174.7	290	290
Sample Date	05/03/04	07/28/05	10/14/97	11/06/98	04/27/99	10/15/97	10/22/97	10/10/98
Sample I.D.	GWGM-9 (5/3/04)	GWGM-9 (072805)	GM-10	GWGM-10	GWGM-10	GM-11	GM-12	GWGM-12
Biochemical Oxygen Demand	<2.0	<2.0	NA	<2 J	<1.0	NA	NA	<2 J
Chemical Oxygen Demand	16 J	6.6 J	<10	<10	<10	<10	<10	<10
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	3.9	52	<1	1	1.2	<1	1	1.4

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-12 (continued)	GM-13			GM-14			GM-15
Top of Screen Depth (ft bls)	290	325	325	325	135	135	135	165
Sample Date	04/19/99	10/22/97	04/20/99	05/18/04	10/21/97	10/28/98	05/02/99	10/20/97
Sample I.D.	GWGM-12	GM-13	GWGM-13	GWGM-13 (5/18/04)	GM-14	GWGM-14	GWGM-14	GM-15
Biochemical Oxygen Demand	<1.0	NA	5.1	14	NA	3.6 J	7.4	NA
Chemical Oxygen Demand	<10	58	1,200	75	<10	<10	<10	26
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	1.7	16	23	20	3	3.6	5	2

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-15 (continued)				GM-16			
Top of Screen Depth (ft bls)	165	165	165	165	108	108	108	108
Sample Date	10/11/98	04/20/99	05/10/04	05/10/04	10/22/97	10/22/97	10/09/98	04/14/99
Sample I.D.	GWGM-15	GWGM-15	GWGM-15 (5/10/04)	GWGM-996 (5/10/04)	GM-16	GM-78	GWGM-16	GWGM-16
Biochemical Oxygen Demand	3.3 J	1.4	<2.0	<2.0	NA	NA	<2 J	1.2
Chemical Oxygen Demand	<10	<10	<20	<20	<10	<10	<10	<10
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	2.9	2.8	2.7	2.6	<1	<1	<1	1

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-16 (continued)		GM-17				GM-18	
Top of Screen Depth (ft bls)	108	108	224.3	224.3	224.3	224.3	50	50
Sample Date	09/23/03	04/27/04	10/28/97	10/12/98	04/26/99	05/01/04	12/04/97	11/07/98
Sample I.D.	GM-16	GWGM-16 (4/27/04)	GM-17	GWGM-17	GWGM-17	GWGM-17 (5/1/04)	GM-18	GWGM-18
Biochemical Oxygen Demand	<2.0	<2.0	NA	5.3 J	1.7	NA	NA	<2 J
Chemical Oxygen Demand	<20	<20	13	<10	<10	NA	<10	<10
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	<1.0	0.75 B	2	2.8	1.6	3	<1	<1

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-19	GM-20	GM-21			GM-22			GM-23	
Top of Screen Depth (ft bls)	46	42	5	5	5	6	6	6	3.5	3.5
Sample Date	12/04/97	12/05/97	12/03/97	12/03/97	10/13/98	12/05/97	10/10/98	04/13/99	12/03/97	10/10/98
Sample I.D.	GM19	GM-20	GM-21	GM-95	GWGM-21	GM-22	GWGM-22	GWGM-22	GM-23	GWGM-23
Biochemical Oxygen Demand	NA	NA	NA	NA	<2 J	NA	<2 J	1.5	NA	<2 J
Chemical Oxygen Demand	<10	<140	<35	<26	17	<52	<10	35	220	<10
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	<1	9	7	7	6.2	2	1.1	17	2	2.7

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-23 (continued)		GM-24A		GM-24B		
Top of Screen Depth (ft bls)	3.5	3.5	71	71	104	104	104
Sample Date	05/12/04	05/12/04	11/09/98	05/04/99	11/17/98	11/17/98	05/05/99
Sample I.D.	GWGM-23 (5/12/04)	GWGM-995 (5/12/04)	GWGM-24A	GWGM-24A	GWGM-24B	GWGM-94	GWGM-24B
Biochemical Oxygen Demand	<2.0	<2.0	2.6	3.6	<2	<2	1.4
Chemical Oxygen Demand	16 J	19 J	<10	<10	13	<10	<10
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	5.6	5.7	2	<1	3.4	3.4	2.7

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-24B (continued)	GM-24C					GM-25A
Top of Screen Depth (ft bls)	104	193	193	193	193	193	19
Sample Date	04/29/04	11/20/98	11/20/98	05/13/99	09/24/03	04/29/04	10/06/98
Sample I.D.	GWGM-24B (4/29/04)	GWGM-24C	GWGM-93	GWGM-24C	GM-24C	GWGM-24C (4/29/04)	GWGM-25A
Biochemical Oxygen Demand	<2.0	<2 J	<2 J	3.4	<2.0	<2.0	25 J
Chemical Oxygen Demand	<20	<10	<10	<10	<20	<20	440
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	2.1	1.4	1.5	2.7	2.2	<1.0	140

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25A (continued)			GM-25B				
Top of Screen Depth (ft bls)	19	19	19	98	98	98	98	98
Sample Date	04/16/99	09/09/03	05/12/04	10/06/98	04/27/99	10/20/99	09/09/03	05/18/04
Sample I.D.	GWGM-25A	GM-25A	GWGM-25A (5/12/04)	GWGM-25B	GWGM-25B	GM-25B	GM-25B	GWGM-25B (5/18/04)
Biochemical Oxygen Demand	17	15	22	4,400 J	>250	3,600	3,600	4,000
Chemical Oxygen Demand	<500 M	280	280	5,900	7,000	6,000	6,600	6,700
Dissolved Organic Carbon	NA	NA	NA	NA	NA	2,700	NA	NA
Total Organic Carbon	160	87	75	2,200	2,800	2,700	2,300	2,300

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25B (continued)		GM-25C					
Top of Screen Depth (ft bls)	98	98	206	206	206	206	206	206
Sample Date	05/31/06	07/17/06	11/09/98	11/09/98	04/20/99	08/02/00	09/15/03	05/04/04
Sample I.D.	GM-25B (5/31/06)	GM-25B	GWGM-25C	GWGM-95	GWGM-25C	GWGM-25C	GM-25C	GWGM-25C (5/4/04)
Biochemical Oxygen Demand	NA	NA	9.2	8.4	13	11	46	11
Chemical Oxygen Demand	6,500	6,900	73	70	120	150 J	210	250
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	1,100	2,000	33	32	39	51	63	73

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25C (continued)	GM-26A				GM-26B	
Top of Screen Depth (ft bls)	206	30	30	30	30	101	101
Sample Date	08/01/05	10/07/98	04/14/99	09/09/03	05/13/04	10/07/98	04/15/99
Sample I.D.	GWGM-25C (08/01/05)	GWGM-26A	GWGM-26A	GM-26A	GWGM-26A (5/13/04)	GWGM-26B	GWGM-26B
Biochemical Oxygen Demand	17	NA	30	21	42	7.2 J	<1.0
Chemical Oxygen Demand	280	340 J	1,000	460	650	<10	<10
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	84	120	200	150	190	1	<1

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26B (continued)				GM-26C		
Top of Screen Depth (ft bls)	101	101	101	101	160	160	160
Sample Date	07/18/00	09/09/03	04/27/04	07/28/05	10/25/98	04/17/99	09/16/03
Sample I.D.	GWGM-26B	GM-26B	GWGM-26B (4/27/04)	GWGM-26B (072805)	GWGM-26C	GWGM-26C	GM-26C
Biochemical Oxygen Demand	<2.0	<2.0	<2.0	<2.0	7.8 J	22	43
Chemical Oxygen Demand	<20 J	<20	<20	<20	140	610	1,000
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	<1.0	1	<1.0	0.70 J	180	180	290

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26C (continued)		GM-27A			
Top of Screen Depth (ft bls)	160	160	30	30	30	30
Sample Date	05/18/04	05/18/04	10/08/98	04/15/99	09/10/03	05/13/04
Sample I.D.	GWGM-26C (5/18/04)	GWGM-994 (5/18/04)	GWGM-27A	GWGM-27A	GM-27A	GWGM-27A (5/13/04)
Biochemical Oxygen Demand	58	60	13 J	6.9	44	40
Chemical Oxygen Demand	1,000	1,000	400	<500 M	610	550
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA
Total Organic Carbon	290	290	150	200	160	160

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27A (continued)			GM-27B				
Top of Screen Depth (ft bls)	30	30	30	145	145	145	145	145
Sample Date	04/24/06	05/26/06	07/14/06	10/26/98	04/14/99	07/18/00	09/10/03	04/30/04
Sample I.D.	GM-27A (4/24/06)	GM-27A (5/26/06)	GM-27A	GWGM-27B	GWGM-27B	GWGM-27B	GM-27B	GWGM-27B (4/30/04)
Biochemical Oxygen Demand	NA	NA	NA	8.9 J	3.4	<2.0	<2.0	<2.0 *F70
Chemical Oxygen Demand	360	350	290	13	<10	<20 J	<20	<20
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	98	98	92	5.5	2.2	<1.0	<1.0	<1.0

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)				
Top of Screen Depth (ft bls)	145	145	145	145	145
Sample Date	04/30/04	08/05/05	12/07/06	02/22/07	05/11/07
Sample I.D.	GWGM-998 (4/30/04)	GWGM-27B (08/05/05)	GWGM27B (12/7/06)	GWGM-27B (2/22/07)	GWGM-27B(5/11/07)
Biochemical Oxygen Demand	<2.0 *F70	<2.0	<2.0	<2.0 H	<2.0
Chemical Oxygen Demand	<20	<20	0	23	0
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	<1.0	<1.0	<1.0	<1.0	<1.0

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)		GM-27C				
Top of Screen Depth (ft bls)	145	145	210	210	210	210	210
Sample Date	08/08/07	11/08/07	11/09/98	04/26/99	04/26/99	08/07/00	09/11/03
Sample I.D.	GWGM-27B (8/8/07)	GWGM-27B (11/8/07)	GWGM-27C	GWGM-27C	GWGM-86	GMGW-27C	GM-27C
Biochemical Oxygen Demand	<2.0	<2.0 *	<2 J	<1.0	<1.0	<2.0	<2.0
Chemical Oxygen Demand	0	95	16	<10	<10	<20	<20
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	<1.0	<1.0	<1	1.2	1.4	<1.0	1.2

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27C (continued)		GM-28A			
Top of Screen Depth (ft bls)	210	210	40	40	40	40
Sample Date	04/30/04	08/05/05	10/28/98	04/19/99	07/19/00	04/28/04
Sample I.D.	GWGM-27C (4/30/04)	GWGM-27C (08/05/05)	GWGM-28A	GWGM-28A	GWGM-28A	GWGM-28A (4/28/04)
Biochemical Oxygen Demand	<2.0 *F70	<2.0	16 J	19	<2.0	<2.0
Chemical Oxygen Demand	<20	<20	<10	<10	<20 J	19 J
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA
Total Organic Carbon	<1.0	1.3	1.6	1.5	2.6	2.9

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)				
Top of Screen Depth (ft bls)	40	40	40	40	40
Sample Date	07/26/05	07/26/05	12/05/06	02/21/07	05/10/07
Sample I.D.	GWGM28A (072605)	GWGM-999 (7/26/05)	GWGM-28A(12/5/06)	GWGM-28A (2/21/07)	GWGM-28A (5/10/07)
Biochemical Oxygen Demand	<2.0	<2.0	<2.0	<2.0	<2.0
Chemical Oxygen Demand	25	14 J	31	15	26
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	3.6	3.8	0.93 J	1.2	1.4

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)		GM-28B				
Top of Screen Depth (ft bls)	40	40	124.5	124.5	124.5	124.5	124.5
Sample Date	08/07/07	11/05/07	11/08/98	11/08/98	04/19/99	04/19/99	04/28/04
Sample I.D.	GWGM-28A (8/7/07)	GWGM-28A (11/5/07)	GWGM-28B	GWGM-96	GWGM-28B	GWGM-87	GWGM-28B (4/28/04)
Biochemical Oxygen Demand	<2.0	<2.0 *	<2	<2	<1.0	<1.0	<2.0
Chemical Oxygen Demand	1	35	<10	<10	<10	<10	<20
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	0.99 J	0.84 J	<1	<1	<1	<1	<1.0

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)				
Top of Screen Depth (ft bls)	124.5	124.5	124.5	124.5	124.5
Sample Date	04/28/04	07/26/05	12/05/06	02/21/07	05/10/07
Sample I.D.	GWGM-999 (4/28/04)	GWGM28B (072605)	GWGM-28B(12/5/06)	GWGM-28B (2/21/07)	GWGM-28B (5/10/07)
Biochemical Oxygen Demand	<2.0	<2.0	<2.0	<2.0	<2.0
Chemical Oxygen Demand	<20	<20	0	0	6
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	<1.0	<1.0	0.60 J	0.66 J	<1.0

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)		GM-29		
Top of Screen Depth (ft bls)	124.5	124.5	55	55	55
Sample Date	08/07/07	11/05/07	07/28/05	12/08/06	02/20/07
Sample I.D.	GWGM-28B (8/7/07)	GWGM-28B (11/5/07)	GWGM-29 (07/28/05)	GWGM-29 (12/8/06)	GWGM-29 (2/20/07)
Biochemical Oxygen Demand	<2.0	<2.0 *	<2.0	2.7	<2.0
Chemical Oxygen Demand	0	15	25	1	65
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	<1.0	0.62 J	6.4	10	18

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)				GM-30		
Top of Screen Depth (ft bls)	55	55	55	55	75	75	75
Sample Date	05/09/07	08/07/07	11/06/07	11/06/07	10/27/98	05/12/99	05/12/99
Sample I.D.	GWGM-29 (5/9/07)	GWGM-29 (8/7/07)	DUP-999(11/6/07)	GWGM-29(11/6/07)	GWGM-30	GWGM-30	GWGM-83
Biochemical Oxygen Demand	2.5	<2.0	<2.0 *	<2.0 *	10 J	5.6	5
Chemical Oxygen Demand	79	37	NA	18	<10	<10	20
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	22	12	7.3	7.2	5.4	4	4.1

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-31		GM-32				GM-33	GM-34A	
Top of Screen Depth (ft bls)	105	105	135	135	135	135	74	30	30
Sample Date	10/24/98	05/03/99	10/25/98	04/27/99	09/25/03	05/26/04	05/10/99	10/08/98	04/17/99
Sample I.D.	GWGM-31	GWGM-31	GWGM-32	GWGM-32	GM-32	GWGM-32(5/26/04)	GWGM-33	GWGM-34A	GWGM-34A
Biochemical Oxygen Demand	2.6 J	3.9	2,500 GJ	>250	3,800	3,600	23	<2 J	1.1
Chemical Oxygen Demand	<10	<10	9,200	11,000	7,700	6,500	16	<10	<10
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	1	1.3	3,100	4,300	3,000	2,100	<1	<1	1

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-34A (continued)	GM-34B				GM-35		
Top of Screen Depth (ft bls)	30	85	85	85	85	40	40	40
Sample Date	04/29/04	10/12/98	04/14/99	09/24/03	04/28/04	11/04/98	05/04/99	05/04/99
Sample I.D.	GWGM-34A (4/29/04)	GWGM-34B	GWGM-34B	GM-34B	GWGM-34B (4/28/04)	GWGM-35	GWGM-35	GWGM-84
Biochemical Oxygen Demand	<2.0	<2 J	1.2	<2.0	<2.0	<2	1.1	1.3
Chemical Oxygen Demand	<20	<10	<10	<20	<20	<10	13	11
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	<1.0	1.8	1.6	1.6	<1.0	3.8	3.9	3.9

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
—	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-36			GM-37A			
Top of Screen Depth (ft bls)	95	95	95	144	144	144	144
Sample Date	11/03/98	05/05/99	05/04/04	11/18/98	05/11/99	09/25/03	05/17/04
Sample I.D.	GWGM-36	GWGM-36	GWGM-36 (5/4/04)	GWGM-37A	GWGM-37A	GM-37A	GWGM-37A (5/17/04)
Biochemical Oxygen Demand	<2 J	1.1	<2.0	300	875	64	500
Chemical Oxygen Demand	<10	<10	12 J	1,300	1,400	590	920
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	1.2	1.1	<1.0	590	710	170	280

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-37B				GM-38A			GM-38B
Top of Screen Depth (ft bls)	328	328	328	328	95	95	95	160
Sample Date	10/13/98	05/14/99	09/25/03	05/27/04	10/13/98	10/13/98	04/15/99	10/14/98
Sample I.D.	GWGM-37B	GWGM-37B	GM-37B	GWGM-37B (5/27/04)	GWGM-38A	GWGM-98	GWGM-38A	GWGM-38B
Biochemical Oxygen Demand	3,000 J	3,390	880	1,200	<2 J	<2 J	1.1	2.2 J
Chemical Oxygen Demand	6,400	4,500	2,600	340	<10	<10	75	<10
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	2,100	2,100	1,100	930	<1	<1	<1	2.5

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-38B (continued)	GM-38C			GM-39			GM-40A
Top of Screen Depth (ft bls)	160	200	200	200	85	85	85	75
Sample Date	04/29/99	10/20/98	10/20/98	04/30/99	10/12/98	04/15/99	04/15/99	10/26/98
Sample I.D.	GWGM-38B	GWGM-38C	GWGM-97	GWGM-38C	GWGM-39	GWGM-39	GWGM-89	GWGM-40A
Biochemical Oxygen Demand	1.8	<2 J	<2 J	1.3	5.9 J	4.9	4.4	<2
Chemical Oxygen Demand	<10	<10	<10	<10	<10	<10	<10	<10
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	3	1.7	2	2.5	1.4	1.5	1.5	<1

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-40A (continued)		GM-40B			GM-41	
Top of Screen Depth (ft bls)	75	75	120	120	120	40	40
Sample Date	04/28/99	05/03/04	10/26/98	04/27/99	05/19/04	10/19/98	04/16/99
Sample I.D.	GWGM-40A	GWGM-40A (5/3/04)	GWGM-40B	GWGM-40B	GWGM-40B (5/19/04)	GWGM-41	GWGM-41
Biochemical Oxygen Demand	<1.0	<2.0	53 J	>250	2,700	9.5 J	3.1
Chemical Oxygen Demand	<10	<20	5,300	5,300	4,100	<10	<10
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	<1	<1.0	2,300	2,000	1,300	3.4	2.8

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-42		GM-49	GM-50		GM-51		GM-52	GM-53A
Top of Screen Depth (ft bls)	72	72	83.5	80.5	80.5	67	67	75	79
Sample Date	10/20/98	04/16/99	04/17/99	10/14/98	04/17/99	10/20/98	04/18/99	04/19/99	04/19/99
Sample I.D.	GWGM-42	GWGM-42	GWGM-49	GWGM-50	GWGM-50	GWGM-51	GWGM-51	GWGM-52	GWGM-53A
Biochemical Oxygen Demand	3.4 J	1.3	7.5	16 J	8.1	<2	4.7	13	2.1
Chemical Oxygen Demand	11	21	13	<10	<10	<10	<10	<10	10
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	6.1	5.9	4.7	<1	1.3	<1	<1	1	1.7

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-53B		GM-54		GM-55			GM-56	
Top of Screen Depth (ft bls)	195	195	80	80	75	75	75	32	32
Sample Date	11/05/98	05/01/99	10/24/98	05/01/99	10/24/98	05/01/99	05/01/99	10/21/98	04/20/99
Sample I.D.	GWGM-53B	GWGM-53B	GWGM-54	GWGM-54	GWGM-55	GWGM-55	GWGM-85	GWGM-56	GWGM-56
Biochemical Oxygen Demand	31 J	30	<2 J	<1.0	11 J	15	12	<2	<1.0
Chemical Oxygen Demand	200	170	<10	<10	<10	<10	<10	<10	<10
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	78	<1	<1	<1	1.6	1.4	1.3	1.5	1.1

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-57	GM-58	GM-59			GM-60	GM-61	
Top of Screen Depth (ft bls)	76	75	114	114	114	102	138	138
Sample Date	04/20/99	04/26/99	11/17/98	04/28/99	05/01/04	05/12/99	05/03/99	05/01/04
Sample I.D.	GWGM-57	GWGM-58	GWGM-59	GWGM-59	GWGM-59 (5/1/04)	GWGM-60	GWGM-61	GWGM-61 (5/1/04)
Biochemical Oxygen Demand	5.5	5.9	<2	<1.0	NA	5.1	2.9	NA
Chemical Oxygen Demand	<10	<10	<10	<10	NA	<10	<10	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	<1	<1	1.8	1.8	0.68 B	2.1	2.8	<1.0

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-62A		GM-62B			GM-62C	
Top of Screen Depth (ft bls)	90	90	195	195	195	315	315
Sample Date	08/23/99	05/11/04	08/24/99	08/24/99	05/19/04	08/24/99	05/18/04
Sample I.D.	GWGM-62A	GWGM-62A (5/11/04)	GWGM-62B	GWGM-82	GWGM-62B (5/19/04)	GWGM-62C	GWGM-62C (5/18/04)
Biochemical Oxygen Demand	<2.0	<2.0	2,300	2,700	720	1,000	140
Chemical Oxygen Demand	93	82	4,100	3,700	1,600	1,900	480
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	37	25	1,700	1,700	490	820	150

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-63A				GM-63B			GM-64A
Top of Screen Depth (ft bls)	45	45	45	45	105	105	105	33
Sample Date	08/29/00	09/19/00	09/15/03	05/05/04	02/07/01	09/11/03	04/27/04	08/30/00
Sample I.D.	GWGM-63A	GWGM-63A	GM-63A	GWGM-63A (5/5/04)	GWGM-63B	GM-63B	GWGM-63B (4/27/04)	GWGM-64A
Biochemical Oxygen Demand	7.9	20	3.8	20	<2.0	<2.0	<2.0	<2.0
Chemical Oxygen Demand	240	240	180	260	<20	<20	12 J	110
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	70	77	51	76	<1.0	<1.0	<1.0	29

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-64A (continued)			GM-64B			GM-66A	
Top of Screen Depth (ft bls)	33	33	33	117	117	117	27	27
Sample Date	10/03/00	09/08/03	05/04/04	07/24/00	09/08/03	05/11/04	07/18/00	09/16/03
Sample I.D.	GWGM-64A	GM-64A	GWGM-64A (5/4/04)	GWGM-64B	GM-64B	GWGM-64B (5/11/04)	GWGM-66A	GM-66A
Biochemical Oxygen Demand	<2.0	<2.0	2.7	37	9.1	8.4	<2.0	<2.0
Chemical Oxygen Demand	72	69	120	200 J	220	220	<20 J	<20
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	22	18	32	63	67	63	<1.0	2

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66A (continued)		GM-66B			
Top of Screen Depth (ft bls)	27	27	125	125	125	125
Sample Date	04/27/04	07/27/05	07/19/00	08/03/00	09/11/03	05/10/04
Sample I.D.	GWGM-66A (4/27/04)	GWGM66A (072705)	GWGM-66B	GMGW-66B	GM-66B	GWGM-66B (5/10/04)
Biochemical Oxygen Demand	<2.0	<2.0	18	11	9.4	6.5
Chemical Oxygen Demand	12 J	11 J	200 J	210	90	180
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA
Total Organic Carbon	<1.0	0.72 J	67	64	54	50

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)				
Top of Screen Depth (ft bls)	125	125	125	125	125
Sample Date	07/27/05	12/08/06	03/01/07	05/14/07	05/14/07
Sample I.D.	GWGM66B (072705)	GWGM-66B (12/8/06)	GWGM-66B (3/1/07)	GWGM-66B(5/14/07)	GWGM-999 (5/14/07)
Biochemical Oxygen Demand	3.3	7.8	<2.0 H	3.2	2.6
Chemical Oxygen Demand	170	52	20	82	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	48	21	22	22	22

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)		GM-67		GM-68		GM-70
Top of Screen Depth (ft bls)	125	125	122	122	140	140	42
Sample Date	08/14/07	11/09/07	08/07/00	05/01/04	08/31/00	09/26/00	08/17/00
Sample I.D.	GWGM-66B (8/14/07)	GWGM-66B (11/9/07)	GWGM-67	GWGM-67 (5/1/04)	GWGM-68	GWGM-68	GWGM-70
Biochemical Oxygen Demand	2.7	<2.0 *	<3.0	NA	<2.0	<2.0	<2.0 J
Chemical Oxygen Demand	76	57	24	NA	<20	<20	380
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	24	23	5.5	3.9	<1.0	<1.0	120

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-71	GM-72				GM-72A	
Top of Screen Depth (ft bls)	39	43	43	43	43	46	46
Sample Date	08/21/00	08/22/00	09/24/03	01/05/04	04/16/04	11/08/07	07/25/05
Sample I.D.	GWGM-71	GWGM-72	GM-72	GWGM-72	GM-72	GWGM-72A (11/8/07)	GWGM-72A (07/25/05)
Biochemical Oxygen Demand	<2.0	65	64	38	48	<2.0 *	150
Chemical Oxygen Demand	29	950	1,000	1,100	950	612	1,400
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	8.9	270	280	290	270	180	350

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-72A (continued)	GM-73	GM-74	GM-75	GM-77		
Top of Screen Depth (ft bls)	46	42	34	24	105	105	105
Sample Date	12/12/06	09/06/00	09/07/00	09/08/00	09/22/03	05/11/04	07/28/05
Sample I.D.	GWGM-72A (12/12/06)	GWGM-73	GWGM-74	GWGM-75	GM-77	GWGM-77 (5/11/04)	GWGM-77 (072805)
Biochemical Oxygen Demand	40 H	<2.0	<2.0	<2.0	6.5	6.3	5.6
Chemical Oxygen Demand	NA	27	<20	210 J	200	140	180
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	280	5	<1.0	2.9	59	40	2.8

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78				
Top of Screen Depth (ft bls)	20	20	20	20	20
Sample Date	04/29/04	07/29/05	07/29/05	12/08/06	02/28/07
Sample I.D.	GWGM-78 (4/29/04)	GWGM-78 (7/29/05)	GWGM-998 (7/29/05)	GWGM-78 (12/8/06)	GWGM-78 (2/28/07)
Biochemical Oxygen Demand	<2.0	<2.0	<2.0	2.3	<2.0
Chemical Oxygen Demand	26	37	35	0	0
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	5.1	9.2	9	4.3	2.9

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)				GM-79
Top of Screen Depth (ft bls)	20	20	20	20	25
Sample Date	02/28/07	05/11/07	08/14/07	11/08/07	09/18/03
Sample I.D.	GWGM-998 (2/28/07)	GWGM-78(5/11/07)	GWGM78 (8/14/07)	GWGM-78 (11/8/07)	GM-79 (9/18/03)
Biochemical Oxygen Demand	<2.0	<2.0	<2.0 H	<2.0 *	<2.0
Chemical Oxygen Demand	NA	19	6	42	<20
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	3	2	2.2	1.9	8

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)				
Top of Screen Depth (ft bls)	25	25	25	25	25
Sample Date	04/26/04	07/29/05	12/04/06	02/22/07	02/22/07
Sample I.D.	GWGM-79 (4/26/04)	GWGM-79 (7/29/05)	GWGM-79(12/4/06)	GWGM-79 (2/22/07)	GWGM-999 (2/22/07)
Biochemical Oxygen Demand	<2.0	<2.0	<2.0	2.2 H	2.2 H
Chemical Oxygen Demand	28	32	24	33	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	8.8	9.3	1.7	4.3	4

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)			GM-84	
Top of Screen Depth (ft bls)	25	25	25	77	77
Sample Date	05/09/07	08/07/07	11/06/07	08/19/04	08/01/05
Sample I.D.	GWGM-79 (5/9/07)	GWGM-79 (8/7/07)	GWGM-79(11/6/07)	GWGM-84 (8/19/04)	GWGM-84 (08/01/05)
Biochemical Oxygen Demand	2.4	<2.0	<2.0 *	<2.0	<2.0
Chemical Oxygen Demand	7	9	10	15 J	<20
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	1.9	2	1.9	0.62 B	<1.0

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	**GM-84 (continued)**				
Top of Screen Depth (ft bls)	**77**	**77**	**77**	**77**	**77**
Sample Date	**12/12/06**	**03/02/07**	**05/14/07**	**08/14/07**	**11/09/07**
Sample I.D.	**GWGM-84 (12/12/06)**	**GWGM-84 (3/2/07)**	**GWGM-84 (5/14/07)**	**GWGM-84 (8/14/07)**	**GWGM-84(11/9/07)**
Biochemical Oxygen Demand	<2.0	<2.0	<2.0	<2.0	<2.0 *
Chemical Oxygen Demand	0	0	8	2	0
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	<1.0	0.52 J	<1.0	<1.0	<1.0

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A				
Top of Screen Depth (ft bls)	32	32	32	32	32
Sample Date	12/05/06	12/05/06	02/19/07	05/08/07	08/06/07
Sample I.D.	GWGM-87A (12/5/06)	GWGM-999(12/5/06)	GWGM-87A (02/19/07)	GWGM-87A (5/8/07)	GWGM-87A (8/6/07)
Biochemical Oxygen Demand	<2.0	<2.0	<2.0	<2.0	2.4
Chemical Oxygen Demand	20	NA	11	0	44
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	7.8	7.9	7.3	6.8	5.5

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)	GM-87B			
Top of Screen Depth (ft bls)	32	117	117	117	117
Sample Date	11/07/07	12/05/06	02/20/07	05/08/07	08/06/07
Sample I.D.	GWGM-87A (11/7/07)	GWGM-87A(12/5/06)	GWGM-87B (2/20/07)	GWGM-87B (5/8/07)	GWGM-87B (8/6/07)
Biochemical Oxygen Demand	<2.0 *	4.2	5.3	6.2	3.8
Chemical Oxygen Demand	28	3	10	30	8
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	2.5	1.9	3.4	3.7	2.6

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87B (continued)	GM-118D		GMEW-1			
Top of Screen Depth (ft bls)	117	54	54	20	20	20	20
Sample Date	11/07/07	10/21/98	04/29/99	09/21/00	04/24/06	05/26/06	07/14/06
Sample I.D.	GWGM-87B (11/7/07)	GWGM-118D	GWGM-118D	GMEWGW-1	GMEW-1 (4/24/06)	GMEW-1 (5/26/06)	GMEW-1
Biochemical Oxygen Demand	<2.0 *	<2	1.1	94 J	NA	NA	NA
Chemical Oxygen Demand	4	<10	<10	NA	210	250	320
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	2.2	1.2	<1	200	62	71	100

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEW-2	GMEW-3	GMEWA-1	GMEWA-2	GMEWA-3	GMEWA-4	
Top of Screen Depth (ft bls)	23	135	26	26	25	20	20
Sample Date	09/21/00	07/24/00	04/11/05	04/12/05	04/12/05	04/12/05	08/02/05
Sample I.D.	GMEWGW-2	GWGMEW-3	GWGMEWA-1	GWGMEWA-2	GWGMEWA-3	GWGMEWA-4	GWGMEWA4 (08/02/05)
Biochemical Oxygen Demand	730	6,500	<2.0	35	44	4	110
Chemical Oxygen Demand	NA	7,700 J	20	210	400	82	520
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	600	2,300	1	64	140	27	140

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWA-18		GMEWA-19		GMEWA-20	
Top of Screen Depth (ft bls)	18	18	19	19	19	19
Sample Date	04/24/06	07/14/06	04/24/06	07/14/06	04/24/06	07/14/06
Sample I.D.	GMEWA-18 (4/24/06)	GMEWA-18	GMEWA-19 (4/24/06)	GMEWA-19	GMEWA-20 (4/24/06)	GMEWA-20 (7/14/2006)
Biochemical Oxygen Demand	NA	NA	NA	NA	NA	NA
Chemical Oxygen Demand	1,000	920	790	450	870	670
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA
Total Organic Carbon	340	310	250	300	290	440

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWA-21		GMEWA-22		GMEWA-25	
Top of Screen Depth (ft bls)	23	23	24	24	23	23
Sample Date	04/24/06	07/14/06	04/24/06	07/14/06	04/24/06	05/26/06
Sample I.D.	GMEWA-21 (4/24/06)	GMEWA-21	GMEWA-22 (4/24/06)	GMEWA-22	GMEWA-25 (4/24/06)	GMEWA-25 (5/26/06)
Biochemical Oxygen Demand	NA	NA	NA	NA	NA	NA
Chemical Oxygen Demand	730	700	1,000	660	490	160
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA
Total Organic Carbon	220	230	330	440	150	47

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWA-25 (continued)	GMEWA-26		GMEWA-27
Top of Screen Depth (ft bls)	23	22	22	21
Sample Date	07/14/06	04/15/05	07/27/05	04/13/05
Sample I.D.	GMEWA-25	GWGMEWA-26 (4/15/05)	GWGMEWA-26 (072705)	GWGMEWA-27 (4/13/05)
Biochemical Oxygen Demand	NA	5.6	9.5	NA
Chemical Oxygen Demand	150	140	290	13 J
Dissolved Organic Carbon	NA	NA	NA	NA
Total Organic Carbon	46	44	82	3.1

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWA-27 (continued)	GMEWA-28	GMEWC-1	GMEWC-1A
Top of Screen Depth (ft bls)	21	25	123	117.5
Sample Date	04/13/05	04/13/05	07/26/05	04/14/05
Sample I.D.	GWGMEWA-999 (4/13/05)	GWGMEWA-28 (4/13/05)	GWGMEWC-1 (072605)	GWGMEWC-1A (117.5-142.5)
Biochemical Oxygen Demand	NA	NA	7.7	<2.0
Chemical Oxygen Demand	8.4 J	15 J	200	13 J
Dissolved Organic Carbon	NA	NA	NA	NA
Total Organic Carbon	2.9	2.9	56	2.7

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMEWC-1A (continued)	GMEWC-2A		GMPZA-24	
Top of Screen Depth (ft bls)	117.5	133	133	23	23
Sample Date	04/14/05	05/31/06	07/17/06	04/24/06	05/26/06
Sample I.D.	GWGMEWC-1A (152.5-157.5)	GMEWC-2A (5/31/06)	GMEWC-2A	GMPZA-24 (4/24/06)	GMPZA-24 (5/26/06)
Biochemical Oxygen Demand	2.6	NA	NA	NA	NA
Chemical Oxygen Demand	92	310	280	91	83
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	31	88	89	23	22

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-24 (continued)	GMPZA-25			GMPZA-26	
Top of Screen Depth (ft bls)	23	25	25	25	20	20
Sample Date	07/14/06	04/24/06	05/26/06	07/14/06	07/24/06	12/06/06
Sample I.D.	GMPZA-24	GMPZA-25 (4/24/06)	GMPZA-25 (5/26/06)	GMPZA-25	GMPZA-26	GWGMPZA-26 (12/06/06)
Biochemical Oxygen Demand	NA	NA	NA	NA	NA	42
Chemical Oxygen Demand	110	190	140	140	530	214
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA
Total Organic Carbon	35	52	40	46	180	71

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-26 (continued)		GMPZA-28		GMPZA-29
Top of Screen Depth (ft bls)	20	20	18	18	18
Sample Date	02/27/07	08/13/07	04/24/06	07/14/06	04/24/06
Sample I.D.	GWGMPZA-26 (2/27/07)	GWGMPZA-26 (8/13/07)	GMPZA-28 (4/24/06)	GMPZA-28 (7/14/2006)	GMPZA-29 (4/24/06)
Biochemical Oxygen Demand	7.4	3.7	NA	NA	NA
Chemical Oxygen Demand	83	37	1,900	2,900	1,300
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	27	15	610	890	1,000

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-29 (continued)				
Top of Screen Depth (ft bls)	18	18	18	18	18
Sample Date	05/26/06	07/14/06	12/06/06	02/26/07	08/10/07
Sample I.D.	GMPZA-29 (5/26/06)	GMPZA-29 (7/14/2006)	GWGMPZA-29 (12/6/06)	GWGMPZA-29 (2/26/07)	GWGMPZA-29(08/10/07)
Biochemical Oxygen Demand	NA	NA	2,000	540	62
Chemical Oxygen Demand	4,200	4,000	4,480	944	39
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	1,400	1,400	1,600	330	1.5

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-30		GMPZA-34		
Top of Screen Depth (ft bls)	19	19	25	25	25
Sample Date	04/24/06	07/14/06	04/24/06	05/26/06	07/14/06
Sample I.D.	GMPZA-30 (4/24/06)	GMPZA-30 (7/14/2006)	GMPZA-34 (4/24/06)	GMPZA-34 (5/26/06)	GMPZA-34 (7/14/2006)
Biochemical Oxygen Demand	NA	NA	NA	NA	NA
Chemical Oxygen Demand	2,600	3,300	<20	<20	<20
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	870	1,100	1.9	1.6	1.2

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-34 (continued)			GMPZA-38	
Top of Screen Depth (ft bls)	25	25	25	25	25
Sample Date	12/08/06	02/26/07	08/09/07	04/24/06	05/26/06
Sample I.D.	GWGMPZA-34 (12/8/06)	GWGMPZA-34 (2/26/07)	GWGMPZA-34 (8/9/07)	GMPZA-38 (4/24/06)	GMPZA-38 (5/26/06)
Biochemical Oxygen Demand	<2.0	<2.0	<2.0	NA	NA
Chemical Oxygen Demand	0	9	11	<20	<20
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	1.2	2.2	0.85 J	1.2	0.85 J

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-38				
Top of Screen Depth (ft bls)	25	25	25	25	25
Sample Date	07/14/06	12/07/06	12/07/06	02/23/07	08/09/07
Sample I.D.	GMPZA-38 (7/14/2006)	GWGM-998 (12/7/06)	GWGMPZA38 (12/7/06)	GWGMPZA-38 (2/23/07)	GWGMPZA-38 (8/9/07)
Biochemical Oxygen Demand	NA	<2.0	<2.0	<2.0	<2.0
Chemical Oxygen Demand	<20	NA	24	19	20
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	0.78 J	0.95 J	0.84 J	0.99 J	1

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-41				
Top of Screen Depth (ft bls)	20	20	20	20	20
Sample Date	04/24/06	05/26/06	07/14/06	12/07/06	02/23/07
Sample I.D.	GMPZA-41 (4/24/06)	GMPZA-41 (5/26/06)	GMPZA-41 (7/14/2006)	GWGMPZA-41 (12/7/06)	GWGMPZA-41 (2/23/07)
Biochemical Oxygen Demand	NA	NA	NA	<2.0	<2.0
Chemical Oxygen Demand	<20	<20	8.4 J	7	14
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	1.1	0.64 J	0.60 J	0.62 J	0.66 J

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZA-41 (continued)		GMPZC-2	GMPZC-12		
Top of Screen Depth (ft bls)	20	20	134	137	137	137
Sample Date	08/08/07	08/08/07	05/30/06	05/31/06	07/17/06	12/06/06
Sample I.D.	DUP-999 (8/8/07)	GWGMPZA-41 (8/8/07)	GMPZC-2 (5/30/06)	GMPZC-12 (5/31/06)	GMPZC-12	GWGMPZC-12 (12/06/06)
Biochemical Oxygen Demand	<2.0	<2.0	<2.0	NA	NA	<2.0
Chemical Oxygen Demand	NA	0	47	160	130	45
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA
Total Organic Carbon	0.53 J	0.54 J	11	41	40	12

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-12 (continued)		GMPZC-14		
Top of Screen Depth (ft bls)	137	137	111	111	111
Sample Date	03/01/07	08/14/07	05/31/06	07/14/06	12/06/06
Sample I.D.	GWGMPZC-12 (3/1/07)	GWGMPZC-12 (8/14/07)	GMPZC-14 (5/31/06)	GMPZC-14 (7/14/2006)	GWGMPZC-14 (12/06/06)
Biochemical Oxygen Demand	<2.0 H	<2.0	NA	NA	140
Chemical Oxygen Demand	0	21	1,700	1,700	1,184
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	11	6.8	600	510	410

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-14 (continued)		GMPZC-16		GMPZC-17
Top of Screen Depth (ft bls)	111	111	118	118	125
Sample Date	02/28/07	08/10/07	05/31/06	07/14/06	05/31/06
Sample I.D.	GWGMPZC-14 (2/28/07)	GWGMPZC-14(08/10/07)	GMPZC-16 (5/31/06)	GMPZC-16	GMPZC-17 (5/31/06)
Biochemical Oxygen Demand	85	<2.0	NA	NA	NA
Chemical Oxygen Demand	483	858	660	620	12 J
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	340	340	190	200	0.54 J

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMPZC-17				
Top of Screen Depth (ft bls)	125	125	125	125	125
Sample Date	07/14/06	12/07/06	02/27/07	08/13/07	08/13/07
Sample I.D.	GMPZC-17 (7/14/2006)	GWGMPZC-17 (12/7/2006)	GWGMPZC-17 (2/27/07)	DUP-998 (8/13/07)	GWGMPZC-17 (8/13/07)
Biochemical Oxygen Demand	NA	<2.0	<2.0	<2.0	<2.0
Chemical Oxygen Demand	<20	17	0	NA	0
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Total Organic Carbon	0.73 J	0.55 J	0.84 J	0.68 J	0.73 J

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	MPMW-4	MW-1B	MW-2B	MW-5		MW-8		
Top of Screen Depth (ft bls)		86	102	83	83	133	133	133
Sample Date	02/26/02	06/27/97	06/28/97	10/22/98	04/30/99	06/29/97	06/29/97	10/24/98
Sample I.D.	GWMPMW-4 (2/26/02)	GWMW-1B	GWMW-2B	GWMW-5	GWMW-5	GWGM-99	GWMW-8	GWMW-8
Biochemical Oxygen Demand	<2.0	NA	NA	<2 J	<1.0	NA	NA	44 J
Chemical Oxygen Demand	<20	27	55	<10	<10	340	300	240
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	<1.0	7	11 J	1.6	1.4	92 J	95 J	87

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	MW-8		MW-9A	MW-10	UG-2			UG-4	
Top of Screen Depth (ft bls)	133	133	57	95	48	48	48	103	103
Sample Date	05/03/99	05/12/04	07/02/97	06/30/97	07/01/97	10/27/98	05/03/99	10/13/97	10/13/97
Sample I.D.	GWMW-8	GWMW-8 (5/12/04)	GWMW-9A	GWMW-10	GWUG-2	GWUG-2	GWUG-2	GM-79	UG-4
Biochemical Oxygen Demand	23	28	NA	NA	NA	<2 J	2.6	NA	NA
Chemical Oxygen Demand	180	200	78	40	17	<10	<10	43	<10
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	92	59	130	2	1	1	1.2	<1	1

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-13. Summary of TOC/BOD/COD/DOC Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	UG-4		UG-6
Top of Screen Depth (ft bls)	103	103	236
Sample Date	10/23/98	05/02/99	10/21/97
Sample I.D.	GWUG-4	GWUG-4	UG-6
Biochemical Oxygen Demand	<2 J	1.3	NA
Chemical Oxygen Demand	<10	<10	23
Dissolved Organic Carbon	NA	NA	NA
Total Organic Carbon	2.2	2.3	<1

Results reported in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
--	Not applicable.
>	A result is greater than the reported numerical value.
*F26	Sample BOD results increase with increasing dilutions, indicating sample toxicity. Although results are reported from the greatest sample dilution which met method criteria for oxygen depletion, the BOD concentration may be biased.
*F70	Received and analyzed outside hold time criteria per client request.
B	Constituent was also detected in laboratory blank.
BOD	Biological oxygen demand.
COD	Chemical oxygen demand.
DOC	Dissolved organic carbon.
ft bls	Feet below land surface.
J	Estimated results.
M	Matrix interference reported by laboratory.
NA	Not analyzed.
TOC	Total organic carbon.

Table 6-14. Summary of Dissolved-Phase Methane Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample I.D.	Sample Date	Depth*	Dissolved-Phase Methane	FESL Criteria
BR-2	GWBR-2	6/29/1997	75	0.023	0.52
BR-3	GWBR-3	6/28/1997	122	***2.9***	0.52
BR-5A	GWBR-5A	7/1/1997	88	***0.82***	0.52
BR-5B	GWBR-5B	7/1/1997	188	***15.8***	0.52
BR-5B	GWGM-98	7/1/1997	188	***17.1***	0.52
BR-6	GWBR-6	6/29/1997	149	0.013	0.52
CW-1	CW-1	10/14/1997	130	***19.13***	0.52
CW-1	GWCW-1	10/22/1998	130	***17.2***	0.52
CW-1	GWCW-1	4/29/1999	130	***14.6***	0.52
GM-1	GWGM-1	6/24/1997	220	***98.4***	0.52
GM-1	GM-1	10/9/1997	220	***91.7***	0.52
GM-1	GWGM-1	10/7/1998	220	***73.8***	0.52
GM-1	GWGM-1	4/16/1999	220	***165***	0.52
GM-1	GWGM-1 (4/28/04)	4/28/2004	220	***28.3***	0.52
GM-2A	GWGM-2A	7/2/1997	40	***11.7***	0.52
GM-2A	GM-2A	10/12/1997	40	***19.2***	0.52
GM-2B	GWGM-2B	6/26/1997	271	***70.7***	0.52
GM-2B	GM-2B	10/21/1997	271	***460***	0.52
GM-2B	GWGM-2B	11/22/1998	271	***218***	0.52
GM-2B	GWGM-2B	4/16/1999	271	***165***	0.52
GM-2B	GWGM-2B(5/25/04)	5/25/2004	271	***77.5***	0.52
GM-2C	GWGM-2C	11/6/1998	64	***5.6***	0.52
GM-2C	GWGM-2C	4/14/1999	64	***5.18***	0.52
GM-2C	GWGM-2C (5/4/04)	5/4/2004	64	***0.57***	0.52
GM-3A	GM-3A	10/10/1997	74	0.006	0.52
GM-3A	GWGM-3A	10/9/1998	74	0.14	0.52
GM-3A	GWGM-3A	4/13/1999	74	0.0014	0.52
GM-3A	GWGM-3A (5/11/04)	5/11/2004	74	***0.53***	0.52
GM-3B	GWGM-3B	6/26/1997	170	***127***	0.52
GM-3B	GM-3B	10/14/1997	170	***84.31***	0.52
GM-3B	GWGM-3B	10/8/1998	170	***61.7***	0.52
GM-3B	GWGM-3B	4/17/1999	170	***95.6***	0.52
GM-3B	GWGM-88	4/17/1999	170	***102***	0.52
GM-3B	GWGM-3B (5/11/04)	5/11/2004	170	***28.4***	0.52
GM-4	GWGM-4	6/26/1997	76	0.02	0.52
GM-4	GM-4	10/14/1997	76	0.0043	0.52
GM-4	GWGM-4	10/20/1998	76	0.02	0.52
GM-4	GWGM-4	4/21/1999	76	0.057	0.52
GM-4	GWGM-4 (5/22/04)	5/22/2004	76	0.065	0.52
GM-4	GWGM-4	1/8/2007	76	<0.004	0.52
GM-5	GWGM-5	7/2/1997	250	***74.4***	0.52
GM-5	GM-5	10/15/1997	250	***36.4***	0.52
GM-5	GWGM-5	4/18/1999	250	***92.2***	0.52
GM-6	GWGM-6	6/28/1997	165	***62.5***	0.52
GM-6	GM-6	10/22/1997	165	***64.8***	0.52
GM-6	GWGM-6	10/10/1998	165	***57.1***	0.52
GM-6	GWGM-6	4/19/1999	165	***25.2***	0.52
GM-6	GWGM-6	7/19/2000	165	***59.3***	0.52

Footnotes on Page 10.

Table 6-14. Summary of Dissolved-Phase Methane Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample I.D.	Sample Date	Depth*	Dissolved-Phase Methane	FESL Criteria
GM-7	GWGM-7	6/29/1997	145	***16.3***	0.52
GM-7	GM-7	10/11/1997	145	***31.7***	0.52
GM-7	GWGM-7	10/23/1998	145	***25.3***	0.52
GM-7	GWGM-7	5/1/1999	145	***31.6***	0.52
GM-7	GM-7	9/23/2003	145	***16.6***	0.52
GM-7	GWGM-7 (5/3/04)	5/3/2004	145	***20.1***	0.52
GM-8	GWGM-8	6/30/1997	79	0.02	0.52
GM-8	GM-8	10/12/1997	79	<0.0011	0.52
GM-8	GWGM-8	10/9/1998	79	0.02	0.52
GM-8	GWGM-8	4/13/1999	79	<0.0009	0.52
GM-8	GM-8	10/21/1999	79	0.051	0.52
GM-9	GM-9	10/13/1997	164	0.17	0.52
GM-9	GWGM-9	10/11/1998	164	0.24	0.52
GM-9	GWGM-9	4/18/1999	164	0.32	0.52
GM-9	GM-9	9/10/2003	164	0.037	0.52
GM-9	GWGM-9 (5/3/04)	5/3/2004	164	0.48	0.52
GM-9	GWGM-9 (072805)	7/28/2005	164	0.37	0.52
GM-10	GM-10	10/14/1997	170	0.028	0.52
GM-10	GWGM-10	11/6/1998	170	0.024	0.52
GM-10	GWGM-10	4/27/1999	170	***1.06***	0.52
GM-11	GM-11	10/15/1997	174.7	0.12	0.52
GM-12	GM-12	10/22/1997	290	0.47	0.52
GM-12	GWGM-12	10/10/1998	290	0.22	0.52
GM-12	GWGM-12	4/19/1999	290	0.27	0.52
GM-13	GM-13	10/22/1997	325	***24.8***	0.52
GM-13	GWGM-13	4/20/1999	325	***38.8***	0.52
GM-13	GWGM-13 (5/18/04)	5/18/2004	325	***16***	0.52
GM-14	GM-14	10/21/1997	135	***7.33***	0.52
GM-14	GWGM-14	10/23/1998	135	***8.96***	0.52
GM-14	GWGM-14	10/28/1998	135	***7.29***	0.52
GM-14	GWGM-14	5/2/1999	135	***8.46***	0.52
GM-15	GM-15	10/20/1997	165	***2.06***	0.52
GM-15	GWGM-15	10/11/1998	165	***2.14***	0.52
GM-15	GWGM-15	4/20/1999	165	***2.8***	0.52
GM-15	GWGM-15 (5/10/04)	5/10/2004	165	***2.96***	0.52
GM-15	GWGM-996 (5/10/04)	5/10/2004	165	***2.57***	0.52
GM-16	GM-16	10/22/1997	108	0.0055	0.52
GM-16	GM-78	10/22/1997	108	0.012	0.52
GM-16	GWGM-16	10/9/1998	108	<0.0009	0.52
GM-16	GWGM-16	4/14/1999	108	0.0065	0.52
GM-16	GM-16	9/23/2003	108	0.09	0.52
GM-16	GWGM-16 (4/27/04)	4/27/2004	108	<0.01	0.52
GM-17	GM-17	10/28/1997	224.3	***12.4***	0.52
GM-17	GWGM-17	10/12/1998	224.3	***11.9***	0.52
GM-17	GWGM-17	4/26/1999	224.3	***5.88***	0.52
GM-17	GWGM-17 (5/16/04)	5/16/2004	224.3	***1.23***	0.52
GM-17	GWGM-17	1/15/2007	224.3	0.19	0.52
GM-18	GM-18	12/4/1997	50	<0.0009	0.52

Footnotes on Page 10.

Table 6-14. Summary of Dissolved-Phase Methane Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample I.D.	Sample Date	Depth*	Dissolved-Phase Methane	FESL Criteria
GM-18	GWGM-18	11/7/1998	50	<0.001	0.52
GM-19	GM19	12/4/1997	46	<0.0009	0.52
GM-21	GM-21	12/3/1997	5	0.019	0.52
GM-21	GM-95	12/3/1997	5	0.019	0.52
GM-21	GWGM-21	10/13/1998	5	0.03	0.52
GM-22	GM-22	12/5/1997	6	0.022	0.52
GM-22	GWGM-22	10/10/1998	6	0.03	0.52
GM-22	GWGM-22	4/13/1999	6	0.16	0.52
GM-23	GM-23	12/3/1997	3.5	0.123	0.52
GM-23	GWGM-23	10/10/1998	3.5	0.01	0.52
GM-23	GWGM-23 (5/12/04)	5/12/2004	3.5	<0.007	0.52
GM-23	GWGM-995 (5/12/04)	5/12/2004	3.5	<0.005	0.52
GM-24A	GWGM-24A	11/9/1998	71	***32.7***	0.52
GM-24A	GWGM-24A	5/4/1999	71	***34.7***	0.52
GM-24B	GWGM-24B	11/17/1998	104	***9.44***	0.52
GM-24B	GWGM-94	11/17/1998	104	***9.85***	0.52
GM-24B	GWGM-24B	5/5/1999	104	***5.01***	0.52
GM-24B	GWGM-24B (5/4/04)	5/4/2004	104	***8.55***	0.52
GM-24C	GWGM-24C	11/20/1998	193	0.02	0.52
GM-24C	GWGM-93	11/20/1998	193	0.04	0.52
GM-24C	GWGM-24C	5/13/1999	193	0.18	0.52
GM-24C	GM-24C	9/24/2003	193	0.19	0.52
GM-24C	GWGM-24C (4/29/04)	4/29/2004	193	0.35	0.52
GM-25A	GWGM-25A	10/6/1998	19	***38.9***	0.52
GM-25A	GWGM-25A	4/16/1999	19	***28.4***	0.52
GM-25A	GM-25A	9/9/2003	19	***40.2***	0.52
GM-25A	GWGM-25A (5/12/04)	5/12/2004	19	***38.2***	0.52
GM-25B	GWGM-25B	10/6/1998	98	***107***	0.52
GM-25B	GWGM-25B	4/27/1999	98	***112.3***	0.52
GM-25B	GM-25B	10/20/1999	98	***108.7***	0.52
GM-25B	GM-25B	9/9/2003	98	***23.9***	0.52
GM-25B	GWGM-25B (5/18/04)	5/18/2004	98	***137***	0.52
GM-25C	GWGM-25C	11/9/1998	206	***9.05***	0.52
GM-25C	GWGM-95	11/9/1998	206	***11.6***	0.52
GM-25C	GWGM-25C	4/20/1999	206	***26.5***	0.52
GM-25C	GWGM-25C	8/2/2000	206	***30.3***	0.52
GM-25C	GM-25C	9/15/2003	206	***8.47***	0.52
GM-25C	GWGM-25C (5/4/04)	5/4/2004	206	***35.3***	0.52
GM-25C	GWGM-25C (08/01/05)	8/1/2005	206	***32.7***	0.52
GM-26A	GWGM-26A	10/7/1998	30	***59***	0.52
GM-26A	GWGM-26A	4/14/1999	30	***53.5***	0.52
GM-26A	GWGM-26A (5/13/04)	5/13/2004	30	***37.3***	0.52
GM-26B	GWGM-26B	10/7/1998	101	0.32	0.52
GM-26B	GWGM-26B	4/15/1999	101	0.072	0.52
GM-26B	GWGM-26B	7/18/2000	101	***6.34***	0.52
GM-26B	GM-26B	9/9/2003	101	***13.1***	0.52
Gm-26B	GWGM-26B (4/27/04)	4/27/2004	101	***16.4***	0.52
GM-26B	GWGM-26B (072805)	7/28/2005	101	***12***	0.52

Footnotes on Page 10.

Table 6-14. Summary of Dissolved-Phase Methane Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample I.D.	Sample Date	Depth*	Dissolved-Phase Methane	FESL Criteria
GM-26C	GWGM-26C	10/25/1998	160	***128***	0.52
GM-26C	GWGM-26C	4/17/1999	160	***134***	0.52
GM-26C	GM-26C	9/16/2003	160	***63.5***	0.52
GM-26C	GWGM-26C (5/18/04)	5/18/2004	160	***199***	0.52
GM-26C	GWGM-994 (5/18/04)	5/18/2004	160	***347***	0.52
GM-27A	GWGM-27A	10/8/1998	30	***48.2***	0.52
GM-27A	GWGM-27A	4/15/1999	30	***27.4***	0.52
GM-27A	GM-27A	9/10/2003	30	***40.4***	0.52
GM-27A	GWGM-27A (5/13/04)	5/13/2004	30	***25.4***	0.52
GM-27B	GWGM-27B	10/26/1998	145	0.05	0.52
GM-27B	GWGM-27B	4/14/1999	145	0.18	0.52
GM-27B	GWGM-27B	7/18/2000	145	0.049	0.52
GM-27B	GM-27B	9/10/2003	145	0.011	0.52
GM-27B	GWGM-27B (4/30/04)	4/30/2004	145	0.01	0.52
GM-27B	GWGM-998 (4/30/04)	4/30/2004	145	0.01	0.52
GM-27B	GWGM-27B (08/05/05)	8/5/2005	145	0.011	0.52
GM-27B	GWGM27B (12/7/06)	12/7/2006	145	0.005	0.52
GM-27B	GWGM-27B (2/22/07)	2/22/2007	145	0.07	0.52
GM-27B	GWGM-27B(5/11/07)	5/11/2007	145	0.01	0.52
GM-27B	GWGM-27B (8/8/07)	8/8/2007	145	0.05	0.52
GM-27B	GWGM-27B (11/8/07)	11/8/2007	145	0.01	0.52
GM-27C	GWGM-27C	11/9/1998	210	0.08	0.52
GM-27C	GWGM-27C	4/26/1999	210	***13.5***	0.52
GM-27C	GWGM-86	4/26/1999	210	0.067	0.52
GM-27C	GMGW-27C	8/7/2000	210	***1.1***	0.52
GM-27C	GM-27C	9/11/2003	210	0.088	0.52
GM-27C	GWGM-27C (4/30/04)	4/30/2004	210	0.12	0.52
GM-27C	GWGM-27C (08/05/05)	8/5/2005	210	0.09	0.52
GM-28A	GWGM-28A	10/28/1998	40	***37.6***	0.52
GM-28A	GWGM-28A	4/19/1999	40	***30.3***	0.52
GM-28A	GWGM-28A	7/19/2000	40	***23.6***	0.52
GM-28A	GWGM-28A (4/28/04)	4/28/2004	40	***33.5***	0.52
GM-28A	GWGM28A (072605)	7/26/2005	40	***30.7***	0.52
GM-28A	GWGM-999 (7/26/05)	7/26/2005	40	***31.6***	0.52
GM-28A	GWGM-28A(12/5/06)	12/5/2006	40	***20.8***	0.52
GM-28A	GWGM-28A (2/21/07)	2/21/2007	40	***20.7***	0.52
GM-28A	GWGM-28A (5/10/07)	5/10/2007	40	***23.7***	0.52
GM-28A	GWGM-28A (8/7/07)	8/7/2007	40	***25.9***	0.52
GM-28A	GWGM-28A (11/5/07)	11/5/2007	40	***20***	0.52
GM-28B	GWGM-96	10/24/1998	124.5	0.3	0.52
GM-28B	GWGM-28B	11/8/1998	124.5	0.1	0.52
GM-28B	GWGM-96	11/8/1998	124.5	0.005	0.52
GM-28B	GWGM-28B	4/19/1999	124.5	0.41	0.52
GM-28B	GWGM-87	4/19/1999	124.5	0.064	0.52
GM-28B	GWGM-28B (4/28/04)	4/28/2004	124.5	0.01	0.52
GM-28B	GWGM-999 (4/28/04)	4/28/2004	124.5	0.01	0.52
GM-28B	GWGM28B (072605)	7/26/2005	124.5	0.01	0.52
GM-28B	GWGM-28B(12/5/06)	12/5/2006	124.5	0.063	0.52

Footnotes on Page 10.

Table 6-14. Summary of Dissolved-Phase Methane Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample I.D.	Sample Date	Depth*	Dissolved-Phase Methane	FESL Criteria
GM-28B	GWGM-28B (2/21/07)	2/21/2007	124.5	0.02	0.52
GM-28B	GWGM-28B (5/10/07)	5/10/2007	124.5	0.01	0.52
GM-28B	GWGM-28B (8/7/07)	8/7/2007	124.5	0.02	0.52
GM-28B	GWGM-28B (11/5/07)	11/5/2007	124.5	0.1	0.52
GM-29	GWGM-29	10/9/1998	55	***29.2***	0.52
GM-29	GWGM-99	10/9/1998	55	***28.5***	0.52
GM-29	GWGM-29	4/16/1999	55	***22.4***	0.52
GM-29	GM-29	9/10/2003	55	***8.75***	0.52
GM-29	GWGM-29 (5/3/04)	5/3/2004	55	***6.27***	0.52
GM-29	GWGM-29 (07/28/05)	7/28/2005	55	***6.12***	0.52
GM-29	GWGM-29 (12/8/06)	12/8/2006	55	***7.7***	0.52
GM-29	GWGM-29 (2/20/07)	2/20/2007	55	***18***	0.52
GM-29	GWGM-29 (5/9/07)	5/9/2007	55	***21.1***	0.52
GM-29	GWGM-29 (8/7/07)	8/7/2007	55	***11.9***	0.52
GM-29	DUP-999(11/6/07)	11/6/2007	55	***8.04***	0.52
GM-29	GWGM-29(11/6/07)	11/6/2007	55	***7.93***	0.52
GM-30	GWGM-30	10/27/1998	75	***27.4***	0.52
GM-30	GWGM-30	5/12/1999	75	***8.46***	0.52
GM-30	GWGM-83	5/12/1999	75	***8.45***	0.52
GM-31	GWGM-31	10/24/1998	105	***6.98***	0.52
GM-31	GWGM-31	5/3/1999	105	***5.03***	0.52
GM-32	GWGM-32	10/25/1998	135	***11***	0.52
GM-32	GWGM-32	4/27/1999	135	***33.2***	0.52
GM-32	GM-32	9/25/2003	135	***14.4***	0.52
GM-32	GWGM-32(5/26/04)	5/26/2004	135	***8.24***	0.52
GM-34A	GWGM-34A	10/8/1998	30	0.11	0.52
GM-34A	GWGM-34A	4/17/1999	30	0.22	0.52
GM-34A	GWGM-34A (4/29/04)	4/29/2004	30	<0.01	0.52
GM-34B	GWGM-34B	10/12/1998	85	0.11	0.52
GM-34B	GWGM-34B	4/14/1999	85	0.014	0.52
GM-34B	GM-34B	9/24/2003	85	0.004	0.52
GM-34B	GWGM-34B (4/28/04)	4/28/2004	85	0.05	0.52
GM-35	GWGM-35	11/4/1998	40	***0.57***	0.52
GM-35	GWGM-35	5/4/1999	40	***4.21***	0.52
GM-36	GWGM-36	11/3/1998	95	0.02	0.52
GM-36	GWGM-36	5/5/1999	95	0.026	0.52
GM-36	GWGM-36 (5/4/04)	5/4/2004	95	0.02	0.52
GM-37A	GWGM-37A	11/18/1998	144	***66.1***	0.52
GM-37A	GM-37A	9/25/2003	144	***28.5***	0.52
GM-37A	GWGM-37A (5/17/04)	5/17/2004	144	***31.7***	0.52
GM-37B	GWGM-37B	5/14/1999	328	***121***	0.52
GM-37B	GM-37B	9/25/2003	328	***161***	0.52
GM-37B	GWGM-37B (5/27/04)	5/27/2004	328	***20.8***	0.52
GM-38A	GWGM-38A	10/13/1998	95	0.04	0.52
GM-38A	GWGM-98	10/13/1998	95	0.01	0.52
GM-38A	GWGM-38A	4/15/1999	95	0.0083	0.52
GM-38B	GWGM-38B	10/14/1998	160	***0.88***	0.52
GM-38B	GWGM-38B	4/29/1999	160	***0.91***	0.52

Footnotes on Page 10.

Table 6-14. Summary of Dissolved-Phase Methane Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample I.D.	Sample Date	Depth*	Dissolved-Phase Methane	FESL Criteria
GM-38C	GWGM-38C	10/20/1998	200	0.37	0.52
GM-38C	GWGM-97	10/20/1998	200	0.36	0.52
GM-38C	GWGM-38C	4/30/1999	200	***0.64***	0.52
GM-39	GWGM-39	10/12/1998	85	***9.12***	0.52
GM-39	GWGM-39	4/15/1999	85	***5.88***	0.52
GM-39	GWGM-89	4/15/1999	85	***5.7***	0.52
GM-40A	GWGM-40A	10/26/1998	75	***1.46***	0.52
GM-40A	GWGM-40A	4/28/1999	75	0.23	0.52
GM-40A	GWGM-40A (5/3/04)	5/3/2004	75	0.5	0.52
GM-40B	GWGM-40B	10/26/1998	120	***54***	0.52
GM-40B	GWGM-40B	4/27/1999	120	***63.1***	0.52
GM-40B	GWGM-40B (5/19/04)	5/19/2004	120	***23.8***	0.52
GM-41	GWGM-41	10/19/1998	40	***8.32***	0.52
GM-41	GWGM-41	4/16/1999	40	***3.62***	0.52
GM-42	GWGM-42	10/20/1998	72	0.47	0.52
GM-42	GWGM-42	4/16/1999	72	***0.82***	0.52
GM-49	GWGM-49	4/17/1999	83.5	***9.2***	0.52
GM-50	GWGM-50	10/14/1998	80.5	***33***	0.52
GM-50	GWGM-50	4/17/1999	80.5	***30.4***	0.52
GM-51	GWGM-51	10/20/1998	67	***1.86***	0.52
GM-51	GWGM-51	4/18/1999	67	***5.4***	0.52
GM-52	GWGM-52	4/19/1999	75	***30.4***	0.52
GM-53A	GWGM-53A	4/19/1999	79	***31.7***	0.52
GM-53B	GWGM-53B	11/5/1998	195	***131***	0.52
GM-53B	GWGM-53B	5/1/1999	195	***147***	0.52
GM-54	GWGM-54	10/24/1998	80	0.08	0.52
GM-54	GWGM-54	5/1/1999	80	0.091	0.52
GM-55	GWGM-55	10/24/1998	75	***19.1***	0.52
GM-55	GWGM-55	5/1/1999	75	***22.8***	0.52
GM-55	GWGM-85	5/1/1999	75	***24.6***	0.52
GM-56	GWGM-56	10/21/1998	32	0.03	0.52
GM-56	GWGM-56	4/20/1999	32	0.3	0.52
GM-57	GWGM-57	4/20/1999	76	***14.3***	0.52
GM-58	GWGM-58	4/26/1999	75	***7.69***	0.52
GM-58	GWGM-58 (5/22/04)	5/22/2004	75	0.056	0.52
GM-59	GWGM-59	11/17/1998	114	0.16	0.52
GM-59	GWGM-59	4/28/1999	114	0.17	0.52
GM-59	GWGM-59 (5/15/04)	5/15/2004	114	0.49	0.52
GM-59	GWGM-997 (5/22/04)	5/22/2004	114	0.062	0.52
GM-59	GWGM-59 (7/29/05)	7/29/2005	114	0.09	0.52
GM-59	GWGM-59	1/11/2007	114	0.089	0.52
GM-59	GWGM-999	1/11/2007	114	0.077	0.52
GM-61	GWGM-61	5/3/1999	138	***5.71***	0.52
GM-61	GWGM-61 (5/16/04)	5/16/2004	138	***1.11***	0.52
GM-61	GWGM-61 (7/30/05)	7/30/2005	138	***0.76***	0.52
GM-61	GWGM-61	1/9/2007	138	0.007	0.52
GM-62A	GWGM-62A	8/23/1999	90	***8.47***	0.52
GM-62A	GWGM-62A (5/11/04)	5/11/2004	90	***12.8***	0.52

Footnotes on Page 10.

Table 6-14. Summary of Dissolved-Phase Methane Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample I.D.	Sample Date	Depth*	Dissolved-Phase Methane	FESL Criteria
GM-62A	GWGM-62A MS	8/23/1999	90	***7.87***	0.52
GM-62A	GWGM-62A MSD	8/23/1999	90	***7.99***	0.52
GM-62B	GWGM-62B	8/24/1999	195	***66.2***	0.52
GM-62B	GWGM-82	8/24/1999	195	***134***	0.52
GM-62B	GWGM-62B (5/19/04)	5/19/2004	195	***64.1***	0.52
GM-62C	GWGM-62C	8/24/1999	315	***298***	0.52
GM-62C	GWGM-62C (5/18/04)	5/18/2004	315	***52.6***	0.52
GM-63A	GWGM-63A	10/18/2000	45	***52.5***	0.52
GM-63A	GM-63A	9/15/2003	45	***36.8***	0.52
GM-63A	GWGM-63A (5/5/04)	5/5/2004	45	***48.3***	0.52
GM-63B	GWGM-63B	2/7/2001	105	0.023	0.52
GM-63B	GM-63B	9/11/2003	105	0.023	0.52
GM-63B	GWGM-63B (4/27/04)	4/27/2004	105	0.03	0.52
GM-64A	GWGM-64A	8/30/2000	33	***35.6***	0.52
GM-64A	GWGM-64A	10/19/2000	33	***44.1***	0.52
GM-64A	GM-64A	9/8/2003	33	***37.4***	0.52
GM-64A	GWGM-64A (5/4/04)	5/4/2004	33	***36.9***	0.52
GM-64B	GM-64B	9/8/2003	117	***32.9***	0.52
GM-64B	GWGM-64B (5/11/04)	5/11/2004	117	***91.8***	0.52
GM-66A	GWGM-66A	7/18/2000	27	***26.9***	0.52
GM-66A	GM-66A	9/16/2003	27	***38.7***	0.52
GM-66A	GWGM-66A (4/27/04)	4/27/2004	27	***37.9***	0.52
GM-66A	GWGM66A (072705)	7/27/2005	27	***30.8***	0.52
GM-66B	GWGM-66B	7/19/2000	125	***82.6***	0.52
GM-66B	GMGW-66B	8/3/2000	125	***93.2***	0.52
GM-66B	GM-66B	9/11/2003	125	***73.2***	0.52
GM-66B	GWGM-66B (5/10/04)	5/10/2004	125	***83.3***	0.52
GM-66B	GWGM66B (072705)	7/27/2005	125	***71.1***	0.52
GM-66B	GWGM-66B (12/8/06)	12/8/2006	125	***22.7***	0.52
GM-66B	GWGM-66B (3/1/07)	3/1/2007	125	***19.3***	0.52
GM-66B	GWGM-66B(5/14/07)	5/14/2007	125	***30.2***	0.52
GM-66B	GWGM-999 (5/14/07)	5/14/2007	125	***29.6***	0.52
GM-66B	GWGM-66B (8/14/07)	8/14/2007	125	***30.4***	0.52
GM-66B	GWGM-66B (11/9/07)	11/9/2007	125	***30.2***	0.52
GM-67	GWGM-67	8/7/2000	122	***12.9***	0.52
GM-67	GWGM-67 (5/17/04)	5/17/2004	122	***23.1***	0.52
GM-67	GWGM-67	1/12/2007	122	***9.98***	0.52
GM-68	GWGM-68	10/17/2000	140	0.02	0.52
GM-68	GWGM-68 (5/24/04)	5/24/2004	140	0.077	0.52
GM-68	GWGM-68 (7/31/05)	7/31/2005	140	0.02	0.52
GM-68	GWGM-68	1/12/2007	140	<0.002	0.52
GM-70	GWGM-70	8/17/2000	42	***16.3***	0.52
GM-71	GWGM-71	8/21/2000	39	***2.63***	0.52
GM-72	GWGM-72	8/22/2000	43	***13.6***	0.52
GM-72	GM-72	9/24/2003	43	***11.8***	0.52
GM-72	GWGM-72	1/5/2004	43	***12.7***	0.52
GM-72	GM-72	4/16/2004	43	***10.4***	0.52
GM-72A	GWGM-72A (11/8/07)	11/8/2007	46	***13***	0.52

Footnotes on Page 10.

Table 6-14. Summary of Dissolved-Phase Methane Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample I.D.	Sample Date	Depth*	Dissolved-Phase Methane	FESL Criteria
GM-72A	GWGM-72A (07/25/05)	7/25/2005	46	***19.9***	0.52
GM-72A	GWGM-72A (12/12/06)	12/12/2006	46	***14.9***	0.52
GM-73	GWGM-73	9/6/2000	42	<0.0011	0.52
GM-74	GWGM-74	9/7/2000	34	<0.001	0.52
GM-75	GMGW-75	9/8/2000	24	0.024	0.52
GM-77	GM-77	9/22/2003	105	***34.3***	0.52
GM-77	GWGM-77 (5/11/04)	5/11/2004	105	***84.6***	0.52
GM-77	GWGM-77 (072805)	7/28/2005	105	***60.4***	0.52
GM-78	GM-78 (9/18/03)	9/18/2003	20	***31.9***	0.52
GM-78	GWGM-78 (4/29/04)	4/29/2004	20	***37.1***	0.52
GM-78	GWGM-78 (7/29/05)	7/29/2005	20	***28.5***	0.52
GM-78	GWGM-998 (7/29/05)	7/29/2005	20	***34.7***	0.52
GM-78	GWGM-78 (12/8/06)	12/8/2006	20	***12.2***	0.52
GM-78	GWGM-78 (2/28/07)	2/28/2007	20	***7.04***	0.52
GM-78	GWGM-998 (2/28/07)	2/28/2007	20	***6.58***	0.52
GM-78	GWGM-78(5/11/07)	5/11/2007	20	***5.65***	0.52
GM-78	GWGM78 (8/14/07)	8/14/2007	20	***5.62***	0.52
GM-78	GWGM-78 (11/8/07)	11/8/2007	20	***4.78***	0.52
GM-79	GM-79 (9/18/03)	9/18/2003	25	***1.76***	0.52
GM-79	GWGM-79 (4/26/04)	4/26/2004	25	***28.7***	0.52
GM-79	GWGM-79 (7/29/05)	7/29/2005	25	***29.3***	0.52
GM-79	GWGM-79(12/4/06)	12/4/2006	25	***30.9***	0.52
GM-79	GWGM-79 (2/22/07)	2/22/2007	25	***25.2***	0.52
GM-79	GWGM-999 (2/22/07)	2/22/2007	25	***27.4***	0.52
GM-79	GWGM-79 (5/9/07)	5/9/2007	25	***24.4***	0.52
GM-79	GWGM-79 (8/7/07)	8/7/2007	25	***29.8***	0.52
GM-79	GWGM-79(11/6/07)	11/6/2007	25	***28.5***	0.52
GM-80	GWGM-80 (5/3/04)	5/3/2004	113	***0.73***	0.52
GM-84	GWGM-84 (8/26/04)	8/26/2004	77	0.0048	0.52
GM-84	GWGM-84 (08/01/05)	8/1/2005	77	0.02	0.52
GM-84	GWGM-84 (12/12/06)	12/12/2006	77	0.01	0.52
GM-84	GWGM-84 (3/2/07)	3/2/2007	77	<0.004	0.52
GM-84	GWGM-84 (5/14/07)	5/14/2007	77	***4.04***	0.52
GM-84	GWGM-84 (8/14/07)	8/14/2007	77	0.04	0.52
GM-84	GWGM-84(11/9/07)	11/9/2007	77	0.02	0.52
GM-85	GWGM-85 (9/1/04)	9/1/2004	75	0.01	0.52
GM-85	GWGM-85 (7/31/05)	7/31/2005	75	0.01	0.52
GM-85	GWGM-85	1/12/2007	75	0.005	0.52
GM-87A	GWGM-87A (12/5/06)	12/5/2006	32	***31.4***	0.52
GM-87A	GWGM-999(12/5/06)	12/5/2006	32	***33***	0.52
GM-87A	GWGM-87A (02/19/07)	2/19/2007	32	***25.2***	0.52
GM-87A	GWGM-87A (5/8/07)	5/8/2007	32	***24***	0.52
GM-87A	GWGM-87A (8/6/07)	8/6/2007	32	***12.3***	0.52
GM-87A	GWGM-87A (11/7/07)	11/7/2007	32	***31.3***	0.52
GM-87B	GWGM-87A(12/5/06)	12/5/2006	117	0.22	0.52
GM-87B	GWGM-87B (2/20/07)	2/20/2007	117	0.27	0.52
GM-87B	GWGM-87B (5/8/07)	5/8/2007	117	0.29	0.52
GM-87B	GWGM-87B (8/6/07)	8/6/2007	117	0.1	0.52

Footnotes on Page 10.

Table 6-14. Summary of Dissolved-Phase Methane Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample I.D.	Sample Date	Depth*	Dissolved-Phase Methane	FESL Criteria
GM-87B	GWGM-87B (11/7/07)	11/7/2007	117	***0.65***	0.52
GM-118D	GWGM-118D	10/21/1998	54	0.006	0.52
GM-118D	GWGM-118D	4/29/1999	54	0.0087	0.52
GMEW-3	GWGMEW-3	7/24/2000	135	***86.8***	0.52
GMEWA-4	GWGMEWA4 (08/02/05)	8/2/2005	20	***38.6***	0.52
GMEWA-26	GWGMEWA-26 (072705)	7/27/2005	22	***32.3***	0.52
GMEWC-1	GWGMEWC-1 (072605)	7/26/2005	123	***89.9***	0.52
GMPZA-26	GWGMPZA-26 (12/06/06)	12/6/2006	20	***8.87***	0.52
GMPZA-26	GWGMPZA-26 (2/27/07)	2/27/2007	20	***27***	0.52
GMPZA-26	GWGMPZA-26 (8/13/07)	8/13/2007	20	***26.4***	0.52
GMPZA-29	GWGMPZA-29 (12/6/06)	12/6/2006	18	***27.4***	0.52
GMPZA-29	GWGMPZA-29 (2/26/07)	2/26/2007	18	***22.5***	0.52
GMPZA-29	GWGMPZA-29(08/10/07)	8/10/2007	18	***20.1***	0.52
GMPZA-34	GWGMPZA-34 (12/8/06)	12/8/2006	25	0.09	0.52
GMPZA-34	GWGMPZA-34 (2/26/07)	2/26/2007	25	0.01	0.52
GMPZA-34	GWGMPZA-34 (8/9/07)	8/9/2007	25	0.02	0.52
GMPZA-38	GWGM-998 (12/7/06)	12/7/2006	25	0.005	0.52
GMPZA-38	GWGMPZA38 (12/7/06)	12/7/2006	25	0.006	0.52
GMPZA-38	GWGMPZA-38 (2/23/07)	2/23/2007	25	0.01	0.52
GMPZA-38	GWGMPZA-38 (8/9/07)	8/9/2007	25	0.02	0.52
GMPZA-41	GWGMPZA-41 (12/7/06)	12/7/2006	20	0.002	0.52
GMPZA-41	GWGMPZA-41 (2/23/07)	2/23/2007	20	0.01	0.52
GMPZA-41	DUP-999 (8/8/07)	8/8/2007	20	***2.44***	0.52
GMPZA-41	GWGMPZA-41 (8/8/07)	8/8/2007	20	0.08	0.52
GMPZC-12	GWGMPZC-12 (12/06/06)	12/6/2006	137	***13.3***	0.52
GMPZC-12	GWGMPZC-12 (3/1/07)	3/1/2007	137	***6.91***	0.52
GMPZC-12	GWGMPZC-12 (8/14/07)	8/14/2007	137	***5.58***	0.52
GMPZC-14	GWGMPZC-14 (12/06/06)	12/6/2006	111	***77.2***	0.52
GMPZC-14	GWGMPZC-14 (2/28/07)	2/28/2007	111	***121***	0.52
GMPZC-14	GWGMPZC-14(08/10/07)	8/10/2007	111	***102***	0.52
GMPZC-17	GWGMPZC-17 (12/7/2006)	12/7/2006	125	0.035	0.52
GMPZC-17	GWGMPZC-17 (2/27/07)	2/27/2007	125	0.02	0.52
GMPZC-17	DUP-998 (8/13/07)	8/13/2007	125	0.02	0.52
GMPZC-17	GWGMPZC-17 (8/13/07)	8/13/2007	125	0.01	0.52
Grailer	GBGW-53C	5/12/1999	NA	0.0087	0.52
Grailer	GBGW-53 C (8/07/03)	8/7/2003	NA	<0.001	0.52
Hambel	GBGW-101 C (8/06/03)	8/6/2003	NA	0.002	0.52
Krans	GBGW-101 F (8/06/03)	8/6/2003	NA	<0.001	0.52
Michaud	GBGW-101 G (8/06/03)	8/6/2003	NA	<0.0009	0.52
Schnieder	GBGW-113	5/3/1999	NA	0.022	0.52
Schnieder	GBGW-113 (8/07/03)	8/7/2003	NA	<0.0009	0.52
	City Influent (B)	9/21/2000	NA	0.129	0.52
	City Influent (E)	9/21/2000	NA	0.158	0.52
MPMW-4	GWMPMW-4 (2/26/02)	2/26/2002	NA	ND	0.52
MW-1B	GWMW-1B	6/27/1997	86	***18.2***	0.52
MW-2B	GWMW-2B	6/28/1997	102	***34.8***	0.52
MW-5	GWMW-5	10/22/1998	83	0.02	0.52
MW-5	GWMW-5	4/18/1999	83	0.11	0.52

Footnotes on Page 10.

Table 6-14. Summary of Dissolved-Phase Methane Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Sample I.D.	Sample Date	Depth*	Dissolved-Phase Methane	FESL Criteria
MW-8	GWGM-99	6/29/1997	133	***83***	0.52
MW-8	GWMW-8	6/29/1997	133	***86***	0.52
MW-8	GWMW-8	10/24/1998	133	***57.3***	0.52
MW-8	GWMW-8	5/3/1999	133	***68.7***	0.52
MW-8	GWMW-8 (5/12/04)	5/12/2004	133	***21.1***	0.52
MW-9B	GWMW-9B (7/2/97)	7/2/1997	107	0.014	0.52
MW-10	GWMW-10	6/30/1997	95	0.011	0.52
UG-1	GWUG-1 (5/21/04)	5/21/2004	81	0.36	0.52
UG-1	GWGM-997 (7/31/05)	7/31/2005	81	0.002	0.52
UG-1	GWUG-1 (7/31/05)	7/31/2005	81	0.003	0.52
UG-1	GWUG-1	1/9/2007	81	<0.001	0.52
UG-2	GWUG-2	7/1/1997	48	0.02	0.52
UG-2	GWUG-2	10/27/1998	48	0.22	0.52
UG-2	GWUG-2	5/3/1999	48	0.1	0.52
UG-3	GWUG-3 (5/10/04)	5/10/2004	44	0.06	0.52
UG-3	GWUG-3 (8/2/05)	8/2/2005	44	0.004	0.52
UG-3	GWUG-3	1/11/2007	44	<0.003	0.52
UG-4	GM-79	10/13/1997	103	0.013	0.52
UG-4	UG-4	10/13/1997	103	0.13	0.52
UG-4	GWUG-4	10/23/1998	103	0.22	0.52
UG-4	GWUG-4	5/2/1999	103	0.22	0.52
UG-5	GWUG-5 (5/22/04)	5/22/2004	139	0.077	0.52
UG-5	GWUG-5 (8/3/05)	8/3/2005	139	0.06	0.52
UG-4	GWUG-5	1/11/2007	103	0.027	0.52
UG-6	UG-6	10/21/1997	236	0.15	0.52

Results in milligrams per liter (mg/L).

<	Less than the laboratory method detection limit.
*	Depth in feet below ground surface.
BOLD	Indicates a concentration above the Michigan Part 201 Generic FESL criteria (MDEQ RRD Operational Memorandum #1, Attachment, January 23, 2006).
FESL	Flammability and explosively screening level.
NA	Not available.

Table 6-15. Summary of Constituents Detected in Groundwater with Concentrations Higher than the Michigan Residential Drinking Water Criteria, Ford-Kingsford Products Facility, Kingsford, Michigan.

Chemical	Range of Concentrations Above Criteria (µg/L)		Monitoring Well with Highest Concentration
VOC			
Acetone	3,200	750	GM-32
Acrylonitrile	14	14	GM-26B
Benzene	65	5.2	BR-2
cis-1,2-Dichloroethene	93	93	GM-40B
Diethylether	64	11	GM-38B
Methylene chloride	17	5.6	GM-2B
Tetrachloroethene	11	5.3	GM-15, GM-73
Tetrahydrofuran	1,400	100	MW-8
Trichloroethene	16	5.9	GM-13
SVOC			
2,4-Dimethylphenol	9,200	380	GM-32
2,4-Dimethylphenol/2,5-Dimethylphenol	5,200	420	GM-72A
2,6-Dimethylphenol	2,000	4.7	GM-25B
2-Methylphenol	11,000	54	GM-32
2-Nitrophenol	650	540	GM-72
3,4-Dimethylphenol	1,700	11	GM-72
3-Methylphenol	15,000	110	GM-32
3-Methylphenol/4-Methylphenol(m&p-cresol)	19,000	220	GMPZA-29
4-Methylphenol	22,000	110	GM-2B, GM-13
Anthracene	98	98	GM-2B
Benzo(a)anthracene	48	7.6	GMEW-3
Benzo(a)pyrene	200	7.2	GMEW-3
Benzo(b)fluoranthene	180	5.7	GMEW-3
Benzo(g,h,i)perylene	410	1.2	GM-2B
Benzo(k)fluoranthene	280	1.9	GMEW-3
bis(2-Ethylhexyl)phthalate	200	6.2	GM-2A
Carbazole	110	110	GM-2B
Chrysene	65	9.3	GMEW-3
Dibenzo(a,h)anthracene	360	2.1	GM-2B
Di-n-octylphthalate	340	340	GMEW-3
Hexachlorobenzene	81	81	GM-2B
Indeno(1,2,3-c,d)pyrene	330	2.2	GM-2B
Phenanthrene	100	100	GM-2B
Phenol	21,000	4,500	GM-13
Metals			
Aluminum	74,100	52	GM-20
Aluminum-DISS	25,600	52	GM-20
Antimony	8.7	8.7	GM-62C
Antimony-DISS	57	8.3	GM-29
Arsenic	170	11	GM-32
Arsenic-DISS	140	11	GM-32
Barium	2,600	2,100	GM-25B
Barium-DISS	2,300	2,100	GM-25B
Cadmium	41	6.5	UG-4

Footnotes on Page 2.

Table 6-15. Summary of Constituents Detected in Groundwater with Concentrations Higher than the Michigan Residential Drinking Water Criteria, Ford-Kingsford Products Facility, Kingsford, Michigan.

Chemical	Range of Concentrations Above Criteria (µg/L)		Monitoring Well with Highest Concentration
Metals (continued)			
Cadmium-DISS	7.2	7.2	GM-20
Chromium	967	120	GM-2B
Cobalt	311	311	GM-20
Cobalt-DISS	288	288	GM-20
Copper	1,540	1,540	GM-20
Copper-DISS	1,160	1,160	GM-20
Iron	617,000	310	BR-2
Iron-DISS	180,000	310	GM-32
Lead	47	5.3	UG-4
Magnesium	600,000	410,000	GMPZA-29
Magnesium-DISS	590,000	440,000	GM-25B
Manganese	14,000	50.5	BR-2
Manganese-DISS	3,050	52	GM-2B
Mercury	14	14	GM-36
Nickel	604	120	GM-20
Nickel-DISS	538	538	GM-20
Sodium	230,000	130,000	GM-72A
Sodium-DISS	220,000	140,000	GM-72A
Thallium	47	22	UG-4
Vanadium	200	5	GM-32
Vanadium-DISS	130	4.6	GM-32
Alcohols			
1,4-Dioxane	600	600	GM-26C
Acetonitrile	1,700	1,700	GM-32
Ethylene glycol	290,000	35,000	GM-25B
Isobutanol	19,000	3,000	GM-59
Isopropanol	1,000,000	630	GM-40B
Methanol	140,000	6,800	GM-32
n-Butanol	1,500,000	1,000	GM-40B
Aldehydes			
Acetaldehyde	3,600	1,100	GM-32
Acetaldehyde	3,600	1,100	GM-32
Acetaldehyde	3,600	1,100	GM-32
Inorganics			
Chloride	290,000	260,000	GM-72A
Nitrogen, (Ammonia)	16,000	16,000	GM-72
Nitrogen, Nitrate	40,000	40,000	GM-20
Sulfate	3,400,000	260,000	GMPZA-26
Acetic Acid	15,000,000	4,300	GM-37B

µg/L Micrograms per liter.
SVOC Semi-Volatile Organic Compounds
VOC Volatile Organic Compounds

ARCADIS

Table 6-16. Summary of Constituents Detected in Seep Water Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Sample Type	Seep Water	Seep Water	Seep Water	Seep Water	Seep Water	Seep Water	Seep Water
Sample Date	07/23/01	07/25/01	02/28/00	02/28/00	02/28/00	02/28/00	05/22/02
Sample I.D.	AGM-GSI-1	AGM-SEEP-2	KF-CA-1	KF-CA-2	KF-CA-3	KF-CA-4	Sample-1
VOC							
1,2,4-Trimethylbenzene	<1	0.8 J	<1.0	1.4	<1.0	<1.0	<1.0
1,3,5-Trimethylbenzene	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<5.0	<5.0	<5.0	5.3	<25
Benzene	1.1	5.9	2.5	13	<1.0	2.8	5.2
Carbon disulfide	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0
Chloromethane	0.99 J	<1	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0
Diethylether	<10	<10	<10	18	<10	<10	<10
Ethylbenzene	<1	1.6	<1.0	2.9	<1.0	<1.0	1.4
Methyl iodide	<5	<5	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	NA	NA	5.4	6.6	<5.0	5.4	<5.0
Tetrahydrofuran	NA	NA	NA	NA	NA	NA	<100
Toluene	1.2	5.9	2.6	9.1	<1.0	2.9	4.8
Xylene, o	NA	NA	1.4	4.5	<1.0	1.3	2.2
Xylenes (total)	<3	5.4	NA	NA	NA	NA	NA
Xylenes, m+p	NA	NA	<2.0	5	<2.0	<2.0	3
SVOC							
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	33	460 D	120	800	<5.0	<24	160
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	<5	<5	14	21	<5.0	<5.0	<5.0
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5	<5	66	280	<5.0	<46	<5.0
Benzo(a)anthracene	<5	<5	<5.0	<13	<5.0	<5.0	<5.0
Benzo(a)pyrene	<5	<5	<5.0	<13	<5.0	<5.0	<5.0
Benzo(b)fluoranthene	<5	<5	<5.0	<13	<5.0	<5.0	<5.0
Benzo(g,h,i)perylene	<5	<5	<5.0	<13	<5.0	<5.0	<5.0
Benzo(k)fluoranthene	<5	<5	<5.0	<13	<5.0	<5.0	<5.0
bis(2-Ethylhexyl)phthalate	<5	<5	<5.0	<13	<5.0	<5.0	<5.0
Chrysene	<5	<5	<5.0	<13	<5.0	<5.0	<5.0
Dibenzo(a,h)anthracene	<5	<5	<5.0	<13	<5.0	<5.0	<5.0

Footnotes on Page 13.

Table 6-16. Summary of Constituents Detected in Seep Water Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Sample Type Sample Date Sample I.D.	Seep Water 07/23/01 AGM-GSI-1	Seep Water 07/25/01 AGM-SEEP-2	Seep Water 02/28/00 KF-CA-1	Seep Water 02/28/00 KF-CA-2	Seep Water 02/28/00 KF-CA-3	Seep Water 02/28/00 KF-CA-4	Seep Water 05/22/02 Sample-1
SVOC (continued)							
Di-n-butylphthalate	0.5 J	<5	<5.0	<13	<5.0	<5.0	<5.0
Indeno(1,2,3-c,d)pyrene	<5	<5	<5.0	<13	<5.0	<5.0	<5.0
Naphthalene	<5	2.6 J	<5.0	<13	<5.0	<5.0	<5.0
Metals							
Aluminum	<60	100 B	<50	83	<50	<50	NA
Arsenic	<11	58	36	44	19	27	17
Arsenic-DISS	NA	NA	NA	NA	NA	NA	8.9
Barium	210	930	520	740	86	588	501*
Barium-DISS	NA	NA	NA	NA	NA	NA	439
Calcium	55,000	160,000	115,000	167,000	47,000	149,000	NA
Calcium-DISS	NA	NA	NA	NA	NA	NA	NA
Chromium	<0.7	<1.4	1.4	2.3	<1.0	1.6	1.1
Chromium-DISS	NA	NA	NA	NA	NA	NA	1.2
Cobalt	1.3 B	3.1 B	<10	<10	<10	<10	NA
Cobalt-DISS	NA	NA	NA	NA	NA	NA	NA
Copper	8.6 B	<25	1.1	1.1	<1.0	1	<1.0
Iron	6,300	29,000	20,400	26,900	15,200	15,500	NA
Iron-DISS	NA	NA	NA	NA	NA	NA	NA
Lead	<3	<3	<1.0	<1.0	<1.0	<1.0	<1.0
Magnesium	31,000	110,000	64,000	135,000	19,000	96,000	NA
Magnesium-DISS	NA	NA	NA	NA	NA	NA	NA
Manganese	300	220	2,370	403	11,400	1,750	NA
Manganese-DISS	NA	NA	NA	NA	NA	NA	NA
Nickel	1.5 B	<25	5.2	13	2.5	6.9	NA
Nickel-DISS	NA	NA	NA	NA	NA	NA	NA
Potassium	1,900	4,400	2,100	3,400	940	2,600	NA
Potassium-DISS	NA	NA	NA	NA	NA	NA	NA
Silver	<0.2	<0.2	0.5	0.4	<0.2	<0.2	<0.2
Sodium	4,300	13,000 J	7,200	14,000	2,500	11,000	NA
Sodium-DISS	NA	NA	NA	NA	NA	NA	NA
Titanium	3 B	7.4 B	<100	<100	<100	<100	NA

Footnotes on Page 13.

Table 6-16. Summary of Constituents Detected in Seep Water Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Sample Type	Seep Water	Seep Water	Seep Water	Seep Water	Seep Water	Seep Water	Seep Water
Sample Date	07/23/01	07/25/01	02/28/00	02/28/00	02/28/00	02/28/00	05/22/02
Sample I.D.	AGM-GSI-1	AGM-SEEP-2	KF-CA-1	KF-CA-2	KF-CA-3	KF-CA-4	Sample-1
Metals (continued)							
Titanium-DISS	NA	NA	NA	NA	NA	NA	NA
Vanadium	1.3 B	<4.5	<10	<10	<10	<10	NA
Vanadium-DISS	NA	NA	NA	NA	NA	NA	NA
Zinc	11 B	<4.5	<10	13	<10	10	<10
Zinc-DISS	NA	NA	NA	NA	NA	NA	<10
Alcohols							
Ethylene glycol	NA	NA	NA	NA	NA	NA	NA
Methanol	<1,000	<1,000	<800	<800	<800	<800	<800
Aldehydes							
Acetaldehyde	<100	<100	<100	170	<100	<100	NA
m-Tolualdehyde	<100	<100	<100	300	<100	<100	NA
Octanal	<100	<100	<100	<100	<100	<100	NA
Inorganics							
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Chloride	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate	NA	NA	NA	NA	NA	NA	NA
Silica, Dissolved	35,000	52,000	NA	NA	NA	NA	NA
Methane	1,200	23,400	NA	NA	NA	NA	NA
Acetic Acid/Acetate	<500	<500	NA	NA	NA	NA	1,100
Suspended Solids	15,000 J	68,000 J	NA	NA	NA	NA	NA
Total Organic Carbon	27,000	62,000	36,000	119,000	8,700	64,000	71,000
Biochemical Oxygen Demand	2,500	20,000	16,000	34,000	13,000	14,000	21,000
Chemical Oxygen Demand	68,000	210,000	34,000	8,700	15,000	32,000	25,000

Footnotes on Page 13.

ARCADIS

Table 6-16. Summary of Constituents Detected in Seep Water Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Sample Type	Seep Water	Seep Water	Seep Water	Seep Water	Seep Water	Seep Water	Seep Water	Seep Water
Sample Date	05/22/02	05/30/97	05/30/97	03/07/00	03/13/00	05/16/00	06/27/00	06/27/00
Sample I.D.	Sample-2	Seep	Seep DUP	Seep #2	Seep #2	SP-1	SP-2	SP-2-DL
VOC								
1,2,4-Trimethylbenzene	<1.0	NA	NA	1.2	1.5	<1	1.1	NA
1,3,5-Trimethylbenzene	<1.0	NA	NA	<1	<1	<1	0.6 J	NA
2-Butanone (MEK)	<25	<25 J	NA	<5	<5	<50	<50	NA
Benzene	3.6	<2.5 J	NA	11	12	1.4	11	NA
Carbon disulfide	<5.0	70 J	NA	<5	<5	<5	<5	NA
Chloromethane	<1.0	<2.5 J	NA	<1	<1	<1 J	<1	NA
cis-1,2-Dichloroethene	<1.0	<2.5 J	NA	<1	<1	<1	0.69 J	NA
Diethylether	<10	NA	NA	14	14	<10	16 J	NA
Ethylbenzene	<1.0	<2.5 J	NA	2.7	3.1	0.53 J	3	NA
Methyl iodide	<1.0	NA	NA	<1	<1	<5 J	<5	NA
Naphthalene	<5.0	NA	NA	7.2	5.2	NA	NA	NA
Tetrahydrofuran	<100	NA	NA	NA	NA	NA	NA	NA
Toluene	3.3	<2.5 J	NA	8.5	8.9	1.3	9.2	NA
Xylene, o	1.4	NA	NA	4.3	4.4	NA	NA	NA
Xylenes (total)	NA	<2.5 J	NA	NA	NA	1.7 J	8.9	NA
Xylenes, m+p	2	NA	NA	5.3	5.7	NA	NA	NA
SVOC								
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	83	<5	NA	540	630	56	590 D	590 D
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	<5.0	<5	NA	<13	<25	<5	<5	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	NA	NA	62	60	<5	<5	<10
Benzo(a)anthracene	<5.0	<5	NA	<13	<25	<5	<5	1.6 DJ
Benzo(a)pyrene	<5.0	<5	NA	<13	<25	<5	<5	2.1 DJ
Benzo(b)fluoranthene	<5.0	<5	NA	<13	<25	<5	<5	2.1 DJ
Benzo(g,h,i)perylene	<5.0	<5	NA	<13	<25	<5	<5	<10
Benzo(k)fluoranthene	<5.0	<5	NA	<13	<25	<5	<5	2 DJ
bis(2-Ethylhexyl)phthalate	<5.0	<5	NA	<13	<25	<5	<5	6.7 DJB
Chrysene	<5.0	<5	NA	<13	<25	<5	<5	2 DJ
Dibenzo(a,h)anthracene	<5.0	<5	NA	<13	<25	<5	<5	<10

Footnotes on Page 13.

Table 6-16. Summary of Constituents Detected in Seep Water Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Sample Type	Seep Water	Seep Water	Seep Water	Seep Water	Seep Water	Seep Water	Seep Water	Seep Water
Sample Date	05/22/02	05/30/97	05/30/97	03/07/00	03/13/00	05/16/00	06/27/00	06/27/00
Sample I.D.	Sample-2	Seep	Seep DUP	Seep #2	Seep #2	SP-1	SP-2	SP-2-DL
SVOC (continued)								
Di-n-butylphthalate	<5.0	<5	NA	<13	<25	0.86 J	<5	<10
Indeno(1,2,3-c,d)pyrene	<5.0	<5	NA	<13	<25	<5	<5	1.2 DJ
Naphthalene	<5.0	<5	NA	<13	<25	<5	<5	<10
Metals								
Aluminum	NA	NA	NA	230	<50	NA	NA	NA
Arsenic	23	NA	NA	63	62	NA	NA	NA
Arsenic-DISS	7.9	NA	NA	NA	NA	36 J	7.5 B	NA
Barium	508	NA	NA	829	791	NA	NA	NA
Barium-DISS	402	NA	NA	NA	NA	550	570	NA
Calcium	NA	NA	NA	160,000	157,000	NA	NA	NA
Calcium-DISS	NA	NA	NA	NA	NA	91,000	160,000	NA
Chromium	2.5	NA	NA	4.2	3.6	NA	NA	NA
Chromium-DISS	2.6	NA	NA	NA	NA	<1.3	0.76 B	NA
Cobalt	NA	NA	NA	<10	<10	NA	NA	NA
Cobalt-DISS	NA	NA	NA	NA	NA	<10	6.4 B	NA
Copper	2.5	NA	NA	<1	1.2	NA	NA	NA
Iron	NA	NA	NA	30,900	32,200	NA	NA	NA
Iron-DISS	NA	NA	NA	NA	NA	20,000	260 J	NA
Lead	1.5	NA	NA	<1	<1	NA	NA	NA
Magnesium	NA	NA	NA	133,000	133,000	NA	NA	NA
Magnesium-DISS	NA	NA	NA	NA	NA	53,000	130,000	NA
Manganese	NA	NA	NA	544	588	NA	NA	NA
Manganese-DISS	NA	NA	NA	NA	NA	2,200	440 J	NA
Nickel	NA	NA	NA	17	14	NA	NA	NA
Nickel-DISS	NA	NA	NA	NA	NA	<25	5.7 B	NA
Potassium	NA	NA	NA	4,100	3,700	NA	NA	NA
Potassium-DISS	NA	NA	NA	NA	NA	2,700	4,600	NA
Silver	<0.2	NA	NA	<0.2	1.4	NA	NA	NA
Sodium	NA	NA	NA	14,000	13,000	NA	NA	NA
Sodium-DISS	NA	NA	NA	NA	NA	6,600 J	13,000	NA
Titanium	NA	NA	NA	<100	<100	NA	NA	NA

Footnotes on Page 13.

Table 6-16. Summary of Constituents Detected in Seep Water Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Sample Type	Seep Water	Seep Water	Seep Water	Seep Water	Seep Water	Seep Water	Seep Water	Seep Water
Sample Date	05/22/02	05/30/97	05/30/97	03/07/00	03/13/00	05/16/00	06/27/00	06/27/00
Sample I.D.	Sample-2	Seep	Seep DUP	Seep #2	Seep #2	SP-1	SP-2	SP-2-DL
Metals (continued)								
Titanium-DISS	NA	NA	NA	NA	NA	1.8 B	1.1 B	NA
Vanadium	NA	NA	NA	10	11	NA	NA	NA
Vanadium-DISS	NA	NA	NA	NA	NA	<2.7	<1.3	NA
Zinc	<10	NA	NA	<10	16	NA	NA	NA
Zinc-DISS	<10	NA	NA	NA	NA	<20	<20	NA
Alcohols								
Ethylene glycol	NA	NA	NA	NA	NA	NA	NA	NA
Methanol	<800	NA	NA	<800	<800	<1,000	<1,000 J	NA
Aldehydes								
Acetaldehyde	NA	NA	NA	130	110	<100 J	<100 J	NA
m-Tolualdehyde	NA	NA	NA	100	<100	<100 J	<100 J	NA
Octanal	NA	NA	NA	<100	<100	<100 J	<100 J	NA
Inorganics								
Alkalinity	NA	NA	NA	NA	NA	410,000	930,000	NA
Chloride	NA	NA	NA	NA	NA	4,400	12,000	NA
Nitrogen, (Ammonia)	NA	NA	NA	NA	NA	85	37	NA
Ortho-Phosphate	NA	NA	NA	NA	NA	NA	NA	NA
Silica, Dissolved	NA	NA	NA	NA	NA	38,000	53,000	NA
Methane	NA	NA	NA	NA	NA	NA	NA	NA
Acetic Acid/Acetate	3,400	NA	NA	NA	NA	<500	<500	NA
Suspended Solids	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	64,000	11,000	NA	90,000	97,000	21,000	98,000	NA
Biochemical Oxygen Demand	22,000	3,000	2,000	46,000	16,000	<2,000	28,000	NA
Chemical Oxygen Demand	27,000	50,000	NA	318,000	323,000	53,000	290,000	NA

Footnotes on Page 13.

Table 6-16. Summary of Constituents Detected in Seep Water Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Sample Type Sample Date Sample I.D.	Seep Water 06/10/03 SP2 (6/10/03)	Seep Water 05/17/04 SP2 (5/17/04)	Residential Groundwater Contact Criteria	Residential Indoor Air Inhalation Criteria	Residential Drinking Water Criteria
VOC					
1,2,4-Trimethylbenzene	1.4	0.88 J	56,000 (I) S	56,000 (I) S	63 (I) E
1,3,5-Trimethylbenzene	<1.0	<1.0	61,000 (I) S	61,000 (I) S	72 (I) E
2-Butanone (MEK)	<10	2.4 J	240,000,000 (I) S	240,000,000 (I) S	13,000 (I)
Benzene	6.7	6.6	11,000 (I)	5,600 (I)	5 (I) A
Carbon disulfide	<1.0	<5.0	1,200,000 (I,R) S	250,000 (I,R)	800 (I,R)
Chloromethane	<1.0	<1.0	490,000 (I)	8,600 (I)	260 (I)
cis-1,2-Dichloroethene	<1.0	0.63 J	200,000	93,000	70 A
Diethylether	<2.0	10	35,000,000	61,000,000 S	10 E
Ethylbenzene	2.4	1.6	170,000 (I) S	110,000 (I)	74 (I) E
Methyl iodide	<1.0	0.27 J	NA	NA	NA
Naphthalene	NA	NA	31,000 S	31,000 S	520
Tetrahydrofuran	<5.0	7.6	1,600,000	6,900,000	95
Toluene	5.7	5.7	530,000 (I) S	530,000 (I) S	790 (I) E
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	6.7	5.5	190,000 (I) S	190,000 (I) S	280 (I) E
Xylenes, m+p	NA	NA	NA	NA	NA
SVOC					
2,3-Dimethylphenol	<50	120	NA	NA	NA
2,4-Dimethylphenol	NA	NA	520,000	NLV	370
2,4-Dimethylphenol/2,5-Dimethylphenol	300	340	520,000	NLV	370
2,6-Dimethylphenol	100	140	6,300	NLV	4.4
2-Methylphenol	<25	<20	810,000 J	J,NLV	370 J
3-Methylphenol/4-Methylphenol(m&p-cresol)	<25	<20	810,000 J	J,NLV	370 J
Benzo(a)anthracene	<25	<20	9.4 (Q) S,AA	(Q) NLV	2.1 (Q)
Benzo(a)pyrene	<25	<20	1 (Q) M,AA	(Q) NLV	5 (Q) A
Benzo(b)fluoranthene	<25	<20	1.5 (Q) S,AA	(Q) ID	1.5 (Q) S, AA
Benzo(g,h,i)perylene	7.3 JB	<20	1 M,AA	NLV	1 M
Benzo(k)fluoranthene	<25	<20	1 (Q) M,AA	(Q) NLV	1 (Q) M
bis(2-Ethylhexyl)phthalate	<25	<20	320 AA	NLV	6 A
Chrysene	<25	<20	1.6 (Q) S,AA	(Q) ID	1.6 (Q) S
Dibenzo(a,h)anthracene	6.0 JB	<20	2 (Q) M,AA	(Q) NLV	2 (Q) M

Footnotes on Page 13.

Table 6-16. Summary of Constituents Detected in Seep Water Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Sample Type Sample Date Sample I.D.	Seep Water 06/10/03 SP2 (6/10/03)	Seep Water 05/17/04 SP2 (5/17/04)	Residential Groundwater Contact Criteria	Residential Indoor Air Inhalation Criteria	Residential Drinking Water Criteria
SVOC (continued)					
Di-n-butylphthalate	<25	<20	11,000 S	NLV	880
Indeno(1,2,3-c,d)pyrene	5.9 JB	<20	2 (Q) AA,M	(Q) NLV	2 (Q) M
Naphthalene	<25	<20	31,000 S	31,000 S	520
Metals					
Aluminum	<200	<200	64,000,000 (B)	(B) NLV	50 (B) V
Arsenic	39	27	4,300	NLV	10 A
Arsenic-DISS	39	32	4,300	NLV	10 A
Barium	650	500	14,000,000 (B)	(B) NLV	2,000 (B) A
Barium-DISS	620	610	14,000,000 (B)	(B) NLV	2,000 (B) A
Calcium	120,000	93,000	NA	NA	NA
Calcium-DISS	110,000	110,000	NA	NA	NA
Chromium	<5.0	0.77 B	460,000	NLV	100 A
Chromium-DISS	<5.0	0.63 B	460,000	NLV	100 A
Cobalt	<10	2.1 B	2,400,000	NLV	40
Cobalt-DISS	<10	2.6 B	2,400,000	NLV	40
Copper	<25	<25	7,400,000 (B)	(B) NLV	1,000 (B) E
Iron	23,000	17,000	58,000,000 (B)	(B) NLV	300 (B) E
Iron-DISS	22,000	20,000	58,000,000 (B)	(B) NLV	300 (B) E
Lead	<3.0	<3.0	(B) ID	(B) NLV	4 (B) L
Magnesium	89,000	72,000	1,000,000,000 (B) D	(B) NLV	400,000 (B)
Magnesium-DISS	86,000	87,000	1,000,000,000 (B) D	(B) NLV	400,000 (B)
Manganese	460	400	9,100,000 (B)	(B) NLV	50 (B) E
Manganese-DISS	440	480	9,100,000 (B)	(B) NLV	50 (B) E
Nickel	<25	2.1 B	74,000,000 (B)	(B) NLV	100 (B) A
Nickel-DISS	<25	2.8 B	74,000,000 (B)	(B) NLV	100 (B) A
Potassium	4,000	3,200	NA	NA	NA
Potassium-DISS	3,900	3,900	NA	NA	NA
Silver	<0.20 WN	<0.20	1,500,000 (B)	(B) NLV	34 (B)
Sodium	13,000	9,400	1,000,000,000 D	NLV	120,000
Sodium-DISS	12,000	12,000	1,000,000,000 D	NLV	120,000
Titanium	<50	3.5 B	NA	NA	NA

Footnotes on Page 13.

Table 6-16. Summary of Constituents Detected in Seep Water Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Sample Type Sample Date Sample I.D.	Seep Water 06/10/03 SP2 (6/10/03)	Seep Water 05/17/04 SP2 (5/17/04)	Residential Groundwater Contact Criteria	Residential Indoor Air Inhalation Criteria	Residential Drinking Water Criteria
Metals (continued)					
Titanium-DISS	<50	3.7 B	NA	NA	NA
Vanadium	<20	2.6 B	970,000	NLV	4.5
Vanadium-DISS	<20	3.2 B	970,000	NLV	4.5
Zinc	<20	2.0 B	110,000,000 (B)	(B) NLV	2,400 (B)
Zinc-DISS	<20	1.3 B	110,000,000 (B)	(B) NLV	2,400 (B)
Alcohols					
Ethylene glycol	<10,000	1300 J	1,000,000,000 S	NLV	15,000
Methanol	<1,000	1,900	29,000,000 S	29,000,000 S	3,700
Aldehydes					
Acetaldehyde	<100	<100	42,000,000 (I)	1,100,000 (I)	950 (I)
m-Tolualdehyde	<100	45 J	NA	NA	NA
Octanal	<100	13 J	NA	NA	NA
Inorganics					
Alkalinity	660,000	670,000	NA	NA	NA
Chloride	7,900	8,800	ID	NLV	250,000 E
Nitrogen, (Ammonia)	320	160	ID	3,200,000	10,000 N
Ortho-Phosphate	<50	<50	NA	NA	NA
Silica, Dissolved	43,000	40,000	NA	NA	NA
Methane	NA	9240	(K) ID	(K) K	(K) ID
Acetic Acid/Acetate	<1,000	220 J	180,000,000	NLV	4,200
Suspended Solids	NA	NA	NA	NA	NA
Total Organic Carbon	58,000	61,000	NA	NA	NA
Biochemical Oxygen Demand	9,100	11,000	NA	NA	NA
Chemical Oxygen Demand	200,000	220,000	NA	NA	NA

Footnotes on Page 13.

Table 6-16. Summary of Constituents Detected in Seep Water Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Results in micrograms per liter (µg/L).

	Indicates a value above the Residential and Commercial I Drinking Water Protection Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
	Indicates a value above the Groundwater Contact Criteria (RRD Operational Memorandum #1, January 23, 2006).
*	LCS or LCSD exceeds the control limit.
<	Less than the laboratory method detection limit.
B	Constituent was also detected in laboratory blank.
D	Result was obtained from analysis of a dilution.
DISS	Dissolved.
J	Estimated result.
N	Spiked sample recovery is not within control limits (Inorganics only).
NA	Not analyzed.
SVOCs	Semi volatile organic compounds.
VOCs	Volatile organic compounds.
W	Post-digestion spike for furnace A-A analysis is out of control limits while sample absorbance is less than 50% of spike absorbance.

State of Michigan Criteria Footnotes:

A	State of Michigan Drinking Water Standard.
AA	Compound may be adsorbed to particulates rather than dissolved in water; filtered groundwater sample may be more appropriate for comparison to criteria.
B	Background may be substituted if higher than the calculated cleanup criteria.
D	Calculated criterion exceeds 100%, therefore it is reduced to 100%.
E	Criterion is the aesthetic drinking water value.
I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.
ID	Inadequate data to develop criterion.
J	Chemical may be present in several isomer forms. Isomer specific concentrations must be added together for comparison to criteria.
K	Chemical may be flammable and/or explosive.
L	Higher groundwater concentrations, (up to 15 µg/L) may be acceptable if the soil concentration is less than 400 ppm and groundwater migrating offsite will not result in unacceptable exposures.
M	Calculated criterion is below the analytical method detection limit (MDL).
N	Concentrations of all potential nitrate-nitrogen sources must be added together and compared to nitrate criteria.
NA	Criterion or values is not available.
NLV	Chemical is not likely to volatilize under most soil conditions.

Table 6-16. Summary of Constituents Detected in Seep Water Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

State of Michigan Criteria Footnotes (continued):

Q	Criterion for carcinogenic polycyclic aromatic hydrocarbons (PAHs) were developed using "relative potential potencies" (RFPs) to benzo(a)pyrene.
R	Hazardous substance may exhibit the characteristic of reactivity as defined in 40 CFR 261.23.
S	Criterion defaults to the chemical-specific water solubility limit.
V	Criterion is the aesthetic drinking water value, which is a secondary standard.

Table 6-17. Constituent Characteristics and Degradation Rates, Ford-Kingsford Products Facility, Kingsford, Michigan.

Chemical Compound	Soil Aerobic Half-Life [a]	Groundwater Aerobic Half-Life (Aqueous Phase)[a]	Groundwater Anaerobic Half-Life (Aqueous Phase)[a,b]	Molecular Weight [c,d]
Acetic Acid	---	---	9 days – 2.67 years	60.05
2,4 Dimethylphenol	1.5 days - 3 days[6]	1 day – 7 days	~ 8 weeks[8]	122.17
2-Methylphenol	1.6 days - 5.1 days[6]	10 days - 20 days[6]	>60 days[6]	108.14
4-Methylphenol	0.5 days - 1 day[6]	~ 7.1 days[6]	~18.5 days[6]	108.14
1–Butanol	---	---	---	74.12
Crotonaldehyde	---	---	---	70.09
Cyclohexane	---	---	---	84.16
Ethylene Glycol	---	2 days – 12 days	---	---
Isobutyl Alcohol	---	1.8 days – 7.2 days	---	74.12
Isopropanol	---	---	---	60.09
Methanol	---	---	8 day – 8.62 days	32.04
Phenol	1 day – 10 days	---	22 days – 1.46 days	94.11
Di–n -butyl phthalate	---	---	---	278.35
Bis(2-ethylhexyl)phthalate	---	5 days – 23 days	---	390.57
1,2,4 Trimethyl benzene	---	---	---	120.19
Methyl Ethyl Ketone	---	---	13 days – 128 days	72.11
Acetone	---	---	19 days – 187 days	58.08
Benzene	---	5 days – 16 days	0 weeks – 21 months	78.11
Chloroform	---	---	23 week – 4.75 weeks	119.38
1,2 Dichloroethylene	---	---	---	96.94
Ethylbenzene	---	---	46 days – 3.16 days	106.17
Naphthalene	16.6 days – 48 days	12 hours – 20 days	0 days – 96 days	128.18
Toluene	---	---	12 weeks – 1.92 weeks	92.14
Total Xylenes	---	---	m-Xylene – 43 weeks – 1.58 weeks o-Xylene – 33 months – 2.32 months p-Xylene – 46 weeks – 2.23 weeks	106.17
Trichloroethylene	---	---	277 days – 13.56 years	131.39

Footnotes on Page 3.

Table 6-17. Constituent Characteristics and Degradation Rates, Ford-Kingsford Products Facility, Kingsford, Michigan.

Chemical Compound	Density (g/cm^3)[d]	Solubility in Water (mg/L)[c,d]	Henry's Law Constant ($atm\text{-}m^3/mol$)[c,d]	Vapor Pressure (mm Hg)[c,d]	Retardation Factor[c,d,e,calculation]
Acetic Acid	1.0492 (20/4°C)	Miscible	1.23×10^{-3} (25° C)	11.4 (20°C)	1.00
2,4 Dimethylphenol	0.9650 (20/4°C)	4,200 (20°C)	4.93×10^{-3} (25° C)	6.21 (20°C)	2.66
2-Methylphenol	1.0273 (20/4°C)	25,000 (25°C)	1.23×10^{-6} (25° C)	0.24 (25°C)	1.31
4-Methylphenol	1.0178 (20/4°C)	25,000 (25°C)	7.92×10^{-7} (25° C)	0.108 (25°C)	1.69
1–Butanol	0.8098 (20/4°C)	77,085 (20°C)	8.48×10^{-6} (25° C)	4.4 (20°C)	1.04
Crotonaldehyde	0.853 (20/20°C)	18.1 wt. % (20°C)	1.96×10^{-5} (25° C)	19 (20°C)	-
Cyclohexane	0.7785 (20/4°C)	100 (20°C)	0.177 (25° C)	78 (20°C)	25.31
Ethylene Glycol	---	---	---	---	-
Isobutyl Alcohol	0.8018 (20/4°C)	94,870 (20°C)	9.79×10^{-6} (25° C)	9 (20°C)	1.05
Isopropanol	0.78505 (20/4°C)	Miscible	---	---	-
Methanol	0.7914 (20/4°C)	Miscible	4.44×10^{-6} (25° C)	127.2 (20°C)	1.04
Phenol	1.0576 (20/4°C)	8.2 wt. % (20°C)	3.97×10^{-7} (25° C)	20 (20°C)	1.66
Di–n -butyl phthalate	1.042 (25/4°C)	10.1 (20°C)	6.3×10^{-5}	1.4×10^{-5} (25°C)	20.56
Bis(2-ethylhexyl)phthalate	0.985 (20/4°C)	41 (20°C)	1.1×10^{-5} (25° C)	200 (20°C)	1,417.67
1,2,4 Trimethyl benzene	0.8758 (20/4°C)	51.9 (25°C)	5.7×10^{-3} (25° C)	2.03 (25°C)	53.63
Methyl Ethyl Ketone	0.8054 (20/4°C)	24.00 wt. % (20°C)	4.65×10^{-5} (25° C)	77.5 (20°C)	1.42
Acetone	0.7899 (20/4°C)	Miscible	3.97×10^{-5} (25° C)	180 (20°C)	1.01
Benzene	0.8765 (20/4°C)	1,710 (20°C)	5.48×10^{-3} (25° C)	76 (20°C)	2.42
Chloroform	1.4832 (20/4°C)	8,200 (20°C)	3.39×10^{-3} (25° C)	150.5 (20°C)	1.89
1,2 Dichloroethylene	1.2565 (20/4°C)	6,300 (20°C)	6.74×10^{-3} (25° C)	265 (20°C)	1.83
Ethylbenzene	0.8670 (20/4°C)	187 (25°C)	8.68×10^{-3} (25° C)	7.08 (20°C)	2.35
Naphthalene	1.162 (20/4°C)	31.7 (25°C)	4.6×10^{-4} (25° C)	2.3×10^{-1} (25°C)	19.25
Toluene	0.8669 (20/4°C)	519.5 (25°C)	6.42×10^{-3} (25° C)	22 (20°C)	2.63
Total Xylenes	m-Xylene – 0.8642 (20/4°C) o-Xylene – 0.8802 (20/4°C) p-Xylene – 0.8811 (20/4°C)	m-Xylene – 173 (25°C) o-Xylene – 204 (25°C) p-Xylene – 200 (25°C)	m-Xylene – 7.44×10^{-3} (25° C) o-Xylene – 6.26×10^{-3} (25° C) p-Xylene – 7.44×10^{-3} (25° C)	m-Xylene – 8.3 (25°C) o-Xylene – 6.6 (25°C) p-Xylene – 8.8 (25°C)	3.25
Trichloroethylene	1.464 (20/4°C)	1,100 (25°C)	1.02 x 10-2 (25o C)	53.5 (20°C)	3.13

Footnotes on Page 3.

Table 6-17. Constituent Characteristics and Degradation Rates, Ford-Kingsford Products Facility, Kingsford, Michigan.

Sources:

a. Howard, P.H. et al. Handbook of Environmental Degradation Rates. Lewis Publishers. New York. 1991.
b. Aronson, D. et al. Anaerobic Biodegradation of Organic Chemicals in Groundwater: A summary of Field and Laboratory Studies. Final Report. Environmental Science Center. 1997.
c. Suthersan, Suthan. Remediation Engineering: Design Concepts. CRC Lewis Publishers. New York. 1997.
d. Montgomery, John. Groundwater Chemicals: Desk Reference. CRC Lewis Publishers. New York. 1996.
e. Minnesota Pollution Control Agency. Risk Based Site Evaluation Manual. 1999.

g/cm	Grams per cubic meter.
mg/L	Milligrams per liter.
C	Centigrade.
atm-m3/mol	As atmospheres of cubic meters per mole.
mm Hg	As millimeters of mercury.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-5						GM-6			
Top of Screen Depth (ft bls)	250	250	250	250	250	250	165	165	165	165
Sample Date	07/02/97	10/15/97	04/18/99	11/30/99	08/15/00	09/20/00	06/28/97	10/22/97	10/10/98	04/19/99
Sample ID	GWGM-5	GM-5	GWGM-5	GM-5	GWGM-5	GWGM-5	GWGM-6	GM-6	GWGM-6	GWGM-6
VOCs										
1,1-Dichloroethene	<1	<25	<1	NA	NA	NA	<1	<5	<1	<1
1,2,4-Trimethylbenzene	NA	NA	<1 J	NA	NA	NA	NA	NA	1	1.1
1,2-Dichloroethene (total)	NA	NA	<1	NA	NA	NA	NA	NA	<1	<1
1,3,5-Trimethylbenzene	NA	NA	<1 J	NA	NA	NA	NA	NA	<1	<1
2-Butanone (MEK)	<10	<250	<10 J	NA	NA	NA	<10	<50	<10	<10
2-Hexanone	<10	<250	29	NA	NA	NA	<10	<50	<10	<10
4-Methyl-2-pentanone (MIBK)	<10	<250	<10 J	NA	NA	NA	<10	<50	<10	<10
Acetone	<10	<250	R	NA	NA	NA	<10	<50	<10	R
Acrylonitrile	NA	NA	<25 J	NA	NA	NA	NA	NA	<25	<25
Benzene	0.24 J	20 J	29	NA	NA	NA	7.2	6	7.3	6.3
Bromochloromethane	NA	NA	<1	NA	NA	NA	NA	NA	<1	<1
Bromoform	<1	<25	<1	NA	NA	NA	<1	<5	<1	<1
Bromomethane	<1	<25	<1	NA	NA	NA	<1	<5	<1	<1
Carbon disulfide	<1	130	<1	NA	NA	NA	1	9.3	<1	5.9
Chloroethane	<1	<25	<1	NA	NA	NA	<1	<5	<1	<1
Chloromethane	<1	<25	<1	NA	NA	NA	<1	<5	<1	<1
cis-1,2-Dichloroethene	<1	<25	<1	NA	NA	NA	0.65 J	<5	<1	<1
Diethylether	NA	NA	31	NA	NA	NA	NA	NA	<10	<10
Ethylbenzene	0.25 J	<25	1.9	NA	NA	NA	1.5	0.63 J	1.5	1.3
Furan	NA	NA	<5	NA	NA	NA	NA	NA	<5	<5
Isopropylbenzene	NA	NA	<1	NA	NA	NA	NA	NA	<1	<1
Methyl iodide	NA	NA	<5	NA	NA	NA	NA	NA	<5	<5
Methyl(tert)butyl ether	NA	NA	<50	NA	NA	NA	NA	NA	<50	<50
Methylene chloride	<1	<25	<1	NA	NA	NA	<1.0	<5	<1	<1
Propionitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	<1	<25	<1	NA	NA	NA	<1	<5	<1	<1
Tetrahydrofuran	NA	NA	28 J	NA	NA	NA	NA	NA	<5	R
Toluene	0.55 J	9.2 J	15	NA	NA	NA	8.2	6.3	7.6	6.1
trans-1,2-Dichloroethene	<1	<25	<1	NA	NA	NA	<1	<5	<1	<1
Trichloroethene	0.071 J	<25	1.4	NA	NA	NA	0.78 J	<5	<1	<1

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-5						GM-6			
Top of Screen Depth (ft bls)	250	250	250	250	250	250	165	165	165	165
Sample Date	07/02/97	10/15/97	04/18/99	11/30/99	08/15/00	09/20/00	06/28/97	10/22/97	10/10/98	04/19/99
Sample ID	GWGM-5	GM-5	GWGM-5	GM-5	GWGM-5	GWGM-5	GWGM-6	GM-6	GWGM-6	GWGM-6
VOCs (continued)										
Xylene, o	NA	NA	3.7	NA	NA	NA	NA	NA	<1	2.1
Xylenes (total)	0.63 J	<25	6.6	NA	NA	NA	5.2	4.3 J	5.3	4.8
Xylenes, m+p	NA	NA	2.9	NA	NA	NA	NA	NA	<2	2.6
SVOCs										
1,4-Dichlorobenzene	<100	<100	<50	<20	NA	NA	<20	<25	<10	<12
2,3-Dimethylphenol	NA	NA	100	NA	NA	NA	NA	NA	NA	28
2,4-Dimethylphenol	**1,100**	**910**	**870**	**900**	**1,000**	**1,100**	240	250	220	270
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,5-Dimethylphenol	NA	NA	<200	NA	NA	NA	NA	NA	NA	<50
2,6-Dimethylphenol	NA	NA	460	NA	NA	NA	NA	NA	NA	200
2-Methylphenol	<100	<100	<50	<20	<25	<25	<20	<25	<10	<12
2-Nitrophenol	<100	<100	<100	<20	NA	NA	<20	<25	<20	<25
3,4-Dimethylphenol	NA	NA	<100	NA	NA	NA	NA	NA	NA	<25
3-Methylphenol	NA	NA	<100	NA	NA	NA	NA	NA	<20	<25
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	<20	<25	<25	NA	NA	NA	NA
4-Methylphenol	<100	<100	<50	NA	NA	NA	<20	<25	<10	<12
Anthracene	<100	<100	<50	<20	NA	NA	<20	<25	<10	<12
Benzo(a)anthracene	<100	<100	<50	<20	NA	NA	<20	<25	<10	<12
Benzo(a)pyrene	<100	<100	<50	<20	NA	NA	<20	<25	<10	<12
Benzo(b)fluoranthene	<100	<100	<50	<20	NA	NA	<20	<25	<10	<12
Benzo(g,h,i)perylene	<100	<100	<50	<20	NA	NA	<20	<25	<10	<12
Benzo(k)fluoranthene	<100	<100	<50 J	<20	NA	NA	<20	<25	<10	<12 J
bis(2-Ethylhexyl)phthalate	<100	<100	<50	<20	NA	NA	15 J	6.7 J	10	**54 J**
Butylbenzylphthalate	<100	<100	<50	<20	NA	NA	<20	<25	<10	<12 J
Carbazole	<200	<200	<50 J	<20	NA	NA	<40	<50	<10	<12 J
Chrysene	<100	<100	<50	<20	NA	NA	<20	<25	<10	<12
Dibenzo(a,h)anthracene	<100	<100	<50	<20	NA	NA	<20	<25	<10	<12
Diethylphthalate	<100	<100	<50	<20	NA	NA	<20	<25	<10	<12
Di-n-butylphthalate	<100	<100	<50	<20	NA	NA	<20	<25	<10	<12

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-5						GM-6			
Top of Screen Depth (ft bls)	250	250	250	250	250	250	165	165	165	165
Sample Date	07/02/97	10/15/97	04/18/99	11/30/99	08/15/00	09/20/00	06/28/97	10/22/97	10/10/98	04/19/99
Sample ID	GWGM-5	GM-5	GWGM-5	GM-5	GWGM-5	GWGM-5	GWGM-6	GM-6	GWGM-6	GWGM-6
SVOCs (continued)										
Di-n-octylphthalate	<100	<100	<50	<20	NA	NA	<20	<25	<10	<12
Fluoranthene	<100	<100	<50	<20	NA	NA	<20	<25	<10	<12
Indeno(1,2,3-c,d)pyrene	<100	<100	<50	<20	NA	NA	<20	<25	<10	<12
Naphthalene	<100	<100	<100	<20	NA	NA	<20	<25	<20	<25
Phenol	<100	<100	<50	<20	<25	<25	<20	<25	<10	<12
Pyrene	<100	<100	<50	<20	NA	NA	<20	<25	<10	<12
Metals										
Aluminum	466 J	NA	<200	NA	NA	NA	NA	373	<200	<200
Aluminum-DISS	<100 J	NA	NA	25 B	NA	NA	NA	<100	NA	NA
Antimony	<5 J	NA	<50	NA	NA	NA	NA	<5	<50	<50
Antimony-DISS	<5	NA	NA	<50	NA	NA	NA	<5	NA	NA
Arsenic	86.5 J	NA	7.6	NA	NA	NA	NA	84.3	86	90
Arsenic-DISS	83.0 J	NA	NA	100	NA	NA	NA	85.5	NA	NA
Barium	288 J	NA	270	NA	NA	NA	NA	<200	<200	<200
Barium-DISS	272 J	NA	NA	290	NA	NA	NA	<200	NA	NA
Beryllium-DISS	<5 J	NA	NA	<1.0	NA	NA	NA	<5	NA	NA
Cadmium	<0.5 J	NA	<0.5	NA	NA	NA	NA	<0.5	<0.5	<0.5
Cadmium-DISS	<0.5 J	NA	NA	<0.50 W	NA	NA	NA	<0.5	NA	NA
Calcium	130,000 J	117,000	110,000	NA	120,000	NA	124,000 J	111,000	110,000	110,000
Calcium-DISS	122,000 J	109,000	NA	110,000	NA	120,000	NA	117,000	NA	NA
Chromium	<50 J	NA	<50	NA	NA	NA	NA	<50	<50	<50
Chromium-DISS	<50 J	NA	NA	0.65 B	NA	NA	NA	<50	NA	NA
Cobalt	<50 J	NA	<50	NA	NA	NA	NA	<50	<50	<50
Cobalt-DISS	<50 J	NA	NA	3.3 B	NA	NA	NA	<50	NA	NA
Copper	**26.9 J**	NA	<25	NA	NA	NA	NA	<25	<25	<25
Copper-DISS	<25 J	NA	NA	<25	NA	NA	NA	<25	NA	NA
Iron	10,500 J	10,600	11,000	NA	11,000	NA	12,700 J	10,500	12,000	12,000
Iron-DISS	9,570 J	9,260	NA	11,000	NA	12,000	12,400 J	10,400	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-5						GM-6			
Top of Screen Depth (ft bls)	250	250	250	250	250	250	165	165	165	165
Sample Date	07/02/97	10/15/97	04/18/99	11/30/99	08/15/00	09/20/00	06/28/97	10/22/97	10/10/98	04/19/99
Sample ID	GWGM-5	GM-5	GWGM-5	GM-5	GWGM-5	GWGM-5	GWGM-6	GM-6	GWGM-6	GWGM-6
Metals (continued)										
Lead	<3 J	NA	<3	NA	NA	NA	NA	<3	<3	<3
Lead-DISS	<3 J	NA	NA	<3.0	NA	NA	NA	<3	NA	NA
Magnesium	152,000 J	165,000	170,000	NA	190,000	NA	119,000 J	104,000	110,000	110,000
Magnesium-DISS	147,000 J	152,000	NA	170,000	NA	200,000	NA	111,000	NA	NA
Manganese	181 J	237	120	99	NA	NA	998 J	742	700	500
Manganese-DISS	149 J	224	NA	NA	NA	NA	811 J	817	NA	NA
Mercury	<0.2 J	NA	<0.2	NA	NA	NA	NA	<0.2	<0.2	<0.2
Mercury-DISS	<0.2 J	NA	NA	<0.20	NA	NA	NA	<0.2	NA	NA
Molybdenum	NA	NA	<100	NA	NA	NA	NA	NA	<100	<100
Molybdenum-DISS	NA	NA	NA	2.7 B	NA	NA	NA	NA	NA	NA
Nickel	<50 J	NA	<50	NA	NA	NA	NA	<50	<50	<50
Nickel-DISS	<50 J	NA	NA	3.4 B	NA	NA	NA	<50	NA	NA
Potassium	12,600 J	9,180	5,500	NA	7,000	NA	<5,000 J	<5,000	3,400	3,700
Potassium-DISS	11,500 J	8,650	NA	6,200	NA	6,100	NA	<5,000	NA	NA
Selenium	<5 J	NA	<5	NA	NA	NA	NA	<5	<5	<5 J
Selenium-DISS	<5 J	NA	NA	<5.0	NA	NA	NA	<5	NA	NA
Silver	<0.5 J	NA	<0.5	NA	NA	NA	NA	<0.5	<0.5	<0.5
Silver-DISS	<0.5 J	NA	NA	<0.20	NA	NA	NA	<0.5	NA	NA
Sodium	32,400 J	32,500	33,000	NA	35,000 J	NA	15,300 J	13,700	14,000	14,000
Sodium-DISS	30,900 J	32,200	NA	34,000	NA	36,000	NA	12,900	NA	NA
Thallium	<2 J	NA	<2	NA	NA	NA	NA	<2	<2	<2
Thallium-DISS	<2 J	NA	NA	<2.0 W	NA	NA	NA	<2	NA	NA
Titanium	NA	NA	<50	NA	NA	NA	NA	NA	<50	<50
Titanium-DISS	NA	NA	NA	0.82 B	NA	NA	NA	NA	NA	NA
Vanadium	<20 J	NA	<20	NA	NA	NA	NA	<20	<20	<20
Vanadium-DISS	<20 J	NA	NA	4.1 B	NA	NA	NA	<20	NA	NA
Zinc	36.9 MBD J	NA	<20	NA	NA	NA	NA	21.5	<20	<20
Zinc-DISS	59.8 MBD J	NA	NA	1.5 B	NA	NA	NA	<20	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-5						GM-6			
Top of Screen Depth (ft bls)	**250**	**250**	**250**	**250**	**250**	**250**	**165**	**165**	**165**	**165**
Sample Date	**07/02/97**	**10/15/97**	**04/18/99**	**11/30/99**	**08/15/00**	**09/20/00**	**06/28/97**	**10/22/97**	**10/10/98**	**04/19/99**
Sample ID	**GWGM-5**	**GM-5**	**GWGM-5**	**GM-5**	**GWGM-5**	**GWGM-5**	**GWGM-6**	**GM-6**	**GWGM-6**	**GWGM-6**
Alcohols										
1,4-Dioxane	NA	NA	R	<20 J	NA	NA	NA	NA	R	R
Acetonitrile	NA	NA	R	NA	NA	NA	NA	NA	<50	<50 J
Ethanol	NA	NA	<1,000 J	NA	NA	NA	NA	NA	<1,000	<1,000
Ethylacetate	NA	NA	R	NA	NA	NA	NA	NA	R	R
Ethylene glycol	NA	NA	<20,000 J	NA	NA	NA	NA	NA	<20,000	<20,000 J
Isobutanol	NA	NA	<1,000 J	NA	NA	NA	NA	NA	<1,000	<1,000
Isopropanol	NA	NA	<1,000 J	NA	NA	NA	NA	NA	<1,000	<1,000
Methanol	NA	NA	<800 J	NA	NA	NA	NA	NA	<800	<800
n-Butanol	NA	NA	<1,000 J	NA	NA	NA	NA	NA	<1,000	<1,000
Aldehydes										
Acetaldehyde	NA	NA	**320**	**140**	NA	NA	NA	NA	<100 J	130
Butanal	NA	NA	<100	<100	NA	NA	NA	NA	<100 J	<100
Crotonaldehyde	NA	NA	<100	<100	NA	NA	NA	NA	<100 J	<100
Cyclohexanone	NA	NA	<100	<100	NA	NA	NA	NA	<100 J	<100
Decanal	NA	NA	<100	<100	NA	NA	NA	NA	<100 J	<100
Formaldehyde	NA	NA	<100	<100	NA	NA	NA	NA	<100 J	<100
Heptanal	NA	NA	<100	<100	NA	NA	NA	NA	<100 J	<100
Hexanal	NA	NA	<100	<100	NA	NA	NA	NA	<100 J	<100
m-Tolualdehyde	NA	NA	<100	<100	NA	NA	NA	NA	<100 J	<100
Nonanal	NA	NA	<100	<100	NA	NA	NA	NA	<100 J	<100
Octanal	NA	NA	<100	<100	NA	NA	NA	NA	<100 J	<100
Paraldehyde	NA	NA	<100	<100	NA	NA	NA	NA	<100 J	<100
Pentanal	NA	NA	130	<100	NA	NA	NA	NA	<100 J	<100
Propanal	NA	NA	<100	<100	NA	NA	NA	NA	<100 J	<100
Inorganics										
Alkalinity	970,000	1,100,000	1,000,000	NA	NA	NA	710,000	870,000	690,000	670,000
Bicarbonate	NA	NA	NA	NA	1,100,000	1,100,000	NA	NA	NA	NA
Chloride	17,000	18,000	17,000	NA	18000 J	18,000	12,000	11,000	<40,000 M	14,000

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-5						GM-6			
Top of Screen Depth (ft bls)	250	250	250	250	250	250	165	165	165	165
Sample Date	07/02/97	10/15/97	04/18/99	11/30/99	08/15/00	09/20/00	06/28/97	10/22/97	10/10/98	04/19/99
Sample ID	GWGM-5	GM-5	GWGM-5	GM-5	GWGM-5	GWGM-5	GWGM-6	GM-6	GWGM-6	GWGM-6
Inorganics (continued)										
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	<200	<200	NA	NA	NA	<200	<200	<200	<200
Nitrogen, Nitrate	<100	<100	<100	NA	NA	NA	<100 J	<100	<100	<100
Nitrogen, Nitrite	<100	<100	<100 J	NA	NA	NA	<100 J	<100	<100 J	<100
Ortho-Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	<100	200	<100	NA	NA	NA	<100	<100	<100	<100
Silica	32,000	36,000	34,000	NA	NA	NA	20,000	40,000	<100	26,000
Silica, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	23,000	<5,000	<5,000	NA	<5,000	<5,000	<5,000	24,000	<5,000	<20,000 M
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	2,000	1,000	1,800	NA	NA	NA	1,500	<500	2,400	<1,000
Acetic Acid	NA	NA	500	<1,000	NA	NA	NA	NA	<1,000	<500
Biochemical Oxygen Demand	NA	NA	22,000	NA	NA	NA	NA	NA	5,800 J	16,000
Chemical Oxygen Demand	460,000	500,000	550,000	NA	NA	NA	190,000	150,000	130,000	<500,000 M
Total Organic Carbon	130,000	110,000	140,000	NA	NA	NA	57,000 J	44,000	47,000	43,000
Density	1	NA	NA	NA	NA	NA	0.99	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	1,000,000	NA	NA	NA	NA	NA	NA
Methane	74,400	36,400	92,200	NA	NA	NA	62,500	64,800	57,100	25,200
Suspended Solids	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	**930,000**	NA	NA	NA	NA	NA	NA	**540,000**

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-6 (continued)			GM-9					
Top of Screen Depth (ft bls)	165	165	165	164	164	164	164	164	164
Sample Date	02/29/00	07/19/00	09/25/00	10/13/97	10/11/98	04/18/99	09/10/03	05/03/04	07/28/05
Sample ID	GWGM-6	GWGM-6	GWGM-6	GM-9	GWGM-9	GWGM-9	GM-9	GWGM-9 (5/3/04)	GWGM-9 (072805)
VOCs									
1,1-Dichloroethene	NA	<1.0	NA	<1	<1	<1	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	NA	0.64 J	NA	NA	<1	<1 J	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	NA	<2.0	NA	NA	<1	<1	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	NA	<1.0	NA	NA	<1	<1 J	<1.0	<1.0	<1.0
2-Butanone (MEK)	NA	<50 J	NA	<10	<10	<10 J	<50	<50	<50
2-Hexanone	NA	<50 J	NA	<10	<10	<10	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	NA	<50	NA	<10	<10	<10 J	<50	<50	<50
Acetone	NA	<100 J	NA	<10	<10	R	<100	<100	<100
Acrylonitrile	NA	R	NA	NA	<25	<25 J	<25	<25	<25
Benzene	NA	5.6	NA	0.47 J	<1	<1	<1.0	1.3	0.97 J
Bromochloromethane	NA	<1.0	NA	NA	<1	<1	<1.0	<1.0	<1.0
Bromoform	NA	<1.0	NA	<1	<1	<1	<1.0	<1.0	<1.0
Bromomethane	NA	<1.0	NA	<1	<1	<1	<1.0	<1.0	<1.0
Carbon disulfide	NA	<5.0	NA	0.23 J	<1	2.4	<5.0	<5.0	<5.0
Chloroethane	NA	<1.0	NA	<1	<1	<1	<1.0	<1.0	<1.0
Chloromethane	NA	<1.0	NA	<1	<1	<1	1.3	<1.0	<1.0
cis-1,2-Dichloroethene	NA	0.62 J	NA	<1	<1	<1	<1.0	<1.0	<1.0
Diethylether	NA	<10	NA	NA	<10	<10	<10	4.9 J	3.5 J
Ethylbenzene	NA	1.3	NA	<1	<1	<1	<1.0	<1.0	<1.0
Furan	NA	NA	NA	NA	<5	<5	<2.0	0.59 J	<10
Isopropylbenzene	NA	<1.0	NA	NA	<1	<1	<1.0	<1.0	<1.0
Methyl iodide	NA	<5.0	NA	NA	<5	<5	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	NA	<5.0	NA	NA	<50	<50	<5.0	<5.0	<5.0
Methylene chloride	NA	<1.0	NA	<1	<1	<1	<1.0	<1.0	<1.0
Propionitrile	NA	<25	NA	NA	NA	NA	<25	<25	<25
Tetrachloroethene	NA	<1.0	NA	<1	<1	<1	<1.0	<1.0	<1.0
Tetrahydrofuran	NA	NA	NA	NA	<5	R	<2.0	<2.0	<10
Toluene	NA	5.7	NA	<1	<1	<1	<1.0	35	<1.0
trans-1,2-Dichloroethene	NA	<1.0	NA	<1	<1	<1	<1.0	<1.0	<1.0
Trichloroethene	NA	0.72 J	NA	<1	<1	<1	<1.0	<1.0	<1.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-6 (continued)			GM-9					
Top of Screen Depth (ft bls)	165	165	165	164	164	164	164	164	164
Sample Date	02/29/00	07/19/00	09/25/00	10/13/97	10/11/98	04/18/99	09/10/03	05/03/04	07/28/05
Sample ID	GWGM-6	GWGM-6	GWGM-6	GM-9	GWGM-9	GWGM-9	GM-9	GWGM-9 (5/3/04)	GWGM-9 (072805)
VOCs (continued)									
Xylene, o	NA	NA	NA	NA	<1	<1	NA	NA	NA
Xylenes (total)	NA	4	NA	<1	<3	<3	<3.0	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	<2	<2	NA	NA	NA
SVOCs									
1,4-Dichlorobenzene	NA	<5.0	NA	<5	<5	<5	<5.0	<5.0	<4.9
2,3-Dimethylphenol	NA	NA	NA	NA	NA	<10	<10	<10	<9.8
2,4-Dimethylphenol	210	260	200	<5	<5	<5	NA	NA	<4.9
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	<10	<10	<9.8
2,5-Dimethylphenol	NA	NA	NA	NA	NA	<20	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	<10	<10	<10	<9.8
2-Methylphenol	<5	<5.0	<5.0	<5	<5	<5	<5.0	<5.0	<4.9
2-Nitrophenol	NA	<5.0	NA	<5	<20	<20	<5.0	<5.0	1.8 J
3,4-Dimethylphenol	NA	NA	NA	NA	NA	<10	<10	<10	<9.8
3-Methylphenol	NA	NA	NA	NA	<10	<10	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5	<5.0	<5.0	NA	NA	NA	<5.0	<5.0	<4.9
4-Methylphenol	NA	NA	NA	<5	<5	<5	NA	NA	NA
Anthracene	NA	<5.0	NA	<5	<5	<5	<5.0	<5.0	<4.9
Benzo(a)anthracene	NA	<5.0	NA	<5	<5	<5	<5.0	<5.0	<4.9
Benzo(a)pyrene	NA	<5.0	NA	<5	<5	<5	<5.0	<5.0	<4.9
Benzo(b)fluoranthene	NA	<5.0	NA	<5	<5	<5	<5.0	<5.0	<4.9
Benzo(g,h,i)perylene	NA	<5.0	NA	<5	<5	<5	<5.0	<5.0	<4.9
Benzo(k)fluoranthene	NA	<5.0	NA	<5	<5	<5 J	<5.0	<5.0	<4.9
bis(2-Ethylhexyl)phthalate	NA	**38 J**	NA	5.2	<5	<5	<5.0	<5.0	<4.9
Butylbenzylphthalate	NA	<5.0	NA	<5	<5	<5	<5.0	<5.0	<4.9
Carbazole	NA	<5.0	NA	<10	<5	<5 J	<5.0	<5.0	<4.9
Chrysene	NA	<5.0	NA	<5	<5	<5	<5.0	<5.0	<4.9
Dibenzo(a,h)anthracene	NA	<5.0	NA	<5	<5	<5	<5.0	<5.0	<4.9
Diethylphthalate	NA	<5.0	NA	<5	<5	<5	<5.0	<5.0	<4.9
Di-n-butylphthalate	NA	<5.0	NA	<5	<5	<5	<5.0	<5.0	<4.9

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-6 (continued)			GM-9					
Top of Screen Depth (ft bls)	165	165	165	164	164	164	164	164	164
Sample Date	02/29/00	07/19/00	09/25/00	10/13/97	10/11/98	04/18/99	09/10/03	05/03/04	07/28/05
Sample ID	GWGM-6	GWGM-6	GWGM-6	GM-9	GWGM-9	GWGM-9	GM-9	GWGM-9 (5/3/04)	GWGM-9 (072805)
SVOCs (continued)									
Di-n-octylphthalate	NA	<5.0	NA	<5	<5	<5	<5.0	<5.0	<4.9
Fluoranthene	NA	<5.0	NA	<5	<5	<5	<5.0	<5.0	<4.9
Indeno(1,2,3-c,d)pyrene	NA	<5.0	NA	<5	<5	<5	<5.0	<5.0	<4.9
Naphthalene	NA	<5.0	NA	<5	<10	<10	<5.0	<5.0	<4.9
Phenol	<5	<5.0	<5.0	<5	<5	<5	<5.0	<5.0	<4.9
Pyrene	NA	<5.0	NA	<5	<5	<5	<5.0	<5.0	<4.9
Metals									
Aluminum	NA	NA	NA	NA	<200	<200	<200	140 B	41 J
Aluminum-DISS	NA	<31	NA	NA	NA	NA	<200	<200	<200
Antimony	NA	NA	NA	NA	<50	<50	<50	<50	<50
Antimony-DISS	NA	<50	NA	NA	NA	NA	<50	<50	<50
Arsenic	NA	NA	NA	NA	8	7.5	<20	9.0 B	13 J
Arsenic-DISS	NA	64	NA	NA	NA	NA	<20	11 B	9.3 J
Barium	NA	NA	NA	NA	<200	<200	<100	89 B	76 J
Barium-DISS	NA	120	NA	NA	NA	NA	<100	88 B	67 J
Beryllium-DISS	NA	<1.0	NA	NA	NA	NA	<1.0	<1.0	<1.0
Cadmium	NA	NA	NA	NA	<0.5	<0.5	<0.50	<0.50	<0.50
Cadmium-DISS	NA	<0.50	NA	NA	NA	NA	<0.50	<0.50	<0.50
Calcium	NA	NA	NA	37,700	42,000	43,000	39,000	47,000	46,000
Calcium-DISS	100,000	100,000	100,000	34,800	NA	NA	43,000	47,000	39,000
Chromium	NA	NA	NA	NA	<50	<50	<5.0	<5.0	<5.0
Chromium-DISS	NA	<5.0	NA	NA	NA	NA	<5.0	<5.0	<5.0
Cobalt	NA	NA	NA	NA	<50	<50	<10	<10	0.22 J
Cobalt-DISS	NA	0.70 B	NA	NA	NA	NA	<10	<10	0.12 J
Copper	NA	NA	NA	NA	<25	<25	<25	<25	<25
Copper-DISS	NA	<25	NA	NA	NA	NA	<25	<25	<25
Iron	NA	NA	NA	1,090	24	34	160	260	93 J
Iron-DISS	12,000 J	8,200	12,000	121	NA	NA	<100	42 B	<100

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-6 (continued)			GM-9					
Top of Screen Depth (ft bls)	165	165	165	164	164	164	164	164	164
Sample Date	02/29/00	07/19/00	09/25/00	10/13/97	10/11/98	04/18/99	09/10/03	05/03/04	07/28/05
Sample ID	GWGM-6	GWGM-6	GWGM-6	GM-9	GWGM-9	GWGM-9	GM-9	GWGM-9 (5/3/04)	GWGM-9 (072805)
Metals (continued)									
Lead	NA	NA	NA	NA	<3	<3	<3.0	<3.0	<3.0
Lead-DISS	NA	<3.0	NA	NA	NA	NA	<3.0	<3.0	0.53 J
Magnesium	NA	NA	NA	20,200	25,000	25,000	20,000	28,000	27,000
Magnesium-DISS	100,000	110,000	100,000	18,600	NA	NA	24,000	28,000	24,000
Manganese	NA	NA	NA	138	82	79	120	85	65
Manganese-DISS	NA	270	NA	112	NA	NA	100	82	65
Mercury	NA	NA	NA	NA	<0.2	<0.2	<0.20	<0.20	<0.20
Mercury-DISS	NA	<0.20	NA	NA	NA	NA	<0.20	<0.20	<0.20
Molybdenum	NA	NA	NA	NA	<100	<100	13	1.7 B	1.5 J
Molybdenum-DISS	NA	<10	NA	NA	NA	NA	<10	2.8 B	1.6 J
Nickel	NA	NA	NA	NA	<50	<50	<25	<25	1.0 J
Nickel-DISS	NA	<25	NA	NA	NA	NA	<25	<25	<25
Potassium	NA	NA	NA	<5,000	1,900	2,200	3,100	2,400	1,900
Potassium-DISS	3,800	3,700	3,800	<5,000	NA	NA	2,500	2,400	1,800
Selenium	NA	NA	NA	NA	<5	<5	<5.0	<5.0	<5.0
Selenium-DISS	NA	<5.0	NA	NA	NA	NA	<5.0	<5.0	<5.0
Silver	NA	NA	NA	NA	<0.5	<0.5	<0.20 W	<0.20	<0.20
Silver-DISS	NA	<0.20	NA	NA	NA	NA	<0.20 W	<0.20	<0.20
Sodium	NA	NA	NA	6,070	4,000	3,900	15,000	4,300	5,400
Sodium-DISS	13,000	13,000	13,000	5,990	NA	NA	8,700	4,400	4,800
Thallium	NA	NA	NA	NA	<2	<2	<2.0	<2.0	<2.0
Thallium-DISS	NA	<2.0	NA	NA	NA	NA	<2.0	<2.0	<2.0
Titanium	NA	NA	NA	NA	<50	<50	<50	6.0 B	3.2 J
Titanium-DISS	NA	0.41 B	NA	NA	NA	NA	<50	<50	1.4 J
Vanadium	NA	NA	NA	NA	<20	<20	<20	<20	2.5 J
Vanadium-DISS	NA	<0.88	NA	NA	NA	NA	<20	<20	<20
Zinc	NA	NA	NA	NA	<20	<20	<20	10 B	<20
Zinc-DISS	NA	<2.7	NA	NA	NA	NA	<20	5.1 B	5.1 J

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-6 (continued)			GM-9					
Top of Screen Depth (ft bls)	165	165	165	164	164	164	164	164	164
Sample Date	02/29/00	07/19/00	09/25/00	10/13/97	10/11/98	04/18/99	09/10/03	05/03/04	07/28/05
Sample ID	GWGM-6	GWGM-6	GWGM-6	GM-9	GWGM-9	GWGM-9	GM-9	GWGM-9 (5/3/04)	GWGM-9 (072805)
Alcohols									
1,4-Dioxane	NA	<5.0	NA	NA	R	R	<5.0	<5.0	<4.9
Acetonitrile	NA	<50	NA	NA	<50	R	<50	<50	<50
Ethanol	NA	<1,000	NA	NA	<1,000 J	R	<1,000	<1,000	<1,000
Ethylacetate	NA	<5,000	NA	NA	R	R	<5,000	<5,000	<5,000
Ethylene glycol	NA	NA	NA	NA	<20,000 J	R	<5,000	<5,000	<10,000
Isobutanol	NA	<1,000	NA	NA	<1,000 J	R	<1,000	<1,000	<1,000
Isopropanol	NA	<1,000 J	NA	NA	<1,000 J	R	<1,000	<1,000	<1,000
Methanol	NA	<1,000	NA	NA	<800 J	R	<1,000	**790 J**	<1,000
n-Butanol	NA	<1,000	NA	NA	<1,000 J	R	60,000	<1,000	<1,000
Aldehydes									
Acetaldehyde	NA	<100 J	NA	NA	<100 J	<100	<100	<100	<100
Butanal	NA	<100 J	NA	NA	<100 J	<100	<100	<100	<100
Crotonaldehyde	NA	<100 J	NA	NA	<100 J	<100	<100	<100	<100
Cyclohexanone	NA	<100 J	NA	NA	<100 J	<100	<100	<100	<100
Decanal	NA	<100 J	NA	NA	<100 J	<100	<100	<100	<100
Formaldehyde	NA	<100 J	NA	NA	<100 J	<100	<100	<100	<100
Heptanal	NA	<100 J	NA	NA	<100 J	<100	<100	<100	<100
Hexanal	NA	<100 J	NA	NA	<100 J	<100	<100	<100	<100
m-Tolualdehyde	NA	<100 J	NA	NA	<100 J	<100	<100	<100	<100
Nonanal	NA	<100 J	NA	NA	<100 J	<100	<100	<100	<100
Octanal	NA	<100 J	NA	NA	<100 J	<100	<100	<100	<100
Paraldehyde	NA	<100	NA	NA	<100 J	<100	<100	<100	<100
Pentanal	NA	<100 J	NA	NA	<100 J	<100	<100	<100	<100
Propanal	NA	<100 J	NA	NA	<100 J	<100	<100	<100	<100
Inorganics									
Alkalinity	NA	630,000	NA	190,000	190,000	200,000	180,000	230,000	200,000
Bicarbonate	630,000	NA	750,000	NA	NA	NA	NA	NA	NA
Chloride	NA	**240,000**	18,000	4,000	1,700	1,900	7,300	2,300	1,000

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-6 (continued)			GM-9					
Top of Screen Depth (ft bls)	165	165	165	164	164	164	164	164	164
Sample Date	02/29/00	07/19/00	09/25/00	10/13/97	10/11/98	04/18/99	09/10/03	05/03/04	07/28/05
Sample ID	GWGM-6	GWGM-6	GWGM-6	GM-9	GWGM-9	GWGM-9	GM-9	GWGM-9 (5/3/04)	GWGM-9 (072805)
Inorganics (continued)									
Chlorides Soluble	16,000	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	NA	<30	NA	**400**	<200	<200	**200**	**89**	**72**
Nitrogen, Nitrate	NA	<50	NA	<100	<100	<100	<50	<50	<50
Nitrogen, Nitrite	NA	<50	NA	<100	<100 J	<100 J	<50	<50	<50
Ortho-Phosphate	NA	230	NA	NA	NA	NA	<50	37 B	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA	<50
Phosphorus	NA	NA	NA	200	<100	<100	<100	<100	<100
Silica	NA	NA	NA	17,000	<100	16,000	NA	NA	NA
Silica, Dissolved	NA	37,000 J	NA	NA	NA	NA	18,000	26,000	22,000
Sulfate	NA	<5,000	<5,000	13,000	11,000	10,000	17,000	8,700	8,000
Sulfate Soluble	<5,000	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	NA	<100 J	NA	<500	<1,000	<1,000	<1,000	<1,000	<1,000
Acetic Acid	NA	<500	NA	NA	240	<500	<1,000	<500	300 J
Biochemical Oxygen Demand	NA	19,000	NA	NA	<2,000 J	<1,000	<2,000	<2,000	<2,000
Chemical Oxygen Demand	NA	160,000 J	NA	17,000	<10,000	15,000	<20,000	16,000 J	6,600 J
Total Organic Carbon	NA	47,000	NA	2,000	3,500	4,500	2,400	3,900	52,000
Density	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	710,000	NA	NA	NA	NA	NA	NA	NA
Methane	NA	59,300	NA	170	240	320	37	480	370
Suspended Solids	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA	190,000	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25A						GM-25B	
Top of Screen Depth (ft bls)	19	19	19	19	19	19	98	98
Sample Date	10/06/98	04/16/99	12/01/99	08/21/00	09/09/03	05/12/04	10/06/98	04/27/99
Sample ID	GWGM-25A	GWGM-25A	GM-25A	GWGM-25A	GM-25A	GWGM-25A (5/12/04)	GWGM-25B	GWGM-25B
VOCs								
1,1-Dichloroethene	<1	<1	NA	NA	<1.0	<1.0	<25	<25
1,2,4-Trimethylbenzene	3.4	3.4	NA	NA	2	1.8	<25	<25
1,2-Dichloroethene (total)	3.4	2.4	NA	NA	2.3	2.7	<25	<25
1,3,5-Trimethylbenzene	1.2	1.1	NA	NA	<1.0	0.66 J	<25	<25
2-Butanone (MEK)	10	<10	NA	NA	<50	3.1 J	1,200	1,200 J
2-Hexanone	46	36	NA	NA	<50	10 J	<250	<250
4-Methyl-2-pentanone (MIBK)	<10	<10	NA	NA	<50	<50	<250	<250 J
Acetone	<10	R	NA	NA	<100	<100	1,100	1,400 J
Acrylonitrile	<25	<25 J	NA	NA	<25	<25	<25	R
Benzene	13	12	NA	NA	5.5	6.1	<25	<25
Bromochloromethane	<1	<1	NA	NA	<1.0	<1.0	<25	<25
Bromoform	<1	<1	NA	NA	<1.0	<1.0	<25	<25
Bromomethane	<1	<1	NA	NA	<1.0	<1.0	<25	<25
Carbon disulfide	<1	<1	NA	NA	<5.0	<5.0	<25	<25
Chloroethane	<1	<1	NA	NA	<1.0	<1.0	<25	<25
Chloromethane	<1	<1	NA	NA	<1.0	<1.0	<25	28
cis-1,2-Dichloroethene	3.4	1.6	NA	NA	2.3	2.7	<25	<25
Diethylether	<10	<10	NA	NA	<10	4.8 J	<250	<250
Ethylbenzene	4.6	4.6	NA	NA	2.4	2.4	<25	<25
Furan	<5	<5	NA	NA	<2.0	0.45 J	<120	<120
Isopropylbenzene	<1	<1	NA	NA	<1.0	<1.0	<25	<25
Methyl iodide	<5	<5	NA	NA	<5.0	<5.0	<25	<25
Methyl(tert)butyl ether	<50	<50	NA	NA	<5.0	<5.0	<1,200	<1,200
Methylene chloride	<1	<1	NA	NA	<1.0	<1.0	<25	<140
Propionitrile	NA	NA	NA	NA	<25	<25	NA	NA
Tetrachloroethene	<1	<1	NA	NA	<1.0	<1.0	<25	<25
Tetrahydrofuran	14	15 J	NA	NA	<2.0	6.5	<120	<120 J
Toluene	14	14	NA	NA	7.1	7.4	32	28
trans-1,2-Dichloroethene	<1	<1	NA	NA	<1.0	<1.0	<25	<25
Trichloroethene	4	3.6	NA	NA	1.8	1.5	<25	<25

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25A						GM-25B	
Top of Screen Depth (ft bls)	19	19	19	19	19	19	98	98
Sample Date	10/06/98	04/16/99	12/01/99	08/21/00	09/09/03	05/12/04	10/06/98	04/27/99
Sample ID	GWGM-25A	GWGM-25A	GM-25A	GWGM-25A	GM-25A	GWGM-25A (5/12/04)	GWGM-25B	GWGM-25B
VOCs (continued)								
Xylene, o	6.1	5.9	NA	NA	NA	NA	<25	<25
Xylenes (total)	16	15	NA	NA	7.7	7.4	<75	<75
Xylenes, m+p	9.5	9.2	NA	NA	NA	NA	<50	<50
SVOCs								
1,4-Dichlorobenzene	<50	<50	<20	NA	<25	<20	<1,000	<500
2,3-Dimethylphenol	NA	140	NA	NA	<50	28 J	NA	<1,000
2,4-Dimethylphenol	1,300	1,100	900	1,300	NA	NA	5,300	3,400
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	790	<40	NA	NA
2,5-Dimethylphenol	NA	<200	NA	NA	NA	NA	NA	<,2000
2,6-Dimethylphenol	NA	550	NA	NA	350	100	NA	2,000
2-Methylphenol	<50	<50	<20	<25	<25	<20	6,800	6,000
2-Nitrophenol	<100	<100	<20	NA	<25	<20	<2,000	<1,000
3,4-Dimethylphenol	NA	<100	NA	NA	78	<40	NA	<1,000
3-Methylphenol	<100	<100	NA	NA	NA	NA	14,000	11,000
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	<20	<25	<25	<20	NA	NA
4-Methylphenol	<50	<50	NA	NA	NA	NA	14,000	11,000
Anthracene	<50	<50	<20	NA	<25	<20	<1,000	<500
Benzo(a)anthracene	<50	<50	<20	NA	<25	<20	<1,000	<500
Benzo(a)pyrene	<50	<50	<20	NA	<25	<20	<1,000	<500
Benzo(b)fluoranthene	<50	<50	<20	NA	<25	<20	<1,000	<500
Benzo(g,h,i)perylene	<50	<50	<20	NA	<25	<20	<1,000	<500
Benzo(k)fluoranthene	<50	<50 J	<20	NA	<25	<20	<1,000	<500
bis(2-Ethylhexyl)phthalate	<50	<50 J	<20	NA	<25	<20	<1,000	<500
Butylbenzylphthalate	<50	<50 J	<20	NA	<25	<20	<1,000	<500
Carbazole	<50	<50 J	<20	NA	<25	<20	<1,000	<500 J
Chrysene	<50	<50	<20	NA	<25	<20	<1,000	<500
Dibenzo(a,h)anthracene	<50	<50	<20	NA	<25	<20	<1,000	<500
Diethylphthalate	<50	<50	<20	NA	<25	<20	<1,000	<500
Di-n-butylphthalate	<50	<50	<20	NA	<25	<20	<1,000	<500

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25A						GM-25B	
Top of Screen Depth (ft bls)	19	19	19	19	19	19	98	98
Sample Date	10/06/98	04/16/99	12/01/99	08/21/00	09/09/03	05/12/04	10/06/98	04/27/99
Sample ID	GWGM-25A	GWGM-25A	GM-25A	GWGM-25A	GM-25A	GWGM-25A (5/12/04)	GWGM-25B	GWGM-25B
SVOCs (continued)								
Di-n-octylphthalate	<50	<50	<20	NA	<25	<20	<1,000	<500
Fluoranthene	<50	<50	<20	NA	<25	<20	<1,000	<500
Indeno(1,2,3-c,d)pyrene	<50	<50	<20	NA	<25	<20	<1,000	<500
Naphthalene	<100	<100	<20	NA	<25	<20	<2,000	<1000
Phenol	<50	<50	<20	<25	<25	<20	**9,700**	**6,700**
Pyrene	<50	<50	<20	NA	<25	<20	<1000	<500
Metals								
Aluminum	<200	<200	27 B	NA	<200	<200	<200	<200
Aluminum-DISS	NA	NA	NA	NA	<200	<200	NA	NA
Antimony	<50	<50	<50	NA	<50	<50	<50	<50
Antimony-DISS	NA	NA	NA	NA	<50	<50	NA	NA
Arsenic	55	57 J	56	NA	52	48	65	110
Arsenic-DISS	NA	NA	NA	NA	51	39	NA	NA
Barium	**640**	**620**	**660**	NA	**570**	**530**	**2,300**	**2,200**
Barium-DISS	NA	NA	NA	NA	**560**	**510**	NA	NA
Beryllium-DISS	NA	NA	NA	NA	<1.0	<1.0	NA	NA
Cadmium	<0.5	<0.5	<0.50 W	NA	<0.50 WN	<0.50	<0.5	<1 M
Cadmium-DISS	NA	NA	NA	NA	<0.50 WN	<0.50	NA	NA
Calcium	170,000	180,000	170,000	NA	150,000	140,000	680,000	750,000
Calcium-DISS	NA	NA	NA	170,000	140,000	140,000	NA	NA
Chromium	<50	<50	1.9 B	NA	<5.0	1.3 B	<50	<50
Chromium-DISS	NA	NA	NA	NA	<5.0	1.3 B	NA	NA
Cobalt	<50	<50	3.5 B	NA	<10	2.5 B	<50	<50
Cobalt-DISS	NA	NA	NA	NA	<10	2.5 B	NA	NA
Copper	<25	<25	<25	NA	<25	<25	**61**	<25
Copper-DISS	NA	NA	NA	NA	<25	3.3 B	NA	NA
Iron	29,000	28,000	28,000	NA	24,000	23,000	110,000	110,000
Iron-DISS	NA	NA	NA	31,000	23,000	21,000	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25A						GM-25B	
Top of Screen Depth (ft bls)	19	19	19	19	19	19	98	98
Sample Date	10/06/98	04/16/99	12/01/99	08/21/00	09/09/03	05/12/04	10/06/98	04/27/99
Sample ID	GWGM-25A	GWGM-25A	GM-25A	GWGM-25A	GM-25A	GWGM-25A (5/12/04)	GWGM-25B	GWGM-25B
Metals (continued)								
Lead	<3	<3	<3.0	NA	<3.0	<3.0	<3	<10 M
Lead-DISS	NA	NA	NA	NA	<3.0	<3.0	NA	NA
Magnesium	250,000	220,000	230,000	NA	180,000	170,000	520,000	530,000
Magnesium-DISS	NA	NA	NA	250,000	180,000	160,000	NA	NA
Manganese	180	190	170	NA	200	200	190	190
Manganese-DISS	NA	NA	NA	NA	190	200	NA	NA
Mercury	**0.2**	<0.2	<0.20	NA	<0.20	<0.20	<0.2	<0.2
Mercury-DISS	NA	NA	NA	NA	<0.20	<0.20	NA	NA
Molybdenum	<100	<100	<10	NA	<10	<10	<100	<100
Molybdenum-DISS	NA	NA	NA	NA	<10	<10	NA	NA
Nickel	<50	<50	2.7 B	NA	<25	2.6 B	**78**	**80**
Nickel-DISS	NA	NA	NA	NA	<25	2.8 B	NA	NA
Potassium	6,000	5,600	6,300	NA	5,800	6,300	12,000	11,000
Potassium-DISS	NA	NA	NA	7,000	5,700	6,200	NA	NA
Selenium	<5	<5	<5.0	NA	<5.0	<5.0	<5	<5
Selenium-DISS	NA	NA	NA	NA	<5.0	<5.0	NA	NA
Silver	<0.5	<0.5	<0.20	NA	<0.20 WN	<0.20	<0.5	<2.5 M
Silver-DISS	NA	NA	NA	NA	<0.20 WN	<0.20	NA	NA
Sodium	24,000	23,000	24,000	NA	19,000	18,000	56,000	54,000
Sodium-DISS	NA	NA	NA	25,000 J	19,000	18,000	NA	NA
Thallium	<2	<2	<2.0 W	NA	<2.0 WN	0.40 B	<2	<5 M
Thallium-DISS	NA	NA	NA	NA	<2.0 WN	<2.0	NA	NA
Titanium	<50	<50	11 B	NA	<50	9.4 B	950	980
Titanium-DISS	NA	NA	NA	NA	<50	7.6 B	NA	NA
Vanadium	<20	<20	10 B	NA	<20	6.3 B	**35**	**21**
Vanadium-DISS	NA	NA	NA	NA	<20	5.8 B	NA	NA
Zinc	24	<20	2.1 B	NA	<20	3.1 B	<200 M	<20
Zinc-DISS	NA	NA	NA	NA	<20	4.4 B	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25A						GM-25B	
Top of Screen Depth (ft bls)	19	19	19	19	19	19	98	98
Sample Date	10/06/98	04/16/99	12/01/99	08/21/00	09/09/03	05/12/04	10/06/98	04/27/99
Sample ID	GWGM-25A	GWGM-25A	GM-25A	GWGM-25A	GM-25A	GWGM-25A (5/12/04)	GWGM-25B	GWGM-25B
Alcohols								
1,4-Dioxane	<300	R	<20 J	NA	<25	<20	<7,500	R
Acetonitrile	<50	R	NA	NA	<50	<50	<1,200	R
Ethanol	<1,000	<1,000	NA	NA	<1,000	<1,000	<1,000	<50,000
Ethylacetate	<10	R	NA	NA	<5,000	<5,000	<250	R
Ethylene glycol	<20,000	<20,000 J	NA	NA	<5,000	<5,000	**290,000**	<20,000
Isobutanol	<1,000	<1,000 J	NA	NA	<1,000	<1,000	<1,000	<50,000
Isopropanol	<1,000	<1,000 J	NA	NA	<1,000	<1,000	2,400	**360,000 J**
Methanol	<800	<800	NA	NA	<1,000	**2,000**	<800	<50,000
n-Butanol	<1,000	<1,000	NA	NA	<1,000	<1,000	<1,000	<50,000
Aldehydes								
Acetaldehyde	120 J	**420**	**250**	NA	<100	<100	**1,200 J**	**2,000**
Butanal	<100 J	<100	<100	NA	<100	<100	1,500 J	<500
Crotonaldehyde	<100 J	<100	<100	NA	<100	<100	<100 J	<500
Cyclohexanone	<100 J	<100	<100	NA	<100	61 J	160 J	940
Decanal	<100 J	<100	<100	NA	<100	<100	<100 J	<500
Formaldehyde	<100 J	<100	<100	NA	<100	<100	**220 J**	<500
Heptanal	<100 J	<100	<100	NA	<100	58 J	<100 J	<500
Hexanal	140 J	<100	<100	NA	<100	<100	<100 J	<500
m-Tolualdehyde	300 J	<100	<100	NA	<100	120	560 J	<500
Nonanal	<100 J	<100	<100	NA	<100	<100	<100 J	<500
Octanal	<100 J	<100	<100	NA	<100	<100	<100 J	<500
Paraldehyde	<100	<100	<100	NA	<100	<500	<100 J	<100
Pentanal	<100 J	120	<100	NA	<100	79 J	<100 J	<500
Propanal	<100 J	<100	<100	NA	<100	<100	120 J	<500
Inorganics								
Alkalinity	1,400,000	1,400,000	NA	NA	1,100,000	1,100,000	2,200,000	2,300,000
Bicarbonate	NA	NA	NA	1,400,000	NA	NA	NA	NA
Chloride	<160000 M	11,000	NA	11,000 J	9,900	17,000	<80,000 M	<64,000 M

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25A						GM-25B	
Top of Screen Depth (ft bls)	19	19	19	19	19	19	98	98
Sample Date	10/06/98	04/16/99	12/01/99	08/21/00	09/09/03	05/12/04	10/06/98	04/27/99
Sample ID	GWGM-25A	GWGM-25A	GM-25A	GWGM-25A	GM-25A	GWGM-25A (5/12/04)	GWGM-25B	GWGM-25B
Inorganics (continued)								
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	<200	NA	NA	$\boxed{150}$	<60 *F65	<200	$\boxed{250}$
Nitrogen, Nitrate	<100	<100	NA	NA	<50	<50	<200	<1,000
Nitrogen, Nitrite	<100	<100	NA	NA	<50	<50	<200 M	<1,000 M
Ortho-Phosphate	NA	NA	NA	NA	<50	<50	NA	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	220	<100	NA	NA	<100	<100	140	<100
Silica	<100	38,000	NA	NA	NA	NA	<100	16,000
Silica, Dissolved	NA	NA	NA	NA	46,000	42,000	NA	NA
Sulfate	52,000	<10,000 M	NA	<5,000	<5,000	<5,000	17,000	<20,000 M
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	<6,000 M	1,900	NA	NA	<1,000	<1,000	<1,000	6,600
Acetic Acid	<1,000	<500	<1,000	NA	<1,000	140 J	**6,700,000**	**1,400,000**
Biochemical Oxygen Demand	25,000 J	17,000	NA	NA	15,000	22,000	4,400,000 J	>250,000
Chemical Oxygen Demand	440,000	<500,000 M	NA	NA	280,000	280,000	5,900,000	7,000,000
Total Organic Carbon	140,000	160,000	NA	NA	87,000	75,000	2,200,000	2,800,000
Density	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	1,400,000	NA	NA	NA	NA	NA
Methane	38,900	28,400	NA	NA	40,200	38,200	107,000	112,300
Suspended Solids	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	**1,200,000**	NA	NA	NA	NA	NA	**6,200,000**

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25B (continued)					GM-25C		
Top of Screen Depth (ft bls)	98	98	98	98	98	206	206	206
Sample Date	10/20/99	04/17/00	09/09/03	09/09/03	05/18/04	10/26/98	11/09/98	11/09/98
Sample ID	GM-25B	GWGM-25B	GM-25B	GM-25B-DL	GWGM-25B (5/18/04)	GWGM-25C	GWGM-25C	GWGM-95
VOCs								
1,1-Dichloroethene	<10	NA	<1.0	NA	<10	NA	<1	<1
1,2,4-Trimethylbenzene	6.4 J	NA	<1.0	NA	3.8 J	NA	<1	<1
1,2-Dichloroethene (total)	<20	NA	<2.0	NA	<20	NA	<1	<1
1,3,5-Trimethylbenzene	<10	NA	<1.0	NA	<10	NA	<1	<1
2-Butanone (MEK)	<500	NA	160	NA	1,000	NA	<10	<10
2-Hexanone	<500	NA	<50	NA	140 J	NA	<10	<10
4-Methyl-2-pentanone (MIBK)	<500	NA	<50	NA	<500	NA	<10	<10
Acetone	<1,000	NA	200	NA	1,700	NA	<10	<10
Acrylonitrile	<250	NA	<25	NA	<250	NA	<25	<25
Benzene	24	NA	3.5	NA	14	NA	<1	<1
Bromochloromethane	<10	NA	<1.0	NA	<10	NA	<1	<1
Bromoform	<10	NA	<1.0	NA	<10	NA	<1	<1
Bromomethane	<10	NA	<1.0	NA	<10	NA	<1	<1
Carbon disulfide	<50	NA	<5.0	NA	<50	NA	<1	<1
Chloroethane	<10 J	NA	<1.0	NA	<10	NA	<1	<1
Chloromethane	<10 J	NA	<1.0	NA	<10	NA	<1	<1
cis-1,2-Dichloroethene	<10	NA	<1.0	NA	<10	NA	<1	<1
Diethylether	<100	NA	<10	NA	10 J	NA	25	25
Ethylbenzene	12	NA	1.5	NA	6.1 J	NA	<1	<1
Furan	NA	NA	3.5	NA	28	NA	<5	<5
Isopropylbenzene	<10	NA	<1.0	NA	<10	NA	<1	<1
Methyl iodide	<50	NA	<5.0	NA	<50	NA	<5	<5
Methyl(tert)butyl ether	<50	NA	<5.0	NA	<50	NA	<50	<50
Methylene chloride	<10	NA	<1.0	NA	<10	NA	<1	<1
Propionitrile	<250	NA	<25	NA	<250	NA	NA	NA
Tetrachloroethene	<10	NA	<1.0	NA	<10	NA	<1	<1
Tetrahydrofuran	NA	NA	2.1	NA	46	NA	8.6	8
Toluene	32	NA	4.7	NA	30	NA	<1	<1
trans-1,2-Dichloroethene	<10	NA	<1.0	NA	<10	NA	<1	<1
Trichloroethene	7.2 J	NA	<1.0	NA	3.8 J	NA	<1	<1

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25B (continued)					GM-25C		
Top of Screen Depth (ft bls)	98	98	98	98	98	206	206	206
Sample Date	10/20/99	04/17/00	09/09/03	09/09/03	05/18/04	10/26/98	11/09/98	11/09/98
Sample ID	GM-25B	GWGM-25B	GM-25B	GM-25B-DL	GWGM-25B (5/18/04)	GWGM-25C	GWGM-25C	GWGM-95
VOCs (continued)								
Xylene, o	NA	NA	NA	NA	NA	NA	<1	<1
Xylenes (total)	34	NA	4.8	NA	22 J	NA	<3	<3
Xylenes, m+p	NA	NA	NA	NA	NA	NA	<2	<2
SVOCs								
1,4-Dichlorobenzene	<200	NA	<500	NA	<5.0	NA	<5	<5
2,3-Dimethylphenol	NA	NA	<1,000	NA	<10	NA	NA	NA
2,4-Dimethylphenol	3,900	NA	NA	NA	NA	NA	<5	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	3,800	NA	<10	NA	NA	NA
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	1,200	NA	<10	NA	NA	NA
2-Methylphenol	4,800	NA	4,900	NA	<5.0	NA	<5	<5
2-Nitrophenol	<200	NA	<500	NA	<5.0	NA	<20	<20
3,4-Dimethylphenol	NA	NA	<1,000	NA	<10	NA	NA	NA
3-Methylphenol	NA	NA	NA	NA	NA	NA	<10	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	13,000	NA	16,000	NA	<5.0	NA	NA	NA
4-Methylphenol	NA	NA	NA	NA	NA	NA	<5	<5
Anthracene	<200	NA	<500	NA	<5.0	NA	<5	<5
Benzo(a)anthracene	<200	NA	<500	NA	<5.0	NA	<5	<5
Benzo(a)pyrene	<200	NA	<500	NA	<5.0	NA	<5	<5
Benzo(b)fluoranthene	<200	NA	<500	NA	<5.0	NA	<5	<5
Benzo(g,h,i)perylene	<200	NA	<500	NA	<5.0	NA	<5	<5
Benzo(k)fluoranthene	<200	NA	<500	NA	<5.0	NA	<5	<5
bis(2-Ethylhexyl)phthalate	<200	NA	<500	NA	<5.0	NA	<5	<5
Butylbenzylphthalate	<200	NA	<500	NA	<5.0	NA	<5	<5
Carbazole	<200	NA	<500	NA	<5.0	NA	<5	<5
Chrysene	<200	NA	<500	NA	<5.0	NA	<5	<5
Dibenzo(a,h)anthracene	<200	NA	<500	NA	<5.0	NA	<5	<5
Diethylphthalate	<200	NA	<500	NA	<5.0	NA	<5	<5
Di-n-butylphthalate	<200	NA	<500	NA	<5.0	NA	<5	<5

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25B (continued)					GM-25C		
Top of Screen Depth (ft bls)	98	98	98	98	98	206	206	206
Sample Date	10/20/99	04/17/00	09/09/03	09/09/03	05/18/04	10/26/98	11/09/98	11/09/98
Sample ID	GM-25B	GWGM-25B	GM-25B	GM-25B-DL	GWGM-25B (5/18/04)	GWGM-25C	GWGM-25C	GWGM-95
SVOCs (continued)								
Di-n-octylphthalate	<200	NA	<500	NA	<5.0	NA	<5	<5
Fluoranthene	<200	NA	<500	NA	<5.0	NA	<5	<5
Indeno(1,2,3-c,d)pyrene	<200	NA	<500	NA	<5.0	NA	<5	<5
Naphthalene	<200	NA	<500	NA	<5.0	NA	<10	<10
Phenol	**8,000**	NA	**6,900**	NA	<5.0	NA	<5	<5
Pyrene	<200	NA	<500	NA	<5.0	NA	<5	<5
Metals								
Aluminum	84 B	NA	<200	NA	<1,000	NA	<200	<200
Aluminum-DISS	NA	NA	<200	NA	<1,000	NA	NA	NA
Antimony	4.0 B	NA	<50	NA	<250	NA	<50	<50
Antimony-DISS	NA	NA	2.9 B	NA	<250	NA	NA	NA
Arsenic	66	NA	59	NA	62 B	NA	26	25
Arsenic-DISS	NA	NA	60	NA	57 B	NA	NA	NA
Barium	**2,600**	NA	**2,300**	NA	**2,100**	NA	<200	<200
Barium-DISS	NA	NA	**2,300**	NA	**2,100**	NA	NA	NA
Beryllium-DISS	NA	NA	0.16 B	NA	<5.0	NA	NA	NA
Cadmium	<0.50	NA	<0.50 WN	NA	<0.50	NA	<0.5	<0.5
Cadmium-DISS	NA	NA	<0.50 WN	NA	<0.50	NA	NA	NA
Calcium	740,000	760,000	NA	780,000	790,000	NA	37,000	39,000
Calcium-DISS	NA	770,000	NA	770,000	780,000	NA	NA	NA
Chromium	**18**	NA	**20**	NA	**19 B**	NA	<50	<50
Chromium-DISS	NA	NA	**20**	NA	**18 B**	NA	NA	NA
Cobalt	20	NA	16	NA	16 B	NA	<50	<50
Cobalt-DISS	NA	NA	16	NA	17 B	NA	NA	NA
Copper	2.5 B	NA	<25	NA	<120	NA	<25	<25
Copper-DISS	NA	NA	1.7 B	NA	<120	NA	NA	NA
Iron	120,000	110,000	110,000	NA	110,000	NA	160	150
Iron-DISS	NA	18,000	110,000	NA	110,000	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25B (continued)					GM-25C		
Top of Screen Depth (ft bls)	98	98	98	98	98	206	206	206
Sample Date	10/20/99	04/17/00	09/09/03	09/09/03	05/18/04	10/26/98	11/09/98	11/09/98
Sample ID	GM-25B	GWGM-25B	GM-25B	GM-25B-DL	GWGM-25B (5/18/04)	GWGM-25C	GWGM-25C	GWGM-95
Metals (continued)								
Lead	<3.0	NA	<3.0	NA	<15	NA	<3	<3
Lead-DISS	NA	NA	<3.0	NA	<15	NA	NA	NA
Magnesium	570,000	570,000	NA	540,000	540,000	NA	22,000	24,000
Magnesium-DISS	NA	590,000	NA	530,000	540,000	NA	NA	NA
Manganese	190	NA	NA	180	170	NA	200	200
Manganese-DISS	NA	NA	NA	180	170	NA	NA	NA
Mercury	<0.20	NA	<0.20	NA	<0.20	NA	<0.2	<0.2
Mercury-DISS	NA	NA	<0.20	NA	<0.20	NA	NA	NA
Molybdenum	<10	NA	<10	NA	<50	NA	<100	<100
Molybdenum-DISS	NA	NA	<10	NA	<50	NA	NA	NA
Nickel	**93**	NA	**68**	NA	**71 B**	NA	<50	<50
Nickel-DISS	NA	NA	**68**	NA	**71 B**	NA	NA	NA
Potassium	15,000	NA	15,000	NA	13,000	NA	2,600	2,800
Potassium-DISS	NA	NA	15,000	NA	13,000	NA	NA	NA
Selenium	**7.8**	NA	<5.0	NA	<25	NA	<5	<5
Selenium-DISS	NA	NA	2.7 B	NA	<25	NA	NA	NA
Silver	<0.20	NA	<0.20 WN	NA	<0.20	NA	<0.5	<0.5
Silver-DISS	NA	NA	<0.20 WN	NA	<0.20	NA	NA	NA
Sodium	57,000	NA	NA	62,000	54,000	NA	9,200	10,000
Sodium-DISS	NA	NA	NA	61,000	54,000	NA	NA	NA
Thallium	<2.0	NA	<2.0 WN	NA	<2.0	NA	<2	<2
Thallium-DISS	NA	NA	<2.0 WN	NA	0.50 B	NA	NA	NA
Titanium	1100	NA	NA	1,500	1,400	NA	<50	<50
Titanium-DISS	NA	NA	NA	1,400	1,400	NA	NA	NA
Vanadium	**27**	NA	NA	**28**	**16 B**	NA	<20	<20
Vanadium-DISS	NA	NA	NA	**30**	**21 B**	NA	NA	NA
Zinc	25	NA	<20	NA	16 B	NA	<20	<20
Zinc-DISS	NA	NA	4.5 B	NA	18 B	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25B (continued)					GM-25C		
Top of Screen Depth (ft bls)	98	98	98	98	98	206	206	206
Sample Date	10/20/99	04/17/00	09/09/03	09/09/03	05/18/04	10/26/98	11/09/98	11/09/98
Sample ID	GM-25B	GWGM-25B	GM-25B	GM-25B-DL	GWGM-25B (5/18/04)	GWGM-25C	GWGM-25C	GWGM-95
Alcohols								
1,4-Dioxane	<200	NA	<500	NA	<5.0	NA	<300	<300
Acetonitrile	<500	NA	<50	NA	<500	NA	<50	<50
Ethanol	58 J	NA	<1,000	NA	<1,000	NA	<1,000	<1,000
Ethylacetate	1,700 J	NA	<5,000	NA	1,200 J	NA	<10	<10
Ethylene glycol	NA	NA	12,000	NA	3,400 J	NA	<20,000	<20,000
Isobutanol	42 J	NA	<1,000	NA	<1,000	NA	<1,000	<1,000
Isopropanol	790 J	NA	<1,000	NA	960 J	NA	<1,000	<1,000
Methanol	<1,000	NA	<1,000	NA	**920 J**	NA	<800	<800
n-Butanol	110 J	NA	44,000	NA	<1,000	NA	<1,000	<1,000
Aldehydes								
Acetaldehyde	**2,200**	NA	<100	NA	**890**	NA	<100 J	<100
Butanal	<500	NA	<100	NA	<100	NA	<100 J	<100
Crotonaldehyde	<500	NA	<100	NA	<100	NA	<100 J	<100
Cyclohexanone	520	NA	510	NA	<100	NA	<100 J	<100
Decanal	<500	NA	<100	NA	<100	NA	<100 J	<100
Formaldehyde	<500	NA	<100	NA	<100	NA	<100 J	<100
Heptanal	<500	NA	<100	NA	140	NA	<100 J	<100
Hexanal	640	NA	<100	NA	<100	NA	<100 J	<100
m-Tolualdehyde	1,100	NA	1,400	NA	<100	NA	<100 J	<100
Nonanal	<500	NA	<100	NA	<100	NA	<100 J	<100
Octanal	<500	NA	<100	NA	130	NA	<100 J	<100
Paraldehyde	<100	NA	<100	NA	<500	NA	<100	<100
Pentanal	550	NA	<100	NA	<100	NA	<100 J	<100
Propanal	<500	NA	<100	NA	<100	NA	<100 J	<100
Inorganics								
Alkalinity	NA	2,700,000	2,900,000	NA	2,900,000	NA	170,000	170,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	NA	NA	19,000	NA	20,000	NA	12,000	12,000

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25B (continued)					GM-25C		
Top of Screen Depth (ft bls)	98	98	98	98	98	206	206	206
Sample Date	10/20/99	04/17/00	09/09/03	09/09/03	05/18/04	10/26/98	11/09/98	11/09/98
Sample ID	GM-25B	GWGM-25B	GM-25B	GM-25B-DL	GWGM-25B (5/18/04)	GWGM-25C	GWGM-25C	GWGM-95
Inorganics (continued)								
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	NA	NA	$\boxed{2,200}$	NA	<1,500 *F65	NA	<200	<200
Nitrogen, Nitrate	NA	NA	<50	NA	<50	NA	<100	<100
Nitrogen, Nitrite	NA	NA	<50	NA	<50	NA	<100	<100
Ortho-Phosphate	NA	NA	<50	NA	<50	NA	NA	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	NA	NA	<100	NA	<100	NA	330	<100
Silica	NA	NA	NA	NA	NA	NA	<100	<100
Silica, Dissolved	NA	NA	56,000	NA	55,000	NA	NA	NA
Sulfate	NA	NA	13,000	NA	<5,000	NA	7,300	7,400
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	NA	NA	<1,000	NA	<1,000	NA	<1,000	<1,000
Acetic Acid	**3,700,000**	NA	**2,800,000**	NA	**3,500,000**	<4,000	**1,700**	<1,000
Biochemical Oxygen Demand	3,600,000	NA	3,600,000	NA	4,000,000	NA	9,200	8,400
Chemical Oxygen Demand	6,000,000	NA	6,600,000	NA	6,700,000	NA	73,000	70,000
Total Organic Carbon	2,700,000	NA	2,300,000	NA	2,300,000	NA	33,000	32,000
Density	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon	2,700,000	NA	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	4,200,000	NA	NA	NA	NA	NA	NA	NA
Methane	108,700	NA	23,900	NA	137,000	NA	9,050	11,600
Suspended Solids	NA	340,000	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25C (continued)						GM-26A
Top of Screen Depth (ft bls)	206	206	206	206	206	206	30
Sample Date	04/20/99	08/02/00	09/15/03	09/15/03	05/04/04	08/01/05	10/07/98
Sample ID	GWGM-25C	GWGM-25C	GM-25C	GM-25C-DL	GWGM-25C (5/4/04)	GWGM-25C (08/01/05)	GWGM-26A
VOCs							
1,1-Dichloroethene	<1	<1.0	<1.0	NA	<1.0	<1.0	<1
1,2,4-Trimethylbenzene	<1	<1.0	<1.0	NA	<1.0	<1.0	1.2
1,2-Dichloroethene (total)	<1	<2.0	<2.0	NA	<2.0	<2.0	<1
1,3,5-Trimethylbenzene	<1	<1.0	<1.0	NA	<1.0	<1.0	<1
2-Butanone (MEK)	<10	<50	<50	NA	4.2 J	<50	25
2-Hexanone	<10	<50	<50	NA	<50	2.1 J	26
4-Methyl-2-pentanone (MIBK)	<10	<50	<50	NA	<50	2.8 J	<10
Acetone	R	<100	<100	NA	7.6 J	<100	24
Acrylonitrile	<25	<50	<25	NA	<25	<25	<25
Benzene	1.1	1.9	<1.0	NA	4	5.2	22
Bromochloromethane	<1	<1.0	<1.0	NA	<1.0	<1.0	<1
Bromoform	<1	<1.0	<1.0	NA	<1.0	<1.0	<1
Bromomethane	<1	<1.0	<1.0	NA	<1.0	<1.0	<1
Carbon disulfide	<1	<5.0	13	NA	<5.0	<5.0	<1
Chloroethane	<1	<1.0	<1.0	NA	<1.0	<1.0	<1
Chloromethane	<1	<1.0	<1.0	NA	<1.0	<1.0	<1
cis-1,2-Dichloroethene	<1	<1.0	<1.0	NA	<1.0	<1.0	<1
Diethylether	28	35	15	NA	32	22	23
Ethylbenzene	<1	<1.0	<1.0	NA	<1.0	<1.0	2.5
Furan	<5	NA	<2.0	NA	0.58 J	<10	<5
Isopropylbenzene	<1	<1.0	<1.0	NA	<1.0	<1.0	<1
Methyl iodide	<5	<5.0	<5.0	NA	<5.0	<5.0	<5
Methyl(tert)butyl ether	<50	<5.0	<5.0	NA	<5.0	<5.0	<50
Methylene chloride	<1	<1.0	<1.0	NA	<1.0	<1.0	<1
Propionitrile	NA	<25	<25	NA	<25	<25	NA
Tetrachloroethene	<1	<1.0	<1.0	NA	<1.0	<1.0	<1
Tetrahydrofuran	11 J	NA	6	NA	<2.0	11	16
Toluene	6.4	18	34	NA	25	1.2	11
trans-1,2-Dichloroethene	<1	<1.0	<1.0	NA	<1.0	<1.0	<1
Trichloroethene	<1	<1.0	<1.0	NA	<1.0	<1.0	<1

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25C (continued)						GM-26A
Top of Screen Depth (ft bls)	206	206	206	206	206	206	30
Sample Date	04/20/99	08/02/00	09/15/03	09/15/03	05/04/04	08/01/05	10/07/98
Sample ID	GWGM-25C	GWGM-25C	GM-25C	GM-25C-DL	GWGM-25C (5/4/04)	GWGM-25C (08/01/05)	GWGM-26A
VOCs (continued)							
Xylene, o	<1	NA	NA	NA	NA	NA	4.6
Xylenes (total)	<3	<3	<3.0	NA	<3.0	<3.0	9.5
Xylenes, m+p	<2	NA	NA	NA	NA	NA	<2
SVOCs							
1,4-Dichlorobenzene	<5	<5	<5.0	NA	<5.0	NA	<50
2,3-Dimethylphenol	<10	NA	94	NA	25	NA	NA
2,4-Dimethylphenol	<5	<5	NA	NA	NA	NA	**940**
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	51	NA	46	NA	NA
2,5-Dimethylphenol	<20	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	<10	NA	<10	NA	<10	NA	NA
2-Methylphenol	<5	<5	48	NA	<5.0	NA	**81**
2-Nitrophenol	<20	<5	<5.0	NA	<5.0	NA	<100
3,4-Dimethylphenol	<10	NA	<10	NA	<10	NA	NA
3-Methylphenol	<10	NA	NA	NA	NA	NA	**210**
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	<5	**180**	NA	<5.0	NA	NA
4-Methylphenol	<5	NA	NA	NA	NA	NA	**210**
Anthracene	<5	<5	<5.0	NA	<5.0	NA	<50
Benzo(a)anthracene	<5	7.6	<5.0	NA	<5.0	NA	<50
Benzo(a)pyrene	<5	7.2	<5.0	NA	<5.0	NA	<50
Benzo(b)fluoranthene	<5	9.2	<5.0	NA	<5.0	NA	<50
Benzo(g,h,i)perylene	<5	2.8 J	<5.0	NA	0.78 J	NA	<50
Benzo(k)fluoranthene	<5 J	6.4	<5.0	NA	<5.0	NA	<50
bis(2-Ethylhexyl)phthalate	<5 J	12	<5.0	NA	<5.0	NA	<50
Butylbenzylphthalate	<5 J	5.1	<5.0	NA	<5.0	NA	<50
Carbazole	<5 J	<5	<5.0	NA	<5.0	NA	<50
Chrysene	<5	9.3	<5.0	NA	<5.0	NA	<50
Dibenzo(a,h)anthracene	<5	1.9 J	<5.0	NA	0.69 J	NA	<50
Diethylphthalate	<5	<5	<5.0	NA	<5.0	NA	<50
Di-n-butylphthalate	<5	<5	<5.0	NA	<5.0	NA	<50

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25C (continued)						GM-26A
Top of Screen Depth (ft bls)	206	206	206	206	206	206	30
Sample Date	04/20/99	08/02/00	09/15/03	09/15/03	05/04/04	08/01/05	10/07/98
Sample ID	GWGM-25C	GWGM-25C	GM-25C	GM-25C-DL	GWGM-25C (5/4/04)	GWGM-25C (08/01/05)	GWGM-26A
SVOCs (continued)							
Di-n-octylphthalate	<5	10	<5.0	NA	<5.0	NA	<50
Fluoranthene	<5	1.1 J	<5.0	NA	<5.0	NA	<50
Indeno(1,2,3-c,d)pyrene	<5	1.8 J	<5.0	NA	<5.0	NA	<50
Naphthalene	<10	<5	<5.0	NA	<5.0	NA	<100
Phenol	<5	<5	100	NA	<5.0	NA	<50
Pyrene	<5	1.3 J	<5.0	NA	<5.0	NA	<50
Metals							
Aluminum	<200	NA	<200	NA	75 B	<200	<200
Aluminum-DISS	NA	<28	<200	NA	28 B	<200	NA
Antimony	<50	NA	<50	NA	<50	<50	<50
Antimony-DISS	NA	<50	<50	NA	<50	<50	NA
Arsenic	<5	NA	74	NA	100	130	17
Arsenic-DISS	NA	60 J	67	NA	100	130	NA
Barium	<200	NA	<100	NA	46 B	41 J	$\boxed{530}$
Barium-DISS	NA	40 B	<100	NA	42 B	40 J	NA
Beryllium-DISS	NA	<1.0	<1.0	NA	<1.0	<1.0	NA
Cadmium	<0.5	NA	<0.50 WN	NA	<0.50	0.12 J	<0.5
Cadmium-DISS	NA	<0.50	<0.50 WN	NA	<0.50	<0.50	NA
Calcium	37,000	NA	7,700	NA	42,000	43,000	160,000
Calcium-DISS	NA	34,000	6,500	NA	40,000	43,000	NA
Chromium	<50	NA	<5.0	NA	<5.0	<5.0	<50
Chromium-DISS	NA	<5.0	<5.0	NA	<5.0	<5.0	NA
Cobalt	<50	NA	<10	NA	<10	0.22 J	<50
Cobalt-DISS	NA	<10	<10	NA	<10	0.22 J	NA
Copper	<25	NA	<25	NA	<25	<25	<25
Copper-DISS	NA	<25	<25	NA	<25	<25	NA
Iron	120	NA	<100	NA	820	920	20,000
Iron-DISS	NA	140 J	<100	NA	580	870	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25C (continued)						GM-26A
Top of Screen Depth (ft bls)	206	206	206	206	206	206	30
Sample Date	04/20/99	08/02/00	09/15/03	09/15/03	05/04/04	08/01/05	10/07/98
Sample ID	GWGM-25C	GWGM-25C	GM-25C	GM-25C-DL	GWGM-25C (5/4/04)	GWGM-25C (08/01/05)	GWGM-26A
Metals (continued)							
Lead	<3	NA	<3.0	NA	<3.0	0.55 J	<3
Lead-DISS	NA	<3.0	<3.0	NA	<3.0	<3.0	NA
Magnesium	26,000	NA	27,000	NA	39,000	39,000	130,000
Magnesium-DISS	NA	28,000	26,000	NA	37,000	42,000	NA
Manganese	200	NA	<20	NA	170	120	94
Manganese-DISS	NA	190	<20	NA	150	130	NA
Mercury	<0.2	NA	<0.20	NA	<0.20	<0.20	<0.2
Mercury-DISS	NA	<0.20 J	<0.20	NA	<0.20	<0.20	NA
Molybdenum	<100	NA	16	NA	15	13	<100
Molybdenum-DISS	NA	17	15	NA	15	13	NA
Nickel	<50	NA	<25	NA	1.6 B	0.44 J B	<50
Nickel-DISS	NA	1.3 B	<25	NA	<25	0.31 J	NA
Potassium	3,400	NA	NA	41,000	3,500	2,200	3,600
Potassium-DISS	NA	9100	NA	41,000	3,400	2,400	NA
Selenium	<5	NA	<5.0	NA	<5.0	<5.0	<5
Selenium-DISS	NA	<5.0 J	<5.0	NA	<5.0	<5.0	NA
Silver	<0.5	NA	<0.20 WN	NA	<0.20	<0.20	<0.5
Silver-DISS	NA	<0.20 J	<0.20 WN	NA	<0.20	<0.20	NA
Sodium	17,000	NA	NA	43,000	21,000	18,000	15,000
Sodium-DISS	NA	20,000	NA	42,000	20,000	19,000	NA
Thallium	<2	NA	<2.0 WN	NA	<2.0	<2.0	<2
Thallium-DISS	NA	<2.0	<2.0 WN	NA	<2.0	<2.0	NA
Titanium	<50	NA	<50	NA	1.6 B	1.8 J	<50
Titanium-DISS	NA	<0.30	<50	NA	<50	1.7 J	NA
Vanadium	<20	NA	<20	NA	1.0 B	<20	<20
Vanadium-DISS	NA	<20	<20	NA	0.47 B	<20	NA
Zinc	<20	NA	<20	NA	4.9 B	8.0 J	<20
Zinc-DISS	NA	<4.4	<20	NA	2.1 B	5.4 J	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25C (continued)						GM-26A
Top of Screen Depth (ft bls)	206	206	206	206	206	206	30
Sample Date	04/20/99	08/02/00	09/15/03	09/15/03	05/04/04	08/01/05	10/07/98
Sample ID	GWGM-25C	GWGM-25C	GM-25C	GM-25C-DL	GWGM-25C (5/4/04)	GWGM-25C (08/01/05)	GWGM-26A
Alcohols							
1,4-Dioxane	R	<5	<5.0	NA	<5.0	NA	<300
Acetonitrile	<50 J	50	<50	NA	<50	<50	<50
Ethanol	<1,000	<1,000	<1,000	NA	<1,000	<1,000	<1,000
Ethylacetate	R	<5,000	<5,000	NA	<5,000	<5,000	<10
Ethylene glycol	<20,000	NA	<5,000	NA	840 J	<10,000	<20,000
Isobutanol	<1,000	<1,000 J	<1,000	NA	<1,000	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	NA	<1,000	<1,000	<1,000
Methanol	<800	<1,000	<1,000	NA	**1,000**	<1,000	<800
n-Butanol	<1,000	<1,000	9,000	NA	<1,000	<1,000	<1,000
Aldehydes							
Acetaldehyde	<100	<100	<100	NA	<100	<100	<100 J
Butanal	<100	<100	<100	NA	<100	<100	150 J
Crotonaldehyde	<100	<100	<100	NA	<100	<100	<100 J
Cyclohexanone	<100	<100	<100	NA	<100	<100	<100 J
Decanal	<100	<100	<100	NA	<100	<100	<100 J
Formaldehyde	<100	<100	<100	NA	<100	<100	<100 J
Heptanal	<100	<100	<100	NA	35 J	<100	<100 J
Hexanal	<100	<100	<100	NA	<100	<100	120 J
m-Tolualdehyde	<100	<100	<100	NA	45 J	<100	140 J
Nonanal	<100	<100	<100	NA	<100	<100	<100 J
Octanal	<100	<100	<100	NA	<100	<100	<100 J
Paraldehyde	<100	<100	<100	NA	<100	<100	<100 J
Pentanal	<100	<100	<100	NA	54 J	<100	<100 J
Propanal	<100	<100	<100	NA	<100	<100	<100 J
Inorganics							
Alkalinity	200,000	47,000	240,000	NA	270,000	280,000	840,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA
Chloride	14,000	14,000 J	14,000	NA	16,000	15,000	<40,000 M

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-25C (continued)						GM-26A
Top of Screen Depth (ft bls)	206	206	206	206	206	206	30
Sample Date	04/20/99	08/02/00	09/15/03	09/15/03	05/04/04	08/01/05	10/07/98
Sample ID	GWGM-25C	GWGM-25C	GM-25C	GM-25C-DL	GWGM-25C (5/4/04)	GWGM-25C (08/01/05)	GWGM-26A
Inorganics (continued)							
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	$\boxed{\textbf{89}}$	$\boxed{\textbf{120}}$	NA	$\boxed{\textbf{35}}$	$\boxed{\textbf{36}}$	<200
Nitrogen, Nitrate	<100	<50 J	<50	NA	<50	36 J	<200
Nitrogen, Nitrite	<100 J	<50	<50	NA	<50	<50	<200 M
Ortho-Phosphate	NA	160	<50	NA	74	NA	NA
Phosphate	NA	NA	NA	NA	NA	97	NA
Phosphorus	<100	NA	<100	NA	160	240	<100
Silica	12,000	NA	NA	NA	NA	NA	<100
Silica, Dissolved	NA	14,000	16,000	NA	17,000	16,000	NA
Sulfate	12,000	<5,000	<5,000	NA	<5,000	<5,000	17,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	180	<1,000	NA	<1,000	<1,000	3,200
Acetic Acid	<500	**1,900**	**30,000**		410 I	660	**4,800**
Biochemical Oxygen Demand	13,000	11,000	46,000	NA	11,000	17,000	NA
Chemical Oxygen Demand	120,000	150,000 J	210,000	NA	250,000	280,000	340,000 J
Total Organic Carbon	39,000	51,000	63,000	NA	73,000	84,000	120,000
Density	NA	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	32 B	NA	NA	NA	NA	NA
Methane	26,500	30,300	8,470	NA	35,300	32,700	59,000
Suspended Solids	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	240,000	NA	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26A (continued)						GM-26B
Top of Screen Depth (ft bls)	30	30	30	30	30	30	101
Sample Date	04/14/99	11/29/99	08/16/00	09/09/03	05/13/04	05/13/04	10/07/98
Sample ID	GWGM-26A	GM-26A	GWGM-26A	GM-26A	GWGM-26A (5/13/04)	GWGM-26A (5/13/04)-RE	GWGM-26B
VOCs							
1,1-Dichloroethene	<2	NA	NA	<1.0	NA	<1.0	<1
1,2,4-Trimethylbenzene	2	NA	NA	<1.0	NA	2.1	<1
1,2-Dichloroethene (total)	<2	NA	NA	<2.0	NA	<2.0	<1
1,3,5-Trimethylbenzene	<2	NA	NA	<1.0	NA	0.66 J	<1
2-Butanone (MEK)	51 J	NA	NA	<50	NA	24 J	<10
2-Hexanone	51	NA	NA	<50	NA	40 J	<10
4-Methyl-2-pentanone (MIBK)	<20	NA	NA	<50	NA	4.9 J	<10
Acetone	71 J	NA	NA	<100	NA	25 J	<10
Acrylonitrile	R	NA	NA	<25	NA	<25	<25
Benzene	21	NA	NA	21	NA	23	<1
Bromochloromethane	<2	NA	NA	<1.0	NA	<1.0	<1
Bromoform	<2	NA	NA	<1.0	NA	<1.0	<1
Bromomethane	<2	NA	NA	<1.0	NA	<1.0	<1
Carbon disulfide	<2	NA	NA	<5.0	NA	<5.0	<1
Chloroethane	<2	NA	NA	<1.0	NA	<1.0	<1
Chloromethane	<2	NA	NA	<1.0	NA	<1.0	<1
cis-1,2-Dichloroethene	<2	NA	NA	<1.0	NA	<1.0	<1
Diethylether	39	NA	NA	58	NA	42	<10
Ethylbenzene	5.3	NA	NA	2	NA	4.9	<1
Furan	<10	NA	NA	<2.0	NA	0.86 J	<5
Isopropylbenzene	<2	NA	NA	<1.0	NA	<1.0	<1
Methyl iodide	<5	NA	NA	<5.0	NA	<5.0	<5
Methyl(tert)butyl ether	<100	NA	NA	<5.0	NA	<5.0	<50
Methylene chloride	<2	NA	NA	<1.0	NA	<1.0	<1
Propionitrile	NA	NA	NA	<25	NA	<25	NA
Tetrachloroethene	<2	NA	NA	<1.0	NA	<1.0	<1
Tetrahydrofuran	22 J	NA	NA	2.9	NA	22	<5
Toluene	16	NA	NA	9.7	NA	17	<1
trans-1,2-Dichloroethene	<2	NA	NA	<1.0	NA	<1.0	<1
Trichloroethene	<2	NA	NA	<1.0	NA	0.71 J	<1

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26A (continued)						GM-26B
Top of Screen Depth (ft bls)	30	30	30	30	30	30	101
Sample Date	04/14/99	11/29/99	08/16/00	09/09/03	05/13/04	05/13/04	10/07/98
Sample ID	GWGM-26A	GM-26A	GWGM-26A	GM-26A	GWGM-26A (5/13/04)	GWGM-26A (5/13/04)-RE	GWGM-26B
VOCs (continued)							
Xylene, o	7.1	NA	NA	NA	NA	NA	<1
Xylenes (total)	16	NA	NA	7.3	NA	14	<3
Xylenes, m+p	9.3	NA	NA	NA	NA	NA	<2
SVOCs							
1,4-Dichlorobenzene	<100	<20	NA	<50	<50	NA	<5
2,3-Dimethylphenol	<200	NA	NA	<100	<100	NA	NA
2,4-Dimethylphenol	**1,600**	**850**	**1,000**	NA	NA	NA	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	**1,200**	**1,200**	NA	NA
2,5-Dimethylphenol	<400	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	700	NA	NA	370	270	NA	NA
2-Methylphenol	**540**	<20	<25	<50	<50	NA	<5
2-Nitrophenol	<200	<20	NA	<50	<50	NA	<20
3,4-Dimethylphenol	<200	NA	NA	<100	<100	NA	NA
3-Methylphenol	**650**	NA	NA	NA	NA	NA	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	**350**	<25	<50	<50	NA	NA
4-Methylphenol	**650**	NA	NA	NA	NA	NA	<5
Anthracene	<100	<20	NA	<50	<50	NA	<5
Benzo(a)anthracene	<100	<20	NA	<50	<50	NA	<5
Benzo(a)pyrene	<100	<20	NA	<50	<50	NA	<5
Benzo(b)fluoranthene	<100	<20	NA	<50	<50	NA	<5
Benzo(g,h,i)perylene	<100 J	<20	NA	<50	<50	NA	<5
Benzo(k)fluoranthene	<100	<20	NA	<50	<50	NA	<5
bis(2-Ethylhexyl)phthalate	<100	<20	NA	<50	<50	NA	<5
Butylbenzylphthalate	<100	<20	NA	<50	<50	NA	<5
Carbazole	<100 J	<20	NA	<50	<50	NA	<5
Chrysene	<100	<20	NA	<50	<50	NA	<5
Dibenzo(a,h)anthracene	<100 J	<20	NA	<50	<50	NA	<5
Diethylphthalate	<100	<20	NA	<50	<50	NA	<5
Di-n-butylphthalate	<100	<20	NA	<50	<50	NA	<5

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26A (continued)						GM-26B
Top of Screen Depth (ft bls)	30	30	30	30	30	30	101
Sample Date	04/14/99	11/29/99	08/16/00	09/09/03	05/13/04	05/13/04	10/07/98
Sample ID	GWGM-26A	GM-26A	GWGM-26A	GM-26A	GWGM-26A (5/13/04)	GWGM-26A (5/13/04)-RE	GWGM-26B
SVOCs (continued)							
Di-n-octylphthalate	<100	<20	NA	<50	<50	NA	<5
Fluoranthene	<100	<20	NA	<50	<50	NA	<5
Indeno(1,2,3-c,d)pyrene	<100 J	<20	NA	<50	<50	NA	<5
Naphthalene	<200	<20	NA	<50	<50	NA	<10
Phenol	<100	<20	<25	<50	<50	NA	<5
Pyrene	<100	<20	NA	<50	<50	NA	<5
Metals							
Aluminum	<200	NA	NA	<200	<200	NA	<200
Aluminum-DISS	NA	31 B	NA	<200	<200	NA	NA
Antimony	<50	NA	NA	<50	<50	NA	<50
Antimony-DISS	NA	<50	NA	<50	<50	NA	NA
Arsenic	34 J	NA	NA	20	31	NA	<5
Arsenic-DISS	NA	21	NA	<20	29	NA	NA
Barium	**740**	NA	NA	**530**	**760**	NA	<200
Barium-DISS	NA	**580**	NA	**540**	**750**	NA	NA
Beryllium-DISS	NA	<1.0	NA	<1.0	<1.0	NA	NA
Cadmium	<0.5	NA	NA	<0.50 WN	<0.50	NA	<0.5
Cadmium-DISS	NA	<0.50 W	NA	<0.50 WN	<0.50	NA	NA
Calcium	210,000	NA	NA	170,000	200,000	NA	36,000
Calcium-DISS	NA	160,000	160,000	170,000	200,000	NA	NA
Chromium	<50	NA	NA	<5.0	1.6 B	NA	<50
Chromium-DISS	NA	0.98 B	NA	<5.0	1.4 B	NA	NA
Cobalt	<50	NA	NA	<10	1.0 B	NA	<50
Cobalt-DISS	NA	<10	NA	<10	1.0 B	NA	NA
Copper	<25	NA	NA	<25	<25	NA	<25
Copper-DISS	NA	<25	NA	<25	<25	NA	NA
Iron	28,000	NA	NA	17,000	24,000	NA	25
Iron-DISS	NA	24,000	20,000	17,000	24,000	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26A (continued)						GM-26B
Top of Screen Depth (ft bls)	30	30	30	30	30	30	101
Sample Date	04/14/99	11/29/99	08/16/00	09/09/03	05/13/04	05/13/04	10/07/98
Sample ID	GWGM-26A	GM-26A	GWGM-26A	GM-26A	GWGM-26A (5/13/04)	GWGM-26A (5/13/04)-RE	GWGM-26B
Metals (continued)							
Lead	<3	NA	NA	<3.0	<3.0	NA	<3
Lead-DISS	NA	<3.0	NA	<3.0	<3.0	NA	NA
Magnesium	200,000	NA	NA	140,000	210,000	NA	20,000
Magnesium-DISS	NA	160,000	160,000	150,000	210,000	NA	NA
Manganese	81	85	NA	80	97	NA	68
Manganese-DISS	NA	NA	NA	80	97	NA	NA
Mercury	<0.2	NA	NA	<0.20	<0.20	NA	<0.2
Mercury-DISS	NA	<0.20	NA	<0.20	<0.20	NA	NA
Molybdenum	<100	NA	NA	<10	1.1 B	NA	<100
Molybdenum-DISS	NA	<10	NA	<10	<10	NA	NA
Nickel	<50	NA	NA	<25	1.8 B	NA	<50
Nickel-DISS	NA	<25	NA	<25	2.4 B	NA	NA
Potassium	4,400	NA	NA	4,400	5,800	NA	2,600
Potassium-DISS	NA	4,400	4,600	4,600	5,800	NA	NA
Selenium	<5	NA	NA	<5.0	<5.0	NA	<5
Selenium-DISS	NA	<5.0	NA	<5.0	<5.0	NA	NA
Silver	<0.5	NA	NA	<0.20 WN	<0.20	NA	<0.5
Silver-DISS	NA	<0.20	NA	<0.20 WN	<0.20	NA	NA
Sodium	24,000	NA	NA	15,000	29,000	NA	2,600
Sodium-DISS	NA	20,000	20,000 J	15,000	29,000	NA	NA
Thallium	<2	NA	NA	<2.0 WN	<2.0	NA	<2
Thallium-DISS	NA	<2.0 J	NA	<2.0 WN	<2.0	NA	NA
Titanium	<50	NA	NA	<50	16 B	NA	<50
Titanium-DISS	NA	7.7 B	NA	<50	14 B	NA	NA
Vanadium	<20	NA	NA	<20	9.2 B	NA	<20
Vanadium-DISS	NA	6.3 B	NA	<20	9.2 B	NA	NA
Zinc	<20	NA	NA	<20	3.0 B	NA	<20
Zinc-DISS	NA	2.9 B	NA	<20	3.8 B	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26A (continued)						GM-26B
Top of Screen Depth (ft bls)	30	30	30	30	30	30	101
Sample Date	04/14/99	11/29/99	08/16/00	09/09/03	05/13/04	05/13/04	10/07/98
Sample ID	GWGM-26A	GM-26A	GWGM-26A	GM-26A	GWGM-26A (5/13/04)	GWGM-26A (5/13/04)-RE	GWGM-26B
Alcohols							
1,4-Dioxane	R	R	NA	<50	<50	NA	<300
Acetonitrile	R	NA	NA	<50	<50	<50	<50
Ethanol	<1,000	NA	NA	<1,000	<1,000	NA	<1,000
Ethylacetate	R	NA	NA	<5,000	<5,000	NA	<10
Ethylene glycol	<20,000 J	NA	NA	9,800	1,000 J	NA	<20,000
Isobutanol	<1,000	NA	NA	<1,000	<1,000		<1,000
Isopropanol	<1,000	NA	NA	<1,000	<1,000	NA	<1,000
Methanol	<800	NA	NA	<1,000	**1,800**	NA	<800
n-Butanol	<1,000	NA	NA	<1,000	<1,000	NA	<1,000
Aldehydes							
Acetaldehyde	**430**	**170**	NA	<100	<100	NA	<100 J
Butanal	<100	<100	NA	<100	<100	NA	<100 J
Crotonaldehyde	<100	<100	NA	<100	30 J	NA	<100 J
Cyclohexanone	<100	<100	NA	<100	560	NA	<100 J
Decanal	<100	<100	NA	<100	<100	NA	<100 J
Formaldehyde	<100	<100	NA	<100	<100	NA	<100 J
Heptanal	<100	<100	NA	<100	120	NA	<100 J
Hexanal	<100	<100	NA	<100	<100	NA	<100 J
m-Tolualdehyde	<100	<100	NA	<100	1,300	NA	<100 J
Nonanal	<100	<100	NA	<100	<100	NA	<100 J
Octanal	<100	<100	NA	<100	40 J	NA	<100 J
Paraldehyde	<100	<100	NA	<100	<100	NA	<100 J
Pentanal	150	<100	NA	<100	<100	NA	<100 J
Propanal	<100	<100	NA	<100	<100	NA	<100 J
Inorganics							
Alkalinity	1,300,000	NA	NA	920,000	1,300,000	NA	170,000
Bicarbonate	NA	NA	1,200,000	NA	NA	NA	NA
Chloride	19,000	NA	21,000 J	25,000	22,000	NA	1,200

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26A (continued)						GM-26B
Top of Screen Depth (ft bls)	30	30	30	30	30	30	101
Sample Date	04/14/99	11/29/99	08/16/00	09/09/03	05/13/04	05/13/04	10/07/98
Sample ID	GWGM-26A	GM-26A	GWGM-26A	GM-26A	GWGM-26A (5/13/04)	GWGM-26A (5/13/04)-RE	GWGM-26B
Inorganics (continued)							
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	NA	NA	$\boxed{110}$	<60 *F65	NA	<200
Nitrogen, Nitrate	<100	NA	NA	<50	<50	NA	<100
Nitrogen, Nitrite	<100	NA	NA	<50	<50	NA	<100
Ortho-Phosphate	NA	NA	NA	<50	<50	NA	NA
Phosphate	NA	NA	NA	NA	NA	NA	NA
Phosphorus	<100	NA	NA	<100	<100	NA	<100
Silica	33,000	NA	NA	NA	NA	NA	<100
Silica, Dissolved	NA	NA	NA	33,000	37,000	NA	NA
Sulfate	<5,000	NA	<5,000	<5,000	<5,000	NA	9,400
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA
Sulfide	2,600	NA	NA	<1,000	<1,000	NA	4,200
Acetic Acid	**16,000**	**15,000**	NA	<1,000	520	NA	<200
Biochemical Oxygen Demand	30,000	NA	NA	21,000	42,000	NA	7200 J
Chemical Oxygen Demand	1,000,000	NA	NA	460,000	650,000	NA	<10,000
Total Organic Carbon	200,000	NA	NA	150,000	190,000	NA	1,000
Density	NA	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	1,000,000	NA	NA	NA	NA	NA
Methane	53,500	NA	NA	NA	37,300	NA	320
Suspended Solids	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	**1,300,000**	NA	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26B (continued)						GM-26C
Top of Screen Depth (ft bls)	101	101	101	101	101	101	160
Sample Date	04/15/99	11/30/99	07/18/00	09/09/03	04/27/04	07/28/05	10/25/98
Sample ID	GWGM-26B	GM-26B	GWGM-26B	GM-26B	GWGM-26B (4/27/04)	GWGM-26B (072805)	GWGM-26C
VOCs							
1,1-Dichloroethene	<1	NA	<1.0	<1.0	<1.0	<1.0	<1
1,2,4-Trimethylbenzene	<1	NA	<1.0	<1.0	<1.0	<1.0	<1
1,2-Dichloroethene (total)	<1	NA	<2.0	<2.0	<2.0	<2.0	<1
1,3,5-Trimethylbenzene	<1	NA	<1.0	<1.0	<1.0	<1.0	<1
2-Butanone (MEK)	<10 J	NA	<50 J	<50	<50	<50	10
2-Hexanone	<10	NA	<50 J	<50	<50	<50	70 J
4-Methyl-2-pentanone (MIBK)	<10 J	NA	<50	<50	<50	<50	<10
Acetone	R	NA	<100 J	<100	<100	<100	<10 J
Acrylonitrile	R	NA	**14 J**	<25	<25	<25	<25
Benzene	<1	NA	<1.0	<1.0	<1.0	<1.0	28
Bromochloromethane	<1	NA	<1.0	<1.0	<1.0	<1.0	<1
Bromoform	<1	NA	<1.0	<1.0	<1.0	<1.0	<1
Bromomethane	<1	NA	<1.0	<1.0	<1.0	<1.0	<1
Carbon disulfide	<1	NA	<5.0	<5.0	<5.0	<5.0	<1
Chloroethane	<1	NA	<1.0	<1.0	<1.0	<1.0	<1
Chloromethane	<1	NA	<1.0	<1.0	<1.0	<1.0	<1
cis-1,2-Dichloroethene	<1	NA	<1.0	<1.0	<1.0	<1.0	<1
Diethylether	<10	NA	<10	<10	<10	<10	39
Ethylbenzene	<1	NA	<1.0	<1.0	<1.0	<1.0	1.8
Furan	<5	NA	NA	<2.0	<2.0	<10	<5
Isopropylbenzene	<1	NA	<1.0	<1.0	<1.0	<1.0	<1
Methyl iodide	<5	NA	<5.0	<5.0	<5.0	<5.0	<5
Methyl(tert)butyl ether	<50	NA	<5.0	<5.0	<5.0	<5.0	<50
Methylene chloride	<1	NA	<1.0	<1.0	<1.0	<1.0	<1
Propionitrile	NA	NA	16 J	<25	<25	<25	NA
Tetrachloroethene	<1	NA	<1.0	<1.0	<1.0	<1.0	<1
Tetrahydrofuran	R	NA	NA	<2.0	<2.0	<10	21
Toluene	<1	NA	27	<1.0	<1.0	<1.0	18
trans-1,2-Dichloroethene	<1	NA	<1.0	<1.0	<1.0	<1.0	<1
Trichloroethene	<1	NA	<1.0	<1.0	<1.0	<1.0	<1

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26B (continued)						GM-26C
Top of Screen Depth (ft bls)	101	101	101	101	101	101	160
Sample Date	04/15/99	11/30/99	07/18/00	09/09/03	04/27/04	07/28/05	10/25/98
Sample ID	GWGM-26B	GM-26B	GWGM-26B	GM-26B	GWGM-26B (4/27/04)	GWGM-26B (072805)	GWGM-26C
VOCs (continued)							
Xylene, o	<1	NA	NA	NA	NA	NA	<1
Xylenes (total)	<3	NA	<3.0	<3.0	<3.0	<3.0	7.6
Xylenes, m+p	<2	NA	NA	NA	NA	NA	<2
SVOCs							
1,4-Dichlorobenzene	<5	<5.0	<5.0	<5.0	<5.0	<4.9	<100
2,3-Dimethylphenol	<10	NA	NA	<10	5.8 J	<9.7	NA
2,4-Dimethylphenol	<5	<5.0	<5.0	NA	NA	<4.9	$\boxed{2,600}$
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	<10	2.4 J	<9.7	NA
2,5-Dimethylphenol	<20	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	<10	NA	NA	<10	<10	1.5 J	NA
2-Methylphenol	<5	<5.0	<5.0	<5.0	1.7 J	<4.9	<100
2-Nitrophenol	<20	<5.0	<5.0	<5.0	<5.0	<4.9	<200
3,4-Dimethylphenol	<10	NA	NA	<10	<10	<9.7	NA
3-Methylphenol	<10	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	<5.0	<5.0	<5.0	5.1	<4.9	<200
4-Methylphenol	<5	NA	NA	NA	NA	NA	NA
Anthracene	<5	<5.0	<5.0	<5.0	<5.0	<4.9	<100
Benzo(a)anthracene	<5	<5.0	<5.0	<5.0	<5.0	<4.9	<100
Benzo(a)pyrene	<5	<5.0	<5.0	<5.0	<5.0	<4.9	<100
Benzo(b)fluoranthene	<5 J	<5.0	<5.0	<5.0	<5.0	<4.9	<100
Benzo(g,h,i)perylene	<5 J	<5.0	<5.0	<5.0	<5.0	<4.9	<100
Benzo(k)fluoranthene	<5	<5.0	<5.0	<5.0	<5.0	<4.9	<100
bis(2-Ethylhexyl)phthalate	<5	6.6	0.86 J	<5.0	<5.0	<4.9	<100
Butylbenzylphthalate	<5	<5.0	<5.0	<5.0	<5.0	<4.9	<100
Carbazole	<5 J	<5.0	<5.0	<5.0	<5.0	<4.9	<100
Chrysene	<5	<5.0	<5.0	<5.0	<5.0	<4.9	<100
Dibenzo(a,h)anthracene	<5	<5.0	<5.0	<5.0	<5.0	<4.9	<100
Diethylphthalate	<5	<5.0	<5.0	<5.0	<5.0	<4.9	<100
Di-n-butylphthalate	<5	<5.0	<5.0	<5.0	<5.0	<4.9	<100

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26B (continued)						GM-26C
Top of Screen Depth (ft bls)	101	101	101	101	101	101	160
Sample Date	04/15/99	11/30/99	07/18/00	09/09/03	04/27/04	07/28/05	10/25/98
Sample ID	GWGM-26B	GM-26B	GWGM-26B	GM-26B	GWGM-26B (4/27/04)	GWGM-26B (072805)	GWGM-26C
SVOCs (continued)							
Di-n-octylphthalate	<5	<5.0	<5.0	<5.0	<5.0	<4.9	<100
Fluoranthene	<5	<5.0	<5.0	<5.0	<5.0	<4.9	<100
Indeno(1,2,3-c,d)pyrene	<5	<5.0	<5.0 J	<5.0	<5.0	<4.9	<100
Naphthalene	<10	<5.0	<5.0	<5.0	<5.0	<4.9	<200
Phenol	<5	<5.0	1.5 J	<5.0	<5.0	<4.9	<100
Pyrene	<5	<5.0	<5.0	<5.0	<5.0	<4.9	<100
Metals							
Aluminum	<200	NA	NA	<200	<200	<200	<200
Aluminum-DISS	NA	28 B	<26	<200	<200	<200	NA
Antimony	<50	NA	NA	<50	<50	<50	<50
Antimony-DISS	NA	<50	<50	<50	<50	19 J	NA
Arsenic	6.5 J	NA	NA	<20	9.4 B	12 J	16
Arsenic-DISS	NA	7.0 B	8.5 B	<20	8.9 B	8.6 J	NA
Barium	<200	NA	NA	<100	58 B	51 J	340 J
Barium-DISS	NA	53 B	55 B	<100	60 B	51 J	NA
Beryllium-DISS	NA	<1.0	<1.0	<1.0	<1.0	<1.0	NA
Cadmium	<0.5	NA	NA	<0.50 WN	<0.50	<0.50	<0.5
Cadmium-DISS	NA	<0.50 W	<0.50	<0.50 WN	<0.50	<0.50	NA
Calcium	34,000	NA	NA	29,000	29,000	30,000	110,000
Calcium-DISS	NA	33,000	32,000	27,000	30,000	28,000	NA
Chromium	<50	NA	NA	<5.0	<5.0	<5.0	<50 J
Chromium-DISS	NA	<5.0	<5.0	<5.0	<5.0	5	NA
Cobalt	<50	NA	NA	<10	<10	0.57 J	<50 J
Cobalt-DISS	NA	<10	<10	<10	<10	0.64 J	NA
Copper	<25	NA	NA	<25	<25	<25	<25 J
Copper-DISS	NA	<25	<25	<25	<25	0.72 J	NA
Iron	29	NA	NA	<100	74 B	52 J	2,800 J
Iron-DISS	NA	43 B	93 B	<100	44 B	73 J	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26B (continued)						GM-26C
Top of Screen Depth (ft bls)	101	101	101	101	101	101	160
Sample Date	04/15/99	11/30/99	07/18/00	09/09/03	04/27/04	07/28/05	10/25/98
Sample ID	GWGM-26B	GM-26B	GWGM-26B	GM-26B	GWGM-26B (4/27/04)	GWGM-26B (072805)	GWGM-26C
Metals (continued)							
Lead	<3	NA	NA	<3.0	<3.0	<3.0	<3
Lead-DISS	NA	<3.0	<3.0	<3.0	<3.0	0.54 J	NA
Magnesium	20,000	NA	NA	20,000	19,000	21,000	130,000 J
Magnesium-DISS	NA	20,000	20,000	20,000	19,000	19,000	NA
Manganese	45	41	NA	34	35	29	640
Manganese-DISS	NA	NA	36	31	35	33	NA
Mercury	<0.2	NA	NA	<0.20	<0.20	<0.20	<0.2
Mercury-DISS	NA	<0.20	<0.20	<0.20	<0.20	<0.20	NA
Molybdenum	<100	NA	NA	<10	0.86 B	<10	<100 J
Molybdenum-DISS	NA	<10	<10	<10	1.4 B	<10	NA
Nickel	<50	NA	NA	<25	3.4 B	2.8 J	<50 J
Nickel-DISS	NA	<25	1.5 B	<25	2.2 B	6.3 J	NA
Potassium	4,700	NA	NA	12,000	11,000	9,600	6,700
Potassium-DISS	NA	5,200	6,400	12,000	7,800	9,100	NA
Selenium	<5	NA	NA	<5.0	<5.0	<5.0	<5
Selenium-DISS	NA	<5.0	<5.0	<5.0	<5.0	<5.0	NA
Silver	<0.5	NA	NA	<0.20 WN	<0.20	<0.20	<0.5
Silver-DISS	NA	<0.13	<0.20	<0.20 WN	<0.20	<0.20	NA
Sodium	3,400	NA	NA	8,500	7,300	7,500	40,000
Sodium-DISS	NA	4,000	4,900	8,300	5,400	7,400	NA
Thallium	<2	NA	NA	<2.0 WN	<2.0	<2.0	<2
Thallium-DISS	NA	<2.0	<2.0	<2.0 WN	<2.0	<2.0	NA
Titanium	<50	NA	NA	<50	0.98 B	2.1 J	<50 J
Titanium-DISS	NA	<50	<50	<50	<50	1.6 J	NA
Vanadium	<20	NA	NA	<20	<20	<20	<20 J
Vanadium-DISS	NA	<20	<20	<20	<20	<20	NA
Zinc	<20	NA	NA	<20	0.73 B	<20	<20 J
Zinc-DISS	NA	1.5 B	<1.3	<20	<20	8.2 J	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26B (continued)						GM-26C
Top of Screen Depth (ft bls)	101	101	101	101	101	101	160
Sample Date	04/15/99	11/30/99	07/18/00	09/09/03	04/27/04	07/28/05	10/25/98
Sample ID	GWGM-26B	GM-26B	GWGM-26B	GM-26B	GWGM-26B (4/27/04)	GWGM-26B (072805)	GWGM-26C
Alcohols							
1,4-Dioxane	R	<5.0	<5.0 J	<5.0	<5.0	<4.9	<300 J
Acetonitrile	R	NA	32 J	<50	<50	<50	<50
Ethanol	<1,000	NA	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	R	NA	<5,000	<5,000	<5,000	<5,000	<10
Ethylene glycol	<20,000 J	NA	NA	<5,000	<5,000	<10,000	<20,000
Isobutanol	<1,000	NA	<1,000	<1,000	<1,000	<1,000	<1,000
Isopropanol	<1,000	NA	<1,000 J	<1,000	<1,000	<1,000	<1,000
Methanol	<800	NA	<1,000	<1,000	320 J	<1,000	<800
n-Butanol	<1,000	NA	<1,000	<1,000	<1,000	<1,000	<1,000
Aldehydes							
Acetaldehyde	<100	<100	<100 J	<100	<100	<100	<100
Butanal	<100	<100	<100 J	<100	<100	<100	<100
Crotonaldehyde	<100	<100	<100 J	<100	<100	<100	<100
Cyclohexanone	<100	<100	<100 J	<100	<100	<100	<100
Decanal	<100	<100	<100 J	<100	<100	<100	<100
Formaldehyde	<100	<100	<100 J	<100	<100	<100	<100
Heptanal	<100	<100	<100 J	<100	<100	<100	<100
Hexanal	<100	<100	<100 J	<100	<100	<100	130
m-Tolualdehyde	<100	<100	<100 J	<100	<100	<100	<100
Nonanal	<100	<100	<100 J	<100	<100	<100	<100
Octanal	<100	<100	<100 J	<100	<100	<100	<100
Paraldehyde	<100	<100	<100	<100	<100	<100	<100
Pentanal	<100	<100	<100 J	<100	<100	<100	<100
Propanal	<100	<100	<100 J	<100	<100	<100	<100
Inorganics							
Alkalinity	170,000	NA	150,000	170,000	180,000	170,000	840,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA
Chloride	<1,000	NA	<1,000	<1,000	740 B	<1,000	20,000

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26B (continued)						GM-26C
Top of Screen Depth (ft bls)	101	101	101	101	101	101	160
Sample Date	04/15/99	11/30/99	07/18/00	09/09/03	04/27/04	07/28/05	10/25/98
Sample ID	GWGM-26B	GM-26B	GWGM-26B	GM-26B	GWGM-26B (4/27/04)	GWGM-26B (072805)	GWGM-26C
Inorganics (continued)							
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	NA	**64**	**180**	**85**	**48**	**270**
Nitrogen, Nitrate	<100	NA	<50	<50	<50	<50	<200
Nitrogen, Nitrite	<100	NA	<50	<50	<50	<50	<200 M
Ortho-Phosphate	NA	NA	74	<50	<50	NA	NA
Phosphate	NA	NA	NA	NA	NA	<50	NA
Phosphorus	<100	NA	NA	<100	<100	<100	<100
Silica	17,000	NA	NA	NA	NA	NA	<100
Silica, Dissolved	NA	NA	22,000	24,000	24,000	18,000	NA
Sulfate	<5,000	NA	38,000 J	8,300	7,700	6,500	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	NA	<100 J	<1,000	<1,000	<1,000	1,800
Acetic Acid	<500	<1,000	<500	<1,000	<500	320 J	**3,400**
Biochemical Oxygen Demand	<1,000	NA	<2,000	<2,000	<2,000	<2,000	7800 J
Chemical Oxygen Demand	<10,000	NA	<20,000 J	<20,000	<20,000	<20,000	140,000
Total Organic Carbon	<1,000	NA	<1,000	1,000	<1,000	700 J	180,000
Density	NA	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	160,000	160,000	NA	NA	NA	NA
Methane	72	NA	6340	13,100	16,400	12,000	128,000
Suspended Solids	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	160,000	NA	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26C (continued)						
Top of Screen Depth (ft bls)	160	160	160	160	160	160	160
Sample Date	04/17/99	11/30/99	08/16/00	09/16/03	09/16/03	05/18/04	05/18/04
Sample ID	GWGM-26C	GM-26C	GWGM-26C	GM-26C	GM-26C-DL	GWGM-26C (5/18/04)	GWGM-994 (5/18/04)
VOCs							
1,1-Dichloroethene	<2	NA	NA	<1.0	NA	<10	<10
1,2,4-Trimethylbenzene	<2	NA	NA	<1.0	NA	<10	<10
1,2-Dichloroethene (total)	<2	NA	NA	<2.0	NA	<20	<20
1,3,5-Trimethylbenzene	<2 J	NA	NA	<1.0	NA	<10	<10
2-Butanone (MEK)	<20	NA	NA	<50	NA	34 J	26 J
2-Hexanone	100	NA	NA	120	NA	140 J	150 J
4-Methyl-2-pentanone (MIBK)	<20	NA	NA	<50	NA	<500	<500
Acetone	20 J	NA	NA	<100	NA	75 J	59 J
Acrylonitrile	<25 J	NA	NA	<25	NA	<250	<250
Benzene	27	NA	NA	25	NA	22	22
Bromochloromethane	<2	NA	NA	<1.0	NA	<10	<10
Bromoform	<2	NA	NA	<1.0	NA	<10	<10
Bromomethane	<2	NA	NA	<1.0	NA	<10	<10
Carbon disulfide	<2	NA	NA	<5.0	NA	<50	<50
Chloroethane	<2	NA	NA	<1.0	NA	<10	<10
Chloromethane	<2	NA	NA	<1.0	NA	<10	<10
cis-1,2-Dichloroethene	<2	NA	NA	<1.0	NA	<10	<10
Diethylether	41	NA	NA	27	NA	26 J	26 J
Ethylbenzene	3	NA	NA	5.3	NA	4.9 J	4.4 J
Furan	<10	NA	NA	<2.0	NA	2.5 J	<20
Isopropylbenzene	<2	NA	NA	<1.0	NA	<10	<10
Methyl iodide	<5	NA	NA	<5.0	NA	<50	<50
Methyl(tert)butyl ether	<100	NA	NA	<5.0	NA	<50	<50
Methylene chloride	<2	NA	NA	<1.0	NA	<10	<10
Propionitrile	NA	NA	NA	<25	NA	<250	<250
Tetrachloroethene	<2	NA	NA	<1.0	NA	<10	<10
Tetrahydrofuran	33 J	NA	NA	<2.0	NA	51	47
Toluene	23	NA	NA	31	NA	78	85
trans-1,2-Dichloroethene	<2	NA	NA	<1.0	NA	<10	<10
Trichloroethene	<2	NA	NA	1.9	NA	<10	<10

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26C (continued)						
Top of Screen Depth (ft bls)	160	160	160	160	160	160	160
Sample Date	04/17/99	11/30/99	08/16/00	09/16/03	09/16/03	05/18/04	05/18/04
Sample ID	GWGM-26C	GM-26C	GWGM-26C	GM-26C	GM-26C-DL	GWGM-26C (5/18/04)	GWGM-994 (5/18/04)
VOCs (continued)							
Xylene, o	5.8	NA	NA	NA	NA	NA	NA
Xylenes (total)	11	NA	NA	20	NA	19 J	18 J
Xylenes, m+p	5.5	NA	NA	NA	NA	NA	NA
SVOCs							
1,4-Dichlorobenzene	<100	<50	NA	<200	NA	<50	<50
2,3-Dimethylphenol	<200	NA	NA	<400	NA	260	260
2,4-Dimethylphenol	**1,600**	**2,200**	**3,000**	NA	NA	NA	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	**3,500**	NA	**1,200**	**1,600**
2,5-Dimethylphenol	640	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	620	NA	NA	770	NA	230	260
2-Methylphenol	<100	<50	<50	<200	NA	<50	<50
2-Nitrophenol	<200	<50	NA	<200	NA	<50	<50
3,4-Dimethylphenol	<200	NA	NA	<400	NA	57 J	58 J
3-Methylphenol	<200	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	<50	<50	<200	NA	<50	<50
4-Methylphenol	<100	NA	NA	NA	NA	NA	NA
Anthracene	<100	<50	NA	<200	NA	<50	<50
Benzo(a)anthracene	<100	<50	NA	<200	NA	<50	<50
Benzo(a)pyrene	<100	28 J	NA	<200	NA	<50	<50
Benzo(b)fluoranthene	<100	<50	NA	<200	NA	<50	<50
Benzo(g,h,i)perylene	<100	27 J	NA	<200	NA	<50	17 J
Benzo(k)fluoranthene	<100 J	33 J	NA	<200	NA	<50	<50
bis(2-Ethylhexyl)phthalate	<100	<50	NA	<200	NA	<50	<50
Butylbenzylphthalate	<100	<50	NA	<200	NA	<50	<50
Carbazole	<100 J	<50	NA	<200	NA	<50	<50
Chrysene	<100	<50	NA	<200	NA	<50	<50
Dibenzo(a,h)anthracene	<100	<50	NA	<200	NA	<50	14 J
Diethylphthalate	<100	<50	NA	<200	NA	<50	<50
Di-n-butylphthalate	<100	<50	NA	<200	NA	<50	<50

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26C (continued)						
Top of Screen Depth (ft bls)	160	160	160	160	160	160	160
Sample Date	04/17/99	11/30/99	08/16/00	09/16/03	09/16/03	05/18/04	05/18/04
Sample ID	GWGM-26C	GM-26C	GWGM-26C	GM-26C	GM-26C-DL	GWGM-26C (5/18/04)	GWGM-994 (5/18/04)
SVOCs (continued)							
Di-n-octylphthalate	<100	<50	NA	<200	NA	<50	<50
Fluoranthene	<100	<50	NA	<200	NA	<50	<50
Indeno(1,2,3-c,d)pyrene	<100	26 J	NA	<200	NA	<50	16 J
Naphthalene	<200	<50	NA	<200	NA	<50	<50
Phenol	<100	<50	<50	<200	NA	<50	<50
Pyrene	<100	<50	NA	<200	NA	<50	<50
Metals							
Aluminum	<200	NA	NA	<200	NA	<200	<200
Aluminum-DISS	NA	30 B	NA	<200	NA	<200	<200
Antimony	<50	NA	NA	<50	NA	<50	<50
Antimony-DISS	NA	<50	NA	<50	NA	<50	<50
Arsenic	6.4	NA	NA	56	NA	56	55
Arsenic-DISS	NA	28	NA	53	NA	54	57
Barium	<200	NA	NA	**650**	NA	**680**	**670**
Barium-DISS	NA	**450**	NA	**630**	NA	**670**	**680**
Beryllium-DISS	NA	<1.0	NA	<1.0	NA	<1.0	<1.0
Cadmium	<0.5	NA	NA	<0.50 WN	NA	<0.50	<0.50
Cadmium-DISS	NA	<0.50 W	NA	<0.50 WN	NA	<0.50	<0.50
Calcium	91,000	NA	NA	160,000	NA	160,000	160,000
Calcium-DISS	NA	130,000	150,000	160,000	NA	160,000	160,000
Chromium	<50	NA	NA	<5.0	NA	2.9 B	2.4 B
Chromium-DISS	NA	1.3 B	NA	<5.0	NA	2.6 B	2.3 B
Cobalt	<50	NA	NA	<10	NA	6.7 B	6.5 B
Cobalt-DISS	NA	2.8 B	NA	<10	NA	6.2 B	6.6 B
Copper	**34**	NA	NA	<25	NA	<25	<25
Copper-DISS	NA	<25	NA	<25	NA	<25	<25
Iron	510	NA	NA	21,000	NA	21,000	21,000
Iron-DISS	NA	8,100	13,000	20,000	NA	21,000	21,000

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26C (continued)						
Top of Screen Depth (ft bls)	160	160	160	160	160	160	160
Sample Date	04/17/99	11/30/99	08/16/00	09/16/03	09/16/03	05/18/04	05/18/04
Sample ID	GWGM-26C	GM-26C	GWGM-26C	GM-26C	GM-26C-DL	GWGM-26C (5/18/04)	GWGM-994 (5/18/04)
Metals (continued)							
Lead	<3	NA	NA	<3.0	NA	<3.0	<3.0
Lead-DISS	NA	<3.0	NA	<3.0	NA	<3.0	<3.0
Magnesium	55,000	NA	NA	250,000	NA	280,000	270,000
Magnesium-DISS	NA	160,000	180,000	240,000	NA	270,000	280,000
Manganese	63	310	NA	130	NA	120	120
Manganese-DISS	NA	NA	NA	120	NA	120	120
Mercury	<0.2	NA	NA	<0.20	NA	**0.084 B**	<0.20
Mercury-DISS	NA	<0.20	NA	<0.20	NA	**0.10 B**	<0.20
Molybdenum	<100	NA	NA	<10	NA	3.7 B	3.6 B
Molybdenum-DISS	NA	4.6 B	NA	<10	NA	3.9 B	4.5 B
Nickel	<50	NA	NA	<25	NA	9.7 B	9.3 B
Nickel-DISS	NA	2.1 B	NA	<25	NA	9.0 B	9.1 B
Potassium	2,500	NA	NA	8,300	NA	8,800	8,800
Potassium-DISS	NA	6,800	7,100	7,900	NA	8,700	8,900
Selenium	<5	NA	NA	<5.0	NA	2.9 B	<5.0
Selenium-DISS	NA	<5.0	NA	<5.0	NA	2.8 B	<5.0
Silver	<0.5	NA	NA	<0.20 WN	NA	<0.20	<0.20
Silver-DISS	NA	<0.20	NA	<0.20 WN	NA	<0.20	<0.20
Sodium	5,800	NA	NA	NA	60,000	61,000	61,000
Sodium-DISS	NA	46,000	46,000 J	NA	56,000	61,000	62,000
Thallium	<2	NA	NA	<2.0 WN	NA	<2.0	<2.0
Thallium-DISS	NA	<2.0 W	NA	<2.0 WN	NA	<2.0	<2.0
Titanium	<50	NA	NA	<50	NA	18 B	18 B
Titanium-DISS	NA	2.1 B	NA	<50	NA	16 B	17 B
Vanadium	<20	NA	NA	<20	NA	**15 B**	**15 B**
Vanadium-DISS	NA	8.9 B	NA	<20	NA	**13 B**	**14 B**
Zinc	<20	NA	NA	<20	NA	6.6 B	5.3 B
Zinc-DISS	NA	5.2 B	NA	<20	NA	6.9 B	5.1 B

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26C (continued)						
Top of Screen Depth (ft bls)	160	160	160	160	160	160	160
Sample Date	04/17/99	11/30/99	08/16/00	09/16/03	09/16/03	05/18/04	05/18/04
Sample ID	GWGM-26C	GM-26C	GWGM-26C	GM-26C	GM-26C-DL	GWGM-26C (5/18/04)	GWGM-994 (5/18/04)
Alcohols							
1,4-Dioxane	R	<50	NA	600	NA	<50	<50
Acetonitrile	R	NA	NA	<50	NA	<500	<500
Ethanol	<1,000 J	NA	NA	<1,000	NA	<1,000	<1,000
Ethylacetate	R	NA	NA	<5,000	NA	<5,000	<5,000
Ethylene glycol	<20,000 J	NA	NA	<5,000	NA	2,000 J	2,100 J
Isobutanol	<1,000 J	NA	NA	<1,000	NA	<1,000	<1,000
Isopropanol	<1,000 J	NA	NA	<1,000	NA	<1,000	<1,000
Methanol	<800 J	NA	NA	<1,000	NA	**1,600**	**3,000**
n-Butanol	<1,000 J	NA	NA	<1,000	NA	<1,000	<1,000
Aldehydes							
Acetaldehyde	$\boxed{\textbf{230}}$	130	NA	<100	NA	<100	<100
Butanal	<100	<100	NA	<100	NA	<100	<100
Crotonaldehyde	<100	<100	NA	<100	NA	100	80 J
Cyclohexanone	<100	110	NA	<100	NA	<100	<100
Decanal	<100	<100	NA	<100	NA	<100	<100
Formaldehyde	<100	<100	NA	<100	NA	<100	<100
Heptanal	<100	<100	NA	<100	NA	180	120
Hexanal	<100	<100	NA	<100	NA	<100	480
m-Tolualdehyde	<100	<100	NA	<100	NA	430	<100
Nonanal	<100	<100	NA	<100	NA	17 J	<100
Octanal	<100	<100	NA	<100	NA	120	<100
Paraldehyde	<100	<100	NA	<100	NA	<100	<100
Pentanal	180	<100	NA	<100	NA	140	<100
Propanal	<100	<100	NA	<100	NA	<100	<100
Inorganics							
Alkalinity	920,000	NA	NA	1,500,000	NA	1,600,000	1,600,000
Bicarbonate	NA	NA	1,200,000	NA	NA	NA	NA
Chloride	18,000	NA	23,000 J	20,000	NA	21,000	21,000

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-26C (continued)						
Top of Screen Depth (ft bls)	160	160	160	160	160	160	160
Sample Date	04/17/99	11/30/99	08/16/00	09/16/03	09/16/03	05/18/04	05/18/04
Sample ID	GWGM-26C	GM-26C	GWGM-26C	GM-26C	GM-26C-DL	GWGM-26C (5/18/04)	GWGM-994 (5/18/04)
Inorganics (continued)							
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	$\boxed{240}$	NA	NA	$\boxed{64}$	NA	$\boxed{56}$	$\boxed{50}$
Nitrogen, Nitrate	<100	NA	NA	<50	NA	<50	<50
Nitrogen, Nitrite	<100 J	NA	NA	<50	NA	<50	<50
Ortho-Phosphate	NA	NA	NA	<50	NA	<50	<50
Phosphate	NA	NA	NA	NA	NA	NA	NA
Phosphorus	<100	NA	NA	150	NA	170	150
Silica	32,000	NA	NA	NA	NA	NA	NA
Silica, Dissolved	NA	NA	NA	55,000	NA	46,000	49,000
Sulfate	<20,000 M	NA	<5,000	<5,000	NA	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA
Sulfide	2,500	NA	NA	<1,000	NA	<1,000	<1,000
Acetic Acid	**2,100**	<1,000	NA	**1,400**	NA	690	840
Biochemical Oxygen Demand	22,000	NA	NA	43,000	NA	58,000	60,000
Chemical Oxygen Demand	610,000	NA	NA	1,000,000	NA	1,000,000	1,000,000
Total Organic Carbon	180,000	NA	NA	290,000	NA	290,000	290,000
Density	NA	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	1,000,000	NA	NA	NA	NA	NA
Methane	134,000	NA	NA	63,500	NA	199,000	347,000
Suspended Solids	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	**910,000**	NA	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27A					GM-27B		
Top of Screen Depth (ft bls)	30	30	30	30	30	145	145	145
Sample Date	10/08/98	04/15/99	12/01/99	09/10/03	05/13/04	10/26/98	04/14/99	07/18/00
Sample ID	GWGM-27A	GWGM-27A	GM-27A	GM-27A	GWGM-27A (5/13/04)	GWGM-27B	GWGM-27B	GWGM-27B
VOCs								
1,1-Dichloroethene	<1	<2	NA	<1.0	<1.0	<1	<1	<1.0
1,2,4-Trimethylbenzene	1.9	2.1	NA	2.6	2.3	<1	<1	<1.0
1,2-Dichloroethene (total)	<1	<2	NA	<2.0	<2.0	<1	<1	<2.0
1,3,5-Trimethylbenzene	<1	<2	NA	1.1	0.83 J	<1	<1	<1.0
2-Butanone (MEK)	<10	<20 J	NA	<50	37 J	<10	<10 J	<50 J
2-Hexanone	35	30	NA	<50	36 J	<10	<10	<50 J
4-Methyl-2-pentanone (MIBK)	<10	<20	NA	<50	3.7 J	<10	<10 J	<50
Acetone	<10	R	NA	<100	39 J	<10	R	<100 J
Acrylonitrile	<25	R	NA	<25	<25	<25	R	R
Benzene	24	25	NA	21	23	<1	<1	<1.0
Bromochloromethane	<1	<2	NA	<1.0	<1.0	<1	<1	<1.0
Bromoform	<1	<2	NA	<1.0	<1.0	<1	<1	<1.0
Bromomethane	<1	<2	NA	3	<1.0	<1	<1	<1.0
Carbon disulfide	<1	<2	NA	<5.0	<5.0	<1	4.7	<5.0
Chloroethane	<1	<2	NA	<1.0	<1.0	<1	<1	<1.0
Chloromethane	<1	<2	NA	1.1	<1.0	<1	<1	<1.0
cis-1,2-Dichloroethene	<1	<2	NA	<1.0	0.46 J	<1	<1	<1.0
Diethylether	16	34	NA	26	31	<10	<10	<10
Ethylbenzene	4.1	4.9	NA	4.8	4.9	<1	<1	<1.0
Furan	<5	<10	NA	<2.0	1.1 J	<5	<5	NA
Isopropylbenzene	<1	<2	NA	<1.0	<1.0	<1	<1	<1.0
Methyl iodide	<5	<5	NA	<5.0	<5.0	<5	<5	<5.0
Methyl(tert)butyl ether	<50	<100	NA	<5.0	<5.0	<50	<50	<5.0
Methylene chloride	<1	<2	NA	<1.0	<1.0	<1	<1	<1.0
Propionitrile	NA	NA	NA	<25	<25	NA	NA	<25
Tetrachloroethene	<1	<2	NA	<1.0	<1.0	<1	<1	<1.0
Tetrahydrofuran	17	22 J	NA	3	16	<5	R	NA
Toluene	16	19	NA	16	18	<1	<1	2.7
trans-1,2-Dichloroethene	<1	<2	NA	<1.0	<1.0	<1	<1	<1.0
Trichloroethene	1.3	3.2	NA	1.4	1.4	<1	<1	<1.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27A					GM-27B		
Top of Screen Depth (ft bls)	30	30	30	30	30	145	145	145
Sample Date	10/08/98	04/15/99	12/01/99	09/10/03	05/13/04	10/26/98	04/14/99	07/18/00
Sample ID	GWGM-27A	GWGM-27A	GM-27A	GM-27A	GWGM-27A (5/13/04)	GWGM-27B	GWGM-27B	GWGM-27B
VOCs (continued)								
Xylene, o	<1	7.4	NA	NA	NA	<1	<1	NA
Xylenes (total)	15	17	NA	16	16	<3	<3	<3.0
Xylenes, m+p	<2	9.8	NA	NA	NA	<2	<2	NA
SVOCs								
1,4-Dichlorobenzene	<50	<50	<20	<50	<25	<5	<5	<5.0
2,3-Dimethylphenol	NA	130	NA	210	<50	NA	<10	NA
2,4-Dimethylphenol	1,300	1,100	890	NA	NA	<5	<5	<5.0
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	1,900	940	NA	NA	NA
2,5-Dimethylphenol	NA	<200	NA	NA	NA	NA	<20	NA
2,6-Dimethylphenol	NA	540	NA	630	230	NA	<10	NA
2-Methylphenol	<50	70	<20	<50	<25	<5	<5	<5.0
2-Nitrophenol	<100	<100	<20	<50	<25	<20	<20	<5.0
3,4-Dimethylphenol	NA	<100	NA	130	74	NA	<10	NA
3-Methylphenol	<100	<100	NA	NA	NA	<10	<10	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	<20	570	600	NA	NA	<5.0
4-Methylphenol	<50	<50	NA	NA	NA	<5	<5	NA
Anthracene	<50	<50	<20	<50	<25	<5	<5	<5.0
Benzo(a)anthracene	<50	<50	<20	<50	<25	<5	<5	<5.0
Benzo(a)pyrene	<50	<50	<20	<50	<25	<5	<5	<5.0
Benzo(b)fluoranthene	<50	<50	<20	<50	<25	<5	<5	<5.0
Benzo(g,h,i)perylene	<50	<50	<20	<50	<25	<5	<5 J	<5.0
Benzo(k)fluoranthene	<50	<50 J	<20	<50	<25	<5	<5	<5.0
bis(2-Ethylhexyl)phthalate	<50	<50	<20	<50	<25	<5	<5	0.81 J
Butylbenzylphthalate	<50	<50	<20	<50	<25	<5	<5	<5.0
Carbazole	<50	<50 J	<20	<50	<25	<5	<5 J	<5.0
Chrysene	<50	<50	<20	<50	<25	<5	<5	<5.0
Dibenzo(a,h)anthracene	<50	<50	<20	<50	<25	<5	<5 J	<5.0
Diethylphthalate	<50	<50	<20	<50	<25	<5	<5	<5.0
Di-n-butylphthalate	<50	<50	<20	<50	<25	<5	<5	<5.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27A					GM-27B		
Top of Screen Depth (ft bls)	30	30	30	30	30	145	145	145
Sample Date	10/08/98	04/15/99	12/01/99	09/10/03	05/13/04	10/26/98	04/14/99	07/18/00
Sample ID	GWGM-27A	GWGM-27A	GM-27A	GM-27A	GWGM-27A (5/13/04)	GWGM-27B	GWGM-27B	GWGM-27B
SVOCs (continued)								
Di-n-octylphthalate	<50	<50	<20	<50	<25	<5	<5	<5.0
Fluoranthene	<50	<50	<20	<50	<25	<5	<5	<5.0
Indeno(1,2,3-c,d)pyrene	<50	<50	<20	<50	<25	<5	<5 J	<5.0 J
Naphthalene	<100	<100	<20	<50	<25	<10	<10	<5.0
Phenol	<50	<50	<20	<50	<25	22	<5	0.52 J
Pyrene	<50	<50	<20	<50	<25	<5	<5	<5.0
Metals								
Aluminum	<200	<200	29 B	<200	<200	<200	<200	NA
Aluminum-DISS	NA	NA	NA	<200	66 B	NA	NA	<33
Antimony	<50	<50	<50	<50	<50	<50	<50	NA
Antimony-DISS	NA	NA	NA	<50	<50	NA	NA	<50
Arsenic	41	42 J	48	48	45	5.7	20 J	NA
Arsenic-DISS	NA	NA	NA	47	45	NA	NA	15 B
Barium	**1,600**	**1,600**	**1,700**	**1,700**	**1,600**	<200	<200	NA
Barium-DISS	NA	NA	NA	**1,600**	**1,600**	NA	NA	36 B
Beryllium-DISS	NA	NA	NA	<1.0	<1.0	NA	NA	<1.0
Cadmium	<0.5	<0.5	<0.50 W	<0.50	<0.50	<0.5	<0.5	NA
Cadmium-DISS	NA	NA	NA	<0.50	<0.50	NA	NA	<0.50
Calcium	220,000	220,000	210,000	220,000	210,000	31,000	13,000	NA
Calcium-DISS	NA	NA	NA	220,000	210,000	NA	NA	17,000
Chromium	<50	<50	1.9 B	<5.0	1.4 B	<50	<50	NA
Chromium-DISS	NA	NA	NA	<5.0	1.4 B	NA	NA	<5.0
Cobalt	<50	<50	9.3 B	<10	8.1 B	<50	<50	NA
Cobalt-DISS	NA	NA	NA	<10	8.9 B	NA	NA	<10
Copper	<25	<25	0.93 B	<25	<25	<25	<25	NA
Copper-DISS	NA	NA	NA	<25	<25	NA	NA	<25
Iron	34,000	36,000	36,000	35,000	32,000	300	21	NA
Iron-DISS	NA	NA	NA	33,000	32,000	NA	NA	29 B

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27A					GM-27B		
Top of Screen Depth (ft bls)	30	30	30	30	30	145	145	145
Sample Date	10/08/98	04/15/99	12/01/99	09/10/03	05/13/04	10/26/98	04/14/99	07/18/00
Sample ID	GWGM-27A	GWGM-27A	GM-27A	GM-27A	GWGM-27A (5/13/04)	GWGM-27B	GWGM-27B	GWGM-27B
Metals (continued)								
Lead	<3	<3	<3.0	<3.0	<3.0	<3	<3	NA
Lead-DISS	NA	NA	NA	<3.0	<3.0	NA	NA	<3.0
Magnesium	180,000	180,000	180,000	190,000	190,000	21,000	8,800	NA
Magnesium-DISS	NA	NA	NA	190,000	180,000	NA	NA	13,000
Manganese	300	220	200	170	160	300	42	NA
Manganese-DISS	NA	NA	NA	170	170	NA	NA	34
Mercury	<0.2	<0.2	<0.20	<0.20	<0.20	<0.2	<0.2	NA
Mercury-DISS	NA	NA	NA	<0.20	<0.20	NA	NA	<0.20
Molybdenum	<100	<100	<10	<10	<10	<100	<100	NA
Molybdenum-DISS	NA	NA	NA	<10	1.2 B	NA	NA	2.2 B
Nickel	<50	<50	8.2 B	<25	8.3 B	<50	<50	NA
Nickel-DISS	NA	NA	NA	<25	9.8 B	NA	NA	<25
Potassium	4,800	4,800	5,100	5,500	6,000	2,500	3,500	NA
Potassium-DISS	NA	NA	NA	5,300	5,900	NA	NA	28,000
Selenium	<5	<5	<5.0	<5.0	<5.0	<5	<5	NA
Selenium-DISS	NA	NA	NA	<5.0	<5.0	NA	NA	<5.0
Silver	<0.5	<0.5	<0.20	<0.20 W	<0.20	<0.5	<0.5	NA
Silver-DISS	NA	NA	NA	<0.20 W	<0.20	NA	NA	<0.20
Sodium	18,000	18,000	18,000	23,000	21,000	33,000	31,000	NA
Sodium-DISS	NA	NA	NA	22,000	20,000	NA	NA	7,200
Thallium	<2	<2	<2.0 W	<2.0	<2.0	<2	<2	NA
Thallium-DISS	NA	NA	NA	<2.0	<2.0	NA	NA	<2.0
Titanium	<50	<50	12 B	<50	13 B	<50	<50	NA
Titanium-DISS	NA	NA	NA	<50	11 B	NA	NA	<50
Vanadium	<20	<20	11 B	<20	9.7 B	<20	<20	NA
Vanadium-DISS	NA	NA	NA	<20	9.2 B	NA	NA	<20
Zinc	<20	<20	4.5 B	<20	7.5 B	<20	<20	NA
Zinc-DISS	NA	NA	NA	<20	5.6 B	NA	NA	<1.3

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27A					GM-27B		
Top of Screen Depth (ft bls)	30	30	30	30	30	145	145	145
Sample Date	10/08/98	04/15/99	12/01/99	09/10/03	05/13/04	10/26/98	04/14/99	07/18/00
Sample ID	GWGM-27A	GWGM-27A	GM-27A	GM-27A	GWGM-27A (5/13/04)	GWGM-27B	GWGM-27B	GWGM-27B
Alcohols								
1,4-Dioxane	<300	R	<20 J	<50	<25	R	R	<5.0 J
Acetonitrile	<50	R	NA	<50	<50	<50	R	<50
Ethanol	<1,000	<1,000	NA	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	<10	R	NA	<5,000	<5,000	<10	R	<5,000
Ethylene glycol	<20,000	<20,000 J	NA	<5,000	940 J	38,000	<20,000 J	NA
Isobutanol	<1,000	<1,000 J	NA	<1,000	<1,000	<1,000	<1,000 J	<1,000
Isopropanol	<1,000	<1,000 J	NA	<1,000	<1,000	<1,000	<1,000 J	<1,000 J
Methanol	<800	<800	NA	<1,000	**3,600**	<800	<800	<1000
n-Butanol	<1,000	<1,000	NA	23,000	<1,000	<5,000 M	<1,000	<1000
Aldehydes								
Acetaldehyde	100 J	$\boxed{350}$	<100	<100	<100	<100 J	<100	<100 J
Butanal	<100 J	<100	<100	<100	<100	<100 J	<100	<100 J
Crotonaldehyde	<100 J	<100	<100	<100	<100	<100 J	<100	<100 J
Cyclohexanone	<100 J	<100	<100	<100	670	<100 J	<100	<100 J
Decanal	<100 J	<100	<100	<100	<100	<100 J	<100	<100 J
Formaldehyde	<100 J	<100	<100	<100	<100	<100 J	<100	<100 J
Heptanal	<100 J	<100	<100	<100	120	<100 J	<100	<100 J
Hexanal	110 J	<100	<100	<100	<100	<100 J	<100	<100 J
m-Tolualdehyde	<100 J	<100	<100	<100	1500	<100 J	<100	<100 J
Nonanal	<100 J	<100	<100	<100	<100	<100 J	<100	<100 J
Octanal	<100 J	<100	<100	<100	43 J	<100 J	<100	<100 J
Paraldehyde	<100	<100	<100	<100	<500	<100 J	<100	<100
Pentanal	<100 J	<100	<100	<100	<100	<100 J	<100	<100 J
Propanal	<100 J	<100	<100	<100	<100	<100 J	<100	<100 J
Inorganics								
Alkalinity	1,200,000	1,200,000	NA	1,300,000	1,300,000	140,000	130,000	130,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	<160,000 M	16,000	NA	<1,000	20,000	5,100	1,500	<1,000

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27A					GM-27B		
Top of Screen Depth (ft bls)	30	30	30	30	30	145	145	145
Sample Date	10/08/98	04/15/99	12/01/99	09/10/03	05/13/04	10/26/98	04/14/99	07/18/00
Sample ID	GWGM-27A	GWGM-27A	GM-27A	GM-27A	GWGM-27A (5/13/04)	GWGM-27B	GWGM-27B	GWGM-27B
Inorganics (continued)								
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	<200	NA	$\boxed{42}$	<60 *F65	<200	$\boxed{370}$	$\boxed{140}$
Nitrogen, Nitrate	<100	<100	NA	<50	28 B	<100 J	<100	<50
Nitrogen, Nitrite	<100	<100 J	NA	<50	<50	<100	<100	<50
Ortho-Phosphate	NA	NA	NA	<50	<50	NA	NA	110
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	<100	<100	NA	<100	70 J	170	200	NA
Silica	<100	39,000	NA	NA	NA	<100	15,000	NA
Silica, Dissolved	NA	NA	NA	54,000	49,000	NA	NA	18,000
Sulfate	5,200	<10,000 JM	NA	<5,000	<5,000	61,000	5,200	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	1,200	2,000	NA	<1,000	<1,000	<1,000	<1,000	<100 J
Acetic Acid	**920,000**	**3,600**	<1000	<1,000	420 I	<2,000	**16,000**	<500
Biochemical Oxygen Demand	13,000 J	6,900	NA	44,000	40,000	8,900 J	3,400	<2,000
Chemical Oxygen Demand	400,000	<500,000 M	NA	610,000	550,000	13,000	<10,000	<20,000 J
Total Organic Carbon	150,000	200,000	NA	160,000	160,000	5,500	2,200	<1,000
Density	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	1,300,000	NA	NA	NA	NA	98,000
Methane	48,200	27,400	NA	40,400	25,400	50	180	49
Suspended Solids	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	**1,100,000**	NA	NA	NA	NA	110,000	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)				
Top of Screen Depth (ft bls)	145	145	145	145	145
Sample Date	09/10/03	04/30/04	04/30/04	08/05/05	12/07/06
Sample ID	GM-27B	GWGM-27B (4/30/04)	GWGM-998 (4/30/04)	GWGM-27B (08/05/05)	GWGM27B (12/7/06)
VOCs					
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50	<50
Acetone	<100	<100	<100	<100	<100
Acrylonitrile	<25	<25	<25	<25	<25
Benzene	<1.0	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	<5.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Diethylether	<10	<10	<10	<10	<10
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Furan	<2.0	<2.0	<2.0	<10	<10
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrahydrofuran	<2.0	<2.0	<2.0	<10	<10
Toluene	<1.0	37	34	<1.0	<1.0
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)				
Top of Screen Depth (ft bls)	145	145	145	145	145
Sample Date	09/10/03	04/30/04	04/30/04	08/05/05	12/07/06
Sample ID	GM-27B	GWGM-27B (4/30/04)	GWGM-998 (4/30/04)	GWGM-27B (08/05/05)	GWGM27B (12/7/06)
VOCs (continued)					
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	<3.0	<3.0	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA
SVOCs					
1,4-Dichlorobenzene	<5.0	<5.0	<5.0	<4.8	<5.0
2,3-Dimethylphenol	<10	<10	<10	<9.5	<10
2,4-Dimethylphenol	NA	NA	NA	<4.8	<5.0
2,4-Dimethylphenol/2,5-Dimethylphenol	<10	<10	<10	<9.5	<10
2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	<10	<10	<10	<9.5	<10
2-Methylphenol	<5.0	<5.0	<5.0	<4.8	<5.0
2-Nitrophenol	<5.0	<5.0	<5.0	<4.8	<5.0
3,4-Dimethylphenol	<10	<10	<10	<9.5	<10
3-Methylphenol	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	<5.0	<5.0	<4.8	<5.0
4-Methylphenol	NA	NA	NA	NA	NA
Anthracene	<5.0	0.65 J	<5.0	<4.8	<5.0
Benzo(a)anthracene	<5.0	<5.0	<5.0	<4.8	<5.0
Benzo(a)pyrene	<5.0	1.4 J	<5.0	<4.8	<5.0
Benzo(b)fluoranthene	<5.0	<5.0	<5.0	<4.8	<5.0
Benzo(g,h,i)perylene	<5.0	5.7	<5.0	<4.8	<5.0
Benzo(k)fluoranthene	<5.0	<5.0	<5.0	<4.8	<5.0
bis(2-Ethylhexyl)phthalate	<5.0	<5.0	<5.0	<4.8	<5.0
Butylbenzylphthalate	<5.0	<5.0	<5.0	<4.8	<5.0
Carbazole	<5.0	0.70 J	<5.0	<4.8	<5.0
Chrysene	<5.0	<5.0	<5.0	<4.8	<5.0
Dibenzo(a,h)anthracene	<5.0	4.8 J	<5.0	<4.8	<5.0
Diethylphthalate	<5.0	<5.0	<5.0	<4.8	<5.0
Di-n-butylphthalate	<5.0	<5.0	<5.0	<4.8	<5.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)				
Top of Screen Depth (ft bls)	145	145	145	145	145
Sample Date	09/10/03	04/30/04	04/30/04	08/05/05	12/07/06
Sample ID	GM-27B	GWGM-27B (4/30/04)	GWGM-998 (4/30/04)	GWGM-27B (08/05/05)	GWGM27B (12/7/06)
SVOCs (continued)					
Di-n-octylphthalate	<5.0	<5.0	<5.0	<4.8	<5.0
Fluoranthene	<5.0	0.72 J	<5.0	<4.8	<5.0
Indeno(1,2,3-c,d)pyrene	<5.0	4.6 J	<5.0	<4.8	<5.0
Naphthalene	<5.0	<5.0	<5.0	<4.8	<5.0
Phenol	<5.0	1.0 J	1.0 J	<4.8	<5.0
Pyrene	<5.0	<5.0	<5.0	<4.8	<5.0
Metals					
Aluminum	<200	28 B	11 B	<200	<200
Aluminum-DISS	<200	<200	<200	<200	13 J
Antimony	<50	<50	<50	<50	<50
Antimony-DISS	<50	<50	<50	<50	<50
Arsenic	<20	19 B	19 B	20	28
Arsenic-DISS	<20	18 B	18 B	20	32
Barium	<100	73 B	74 B	59 J	65 J
Barium-DISS	<100	72 B	72 B	61 J	71 J B
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	<0.50	<0.50	<0.50	<0.50
Cadmium-DISS	<0.50	<0.50	<0.50	<0.50	<0.50
Calcium	25,000	26,000	26,000	23,000	30,000
Calcium-DISS	24,000	24,000	24,000	23,000	34,000
Chromium	<5.0	<5.0	<5.0	<5.0	<5.0
Chromium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0
Cobalt	<10	<10	<10	<10	<10
Cobalt-DISS	<10	<10	<10	<10	0.12 J
Copper	<25	<25	<25	<25	0.76 J
Copper-DISS	<25	<25	<25	<25	0.44 J
Iron	<100	140	83 B	53 J	84 J
Iron-DISS	<100	43 B	43 B	47 J	91 J

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)				
Top of Screen Depth (ft bls)	145	145	145	145	145
Sample Date	09/10/03	04/30/04	04/30/04	08/05/05	12/07/06
Sample ID	GM-27B	GWGM-27B (4/30/04)	GWGM-998 (4/30/04)	GWGM-27B (08/05/05)	GWGM27B (12/7/06)
Metals (continued)					
Lead	<3.0	<3.0	<3.0	<3.0	<3.0
Lead-DISS	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium	20,000	19,000	20,000	17,000	21,000
Magnesium-DISS	20,000	19,000	19,000	17,000	25,000
Manganese	43	47	43	33	45
Manganese-DISS	42	40	40	34	49
Mercury	<0.20	<0.20	<0.20	**0.10 J**	<0.20
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	<0.20
Molybdenum	<10	<10	<10	<10	<10
Molybdenum-DISS	<10	1.1 B	1.2 B	<10	<10
Nickel	<25	<25	<25	0.19 J	0.45 J
Nickel-DISS	<25	<25	<25	0.37 J	0.70 J
Potassium	12,000	9,500	9,600	7,100	2,700
Potassium-DISS	12,000	9,500	9,500	6,900	3,100
Selenium	<5.0	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	<0.20 W	<0.20	<0.20	<0.20	<0.20
Silver-DISS	<0.20 W	<0.20	<0.20	<0.20	<0.20
Sodium	4,200	4,500	4,600	4,000	3,400
Sodium-DISS	4,200	4,500	4,500	3,900	3,700
Thallium	<2.0	<2.0	<2.0	<2.0	<2.0
Thallium-DISS	<2.0	<2.0	<2.0	0.33 J	<2.0
Titanium	<50	1.4 B	0.54 B	2.1 J	0.78 J
Titanium-DISS	<50	<50	<50	1.2 J	2.1 J
Vanadium	<20	<20	<20	<20	<20
Vanadium-DISS	<20	<20	<20	<20	<20
Zinc	<20	17 B	5.3 B	<20	5.2 J
Zinc-DISS	<20	1.0 B	<20	<20	7.3 J B

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)				
Top of Screen Depth (ft bls)	145	145	145	145	145
Sample Date	09/10/03	04/30/04	04/30/04	08/05/05	12/07/06
Sample ID	GM-27B	GWGM-27B (4/30/04)	GWGM-998 (4/30/04)	GWGM-27B (08/05/05)	GWGM27B (12/7/06)
Alcohols					
1,4-Dioxane	<5.0	<5.0	<5.0	<4.8	<5.0
Acetonitrile	<50	<50	<50	<50	<50
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	<5,000	<5,000	<5,000	<5,000	<5,000
Ethylene glycol	<5,000	<5,000	<5,000	<10,000	<10,000
Isobutanol	<1,000	<1,000	<1,000	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000	<1,000
Methanol	<1,000	**800 J**	**980 J**	<1,000	<1,000
n-Butanol	18,000	<1,000	<1,000	<1,000	<1,000
Aldehydes					
Acetaldehyde	<100	<100	<100	<100	<100
Butanal	<100	<100	<100	<100	<100
Crotonaldehyde	<100	<100	<100	<100	<100
Cyclohexanone	<100	<100	<100	<100	<100
Decanal	<100	<100	<100	<100	<100
Formaldehyde	100	<100	<100	<100	<100
Heptanal	<100	<100	<100	<100	<100
Hexanal	<100	<100	<100	<100	<100
m-Tolualdehyde	<100	<100	<100	<100	<100
Nonanal	<100	<100	<100	<100	<100
Octanal	<100	<100	<100	<100	<100
Paraldehyde	<100	<100	<100	<100	<100
Pentanal	<100	<100	<100	<100	<100
Propanal	<100	<100	<100	<100	<100
Inorganics					
Alkalinity	160,000	150,000	150,000	140,000	160,000
Bicarbonate	NA	NA	NA	NA	NA
Chloride	18,000	880 B	750 B	<1,000	<1,000

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)				
Top of Screen Depth (ft bls)	145	145	145	145	145
Sample Date	09/10/03	04/30/04	04/30/04	08/05/05	12/07/06
Sample ID	GM-27B	GWGM-27B (4/30/04)	GWGM-998 (4/30/04)	GWGM-27B (08/05/05)	GWGM27B (12/7/06)
Inorganics (continued)					
Chlorides Soluble	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	210	100	100	88	110
Nitrogen, Nitrate	<50	<50 *F70	<50 *F70	<50	<50
Nitrogen, Nitrite	<50	<50 *F70	<50 *F70	<50	<50
Ortho-Phosphate	<50	47 B*F70	35 B*F70	NA	31 J
Phosphate	NA	NA	NA	30 J	NA
Phosphorus	<100	<100	<100	76 J	51 J
Silica	NA	NA	NA	NA	23,600
Silica, Dissolved	21,000	23,000	22,000	19,000	NA
Sulfate	8,100	6,800	6,900	7,400	7,000
Sulfate Soluble	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	<1,000
Acetic Acid	<1,000	<500	<500	180 J	<500
Biochemical Oxygen Demand	<2,000	<2,000 *F70	<2,000 *F70	<2,000	<2,000
Chemical Oxygen Demand	<20,000	<20,000	<20,000	<20,000	0
Total Organic Carbon	<1,000	<1,000	<1,000	<1,000	<1,000
Density	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	NA
Methane	11	10	10	11	5
Suspended Solids	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)				
Top of Screen Depth (ft bls)	145	145	145	145	145
Sample Date	02/22/07	02/22/07	05/11/07	08/08/07	11/08/07
Sample ID	GWGM-27B (2/22/07)	GWGM-27B-RE (2/22/07)	GWGM-27B(5/11/07)	GWGM-27B (8/8/07)	GWGM-27B (11/8/07)
VOCs					
1,1-Dichloroethene	<1.0	NA	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	NA	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	NA	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	NA	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	NA	<50	<50	<50
2-Hexanone	<50	NA	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	NA	<50	<50	<50
Acetone	<100	NA	<100	<100	<100
Acrylonitrile	<25	NA	<25	<25	<25
Benzene	<1.0	NA	<1.0	<1.0	<1.0
Bromochloromethane	<1.0	NA	<1.0	<1.0	<1.0
Bromoform	<1.0	NA	<1.0	<1.0	<1.0
Bromomethane	<1.0	NA	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	NA	<5.0	<5.0	<5.0
Chloroethane	<1.0	NA	<1.0	<1.0	<1.0
Chloromethane	<1.0	NA	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	NA	<1.0	<1.0	<1.0
Diethylether	<10	NA	<10	<10	<10
Ethylbenzene	<1.0	NA	<1.0	<1.0	<1.0
Furan	<10	NA	<10	<10	<10
Isopropylbenzene	<1.0	NA	<1.0	<1.0	<1.0
Methyl iodide	<5.0	NA	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	NA	<5.0	<5.0	<5.0
Methylene chloride	<1.0	NA	<1.0	<1.0	<1.0
Propionitrile	<25	NA	<25	<25	<25
Tetrachloroethene	<1.0	NA	<1.0	<1.0	<1.0
Tetrahydrofuran	<10	NA	<10	<10	<10
Toluene	8.8	NA	2.1	1	11
trans-1,2-Dichloroethene	<1.0	NA	<1.0	<1.0	<1.0
Trichloroethene	<1.0	NA	<1.0	<1.0	<1.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)				
Top of Screen Depth (ft bls)	145	145	145	145	145
Sample Date	02/22/07	02/22/07	05/11/07	08/08/07	11/08/07
Sample ID	GWGM-27B (2/22/07)	GWGM-27B-RE (2/22/07)	GWGM-27B(5/11/07)	GWGM-27B (8/8/07)	GWGM-27B (11/8/07)
VOCs (continued)					
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	NA	<3.0	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA
SVOCs					
1,4-Dichlorobenzene	<4.9	<4.7 H	<4.7	<4.7	<4.7
2,3-Dimethylphenol	<9.7	<9.4 H	<9.4	<9.4	<9.4
2,4-Dimethylphenol	<4.9	<4.7 H	<4.7	<4.7	<4.7
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.7	<9.4 H	<9.4	<9.4	<9.4
2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	<9.7	<9.4 H	<9.4	<9.4	<9.4
2-Methylphenol	<4.9	<4.7 H	<4.7	<4.7	<4.7
2-Nitrophenol	<4.9	<4.7 H	<4.7	<4.7	<4.7
3,4-Dimethylphenol	<9.7	<9.4 H	<9.4	<9.4	<9.4
3-Methylphenol	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.9	<4.7 H	<4.7	<4.7	<4.7
4-Methylphenol	NA	NA	NA	NA	NA
Anthracene	<4.9	<4.7 H	<4.7	<4.7	<4.7
Benzo(a)anthracene	<4.9	<4.7 H	<4.7	<4.7	<4.7
Benzo(a)pyrene	<4.9	<4.7 H	<4.7	<4.7	<4.7
Benzo(b)fluoranthene	<4.9	<4.7 H	<4.7	<4.7	<4.7
Benzo(g,h,i)perylene	<4.9	<4.7 H	<4.7	<4.7	<4.7
Benzo(k)fluoranthene	<4.9	<4.7 H	<4.7	<4.7	<4.7
bis(2-Ethylhexyl)phthalate	<4.9	<4.7 H	<4.7	<4.7	<4.7
Butylbenzylphthalate	<4.9	<4.7 H	<4.7	<4.7	<4.7
Carbazole	<4.9	<4.7 H	<4.7	<4.7	<4.7
Chrysene	<4.9	<4.7 H	<4.7	<4.7	<4.7
Dibenzo(a,h)anthracene	<4.9	<4.7 H	<4.7	<4.7	<4.7
Diethylphthalate	<4.9	<4.7 H	<4.7	<4.7	<4.7
Di-n-butylphthalate	<4.9	<4.7 H	<4.7	<4.7	<4.7

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)				
Top of Screen Depth (ft bls)	145	145	145	145	145
Sample Date	02/22/07	02/22/07	05/11/07	08/08/07	11/08/07
Sample ID	GWGM-27B (2/22/07)	GWGM-27B-RE (2/22/07)	GWGM-27B(5/11/07)	GWGM-27B (8/8/07)	GWGM-27B (11/8/07)
SVOCs (continued)					
Di-n-octylphthalate	<4.9	<4.7 H	<4.7	<4.7	<4.7
Fluoranthene	<4.9	<4.7 H	<4.7	<4.7	<4.7
Indeno(1,2,3-c,d)pyrene	<4.9	<4.7 H	<4.7	<4.7	<4.7
Naphthalene	<4.9	<4.7 H	<4.7	<4.7	<4.7
Phenol	<4.9	<4.7 H	<4.7	<4.7	<4.7
Pyrene	<4.9	<4.7 H	<4.7	<4.7	<4.7
Metals					
Aluminum	<200	NA	<200	<200	<200
Aluminum-DISS	<200	NA	<200	<200	<200
Antimony	<50	NA	<50	<50	<50
Antimony-DISS	<50	NA	<50	<50	<50
Arsenic	27	NA	29	30	28
Arsenic-DISS	27	NA	31	31	29 B
Barium	56 J B	NA	61 J B	65 J	63 J
Barium-DISS	59 J B	NA	66 J B	64 J	59 J
Beryllium-DISS	<1.0	NA	<1.0	<1.0	<1.0
Cadmium	<0.50	NA	<0.50	<0.50	<0.50
Cadmium-DISS	<0.50	NA	<0.50	<0.50	<0.50
Calcium	28,000	NA	29,000	30,000	29,000
Calcium-DISS	29,000	NA	31,000	30,000	31,000
Chromium	<5.0	NA	<5.0	<5.0	0.76 J
Chromium-DISS	<5.0	NA	<5.0	<5.0	<5.0
Cobalt	0.098 J	NA	0.11 J	0.13 J	0.14 J
Cobalt-DISS	0.075 J	NA	0.10 J	0.14 J	0.15 J
Copper	0.62 J	NA	<25	<25	1.4 J
Copper-DISS	<25	NA	<25	<25	<25
Iron	77 J	NA	89 J	92 J	85 J
Iron-DISS	40 J	NA	59 J	74 J	81 J

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)				
Top of Screen Depth (ft bls)	145	145	145	145	145
Sample Date	02/22/07	02/22/07	05/11/07	08/08/07	11/08/07
Sample ID	GWGM-27B (2/22/07)	GWGM-27B-RE (2/22/07)	GWGM-27B(5/11/07)	GWGM-27B (8/8/07)	GWGM-27B (11/8/07)
Metals (continued)					
Lead	<3.0	NA	<3.0	<3.0	<3.0
Lead-DISS	<3.0	NA	<3.0	<3.0	<3.0
Magnesium	21,000	NA	21,000	22,000	22,000
Magnesium-DISS	21,000	NA	23,000	21,000	22,000
Manganese	38	NA	44	44	42
Manganese-DISS	41	NA	43	43	42
Mercury	<0.20	NA	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	NA	<0.20	<0.20	<0.20
Molybdenum	<10	NA	<10	<10	<10
Molybdenum-DISS	<10	NA	<10	<10	<10
Nickel	0.78 J	NA	0.17 J	<25	<25
Nickel-DISS	0.72 J	NA	0.29 J	0.33 J	<25
Potassium	3,700	NA	2,000	2,000	1,900 B
Potassium-DISS	4,000	NA	2,100	1,900	2,000
Selenium	<5.0	NA	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	NA	<5.0	<5.0	<5.0
Silver	<0.20	NA	<0.20	<0.20	<0.20
Silver-DISS	<0.20	NA	<0.20	<0.20	<0.20
Sodium	4,100	NA	3,000	3,200	3,100
Sodium-DISS	3,700	NA	3,300	3,200	3,200
Thallium	0.36 J	NA	<2.0	<2.0	<2.0
Thallium-DISS	<2.0	NA	<2.0	<2.0	<2.0
Titanium	1.6 J	NA	<50	2.2 J	2.6 J
Titanium-DISS	1.4 J	NA	1.6 J	2.4 J	<50
Vanadium	<20	NA	<20	0.93 J	1.6 J B
Vanadium-DISS	<20	NA	<20	0.93 J	<20
Zinc	7.1 J	NA	<20	<20	<20
Zinc-DISS	8.5 J B	NA	5.5 J B	<20	<20

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)				
Top of Screen Depth (ft bls)	145	145	145	145	145
Sample Date	02/22/07	02/22/07	05/11/07	08/08/07	11/08/07
Sample ID	GWGM-27B (2/22/07)	GWGM-27B-RE (2/22/07)	GWGM-27B(5/11/07)	GWGM-27B (8/8/07)	GWGM-27B (11/8/07)
Alcohols					
1,4-Dioxane	<4.9	<4.7 H	<4.7	<4.7	<4.7
Acetonitrile	<50	NA	<50	<50	<50
Ethanol	<1,000	NA	<1,000	<1,000	<1,000
Ethylacetate	<5,000	NA	<5,000	<5,000	<5,000
Ethylene glycol	<10,000	NA	<10,000	<10,000	<10,000
Isobutanol	<1,000	NA	<1,000	<1,000	<1,000
Isopropanol	<1,000	NA	<1,000	<1,000	<1,000
Methanol	<1,000	NA	<1,000	<1,000	<1,000
n-Butanol	<1,000	NA	<1,000	<1,000	<1,000
Aldehydes					
Acetaldehyde	<100	NA	<100	<100	<100
Butanal	<100	NA	<100	<100	<100
Crotonaldehyde	<100	NA	<100	<100	<100
Cyclohexanone	<100	NA	<100	<100	<100
Decanal	<100	NA	7.6 J	<100	<100
Formaldehyde	<100	NA	<100	<100	<100
Heptanal	<100	NA	<100	<100	<100
Hexanal	<100	NA	<100	<100	<100
m-Tolualdehyde	<100	NA	<100	<100	15 J
Nonanal	6.4 J	NA	5.8 J	<100	<100
Octanal	<100	NA	<100	<100	<100
Paraldehyde	<100	NA	<100	<100	<100
Pentanal	7.8 J	NA	5.4 J	9.4 J	<100
Propanal	<100	NA	<100	<100	<100
Inorganics					
Alkalinity	140,000	NA	160,000	160,000	170,000
Bicarbonate	NA	NA	NA	NA	NA
Chloride	520 J	NA	18,000	720 J	570 J

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27B (continued)				
Top of Screen Depth (ft bls)	145	145	145	145	145
Sample Date	02/22/07	02/22/07	05/11/07	08/08/07	11/08/07
Sample ID	GWGM-27B (2/22/07)	GWGM-27B-RE (2/22/07)	GWGM-27B(5/11/07)	GWGM-27B (8/8/07)	GWGM-27B (11/8/07)
Inorganics (continued)					
Chlorides Soluble	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**270**	NA	**120**	**210**	**130 B**
Nitrogen, Nitrate	59 B	NA	62	<50	<50
Nitrogen, Nitrite	<50	NA	<50	<50	11 J B
Ortho-Phosphate	NA	NA	NA	NA	NA
Phosphate	35 J	NA	<50	32 J	26 J
Phosphorus	63 J	NA	<100	<100	84 J
Silica	19,000	NA	20,900	23,300	22,000
Silica, Dissolved	NA	NA	NA	NA	NA
Sulfate	7,400	NA	64,000	6,700	7,000
Sulfate Soluble	NA	NA	NA	NA	NA
Sulfide	<1,000	NA	<1,000	<1,000	<1,000
Acetic Acid	<500	NA	<500	<500	<500
Biochemical Oxygen Demand	<2,000 H	NA	<2,000	<2,000	<2,000 *
Chemical Oxygen Demand	23,000	NA	0	0	95,000
Total Organic Carbon	<1,000	NA	<1,000	<1,000	<1,000
Density	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	NA
Methane	70	NA	10	50	0.01
Suspended Solids	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27C							
Top of Screen Depth (ft bls)	210	210	210	210	210	210	210	210
Sample Date	11/09/98	12/02/98	04/26/99	04/26/99	08/07/00	09/11/03	09/11/03	04/30/04
Sample ID	GWGM-27C	GWGM-27C	GWGM-27C	GWGM-86	GMGW-27C	GM-27C	GM-27C-DL	GWGM-27C (4/30/04)
VOCs								
1,1-Dichloroethene	<1 J	<1	<1	<1	<1.0	<1.0	NA	<1.0
1,2,4-Trimethylbenzene	<1 J	<1	<1	<1	<1.0	<1.0	NA	<1.0
1,2-Dichloroethene (total)	<1 J	<1	<1	<1	<2.0	<2.0	NA	<2.0
1,3,5-Trimethylbenzene	<1 J	<1	<1	<1	<1.0	<1.0	NA	<1.0
2-Butanone (MEK)	<10 J	<10	R	R	<50	<50	NA	<50
2-Hexanone	<10 J	<10	<10	<10	<50	<50	NA	<50
4-Methyl-2-pentanone (MIBK)	<10 J	<10	<10 J	<10 J	<50	<50	NA	<50
Acetone	R	<10	R	R	<100	<100	NA	<100
Acrylonitrile	<25 J	<25	R	R	<25	<25	NA	<25
Benzene	<1 J	<1	<1	<1	<1.0	<1.0	NA	<1.0
Bromochloromethane	<1 J	<1	<1	<1	<1.0	<1.0	NA	<1.0
Bromoform	<1 J	<1	<1	<1	<1.0	<1.0	NA	<1.0
Bromomethane	<1 J	<1	<1	<1	<1.0 J	<1.0	NA	<1.0
Carbon disulfide	<1 J	<1	<1	<1	<5.0	7.2	NA	<5.0
Chloroethane	<1 J	<1	<1	<1	<1.0 J	<1.0	NA	<1.0
Chloromethane	<1 J	<1	<1	<1	<1.0	<1.0	NA	<1.0
cis-1,2-Dichloroethene	<1 J	<1	<1	<1	<1.0	<1.0	NA	<1.0
Diethylether	<10 J	<10	<10	<10	R	<10	NA	0.31 J
Ethylbenzene	<1 J	<1	<1	<1	<1.0	<1.0	NA	<1.0
Furan	<5 J	<5	<5	<5	NA	<2.0	NA	<2.0
Isopropylbenzene	<1 J	<1	<1	<1	<1.0	<1.0	NA	<1.0
Methyl iodide	<5 J	<5	<5	<5	<5.0	<5.0	NA	<5.0
Methyl(tert)butyl ether	<50 J	<50	<50	<50	<5.0	<5.0	NA	<5.0
Methylene chloride	<1 J	<1	<1	<1	<1.0	<1.0	NA	<1.0
Propionitrile	NA	NA	NA	NA	<25	<25	NA	<25
Tetrachloroethene	<1 J	<1	<1	<1	<1.0	<1.0	NA	<1.0
Tetrahydrofuran	<5 J	<5	<5 J	<5 J	NA	<2.0	NA	<2.0
Toluene	33 J	22	6	6.3	39	1.1	NA	34
trans-1,2-Dichloroethene	<1 J	<1	<1	<1	<1.0	<1.0	NA	<1.0
Trichloroethene	<1 J	<1	<1	<1	<1.0	<1.0	NA	<1.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27C							
Top of Screen Depth (ft bls)	210	210	210	210	210	210	210	210
Sample Date	11/09/98	12/02/98	04/26/99	04/26/99	08/07/00	09/11/03	09/11/03	04/30/04
Sample ID	GWGM-27C	GWGM-27C	GWGM-27C	GWGM-86	GMGW-27C	GM-27C	GM-27C-DL	GWGM-27C (4/30/04)
VOCs (continued)								
Xylene, o	<1 J	<1	<1	<1	NA	NA	NA	NA
Xylenes (total)	<3 J	<3	<3	<3	<3.0	<3.0	NA	<3.0
Xylenes, m+p	<2 J	<2	<2	<2	NA	NA	NA	NA
SVOCs								
1,4-Dichlorobenzene	<5	NA	<5	<5	<5.0	<5.0	NA	<5.0
2,3-Dimethylphenol	NA	NA	<10	<10	NA	<10	NA	<10
2,4-Dimethylphenol	<5	NA	<5	<5	<5.0	NA	NA	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	<10	NA	<10
2,5-Dimethylphenol	NA	NA	<20	<20	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	<10	<10	NA	<10	NA	<10
2-Methylphenol	<5	NA	<5	<5	<5.0	<5.0	NA	<5.0
2-Nitrophenol	<20	NA	<20	<20	<5.0	<5.0	NA	<5.0
3,4-Dimethylphenol	NA	NA	<10	<10	NA	<10	NA	<10
3-Methylphenol	<10	NA	<10	<10	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	<5.0	<5.0	NA	<5.0
4-Methylphenol	<5	NA	<5	<5	NA	NA	NA	NA
Anthracene	<5	NA	<5	<5	<5.0	<5.0	NA	<5.0
Benzo(a)anthracene	<5	NA	<5	<5	<5.0	<5.0	NA	<5.0
Benzo(a)pyrene	<5	NA	<5	<5	<5.0	<5.0	NA	<5.0
Benzo(b)fluoranthene	<5	NA	<5	<5	<5.0	<5.0	NA	<5.0
Benzo(g,h,i)perylene	<5	NA	<5	<5	<5.0	<5.0	NA	2.4 J
Benzo(k)fluoranthene	<5	NA	<5	<5	<5.0	<5.0	NA	<5.0
bis(2-Ethylhexyl)phthalate	<5	NA	<5	<5	<5.0	<5.0	NA	<5.0
Butylbenzylphthalate	<5	NA	<5	<5	<5.0	<5.0	NA	<5.0
Carbazole	<5	NA	<5 J	<5 J	<5.0	<5.0	NA	<5.0
Chrysene	<5	NA	<5	<5	<5.0	<5.0	NA	<5.0
Dibenzo(a,h)anthracene	<5	NA	<5	<5	<5.0	<5.0	NA	2.1 J
Diethylphthalate	<5	NA	<5	<5	<5.0	<5.0	NA	<5.0
Di-n-butylphthalate	<5	NA	<5	<5	<5.0	<5.0	NA	<5.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27C							
Top of Screen Depth (ft bls)	210	210	210	210	210	210	210	210
Sample Date	11/09/98	12/02/98	04/26/99	04/26/99	08/07/00	09/11/03	09/11/03	04/30/04
Sample ID	GWGM-27C	GWGM-27C	GWGM-27C	GWGM-86	GMGW-27C	GM-27C	GM-27C-DL	GWGM-27C (4/30/04)
SVOCs (continued)								
Di-n-octylphthalate	<5	NA	<5	<5	<5.0	<5.0	NA	<5.0
Fluoranthene	<5	NA	<5	<5	<5.0	<5.0	NA	<5.0
Indeno(1,2,3-c,d)pyrene	<5	NA	<5	<5	<5.0 J	<5.0	NA	1.7 J
Naphthalene	<10	NA	<10	<10	<5.0	<5.0	NA	<5.0
Phenol	<5	NA	<5	<5	<5.0	9.6	NA	1.6 J
Pyrene	<5	NA	<5	<5	<5.0	<5.0	NA	<5.0
Metals								
Aluminum	<200	NA	<200	<200	NA	<200	NA	24 B
Aluminum-DISS	NA	NA	NA	NA	<22	<200	NA	<200
Antimony	<50	NA	<50	<50	NA	<50	NA	<50
Antimony-DISS	NA	NA	NA	NA	<50	<50	NA	<50
Arsenic	13	NA	18	15	NA	23	NA	24
Arsenic-DISS	NA	NA	NA	NA	20 BJ	22	NA	23
Barium	<200	NA	<200	<200	NA	<100	NA	23 B
Barium-DISS	NA	NA	NA	NA	23 B	<100	NA	22 B
Beryllium-DISS	NA	NA	NA	NA	<1.0	<1.0	NA	<1.0
Cadmium	<0.5	NA	<0.5	<0.5	NA	<0.50	NA	<0.50
Cadmium-DISS	NA	NA	NA	NA	<0.50 W	<0.50	NA	<0.50
Calcium	31,000	NA	30,000	30,000	NA	9,600	NA	34,000
Calcium-DISS	NA	NA	NA	NA	31,000	6,500	NA	33,000
Chromium	<50	NA	<50	<50	NA	<5.0	NA	<5.0
Chromium-DISS	NA	NA	NA	NA	<5.0	<5.0	NA	<5.0
Cobalt	<50	NA	<50	<50	NA	<10	NA	<10
Cobalt-DISS	NA	NA	NA	NA	<10	<10	NA	<10
Copper	<25	NA	<25	<25	NA	<25	NA	<25
Copper-DISS	NA	NA	NA	NA	<25	<25	NA	<25
Iron	89	NA	80	77	NA	<100	NA	110
Iron-DISS	NA	NA	NA	NA	<22	20 B	NA	72 B

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27C							
Top of Screen Depth (ft bls)	210	210	210	210	210	210	210	210
Sample Date	11/09/98	12/02/98	04/26/99	04/26/99	08/07/00	09/11/03	09/11/03	04/30/04
Sample ID	GWGM-27C	GWGM-27C	GWGM-27C	GWGM-86	GMGW-27C	GM-27C	GM-27C-DL	GWGM-27C (4/30/04)
Metals (continued)								
Lead	<3	NA	<3	<3	NA	<3.0	NA	<3.0
Lead-DISS	NA	NA	NA	NA	<3.0	<3.0	NA	<3.0
Magnesium	20,000	NA	19,000	19,000	NA	19,000	NA	20,000
Magnesium-DISS	NA	NA	NA	NA	20,000	18,000	NA	20,000
Manganese	64	NA	46	48	NA	<20	NA	33
Manganese-DISS	NA	NA	NA	NA	40	<20	NA	31
Mercury	<0.2	NA	<0.2	<0.2	NA	<0.20	NA	<0.20
Mercury-DISS	NA	NA	NA	NA	<0.20 J	<0.20	NA	<0.20
Molybdenum	<100	NA	<100	<100	NA	<10	NA	2.4 B
Molybdenum-DISS	NA	NA	NA	NA	1.9 B	<10	NA	1.9 B
Nickel	<50	NA	<50	<50	NA	<25	NA	1.1 B
Nickel-DISS	NA	NA	NA	NA	<25	<25	NA	1.7 B
Potassium	2,900	NA	3,700	3,700	NA	NA	21,000	2,900
Potassium-DISS	NA	NA	NA	NA	2700	NA	27,000	2,800
Selenium	<5	NA	<5	<5	NA	<5.0	NA	<5.0
Selenium-DISS	NA	NA	NA	NA	<5.0	<5.0	NA	<5.0
Silver	<0.5	NA	<0.5	<0.5	NA	<0.20 W	NA	<0.20
Silver-DISS	NA	NA	NA	NA	<0.20	<0.20 W	NA	<0.20
Sodium	5,400	NA	5,600	5,800	NA	16,000	NA	5,600
Sodium-DISS	NA	NA	NA	NA	5,300	23,000	NA	5,500
Thallium	<2	NA	<2	<2	NA	<2.0	NA	<2.0
Thallium-DISS	NA	NA	NA	NA	<2.0	<2.0	NA	<2.0
Titanium	<50	NA	<50	<50	NA	<50	NA	0.76 B
Titanium-DISS	NA	NA	NA	NA	<50	<50	NA	<50
Vanadium	<20	NA	<20	<20	NA	<20	NA	<20
Vanadium-DISS	NA	NA	NA	NA	<20	<20	NA	<20
Zinc	<20	NA	<20	<20	NA	<20	NA	0.83 B
Zinc-DISS	NA	NA	NA	NA	<9.9 J	<20	NA	<20

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27C							
Top of Screen Depth (ft bls)	210	210	210	210	210	210	210	210
Sample Date	11/09/98	12/02/98	04/26/99	04/26/99	08/07/00	09/11/03	09/11/03	04/30/04
Sample ID	GWGM-27C	GWGM-27C	GWGM-27C	GWGM-86	GMGW-27C	GM-27C	GM-27C-DL	GWGM-27C (4/30/04)
Alcohols								
1,4-Dioxane	R	R	R	R	<5.0	<5.0	NA	<5.0
Acetonitrile	R	<50	R	R	<50	<50	NA	<50
Ethanol	<1,000	NA	<1,000 J	<1,000	<1,000	<1,000	NA	<1,000
Ethylacetate	<10 J	<10	R	R	<5,000	<5,000	NA	<5,000
Ethylene glycol	<20,000	NA	<20,000	<20,000	NA	<5,000	NA	890 J
Isobutanol	<1,000	NA	<1,000 J	<1,000	<1,000 J	<1,000	NA	<1,000
Isopropanol	<1,000	NA	<1,000 J	<1,000	<1,000	<1,000	NA	<1,000
Methanol	<800	NA	<800 J	<800	<1,000	<1,000	NA	**810 J**
n-Butanol	<1,000	NA	<1,000 J	<1,000	<1,000	8,300	NA	<1,000
Aldehydes								
Acetaldehyde	<100 J	NA	<100	<100	<100	<100	NA	<100
Butanal	<100 J	NA	<100	<100	<100	<100	NA	<100
Crotonaldehyde	<100 J	NA	<100	<100	<100	<100	NA	<100
Cyclohexanone	<100 J	NA	<100	<100	<100	<100	NA	<100
Decanal	<100 J	NA	<100	<100	<100	<100	NA	<100
Formaldehyde	<100 J	NA	<100	**160**	<100	<100	NA	<100
Heptanal	<100 J	NA	<100	<100	<100	<100	NA	<100
Hexanal	<100 J	NA	<100	<100	<100	<100	NA	<100
m-Tolualdehyde	<100 J	NA	<100	<100	<100	<100	NA	<100
Nonanal	<100 J	NA	<100	<100	<100	<100	NA	<100
Octanal	<100 J	NA	<100	<100	<100	<100	NA	<100
Paraldehyde	<100 J	NA	<100	<100	<100	<100	NA	34 J
Pentanal	<100 J	NA	<100	<100	<100	<100	NA	<100
Propanal	<100 J	NA	<100	<100	<100	<100	NA	<100
Inorganics								
Alkalinity	150,000	NA	150,000	150,000	170,000	160,000	NA	170,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	1,500	NA	1,600	1,500	1,500	1,500	NA	1,800

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27C							
Top of Screen Depth (ft bls)	210	210	210	210	210	210	210	210
Sample Date	11/09/98	12/02/98	04/26/99	04/26/99	08/07/00	09/11/03	09/11/03	04/30/04
Sample ID	GWGM-27C	GWGM-27C	GWGM-27C	GWGM-86	GMGW-27C	GM-27C	GM-27C-DL	GWGM-27C (4/30/04)
Inorganics (continued)								
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<200	NA	<200	<200	120	170	NA	130
Nitrogen, Nitrate	<100	NA	<100	<100	<50	190	NA	<50 *F70
Nitrogen, Nitrite	<100	NA	<100 J	<100 J	<50	<50	NA	<50 *F70
Ortho-Phosphate	NA	NA	NA	NA	110	<50	NA	26 B*F70
Phosphate	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	<100	NA	<100	<100	NA	<100	NA	<100
Silica	<100	NA	4,200	5,890	NA	NA	NA	NA
Silica, Dissolved	NA	NA	NA	NA	21,000	24,000	NA	24,000
Sulfate	5,500	NA	<5,000	5,900	<5,000	8,600	NA	6,600
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	NA	<1,000	<1,000	<100	<1,000	NA	<1,000
Acetic Acid	640	NA	600	500	<1,000	<1,000	NA	<500
Biochemical Oxygen Demand	<2,000 J	NA	<1,000	<1,000	<2,000	<2,000	NA	<2,000 *F70
Chemical Oxygen Demand	16,000	NA	<10,000	<10,000	<20,000	<20,000	NA	<20,000
Total Organic Carbon	<1,000	NA	1,200	1,400	<1,000	1,200	NA	<1,000
Density	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	160,000	NA	NA	NA
Methane	80	NA	13,500	67	1,100	88	NA	120
Suspended Solids	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	180,000	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27C (continued)	GM-28A				
Top of Screen Depth (ft bls)	210	40	40	40	40	40
Sample Date	08/05/05	10/28/98	04/19/99	02/29/00	07/19/00	04/28/04
Sample ID	GWGM-27C (08/05/05)	GWGM-28A	GWGM-28A	GWGM-28A	GWGM-28A	GWGM-28A (4/28/04)
VOCs						
1,1-Dichloroethene	<1.0	<1	1	NA	<1.0	0.37 J
1,2,4-Trimethylbenzene	<1.0	<1	<1 J	NA	<1.0	0.66 J
1,2-Dichloroethene (total)	<2.0	2.8	3.3	NA	5.7	18
1,3,5-Trimethylbenzene	<1.0	<1	<1 J	NA	<1.0	0.64 J
2-Butanone (MEK)	<50	<10	<10 J	NA	<50 J	<50
2-Hexanone	<50	<10	<10	NA	<50 J	<50
4-Methyl-2-pentanone (MIBK)	<50	<10	<10 J	NA	<50	<50
Acetone	<100	<10	R	NA	<100 J	<100
Acrylonitrile	<25	<25	<25 J	NA	R	<25
Benzene	<1.0	1.9	1.2	NA	3.2	7.3
Bromochloromethane	<1.0	<1	<1	NA	<1.0	<1.0
Bromoform	<1.0	<1	<1	NA	<1.0	<1.0
Bromomethane	<1.0	<1	<1	NA	<1.0	<1.0
Carbon disulfide	<5.0	<1	<1	NA	<5.0	<5.0
Chloroethane	<1.0	<1	<1	NA	<1.0	<1.0
Chloromethane	<1.0	<1	<1	NA	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	2.2	2.2	NA	4.5	15
Diethylether	1.0 J	<10	<10	NA	<10	0.30 J
Ethylbenzene	<1.0	<1	1.1	NA	1.4	5.1
Furan	<10	<5	<5	NA	NA	<2.0
Isopropylbenzene	<1.0	<1	<1	NA	<1.0	0.43 J
Methyl iodide	<5.0	<5	<5	NA	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<50	<50	NA	<5.0	<5.0
Methylene chloride	<1.0	<1	<1	NA	<1.0	<1.0
Propionitrile	<25	NA	NA	NA	<25	<25
Tetrachloroethene	<1.0	<1	<1	NA	<1.0	<1.0
Tetrahydrofuran	<10	<5	R	NA	NA	<2.0
Toluene	<1.0	<1	<1	NA	2.7	1
trans-1,2-Dichloroethene	<1.0	<1	1.1	NA	1.2	2.2
Trichloroethene	<1.0	<1	1.3	NA	<1.0	<1.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27C (continued)	GM-28A				
Top of Screen Depth (ft bls)	210	40	40	40	40	40
Sample Date	08/05/05	10/28/98	04/19/99	02/29/00	07/19/00	04/28/04
Sample ID	GWGM-27C (08/05/05)	GWGM-28A	GWGM-28A	GWGM-28A	GWGM-28A	GWGM-28A (4/28/04)
VOCs (continued)						
Xylene, o	NA	<1	<1	NA	NA	NA
Xylenes (total)	<3.0	<3	<3	NA	2.0 J	8.5
Xylenes, m+p	NA	<2	<2	NA	NA	NA
SVOCs						
1,4-Dichlorobenzene	<4.8	<5	<5	NA	<5.0	<5.0
2,3-Dimethylphenol	<9.5	NA	R	NA	NA	<10
2,4-Dimethylphenol	<4.8	R	R	<5	<5.0	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.5	NA	NA	NA	NA	<10
2,5-Dimethylphenol	NA	NA	R	NA	NA	NA
2,6-Dimethylphenol	<9.5	NA	R	NA	NA	1.6 J
2-Methylphenol	<4.8	R	R	<5	<5.0	<5.0
2-Nitrophenol	<4.8	R	R	NA	<5.0	<5.0
3,4-Dimethylphenol	<9.5	NA	R	NA	NA	<10
3-Methylphenol	NA	R	R	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.8	NA	NA	<5	<5.0	<5.0
4-Methylphenol	NA	R	R	NA	NA	NA
Anthracene	<4.8	<5	<5	NA	<5.0	<5.0
Benzo(a)anthracene	<4.8	<5	<5	NA	<5.0	<5.0
Benzo(a)pyrene	<4.8	<5	<5	NA	<5.0	<5.0
Benzo(b)fluoranthene	<4.8	<5	<5	NA	<5.0	<5.0
Benzo(g,h,i)perylene	<4.8	<5	<5	NA	<5.0	<5.0
Benzo(k)fluoranthene	<4.8	<5	<5 J	NA	<5.0	<5.0
bis(2-Ethylhexyl)phthalate	<4.8	<5	<5	NA	0.84 J	<5.0
Butylbenzylphthalate	<4.8	<5	<5	NA	<5.0	<5.0
Carbazole	<4.8	<5	<5 J	NA	<5.0	<5.0
Chrysene	<4.8	<5	<5	NA	<5.0	<5.0
Dibenzo(a,h)anthracene	<4.8	<5	<5	NA	<5.0	<5.0
Diethylphthalate	<4.8	<5	<5	NA	<5.0	<5.0
Di-n-butylphthalate	<4.8	<5	<5	NA	<5.0	<5.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27C (continued)	GM-28A				
Top of Screen Depth (ft bls)	210	40	40	40	40	40
Sample Date	08/05/05	10/28/98	04/19/99	02/29/00	07/19/00	04/28/04
Sample ID	GWGM-27C (08/05/05)	GWGM-28A	GWGM-28A	GWGM-28A	GWGM-28A	GWGM-28A (4/28/04)
SVOCs (continued)						
Di-n-octylphthalate	<4.8	<5	<5	NA	<5.0	<5.0
Fluoranthene	<4.8	<5	<5	NA	<5.0	<5.0
Indeno(1,2,3-c,d)pyrene	<4.8	<5	<5	NA	<5.0 J	<5.0
Naphthalene	<4.8	<10	<10	NA	<5.0	<5.0
Phenol	<4.8	<5	R	<5	<5.0	<5.0
Pyrene	<4.8	<5	<5	NA	<5.0	<5.0
Metals						
Aluminum	<200	<200	<200	NA	NA	100 B
Aluminum-DISS	<200	NA	NA	NA	<37	<200
Antimony	<50	<50	<50	NA	NA	<50
Antimony-DISS	<50	NA	NA	NA	<50	<50
Arsenic	26	14	<5	NA	NA	19 B
Arsenic-DISS	26	NA	NA	NA	19 B	17 B
Barium	20 J	240	<200	NA	NA	250
Barium-DISS	19 J	NA	NA	NA	250	240
Beryllium-DISS	<1.0	NA	NA	NA	<1.0	<1.0
Cadmium	<0.50	<0.5	<0.5	NA	NA	<0.50
Cadmium-DISS	<0.50	NA	NA	NA	<0.50	<0.50
Calcium	32,000	100,000	88,000	NA	NA	86,000
Calcium-DISS	31,000	NA	NA	91,000	89,000	83,000
Chromium	<5.0	<50	<50	NA	NA	<5.0
Chromium-DISS	2.1 J	NA	NA	NA	<5.0	<5.0
Cobalt	<10	<50	<50	NA	NA	4.4 B
Cobalt-DISS	<10	NA	NA	NA	3.7 B	4.4 B
Copper	<25	<25	<25	NA	NA	<25
Copper-DISS	3.2 J	NA	NA	NA	<25	<25
Iron	100	6,600	6,600	NA	NA	9,200
Iron-DISS	140	NA	NA	8,200 J	8,300	8,700

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27C (continued)	GM-28A				
Top of Screen Depth (ft bls)	210	40	40	40	40	40
Sample Date	08/05/05	10/28/98	04/19/99	02/29/00	07/19/00	04/28/04
Sample ID	GWGM-27C (08/05/05)	GWGM-28A	GWGM-28A	GWGM-28A	GWGM-28A	GWGM-28A (4/28/04)
Metals (continued)						
Lead	<3.0	<3	<3	NA	NA	<3.0
Lead-DISS	<3.0	NA	NA	NA	<3.0	<3.0
Magnesium	18,000	45,000	40,000	NA	NA	37,000
Magnesium-DISS	18,000	NA	NA	42,000	41,000	36,000
Manganese	26	**2,100**	1,800	NA	NA	**2,100**
Manganese-DISS	24	NA	NA	NA	**2,100**	**2,100**
Mercury	<0.20	<0.2	<0.2	NA	NA	<0.20
Mercury-DISS	<0.20	NA	NA	NA	<0.20	<0.20
Molybdenum	2.0 J	<100	<100	NA	NA	4.1 B
Molybdenum-DISS	2.4 J	NA	NA	NA	4.8 B	4.4 B
Nickel	<25	<50	<50	NA	NA	2.4 B
Nickel-DISS	0.19 J	NA	NA	NA	1.6 B	2.3 B
Potassium	1,700	3,100	2,600	NA	NA	3,400
Potassium-DISS	1,600	NA	NA	3,100	3,200	3,200
Selenium	<5.0	<5	<5	NA	NA	<5.0
Selenium-DISS	<5.0	NA	NA	NA	<5.0	<5.0
Silver	<0.20	<0.5	<0.5	NA	NA	<0.20
Silver-DISS	<0.20	NA	NA	NA	<0.20	<0.20
Sodium	4,700	3,300	2,900	NA	NA	4,000
Sodium-DISS	4,600	NA	NA	3,200	3,100	3,900
Thallium	0.61 J	<2	<2	NA	NA	<2.0
Thallium-DISS	0.44 J	NA	NA	NA	<2.0	<2.0
Titanium	1.6 J	<50	<50	NA	NA	4.8 B
Titanium-DISS	1.5 J	NA	NA	NA	<50	<50
Vanadium	<20	<20	<20	NA	NA	<20
Vanadium-DISS	<20	NA	NA	NA	<20	<20
Zinc	<20	24	<20	NA	NA	12 B
Zinc-DISS	<20	NA	NA	NA	10 BJ	<20

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27C (continued)	GM-28A				
Top of Screen Depth (ft bls)	210	40	40	40	40	40
Sample Date	08/05/05	10/28/98	04/19/99	02/29/00	07/19/00	04/28/04
Sample ID	GWGM-27C (08/05/05)	GWGM-28A	GWGM-28A	GWGM-28A	GWGM-28A	GWGM-28A (4/28/04)
Alcohols						
1,4-Dioxane	<4.8	R	R	NA	<5.0 J	<5.0
Acetonitrile	<50	<50	R	NA	<50	<50
Ethanol	<1,000	<1,000	<1,000	NA	<1,000	<1,000
Ethylacetate	<5,000	<10	R	NA	<5,000	<5,000
Ethylene glycol	<10,000	38,000	<20,000 J	NA	NA	<5,000
Isobutanol	<1,000	<1,000	<1,000	NA	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	NA	<1,000 J	<1,000
Methanol	<1,000	<800	<800 J	NA	<1,000	260 J
n-Butanol	<1,000	<1,000	<1,000 J	NA	<1,000	<1,000
Aldehydes						
Acetaldehyde	<100	<100	<100	NA	<100 J	<100
Butanal	<100	<100	<100	NA	<100 J	<100
Crotonaldehyde	<100	<100	<100	NA	<100 J	<100
Cyclohexanone	<100	<100	<100	NA	<100 J	<100
Decanal	<100	<100	<100	NA	<100 J	<100
Formaldehyde	<100	<100	<100	NA	<100 J	<100
Heptanal	<100	<100	<100	NA	<100 J	<100
Hexanal	<100	<100	<100	NA	<100 J	<100
m-Tolualdehyde	<100	<100	<100	NA	<100 J	<100
Nonanal	<100	<100	<100	NA	<100 J	<100
Octanal	<100	<100	<100	NA	<100 J	<100
Paraldehyde	<100	<100	<100	NA	<100	<100
Pentanal	<100	<100	<100	NA	<100 J	<100
Propanal	<100	<100	<100	NA	<100 J	<100
Inorganics						
Alkalinity	160,000	350,000	330,000	NA	320,000	380,000
Bicarbonate	NA	NA	NA	310,000	NA	NA
Chloride	1,300	50,000	44,000	NA	28,000	18,000

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-27C (continued)	GM-28A				
Top of Screen Depth (ft bls)	210	40	40	40	40	40
Sample Date	08/05/05	10/28/98	04/19/99	02/29/00	07/19/00	04/28/04
Sample ID	GWGM-27C (08/05/05)	GWGM-28A	GWGM-28A	GWGM-28A	GWGM-28A	GWGM-28A (4/28/04)
Inorganics (continued)						
Chlorides Soluble	NA	NA	NA	49,000	NA	NA
Nitrogen, (Ammonia)	$\boxed{96}$	<200	<200	NA	<30	<30
Nitrogen, Nitrate	<50	<100	<100	NA	<50	<50
Nitrogen, Nitrite	<50	<100	<100	NA	<50	<50
Ortho-Phosphate	NA	NA	NA	NA	100	<50
Phosphate	<50	NA	NA	NA	NA	NA
Phosphorus	72 J	<100	<100	NA	NA	<100
Silica	NA	<100	21,000	NA	NA	NA
Silica, Dissolved	15,000	NA	NA	NA	33,000	36,000
Sulfate	6,800	<5,000	<5,000	NA	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	<5,000	NA	NA
Sulfide	<1,000	<1,000	<1,000	NA	<100 J	<1,000
Acetic Acid	150 J	<200	<500	NA	<500	<500
Biochemical Oxygen Demand	<2,000	16,000 J	19,000	NA	<2,000	<2,000
Chemical Oxygen Demand	<20,000	<10,000	<10,000	NA	<20,000 J	19,000 J
Total Organic Carbon	1,300	1,600	1,500	NA	2,600	2,900
Density	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	390,000	NA
Methane	90	37,600	30,300	NA	23,600	33,500
Suspended Solids	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	390,000	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)				
Top of Screen Depth (ft bls)	40	40	40	40	40
Sample Date	07/26/05	07/26/05	12/05/06	12/05/06	02/21/07
Sample ID	GWGM28A (072605)	GWGM-999 (7/26/05)	GWGM-28A(12/5/06)	GWGM-28A-RE (12/5/2006)	GWGM-28A (2/21/07)
VOCs					
1,1-Dichloroethene	<1.0	<1.0	<1.0	NA	<1.0
1,2,4-Trimethylbenzene	0.54 J	0.55 J	<1.0	NA	<1.0
1,2-Dichloroethene (total)	13	13	3.5	NA	4.7
1,3,5-Trimethylbenzene	0.55 J	0.55 J	<1.0	NA	<1.0
2-Butanone (MEK)	<50	<50	<50	NA	<50
2-Hexanone	<50	<50	<50	NA	<50
4-Methyl-2-pentanone (MIBK)	<50	<50	<50 *	NA	<50
Acetone	<100	<100	<100	NA	<100
Acrylonitrile	<25	<25	<25	NA	<25
Benzene	5.5	5.2	2.2	NA	3.7
Bromochloromethane	<1.0	<1.0	<1.0	NA	<1.0
Bromoform	<1.0	<1.0	<1.0	NA	<1.0
Bromomethane	<1.0	<1.0	<1.0	NA	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	NA	<5.0
Chloroethane	<1.0	<1.0	<1.0	NA	<1.0
Chloromethane	<1.0	<1.0	0.57 J	NA	<1.0
cis-1,2-Dichloroethene	11	11	2.8	NA	3.7
Diethylether	<10	<10	<10	NA	<10
Ethylbenzene	3.9	3.8	0.99 J	NA	1.6
Furan	<10	<10	<10	NA	<10
Isopropylbenzene	<1.0	<1.0	<1.0	NA	<1.0
Methyl iodide	<5.0	<5.0	<5.0	NA	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	NA	<5.0
Methylene chloride	<1.0	<1.0	<1.0	NA	<1.0
Propionitrile	<25	<25	<25	NA	<25
Tetrachloroethene	<1.0	<1.0	<1.0	NA	<1.0
Tetrahydrofuran	<10	<10	<10	NA	<10
Toluene	0.98 J	0.88 J	<1.0	NA	<1.0
trans-1,2-Dichloroethene	1.7	1.7	<1.0	NA	1
Trichloroethene	<1.0	<1.0	<1.0	NA	<1.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)				
Top of Screen Depth (ft bls)	40	40	40	40	40
Sample Date	07/26/05	07/26/05	12/05/06	12/05/06	02/21/07
Sample ID	GWGM28A (072605)	GWGM-999 (7/26/05)	GWGM-28A(12/5/06)	GWGM-28A-RE (12/5/2006)	GWGM-28A (2/21/07)
VOCs (continued)					
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	6.9	7	<3.0	NA	2.0 J
Xylenes, m+p	NA	NA	NA	NA	NA
SVOCs					
1,4-Dichlorobenzene	<5.0	<5.6	<5.0	<5.0 H	<4.8
2,3-Dimethylphenol	<10	<11	<10	<10 H	<9.6
2,4-Dimethylphenol	<5.0	<5.6	<5.0 *	<5.0 H	<4.8 *
2,4-Dimethylphenol/2,5-Dimethylphenol	<10	<11	<10	<10 H	<9.6
2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	<10	<11	<10	<10 H	<9.6
2-Methylphenol	<5.0	<5.6	<5.0	<5.0 H	<4.8
2-Nitrophenol	<5.0	<5.6	<5.0	<5.0 H	<4.8
3,4-Dimethylphenol	<10	<11	<10	<10 H	<9.6
3-Methylphenol	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	<5.6	<5.0	<5.0 H	<4.8
4-Methylphenol	NA	NA	NA	NA	NA
Anthracene	<5.0	<5.6	<5.0	<5.0 H	<4.8
Benzo(a)anthracene	<5.0	<5.6	<5.0	<5.0 H	<4.8
Benzo(a)pyrene	<5.0	<5.6	<5.0	<5.0 H	<4.8
Benzo(b)fluoranthene	<5.0	<5.6	<5.0	<5.0 H	<4.8
Benzo(g,h,i)perylene	<5.0	<5.6	<5.0	<5.0 H	<4.8
Benzo(k)fluoranthene	<5.0	<5.6	<5.0	<5.0 H	<4.8
bis(2-Ethylhexyl)phthalate	<5.0	<5.6	<5.0	<5.0 H	<4.8
Butylbenzylphthalate	<5.0	<5.6	<5.0	<5.0 H	<4.8
Carbazole	<5.0	<5.6	<5.0	<5.0 H	<4.8
Chrysene	<5.0	<5.6	<5.0	<5.0 H	<4.8
Dibenzo(a,h)anthracene	<5.0	<5.6	<5.0	<5.0 H	<4.8
Diethylphthalate	<5.0	<5.6	<5.0	<5.0 H	<4.8
Di-n-butylphthalate	<5.0	<5.6	<5.0	<5.0 H	<4.8

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)				
Top of Screen Depth (ft bls)	40	40	40	40	40
Sample Date	07/26/05	07/26/05	12/05/06	12/05/06	02/21/07
Sample ID	GWGM28A (072605)	GWGM-999 (7/26/05)	GWGM-28A(12/5/06)	GWGM-28A-RE (12/5/2006)	GWGM-28A (2/21/07)
SVOCs (continued)					
Di-n-octylphthalate	<5.0	<5.6	<5.0	<5.0 H	<4.8
Fluoranthene	<5.0	<5.6	<5.0	<5.0 H	<4.8
Indeno(1,2,3-c,d)pyrene	<5.0	<5.6	<5.0	<5.0 H	<4.8
Naphthalene	<5.0	<5.6	<5.0	<5.0 H	<4.8
Phenol	<5.0	<5.6	<5.0	<5.0 H	<4.8
Pyrene	<5.0	<5.6	<5.0	<5.0 H	<4.8
Metals					
Aluminum	42 J	<200	<200	NA	25 J B
Aluminum-DISS	<200	<200	<200	NA	<200
Antimony	<50	<50	<50	NA	<50
Antimony-DISS	<50	<50	<50	NA	<50
Arsenic	24 B	21 B	19 J	NA	19 J
Arsenic-DISS	25 B	23 B	20	NA	19 J
Barium	230	240	250 B	NA	240 B
Barium-DISS	240	240	240 B	NA	240 B
Beryllium-DISS	<1.0	<1.0	<1.0	NA	<1.0
Cadmium	0.10 J	<0.50	<0.50	NA	0.58
Cadmium-DISS	0.11 J	<0.50	<0.50	NA	<0.50
Calcium	89,000	90,000	91,000	NA	78,000
Calcium-DISS	90,000	89,000	92,000	NA	90,000
Chromium	2.7 J B	2.9 J B	<5.0	NA	<5.0
Chromium-DISS	2.1 J B	2.1 J B	<5.0	NA	<5.0
Cobalt	4.9 J	5.1 J	4.5 J	NA	4.4 J
Cobalt-DISS	5.1 J	5.1 J	4.3 J	NA	4.2 J
Copper	1.4 J	0.48 J	0.59 J B	NA	1.1 J
Copper-DISS	0.92 J B	0.74 J B	<25	NA	2.3 J
Iron	12,000	11,000	9,600	NA	9,600
Iron-DISS	12,000	11,000	9,800	NA	8,900

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)				
Top of Screen Depth (ft bls)	40	40	40	40	40
Sample Date	07/26/05	07/26/05	12/05/06	12/05/06	02/21/07
Sample ID	GWGM28A (072605)	GWGM-999 (7/26/05)	GWGM-28A(12/5/06)	GWGM-28A-RE (12/5/2006)	GWGM-28A (2/21/07)
Metals (continued)					
Lead	<3.0	<3.0	<3.0	NA	<3.0
Lead-DISS	<3.0	<3.0	<3.0	NA	<3.0
Magnesium	37,000	38,000	39,000	NA	39,000
Magnesium-DISS	38,000	37,000	38,000	NA	35,000
Manganese	**2,100**	**2,100**	**2,200**	NA	**2,100**
Manganese-DISS	**2,100**	**2,100**	**2,200**	NA	**2,100**
Mercury	<0.20	<0.20	<0.20	NA	**0.11 J**
Mercury-DISS	<0.20	<0.20	<0.20	NA	<0.20
Molybdenum	4.8 J	5.1 J	4.2 J	NA	4.8 J
Molybdenum-DISS	4.7 J	4.3 J	4.1 J	NA	4.4 J
Nickel	2.4 J B	2.4 J B	1.6 J	NA	1.6 J
Nickel-DISS	2.4 J	2.3 J	1.9 J	NA	1.8 J
Potassium	3,000	3,000	3,000	NA	2,900
Potassium-DISS	3,000	2,900	3,000	NA	3,200
Selenium	<5.0	<5.0	<5.0	NA	<5.0
Selenium-DISS	<5.0	<5.0	<5.0	NA	<5.0
Silver	<0.20	<0.20	<0.20	NA	<0.20
Silver-DISS	<0.20	<0.20	<0.20	NA	<0.20
Sodium	4,400	4,500	5,000 B	NA	4,900 B
Sodium-DISS	4,400	4,500	5,000	NA	4,400
Thallium	0.61 J	0.58 J	<2.0	NA	<2.0
Thallium-DISS	0.51 J	<2.0	<2.0	NA	<2.0
Titanium	3.9 J	2.7 J	2.7 J	NA	2.9 J
Titanium-DISS	3.1 J	2.8 J	2.3 J	NA	2.3 J
Vanadium	<20	<20	<20	NA	<20
Vanadium-DISS	<20	<20	<20	NA	<20
Zinc	3.6 J	<20	<20	NA	5.7 J B
Zinc-DISS	4.6 J	<20	5.8 J B	NA	5.5 J B

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)				
Top of Screen Depth (ft bls)	40	40	40	40	40
Sample Date	07/26/05	07/26/05	12/05/06	12/05/06	02/21/07
Sample ID	GWGM28A (072605)	GWGM-999 (7/26/05)	GWGM-28A(12/5/06)	GWGM-28A-RE (12/5/2006)	GWGM-28A (2/21/07)
Alcohols					
1,4-Dioxane	<5.0 *	<5.6 *	<5.0	<5.0 H	<4.8
Acetonitrile	<50	<50	<50	NA	<50
Ethanol	<1,000	<1,000	<1,000	NA	<1,000
Ethylacetate	<5,000	<5,000	<5,000	NA	<5,000
Ethylene glycol	<10,000	<10,000	<10,000	NA	<10,000
Isobutanol	<1,000	<1,000	<1,000	NA	<1,000
Isopropanol	<1,000	<1,000	<1,000	NA	<1,000
Methanol	<1,000	<1,000	**1,600**	NA	<1,000
n-Butanol	<1,000	<1,000	<1,000	NA	<1,000
Aldehydes					
Acetaldehyde	<100	<100	<100	NA	<100
Butanal	<100	<100	<100	NA	<100
Crotonaldehyde	<100	<100	<100	NA	<100
Cyclohexanone	<100	<100	<100	NA	<100
Decanal	<100	<100	18 J	NA	<100
Formaldehyde	<100	<100	<100	NA	29 J
Heptanal	<100	<100	<100	NA	<100
Hexanal	<100	<100	<100	NA	<100
m-Tolualdehyde	<100	<100	<100	NA	<100
Nonanal	<100	<100	5.9 J	NA	<100
Octanal	<100	<100	<100	NA	<100
Paraldehyde	<100	<100	<100	NA	<100
Pentanal	<100	<100	3.2 J	NA	<100
Propanal	<100	<100	<100	NA	<100
Inorganics					
Alkalinity	330,000	330,000	300,000	NA	340,000
Bicarbonate	NA	NA	NA	NA	NA
Chloride	23,000	23,000	**66,000**	NA	34,000

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)				
Top of Screen Depth (ft bls)	40	40	40	40	40
Sample Date	07/26/05	07/26/05	12/05/06	12/05/06	02/21/07
Sample ID	GWGM28A (072605)	GWGM-999 (7/26/05)	GWGM-28A(12/5/06)	GWGM-28A-RE (12/5/2006)	GWGM-28A (2/21/07)
Inorganics (continued)					
Chlorides Soluble	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<30	<30	**50**	NA	**140**
Nitrogen, Nitrate	27 J	31 J	<50	NA	<50
Nitrogen, Nitrite	<50	<50	<50	NA	<50
Ortho-Phosphate	NA	NA	<50	NA	NA
Phosphate	<50	<50	NA	NA	<50
Phosphorus	<100	<100	120	NA	53 J
Silica	NA	NA	29,200	NA	27,100
Silica, Dissolved	28,000	31,000	NA	NA	NA
Sulfate	<5,000	<5,000	<5,000	NA	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	NA	<1,000
Acetic Acid	410 J	410 J	<500	NA	<500
Biochemical Oxygen Demand	<2,000	<2,000	<2,000	NA	<2,000
Chemical Oxygen Demand	25,000	14,000 J	31,000	NA	15,000
Total Organic Carbon	3,600	3,800	930 J	NA	1,200
Density	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	NA
Methane	30,700	31,600	20,800	NA	20,700
Suspended Solids	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)			GM-28B			
Top of Screen Depth (ft bls)	40	40	40	124.5	124.5	124.5	124.5
Sample Date	05/10/07	08/07/07	11/05/07	10/24/98	10/26/98	11/08/98	11/08/98
Sample ID	GWGM-28A (5/10/07)	GWGM-28A (8/7/07)	GWGM-28A (11/5/07)	GWGM-96	GWGM-96	GWGM-28B	GWGM-96
VOCs							
1,1-Dichloroethene	<1.0	<1.0	<1.0	NA	NA	<1	<1
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	NA	NA	<1	<1
1,2-Dichloroethene (total)	5.7	7.9	8.4	NA	NA	<1	<1
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	NA	NA	<1	<1
2-Butanone (MEK)	<50	<50	<50	NA	NA	<10	<10
2-Hexanone	<50	<50	<50	NA	NA	<10	<10
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	NA	NA	<10	<10
Acetone	<100	<100	<100	NA	NA	<10	<10
Acrylonitrile	<25	<25	<25	NA	NA	<25	<25
Benzene	4.3	4.4	3.8	NA	NA	<1	<1
Bromochloromethane	<1.0	<1.0	0.66 J	NA	NA	<1	<1
Bromoform	<1.0	<1.0	<1.0	NA	NA	<1	<1
Bromomethane	<1.0	<1.0	<1.0	NA	NA	<1	<1
Carbon disulfide	<5.0	0.43 J	<5.0	NA	NA	<1	<1
Chloroethane	<1.0	<1.0	<1.0	NA	NA	<1	<1
Chloromethane	<1.0	<1.0	1.8	NA	NA	<1	<1
cis-1,2-Dichloroethene	4.6	6.7	7.2	NA	NA	<1	<1
Diethylether	<10	<10	<10	NA	NA	<10	<10
Ethylbenzene	1.7	2.1	1.6	NA	NA	<1	<1
Furan	<10	<10	<10	NA	NA	<5	<5
Isopropylbenzene	<1.0	<1.0	<1.0	NA	NA	<1	<1
Methyl iodide	<5.0	<5.0	<5.0	NA	NA	<5	<5
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	NA	NA	<50	<50
Methylene chloride	<1.0	<1.0	<1.0	NA	NA	<1	<1
Propionitrile	<25	<25	<25	NA	NA	NA	NA
Tetrachloroethene	<1.0	<1.0	<1.0	NA	NA	<1	<1
Tetrahydrofuran	<10	<10	<10	NA	NA	<5	<5
Toluene	<1.0	3.6 B	<1.0	NA	NA	<1	<1
trans-1,2-Dichloroethene	1.1	1.2	1.2	NA	NA	<1	<1
Trichloroethene	<1.0	<1.0	<1.0	NA	NA	<1	<1

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)			GM-28B			
Top of Screen Depth (ft bls)	40	40	40	124.5	124.5	124.5	124.5
Sample Date	05/10/07	08/07/07	11/05/07	10/24/98	10/26/98	11/08/98	11/08/98
Sample ID	GWGM-28A (5/10/07)	GWGM-28A (8/7/07)	GWGM-28A (11/5/07)	GWGM-96	GWGM-96	GWGM-28B	GWGM-96
VOCs (continued)							
Xylene, o	NA	NA	NA	NA	NA	<1	<1
Xylenes (total)	2.7 J	3.3	2.1 J	NA	NA	<3	<3
Xylenes, m+p	NA	NA	NA	NA	NA	<2	<2
SVOCs							
1,4-Dichlorobenzene	<4.7	<4.9	<4.7	NA	NA	<5	<5
2,3-Dimethylphenol	<9.4	<9.7	<9.4	NA	NA	NA	NA
2,4-Dimethylphenol	<4.7	<4.9	<4.7	NA	NA	<5	<5
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.4	<9.7	<9.4	NA	NA	NA	NA
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	<9.4	<9.7	<9.4	NA	NA	NA	NA
2-Methylphenol	<4.7	<4.9	<4.7	NA	NA	<5	<5
2-Nitrophenol	<4.7	<4.9	<4.7	NA	NA	<20	<20
3,4-Dimethylphenol	<9.4	<9.7	<9.4	NA	NA	NA	NA
3-Methylphenol	NA	NA	NA	NA	NA	<10	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<4.9	<4.7	NA	NA	NA	NA
4-Methylphenol	NA	NA	NA	NA	NA	<5	<5
Anthracene	<4.7	<4.9	<4.7	NA	NA	<5	<5
Benzo(a)anthracene	<4.7	<4.9	<4.7	NA	NA	<5	<5
Benzo(a)pyrene	<4.7	<4.9	<4.7	NA	NA	<5	<5
Benzo(b)fluoranthene	<4.7	<4.9	<4.7	NA	NA	<5	<5
Benzo(g,h,i)perylene	<4.7	<4.9	<4.7	NA	NA	<5	<5
Benzo(k)fluoranthene	<4.7	<4.9	<4.7	NA	NA	<5	<5
bis(2-Ethylhexyl)phthalate	1.0 J	1.2 J	<4.7	NA	NA	<5	<5
Butylbenzylphthalate	<4.7	<4.9	<4.7	NA	NA	<5	<5
Carbazole	<4.7	<4.9	<4.7	NA	NA	<5	<5
Chrysene	<4.7	<4.9	<4.7	NA	NA	<5	<5
Dibenzo(a,h)anthracene	<4.7	<4.9	<4.7	NA	NA	<5	<5
Diethylphthalate	<4.7	<4.9	<4.7	NA	NA	<5	<5
Di-n-butylphthalate	<4.7	<4.9	<4.7	NA	NA	<5	<5

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)			GM-28B			
Top of Screen Depth (ft bls)	40	40	40	124.5	124.5	124.5	124.5
Sample Date	05/10/07	08/07/07	11/05/07	10/24/98	10/26/98	11/08/98	11/08/98
Sample ID	GWGM-28A (5/10/07)	GWGM-28A (8/7/07)	GWGM-28A (11/5/07)	GWGM-96	GWGM-96	GWGM-28B	GWGM-96
SVOCs (continued)							
Di-n-octylphthalate	<4.7	<4.9	<4.7	NA	NA	<5	<5
Fluoranthene	<4.7	<4.9	<4.7	NA	NA	<5	<5
Indeno(1,2,3-c,d)pyrene	<4.7	<4.9	<4.7	NA	NA	<5	<5
Naphthalene	<4.7	<4.9	<4.7	NA	NA	<10	<10
Phenol	<4.7	<4.9	<4.7	NA	NA	<5	<5
Pyrene	<4.7	<4.9	<4.7	NA	NA	<5	<5
Metals							
Aluminum	16 J	<200	30 J	NA	NA	<200	<200
Aluminum-DISS	<200	<200	24 J	NA	NA	NA	NA
Antimony	<50	0.44 J	<50	NA	NA	<50	<50
Antimony-DISS	1.4 J B	<50	<50	NA	NA	NA	NA
Arsenic	19 J	19 J B	20 J	NA	NA	<5	<5
Arsenic-DISS	20	19 J B	22	NA	NA	NA	NA
Barium	230 B	230	220	NA	NA	<200	<200
Barium-DISS	250 B	220	250	NA	NA	NA	NA
Beryllium-DISS	<1.0	<1.0	<1.0	NA	NA	NA	NA
Cadmium	<0.50	<0.50	<0.50	NA	NA	<0.5	<0.5
Cadmium-DISS	<0.50	<0.50	<0.50	NA	NA	NA	NA
Calcium	82,000	90,000	90,000	NA	NA	32,000	31,000
Calcium-DISS	86,000	83,000	86,000	NA	NA	NA	NA
Chromium	<5.0	1.2 J B	<5.0	NA	NA	<50	<50
Chromium-DISS	<5.0	1.1 J B	<5.0	NA	NA	NA	NA
Cobalt	4.2 J	3.8 J	3.6 J	NA	NA	<50	<50
Cobalt-DISS	4.0 J	3.8 J	4.2 J	NA	NA	NA	NA
Copper	<25	<25	<25	NA	NA	<25	<25
Copper-DISS	<25	<25	<25	NA	NA	NA	NA
Iron	8,500	9,100	8,600	NA	NA	<20	<20
Iron-DISS	8,600	8,200	7,800	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)			GM-28B			
Top of Screen Depth (ft bls)	40	40	40	124.5	124.5	124.5	124.5
Sample Date	05/10/07	08/07/07	11/05/07	10/24/98	10/26/98	11/08/98	11/08/98
Sample ID	GWGM-28A (5/10/07)	GWGM-28A (8/7/07)	GWGM-28A (11/5/07)	GWGM-96	GWGM-96	GWGM-28B	GWGM-96
Metals (continued)							
Lead	<3.0	<3.0	<3.0	NA	NA	<3	<3
Lead-DISS	<3.0	0.16 J	<3.0	NA	NA	NA	NA
Magnesium	34,000	38,000	39,000	NA	NA	10,000	10,000
Magnesium-DISS	36,000	36,000	37,000	NA	NA	NA	NA
Manganese	**2,100**	**2,100**	**2,100**	NA	NA	23	21
Manganese-DISS	**2,100**	**2,000**	**2,100**	NA	NA	NA	NA
Mercury	<0.20	<0.20	<0.20	NA	NA	<0.2	<0.2
Mercury-DISS	<0.20	**0.11 J**	<0.20	NA	NA	NA	NA
Molybdenum	4.8 J	5.3 J	5.3 J	NA	NA	<100	<100
Molybdenum-DISS	5.4 J	5.0 J	6.0 J	NA	NA	NA	NA
Nickel	1.6 J	1.6 J	1.5 J	NA	NA	<50	<50
Nickel-DISS	1.6 J	1.6 J	1.3 J	NA	NA	NA	NA
Potassium	3,000	2,900	2,900 B	NA	NA	13,000	13,000
Potassium-DISS	2,900	2,800	3,200	NA	NA	NA	NA
Selenium	<5.0	<5.0	<5.0	NA	NA	<5	<5
Selenium-DISS	<5.0	<5.0	<5.0	NA	NA	NA	NA
Silver	<0.20	<0.20	<0.20	NA	NA	<0.5	<0.5
Silver-DISS	<0.20	<0.20	0.092 J B	NA	NA	NA	NA
Sodium	4,000	4,300	4,200 B	NA	NA	12,000	11,000
Sodium-DISS	4,300	4,100	3,900 B	NA	NA	NA	NA
Thallium	<2.0	<2.0	<2.0	NA	NA	<2	<2
Thallium-DISS	<2.0	<2.0	<2.0	NA	NA	NA	NA
Titanium	2.2 J	2.6 J	3.5 J	NA	NA	<50	<50
Titanium-DISS	2.0 J	2.3 J	2.7 J	NA	NA	NA	NA
Vanadium	<20	1.8 J B	<20	NA	NA	<20	<20
Vanadium-DISS	<20	1.9 J B	1.0 J	NA	NA	NA	NA
Zinc	3.7 J	<20	<20	NA	NA	<20	<20
Zinc-DISS	5.9 J B	<20	<20	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)			GM-28B			
Top of Screen Depth (ft bls)	40	40	40	124.5	124.5	124.5	124.5
Sample Date	05/10/07	08/07/07	11/05/07	10/24/98	10/26/98	11/08/98	11/08/98
Sample ID	GWGM-28A (5/10/07)	GWGM-28A (8/7/07)	GWGM-28A (11/5/07)	GWGM-96	GWGM-96	GWGM-28B	GWGM-96
Alcohols							
1,4-Dioxane	<4.7	<4.9	<4.7	NA	NA	<300	<300
Acetonitrile	<50	<50	<50	NA	NA	<50	<50
Ethanol	<1,000	<1,000	<1,000	NA	NA	<1,000	<1,000
Ethylacetate	<5,000	<5,000	<5,000	NA	NA	<10	<10
Ethylene glycol	<10,000	<10,000	<10,000	NA	NA	<20,000	<20,000
Isobutanol	<1,000	<1,000	<1,000	NA	NA	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	NA	NA	<1,000	<1,000
Methanol	**1,400**	<1,000	<1,000	NA	NA	<800	<800
n-Butanol	<1,000	<1,000	<1,000	NA	NA	<1,000	<1,000
Aldehydes							
Acetaldehyde	<100	<100	<100	NA	NA	<100 J	<100
Butanal	<100	<100	<100	NA	NA	<100 J	<100
Crotonaldehyde	<100	<100	<100	NA	NA	<100 J	<100
Cyclohexanone	<100	<100	<100	NA	NA	<100 J	<100
Decanal	10 J	<100	<100	NA	NA	<100 J	<100
Formaldehyde	41 J	32 J	<100	NA	NA	<100 J	<100
Heptanal	<100	<100	<100	NA	NA	<100 J	<100
Hexanal	3.1 J	<100	<100	NA	NA	<100 J	<100
m-Tolualdehyde	<100	<100	<100	NA	NA	<100 J	<100
Nonanal	6.0 J	<100	<100	NA	NA	<100 J	<100
Octanal	<100	<100	<100	NA	NA	<100 J	<100
Paraldehyde	<100	<100	<100	NA	NA	<100	<100
Pentanal	6.1 J	10 J	<100	NA	NA	<100 J	<100
Propanal	<100	<100	<100	NA	NA	<100 J	<100
Inorganics							
Alkalinity	350,000	360,000	350,000	NA	NA	120,000	120,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA
Chloride	14,000	6,700	5,500	NA	NA	1,400	1,200

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28A (continued)			GM-28B			
Top of Screen Depth (ft bls)	40	40	40	124.5	124.5	124.5	124.5
Sample Date	05/10/07	08/07/07	11/05/07	10/24/98	10/26/98	11/08/98	11/08/98
Sample ID	GWGM-28A (5/10/07)	GWGM-28A (8/7/07)	GWGM-28A (11/5/07)	GWGM-96	GWGM-96	GWGM-28B	GWGM-96
Inorganics (continued)							
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**140**	**740**	**59**	NA	NA	<200	<200
Nitrogen, Nitrate	<50	<50	<50	NA	NA	<100	<100
Nitrogen, Nitrite	<50	<50	<50	NA	NA	<100	<100
Ortho-Phosphate	NA	NA	NA	NA	NA	NA	NA
Phosphate	<50	<50	<50	NA	NA	NA	NA
Phosphorus	<100	<100	<100	NA	NA	<100	690
Silica	28,600	31,400	30,300	NA	NA	<100	<100
Silica, Dissolved	NA	NA	NA	NA	NA	NA	NA
Sulfate	<5,000	<5,000	<5,000	NA	NA	11,000	11,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	NA	NA	<1,000	<1,000
Acetic Acid	<500 *	<500	<500	NA	<200	<200	390
Biochemical Oxygen Demand	<2,000	<2,000	<2,000 *	NA	NA	<2,000	<2,000
Chemical Oxygen Demand	26,000	1,000	35,000	NA	NA	<10,000	<10,000
Total Organic Carbon	1,400	990 J	840 J	NA	NA	<1,000	<1,000
Density	NA	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	NA	NA	NA
Methane	23,700	25,900	20	300	NA	100	5
Suspended Solids	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)					
Top of Screen Depth (ft bls)	124.5	124.5	124.5	124.5	124.5	124.5
Sample Date	04/19/99	04/19/99	03/01/00	04/28/04	04/28/04	07/26/05
Sample ID	GWGM-28B	GWGM-87	GWGM-28B	GWGM-28B (4/28/04)	GWGM-999 (4/28/04)	GWGM28B (072605)
VOCs						
1,1-Dichloroethene	<1	<1	NA	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1	<1	NA	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<1	<1	NA	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1 J	<1 J	NA	<1.0	<1.0	<1.0
2-Butanone (MEK)	<10	<10	NA	<50	<50	<50
2-Hexanone	<10	<10	NA	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<10	<10	NA	<50	<50	<50
Acetone	R	R	NA	<100	<100	<100
Acrylonitrile	R	R	NA	<25	<25	<25
Benzene	<1	<1	NA	<1.0	<1.0	<1.0
Bromochloromethane	<1	<1	NA	<1.0	<1.0	<1.0
Bromoform	<1	<1	NA	<1.0	<1.0	<1.0
Bromomethane	<1	<1	NA	<1.0	<1.0	<1.0
Carbon disulfide	12	16	NA	<5.0	<5.0	<5.0
Chloroethane	<1	<1	NA	<1.0	<1.0	<1.0
Chloromethane	<1	<1	NA	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1	<1	NA	<1.0	<1.0	<1.0
Diethylether	<10	<10	NA	<10	<10	<10
Ethylbenzene	<1	<1	NA	<1.0	<1.0	<1.0
Furan	<5	<5	NA	<2.0	<2.0	<10
Isopropylbenzene	<1	<1	NA	<1.0	<1.0	<1.0
Methyl iodide	<5	<5	NA	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<50	<50	NA	<5.0	<5.0	<5.0
Methylene chloride	<1.4	<1.4	NA	<1.0	<1.0	<1.0
Propionitrile	NA	NA	NA	<25	<25	<25
Tetrachloroethene	<1	<1	NA	<1.0	<1.0	<1.0
Tetrahydrofuran	R	R	NA	<2.0	<2.0	<10
Toluene	1.6	1.7	NA	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	<1	<1	NA	<1.0	<1.0	<1.0
Trichloroethene	<1	<1	NA	<1.0	<1.0	<1.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)					
Top of Screen Depth (ft bls)	124.5	124.5	124.5	124.5	124.5	124.5
Sample Date	04/19/99	04/19/99	03/01/00	04/28/04	04/28/04	07/26/05
Sample ID	GWGM-28B	GWGM-87	GWGM-28B	GWGM-28B (4/28/04)	GWGM-999 (4/28/04)	GWGM28B (072605)
VOCs (continued)						
Xylene, o	<1	<1	NA	NA	NA	NA
Xylenes (total)	<3	<3	NA	<3.0	<3.0	<3.0
Xylenes, m+p	<2	<2	NA	NA	NA	NA
SVOCs						
1,4-Dichlorobenzene	<5	<5	NA	<5.0	<5.0	<5.0
2,3-Dimethylphenol	<10	<10	NA	<10	<10	<9.9
2,4-Dimethylphenol	<5	<5	<5	NA	NA	<5.0
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	<10	<10	<9.9
2,5-Dimethylphenol	<20	<20	NA	NA	NA	NA
2,6-Dimethylphenol	<10	<10	NA	<10	<10	<9.9
2-Methylphenol	<5	<5	<5	<5.0	<5.0	<5.0
2-Nitrophenol	<20	<20	NA	<5.0	<5.0	<5.0
3,4-Dimethylphenol	<10	<10	NA	<10	<10	<9.9
3-Methylphenol	<10	<10	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	<5	<5.0	<5.0	<5.0
4-Methylphenol	<5	<5	NA	NA	NA	NA
Anthracene	<5	<5	NA	<5.0	<5.0	<5.0
Benzo(a)anthracene	<5	<5	NA	<5.0	<5.0	<5.0
Benzo(a)pyrene	<5	<5	NA	<5.0	<5.0	<5.0 *
Benzo(b)fluoranthene	<5	<5	NA	<5.0	<5.0	<5.0
Benzo(g,h,i)perylene	<5	<5	NA	<5.0	<5.0	<5.0
Benzo(k)fluoranthene	<5 J	<5 J	NA	<5.0	<5.0	<5.0
bis(2-Ethylhexyl)phthalate	<5 J	<5 J	NA	<5.0	<5.0	<5.0 *
Butylbenzylphthalate	<5 J	<5 J	NA	<5.0	<5.0	<5.0 *
Carbazole	<5 J	<5 J	NA	<5.0	<5.0	<5.0
Chrysene	<5	<5	NA	<5.0	<5.0	<5.0 *
Dibenzo(a,h)anthracene	<5	<5	NA	<5.0	<5.0	<5.0
Diethylphthalate	<5	<5	NA	<5.0	<5.0	<5.0
Di-n-butylphthalate	<5	<5	NA	<5.0	<5.0	<5.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)					
Top of Screen Depth (ft bls)	124.5	124.5	124.5	124.5	124.5	124.5
Sample Date	04/19/99	04/19/99	03/01/00	04/28/04	04/28/04	07/26/05
Sample ID	GWGM-28B	GWGM-87	GWGM-28B	GWGM-28B (4/28/04)	GWGM-999 (4/28/04)	GWGM28B (072605)
SVOCs (continued)						
Di-n-octylphthalate	<5	<5	NA	<5.0	<5.0	<5.0
Fluoranthene	<5	<5	NA	<5.0	<5.0	<5.0
Indeno(1,2,3-c,d)pyrene	<5	<5	NA	<5.0	<5.0	<5.0
Naphthalene	<10	<10	NA	<5.0	<5.0	<5.0
Phenol	<5	<5	<5	<5.0	<5.0	<5.0
Pyrene	<5	<5	NA	<5.0	<5.0	<5.0
Metals						
Aluminum	<200	<200	NA	<200	<200	<200
Aluminum-DISS	NA	NA	NA	<200	<200	<200
Antimony	<50	<50	NA	<50	<50	<50
Antimony-DISS	NA	NA	NA	<50	<50	<50
Arsenic	<5	<5	NA	4.7 B	4.6 B	6.1 J B
Arsenic-DISS	NA	NA	NA	5.3 B	5.3 B	6.2 J B
Barium	<200	<200	NA	94 B	96 B	79 J
Barium-DISS	NA	NA	NA	88 B	87 B	79 J
Beryllium-DISS	NA	NA	NA	<1.0	<1.0	<1.0
Cadmium	<0.5	<0.5	NA	<0.50	<0.50	<0.50
Cadmium-DISS	NA	NA	NA	<0.50	<0.50	<0.50
Calcium	22,000	21,000	NA	29,000	30,000	29,000
Calcium-DISS	NA	NA	18,000	27,000	26,000	28,000
Chromium	<50	<50	NA	<5.0	<5.0	2.1 J B
Chromium-DISS	NA	NA	NA	<5.0	<5.0	1.9 J B
Cobalt	<50	<50	NA	<10	<10	0.12 J
Cobalt-DISS	NA	NA	NA	<10	<10	0.10 J
Copper	<25	<25	NA	<25	<25	0.50 J
Copper-DISS	NA	NA	NA	<25	<25	0.61 J B
Iron	<20	<20	NA	18 B	17 B	<100
Iron-DISS	NA	NA	<24 J	12 B	14 B	<100

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)					
Top of Screen Depth (ft bls)	124.5	124.5	124.5	124.5	124.5	124.5
Sample Date	04/19/99	04/19/99	03/01/00	04/28/04	04/28/04	07/26/05
Sample ID	GWGM-28B	GWGM-87	GWGM-28B	GWGM-28B (4/28/04)	GWGM-999 (4/28/04)	GWGM28B (072605)
Metals (continued)						
Lead	<3	<3	NA	<3.0	<3.0	<3.0
Lead-DISS	NA	NA	NA	<3.0	<3.0	<3.0
Magnesium	12,000	12,000	NA	18,000	19,000	19,000
Magnesium-DISS	NA	NA	13,000	18,000	17,000	18,000
Manganese	25	25	NA	35	36	28
Manganese-DISS	NA	NA	NA	31	31	27
Mercury	<0.2	<0.2	NA	<0.20	<0.20	<0.20
Mercury-DISS	NA	NA	NA	<0.20	<0.20	<0.20
Molybdenum	<100	<100	NA	<10	<10	<10
Molybdenum-DISS	NA	NA	NA	1.8 B	1.6 B	<10
Nickel	<50	<50	NA	2.6 B	<25	0.67 J B
Nickel-DISS	NA	NA	NA	2.6 B	2.3 B	0.63 J
Potassium	8,000	8,300	NA	2,200	2,300	2,200
Potassium-DISS	NA	NA	12,000	4,700	4,500	2,200
Selenium	<5 J	<5 J	NA	<5.0	<5.0	<5.0
Selenium-DISS	NA	NA	NA	<5.0	<5.0	<5.0
Silver	<0.5	<0.5	NA	<0.20	<0.20	<0.20
Silver-DISS	NA	NA	NA	<0.20	<0.20	<0.20
Sodium	11,000	11,000	NA	2,800	2,900	3,600
Sodium-DISS	NA	NA	13,000	5,900	5,600	3,600
Thallium	<2	<2	NA	<2.0	<2.0	<2.0
Thallium-DISS	NA	NA	NA	<2.0	<2.0	<2.0
Titanium	<50	<50	NA	<50	<50	1.9 J
Titanium-DISS	NA	NA	NA	<50	<50	2.0 J
Vanadium	<20	<20	NA	0.43 B	0.36 B	<20
Vanadium-DISS	NA	NA	NA	0.39 B	<20	<20
Zinc	<20	<20	NA	<20	<20	5.2 J
Zinc-DISS	NA	NA	NA	<20	<20	<20

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)					
Top of Screen Depth (ft bls)	124.5	124.5	124.5	124.5	124.5	124.5
Sample Date	04/19/99	04/19/99	03/01/00	04/28/04	04/28/04	07/26/05
Sample ID	GWGM-28B	GWGM-87	GWGM-28B	GWGM-28B (4/28/04)	GWGM-999 (4/28/04)	GWGM28B (072605)
Alcohols						
1,4-Dioxane	R	R	NA	<5.0	<5.0	<5.0 *
Acetonitrile	R	R	NA	<50	<50	<50
Ethanol	<1,000	<1,000	NA	<1,000	<1,000	<1,000
Ethylacetate	R	R	NA	<5,000	<5,000	<5,000
Ethylene glycol	<20,000 J	<20,000 J	NA	<5,000	<5,000	<10,000
Isobutanol	<1,000	<1,000	NA	<1,000	<1,000	<1,000
Isopropanol	<1,000	<1,000	NA	<1,000	<1,000	<1,000
Methanol	<800	<800	NA	260 J	<1,000	<1,000
n-Butanol	<1,000	<1,000	NA	<1,000	<1,000	<1,000
Aldehydes						
Acetaldehyde	<100	<100	NA	<100	<100	<100
Butanal	<100	<100	NA	<100	<100	<100
Crotonaldehyde	<100	<100	NA	<100	<100	<100
Cyclohexanone	<100	<100	NA	<100	<100	<100
Decanal	<100	<100	NA	<100	<100	<100
Formaldehyde	<100	<100	NA	<100	<100	<100
Heptanal	<100	<100	NA	<100	<100	<100
Hexanal	<100	<100	NA	<100	<100	<100
m-Tolualdehyde	<100	<100	NA	<100	<100	<100
Nonanal	<100	<100	NA	<100	<100	<100
Octanal	<100	<100	NA	<100	<100	<100
Paraldehyde	<100	<100	NA	<100	<100	<100
Pentanal	<100	<100	NA	<100	<100	<100
Propanal	<100	<100	NA	<100	<100	<100
Inorganics						
Alkalinity	120,000	120,000	NA	150,000	150,000	130,000
Bicarbonate	NA	NA	110,000	NA	NA	NA
Chloride	1,200	<1000	NA	590 B	740 B	<1,000

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)					
Top of Screen Depth (ft bls)	124.5	124.5	124.5	124.5	124.5	124.5
Sample Date	04/19/99	04/19/99	03/01/00	04/28/04	04/28/04	07/26/05
Sample ID	GWGM-28B	GWGM-87	GWGM-28B	GWGM-28B (4/28/04)	GWGM-999 (4/28/04)	GWGM28B (072605)
Inorganics (continued)						
Chlorides Soluble	NA	NA	<1000	NA	NA	NA
Nitrogen, (Ammonia)	<200	<200	NA	**61**	**61**	**60**
Nitrogen, Nitrate	<100	<100	NA	<50	<50	<50
Nitrogen, Nitrite	<100 J	<100 J	NA	<50	<50	<50
Ortho-Phosphate	NA	NA	NA	<50	25 B	NA
Phosphate	NA	NA	NA	NA	NA	<50
Phosphorus	<100	<100	NA	<100	<100	<100
Silica	15,000	15,000	NA	NA	NA	NA
Silica, Dissolved	NA	NA	NA	24,000	24,000	26,000
Sulfate	8,100	9,000	NA	9,700	9,800	8,200
Sulfate Soluble	NA	NA	8,600	NA	NA	NA
Sulfide	<1,000	<1,000	NA	<1,000	<1,000	<1,000
Acetic Acid	500	900	NA	<500	<500	370 J
Biochemical Oxygen Demand	<1,000	<1,000	NA	<2,000	<2,000	<2,000
Chemical Oxygen Demand	<10,000	<10,000	NA	<20,000	<20,000	<20,000
Total Organic Carbon	<1,000	<1,000	NA	<1,000	<1,000	<1,000
Density	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	NA	NA
Methane	410	64	NA	10	10	10
Suspended Solids	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	110,000	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)				
Top of Screen Depth (ft bls)	124.5	124.5	124.5	124.5	124.5
Sample Date	12/05/06	12/05/06	02/21/07	05/10/07	08/07/07
Sample ID	GWGM-28B(12/5/06)	GWGM-28B-RE (12/5/2006)	GWGM-28B (2/21/07)	GWGM-28B (5/10/07)	GWGM-28B (8/7/07)
VOCs					
1,1-Dichloroethene	<1.0	NA	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	NA	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	NA	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	NA	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	NA	<50	<50	<50
2-Hexanone	<50	NA	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50 *	NA	<50	<50	<50
Acetone	<100	NA	<100	<100	<100
Acrylonitrile	<25	NA	<25	<25	<25
Benzene	<1.0	NA	<1.0	<1.0	<1.0
Bromochloromethane	<1.0	NA	<1.0	<1.0	<1.0
Bromoform	<1.0	NA	<1.0	<1.0	<1.0
Bromomethane	<1.0	NA	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	NA	<5.0	<5.0	<5.0
Chloroethane	<1.0	NA	<1.0	<1.0	<1.0
Chloromethane	0.74 J	NA	<1.0	0.71 J	<1.0
cis-1,2-Dichloroethene	<1.0	NA	<1.0	<1.0	<1.0
Diethylether	<10	NA	<10	<10	<10
Ethylbenzene	<1.0	NA	<1.0	<1.0	<1.0
Furan	<10	NA	<10	<10	<10
Isopropylbenzene	<1.0	NA	<1.0	<1.0	<1.0
Methyl iodide	<5.0	NA	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	NA	<5.0	<5.0	<5.0
Methylene chloride	<1.0	NA	<1.0	<1.0	<1.0
Propionitrile	<25	NA	<25	<25	<25
Tetrachloroethene	<1.0	NA	<1.0	<1.0	<1.0
Tetrahydrofuran	<10	NA	7.9 J	<10	<10
Toluene	<1.0	NA	5	0.92 J	7.1 B
trans-1,2-Dichloroethene	<1.0	NA	<1.0	<1.0	<1.0
Trichloroethene	<1.0	NA	<1.0	<1.0	<1.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)				
Top of Screen Depth (ft bls)	124.5	124.5	124.5	124.5	124.5
Sample Date	12/05/06	12/05/06	02/21/07	05/10/07	08/07/07
Sample ID	GWGM-28B(12/5/06)	GWGM-28B-RE (12/5/2006)	GWGM-28B (2/21/07)	GWGM-28B (5/10/07)	GWGM-28B (8/7/07)
VOCs (continued)					
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	NA	<3.0	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA
SVOCs					
1,4-Dichlorobenzene	<5.0	<5.0 H	<4.7	<4.7	<4.7
2,3-Dimethylphenol	<10	<10 H	<9.4	<9.4	<9.4
2,4-Dimethylphenol	<5.0 *	<5.0 H	<4.7 *	<4.7	1.5 J
2,4-Dimethylphenol/2,5-Dimethylphenol	<10	<10 H	<9.4	<9.4	1.5 J
2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	<10	<10 H	<9.4	<9.4	1.8 J
2-Methylphenol	<5.0	<5.0 H	<4.7	<4.7	<4.7
2-Nitrophenol	<5.0	<5.0 H	<4.7	<4.7	<4.7
3,4-Dimethylphenol	<10	<10 H	<9.4	<9.4	<9.4
3-Methylphenol	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	<5.0 H	<4.7	<4.7	<4.7
4-Methylphenol	NA	NA	NA	NA	NA
Anthracene	<5.0	<5.0 H	<4.7	<4.7	<4.7
Benzo(a)anthracene	<5.0	<5.0 H	<4.7	<4.7	<4.7
Benzo(a)pyrene	<5.0	<5.0 H	<4.7	<4.7	<4.7
Benzo(b)fluoranthene	<5.0	<5.0 H	<4.7	<4.7	<4.7
Benzo(g,h,i)perylene	<5.0	<5.0 H	<4.7	<4.7	<4.7
Benzo(k)fluoranthene	<5.0	<5.0 H	<4.7	<4.7	<4.7
bis(2-Ethylhexyl)phthalate	<5.0	<5.0 H	<4.7	<4.7	<4.7
Butylbenzylphthalate	<5.0	<5.0 H	<4.7	<4.7	<4.7
Carbazole	<5.0	<5.0 H	<4.7	<4.7	<4.7
Chrysene	<5.0	<5.0 H	<4.7	<4.7	<4.7
Dibenzo(a,h)anthracene	<5.0	<5.0 H	<4.7	<4.7	<4.7
Diethylphthalate	<5.0	<5.0 H	<4.7	<4.7	<4.7
Di-n-butylphthalate	<5.0	<5.0 H	<4.7	<4.7	<4.7

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)				
Top of Screen Depth (ft bls)	124.5	124.5	124.5	124.5	124.5
Sample Date	12/05/06	12/05/06	02/21/07	05/10/07	08/07/07
Sample ID	GWGM-28B(12/5/06)	GWGM-28B-RE (12/5/2006)	GWGM-28B (2/21/07)	GWGM-28B (5/10/07)	GWGM-28B (8/7/07)
SVOCs (continued)					
Di-n-octylphthalate	<5.0	<5.0 H	<4.7	<4.7	<4.7
Fluoranthene	<5.0	<5.0 H	<4.7	<4.7	<4.7
Indeno(1,2,3-c,d)pyrene	<5.0	<5.0 H	<4.7	<4.7	<4.7
Naphthalene	<5.0	<5.0 H	<4.7	<4.7	<4.7
Phenol	1.3 J	<5.0 H	<4.7	<4.7	<4.7
Pyrene	<5.0	<5.0 H	<4.7	<4.7	<4.7
Metals					
Aluminum	14 J B	NA	77 J B	<200	<200
Aluminum-DISS	13 J B	NA	<200	<200	<200
Antimony	<50	NA	<50	<50	<50
Antimony-DISS	<50	NA	<50	<50	<50
Arsenic	5.8 J	NA	5.0 J	5.5 J	6.4 J B
Arsenic-DISS	6.5 J	NA	5.2 J	6.4 J	6.2 J B
Barium	91 J B	NA	85 J B	94 J B	100
Barium-DISS	98 J B	NA	87 J B	100 B	96 J
Beryllium-DISS	<1.0	NA	<1.0	<1.0	<1.0
Cadmium	<0.50	NA	<0.50	<0.50	<0.50
Cadmium-DISS	<0.50	NA	<0.50	<0.50	<0.50
Calcium	28,000	NA	23,000	29,000	36,000
Calcium-DISS	32,000	NA	26,000	31,000	33,000
Chromium	<5.0	NA	2.4 J	<5.0	1.3 J B
Chromium-DISS	<5.0	NA	<5.0	<5.0	1.3 J B
Cobalt	0.077 J	NA	0.29 J	0.12 J	0.096 J
Cobalt-DISS	0.12 J	NA	0.17 J	0.11 J	0.12 J
Copper	0.74 J B	NA	2.9 J	<25	<25
Copper-DISS	<25	NA	1.6 J	<25	<25
Iron	<100	NA	180	<100	27 J
Iron-DISS	<100	NA	<100	<100	24 J

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)				
Top of Screen Depth (ft bls)	124.5	124.5	124.5	124.5	124.5
Sample Date	12/05/06	12/05/06	02/21/07	05/10/07	08/07/07
Sample ID	GWGM-28B(12/5/06)	GWGM-28B-RE (12/5/2006)	GWGM-28B (2/21/07)	GWGM-28B (5/10/07)	GWGM-28B (8/7/07)
Metals (continued)					
Lead	<3.0	NA	<3.0	0.67 J	<3.0
Lead-DISS	<3.0	NA	<3.0	<3.0	0.16 J
Magnesium	17,000	NA	18,000	16,000	19,000
Magnesium-DISS	19,000	NA	17,000	18,000	18,000
Manganese	32	NA	31	30	34
Manganese-DISS	35	NA	23	29	32
Mercury	<0.20	NA	**0.20 J**	<0.20	<0.20
Mercury-DISS	<0.20	NA	<0.20	<0.20	<0.20
Molybdenum	<10	NA	1.6 J	<10	<10
Molybdenum-DISS	<10	NA	1.6 J	<10	<10
Nickel	0.25 J	NA	3.2 J	0.37 J	<25
Nickel-DISS	0.73 J	NA	2.8 J	0.53 J	<25
Potassium	1,800	NA	5,500	2,000	1,800
Potassium-DISS	1,900	NA	5,700	2,000	1,800
Selenium	<5.0	NA	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	NA	<5.0	<5.0	<5.0
Silver	<0.20	NA	<0.20	<0.20	<0.20
Silver-DISS	<0.20	NA	<0.20	<0.20	<0.20
Sodium	2,500 B	NA	9,800 B	2,900	3,000
Sodium-DISS	2,900	NA	8,400	3,200	2,900
Thallium	<2.0	NA	<2.0	<2.0	<2.0
Thallium-DISS	<2.0	NA	<2.0	<2.0	<2.0
Titanium	1.8 J	NA	3.8 J	<50	1.5 J
Titanium-DISS	1.8 J	NA	1.2 J	1.2 J	1.4 J
Vanadium	<20	NA	2.8 J	<20	2.4 J B
Vanadium-DISS	<20	NA	2.6 J	<20	2.4 J B
Zinc	11 J B	NA	14 J B	5.2 J	<20
Zinc-DISS	18 J B	NA	10 J B	4.7 J B	<20

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)				
Top of Screen Depth (ft bls)	124.5	124.5	124.5	124.5	124.5
Sample Date	12/05/06	12/05/06	02/21/07	05/10/07	08/07/07
Sample ID	GWGM-28B(12/5/06)	GWGM-28B-RE (12/5/2006)	GWGM-28B (2/21/07)	GWGM-28B (5/10/07)	GWGM-28B (8/7/07)
Alcohols					
1,4-Dioxane	<5.0	<5.0 H	<4.7	<4.7	<4.7
Acetonitrile	<50	NA	<50	<50	<50
Ethanol	<1,000	NA	<1,000	<1,000	<1,000
Ethylacetate	<5,000	NA	<5,000	<5,000	<5,000
Ethylene glycol	<10,000	NA	<10,000	<10,000	<10,000
Isobutanol	<1,000	NA	<1,000	<1,000	<1,000
Isopropanol	<1,000	NA	<1,000	<1,000	<1,000
Methanol	<1,000	NA	<1,000	<1,000	<1,000
n-Butanol	<1,000	NA	<1,000	<1,000	<1,000
Aldehydes					
Acetaldehyde	<100	NA	<100	<100	<100
Butanal	<100	NA	<100	<100	<100
Crotonaldehyde	<100	NA	<100	<100	<100
Cyclohexanone	<100	NA	<100	<100	<100
Decanal	8.4 J	NA	<100	4.8 J	<100
Formaldehyde	<100	NA	<100	<100	<100
Heptanal	<100	NA	<100	<100	<100
Hexanal	<100	NA	<100	<100	<100
m-Tolualdehyde	<100	NA	<100	<100	<100
Nonanal	3.8 J	NA	<100	5.4 J	<100
Octanal	3.8 J	NA	<100	<100	<100
Paraldehyde	<100	NA	<100	<100	<100
Pentanal	<100	NA	<100	5.6 J	10 J
Propanal	<100	NA	<100	<100	<100
Inorganics					
Alkalinity	140,000	NA	140,000	150,000	160,000
Bicarbonate	NA	NA	NA	NA	NA
Chloride	<1,000	NA	2,800	<1,000	560 J

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)				
Top of Screen Depth (ft bls)	124.5	124.5	124.5	124.5	124.5
Sample Date	12/05/06	12/05/06	02/21/07	05/10/07	08/07/07
Sample ID	GWGM-28B(12/5/06)	GWGM-28B-RE (12/5/2006)	GWGM-28B (2/21/07)	GWGM-28B (5/10/07)	GWGM-28B (8/7/07)
Inorganics (continued)					
Chlorides Soluble	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	$\boxed{190}$	NA	$\boxed{160}$	$\boxed{190}$	$\boxed{450}$
Nitrogen, Nitrate	41 J	NA	83	<50	<50
Nitrogen, Nitrite	<50	NA	<50	<50	<50
Ortho-Phosphate	26 J	NA	NA	NA	NA
Phosphate	NA	NA	30 J	27 J	26 J
Phosphorus	55 J	NA	64 J	<100	<100
Silica	21,100	NA	18,400	20,400	20,100
Silica, Dissolved	NA	NA	NA	NA	NA
Sulfate	8,900	NA	10,000	9,200	7,300
Sulfate Soluble	NA	NA	NA	NA	NA
Sulfide	3,100	NA	<1,000	<1,000	<1,000
Acetic Acid	<500	NA	<500	<500	<500
Biochemical Oxygen Demand	<2,000	NA	<2,000	<2,000	<2,000
Chemical Oxygen Demand	0	NA	0	6,000	0
Total Organic Carbon	600 J	NA	660 J	<1,000	<1,000
Density	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	NA
Methane	63	NA	20	10	20
Suspended Solids	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)	GM-29					
Top of Screen Depth (ft bls)	124.5	55	55	55	55	55	55
Sample Date	11/05/07	10/09/98	10/09/98	04/16/99	02/29/00	09/10/03	05/03/04
Sample ID	GWGM-28B (11/5/07)	GWGM-29	GWGM-99	GWGM-29	GMGM-29	GM-29	GWGM-29 (5/3/04)
VOCs							
1,1-Dichloroethene	<1.0	<1	<1	<1	NA	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1	<1	<1	NA	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	<1	<1	<1	NA	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1	<1	<1	NA	<1.0	<1.0
2-Butanone (MEK)	<50	<10	<10	<10	NA	<50	<50
2-Hexanone	<50	<10	<10	<10	NA	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	<10	<10	<10	NA	<50	<50
Acetone	<100	<10	<10	R	NA	<100	<100
Acrylonitrile	<25	<25	<25	<25 J	NA	<25	<25
Benzene	<1.0	3.6	3.7	2.8	NA	1.6	0.72 J
Bromochloromethane	0.59 J	<1	<1	<1	NA	<1.0	<1.0
Bromoform	<1.0	<1	<1	<1	NA	<1.0	<1.0
Bromomethane	<1.0	<1	<1	<1	NA	<1.0	<1.0
Carbon disulfide	<5.0	<1	<1	<1	NA	<5.0	<5.0
Chloroethane	<1.0	<1	<1	<1	NA	1.1	<1.0
Chloromethane	<1.0	<1	<1	<1	NA	2.3	<1.0
cis-1,2-Dichloroethene	<1.0	<1	<1	<1	NA	<1.0	<1.0
Diethylether	<10	<10	<10	<10	NA	<10	1.8 J
Ethylbenzene	<1.0	<1	<1	<1	NA	<1.0	<1.0
Furan	<10	<5	<5	<5	NA	<2.0	<2.0
Isopropylbenzene	<1.0	<1	<1	<1	NA	<1.0	<1.0
Methyl iodide	<5.0	<5	<5	<5	NA	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<50	<50	<50	NA	<5.0	<5.0
Methylene chloride	<1.0	<1	<1	<1	NA	<1.0	<1.0
Propionitrile	<25	NA	NA	NA	NA	<25	<25
Tetrachloroethene	<1.0	<1	<1	<1	NA	<1.0	<1.0
Tetrahydrofuran	<10	<5	<5	R	NA	<2.0	<2.0
Toluene	2.2	1.6	1.6	1.2	NA	<1.0	<1.0
trans-1,2-Dichloroethene	<1.0	<1	<1	<1	NA	<1.0	<1.0
Trichloroethene	<1.0	<1	<1	1.1	NA	<1.0	<1.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)	GM-29					
Top of Screen Depth (ft bls)	124.5	55	55	55	55	55	55
Sample Date	11/05/07	10/09/98	10/09/98	04/16/99	02/29/00	09/10/03	05/03/04
Sample ID	GWGM-28B (11/5/07)	GWGM-29	GWGM-99	GWGM-29	GMGM-29	GM-29	GWGM-29 (5/3/04)
VOCs (continued)							
Xylene, o	NA	<1	<1	<1	NA	NA	NA
Xylenes (total)	<3.0	<3	<3	<3	NA	<3.0	<3.0
Xylenes, m+p	NA	<2	<2	<2	NA	NA	NA
SVOCs							
1,4-Dichlorobenzene	<4.7	<10	<10	<5	NA	<5.0	<5.0
2,3-Dimethylphenol	<9.4	NA	NA	<10	NA	<10	<10
2,4-Dimethylphenol	<4.7	170	170	140	48	NA	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.4	NA	NA	NA	NA	41	<10
2,5-Dimethylphenol	NA	NA	NA	<20	NA	NA	NA
2,6-Dimethylphenol	<9.4	NA	NA	70	NA	<10	10
2-Methylphenol	<4.7	<10	<10	<5	<5	<5.0	<5.0
2-Nitrophenol	<4.7	<20	<20	<20	NA	<5.0	<5.0
3,4-Dimethylphenol	<9.4	NA	NA	<10	NA	<10	<10
3-Methylphenol	NA	<20	<20	<10	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	NA	NA	NA	<5	<5.0	<5.0
4-Methylphenol	NA	<10	<10	<5	NA	NA	NA
Anthracene	<4.7	<10	<10	<5	NA	<5.0	<5.0
Benzo(a)anthracene	<4.7	<10	<10	<5	NA	<5.0	<5.0
Benzo(a)pyrene	<4.7	<10	<10	<5	NA	<5.0	<5.0
Benzo(b)fluoranthene	<4.7	<10	<10	<5	NA	<5.0	<5.0
Benzo(g,h,i)perylene	<4.7	<10	<10	<5	NA	<5.0	<5.0
Benzo(k)fluoranthene	<4.7	<10	<10	<5 J	NA	<5.0	<5.0
bis(2-Ethylhexyl)phthalate	<4.7	<10	<10	<5	NA	<5.0	<5.0
Butylbenzylphthalate	<4.7	<10	<10	<5	NA	<5.0	<5.0
Carbazole	<4.7	<10	<10	<5 J	NA	<5.0	<5.0
Chrysene	<4.7	<10	<10	<5	NA	<5.0	<5.0
Dibenzo(a,h)anthracene	<4.7	<10	<10	<5	NA	<5.0	<5.0
Diethylphthalate	<4.7	<10	<10	<5	NA	<5.0	<5.0
Di-n-butylphthalate	<4.7	<10	<10	**32**	NA	<5.0	<5.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)	GM-29					
Top of Screen Depth (ft bls)	124.5	55	55	55	55	55	55
Sample Date	11/05/07	10/09/98	10/09/98	04/16/99	02/29/00	09/10/03	05/03/04
Sample ID	GWGM-28B (11/5/07)	GWGM-29	GWGM-99	GWGM-29	GMGM-29	GM-29	GWGM-29 (5/3/04)
SVOCs (continued)							
Di-n-octylphthalate	<4.7	<10	<10	<5	NA	<5.0	<5.0
Fluoranthene	<4.7	<10	<10	<5	NA	<5.0	<5.0
Indeno(1,2,3-c,d)pyrene	<4.7	<10	<10	<5	NA	<5.0	<5.0
Naphthalene	<4.7	<20	<20	<10	NA	<5.0	<5.0
Phenol	<4.7	<10	<10	7	<5	<5.0	<5.0
Pyrene	<4.7	<10	<10	<5	NA	<5.0	<5.0
Metals							
Aluminum	16 J	<200	<200	<200	NA	<200	16 B
Aluminum-DISS	<200	NA	NA	NA	NA	<200	<200
Antimony	<50	<50	<50	<50	NA	<50	<50
Antimony-DISS	<50	NA	NA	NA	NA	<50	<50
Arsenic	6.1 J	11	10	13 J	NA	<20	12 B
Arsenic-DISS	6.9 J	NA	NA	NA	NA	<20	11 B
Barium	99 J	<200	<200	<200	NA	<100	87 B
Barium-DISS	110	NA	NA	NA	NA	<100	86 B
Beryllium-DISS	<1.0	NA	NA	NA	NA	<1.0	<1.0
Cadmium	<0.50	<0.5	<0.5	<0.5	NA	<0.50	<0.50
Cadmium-DISS	<0.50	NA	NA	NA	NA	<0.50	<0.50
Calcium	33,000	70,000	72,000	57,000	NA	45,000	42,000
Calcium-DISS	33,000	NA	NA	NA	46,000	47,000	42,000
Chromium	<5.0	<50	<50	<50	NA	<5.0	<5.0
Chromium-DISS	<5.0	NA	NA	NA	NA	<5.0	<5.0
Cobalt	0.14 J	<50	<50	<50	NA	<10	<10
Cobalt-DISS	0.14 J	NA	NA	NA	NA	<10	<10
Copper	**28**	<25	<25	<25	NA	<25	<25
Copper-DISS	<25	NA	NA	NA	NA	<25	<25
Iron	33 J	6,200	6,300	4,700	NA	2,000	580
Iron-DISS	16 J	NA	NA	NA	2,700 J	2,100	470

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)	GM-29					
Top of Screen Depth (ft bls)	124.5	55	55	55	55	55	55
Sample Date	11/05/07	10/09/98	10/09/98	04/16/99	02/29/00	09/10/03	05/03/04
Sample ID	GWGM-28B (11/5/07)	GWGM-29	GWGM-99	GWGM-29	GMGM-29	GM-29	GWGM-29 (5/3/04)
Metals (continued)							
Lead	<3.0	<3	<3	<3	NA	<3.0	<3.0
Lead-DISS	<3.0	NA	NA	NA	NA	<3.0	<3.0
Magnesium	19,000	59,000	59,000	46,000	NA	35,000	30,000
Magnesium-DISS	19,000	NA	NA	NA	37,000	37,000	30,000
Manganese	31	130	130	83	NA	58	49
Manganese-DISS	33	NA	NA	NA	NA	61	49
Mercury	<0.20	<0.2	<0.2	<0.2	NA	<0.20	<0.20
Mercury-DISS	<0.20	NA	NA	NA	NA	<0.20	<0.20
Molybdenum	<10	<100	<100	<100	NA	<10	2.0 B
Molybdenum-DISS	<10	NA	NA	NA	NA	<10	2.4 B
Nickel	<25	<50	<50	<50	NA	<25	<25
Nickel-DISS	<25	NA	NA	NA	NA	<25	<25
Potassium	1,800 B	2,700	2,700	2,600	NA	2,400	2,500
Potassium-DISS	2,000	NA	NA	NA	2,400	2,500	2,500
Selenium	<5.0	<5	<5	<5	NA	<5.0	<5.0
Selenium-DISS	<5.0	NA	NA	NA	NA	<5.0	<5.0
Silver	<0.20	<0.5	<0.5	<0.5	NA	<0.20 W	<0.20
Silver-DISS	0.099 J B	NA	NA	NA	NA	<0.20 W	<0.20
Sodium	2,900 B	7,000	7,300	6,000	NA	4,400	3,900
Sodium-DISS	2,900 B	NA	NA	NA	5,000	4,700	4,000
Thallium	<2.0	<2	<2	<2	NA	<2.0	<2.0
Thallium-DISS	<2.0	NA	NA	NA	NA	<2.0	<2.0
Titanium	1.9 J	<50	<50	<50	NA	<50	1.8 B
Titanium-DISS	1.9 J	NA	NA	NA	NA	<50	<50
Vanadium	<20	<20	<20	<20	NA	<20	<20
Vanadium-DISS	0.93 J	NA	NA	NA	NA	<20	<20
Zinc	19 J	<20	<20	<20	NA	<20	1.5 B
Zinc-DISS	<20	NA	NA	NA	NA	<20	<20

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)	GM-29					
Top of Screen Depth (ft bls)	124.5	55	55	55	55	55	55
Sample Date	11/05/07	10/09/98	10/09/98	04/16/99	02/29/00	09/10/03	05/03/04
Sample ID	GWGM-28B (11/5/07)	GWGM-29	GWGM-99	GWGM-29	GMGM-29	GM-29	GWGM-29 (5/3/04)
Alcohols							
1,4-Dioxane	<4.7	R	R	R	NA	<5.0	<5.0
Acetonitrile	<50	<50	<50	R	NA	<50	<50
Ethanol	<1,000	<1,000	<1,000	<1,000	NA	<1,000	<1,000
Ethylacetate	<5,000	R	R	R	NA	<5,000	<5,000
Ethylene glycol	<10,000	<20,000	<20,000	<20,000 J	NA	<5,000	<5,000
Isobutanol	<1,000	<1,000	<1,000	<1,000 J	NA	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000 J	NA	<1,000	<1,000
Methanol	<1,000	<800	<800	<800	NA	<1,000	**1,200**
n-Butanol	<1,000	<1,000	<1,000	<1,000	NA	30,000	<1,000
Aldehydes							
Acetaldehyde	<100	<100 J	<100 J	<100	NA	<100	<100
Butanal	<100	<100 J	<100 J	<100	NA	<100	<100
Crotonaldehyde	<100	<100 J	<100 J	<100	NA	<100	<100
Cyclohexanone	<100	<100 J	<100 J	<100	NA	<100	<100
Decanal	<100	<100 J	<100 J	<100	NA	<100	<100
Formaldehyde	<100	<100 J	<100 J	<100	NA	<100	<100
Heptanal	<100	<100 J	<100 J	<100	NA	<100	<100
Hexanal	<100	<100 J	<100 J	<100	NA	<100	<100
m-Tolualdehyde	<100	160 J	150 J	<100	NA	<100	<100
Nonanal	<100	<100 J	<100 J	<100	NA	<100	<100
Octanal	<100	<100 J	<100 J	<100	NA	<100	<100
Paraldehyde	<100	<100 J	<100 J	<100	NA	<100	<100
Pentanal	<100	<100 J	<100 J	<100	NA	<100	<100
Propanal	<100	<100 J	<100 J	<100	NA	<100	<100
Inorganics							
Alkalinity	150,000	400,000	400,000	360,000	NA	260,000	230,000
Bicarbonate	NA	NA	NA	NA	240,000	NA	NA
Chloride	800 J	4,300	4,300	3,500	NA	2,000	1,800

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-28B (continued)	GM-29					
Top of Screen Depth (ft bls)	124.5	55	55	55	55	55	55
Sample Date	11/05/07	10/09/98	10/09/98	04/16/99	02/29/00	09/10/03	05/03/04
Sample ID	GWGM-28B (11/5/07)	GWGM-29	GWGM-99	GWGM-29	GMGM-29	GM-29	GWGM-29 (5/3/04)
Inorganics (continued)							
Chlorides Soluble	NA	NA	NA	NA	2,800	NA	NA
Nitrogen, (Ammonia)	$\boxed{120}$	<200	<200	<200	NA	$\boxed{200}$	$\boxed{88}$
Nitrogen, Nitrate	<50	<100	<100	<100	NA	<50	<50
Nitrogen, Nitrite	<50	<100	<100	<100	NA	<50	<50
Ortho-Phosphate	NA	NA	NA	NA	NA	<50	<50
Phosphate	<50	NA	NA	NA	NA	NA	NA
Phosphorus	58 J	<100	<100	<100	NA	<100	<100
Silica	19,000	<100	<100	18,000	NA	NA	NA
Silica, Dissolved	NA	NA	NA	NA	NA	32,000	29,000
Sulfate	9,400	11,000	11,000	<10,000 M	NA	5,600	4,800 B
Sulfate Soluble	NA	NA	NA	NA	<5,000	NA	NA
Sulfide	<1,000	4,200	4,200	<1,000	NA	<1,000	<1,000
Acetic Acid	<500	<1,000	<2000	<500	NA	<1,000	<500
Biochemical Oxygen Demand	<2,000 *	16,000 J	14,000 J	13,000	NA	<2,000	<2,000
Chemical Oxygen Demand	15,000	17,000	90,000	73,000	NA	21,000	23,000
Total Organic Carbon	620 J	29,000	30,000	28,000	NA	10,000	5,900
Density	NA	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	NA	NA	NA
Methane	0.1	29,200	28,500	22,400	NA	8,750	6,270
Suspended Solids	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	300,000	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)				
Top of Screen Depth (ft bls)	55	55	55	55	55
Sample Date	07/28/05	12/08/06	02/20/07	05/09/07	08/07/07
Sample ID	GWGM-29 (07/28/05)	GWGM-29 (12/8/06)	GWGM-29 (2/20/07)	GWGM-29 (5/9/07)	GWGM-29 (8/7/07)
VOCs					
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50	<50
Acetone	<100	<100	<100	<100	<100
Acrylonitrile	<25	<25	<25	<25	<25
Benzene	0.80 J	<1.0	1.4	2.4	1.5
Bromochloromethane	<1.0	<1.0	<1.0 *	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	<5.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Diethylether	2.1 J	1.8 J	2.5 J	4.5 J	2.7 J
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Furan	<10	<10	<10	<10	<10
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrahydrofuran	<10	<10	<10	0.76 J	<10
Toluene	<1.0	<1.0	0.65 J	1	0.56 J B
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)				
Top of Screen Depth (ft bls)	55	55	55	55	55
Sample Date	07/28/05	12/08/06	02/20/07	05/09/07	08/07/07
Sample ID	GWGM-29 (07/28/05)	GWGM-29 (12/8/06)	GWGM-29 (2/20/07)	GWGM-29 (5/9/07)	GWGM-29 (8/7/07)
VOCs (continued)					
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	<3.0	<3.0	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA
SVOCs					
1,4-Dichlorobenzene	<4.7	<5.0	1.3 J	<4.7	<4.7
2,3-Dimethylphenol	<9.4	<10	1.3 J	<9.4	<9.4
2,4-Dimethylphenol	10	4.8 J	22	66	15
2,4-Dimethylphenol/2,5-Dimethylphenol	21	4.8 J	22	69	15
2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	14	21	32	49	23
2-Methylphenol	<4.7	<5.0	0.94 J	<4.7	<4.7
2-Nitrophenol	<4.7	<5.0	<4.7	<4.7	<4.7
3,4-Dimethylphenol	<9.4	<10	<9.4	<9.4	<9.4
3-Methylphenol	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<5.0	<4.7	<4.7	<4.7
4-Methylphenol	NA	NA	NA	NA	NA
Anthracene	<4.7	<5.0	<4.7	<4.7	<4.7
Benzo(a)anthracene	<4.7	<5.0	<4.7	<4.7	<4.7
Benzo(a)pyrene	<4.7	<5.0	<4.7	<4.7	<4.7
Benzo(b)fluoranthene	<4.7	<5.0	<4.7	<4.7	<4.7
Benzo(g,h,i)perylene	<4.7	<5.0	<4.7	<4.7	<4.7
Benzo(k)fluoranthene	<4.7	<5.0	<4.7	<4.7	<4.7
bis(2-Ethylhexyl)phthalate	<4.7	<5.0	<4.7	<4.7	<4.7
Butylbenzylphthalate	<4.7	<5.0	<4.7	<4.7	<4.7
Carbazole	<4.7	<5.0	<4.7	<4.7	<4.7
Chrysene	<4.7	<5.0	<4.7	<4.7	<4.7
Dibenzo(a,h)anthracene	<4.7	<5.0	<4.7	<4.7	<4.7
Diethylphthalate	<4.7	<5.0	<4.7	<4.7	<4.7
Di-n-butylphthalate	<4.7	<5.0	<4.7	<4.7	<4.7

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)				
Top of Screen Depth (ft bls)	55	55	55	55	55
Sample Date	07/28/05	12/08/06	02/20/07	05/09/07	08/07/07
Sample ID	GWGM-29 (07/28/05)	GWGM-29 (12/8/06)	GWGM-29 (2/20/07)	GWGM-29 (5/9/07)	GWGM-29 (8/7/07)
SVOCs (continued)					
Di-n-octylphthalate	<4.7	<5.0	<4.7	<4.7	<4.7
Fluoranthene	<4.7	<5.0	<4.7	<4.7	<4.7
Indeno(1,2,3-c,d)pyrene	<4.7	<5.0	<4.7	<4.7	<4.7
Naphthalene	<4.7	<5.0	<4.7	<4.7	<4.7
Phenol	<4.7	<5.0	<4.7	<4.7	<4.7
Pyrene	<4.7	<5.0	<4.7	<4.7	<4.7
Metals					
Aluminum	52 J	<200	46 J	23 J	17 J
Aluminum-DISS	16 J	15 J	<200	<200	<200
Antimony	<50	<50	<50	<50	<50
Antimony-DISS	57	<50	<50	<50	<50
Arsenic	15 J	12 J	13 J	12 J	14 J B
Arsenic-DISS	12 J	15 J	12 J	15 J	13 J B
Barium	81 J	91 J	140 B	140 B	100
Barium-DISS	79 J	110 B	130 B	170 B	99 J
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	<0.50	<0.50	<0.50	<0.50
Cadmium-DISS	0.14 J	<0.50	<0.50	<0.50	<0.50
Calcium	41,000	43,000	60,000	63,000	50,000
Calcium-DISS	40,000	52,000	54,000	73,000	48,000
Chromium	<5.0	<5.0	<5.0	<5.0	1.2 J B
Chromium-DISS	**13**	<5.0	<5.0	<5.0	1.0 J B
Cobalt	0.14 J	<10	0.14 J	0.19 J	0.11 J
Cobalt-DISS	0.32 J	0.12 J	0.11 J	0.17 J	0.12 J
Copper	<25	4.8 J	0.40 J	<25	<25
Copper-DISS	1.2 J	0.67 J	0.48 J	0.99 J	<25
Iron	930	2,400	4,400	3,400	3,600
Iron-DISS	870	2,900	4,200	3,900	3,300

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)				
Top of Screen Depth (ft bls)	55	55	55	55	55
Sample Date	07/28/05	12/08/06	02/20/07	05/09/07	08/07/07
Sample ID	GWGM-29 (07/28/05)	GWGM-29 (12/8/06)	GWGM-29 (2/20/07)	GWGM-29 (5/9/07)	GWGM-29 (8/7/07)
Metals (continued)					
Lead	<3.0	<3.0	<3.0	<3.0	<3.0
Lead-DISS	0.72 J	<3.0	<3.0	<3.0	<3.0
Magnesium	29,000	35,000	48,000	48,000	41,000
Magnesium-DISS	30,000	43,000	44,000	56,000	40,000
Manganese	41	50	80	72	57
Manganese-DISS	48	61	75	78	56
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	**0.088 J**
Molybdenum	<10	<10	2.3 J	2.2 J	1.6 J
Molybdenum-DISS	1.7 J	1.9 J	2.2 J	2.4 J	1.7 J
Nickel	0.15 J	<25	0.24 J	0.35 J	<25
Nickel-DISS	9.3 J	0.29 J	0.50 J	0.42 J	<25
Potassium	1,900	2,000	2,900	2,700	2,300
Potassium-DISS	2,100	2,700	2,600	3,000	2,300
Selenium	<5.0	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	<0.20	<0.20	<0.20	<0.20	<0.20
Silver-DISS	**0.29**	<0.20	<0.20	<0.20	<0.20
Sodium	3,700	4,800	7,100	6,300	6,000
Sodium-DISS	4,600	6,000	6,400	7,600	6,000
Thallium	<2.0	<2.0	<2.0	<2.0	<2.0
Thallium-DISS	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	2.9 J	1.1 J	4.1 J	2.1 J	2.4 J
Titanium-DISS	2.5 J	3.1 J	2.5 J	2.3 J	1.8 J
Vanadium	<20	<20	<20	<20	3.1 J B
Vanadium-DISS	<20	<20	<20	<20	2.7 J B
Zinc	<20	6.8 J	6.0 J B	3.7 J	<20
Zinc-DISS	15 J	44 B	5.4 J B	5.6 J B	<20

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)				
Top of Screen Depth (ft bls)	55	55	55	55	55
Sample Date	07/28/05	12/08/06	02/20/07	05/09/07	08/07/07
Sample ID	GWGM-29 (07/28/05)	GWGM-29 (12/8/06)	GWGM-29 (2/20/07)	GWGM-29 (5/9/07)	GWGM-29 (8/7/07)
Alcohols					
1,4-Dioxane	<4.7	<5.0	<4.7	<4.7	<4.7
Acetonitrile	<50	<50	<50	<50	<50
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	<5,000	<5,000	<5,000	<5,000	<5,000
Ethylene glycol	<10,000	<10,000	<10,000	<10,000	<10,000
Isobutanol	<1,000	<1,000	<1,000	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000	<1,000
Methanol	<1,000	**980 J**	<1,000	<1,000	<1,000
n-Butanol	<1,000	<1,000	<1,000	<1,000	<1,000
Aldehydes					
Acetaldehyde	<100	<100	<100	<100	<100
Butanal	<100	<100	<100	<100	<100
Crotonaldehyde	<100	<100	<100	<100	<100
Cyclohexanone	<100	<100	<100	<100	<100
Decanal	<100	<100	5.4 J	17 J	<100
Formaldehyde	<100	<100	<100	<100	<100
Heptanal	<100	3.2 J	3.2 J	9.4 J	7.7 J
Hexanal	<100	<100	13 J	13 J	<100
m-Tolualdehyde	<100	<100	<100	17 J	<100
Nonanal	<100	4.0 J	5.7 J	7.4 J	<100
Octanal	<100	3.2 J	2.5 J	5.6 J	<100
Paraldehyde	<100	<100	<100	<100	<100
Pentanal	<100	4.9 J	<100	<100	12 J
Propanal	<100	<100	<100	<100	<100
Inorganics					
Alkalinity	220,000	290,000	340,000	370,000	280,000
Bicarbonate	NA	NA	NA	NA	NA
Chloride	1,400	2,000	3,700	4,800	2,800

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)				
Top of Screen Depth (ft bls)	**55**	**55**	**55**	**55**	**55**
Sample Date	**07/28/05**	**12/08/06**	**02/20/07**	**05/09/07**	**08/07/07**
Sample ID	**GWGM-29 (07/28/05)**	**GWGM-29 (12/8/06)**	**GWGM-29 (2/20/07)**	**GWGM-29 (5/9/07)**	**GWGM-29 (8/7/07)**
Inorganics (continued)					
Chlorides Soluble	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**75**	**190**	**210**	**130**	**250**
Nitrogen, Nitrate	31 J	<250	26 J	52	<50
Nitrogen, Nitrite	<50	<50	<50	<50	<50
Ortho-Phosphate	NA	<50	NA	NA	NA
Phosphate	<50	NA	<50	<50	<50
Phosphorus	<100	<100	<100	<100	<100
Silica	NA	29,200	24,100	27,200	26,600
Silica, Dissolved	29,000	NA	NA	NA	NA
Sulfate	18,000	<5,000	<5,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	<1,000
Acetic Acid	420 J	<500	<500	<500	<500
Biochemical Oxygen Demand	<2,000	2,700	<2,000	2,500	<2,000
Chemical Oxygen Demand	25,000	1,000	65,000	79,000	37,000
Total Organic Carbon	6,400	10,000	18,000	22,000	12,000
Density	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	NA
Methane	6,120	7,700	18,000	21,100	11,900
Suspended Solids	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)		GM-31			GM-63A	
Top of Screen Depth (ft bls)	55	55	105	105	105	45	45
Sample Date	11/06/07	11/06/07	10/24/98	05/03/99	10/09/00	08/29/00	08/29/00
Sample ID	DUP-999(11/6/07)	GWGM-29(11/6/07)	GWGM-31	GWGM-31	GWGM-31	GWGM-63A	GWGM-63A-DL
VOCs							
1,1-Dichloroethene	<1.0	<1.0	<1	<1	NA	<1.0	NA
1,2,4-Trimethylbenzene	<1.0	<1.0	<1	<1	NA	<1.0	NA
1,2-Dichloroethene (total)	<2.0	<2.0	<1	<1	NA	<2.0	NA
1,3,5-Trimethylbenzene	<1.0	<1.0	<1	<1	NA	<1.0	NA
2-Butanone (MEK)	<50	<50	<10	<10	NA	<50	NA
2-Hexanone	<50	<50	<10 J	<10 J	NA	<50	NA
4-Methyl-2-pentanone (MIBK)	<50	<50	<10	<10 J	NA	<50	NA
Acetone	<100	<100	<10 J	R	NA	<100	NA
Acrylonitrile	<25	<25	<25	R	NA	<25	NA
Benzene	0.68 J B	0.69 J B	<1	<1	NA	9.5	NA
Bromochloromethane	0.39 J	0.41 J	<1	<1	NA	<1.0	NA
Bromoform	<1.0	<1.0	<1	<1	NA	<1.0 J	NA
Bromomethane	<1.0	<1.0	<1	<1	NA	<1.0	NA
Carbon disulfide	<5.0	<5.0	<1	3.4	NA	<5.0	NA
Chloroethane	<1.0	<1.0	<1	<1	NA	<1.0	NA
Chloromethane	<1.0	<1.0	<1	<1	NA	<1.0	NA
cis-1,2-Dichloroethene	<1.0	<1.0	<1	<1	NA	<1.0	NA
Diethylether	2.5 J	2.4 J	<10	<10	NA	<10	NA
Ethylbenzene	<1.0	<1.0	<1	<1	NA	0.99 J	NA
Furan	<10	<10	<5	<5	NA	NA	NA
Isopropylbenzene	<1.0	<1.0	<1	<1	NA	<1.0	NA
Methyl iodide	<5.0	<5.0	<5	<5	NA	<5.0	NA
Methyl(tert)butyl ether	<5.0	<5.0	<50	<50	NA	<5.0	NA
Methylene chloride	<1.0	<1.0	<1	<1	NA	<1.0	NA
Propionitrile	<25	<25	NA	NA	NA	<25	NA
Tetrachloroethene	<1.0	<1.0	<1	<1	NA	<1.0	NA
Tetrahydrofuran	<10	<10	<5	R	NA	NA	NA
Toluene	0.37 J	0.35 J	<1	<1	NA	5.8	NA
trans-1,2-Dichloroethene	<1.0	<1.0	<1	<1	NA	<1.0	NA
Trichloroethene	<1.0	<1.0	<1	<1	NA	<1.0	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)		GM-31			GM-63A	
Top of Screen Depth (ft bls)	55	55	105	105	105	45	45
Sample Date	11/06/07	11/06/07	10/24/98	05/03/99	10/09/00	08/29/00	08/29/00
Sample ID	DUP-999(11/6/07)	GWGM-29(11/6/07)	GWGM-31	GWGM-31	GWGM-31	GWGM-63A	GWGM-63A-DL
VOCs (continued)							
Xylene, o	NA	NA	<1	<1	NA	NA	NA
Xylenes (total)	<3.0	<3.0	<3	<3	NA	4.5	NA
Xylenes, m+p	NA	NA	<2	<2	NA	NA	NA
SVOCs							
1,4-Dichlorobenzene	<4.7	<4.7	<5	<5	NA	<5.0	NA
2,3-Dimethylphenol	<9.4	<9.4	NA	R	NA	NA	NA
2,4-Dimethylphenol	<4.7	<4.7	<5	R	<5.0	380 D	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.4	<9.4	NA	NA	NA	NA	NA
2,5-Dimethylphenol	NA	NA	NA	R	NA	NA	NA
2,6-Dimethylphenol	<9.4	8.0 J	NA	R	NA	NA	NA
2-Methylphenol	<4.7	<4.7	<5	R	<5.0	<5.0	NA
2-Nitrophenol	<4.7	<4.7	<20	R	NA	<5.0	NA
3,4-Dimethylphenol	<9.4	<9.4	NA	R	NA	NA	NA
3-Methylphenol	NA	NA	<10	R	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<4.7	NA	NA	<5.0	<5.0	NA
4-Methylphenol	NA	NA	<5	R	NA	NA	NA
Anthracene	<4.7	<4.7	<5	<5	NA	<5.0	NA
Benzo(a)anthracene	<4.7	<4.7	<5	<5	NA	<5.0	NA
Benzo(a)pyrene	<4.7	<4.7	<5	<5	NA	<5.0	NA
Benzo(b)fluoranthene	<4.7	<4.7	<5	<5	NA	<5.0	NA
Benzo(g,h,i)perylene	<4.7	<4.7	<5	<5	NA	<5.0	NA
Benzo(k)fluoranthene	<4.7	<4.7	<5	<5	NA	<5.0	NA
bis(2-Ethylhexyl)phthalate	<4.7	1.4 J	<5	15	NA	<5.0	NA
Butylbenzylphthalate	<4.7	<4.7	<5	<5	NA	<5.0	NA
Carbazole	<4.7	<4.7	<5	<5	NA	<5.0	NA
Chrysene	<4.7	<4.7	<5	<5	NA	<5.0	NA
Dibenzo(a,h)anthracene	<4.7	<4.7	<5	<5	NA	<5.0	NA
Diethylphthalate	<4.7	<4.7	<5	<5	NA	<5.0	NA
Di-n-butylphthalate	<4.7	<4.7	<5	<5	NA	<5.0	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)		GM-31			GM-63A	
Top of Screen Depth (ft bls)	55	55	105	105	105	45	45
Sample Date	11/06/07	11/06/07	10/24/98	05/03/99	10/09/00	08/29/00	08/29/00
Sample ID	DUP-999(11/6/07)	GWGM-29(11/6/07)	GWGM-31	GWGM-31	GWGM-31	GWGM-63A	GWGM-63A-DL
SVOCs (continued)							
Di-n-octylphthalate	<4.7	<4.7	<5	<5	NA	<5.0	NA
Fluoranthene	<4.7	<4.7	<5	<5	NA	<5.0	NA
Indeno(1,2,3-c,d)pyrene	<4.7	<4.7	<5	<5	NA	<5.0	NA
Naphthalene	<4.7	<4.7	<10	<10	NA	<5.0	NA
Phenol	<4.7	<4.7	<5	R	<5.0	<5.0	NA
Pyrene	<4.7	<4.7	<5	<5	NA	<5.0	NA
Metals							
Aluminum	<200	<200	<200	<200	NA	NA	NA
Aluminum-DISS	<200	<200	NA	NA	NA	<200	NA
Antimony	<50	<50	<50	<50	NA	NA	NA
Antimony-DISS	<50	<50	NA	NA	NA	<50	NA
Arsenic	13 J	15 J	13	<5	NA	NA	NA
Arsenic-DISS	15 J	13 J	NA	NA	NA	3.4 B	NA
Barium	84 J	93 J	<200 J	<200	NA	NA	NA
Barium-DISS	96 J	88 J	NA	NA	NA	390 J	NA
Beryllium-DISS	<1.0	<1.0	NA	NA	NA	<1.0	NA
Cadmium	<0.50	<0.50	<0.5	<0.5	NA	NA	NA
Cadmium-DISS	<0.50	<0.50	NA	NA	NA	<0.50	NA
Calcium	43,000	54,000	62,000	63,000 J	NA	NA	NA
Calcium-DISS	47,000	47,000	NA	NA	64,000	98,000	NA
Chromium	<5.0	<5.0	<50 J	<50	NA	NA	NA
Chromium-DISS	<5.0	<5.0	NA	NA	NA	<5.0	NA
Cobalt	0.13 J	0.14 J	<50 J	<50	NA	NA	NA
Cobalt-DISS	0.14 J	0.14 J	NA	NA	NA	<10	NA
Copper	<25	<25	<25 J	<25	NA	NA	NA
Copper-DISS	<25	<25	NA	NA	NA	<25	NA
Iron	1,300	1,600	5,900 J	4,100	NA	NA	NA
Iron-DISS	1,400	1,400	NA	NA	4,800	41 B	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)		GM-31			GM-63A	
Top of Screen Depth (ft bls)	55	55	105	105	105	45	45
Sample Date	11/06/07	11/06/07	10/24/98	05/03/99	10/09/00	08/29/00	08/29/00
Sample ID	DUP-999(11/6/07)	GWGM-29(11/6/07)	GWGM-31	GWGM-31	GWGM-31	GWGM-63A	GWGM-63A-DL
Metals (continued)							
Lead	<3.0	<3.0	<3	<3	NA	NA	NA
Lead-DISS	<3.0	<3.0	NA	NA	NA	<3.0 J	NA
Magnesium	32,000	39,000	28,000 J	29,000	NA	NA	NA
Magnesium-DISS	34,000	35,000	NA	NA	29,000	81,000	NA
Manganese	34	38	1,000	940 J	NA	NA	NA
Manganese-DISS	37	38	NA	NA	NA	190 J	NA
Mercury	<0.20	<0.20	<0.2	<0.2	NA	NA	NA
Mercury-DISS	<0.20	<0.20	NA	NA	NA	<0.20	NA
Molybdenum	<10	1.6 J	<100 J	<100	NA	NA	NA
Molybdenum-DISS	1.5 J	<10	NA	NA	NA	1.3 B	NA
Nickel	<25	<25	<50 J	<50	NA	NA	NA
Nickel-DISS	<25	<25	NA	NA	NA	<25	NA
Potassium	2,300 B	2,200 B	2,300	3,100	NA	NA	NA
Potassium-DISS	2,500	2,300	NA	NA	2,500	3,200	NA
Selenium	<5.0	<5.0	<5	<5	NA	NA	NA
Selenium-DISS	<5.0	<5.0	NA	NA	NA	<5.0	NA
Silver	<0.20	0.10 J	<0.5	<0.5	NA	NA	NA
Silver-DISS	<0.20	0.091 J B	NA	NA	NA	<0.20	NA
Sodium	5,100 B	6,200 B	7,900	9,800	NA	NA	NA
Sodium-DISS	5,500 B	5,500 B	NA	NA	10,000 J	9,100	NA
Thallium	<2.0	<2.0	<2	<2	NA	NA	NA
Thallium-DISS	<2.0	<2.0	NA	NA	NA	<2.0	NA
Titanium	2.0 J	2.3 J	<50 J	<50	NA	NA	NA
Titanium-DISS	2.1 J	2.0 J	NA	NA	NA	0.97 B	NA
Vanadium	<20	<20	<20 J	<20	NA	NA	NA
Vanadium-DISS	1.0 J	0.81 J	NA	NA	NA	<20	NA
Zinc	11 J	<20	<20 J	<20	NA	NA	NA
Zinc-DISS	<20	<20	NA	NA	NA	<25	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)		GM-31			GM-63A	
Top of Screen Depth (ft bls)	55	55	105	105	105	45	45
Sample Date	11/06/07	11/06/07	10/24/98	05/03/99	10/09/00	08/29/00	08/29/00
Sample ID	DUP-999(11/6/07)	GWGM-29(11/6/07)	GWGM-31	GWGM-31	GWGM-31	GWGM-63A	GWGM-63A-DL
Alcohols							
1,4-Dioxane	<4.7	<4.7	<300 J	R	NA	<5.0	<10
Acetonitrile	<50	<50	<50	R	NA	<50	NA
Ethanol	<1,000	<1,000	<1,000	<1,000	NA	<1,000	NA
Ethylacetate	<5,000	<5,000	<10	R	NA	<5,000	NA
Ethylene glycol	<10,000	<10,000	<20,000	<20,000 J	NA	NA	NA
Isobutanol	<1,000	<1,000	<1,000	<1,000	NA	<1,000	NA
Isopropanol	<1,000	<1,000	<1,000	<1,000	NA	<1,000	NA
Methanol	**570 J**	**590 J**	<800	**2,400 J**	NA	**1,300**	NA
n-Butanol	<1,000	<1,000	<1,000	<1,000	NA	<1,000 J	NA
Aldehydes							
Acetaldehyde	<100	<100	<100 J	<100	NA	$\boxed{\textbf{160 J}}$	NA
Butanal	<100	<100	<100 J	<100	NA	<100 J	NA
Crotonaldehyde	<100	<100	<100 J	<100	NA	<100 J	NA
Cyclohexanone	<100	<100	<100 J	<100	NA	<100 J	NA
Decanal	<100	<100	<100 J	<100	NA	<100 J	NA
Formaldehyde	<100	<100	<100 J	<100	NA	<100 J	NA
Heptanal	<100	<100	<100 J	<100	NA	<100 J	NA
Hexanal	<100	<100	<100 J	<100	NA	<100 J	NA
m-Tolualdehyde	<100	<100	<100 J	<100	NA	<100 J	NA
Nonanal	<100	<100	<100 J	<100	NA	<100 J	NA
Octanal	<100	<100	<100 J	<100	NA	<100 J	NA
Paraldehyde	<100	<100	<100 J	<100	NA	<100	NA
Pentanal	<100	<100	<100 J	<100	NA	<100 J	NA
Propanal	<100	<100	<100 J	<100	NA	<100 J	NA
Inorganics							
Alkalinity	240,000	240,000	250,000	240,000	NA	670,000	NA
Bicarbonate	NA	NA	NA	NA	260,000	NA	NA
Chloride	2,700	2,700	40,000	40,000	36,000	10,000	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-29 (continued)		GM-31			GM-63A	
Top of Screen Depth (ft bls)	55	55	105	105	105	45	45
Sample Date	11/06/07	11/06/07	10/24/98	05/03/99	10/09/00	08/29/00	08/29/00
Sample ID	DUP-999(11/6/07)	GWGM-29(11/6/07)	GWGM-31	GWGM-31	GWGM-31	GWGM-63A	GWGM-63A-DL
Inorganics (continued)							
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**360**	**160**	<200	<200	NA	<30	NA
Nitrogen, Nitrate	<50	<50	<200	<100	NA	<50	NA
Nitrogen, Nitrite	<50	<50	<200 JM	<100	NA	<50	NA
Ortho-Phosphate	NA	NA	NA	NA	NA	NA	NA
Phosphate	<50	<50	NA	NA	NA	NA	NA
Phosphorus	76 J	55 J	110	<100	NA	<100	NA
Silica	24,500	24,200	<100	19,100	NA	NA	NA
Silica, Dissolved	NA	NA	NA	NA	NA	36,000	NA
Sulfate	<5,000	<5,000	<5,000	<5,000	<5,000	<5,000	NA
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	NA	240 J	NA
Acetic Acid	<500	<500	340	<500	NA	NA	NA
Biochemical Oxygen Demand	<2,000 *	<2,000 *	2,600 J	3,900	NA	7,900	NA
Chemical Oxygen Demand	NA	18,000	<10,000	<10,000	NA	240,000	NA
Total Organic Carbon	7,300	7,200	1,000	1,300	NA	70,000	NA
Density	NA	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	NA	600,000	NA
Methane	8.04	7.93	6,980	5,030	NA	NA	NA
Suspended Solids	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	290,000	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-63A (continued)					GM-63B	
Top of Screen Depth (ft bls)	45	45	45	45	45	105	105
Sample Date	09/19/00	10/18/00	09/15/03	05/05/04	05/05/04	02/07/01	09/11/03
Sample ID	GWGM-63A	GWGM-63A	GM-63A	GWGM-63A (5/5/04)	GWGM-63A (5/5/04)-DL	GWGM-63B	GM-63B
VOCs							
1,1-Dichloroethene	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
1,2,4-Trimethylbenzene	1.4	NA	<1.0	<1.0	NA	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	NA	<2.0	<2.0	NA	<2.0	<2.0
1,3,5-Trimethylbenzene	0.53 J	NA	<1.0	<1.0	NA	<1.0	<1.0
2-Butanone (MEK)	<50	NA	<50	<50	NA	<50	<50
2-Hexanone	<50	NA	<50	<50	NA	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	NA	<50	<50	NA	<50	<50
Acetone	<100	NA	<100	<100	NA	R	<100
Acrylonitrile	<25	NA	<25	<25	NA	<25 J	<25
Benzene	17	NA	5.9	8.6	NA	<1.0	<1.0
Bromochloromethane	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
Bromoform	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
Bromomethane	<1.0 J	NA	<1.0	<1.0	NA	<1.0	<1.0
Carbon disulfide	<5.0	NA	<5.0	<5.0	NA	<5.0	<5.0
Chloroethane	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
Chloromethane	<1.0	NA	<1.0	<1.0	NA	<1.0	1.3
cis-1,2-Dichloroethene	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
Diethylether	41	NA	15	17	NA	<10	<10
Ethylbenzene	1.8	NA	<1.0	1.4	NA	<1.0	<1.0
Furan	NA	NA	<2.0	0.42 J	NA	NA	<2.0
Isopropylbenzene	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
Methyl iodide	<5.0	NA	<5.0	<5.0	NA	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	NA	<5.0	<5.0	NA	<5.0	<5.0
Methylene chloride	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
Propionitrile	<25	NA	<25	<25	NA	<25	<25
Tetrachloroethene	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
Tetrahydrofuran	NA	NA	<2.0	<2.0	NA	NA	<2.0
Toluene	12	NA	4.4	7.4	NA	<1.0	<1.0
trans-1,2-Dichloroethene	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
Trichloroethene	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-63A (continued)					GM-63B	
Top of Screen Depth (ft bls)	45	45	45	45	45	105	105
Sample Date	09/19/00	10/18/00	09/15/03	05/05/04	05/05/04	02/07/01	09/11/03
Sample ID	GWGM-63A	GWGM-63A	GM-63A	GWGM-63A (5/5/04)	GWGM-63A (5/5/04)-DL	GWGM-63B	GM-63B
VOCs (continued)							
Xylene, o	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	8.4	NA	3.6	3.3	NA	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA
SVOCs							
1,4-Dichlorobenzene	<10	NA	<20	<5.0	<25	<5.0	<5.0
2,3-Dimethylphenol	NA	NA	160	260 E	230 D	NA	<10
2,4-Dimethylphenol	420	NA	NA	NA	NA	<5.0	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	370	<10	<50	NA	<10
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	140	250 E	210 D	NA	<10
2-Methylphenol	<10	NA	<20	<5.0	<25	<5.0	<5.0
2-Nitrophenol	<10	NA	<20	<5.0	<25	<5.0	<5.0
3,4-Dimethylphenol	NA	NA	<40	<10	<50	NA	<10
3-Methylphenol	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<10	NA	<20	<5.0	<25	<5.0	<5.0
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA
Anthracene	<10	NA	<20	<5.0	<25	<5.0	<5.0
Benzo(a)anthracene	<10	NA	<20	<5.0	<25	<5.0	<5.0
Benzo(a)pyrene	<10	NA	<20	<5.0	<25	<5.0	<5.0
Benzo(b)fluoranthene	<10	NA	<20	<5.0	<25	<5.0 J	<5.0
Benzo(g,h,i)perylene	<10	NA	<20	<5.0	<25	<5.0	<5.0
Benzo(k)fluoranthene	<10	NA	<20	<5.0	<25	<5.0 J	<5.0
bis(2-Ethylhexyl)phthalate	<10	NA	<20	<5.0	<25	1.0 J	<5.0
Butylbenzylphthalate	<10	NA	<20	<5.0	<25	<5.0	<5.0
Carbazole	<10	NA	<20	<5.0	<25	<5.0	<5.0
Chrysene	<10	NA	<20	<5.0	<25	<5.0	<5.0
Dibenzo(a,h)anthracene	<10	NA	<20	<5.0	<25	<5.0	<5.0
Diethylphthalate	<10	NA	<20	<5.0	<25	1.5 J	<5.0
Di-n-butylphthalate	<10	NA	<20	<5.0	<25	<5.0	<5.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-63A (continued)					GM-63B	
Top of Screen Depth (ft bls)	45	45	45	45	45	105	105
Sample Date	09/19/00	10/18/00	09/15/03	05/05/04	05/05/04	02/07/01	09/11/03
Sample ID	GWGM-63A	GWGM-63A	GM-63A	GWGM-63A (5/5/04)	GWGM-63A (5/5/04)-DL	GWGM-63B	GM-63B
SVOCs (continued)							
Di-n-octylphthalate	<10	NA	<20	<5.0	<25	<5.0	<5.0
Fluoranthene	<10	NA	<20	<5.0	<25	<5.0	<5.0
Indeno(1,2,3-c,d)pyrene	<10	NA	<20	<5.0	<25	<5.0	<5.0
Naphthalene	<10	NA	<20	<5.0	<25	<5.0	<5.0
Phenol	<10	NA	<20	<5.0	<25	<5.0	<5.0
Pyrene	<10	NA	<20	<5.0	<25	R	<5.0
Metals							
Aluminum	NA	NA	<200	34 B	NA	<150	<200
Aluminum-DISS	<200	NA	<200	29 B	NA	<66	<200
Antimony	NA	NA	<50	<50	NA	<50	<50
Antimony-DISS	<50	NA	<50	<50	NA	NA	<50
Arsenic	NA	NA	<20	10 B	NA	30 J	27
Arsenic-DISS	<9.7	NA	<20	11 B	NA	30 J	29
Barium	NA	NA	**410**	**600**	NA	34 B	<100
Barium-DISS	**620**	NA	**410**	**590**	NA	33 B	<100
Beryllium-DISS	<1.0	NA	<1.0	<1.0	NA	NA	<1.0
Cadmium	NA	NA	<0.50 WN	<0.50	NA	<0.50	<0.50
Cadmium-DISS	<0.50	NA	<0.50 WN	<0.50	NA	<0.50	<0.50
Calcium	NA	NA	77,000	110,000	NA	24,000	25,000
Calcium-DISS	110,000	NA	79,000	110,000	NA	24,000	25,000
Chromium	NA	NA	<5.0	<5.0	NA	<5.0	<5.0
Chromium-DISS	<5.0	NA	<5.0	<5.0	NA	<5.0	<5.0
Cobalt	NA	NA	<10	<10	NA	<10	<10
Cobalt-DISS	<10	NA	<10	<10	NA	NA	<10
Copper	NA	NA	<25	<25	NA	<1.6	<25
Copper-DISS	<1.5	NA	<25	<25	NA	<1.6	<25
Iron	NA	NA	16,000	25,000	NA	170 J	<100
Iron-DISS	23,000	NA	17,000	24,000	NA	32 BJ	<100

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-63A (continued)					GM-63B	
Top of Screen Depth (ft bls)	45	45	45	45	45	105	105
Sample Date	09/19/00	10/18/00	09/15/03	05/05/04	05/05/04	02/07/01	09/11/03
Sample ID	GWGM-63A	GWGM-63A	GM-63A	GWGM-63A (5/5/04)	GWGM-63A (5/5/04)-DL	GWGM-63B	GM-63B
Metals (continued)							
Lead	NA	NA	<3.0	<3.0	NA	<3.0 J	<3.0
Lead-DISS	<3.0	NA	<3.0	<3.0	NA	<3.0 J	<3.0
Magnesium	NA	NA	64,000	92,000	NA	16,000	17,000
Magnesium-DISS	90,000	NA	66,000	91,000	NA	15,000	17,000
Manganese	NA	NA	150	190	NA	66	44
Manganese-DISS	210	NA	150	180	NA	62	42
Mercury	NA	NA	<0.20	<0.20	NA	<0.20	<0.20
Mercury-DISS	<0.20	NA	<0.20	<0.20	NA	<0.20	<0.20
Molybdenum	NA	NA	<10	<10	NA	16	<10
Molybdenum-DISS	<10	NA	<10	<10	NA	15	<10 B
Nickel	NA	NA	<25	<25	NA	<25	<25
Nickel-DISS	<25	NA	<25	<25	NA	NA	<25
Potassium	NA	NA	2,700	3,600	NA	4,000	4,000
Potassium-DISS	3,400	NA	2,800	3,600	NA	3,800	4,000
Selenium	NA	NA	<5.0	<5.0	NA	<5.0 J	<5.0
Selenium-DISS	<5.0	NA	<5.0	<5.0	NA	<5.0 J	<5.0
Silver	NA	NA	<0.20 WN	<0.20	NA	<0.20 J	<0.20 W
Silver-DISS	<0.11	NA	<0.20 WN	<0.20	NA	<0.20 J	<0.20 W
Sodium	NA	NA	6,600	10,000	NA	12,000	8,900
Sodium-DISS	9,900	NA	6,900	10,000	NA	11,000	9,100
Thallium	NA	NA	<2.0 WN	<2.0	NA	<2.0	<2.0
Thallium-DISS	<2.0	NA	<2.0 WN	<2.0	NA	<2.0	<2.0
Titanium	NA	NA	<50	2.4 B	NA	1.3 BJ	<50
Titanium-DISS	<0.82	NA	<50	1.8 B	NA	0.66 BJ	<50
Vanadium	NA	NA	<20	2.2 B	NA	<20	<20
Vanadium-DISS	<2.2	NA	<20	2.1 B	NA	<20	<20
Zinc	NA	NA	<20	3.6 B	NA	<20	<20
Zinc-DISS	<3.6	NA	<20	3.1 B	NA	<20	<20

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-63A (continued)					GM-63B	
Top of Screen Depth (ft bls)	45	45	45	45	45	105	105
Sample Date	09/19/00	10/18/00	09/15/03	05/05/04	05/05/04	02/07/01	09/11/03
Sample ID	GWGM-63A	GWGM-63A	GM-63A	GWGM-63A (5/5/04)	GWGM-63A (5/5/04)-DL	GWGM-63B	GM-63B
Alcohols							
1,4-Dioxane	<10	NA	<20	<5.0	<25	<5.0	<5.0
Acetonitrile	<50 J	NA	<50	<50	NA	<50	<50
Ethanol	<1,000	NA	<1,000	<1,000	NA	<1,000	<1,000
Ethylacetate	<5,000	NA	<5,000	<5,000	NA	<5,000	<5,000
Ethylene glycol	NA	NA	<5,000	<5,000	NA	NA	<5,000
Isobutanol	<1,000 J	NA	<1,000	<1,000	NA	<1,000	<1,000
Isopropanol	<1,000	NA	<1,000	<1,000	NA	<1,000	<1,000
Methanol	<1,000	NA	<1,000	**650 J**	NA	<1,000	**1,300**
n-Butanol	<1,000 J	NA	<1,000	<1,000	NA	<1,000 J	10,000
Aldehydes							
Acetaldehyde	$\boxed{230}$	NA	<100	<100	NA	<100	<100
Butanal	<100	NA	<100	<100	NA	<100	<100
Crotonaldehyde	<100	NA	<100	<100	NA	<100	<100
Cyclohexanone	<100	NA	<100	<100	NA	<100	<100
Decanal	<100	NA	<100	<100	NA	<100	<100
Formaldehyde	<100	NA	<100	<100	NA	<100	<100
Heptanal	<100	NA	<100	38 J	NA	<100	<100
Hexanal	<100	NA	<100	<100	NA	<100	<100
m-Tolualdehyde	<100	NA	<100	<100	NA	<100	<100
Nonanal	<100	NA	<100	<100	NA	<100	<100
Octanal	<100	NA	<100	<100	NA	<100	<100
Paraldehyde	<100	NA	<100	<500	NA	<100	<100
Pentanal	<100	NA	<100	25 J	NA	<100	<100
Propanal	<100	NA	<100	<100	NA	<100	<100
Inorganics							
Alkalinity	650,000	NA	480,000	640,000	NA	130,000	150,000
Bicarbonate	NA	NA	NA	NA	NA	NA	NA
Chloride	11,000	NA	5,500	8,600	NA	1,300	1,400

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-63A (continued)					GM-63B	
Top of Screen Depth (ft bls)	45	45	45	45	45	105	105
Sample Date	09/19/00	10/18/00	09/15/03	05/05/04	05/05/04	02/07/01	09/11/03
Sample ID	GWGM-63A	GWGM-63A	GM-63A	GWGM-63A (5/5/04)	GWGM-63A (5/5/04)-DL	GWGM-63B	GM-63B
Inorganics (continued)							
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<30	NA	<30	<30	NA	**110**	**180**
Nitrogen, Nitrate	<50	NA	<50	3,200	NA	<50	<50
Nitrogen, Nitrite	<50	NA	<50	<50	NA	<50	<50
Ortho-Phosphate	NA	NA	<50	<50	NA	NA	<50
Phosphate	NA	NA	NA	NA	NA	NA	NA
Phosphorus	<100	NA	<100	<100	NA	<100	<100
Silica	NA	NA	NA	NA	NA	NA	NA
Silica, Dissolved	19,000	NA	31,000	31,000	NA	21,000	17,000
Sulfate	<5,000	NA	<5,000	<5,000	NA	NA	7,100
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA
Sulfide	280	NA	<1,000	600 B	NA	<1,000	<1,000
Acetic Acid	<1,000	NA	<1,000	200 J	NA	<500	<1,000
Biochemical Oxygen Demand	20,000	NA	3,800	20,000	NA	<2,000	<2,000
Chemical Oxygen Demand	240,000	NA	180,000	260,000	NA	<20,000	<20,000
Total Organic Carbon	77,000	NA	51,000	76,000	NA	<1,000	<1,000
Density	NA	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	660,000	NA	NA	NA	NA	NA	NA
Methane	NA	52,500	36,800	48,300	NA	23	23
Suspended Solids	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-63B (continued)		GM-64A			
Top of Screen Depth (ft bls)	105	105	33	33	33	33
Sample Date	04/27/04	04/27/04	08/30/00	10/03/00	09/08/03	05/04/04
Sample ID	GWGM-63B (4/27/04)	GWGM-63B (4/27/04)-RE	GWGM-64A	GWGM-64A	GM-64A	GWGM-64A (5/4/04)
VOCs						
1,1-Dichloroethene	<1.0	NA	<1.0	<1.0 J	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	NA	<1.0	<1.0 J	<1.0	0.61 J
1,2-Dichloroethene (total)	<2.0	NA	<2.0	1.2 J	<2.0	4.1
1,3,5-Trimethylbenzene	<1.0	NA	<1.0	<1.0 J	<1.0	0.54 J
2-Butanone (MEK)	<50	NA	<50	<50 J	<50	<50
2-Hexanone	<50	NA	<50	<50 J	<50	1.5 J
4-Methyl-2-pentanone (MIBK)	<50	NA	<50	<50 J	<50	<50
Acetone	<100	NA	<100	<100 J	<100	<100
Acrylonitrile	<25	NA	<25	<25 J	<25	<25
Benzene	<1.0	NA	4.8	3.2 J	3.1	5.6
Bromochloromethane	<1.0	NA	<1.0	<1.0 J	<1.0	<1.0
Bromoform	<1.0	NA	<1.0	<1.0 J	<1.0	<1.0
Bromomethane	<1.0	NA	<1.0	<1.0 J	<1.0	<1.0
Carbon disulfide	<5.0	NA	<5.0	8.5 J	<5.0	<5.0
Chloroethane	<1.0	NA	<1.0	<1.0 J	<1.0	<1.0
Chloromethane	<1.0	NA	<1.0	<1.0 J	1.4	<1.0
cis-1,2-Dichloroethene	<1.0	NA	0.91 J	0.66 J	<1.0	3.2
Diethylether	<10	NA	<10	<10 J	<10	4.3 J
Ethylbenzene	<1.0	NA	1.8	1.2 J	1.9	2.8
Furan	<2.0	NA	NA	NA	<2.0	0.19 J
Isopropylbenzene	<1.0	NA	<1.0	<1.0 J	<1.0	<1.0
Methyl iodide	<5.0	NA	<5.0	<5.0 J	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	NA	<5.0	<5.0 J	<5.0	<5.0
Methylene chloride	<1.0	NA	<1.0	0.54 J	<1.0	<1.0
Propionitrile	<25	NA	<25	<25 J	<25	<25
Tetrachloroethene	<1.0	NA	<1.0	<1.0 J	<1.0	<1.0
Tetrahydrofuran	<2.0	NA	NA	NA	<2.0	<2.0
Toluene	<1.0	NA	3	1.7 J	1.8	3.1
trans-1,2-Dichloroethene	<1.0	NA	<1.0	0.50 J	<1.0	0.87 J
Trichloroethene	<1.0	NA	2.8	1.7 J	<1.0	1.2

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-63B (continued)		GM-64A			
Top of Screen Depth (ft bls)	105	105	33	33	33	33
Sample Date	04/27/04	04/27/04	08/30/00	10/03/00	09/08/03	05/04/04
Sample ID	GWGM-63B (4/27/04)	GWGM-63B (4/27/04)-RE	GWGM-64A	GWGM-64A	GM-64A	GWGM-64A (5/4/04)
VOCs (continued)						
Xylene, o	NA	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	NA	1.7 J	1.7 J	<3.0	3.1
Xylenes, m+p	NA	NA	NA	NA	NA	NA
SVOCs						
1,4-Dichlorobenzene	NA	<5.0	<5.0	<5.0	<5.0	<5.0
2,3-Dimethylphenol	NA	<10	NA	NA	<10	<10
2,4-Dimethylphenol	NA	NA	23	<5.0	NA	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	<10	NA	NA	<10	<10
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	<10	NA	NA	14	<10
2-Methylphenol	NA	<5.0	<5.0	<5.0	<5.0	<5.0
2-Nitrophenol	NA	<5.0	<5.0	<5.0	<5.0	<5.0
3,4-Dimethylphenol	NA	<10	NA	NA	<10	<10
3-Methylphenol	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	<5.0	<5.0	<5.0	<5.0	<5.0
4-Methylphenol	NA	NA	NA	NA	NA	NA
Anthracene	NA	<5.0	<5.0	<5.0	<5.0	<5.0
Benzo(a)anthracene	NA	<5.0	<5.0	<5.0	<5.0	<5.0
Benzo(a)pyrene	NA	0.74 J	<5.0	<5.0	<5.0	<5.0
Benzo(b)fluoranthene	NA	<5.0	<5.0	<5.0	<5.0	<5.0
Benzo(g,h,i)perylene	NA	2.3 J	1.2 J	<5.0	<5.0	<5.0
Benzo(k)fluoranthene	NA	<5.0	<5.0	<5.0	<5.0	<5.0
bis(2-Ethylhexyl)phthalate	NA	<5.0	<5.0	<5.0	<5.0	<5.0
Butylbenzylphthalate	NA	<5.0	<5.0	<5.0	<5.0	<5.0
Carbazole	NA	<5.0	<5.0	<5.0	<5.0	<5.0
Chrysene	NA	<5.0	<5.0	<5.0	<5.0	<5.0
Dibenzo(a,h)anthracene	NA	2.1 J	<5.0	<5.0	<5.0	<5.0
Diethylphthalate	NA	<5.0	<5.0	<5.0	<5.0	<5.0
Di-n-butylphthalate	NA	<5.0	<5.0	<5.0	<5.0	1.2 J

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-63B (continued)		GM-64A			
Top of Screen Depth (ft bls)	105	105	33	33	33	33
Sample Date	04/27/04	04/27/04	08/30/00	10/03/00	09/08/03	05/04/04
Sample ID	GWGM-63B (4/27/04)	GWGM-63B (4/27/04)-RE	GWGM-64A	GWGM-64A	GM-64A	GWGM-64A (5/4/04)
SVOCs (continued)						
Di-n-octylphthalate	NA	<5.0	<5.0	<5.0	<5.0	<5.0
Fluoranthene	NA	<5.0	<5.0	<5.0	<5.0	<5.0
Indeno(1,2,3-c,d)pyrene	NA	2.2 J	<5.0	<5.0	<5.0	<5.0
Naphthalene	NA	<5.0	<5.0	<5.0	<5.0	1.0 J
Phenol	NA	<5.0	<5.0	<5.0	<5.0	<5.0
Pyrene	NA	<5.0	<5.0	<5.0	<5.0	<5.0
Metals						
Aluminum	10 B	NA	NA	NA	<200	60 B
Aluminum-DISS	<200	NA	<200	<200	<200	30 B
Antimony	<50	NA	NA	NA	<50	<50
Antimony-DISS	<50	NA	<50	<50	<50	<50
Arsenic	16 B	NA	NA	NA	24	27
Arsenic-DISS	22	NA	23	22 J	22	27
Barium	30 B	NA	NA	NA	**430**	**550**
Barium-DISS	29 B	NA	**500**	**430 J**	**430**	**530**
Beryllium-DISS	<1.0	NA	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	NA	NA	NA	<0.50 WN	<0.50
Cadmium-DISS	<0.50	NA	<0.50	<0.50	<0.50 WN	<0.50
Calcium	24,000	NA	NA	NA	96,000	100,000
Calcium-DISS	24,000	NA	100,000	86,000	95,000	100,000
Chromium	<5.0	NA	NA	NA	<5.0	<5.0
Chromium-DISS	<5.0	NA	<5.0	<5.0	<5.0	<5.0
Cobalt	<10	NA	NA	NA	<10	6.3 B
Cobalt-DISS	<10	NA	5.1 B	4.4 B	<10	6.0 B
Copper	<25	NA	NA	NA	<20	<25
Copper-DISS	<25	NA	<0.60	<25	<20	<25
Iron	47 B	NA	NA	NA	11,000	16,000
Iron-DISS	<100	NA	13,000	10,000	11,000	16,000

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-63B (continued)		GM-64A			
Top of Screen Depth (ft bls)	105	105	33	33	33	33
Sample Date	04/27/04	04/27/04	08/30/00	10/03/00	09/08/03	05/04/04
Sample ID	GWGM-63B (4/27/04)	GWGM-63B (4/27/04)-RE	GWGM-64A	GWGM-64A	GM-64A	GWGM-64A (5/4/04)
Metals (continued)						
Lead	<3.0	NA	NA	NA	<3.0	<3.0
Lead-DISS	<3.0	NA	<3.0	<3.0	<3.0	<3.0
Magnesium	15,000	NA	NA	NA	72,000	96,000
Magnesium-DISS	16,000	NA	96,000	72,000	71,000	95,000
Manganese	36	NA	NA	NA	1,600	1,400
Manganese-DISS	35	NA	1,700	1,700	1,600	1,400
Mercury	<0.20	NA	NA	NA	<0.20	<0.20
Mercury-DISS	<0.20	NA	<0.20	<0.20	<0.20	<0.20
Molybdenum	7.9 B	NA	NA	NA	<10	4.9 B
Molybdenum-DISS	7.7 B	NA	6.2 B	5.8 B	<10	5.9 B
Nickel	<25	NA	NA	NA	<25	3.4 B
Nickel-DISS	<25	NA	1.8 B	1.5 B	<25	3.2 B
Potassium	4,200	NA	NA	NA	3,300	3,800
Potassium-DISS	4,000	NA	3,500	3,000	3,300	3,800
Selenium	<5.0	NA	NA	NA	<5.0	<5.0
Selenium-DISS	<5.0	NA	<5.0	<5.0	<5.0	<5.0
Silver	<0.20	NA	NA	NA	<0.20 WN	<0.20
Silver-DISS	<0.20	NA	<0.20	<0.15 WN	<0.20 WN	<0.20
Sodium	8,200	NA	NA	NA	9,200	11,000
Sodium-DISS	8,100	NA	9,400	7500 J	9,300	11,000
Thallium	<2.0	NA	NA	NA	<2.0 WN	<2.0
Thallium-DISS	<2.0	NA	<2.0 J	<2.0 J	<2.0 WN	<2.0
Titanium	0.61 B	NA	NA	NA	<10	2.6 B
Titanium-DISS	<50	NA	1.0 B	0.54 B	<10	1.5 B
Vanadium	0.65 B	NA	NA	NA	<10	3.7 B
Vanadium-DISS	0.51 B	NA	<5.2	<2.8	<10	3.0 B
Zinc	3.4 B	NA	NA	NA	<20	24
Zinc-DISS	1.8 B	NA	<4.9	<1.4	<20	0.72 B

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-63B (continued)		GM-64A			
Top of Screen Depth (ft bls)	105	105	33	33	33	33
Sample Date	04/27/04	04/27/04	08/30/00	10/03/00	09/08/03	05/04/04
Sample ID	GWGM-63B (4/27/04)	GWGM-63B (4/27/04)-RE	GWGM-64A	GWGM-64A	GM-64A	GWGM-64A (5/4/04)
Alcohols						
1,4-Dioxane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Acetonitrile	<50	NA	<50	<50 J	<50	<50
Ethanol	<1,000	NA	<1,000	<1,000 J	<1,000	<1,000
Ethylacetate	<5,000	NA	<5,000	<5,000 J	<5,000	<5,000
Ethylene glycol	<5,000	NA	NA	NA	<5,000	1,100 J
Isobutanol	<1,000	NA	<1,000	<1,000 J	<1,000	<1,000
Isopropanol	<1,000	NA	<1,000	<1,000 J	<1,000	<1,000
Methanol	460 J	NA	<1,000	<1,000 J	<1,000	**920 J**
n-Butanol	<1,000	NA	<1,000 J	<1,000 J	17,000	<1,000
Aldehydes						
Acetaldehyde	<100	NA	<100	<100	<100	<100
Butanal	<100	NA	<100	<100	<100	<100
Crotonaldehyde	<100	NA	<100	<100	<100	<100
Cyclohexanone	<100	NA	<100	<100	<100	<100
Decanal	<100	NA	<100	<100	<100	<100
Formaldehyde	<100	NA	<100	<100	<100	<100
Heptanal	<100	NA	<100	<100	<100	30 J
Hexanal	<100	NA	<100	<100	<100	<100
m-Tolualdehyde	<100	NA	<100	<100	<100	<100
Nonanal	<100	NA	<100	<100	<100	<100
Octanal	<100	NA	<100	<100	<100	13 J
Paraldehyde	<100	NA	<100	<100	<100	<100
Pentanal	<100	NA	<100	<100	<100	58 J
Propanal	<100	NA	<100	<100	<100	<100
Inorganics						
Alkalinity	150,000	NA	640,000	480,000	490,000	660,000
Bicarbonate	NA	NA	NA	NA	NA	NA
Chloride	1,500	NA	20,000	19,000	24,000	25,000

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-63B (continued)		GM-64A			
Top of Screen Depth (ft bls)	105	105	33	33	33	33
Sample Date	04/27/04	04/27/04	08/30/00	10/03/00	09/08/03	05/04/04
Sample ID	GWGM-63B (4/27/04)	GWGM-63B (4/27/04)-RE	GWGM-64A	GWGM-64A	GM-64A	GWGM-64A (5/4/04)
Inorganics (continued)						
Chlorides Soluble	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	$\boxed{44}$	NA	<30	<30	$\boxed{35}$	<30
Nitrogen, Nitrate	<50	NA	<50	190	<50	<50
Nitrogen, Nitrite	<50	NA	<50	<50	<50	<50
Ortho-Phosphate	52	NA	NA	NA	<50	<50
Phosphate	NA	NA	NA	NA	NA	NA
Phosphorus	<100	NA	<100	<100	<100	52 B
Silica	NA	NA	NA	NA	NA	NA
Silica, Dissolved	15,000	NA	37,000	37,000	35,000	41,000
Sulfate	6,800	NA	<5,000	<5,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	NA	<100 J	100	<1,000	<1,000
Acetic Acid	<500	NA	NA	<500	<1,000	<500
Biochemical Oxygen Demand	<2,000	NA	<2,000	<2,000	<2,000	2,700
Chemical Oxygen Demand	12,000 J	NA	110,000	72,000	69,000	120,000
Total Organic Carbon	<1,000	NA	29,000	22,000	18,000	32,000
Density	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	660,000	NA	NA	NA
Methane	30	NA	35,600	44,100	37,400	36,900
Suspended Solids	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-64B					GM-66A	
Top of Screen Depth (ft bls)	117	117	117	117	117	27	27
Sample Date	07/24/00	10/04/00	09/08/03	05/11/04	05/11/04	07/18/00	09/16/03
Sample ID	GWGM-64B	GWGM-64B	GM-64B	GWGM-64B (5/11/04)	GWGM-64B (5/11/04)-DL	GWGM-66A	GM-66A
VOCs							
1,1-Dichloroethene	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
1,2,4-Trimethylbenzene	0.62 J	NA	<1.0	<1.0	NA	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	NA	<2.0	<2.0	NA	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
2-Butanone (MEK)	<50 J	NA	<50	<50	NA	<50 J	<50
2-Hexanone	<50 J	NA	<50	<50	NA	<50 J	<50
4-Methyl-2-pentanone (MIBK)	<50	NA	<50	<50	NA	<50	<50
Acetone	<100 J	NA	<100	<100	NA	<100 J	<100
Acrylonitrile	R	NA	<25	<25	NA	R	<25
Benzene	10	NA	9.2	11	NA	<1.0	<1.0
Bromochloromethane	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
Bromoform	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
Bromomethane	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
Carbon disulfide	<5.0	NA	<5.0	<5.0	NA	<5.0	<5.0
Chloroethane	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
Chloromethane	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
Diethylether	<10	NA	17	19	NA	<10	<10
Ethylbenzene	1.2	NA	1.2	1.3	NA	<1.0	<1.0
Furan	NA	NA	<2.0	0.44 J	NA	NA	<2.0
Isopropylbenzene	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
Methyl iodide	<5.0	NA	<5.0	<5.0	NA	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	NA	<5.0	<5.0	NA	<5.0	<5.0
Methylene chloride	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
Propionitrile	<25	NA	<25	<25	NA	<25	<25
Tetrachloroethene	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
Tetrahydrofuran	NA	NA	<2.0	<2.0	NA	NA	<2.0
Toluene	6.2	NA	5.4	13	NA	<1.0	<1.0
trans-1,2-Dichloroethene	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
Trichloroethene	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-64B					GM-66A	
Top of Screen Depth (ft bls)	117	117	117	117	117	27	27
Sample Date	07/24/00	10/04/00	09/08/03	05/11/04	05/11/04	07/18/00	09/16/03
Sample ID	GWGM-64B	GWGM-64B	GM-64B	GWGM-64B (5/11/04)	GWGM-64B (5/11/04)-DL	GWGM-66A	GM-66A
VOCs (continued)							
Xylene, o	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	5	NA	5.3	5.6	NA	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA
SVOCs							
1,4-Dichlorobenzene	<25	NA	<20	<5.0	<25	<5.0	<5.0
2,3-Dimethylphenol	NA	NA	<40	40	37 DJ	NA	<10
2,4-Dimethylphenol	**430**	**490 DJ**	NA	NA	NA	<5.0	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	**510**	**490 E**	**610 D**	NA	<10
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	<40	140	140 D	NA	<10
2-Methylphenol	<25	<5.0 J	<20	<5.0	<25	<5.0	<5.0
2-Nitrophenol	<25	NA	<20	<5.0	<25	<5.0	<5.0
3,4-Dimethylphenol	NA	NA	<40	<10	<50	NA	<10
3-Methylphenol	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<25	<5.0 J	<20	<5.0	<25	<5.0	<5.0
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA
Anthracene	<25	NA	<20	<5.0	<25	<5.0	<5.0
Benzo(a)anthracene	<25	NA	<20	<5.0	<25	<5.0	<5.0
Benzo(a)pyrene	<25	NA	<20	<5.0	<25	<5.0	<5.0
Benzo(b)fluoranthene	<25	NA	<20	<5.0	<25	<5.0	<5.0
Benzo(g,h,i)perylene	<25	NA	<20	<5.0	<25	<5.0	<5.0
Benzo(k)fluoranthene	<25	NA	<20	<5.0	<25	<5.0	<5.0
bis(2-Ethylhexyl)phthalate	<25	NA	<20	<5.0	<25	<5.0	<5.0
Butylbenzylphthalate	<25	NA	<20	<5.0	<25	<5.0	<5.0
Carbazole	<25	NA	<20	<5.0	<25	<5.0	<5.0
Chrysene	<25	NA	<20	<5.0	<25	<5.0	<5.0
Dibenzo(a,h)anthracene	<25	NA	<20	<5.0	<25	<5.0	<5.0
Diethylphthalate	<25	NA	<20	<5.0	<25	<5.0	<5.0
Di-n-butylphthalate	<25	NA	<20	<5.0	<25	<5.0	<5.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-64B					GM-66A	
Top of Screen Depth (ft bls)	117	117	117	117	117	27	27
Sample Date	07/24/00	10/04/00	09/08/03	05/11/04	05/11/04	07/18/00	09/16/03
Sample ID	GWGM-64B	GWGM-64B	GM-64B	GWGM-64B (5/11/04)	GWGM-64B (5/11/04)-DL	GWGM-66A	GM-66A
SVOCs (continued)							
Di-n-octylphthalate	<25	NA	<20	<5.0	<25	<5.0	<5.0
Fluoranthene	<25	NA	<20	<5.0	<25	<5.0	<5.0
Indeno(1,2,3-c,d)pyrene	<25	NA	<20	<5.0	<25	<5.0 J	<5.0
Naphthalene	<25	NA	<20	<5.0	<25	<5.0	<5.0
Phenol	<25	<5.0 J	<20	<5.0	<25	<5.0	<5.0
Pyrene	<25	NA	<20	<5.0	<25	<5.0	<5.0
Metals							
Aluminum	NA	NA	<200	15 B	NA	NA	<200
Aluminum-DISS	<26	NA	<200	<200	NA	<29	<200
Antimony	NA	NA	<50	<50	NA	NA	<50
Antimony-DISS	<50	NA	<50	<50	NA	<50	<50
Arsenic	NA	NA	<10	12 B	NA	NA	70
Arsenic-DISS	4.0 B	NA	<10	13 B	NA	33	72
Barium	NA	NA	**410**	**410**	NA	NA	<100
Barium-DISS	260	NA	**410**	**420**	NA	49 B	<100
Beryllium-DISS	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0
Cadmium	NA	NA	<0.50 WN	<0.50 *F5	NA	NA	<0.50 WN
Cadmium-DISS	<0.50	NA	<0.50 WN	<0.50 *F5	NA	<0.50	<0.50 WN
Calcium	NA	NA	150,000	140,000	NA	NA	96,000
Calcium-DISS	120,000	120,000	150,000	150,000	NA	89,000	97,000
Chromium	NA	NA	<5.0	0.59 B	NA	NA	<5.0
Chromium-DISS	<5.0	NA	<5.0	<5.0	NA	<5.0	<5.0
Cobalt	NA	NA	<10	2.1 B	NA	NA	<10
Cobalt-DISS	1.4 B	NA	<10	1.9 B	NA	<10	<10
Copper	NA	NA	<20	<25	NA	NA	<25
Copper-DISS	<0.99	NA	<20	<25	NA	<25	<25
Iron	NA	NA	8,300	8,800	NA	NA	4,700
Iron-DISS	190	4,300	8,000	8,900	NA	320	4,700

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-64B					GM-66A	
Top of Screen Depth (ft bls)	117	117	117	117	117	27	27
Sample Date	07/24/00	10/04/00	09/08/03	05/11/04	05/11/04	07/18/00	09/16/03
Sample ID	GWGM-64B	GWGM-64B	GM-64B	GWGM-64B (5/11/04)	GWGM-64B (5/11/04)-DL	GWGM-66A	GM-66A
Metals (continued)							
Lead	NA	NA	<3.0	<3.0	NA	NA	<3.0
Lead-DISS	<3.0	NA	<3.0	<3.0	NA	<3.0	<3.0
Magnesium	NA	NA	120,000	110,000	NA	NA	55,000
Magnesium-DISS	95,000	95,000	120,000	110,000	NA	51,000	55,000
Manganese	NA	NA	330	280	NA	NA	540
Manganese-DISS	330	NA	320	270	NA	520	540
Mercury	NA	NA	<0.20	<0.20	NA	NA	<0.20
Mercury-DISS	<0.20	NA	<0.20	<0.20	NA	<0.20	<0.20
Molybdenum	NA	NA	<10	3.0 B	NA	NA	<10
Molybdenum-DISS	21	NA	<10	4.9 B	NA	3.3 B	<10
Nickel	NA	NA	<25	1.8 B	NA	NA	<25
Nickel-DISS	<25	NA	<25	1.1 B	NA	<25	<25
Potassium	NA	NA	4,100	4,500	NA	NA	3100
Potassium-DISS	4,200	3,700	4,200	4,700	NA	2700	3100
Selenium	NA	NA	<5.0	<5.0	NA	NA	<5.0
Selenium-DISS	<5.0	NA	<5.0	<5.0	NA	<5.0	<5.0
Silver	NA	NA	<0.20 WN	<0.20	NA	NA	<0.20 WN
Silver-DISS	<0.20	NA	<0.20 WN	<0.20	NA	<0.20	<0.20 WN
Sodium	NA	NA	12,000	11,000	NA	NA	NA
Sodium-DISS	43,000	31,000 J	12,000	11,000	NA	24,000	NA
Thallium	NA	NA	<2.0 WN	0.35 B*F5	NA	NA	<2.0 WN
Thallium-DISS	<2.0	NA	<2.0 WN	0.55 B*F5	NA	<2.0	<2.0 WN
Titanium	NA	NA	<10	1.5 B	NA	NA	<50
Titanium-DISS	0.26 B	NA	<10	1.3 B	NA	<50	<50
Vanadium	NA	NA	<10	8.1 B	NA	NA	<20
Vanadium-DISS	<20	NA	<10	7.8 B	NA	<20	<20
Zinc	NA	NA	27	3.9 B	NA	NA	<20
Zinc-DISS	<1.8	NA	<20	8.6 B	NA	1.7 BJ	<20

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-64B					GM-66A	
Top of Screen Depth (ft bls)	117	117	117	117	117	27	27
Sample Date	07/24/00	10/04/00	09/08/03	05/11/04	05/11/04	07/18/00	09/16/03
Sample ID	GWGM-64B	GWGM-64B	GM-64B	GWGM-64B (5/11/04)	GWGM-64B (5/11/04)-DL	GWGM-66A	GM-66A
Alcohols							
1,4-Dioxane	<25	NA	<20	<5.0	<25	<5.0 J	<5.0
Acetonitrile	<50	NA	<50	<50	NA	<50	<50
Ethanol	<1,000	NA	<1,000	<1,000	NA	<1,000	<1,000
Ethylacetate	<5,000	NA	<5,000	<5,000	NA	<5,000	<5,000
Ethylene glycol	NA	NA	<5,000	<5,000	NA	NA	<5,000
Isobutanol	<1,000	NA	<1,000	<1,000	NA	<1,000	<1,000
Isopropanol	<1,000 J	NA	<1,000	<1,000	NA	<1,000 J	<1,000
Methanol	<1,000	NA	<1,000	**2,400**	NA	<1,000	<1,000
n-Butanol	<1,000	NA	19,000	<1,000	NA	<1,000	3,000
Aldehydes							
Acetaldehyde	130	NA	<100	<100	NA	100 J	<100
Butanal	<100	NA	<100	<100	NA	<100 J	<100
Crotonaldehyde	<100	NA	<100	<100	NA	<100 J	<100
Cyclohexanone	<100	NA	<100	<100	NA	<100 J	<100
Decanal	<100	NA	<100	<100	NA	<100 J	<100
Formaldehyde	<100	NA	<100	<100	NA	<100 J	<100
Heptanal	<100	NA	<100	<100	NA	<100 J	<100
Hexanal	<100	NA	<100	120	NA	<100 J	<100
m-Tolualdehyde	<100	NA	<100	51 J	NA	<100 J	<100
Nonanal	<100	NA	<100	<100	NA	<100 J	<100
Octanal	<100	NA	<100	<100	NA	<100 J	<100
Paraldehyde	<100	NA	<100	<100	NA	<100	<100
Pentanal	<100	NA	<100	26 J	NA	<100 J	<100
Propanal	<100	NA	<100	<100	NA	<100 J	<100
Inorganics							
Alkalinity	720,000	NA	820,000	850,000	NA	320,000	350,000
Bicarbonate	NA	780,000	NA	NA	NA	NA	NA
Chloride	9,100	7,300	8,600	9,700	NA	**110,000**	**130,000**

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-64B					GM-66A	
Top of Screen Depth (ft bls)	117	117	117	117	117	27	27
Sample Date	07/24/00	10/04/00	09/08/03	05/11/04	05/11/04	07/18/00	09/16/03
Sample ID	GWGM-64B	GWGM-64B	GM-64B	GWGM-64B (5/11/04)	GWGM-64B (5/11/04)-DL	GWGM-66A	GM-66A
Inorganics (continued)							
Chlorides Soluble	NA	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<30	NA	**42**	29 B	NA	<30	**55**
Nitrogen, Nitrate	<50	NA	<50	<50	NA	<50	<50
Nitrogen, Nitrite	<50	NA	<50	<50	NA	<50	<50
Ortho-Phosphate	190	NA	<50	<50	NA	74	<50
Phosphate	NA	NA	NA	NA	NA	NA	NA
Phosphorus	NA	NA	<100	89 J	NA	NA	<100
Silica	NA	NA	NA	NA	NA	NA	NA
Silica, Dissolved	28,000	NA	36,000	34,000	NA	26,000	31,000
Sulfate	<5,000	<5,000	<5,000	<5,000	NA	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA	NA
Sulfide	<100 J	NA	<1,000	<1,000	NA	<100 J	<1,000
Acetic Acid	<500	NA	<1,000	400 J	NA	<500	<1,000
Biochemical Oxygen Demand	37,000	NA	9,100	8,400	NA	<2,000	<2,000
Chemical Oxygen Demand	200,000 J	NA	220,000	220,000	NA	<20,000 J	<20,000
Total Organic Carbon	63,000	NA	67,000	63,000	NA	<1,000	2,000
Density	NA	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	690,000	NA	NA	NA	NA	430,000	NA
Methane	NA	NA	32,900	91,800	NA	26,900	38,700
Suspended Solids	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66A (continued)				GM-66B	
Top of Screen Depth (ft bls)	27	27	27	27	125	125
Sample Date	04/27/04	04/27/04	07/27/05	09/16/03	07/19/00	08/03/00
Sample ID	GWGM-66A (4/27/04)	GWGM-66A (4/27/04)-DL	GWGM66A (072705)	GM-66A-DL	GWGM-66B	GMGW-66B
VOCs						
1,1-Dichloroethene	<1.0	NA	<1.0	NA	<1.0	<1
1,2,4-Trimethylbenzene	<1.0	NA	<1.0	NA	0.72 J	<1
1,2-Dichloroethene (total)	<2.0	NA	<2.0	NA	<2.0	<2
1,3,5-Trimethylbenzene	<1.0	NA	<1.0	NA	0.50 J	<1
2-Butanone (MEK)	<50	NA	<50	NA	<50 J	<50
2-Hexanone	<50	NA	<50	NA	<50 J	<50
4-Methyl-2-pentanone (MIBK)	<50	NA	<50	NA	<50	<50
Acetone	<100	NA	<100	NA	<100 J	<100
Acrylonitrile	<25	NA	<25	NA	R	<25
Benzene	<1.0	NA	<1.0	NA	7.5	7.9
Bromochloromethane	<1.0	NA	<1.0	NA	<1.0	<1
Bromoform	<1.0	NA	<1.0	NA	<1.0	<1
Bromomethane	<1.0	NA	<1.0	NA	<1.0	<1 J
Carbon disulfide	<5.0	NA	<5.0	NA	<5.0	<5
Chloroethane	<1.0	NA	<1.0	NA	<1.0	<1 J
Chloromethane	<1.0	NA	<1.0	NA	<1.0	<1
cis-1,2-Dichloroethene	<1.0	NA	<1.0	NA	0.62 J	<1
Diethylether	<10	NA	<10	NA	<10	R
Ethylbenzene	<1.0	NA	<1.0	NA	1.8	1.5
Furan	<2.0	NA	<10	NA	NA	NA
Isopropylbenzene	<1.0	NA	<1.0	NA	<1.0	<1
Methyl iodide	<5.0	NA	<5.0	NA	<5.0	<5
Methyl(tert)butyl ether	2.1 J	NA	<5.0	NA	<5.0	<5
Methylene chloride	<1.0	NA	<1.0	NA	<1.0	<1
Propionitrile	<25	NA	<25	NA	<25	<25
Tetrachloroethene	<1.0	NA	<1.0	NA	<1.0	<1
Tetrahydrofuran	<2.0	NA	<10	NA	NA	NA
Toluene	<1.0	NA	<1.0	NA	16	5.5
trans-1,2-Dichloroethene	<1.0	NA	<1.0	NA	<1.0	<1
Trichloroethene	<1.0	NA	<1.0	NA	0.64 J	0.64 J

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66A (continued)				GM-66B	
Top of Screen Depth (ft bls)	27	27	27	27	125	125
Sample Date	04/27/04	04/27/04	07/27/05	09/16/03	07/19/00	08/03/00
Sample ID	GWGM-66A (4/27/04)	GWGM-66A (4/27/04)-DL	GWGM66A (072705)	GM-66A-DL	GWGM-66B	GMGW-66B
VOCs (continued)						
Xylene, o	NA	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	NA	<3.0	NA	5.4	4.6
Xylenes, m+p	NA	NA	NA	NA	NA	NA
SVOCs						
1,4-Dichlorobenzene	<5.0	NA	<4.7	NA	<5.0	<100
2,3-Dimethylphenol	<10	NA	<9.4	NA	NA	NA
2,4-Dimethylphenol	NA	NA	<4.7	NA	<5.0	$\boxed{510}$
2,4-Dimethylphenol/2,5-Dimethylphenol	<10	NA	<9.4	NA	NA	NA
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	<10	NA	<9.4	NA	NA	NA
2-Methylphenol	<5.0	NA	<4.7	NA	<5.0	<100
2-Nitrophenol	<5.0	NA	<4.7	NA	<5.0	<100
3,4-Dimethylphenol	<10	NA	<9.4	NA	NA	NA
3-Methylphenol	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	NA	<4.7	NA	<5.0	<100
4-Methylphenol	NA	NA	NA	NA	NA	NA
Anthracene	<5.0	NA	<4.7	NA	<5.0	<100
Benzo(a)anthracene	<5.0	NA	<4.7	NA	1.5 J	<100
Benzo(a)pyrene	<5.0	NA	<4.7	NA	1.7 J	<100
Benzo(b)fluoranthene	<5.0	NA	<4.7	NA	<5.0	<100
Benzo(g,h,i)perylene	<5.0	NA	<4.7	NA	1.3 J	<100
Benzo(k)fluoranthene	<5.0	NA	<4.7	NA	1.9 J	<100
bis(2-Ethylhexyl)phthalate	<5.0	NA	1.0 J	NA	4.1 J	24 J
Butylbenzylphthalate	<5.0	NA	<4.7	NA	1.9 J	<100
Carbazole	<5.0	NA	<4.7	NA	1.1 J	<100
Chrysene	<5.0	NA	<4.7	NA	1.6 J	<100
Dibenzo(a,h)anthracene	<5.0	NA	<4.7	NA	<5.0	<100
Diethylphthalate	<5.0	NA	<4.7	NA	<5.0	<100
Di-n-butylphthalate	<5.0	NA	<4.7	NA	1.7 J	<100

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66A (continued)				GM-66B	
Top of Screen Depth (ft bls)	27	27	27	27	125	125
Sample Date	04/27/04	04/27/04	07/27/05	09/16/03	07/19/00	08/03/00
Sample ID	GWGM-66A (4/27/04)	GWGM-66A (4/27/04)-DL	GWGM66A (072705)	GM-66A-DL	GWGM-66B	GMGW-66B
SVOCs (continued)						
Di-n-octylphthalate	<5.0	NA	<4.7	NA	<5.0	<100
Fluoranthene	<5.0	NA	<4.7	NA	0.88 J	<100
Indeno(1,2,3-c,d)pyrene	<5.0	NA	<4.7	NA	0.86 J	<100
Naphthalene	<5.0	NA	<4.7	NA	<5.0	<100
Phenol	<5.0	NA	<4.7	NA	<5.0	<100
Pyrene	<5.0	NA	<4.7	NA	1.7 J	<100
Metals						
Aluminum	<200	NA	<200	NA	NA	NA
Aluminum-DISS	<200	NA	<200	NA	<29	<21
Antimony	<50	NA	<50	NA	NA	NA
Antimony-DISS	<50	NA	<50	NA	<50	<50
Arsenic	78	NA	82	NA	NA	NA
Arsenic-DISS	74	NA	74	NA	11	<11
Barium	68 B	NA	64 J	NA	NA	NA
Barium-DISS	65 B	NA	62 J	NA	220	200
Beryllium-DISS	<1.0	NA	<1.0	NA	<1.0	<1
Cadmium	<0.50	NA	<0.50	NA	NA	NA
Cadmium-DISS	<0.50	NA	0.11 J	NA	<0.50	<0.5 W
Calcium	100,000	NA	98,000	NA	NA	NA
Calcium-DISS	99,000	NA	98,000	NA	110,000	110,000
Chromium	<5.0	NA	7	NA	NA	NA
Chromium-DISS	<5.0	NA	<5.0	NA	<5.0	<0.82
Cobalt	<10	NA	0.71 J	NA	NA	NA
Cobalt-DISS	<10	NA	0.60 J	NA	1.1 B	0.72 B
Copper	<25	NA	<25	NA	NA	NA
Copper-DISS	<25	NA	<25	NA	<25	0.51 B
Iron	5,300	NA	6,600	NA	NA	NA
Iron-DISS	4,900	NA	5,900	NA	170	330 J

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66A (continued)				GM-66B	
Top of Screen Depth (ft bls)	27	27	27	27	125	125
Sample Date	04/27/04	04/27/04	07/27/05	09/16/03	07/19/00	08/03/00
Sample ID	GWGM-66A (4/27/04)	GWGM-66A (4/27/04)-DL	GWGM66A (072705)	GM-66A-DL	GWGM-66B	GMGW-66B
Metals (continued)						
Lead	<3.0	NA	<3.0	NA	NA	NA
Lead-DISS	<3.0	NA	0.50 J	NA	<3.0	<3
Magnesium	56,000	NA	53,000	NA	NA	NA
Magnesium-DISS	55,000	NA	55,000	NA	130,000	130,000
Manganese	550	NA	530	NA	NA	NA
Manganese-DISS	550	NA	590	NA	240	140
Mercury	<0.20	NA	<0.20	NA	NA	NA
Mercury-DISS	<0.20	NA	<0.20	NA	<0.20	<0.2 J
Molybdenum	2.8 B	NA	1.9 J	NA	NA	NA
Molybdenum-DISS	3.1 B	NA	2.4 J	NA	4.9 B	2.9 B
Nickel	<25	NA	0.59 J	NA	NA	NA
Nickel-DISS	1.3 B	NA	0.91 J	NA	1.1 B	<25
Potassium	3,400	NA	2,400	NA	NA	NA
Potassium-DISS	3,300	NA	2,600	NA	6,000	5,500
Selenium	<5.0	NA	<5.0	NA	NA	NA
Selenium-DISS	<5.0	NA	<5.0	NA	<5.0	<5 J
Silver	<0.20	NA	<0.20	NA	NA	NA
Silver-DISS	<0.20	NA	<0.20	NA	<0.20	<0.2 J
Sodium	NA	43,000	40,000	39,000	NA	NA
Sodium-DISS	NA	42,000	42,000	39,000	18,000	18,000
Thallium	<2.0	NA	0.46 J	NA	NA	NA
Thallium-DISS	<2.0	NA	0.25 J	NA	<2.0	<2
Titanium	<50	NA	2.6 J	NA	NA	NA
Titanium-DISS	0.51 B	NA	2.0 J	NA	0.29 B	<0.27
Vanadium	<20	NA	**22**	NA	NA	NA
Vanadium-DISS	<20	NA	<20	NA	<1.1	<2
Zinc	<20	NA	<20	NA	NA	NA
Zinc-DISS	<20	NA	<20	NA	4.0 BJ	<1.4

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66A (continued)				GM-66B	
Top of Screen Depth (ft bls)	27	27	27	27	125	125
Sample Date	04/27/04	04/27/04	07/27/05	09/16/03	07/19/00	08/03/00
Sample ID	GWGM-66A (4/27/04)	GWGM-66A (4/27/04)-DL	GWGM66A (072705)	GM-66A-DL	GWGM-66B	GMGW-66B
Alcohols						
1,4-Dioxane	<5.0	NA	<4.7	NA	<5.0 J	<100 J
Acetonitrile	<50	NA	<50	NA	<50	<50
Ethanol	<1,000	NA	<1,000	NA	<1,000	<1,000
Ethylacetate	<5,000	NA	<5,000	NA	<5,000	<5,000
Ethylene glycol	<5,000	NA	<10,000	NA	NA	NA
Isobutanol	<1,000	NA	<1,000	NA	<1,000 J	<1,000 J
Isopropanol	<1,000	NA	<1,000	NA	<1,000	<1,000
Methanol	<1,000	NA	<1,000	NA	<1,000	<1,000
n-Butanol	<1,000	NA	<1,000	NA	<1,000	<1,000
Aldehydes						
Acetaldehyde	<100	NA	<100	NA	<100 J	$\boxed{\textbf{160 J}}$
Butanal	<100	NA	<100	NA	<100 J	<100 J
Crotonaldehyde	<100	NA	<100	NA	<100 J	<100 J
Cyclohexanone	<100	NA	<100	NA	<100 J	<100 J
Decanal	<100	NA	<100	NA	<100 J	<100 J
Formaldehyde	<100	NA	<100	NA	<100 J	<100 J
Heptanal	<100	NA	<100	NA	<100 J	<100 J
Hexanal	<100	NA	<100	NA	<100 J	<100 J
m-Tolualdehyde	<100	NA	<100	NA	<100 J	<100 J
Nonanal	<100	NA	<100	NA	<100 J	<100 J
Octanal	<100	NA	<100	NA	<100 J	<100 J
Paraldehyde	<100	NA	<100	NA	<100	<100
Pentanal	<100	NA	<100	NA	<100 J	<100 J
Propanal	<100	NA	<100	NA	<100 J	<100 J
Inorganics						
Alkalinity	380,000	NA	370,000	NA	690,000	780,000
Bicarbonate	NA	NA	NA	NA	NA	NA
Chloride	**140,000**	NA	**150,000**	NA	14,000	14,000 J

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66A (continued)				GM-66B	
Top of Screen Depth (ft bls)	27	27	27	27	125	125
Sample Date	04/27/04	04/27/04	07/27/05	09/16/03	07/19/00	08/03/00
Sample ID	GWGM-66A (4/27/04)	GWGM-66A (4/27/04)-DL	GWGM66A (072705)	GM-66A-DL	GWGM-66B	GMGW-66B
Inorganics (continued)						
Chlorides Soluble	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	$\boxed{45}$	NA	$\boxed{35}$	NA	<30	$\boxed{32}$
Nitrogen, Nitrate	<50	NA	52	NA	<50	<50
Nitrogen, Nitrite	<50	NA	<50	NA	<50	<50
Ortho-Phosphate	<50	NA	NA	NA	180	210
Phosphate	NA	NA	<50	NA	NA	NA
Phosphorus	<100	NA	<100	NA	NA	NA
Silica	NA	NA	NA	NA	NA	NA
Silica, Dissolved	28,000	NA	24,000	NA	43,000	43,000
Sulfate	<5,000	NA	<5,000	NA	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	NA	<1,000	NA	310 J	200
Acetic Acid	<500	NA	<500	NA	**2,000**	<1,000
Biochemical Oxygen Demand	<2,000	NA	<2,000	NA	18,000	11,000
Chemical Oxygen Demand	12,000 J	NA	11,000 J	NA	200,000 J	210,000
Total Organic Carbon	<1,000	NA	720 J	NA	67,000	64,000
Density	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	770,000	800,000
Methane	37,900	NA	30,800	NA	82,600	93,200
Suspended Solids	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)					
Top of Screen Depth (ft bls)	125	125	125	125	125	125
Sample Date	09/11/03	09/11/03	05/10/04	07/27/05	12/08/06	03/01/07
Sample ID	GM-66B	GM-66B (09/11/03)	GWGM-66B (5/10/04)	GWGM66B (072705)	GWGM-66B (12/8/06)	GWGM-66B (3/1/07)
VOCs						
1,1-Dichloroethene	<1.0	NA	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	1.1	NA	0.98 J	1.3	0.66 J	<1.0
1,2-Dichloroethene (total)	<2.0	NA	1.4 J	1.8 J	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	NA	<1.0	0.55 J	<1.0	<1.0
2-Butanone (MEK)	<50	NA	<50	<50	<50	<50
2-Hexanone	<50	NA	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	NA	<50	0.84 J	<50	<50
Acetone	<100	NA	<100	<100	<100	<100
Acrylonitrile	<25	NA	<25	<25	<25	<25
Benzene	7.3	NA	6.8	8.3	2.8	2.6
Bromochloromethane	<1.0	NA	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	NA	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	NA	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	5.5	NA	<5.0	<5.0	<5.0	<5.0
Chloroethane	<1.0	NA	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	NA	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	1.4	NA	1.4	1.8	1	0.79 J
Diethylether	<10	NA	6.4 J	5.0 J	1.6 J	1.1 J
Ethylbenzene	2	NA	1.5	2	0.88 J	0.72 J
Furan	<2.0	NA	<2.0	<10	<10	<10
Isopropylbenzene	<1.0	NA	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	NA	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	NA	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<1.0	NA	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	NA	<25	<25	<25	<25
Tetrachloroethene	<1.0	NA	<1.0	<1.0	<1.0	<1.0
Tetrahydrofuran	<2.0	NA	<2.0	3.6 J	<10	<10
Toluene	5.4	NA	14	5.9	5.3	10
trans-1,2-Dichloroethene	<1.0	NA	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	NA	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)					
Top of Screen Depth (ft bls)	125	125	125	125	125	125
Sample Date	09/11/03	09/11/03	05/10/04	07/27/05	12/08/06	03/01/07
Sample ID	GM-66B	GM-66B (09/11/03)	GWGM-66B (5/10/04)	GWGM66B (072705)	GWGM-66B (12/8/06)	GWGM-66B (3/1/07)
VOCs (continued)						
Xylene, o	NA	NA	NA	NA	NA	NA
Xylenes (total)	6.1	NA	5.1	6.4	1.5 J	2.2 J
Xylenes, m+p	NA	NA	NA	NA	NA	NA
SVOCs						
1,4-Dichlorobenzene	<20	NA	<10	<9.4	<5.0	<4.7
2,3-Dimethylphenol	<40	NA	<20	<19	<10	<9.4
2,4-Dimethylphenol	NA	NA	NA	240	11	<4.7
2,4-Dimethylphenol/2,5-Dimethylphenol	**440**	NA	360	240	24	<9.4
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	<40	NA	120	130	70	40
2-Methylphenol	<20	NA	<10	<9.4	<5.0	<4.7
2-Nitrophenol	<20	NA	<10	<9.4	<5.0	<4.7
3,4-Dimethylphenol	<40	NA	67	<19	<10	<9.4
3-Methylphenol	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<20	NA	<10	<9.4	<5.0	<4.7
4-Methylphenol	NA	NA	NA	NA	NA	NA
Anthracene	<20	NA	<10	<9.4	<5.0	<4.7
Benzo(a)anthracene	<20	NA	<10	<9.4	<5.0	<4.7
Benzo(a)pyrene	<20	NA	<10	<9.4	<5.0	<4.7
Benzo(b)fluoranthene	<20	NA	<10	<9.4	<5.0	<4.7
Benzo(g,h,i)perylene	<20	NA	<10	<9.4	<5.0	<4.7
Benzo(k)fluoranthene	<20	NA	<10	<9.4	<5.0	<4.7
bis(2-Ethylhexyl)phthalate	<20	NA	<10	<9.4	<5.0	<4.7
Butylbenzylphthalate	<20	NA	<10	<9.4	<5.0	<4.7
Carbazole	<20	NA	<10	<9.4	<5.0	<4.7
Chrysene	<20	NA	<10	<9.4	<5.0	<4.7
Dibenzo(a,h)anthracene	<20	NA	<10	<9.4	<5.0	<4.7
Diethylphthalate	<20	NA	<10	<9.4	<5.0	<4.7
Di-n-butylphthalate	<20	NA	<10	<9.4	<5.0	<4.7

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)					
Top of Screen Depth (ft bls)	125	125	125	125	125	125
Sample Date	09/11/03	09/11/03	05/10/04	07/27/05	12/08/06	03/01/07
Sample ID	GM-66B	GM-66B (09/11/03)	GWGM-66B (5/10/04)	GWGM66B (072705)	GWGM-66B (12/8/06)	GWGM-66B (3/1/07)
SVOCs (continued)						
Di-n-octylphthalate	<20	NA	<10	<9.4	<5.0	<4.7
Fluoranthene	<20	NA	<10	<9.4	<5.0	<4.7
Indeno(1,2,3-c,d)pyrene	<20	NA	<10	<9.4	<5.0	<4.7
Naphthalene	<20	NA	<10	<9.4	<5.0	<4.7
Phenol	<20	NA	<10	<9.4	<5.0	<4.7
Pyrene	<20	NA	<10	<9.4	<5.0	<4.7
Metals						
Aluminum	<200	NA	390	300	34 J	390
Aluminum-DISS	<200	NA	20 B	<200	<200	30 J
Antimony	<50	NA	<50	<50	<50	<50
Antimony-DISS	<50	NA	<50	<50	<50	<50
Arsenic	57	NA	60	65	78	76
Arsenic-DISS	57	NA	54	56	92	73
Barium	280	NA	290	250	190	190 B
Barium-DISS	280	NA	270	240	210 B	190 B
Beryllium-DISS	<1.0	NA	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	NA	<0.50 *F5	<0.50	<0.50	<0.50
Cadmium-DISS	<0.50	NA	<0.50 *F5	0.12 J	<0.50	<0.50
Calcium	110,000	NA	110,000	110,000	80,000	65,000
Calcium-DISS	110,000	NA	100,000	100,000	92,000	76,000
Chromium	<5.0	NA	1.9 B	1.9 J	<5.0	<5.0
Chromium-DISS	<5.0	NA	0.56 B	<5.0	<5.0	<5.0
Cobalt	<10	NA	0.88 B	1.3 J	0.54 J	0.91 J
Cobalt-DISS	<10	NA	<10	1.1 J	0.73 J	0.55 J
Copper	<25	NA	<25	0.59 J	0.83 J	1.2 J
Copper-DISS	<25	NA	<25	0.61 J	<25	<25
Iron	14,000	NA	14,000	15,000	9,700	10,000
Iron-DISS	14,000	NA	12,000	12,000	11,000	9,400

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)					
Top of Screen Depth (ft bls)	125	125	125	125	125	125
Sample Date	09/11/03	09/11/03	05/10/04	07/27/05	12/08/06	03/01/07
Sample ID	GM-66B	GM-66B (09/11/03)	GWGM-66B (5/10/04)	GWGM66B (072705)	GWGM-66B (12/8/06)	GWGM-66B (3/1/07)
Metals (continued)						
Lead	<3.0	NA	<3.0	<3.0	<3.0	<3.0
Lead-DISS	<3.0	NA	<3.0	0.60 J	<3.0	<3.0
Magnesium	110,000	NA	110,000	110,000	79,000	72,000
Magnesium-DISS	120,000	NA	110,000	100,000	91,000	72,000
Manganese	36	NA	52	39	35	59
Manganese-DISS	36	NA	33	33	38	39
Mercury	<0.20	NA	<0.20	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	NA	<0.20	<0.20	<0.20	<0.20
Molybdenum	<10	NA	1.4 B	1.7 J	<10	<10
Molybdenum-DISS	<10	NA	1.6 B	2.1 J	1.7 J	<10
Nickel	<25	NA	2.1 B	1.6 J	0.97 J	1.4 J
Nickel-DISS	<25	NA	1.7 B	1.7 J	1.1 J	<25
Potassium	4,300	NA	5,000	3,600	2,900	3,200
Potassium-DISS	4,400	NA	4,600	3,600	3,600	3,000
Selenium	<5.0	NA	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	NA	<5.0	<5.0	<5.0	<5.0
Silver	<0.20 W	NA	<0.20	<0.20	<0.20	<0.20
Silver-DISS	<0.20 W	NA	0.12 B	<0.20	<0.20	<0.20
Sodium	17,000	NA	18,000	16,000	14,000	13,000
Sodium-DISS	18,000	NA	17,000	16,000	17,000	13,000
Thallium	<2.0	NA	0.50 B*F5	<2.0	<2.0	<2.0
Thallium-DISS	<2.0	NA	0.60 B*F5	<2.0	<2.0	<2.0
Titanium	<50	NA	7.7 B	11 J	2.9 J	11 J
Titanium-DISS	<50	NA	2.0 B	4.6 J	4.3 J	2.5 J
Vanadium	<20	NA	7.6 B	3.8 J	<20	<20
Vanadium-DISS	<20	NA	6.3 B	<20	<20	<20
Zinc	<20	NA	11 B	15 J	9.1 J	8.1 J B
Zinc-DISS	<20	NA	3.2 B	6.4 J	17 J B	7.6 J B

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)					
Top of Screen Depth (ft bls)	125	125	125	125	125	125
Sample Date	09/11/03	09/11/03	05/10/04	07/27/05	12/08/06	03/01/07
Sample ID	GM-66B	GM-66B (09/11/03)	GWGM-66B (5/10/04)	GWGM66B (072705)	GWGM-66B (12/8/06)	GWGM-66B (3/1/07)
Alcohols						
1,4-Dioxane	<20	NA	<10	<9.4	<5.0	<4.7
Acetonitrile	<50	NA	<50	<50	<50	<50
Ethanol	<1,000	NA	<1,000	<1,000	<1,000	<1,000
Ethylacetate	<5,000	NA	<5,000	<5,000	<5,000	<5,000
Ethylene glycol	<5,000	NA	<5,000	<10,000	<10,000	<10,000
Isobutanol	<1,000	NA	<1,000	<1,000	<1,000	<1,000
Isopropanol	<1,000	NA	<1,000	<1,000	<1,000	<1,000
Methanol	<1,000	NA	**1,900**	<1,000	<1,000	<1,000
n-Butanol	20,000	NA	<1,000	<1,000	<1,000	<1,000
Aldehydes						
Acetaldehyde	NA	<100	<100	<100	<100	<100
Butanal	NA	<100	<100	<100	<100	<100
Crotonaldehyde	NA	<100	<100	<100	<100	<100
Cyclohexanone	NA	<100	<100	<100	<100	<100
Decanal	NA	<100	<100	<100	7.1 J	<100
Formaldehyde	NA	<100	<100	<100	<100	<100
Heptanal	NA	<100	19 J	22 J	7.2 J	<100
Hexanal	NA	<100	<100	61 J	<100	<100
m-Tolualdehyde	NA	<100	<100	<100	7.0 J	<100
Nonanal	NA	<100	<100	<100	4.4 J	10 J
Octanal	NA	<100	17 J	14 J	5.4 J	6.9 J
Paraldehyde	NA	<100	<100	<100	<100	<100
Pentanal	NA	<100	<100	63 J	7.9 J	17 J
Propanal	NA	<100	<100	<100	<100	<100
Inorganics						
Alkalinity	740,000	NA	710,000	680,000	470,000	480,000
Bicarbonate	NA	NA	NA	NA	NA	NA
Chloride	17,000	NA	19,000	20,000	**57,000**	**53,000**

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)					
Top of Screen Depth (ft bls)	125	125	125	125	125	125
Sample Date	09/11/03	09/11/03	05/10/04	07/27/05	12/08/06	03/01/07
Sample ID	GM-66B	GM-66B (09/11/03)	GWGM-66B (5/10/04)	GWGM66B (072705)	GWGM-66B (12/8/06)	GWGM-66B (3/1/07)
Inorganics (continued)						
Chlorides Soluble	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**250**	NA	**30**	**59**	**91**	**83 B**
Nitrogen, Nitrate	<50	NA	34 B	33 J	<250	<50 H
Nitrogen, Nitrite	<50	NA	<50	<50	<50	<50 H
Ortho-Phosphate	<50	NA	<50	NA	<50	NA
Phosphate	NA	NA	NA	<50	NA	<50 H
Phosphorus	<100	NA	160	94 J	67 J	<100
Silica	NA	NA	NA	NA	39,800	32,700
Silica, Dissolved	NA	48,000	46,000	30,000	NA	NA
Sulfate	<5,000	NA	<5,000	<5,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	NA	<1,000	<1,000	2,000	<1,000
Acetic Acid	<1,000	NA	200 J	<500	<500	740
Biochemical Oxygen Demand	9,400	NA	6,500	3,300	7,800	<2,000 H
Chemical Oxygen Demand	90,000	NA	180,000	170,000	52,000	20,000
Total Organic Carbon	54,000	NA	50,000	48,000	21,000	22,000
Density	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	NA	NA
Methane	73,200	NA	83,300	71,100	22,700	19,300
Suspended Solids	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)				
Top of Screen Depth (ft bls)	125	125	125	125	125
Sample Date	03/01/07	05/14/07	05/14/07	08/14/07	11/09/07
Sample ID	GWGM-66B (3/1/07)-RE	GWGM-66B(5/14/07)	GWGM-999 (5/14/07)	GWGM-66B (8/14/07)	GWGM-66B (11/9/07)
VOCs					
1,1-Dichloroethene	NA	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	NA	0.68 J	0.63 J	0.76 J	0.73 J
1,2-Dichloroethene (total)	NA	<2.0 *	<2.0	1.2 J	1.3 J
1,3,5-Trimethylbenzene	NA	<1.0	<1.0	0.35 J	0.34 J
2-Butanone (MEK)	NA	<50	<50	<50	0.81 J
2-Hexanone	NA	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	NA	0.57 J	<50	<50	<50
Acetone	NA	<100	<100	<100	<100
Acrylonitrile	NA	<25	<25	<25	<25
Benzene	NA	2.9	2.8	3.2	3.4
Bromochloromethane	NA	<1.0	<1.0	<1.0	<1.0
Bromoform	NA	<1.0	<1.0	<1.0	<1.0
Bromomethane	NA	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	NA	<5.0	<5.0	<5.0 *	<5.0
Chloroethane	NA	<1.0	<1.0	<1.0	<1.0
Chloromethane	NA	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	NA	1.1	1.1	1.2	1.3
Diethylether	NA	2.0 J	1.9 J	2.1 J	2.7 J
Ethylbenzene	NA	0.92 J	0.93 J	1.0 J	1.1
Furan	NA	<10	<10	<10	<10
Isopropylbenzene	NA	<1.0	<1.0	<1.0	<1.0
Methyl iodide	NA	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	NA	<5.0	<5.0	<5.0 *	<5.0
Methylene chloride	NA	<1.0	<1.0	<1.0	<1.0
Propionitrile	NA	<25	<25	<25	<25
Tetrachloroethene	NA	<1.0	<1.0	<1.0	<1.0
Tetrahydrofuran	NA	1.3 J	1.3 J	1.7 J	1.0 J
Toluene	NA	4.3	3.9	4.1	14
trans-1,2-Dichloroethene	NA	<1.0	<1.0	<1.0	<1.0
Trichloroethene	NA	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)				
Top of Screen Depth (ft bls)	125	125	125	125	125
Sample Date	03/01/07	05/14/07	05/14/07	08/14/07	11/09/07
Sample ID	GWGM-66B (3/1/07)-RE	GWGM-66B(5/14/07)	GWGM-999 (5/14/07)	GWGM-66B (8/14/07)	GWGM-66B (11/9/07)
VOCs (continued)					
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	NA	3	2.9 J	3.2	3.5
Xylenes, m+p	NA	NA	NA	NA	NA
SVOCs					
1,4-Dichlorobenzene	<4.7 H	<4.7	<4.7	<4.7	<4.7
2,3-Dimethylphenol	<9.4 H	<9.4	<9.4	<9.4	<9.4
2,4-Dimethylphenol	<4.7 H	38	36	74	53
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.4 H	68	65	74	53
2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	50 H	58	56	65	52
2-Methylphenol	<4.7 H	<4.7	<4.7	<4.7	<4.7
2-Nitrophenol	<4.7 H	<4.7	<4.7	<4.7	<4.7
3,4-Dimethylphenol	<9.4 H	<9.4	<9.4	<9.4	<9.4
3-Methylphenol	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7 H	<4.7	<4.7	<4.7	<4.7
4-Methylphenol	NA	NA	NA	NA	NA
Anthracene	<4.7 H	<4.7	<4.7	<4.7	<4.7
Benzo(a)anthracene	<4.7 H	<4.7	<4.7	<4.7	<4.7
Benzo(a)pyrene	<4.7 H	<4.7	<4.7	1.2 J	<4.7
Benzo(b)fluoranthene	<4.7 H	<4.7	<4.7	<4.7	<4.7
Benzo(g,h,i)perylene	1.5 J H	<4.7	<4.7	2.1 J	<4.7
Benzo(k)fluoranthene	<4.7 H	<4.7	<4.7	2.1 J	<4.7
bis(2-Ethylhexyl)phthalate	1.6 J H	1.1 J	<4.7	<4.7	<4.7
Butylbenzylphthalate	<4.7 H	<4.7	<4.7	<4.7	<4.7
Carbazole	<4.7 H	<4.7	<4.7	<4.7	<4.7
Chrysene	<4.7 H	<4.7	<4.7	<4.7	<4.7
Dibenzo(a,h)anthracene	1.4 J H	<4.7	<4.7	1.9 J	<4.7
Diethylphthalate	<4.7 H	<4.7	<4.7	<4.7	<4.7
Di-n-butylphthalate	0.96 J H	<4.7	<4.7	<4.7	<4.7

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)				
Top of Screen Depth (ft bls)	125	125	125	125	125
Sample Date	03/01/07	05/14/07	05/14/07	08/14/07	11/09/07
Sample ID	GWGM-66B (3/1/07)-RE	GWGM-66B(5/14/07)	GWGM-999 (5/14/07)	GWGM-66B (8/14/07)	GWGM-66B (11/9/07)
SVOCs (continued)					
Di-n-octylphthalate	<4.7 H	<4.7	<4.7	<4.7	<4.7
Fluoranthene	<4.7 H	<4.7	<4.7	<4.7	<4.7
Indeno(1,2,3-c,d)pyrene	1.2 J H	<4.7	<4.7	2.0 J	<4.7
Naphthalene	<4.7 H	<4.7	<4.7	<4.7	<4.7
Phenol	<4.7 H	<4.7	<4.7	0.61 J	<4.7
Pyrene	<4.7 H	<4.7	<4.7	<4.7	<4.7
Metals					
Aluminum	NA	270	270	240	210
Aluminum-DISS	NA	<200	<200	<200	<200
Antimony	NA	<50	<50	<50	<50
Antimony-DISS	NA	<50	<50	<50	<50
Arsenic	NA	82	73	84 B	86
Arsenic-DISS	NA	67	64	84 B	85 B
Barium	NA	240 B	220 B	210	200
Barium-DISS	NA	180 B	170 B	200	180
Beryllium-DISS	NA	<1.0	<1.0	<1.0	<1.0
Cadmium	NA	<0.50	<0.50	<0.50	<0.50
Cadmium-DISS	NA	<0.50	<0.50	<0.50	<0.50
Calcium	NA	97,000	86,000	85,000	83,000
Calcium-DISS	NA	78,000	74,000	81,000	82,000
Chromium	NA	<5.0	<5.0	3.0 J B	1.5 J
Chromium-DISS	NA	<5.0	<5.0	1.7 J B	<5.0
Cobalt	NA	0.80 J	0.76 J	0.92 J	0.98 J
Cobalt-DISS	NA	0.61 J	0.54 J	0.67 J	0.81 J
Copper	NA	0.85 J	0.98 J	1.2 J	<25
Copper-DISS	NA	<25	<25	5.5 J	1.3 J
Iron	NA	12,000	11,000	10,000	9,600
Iron-DISS	NA	9,400	9,000	9,600	9,500

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)				
Top of Screen Depth (ft bls)	125	125	125	125	125
Sample Date	03/01/07	05/14/07	05/14/07	08/14/07	11/09/07
Sample ID	GWGM-66B (3/1/07)-RE	GWGM-66B(5/14/07)	GWGM-999 (5/14/07)	GWGM-66B (8/14/07)	GWGM-66B (11/9/07)
Metals (continued)					
Lead	NA	<3.0	<3.0	<3.0	<3.0
Lead-DISS	NA	<3.0	<3.0	<3.0	<3.0
Magnesium	NA	94,000	83,000	81,000	83,000
Magnesium-DISS	NA	80,000	75,000	78,000	77,000
Manganese	NA	49	45	47	46
Manganese-DISS	NA	33	31	35	33
Mercury	NA	<0.20	**0.093 J**	<0.20	<0.20
Mercury-DISS	NA	**0.12 J**	<0.20	<0.20	<0.20
Molybdenum	NA	1.7 J	1.5 J	1.6 J	<10
Molybdenum-DISS	NA	<10	1.5 J	<10	<10
Nickel	NA	1.3 J	1.2 J	1.3 J	0.84 J
Nickel-DISS	NA	0.70 J	0.62 J	0.89 J	0.61 J
Potassium	NA	3,200	3,300	3,200	3,100 B
Potassium-DISS	NA	3,000	3,200	3,000	3,000
Selenium	NA	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	NA	<5.0	<5.0	<5.0	<5.0
Silver	NA	<0.20	<0.20	$\boxed{0.099 J}$	<0.20
Silver-DISS	NA	<0.20	<0.20	<0.20	<0.20
Sodium	NA	17,000	15,000	14,000	14,000
Sodium-DISS	NA	14,000	14,000	13,000	13,000
Thallium	NA	<2.0	<2.0	<2.0	<2.0
Thallium-DISS	NA	<2.0	<2.0	<2.0	<2.0
Titanium	NA	6.1 J	6.0 J	7.3 J	9.3 J
Titanium-DISS	NA	2.6 J	2.9 J	3.2 J	<50
Vanadium	NA	2.6 J	<20	5.6 J B	2.9 J B
Vanadium-DISS	NA	<20	<20	4.2 J B	1.6 J
Zinc	NA	5.0 J	5.4 J	7.3 J	<20
Zinc-DISS	NA	<20	4.9 J	<20	11 J

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)				
Top of Screen Depth (ft bls)	125	125	125	125	125
Sample Date	03/01/07	05/14/07	05/14/07	08/14/07	11/09/07
Sample ID	GWGM-66B (3/1/07)-RE	GWGM-66B(5/14/07)	GWGM-999 (5/14/07)	GWGM-66B (8/14/07)	GWGM-66B (11/9/07)
Alcohols					
1,4-Dioxane	<4.7 H	<4.7	<4.7	<4.7	<4.7
Acetonitrile	NA	<50	<50	<50	<50
Ethanol	NA	<1,000	<1,000	<1,000	<1,000
Ethylacetate	NA	<5,000	<5,000	<5,000	<5,000
Ethylene glycol	NA	<10,000	<10,000	<10,000	<10,000
Isobutanol	NA	<1,000	<1,000	<1,000	<1,000
Isopropanol	NA	<1,000	<1,000	<1,000	<1,000
Methanol	NA	<1,000	<1,000	<1,000	460 J
n-Butanol	NA	<1,000	<1,000	<1,000	<1,000
Aldehydes					
Acetaldehyde	NA	<100	<100	<100	<100
Butanal	NA	<100	<100	<100	<100
Crotonaldehyde	NA	<100	16 J	<100	<100
Cyclohexanone	NA	<100	<100	<100	2.6 J
Decanal	NA	<100	<100	<100	<100
Formaldehyde	NA	21 J	21 J	15 J	<100
Heptanal	NA	15 J	19 J	<100	<100
Hexanal	NA	<100	<100	<100	12 J
m-Tolualdehyde	NA	<100	<100	<100	<100
Nonanal	NA	<100	<100	<100	<100
Octanal	NA	14 J	14 J	<100	<100
Paraldehyde	NA	<100	<100	<100	<100
Pentanal	NA	16 J	18 J	18 J	6.5 J
Propanal	NA	<100	<100	<100	<100
Inorganics					
Alkalinity	NA	490,000	510,000	500,000	520,000
Bicarbonate	NA	NA	NA	NA	NA
Chloride	NA	45,000	45,000	43,000	43,000

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-66B (continued)				
Top of Screen Depth (ft bls)	125	125	125	125	125
Sample Date	03/01/07	05/14/07	05/14/07	08/14/07	11/09/07
Sample ID	GWGM-66B (3/1/07)-RE	GWGM-66B(5/14/07)	GWGM-999 (5/14/07)	GWGM-66B (8/14/07)	GWGM-66B (11/9/07)
Inorganics (continued)					
Chlorides Soluble	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	NA	**140**	**150**	**190**	**56 B**
Nitrogen, Nitrate	NA	<50	<50	<50	<50
Nitrogen, Nitrite	NA	<50	<50	<50	<50
Ortho-Phosphate	NA	NA	NA	NA	NA
Phosphate	NA	<50	<50	<50	<50
Phosphorus	NA	140	94 J	62 J	75 J
Silica	NA	34,500	30,300	36,900	33,800
Silica, Dissolved	NA	NA	NA	NA	NA
Sulfate	NA	<5,000	<5,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA
Sulfide	NA	<1,000	<1,000	<1,000	<1,000
Acetic Acid	NA	<500	<500 *	<500	<500
Biochemical Oxygen Demand	NA	3,200	2,600	2,700	<2,000 *
Chemical Oxygen Demand	NA	82,000	NA	76,000	57,000
Total Organic Carbon	NA	22,000	22,000	24,000	23,000
Density	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	NA
Methane	NA	30,200	29,600	30,400	30.2
Suspended Solids	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-77 (continued)			GM-78		
Top of Screen Depth (ft bls)	105	105	105	20	20	20
Sample Date	09/22/03	05/11/04	07/28/05	09/18/03	04/29/04	07/29/05
Sample ID	GM-77	GWGM-77 (5/11/04)	GWGM-77 (072805)	GM-78 (9/18/03)	GWGM-78 (4/29/04)	GWGM-78 (7/29/05)
VOCs						
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	0.45 J	<1.0	0.19 J	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	11	2.5 J	<50	<50	<50	<50
2-Hexanone	<10	1.3 J	1.8 J	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<10	<50	<50	<50	<50	<50
Acetone	<25	<100	<100	<100	<100	<100
Acrylonitrile	<20	<25	<25	<25	<25	<25
Benzene	8.3	7.2	8.2	<1.0	0.98 J	1.2
Bromochloromethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<1.0	0.82 J	<5.0	<5.0	<5.0	<5.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	0.45 J	<1.0	<1.0	<1.0	<1.0
Diethylether	10	8.4 J	9.0 J	<10	0.60 J	0.52 J
Ethylbenzene	1.4	1.1	1.3	<1.0	<1.0	<1.0
Furan	<5.0	0.28 J	<10	<2.0	<2.0	<10
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<10	<5.0	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<20	<25	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrahydrofuran	<5.0	<2.0	5.8 J	<2.0	<2.0	<10
Toluene	5.7	14	4.8	<1.0	<1.0	0.97 J
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-77 (continued)			GM-78		
Top of Screen Depth (ft bls)	105	105	105	20	20	20
Sample Date	09/22/03	05/11/04	07/28/05	09/18/03	04/29/04	07/29/05
Sample ID	GM-77	GWGM-77 (5/11/04)	GWGM-77 (072805)	GM-78 (9/18/03)	GWGM-78 (4/29/04)	GWGM-78 (7/29/05)
VOCs (continued)						
Xylene, o	NA	NA	NA	NA	NA	NA
Xylenes (total)	4.7	3.9	4.4	<3.0	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA	NA
SVOCs						
1,4-Dichlorobenzene	<20	<5.0	<24	<5.0	<5.0	<5.0
2,3-Dimethylphenol	<40	<10	120	<10	<10	<9.9
2,4-Dimethylphenol	NA	NA	310	NA	NA	56
2,4-Dimethylphenol/2,5-Dimethylphenol	340	170	**670**	40	36	130
2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	130	88	<47	<10	15	<9.9
2-Methylphenol	<20	<5.0	<24	<5.0	<5.0	<5.0
2-Nitrophenol	<20	<5.0	<24	<5.0	<5.0	<5.0
3,4-Dimethylphenol	<40	<10	<47	<10	<10	<9.9
3-Methylphenol	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<20	<5.0	<24	<5.0	<5.0	<5.0
4-Methylphenol	NA	NA	NA	NA	NA	NA
Anthracene	<20	<5.0	<24	<5.0	<5.0	<5.0
Benzo(a)anthracene	<20	<5.0	<24	<5.0	<5.0	<5.0
Benzo(a)pyrene	<20	<5.0	<24	<5.0	<5.0	<5.0
Benzo(b)fluoranthene	<20	<5.0	<24	<5.0	<5.0	<5.0
Benzo(g,h,i)perylene	<20	<5.0	<24	<5.0	<5.0	<5.0
Benzo(k)fluoranthene	<20	<5.0	<24	<5.0	<5.0	<5.0
bis(2-Ethylhexyl)phthalate	<20	<5.0	<24	<5.0	<5.0	<5.0
Butylbenzylphthalate	<20	<5.0	<24	<5.0	<5.0	<5.0
Carbazole	<20	<5.0	<24	<5.0	<5.0	<5.0
Chrysene	<20	<5.0	<24	<5.0	<5.0	<5.0
Dibenzo(a,h)anthracene	<20	<5.0	<24	<5.0	<5.0	<5.0
Diethylphthalate	<20	<5.0	<24	<5.0	<5.0	<5.0
Di-n-butylphthalate	<20	<5.0	<24	<5.0	<5.0	<5.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-77 (continued)			GM-78		
Top of Screen Depth (ft bls)	105	105	105	20	20	20
Sample Date	09/22/03	05/11/04	07/28/05	09/18/03	04/29/04	07/29/05
Sample ID	GM-77	GWGM-77 (5/11/04)	GWGM-77 (072805)	GM-78 (9/18/03)	GWGM-78 (4/29/04)	GWGM-78 (7/29/05)
SVOCs (continued)						
Di-n-octylphthalate	<20	<5.0	<24	<5.0	<5.0	<5.0
Fluoranthene	<20	<5.0	<24	<5.0	<5.0	<5.0
Indeno(1,2,3-c,d)pyrene	<20	<5.0	<24	<5.0	<5.0	<5.0
Naphthalene	<20	<5.0	<24	<5.0	<5.0	<5.0
Phenol	<20	<5.0	<24	<5.0	<5.0	<5.0
Pyrene	<20	<5.0	<24	<5.0	<5.0	<5.0
Metals						
Aluminum	<200	86 B	<200	<200	20 B	<200
Aluminum-DISS	<200	<200	<200	<200	<200	13 J
Antimony	<50	<50	<50	<50	<50	<50
Antimony-DISS	<50	<50	<50	<50	<50	14 J
Arsenic	<20	8.5 B	16 J	<20	12 B	12 J
Arsenic-DISS	<20	8.4 B	11 J	<20	6.8 B	12 J
Barium	160	130	120	310	280	360
Barium-DISS	160	120	110	330	280	360
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	<0.50 *F5	<0.50	<0.50 WN	<0.50	0.14 J
Cadmium-DISS	<0.50	<0.50 *F5	<0.50	<0.50 WN	<0.50	0.10 J
Calcium	94,000	85,000	100,000	110,000	100,000	20,000
Calcium-DISS	94,000	83,000	99,000	110,000	110,000	100,000
Chromium	<5.0	1.7 B	<5.0	<5.0	<5.0	<5.0
Chromium-DISS	<5.0	1.3 B	<5.0	<5.0	<5.0	4.0 J
Cobalt	<10	1.3 B	1.6 J	<10	<10	0.25 J
Cobalt-DISS	<10	1.1 B	1.5 J	<10	<10	0.37 J
Copper	<25	<25	<25	<25	<25	<25
Copper-DISS	<25	<25	<25	<25	<25	0.47 J
Iron	9,000	6,100	11,000	5,200	10,000	2,200
Iron-DISS	9,700	6,200	10,000	5,500	8,900	11,000

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-77 (continued)			GM-78		
Top of Screen Depth (ft bls)	105	105	105	20	20	20
Sample Date	09/22/03	05/11/04	07/28/05	09/18/03	04/29/04	07/29/05
Sample ID	GM-77	GWGM-77 (5/11/04)	GWGM-77 (072805)	GM-78 (9/18/03)	GWGM-78 (4/29/04)	GWGM-78 (7/29/05)
Metals (continued)						
Lead	<3.0	<3.0	<3.0	<3.0	<3.0	0.67 J
Lead-DISS	<3.0	<3.0	0.50 J	<3.0	<3.0	0.66 J
Magnesium	110,000	100,000	110,000	56,000	48,000	47,000
Magnesium-DISS	110,000	98,000	110,000	59,000	50,000	54,000
Manganese	540	590	320	1,800	**1,900**	1,400
Manganese-DISS	490	570	330	1,700	**2,000**	1,500
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Molybdenum	16	18	5.5 J	<10	1.9 B	1.7 J
Molybdenum-DISS	14	17	5.4 J	<10	2.0 B	1.6 J
Nickel	<25	1.4 B	0.54 J	<25	<25	0.56 J B
Nickel-DISS	<25	<25	0.55 J	<25	<25	3.1 J
Potassium	5,300	4,600	4,000	3,900	3,500	2,900
Potassium-DISS	5,200	4,500	4,000	3,900	3,600	3,300
Selenium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	<0.20	<0.20	<0.20	<0.20 WN	<0.20	<0.20
Silver-DISS	<0.20	<0.20	<0.20	<0.20 WN	<0.20	<0.20
Sodium	20,000	17,000	18,000	30,000	29,000	49,000
Sodium-DISS	20,000	17,000	18,000	30,000	30,000	55,000
Thallium	<2.0	0.35 B*F5	<2.0	<2.0 WN	<2.0	<2.0
Thallium-DISS	<2.0	<2.0 *F5	<2.0	<2.0 WN	<2.0	<2.0
Titanium	<50	4.7 B	4.7 J	<50	1.3 B	3.6 J
Titanium-DISS	<50	1.3 B	3.8 J	<50	0.65 B	2.7 J
Vanadium	<20	8.4 B	5.0 J	<20	<20	<20
Vanadium-DISS	<20	7.6 B	4.1 J	<20	<20	<20
Zinc	<20	8.0 B	<20	<20	38	5.4 J
Zinc-DISS	<20	1.7 B	8.3 J	<20	0.83 B	8.3 J

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-77 (continued)			GM-78		
Top of Screen Depth (ft bls)	105	105	105	20	20	20
Sample Date	09/22/03	05/11/04	07/28/05	09/18/03	04/29/04	07/29/05
Sample ID	GM-77	GWGM-77 (5/11/04)	GWGM-77 (072805)	GM-78 (9/18/03)	GWGM-78 (4/29/04)	GWGM-78 (7/29/05)
Alcohols						
1,4-Dioxane	<20	<5.0	<24	<5.0	<5.0	<5.0
Acetonitrile	<40	<50	<50	<50	<50	<50
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	<5,000	<5,000	<5,000	<5,000	<5,000	<5,000
Ethylene glycol	<5,000	<5,000	<10,000	<5,000	1,000 J	<10,000
Isobutanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Methanol	<1,000	**1,500**	<1,000	<1,000	320 J	<1,000
n-Butanol	<1,000	<1,000	<1,000	2,400	<1,000	<1,000
Aldehydes						
Acetaldehyde	<100	<100	<100	<100	<100	<100
Butanal	<100	<100	<100	<100	<100	<100
Crotonaldehyde	<100	<100	<100	<100	<100	<100
Cyclohexanone	<100	<100	<100	<100	<100	<100
Decanal	<100	<100	<100	<100	<100	<100
Formaldehyde	<100	<100	<100	<100	<100	<100
Heptanal	<100	51 J	22 J	<100	<100	<100
Hexanal	<100	<100	<100	<100	<100	<100
m-Tolualdehyde	<100	41 J	<100	<100	<100	<100
Nonanal	<100	18 J	<100	<100	<100	<100
Octanal	<100	30 J	13 J	<100	<100	<100
Paraldehyde	<100	<100	<100	<100	<100	<100
Pentanal	<100	<100	61 J	<100	<100	<100
Propanal	<100	<100	<100	<100	<100	<100
Inorganics						
Alkalinity	710,000	630,000	680,000	390,000	400,000	410,000
Bicarbonate	NA	NA	NA	NA	NA	NA
Chloride	19,000	25,000	24,000	**120,000**	**82,000**	**120,000**

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-77 (continued)			GM-78		
Top of Screen Depth (ft bls)	105	105	105	20	20	20
Sample Date	09/22/03	05/11/04	07/28/05	09/18/03	04/29/04	07/29/05
Sample ID	GM-77	GWGM-77 (5/11/04)	GWGM-77 (072805)	GM-78 (9/18/03)	GWGM-78 (4/29/04)	GWGM-78 (7/29/05)
Inorganics (continued)						
Chlorides Soluble	NA	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**62**	<30	<30	**46**	<30	**41**
Nitrogen, Nitrate	<50	<50	50	<50	<50	47 J
Nitrogen, Nitrite	<50	<50	<50	<50	<50	<50
Ortho-Phosphate	<50	<50	NA	<50	<50	NA
Phosphate	NA	NA	<50	NA	NA	<50
Phosphorus	<100	85 J	150	<100	<100	100
Silica	NA	NA	NA	NA	NA	NA
Silica, Dissolved	37,000	32,000	33,000	32,000	32,000	19,000
Sulfate	<5,000	<5,000	<5,000	<5,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Acetic Acid	<1,000	860	590	<1,000	<500	360 J
Biochemical Oxygen Demand	6,500	6,300	5,600	<2,000	<2,000	<2,000
Chemical Oxygen Demand	200,000	140,000	180,000	<20,000	26,000	37,000
Total Organic Carbon	59,000	40,000	2,800	5,500	5,100	9,200
Density	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	NA	NA
Methane	34,300	84,600	60,400	31,900	37,100	28,500
Suspended Solids	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)				
Top of Screen Depth (ft bls)	20	20	20	20	20
Sample Date	07/29/05	07/29/05	12/08/06	02/28/07	02/28/07
Sample ID	GWGM-998 (7/29/05)	GWGM-998-RE (7/29/05)	GWGM-78 (12/8/06)	GWGM-78 (2/28/07)	GWGM-78 (2/28/07)-RE
VOCs					
1,1-Dichloroethene	<1.0	NA	<1.0	<1.0	NA
1,2,4-Trimethylbenzene	<1.0	NA	<1.0	<1.0	NA
1,2-Dichloroethene (total)	<2.0	NA	<2.0	<2.0	NA
1,3,5-Trimethylbenzene	<1.0	NA	<1.0	<1.0	NA
2-Butanone (MEK)	<50	NA	<50	<50	NA
2-Hexanone	<50	NA	<50	<50	NA
4-Methyl-2-pentanone (MIBK)	<50	NA	<50	<50	NA
Acetone	<100	NA	<100	<100	NA
Acrylonitrile	<25	NA	<25	<25	NA
Benzene	1.2	NA	<1.0	<1.0	NA
Bromochloromethane	<1.0	NA	<1.0	<1.0 *	NA
Bromoform	<1.0	NA	<1.0	<1.0	NA
Bromomethane	<1.0	NA	<1.0	<1.0	NA
Carbon disulfide	<5.0	NA	<5.0	<5.0	NA
Chloroethane	<1.0	NA	<1.0	<1.0	NA
Chloromethane	<1.0	NA	<1.0	<1.0	NA
cis-1,2-Dichloroethene	0.59 J	NA	<1.0	<1.0	NA
Diethylether	0.47 J	NA	<10	<10	NA
Ethylbenzene	<1.0	NA	<1.0	<1.0	NA
Furan	<10	NA	<10	<10	NA
Isopropylbenzene	<1.0	NA	<1.0	<1.0	NA
Methyl iodide	<5.0	NA	<5.0	<5.0	NA
Methyl(tert)butyl ether	<5.0	NA	<5.0	<5.0	NA
Methylene chloride	<1.0	NA	<1.0	<1.0	NA
Propionitrile	<25	NA	<25	<25	NA
Tetrachloroethene	<1.0	NA	<1.0	<1.0	NA
Tetrahydrofuran	<10	NA	<10	1.2 J	NA
Toluene	0.90 J	NA	<1.0	<1.0	NA
trans-1,2-Dichloroethene	<1.0	NA	<1.0	<1.0	NA
Trichloroethene	<1.0	NA	<1.0	<1.0	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)				
Top of Screen Depth (ft bls)	20	20	20	20	20
Sample Date	07/29/05	07/29/05	12/08/06	02/28/07	02/28/07
Sample ID	GWGM-998 (7/29/05)	GWGM-998-RE (7/29/05)	GWGM-78 (12/8/06)	GWGM-78 (2/28/07)	GWGM-78 (2/28/07)-RE
VOCs (continued)					
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	NA	<3.0	<3.0	NA
Xylenes, m+p	NA	NA	NA	NA	NA
SVOCs					
1,4-Dichlorobenzene	NA	<4.7	<5.0	<4.7	<4.7 H
2,3-Dimethylphenol	NA	1.3 J	<10	<9.4	<9.4 H
2,4-Dimethylphenol	NA	62	<5.0	<4.7	<4.7 H
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	120	5.2 J	<9.4	<9.4 H
2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	29	5.7 J	<9.4	<9.4 H
2-Methylphenol	NA	<4.7	<5.0	<4.7	<4.7 H
2-Nitrophenol	NA	<4.7	<5.0	<4.7	<4.7 H
3,4-Dimethylphenol	NA	<9.4	<10	<9.4	<9.4 H
3-Methylphenol	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	<4.7	<5.0	<4.7	<4.7 H
4-Methylphenol	NA	NA	NA	NA	NA
Anthracene	NA	<4.7	<5.0	<4.7	<4.7 H
Benzo(a)anthracene	NA	<4.7	<5.0	<4.7	<4.7 H
Benzo(a)pyrene	NA	<4.7	<5.0	<4.7	<4.7 H
Benzo(b)fluoranthene	NA	<4.7	<5.0	<4.7	<4.7 H
Benzo(g,h,i)perylene	NA	<4.7	<5.0	<4.7	<4.7 H
Benzo(k)fluoranthene	NA	<4.7	<5.0	<4.7	<4.7 H
bis(2-Ethylhexyl)phthalate	NA	<4.7	<5.0	<4.7	<4.7 H
Butylbenzylphthalate	NA	<4.7	<5.0	<4.7	<4.7 H
Carbazole	NA	<4.7	<5.0	<4.7	<4.7 H
Chrysene	NA	<4.7	<5.0	<4.7	<4.7 H
Dibenzo(a,h)anthracene	NA	<4.7	<5.0	<4.7	<4.7 H
Diethylphthalate	NA	0.81 J	<5.0	<4.7	<4.7 H
Di-n-butylphthalate	NA	<4.7	<5.0	<4.7	<4.7 H

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)				
Top of Screen Depth (ft bls)	20	20	20	20	20
Sample Date	07/29/05	07/29/05	12/08/06	02/28/07	02/28/07
Sample ID	GWGM-998 (7/29/05)	GWGM-998-RE (7/29/05)	GWGM-78 (12/8/06)	GWGM-78 (2/28/07)	GWGM-78 (2/28/07)-RE
SVOCs (continued)					
Di-n-octylphthalate	NA	<4.7	<5.0	<4.7	<4.7 H
Fluoranthene	NA	<4.7	<5.0	<4.7	<4.7 H
Indeno(1,2,3-c,d)pyrene	NA	<4.7	<5.0	<4.7	<4.7 H
Naphthalene	NA	<4.7	<5.0	<4.7	<4.7 H
Phenol	NA	<4.7	<5.0	<4.7	<4.7 H
Pyrene	NA	<4.7	<5.0	<4.7	<4.7 H
Metals					
Aluminum	17 J	NA	41 J	18 J	NA
Aluminum-DISS	<200	NA	<200	13 J	NA
Antimony	<50	NA	<50	<50	NA
Antimony-DISS	<50	NA	<50	<50	NA
Arsenic	13 J	NA	9.3 J	9.4 J	NA
Arsenic-DISS	11 J	NA	9.3 J	8.9 J	NA
Barium	380	NA	320	310 B	NA
Barium-DISS	340	NA	330 B	320 B	NA
Beryllium-DISS	<1.0	NA	<1.0	<1.0	NA
Cadmium	0.18 J	NA	<0.50	<0.50	NA
Cadmium-DISS	<0.50	NA	<0.50	<0.50	NA
Calcium	21,000	NA	83,000	67,000	NA
Calcium-DISS	99,000	NA	87,000	80,000	NA
Chromium	<5.0	NA	<5.0	<5.0	NA
Chromium-DISS	<5.0	NA	<5.0	<5.0	NA
Cobalt	0.27 J	NA	<10	0.29 J	NA
Cobalt-DISS	0.26 J	NA	0.24 J	0.25 J	NA
Copper	1.5 J	NA	0.66 J	<25	NA
Copper-DISS	<25	NA	<25	<25	NA
Iron	2,300	NA	7,600	7,400	NA
Iron-DISS	11,000	NA	7,900	7,000	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)				
Top of Screen Depth (ft bls)	20	20	20	20	20
Sample Date	07/29/05	07/29/05	12/08/06	02/28/07	02/28/07
Sample ID	GWGM-998 (7/29/05)	GWGM-998-RE (7/29/05)	GWGM-78 (12/8/06)	GWGM-78 (2/28/07)	GWGM-78 (2/28/07)-RE
Metals (continued)					
Lead	0.65 J	NA	<3.0	<3.0	NA
Lead-DISS	<3.0	NA	<3.0	<3.0	NA
Magnesium	51,000	NA	48,000	43,000	NA
Magnesium-DISS	53,000	NA	50,000	45,000	NA
Manganese	1,500	NA	820	850	NA
Manganese-DISS	1,500	NA	890	870	NA
Mercury	<0.20	NA	<0.20	<0.20	NA
Mercury-DISS	<0.20	NA	<0.20	<0.20	NA
Molybdenum	1.7 J	NA	<10	<10	NA
Molybdenum-DISS	<10	NA	1.5 J	1.5 J	NA
Nickel	0.42 J B	NA	0.23 J	0.21 J	NA
Nickel-DISS	0.28 J	NA	0.35 J	0.33 J	NA
Potassium	3,200	NA	2,600	2,700	NA
Potassium-DISS	3,200	NA	2,900	2,700	NA
Selenium	<5.0	NA	<5.0	<5.0	NA
Selenium-DISS	<5.0	NA	<5.0	<5.0	NA
Silver	<0.20	NA	<0.20	<0.20	NA
Silver-DISS	<0.20	NA	<0.20	<0.20	NA
Sodium	53,000	NA	20,000	19,000	NA
Sodium-DISS	54,000	NA	22,000	20,000	NA
Thallium	<2.0	NA	<2.0	<2.0	NA
Thallium-DISS	<2.0	NA	<2.0	<2.0	NA
Titanium	4.0 J	NA	2.1 J	3.1 J	NA
Titanium-DISS	2.5 J	NA	2.8 J	2.3 J	NA
Vanadium	<20	NA	<20	<20	NA
Vanadium-DISS	<20	NA	<20	<20	NA
Zinc	5.2 J	NA	3.7 J	6.8 J B	NA
Zinc-DISS	5.9 J	NA	6.7 J B	5.7 J B	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)				
Top of Screen Depth (ft bls)	20	20	20	20	20
Sample Date	07/29/05	07/29/05	12/08/06	02/28/07	02/28/07
Sample ID	GWGM-998 (7/29/05)	GWGM-998-RE (7/29/05)	GWGM-78 (12/8/06)	GWGM-78 (2/28/07)	GWGM-78 (2/28/07)-RE
Alcohols					
1,4-Dioxane	<5.0	<4.7	<5.0	<4.7	<4.7 H
Acetonitrile	<50	NA	<50	<50	NA
Ethanol	<1,000	NA	<1,000	<1,000	NA
Ethylacetate	<5,000	NA	<5,000	<5,000	NA
Ethylene glycol	<10,000	NA	<10,000	<10,000	NA
Isobutanol	<1,000	NA	<1,000	<1,000	NA
Isopropanol	<1,000	NA	<1,000	<1,000	NA
Methanol	<1,000	NA	<1,000	<1,000	NA
n-Butanol	<1,000	NA	<1,000	<1,000	NA
Aldehydes					
Acetaldehyde	<100	NA	<100	<100	NA
Butanal	<100	NA	<100	<100	NA
Crotonaldehyde	<100	NA	<100	<100	NA
Cyclohexanone	<100	NA	<100	<100	NA
Decanal	<100	NA	<100	<100	NA
Formaldehyde	<100	NA	<100	<100	NA
Heptanal	52 J	NA	<100	<100	NA
Hexanal	120	NA	<100	<100	NA
m-Tolualdehyde	<100	NA	<100	<100	NA
Nonanal	40 J	NA	4.1 J	<100	NA
Octanal	13 J	NA	<100	<100	NA
Paraldehyde	<100	NA	<100	<100	NA
Pentanal	81 J	NA	<100	13 J	NA
Propanal	<100	NA	<100	<100	NA
Inorganics					
Alkalinity	420,000	NA	330,000	330,000	NA
Bicarbonate	NA	NA	NA	NA	NA
Chloride	**120,000**	NA	**78,000**	**80,000**	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)				
Top of Screen Depth (ft bls)	20	20	20	20	20
Sample Date	07/29/05	07/29/05	12/08/06	02/28/07	02/28/07
Sample ID	GWGM-998 (7/29/05)	GWGM-998-RE (7/29/05)	GWGM-78 (12/8/06)	GWGM-78 (2/28/07)	GWGM-78 (2/28/07)-RE
Inorganics (continued)					
Chlorides Soluble	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	24 J	NA	**100**	**230 B**	NA
Nitrogen, Nitrate	<50	NA	<250	30 J B	NA
Nitrogen, Nitrite	<50	NA	<50	<50	NA
Ortho-Phosphate	NA	NA	<50	NA	NA
Phosphate	<50	NA	NA	<50	NA
Phosphorus	70 J	NA	<100	<100	NA
Silica	NA	NA	32,500	29,300	NA
Silica, Dissolved	30,000	NA	NA	NA	NA
Sulfate	<5,000	NA	<5,000	19,000	NA
Sulfate Soluble	NA	NA	NA	NA	NA
Sulfide	<1,000	NA	<1,000	<1,000	NA
Acetic Acid	360 J	NA	<500	<500	NA
Biochemical Oxygen Demand	<2,000	NA	2,300	<2,000	NA
Chemical Oxygen Demand	35,000	NA	0	0	NA
Total Organic Carbon	9,000	NA	4,300	2,900	NA
Density	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	NA
Methane	34,700	NA	12,200	7,040	NA
Suspended Solids	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)				GM-79
Top of Screen Depth (ft bls)	20	20	20	20	25
Sample Date	02/28/07	05/11/07	08/14/07	11/08/07	09/18/03
Sample ID	GWGM-998 (2/28/07)	GWGM-78(5/11/07)	GWGM78 (8/14/07)	GWGM-78 (11/8/07)	GM-79 (9/18/03)
VOCs					
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50	<50
Acetone	<100	<100	<100	<100	<100
Acrylonitrile	<25	<25	<25	<25	<25
Benzene	<1.0	<1.0	<1.0	<1.0	1.2
Bromochloromethane	<1.0 *	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0 *	0.34 J	<5.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Diethylether	<10	<10	<10	<10	<10
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Furan	<10	<10	<10	<10	<2.0
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0 *	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrahydrofuran	1.2 J	12	0.90 J	<10	<2.0
Toluene	<1.0	<1.0	<1.0	0.77 J	1.2
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)				GM-79
Top of Screen Depth (ft bls)	20	20	20	20	25
Sample Date	02/28/07	05/11/07	08/14/07	11/08/07	09/18/03
Sample ID	GWGM-998 (2/28/07)	GWGM-78(5/11/07)	GWGM78 (8/14/07)	GWGM-78 (11/8/07)	GM-79 (9/18/03)
VOCs (continued)					
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	<3.0	<3.0	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA
SVOCs					
1,4-Dichlorobenzene	<4.7	<4.7	<4.7	<4.7	<5.0
2,3-Dimethylphenol	<9.4	<9.4	<9.4	<9.4	<10
2,4-Dimethylphenol	<4.7	<4.7	<4.7	<4.7	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.4	<9.4	<9.4	<9.4	19
2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	3.4 J	2.6 J	<9.4	1.6 J	11
2-Methylphenol	<4.7	<4.7	<4.7	<4.7	<5.0
2-Nitrophenol	<4.7	<4.7	<4.7	<4.7	<5.0
3,4-Dimethylphenol	<9.4	<9.4	<9.4	<9.4	<10
3-Methylphenol	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<4.7	<4.7	<4.7	<5.0
4-Methylphenol	NA	NA	NA	NA	NA
Anthracene	<4.7	<4.7	<4.7	<4.7	<5.0
Benzo(a)anthracene	<4.7	<4.7	<4.7	<4.7	<5.0
Benzo(a)pyrene	<4.7	<4.7	<4.7	<4.7	<5.0
Benzo(b)fluoranthene	<4.7	<4.7	<4.7	<4.7	<5.0
Benzo(g,h,i)perylene	<4.7	<4.7	<4.7	<4.7	<5.0
Benzo(k)fluoranthene	<4.7	<4.7	<4.7	<4.7	<5.0
bis(2-Ethylhexyl)phthalate	<4.7	<4.7	<4.7	1.0 J	<5.0
Butylbenzylphthalate	<4.7	<4.7	<4.7	<4.7	<5.0
Carbazole	<4.7	<4.7	<4.7	<4.7	<5.0
Chrysene	<4.7	<4.7	<4.7	<4.7	<5.0
Dibenzo(a,h)anthracene	<4.7	<4.7	<4.7	<4.7	<5.0
Diethylphthalate	<4.7	<4.7	<4.7	<4.7	<5.0
Di-n-butylphthalate	<4.7	<4.7	<4.7	<4.7	<5.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)				GM-79
Top of Screen Depth (ft bls)	20	20	20	20	25
Sample Date	02/28/07	05/11/07	08/14/07	11/08/07	09/18/03
Sample ID	GWGM-998 (2/28/07)	GWGM-78(5/11/07)	GWGM78 (8/14/07)	GWGM-78 (11/8/07)	GM-79 (9/18/03)
SVOCs (continued)					
Di-n-octylphthalate	<4.7	<4.7	<4.7	<4.7	<5.0
Fluoranthene	<4.7	<4.7	<4.7	<4.7	<5.0
Indeno(1,2,3-c,d)pyrene	<4.7	<4.7	<4.7	<4.7	<5.0
Naphthalene	<4.7	<4.7	<4.7	<4.7	<5.0
Phenol	<4.7	<4.7	<4.7	<4.7	<5.0
Pyrene	<4.7	<4.7	<4.7	<4.7	<5.0
Metals					
Aluminum	15 J	<200	<200	<200	<200
Aluminum-DISS	<200	<200	<200	<200	<200
Antimony	<50	<50	<50	<50	<50
Antimony-DISS	<50	<50	<50	<50	<50
Arsenic	9.6 J	10 J	10 J B	11 J	<20
Arsenic-DISS	8.8 J	9.9 J	10 J B	10 J B	<20
Barium	320 B	320 B	350	390	230
Barium-DISS	300 B	340 B	340	360	220
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	<0.50	<0.50	<0.50	<0.50 WN
Cadmium-DISS	<0.50	<0.50	<0.50	<0.50	<0.50 WN
Calcium	71,000	78,000	83,000	97,000	90,000
Calcium-DISS	80,000	86,000	82,000	90,000	84,000
Chromium	<5.0	<5.0	1.8 J B	0.71 J	<5.0
Chromium-DISS	<5.0	<5.0	1.5 J B	<5.0	<5.0
Cobalt	0.22 J	0.23 J	0.22 J	0.40 J	<10
Cobalt-DISS	0.22 J	0.25 J	0.22 J	0.41 J	<10
Copper	<25	<25	2.3 J	<25	<25
Copper-DISS	0.41 J	<25	<25	<25	<25
Iron	7,500	7,100	6,600	7,100	4,300
Iron-DISS	7,000	7,000	6,400	6,700	4,300

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)				GM-79
Top of Screen Depth (ft bls)	20	20	20	20	25
Sample Date	02/28/07	05/11/07	08/14/07	11/08/07	09/18/03
Sample ID	GWGM-998 (2/28/07)	GWGM-78(5/11/07)	GWGM78 (8/14/07)	GWGM-78 (11/8/07)	GM-79 (9/18/03)
Metals (continued)					
Lead	<3.0	<3.0	<3.0	<3.0	<3.0
Lead-DISS	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium	44,000	42,000	42,000	50,000	37,000
Magnesium-DISS	44,000	46,000	43,000	45,000	35,000
Manganese	860	860	840	900	1,500
Manganese-DISS	900	860	820	810	1,400
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	<0.20
Molybdenum	1.5 J	<10	1.9 J	1.6 J	<10
Molybdenum-DISS	<10	1.6 J	1.6 J	1.5 J	<10
Nickel	0.24 J	<25	1.3 J	<25	<25
Nickel-DISS	<25	0.39 J	<25	<25	<25
Potassium	2,800	2,700	2,700	3,200 B	3,200
Potassium-DISS	2,700	2,800	2,700	3,000	3,000
Selenium	<5.0	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	<0.20	<0.20	0.13 J	<0.20	<0.20 WN
Silver-DISS	<0.20	<0.20	<0.20	<0.20	<0.20 WN
Sodium	19,000	19,000	22,000	27,000	4,800
Sodium-DISS	20,000	21,000	22,000	24,000	4,400
Thallium	<2.0	<2.0	<2.0	<2.0	<2.0 WN
Thallium-DISS	<2.0	<2.0	<2.0	<2.0	<2.0 WN
Titanium	3.3 J	1.9 J	2.7 J	4.2 J	<50
Titanium-DISS	2.5 J	2.0 J	2.4 J	<50	<50
Vanadium	<20	<20	3.9 J B	1.7 J B	<20
Vanadium-DISS	<20	<20	3.6 J B	0.83 J	<20
Zinc	5.2 J B	3.5 J	50	<20	<20
Zinc-DISS	5.0 J B	5.7 J B	<20	<20	<20

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)				GM-79
Top of Screen Depth (ft bls)	20	20	20	20	25
Sample Date	02/28/07	05/11/07	08/14/07	11/08/07	09/18/03
Sample ID	GWGM-998 (2/28/07)	GWGM-78(5/11/07)	GWGM78 (8/14/07)	GWGM-78 (11/8/07)	GM-79 (9/18/03)
Alcohols					
1,4-Dioxane	<4.7	<4.7	<4.7	<4.7	<5.0
Acetonitrile	<50	<50	<50	<50	<50
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	<5,000	<5,000	<5,000	<5,000	<5,000
Ethylene glycol	<10,000	<10,000	<10,000	<10,000	<5,000
Isobutanol	<1,000	<1,000	<1,000	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000	<1,000
Methanol	<1,000	<1,000	<1,000	**700 J**	<1,000
n-Butanol	<1,000	<1,000	<1,000	<1,000	<1,000
Aldehydes					
Acetaldehyde	<100	<100	<100	<100	<100
Butanal	<100	<100	<100	<100	<100
Crotonaldehyde	<100	<100	<100	<100	<100
Cyclohexanone	<100	<100	<100	<100	<100
Decanal	<100	14 J	<100	<100	<100
Formaldehyde	<100	<100	<100	<100	<100
Heptanal	<100	<100	<100	<100	<100
Hexanal	<100	<100	<100	<100	<100
m-Tolualdehyde	<100	<100	<100	13 J	<100
Nonanal	<100	6.6 J	<100	<100	<100
Octanal	<100	<100	<100	<100	<100
Paraldehyde	<100	<100	<100	<100	<100
Pentanal	<100	5.7 J	9.8 J	<100	<100
Propanal	<100	<100	<100	<100	<100
Inorganics					
Alkalinity	330,000	330,000	290,000	300,000	360,000
Bicarbonate	NA	NA	NA	NA	NA
Chloride	**80,000**	**78,000**	**83,000**	**81,000**	10,000

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-78 (continued)				GM-79
Top of Screen Depth (ft bls)	20	20	20	20	25
Sample Date	02/28/07	05/11/07	08/14/07	11/08/07	09/18/03
Sample ID	GWGM-998 (2/28/07)	GWGM-78(5/11/07)	GWGM78 (8/14/07)	GWGM-78 (11/8/07)	GM-79 (9/18/03)
Inorganics (continued)					
Chlorides Soluble	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**180 B**	**43**	**180**	**50 B**	**57**
Nitrogen, Nitrate	35 J B	<50	28 J	<50	<50
Nitrogen, Nitrite	<50	<50	11 J	11 J B	<50
Ortho-Phosphate	NA	NA	NA	NA	<50
Phosphate	<50	28 J	<50	<50	NA
Phosphorus	56 J	<100	<100	<100	<100
Silica	28,900	27,600	30,800	27,200	NA
Silica, Dissolved	NA	NA	NA	NA	37,000
Sulfate	19,000	15,000	<5,000	8,600	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	<1,000
Acetic Acid	**36,000**	<500 *	510	<500	<1,000
Biochemical Oxygen Demand	<2,000	<2,000	<2,000 H	<2,000 *	<2,000
Chemical Oxygen Demand	NA	19,000	6,000	42,000	<20,000
Total Organic Carbon	3,000	2,000	2,200	1,900	8,000
Density	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	NA
Methane	6,580	5,650	5,620	4.78	1,760
Suspended Solids	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)				
Top of Screen Depth (ft bls)	25	25	25	25	25
Sample Date	04/26/04	07/29/05	12/04/06	02/22/07	02/22/07
Sample ID	GWGM-79 (4/26/04)	GWGM-79 (7/29/05)	GWGM-79(12/4/06)	GWGM-79 (2/22/07)	GWGM-79-RE (2/22/07)
VOCs					
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	NA
1,2,4-Trimethylbenzene	0.28 J	<1.0	<1.0	<1.0	NA
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	NA
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	NA
2-Butanone (MEK)	<50	<50	<50	<50	NA
2-Hexanone	<50	<50	<50	<50	NA
4-Methyl-2-pentanone (MIBK)	<50	<50	<50 *	<50	NA
Acetone	<100	<100	<100	<100	NA
Acrylonitrile	<25	<25	<25	<25	NA
Benzene	1.1	1.6	<1.0	<1.0	NA
Bromochloromethane	<1.0	<1.0	<1.0	<1.0	NA
Bromoform	<1.0	<1.0	<1.0	<1.0	NA
Bromomethane	<1.0	<1.0	<1.0	<1.0	NA
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	NA
Chloroethane	<1.0	<1.0	<1.0	<1.0	NA
Chloromethane	<1.0	<1.0	<1.0	0.64 J	NA
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	NA
Diethylether	0.89 J	1.4 J	<10	<10	NA
Ethylbenzene	0.39 J	<1.0	<1.0	<1.0	NA
Furan	<2.0	<10	<10	<10	NA
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	NA
Methyl iodide	1.46 JB	<5.0	<5.0	<5.0	NA
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0	NA
Methylene chloride	<1.0	<1.0	<1.0	<1.0	NA
Propionitrile	<25	<25	<25	<25	NA
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	NA
Tetrahydrofuran	<2.0	<10	<10	<10	NA
Toluene	0.99 J	1.5	<1.0	<1.0	NA
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	NA
Trichloroethene	0.80 J	<1.0	<1.0	<1.0	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)				
Top of Screen Depth (ft bls)	25	25	25	25	25
Sample Date	04/26/04	07/29/05	12/04/06	02/22/07	02/22/07
Sample ID	GWGM-79 (4/26/04)	GWGM-79 (7/29/05)	GWGM-79(12/4/06)	GWGM-79 (2/22/07)	GWGM-79-RE (2/22/07)
VOCs (continued)					
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	1.5 J	<3.0	<3.0	NA
Xylenes, m+p	NA	NA	NA	NA	NA
SVOCs					
1,4-Dichlorobenzene	<5.0	<4.9	<4.9	<4.7	<4.7 H
2,3-Dimethylphenol	<10	11	<9.8	<9.4	<9.4 H
2,4-Dimethylphenol	NA	29	<4.9 *	1.1 J	<4.7 H
2,4-Dimethylphenol/2,5-Dimethylphenol	20	58	<9.8	2.1 J	<9.4 H
2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	12	15	1.6 J	1.6 J	1.6 J H
2-Methylphenol	<5.0	<4.9	<4.9	<4.7	<4.7 H
2-Nitrophenol	<5.0	<4.9	<4.9	<4.7	<4.7 H
3,4-Dimethylphenol	<10	<9.7	<9.8	<9.4	<9.4 H
3-Methylphenol	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	2.0 J	<4.9	<4.9	<4.7	<4.7 H
4-Methylphenol	NA	NA	NA	NA	NA
Anthracene	<5.0	<4.9	<4.9	<4.7	<4.7 H
Benzo(a)anthracene	<5.0	<4.9	<4.9	<4.7	<4.7 H
Benzo(a)pyrene	<5.0	<4.9	<4.9	<4.7	<4.7 H
Benzo(b)fluoranthene	<5.0	<4.9	<4.9	<4.7	<4.7 H
Benzo(g,h,i)perylene	<5.0	<4.9	<4.9	<4.7	<4.7 H
Benzo(k)fluoranthene	<5.0	<4.9	<4.9	<4.7	<4.7 H
bis(2-Ethylhexyl)phthalate	<5.0	<4.9	<4.9	<4.7	<4.7 H
Butylbenzylphthalate	<5.0	<4.9	<4.9	<4.7	<4.7 H
Carbazole	<5.0	<4.9	<4.9	<4.7	<4.7 H
Chrysene	<5.0	<4.9	<4.9	<4.7	<4.7 H
Dibenzo(a,h)anthracene	<5.0	<4.9	<4.9	<4.7	<4.7 H
Diethylphthalate	<5.0	<4.9	<4.9	<4.7	<4.7 H
Di-n-butylphthalate	<5.0	<4.9	<4.9	<4.7	<4.7 H

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)				
Top of Screen Depth (ft bls)	25	25	25	25	25
Sample Date	04/26/04	07/29/05	12/04/06	02/22/07	02/22/07
Sample ID	GWGM-79 (4/26/04)	GWGM-79 (7/29/05)	GWGM-79(12/4/06)	GWGM-79 (2/22/07)	GWGM-79-RE (2/22/07)
SVOCs (continued)					
Di-n-octylphthalate	<5.0	<4.9	<4.9	<4.7	<4.7 H
Fluoranthene	<5.0	<4.9	<4.9	<4.7	<4.7 H
Indeno(1,2,3-c,d)pyrene	<5.0	<4.9	<4.9	<4.7	<4.7 H
Naphthalene	<5.0	<4.9	<4.9	<4.7	<4.7 H
Phenol	<5.0	<4.9	<4.9	<4.7	<4.7 H
Pyrene	<5.0	<4.9	<4.9	<4.7	<4.7 H
Metals					
Aluminum	200 B	29 J	<200	15 J	NA
Aluminum-DISS	<200	<200	<200	<200	NA
Antimony	<50	<50	<50	<50	NA
Antimony-DISS	<50	5.4 J	<50	<50	NA
Arsenic	17 B	19 J	18 J	14 J	NA
Arsenic-DISS	15 B	19 J	19 J	13 J	NA
Barium	280	260	160 B	180 B	NA
Barium-DISS	290	270	170 B	190 B	NA
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	NA
Cadmium	<0.50	<0.50	<0.50	<0.50	NA
Cadmium-DISS	<0.50	<0.50	<0.50	<0.50	NA
Calcium	81,000	18,000	64,000	62,000	NA
Calcium-DISS	87,000	97,000	70,000	62,000	NA
Chromium	0.77 B	<5.0	<5.0	<5.0	NA
Chromium-DISS	<5.0	2.0 J	<5.0	<5.0	NA
Cobalt	4.8 B	6.1 J	3.3 J	2.8 J	NA
Cobalt-DISS	5.0 B	6.7 J	3.5 J	3.1 J	NA
Copper	<25	0.39 J	0.71 J B	0.67 J	NA
Copper-DISS	<25	0.54 J	<25	0.78 J	NA
Iron	9,700	2,300	6,800	5,100	NA
Iron-DISS	10,000	12,000	7,400	4,800	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)				
Top of Screen Depth (ft bls)	25	25	25	25	25
Sample Date	04/26/04	07/29/05	12/04/06	02/22/07	02/22/07
Sample ID	GWGM-79 (4/26/04)	GWGM-79 (7/29/05)	GWGM-79(12/4/06)	GWGM-79 (2/22/07)	GWGM-79-RE (2/22/07)
Metals (continued)					
Lead	<3.0	<3.0	<3.0	<3.0	NA
Lead-DISS	<3.0	0.58 J	<3.0	<3.0	NA
Magnesium	35,000	40,000	27,000	27,000	NA
Magnesium-DISS	37,000	43,000	29,000	24,000	NA
Manganese	1,000	1,100	840	780	NA
Manganese-DISS	1,100	1,200	930	780	NA
Mercury	<0.20	<0.20	<0.20	<0.20	NA
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	NA
Molybdenum	2.4 B	2.5 J	3.6 J	3.3 J	NA
Molybdenum-DISS	2.6 B	2.3 J	4.0 J	3.3 J	NA
Nickel	3.5 B	3.1 J B	1.5 J	1.6 J	NA
Nickel-DISS	3.0 B	4.3 J	1.9 J	1.7 J	NA
Potassium	2,600	2,200	2,300	4,700	NA
Potassium-DISS	2,800	2,400	2,400	4,900	NA
Selenium	<5.0	<5.0	<5.0	<5.0	NA
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	NA
Silver	<0.20	<0.20	<0.20	<0.20	NA
Silver-DISS	<0.20	<0.20	<0.20	<0.20	NA
Sodium	4,300	4,700	3,700 B	48,000	NA
Sodium-DISS	4,600	5,100	4,000	41,000	NA
Thallium	<2.0	0.32 J	<2.0	<2.0	NA
Thallium-DISS	<2.0	<2.0	<2.0	<2.0	NA
Titanium	9.0 B	3.7 J	2.1 J	2.1 J	NA
Titanium-DISS	0.79 B	3.2 J	2.3 J	1.8 J	NA
Vanadium	1.0 B	<20	<20	<20	NA
Vanadium-DISS	0.58 B	<20	<20	<20	NA
Zinc	1.5 B	6.4 J	5.2 J B	8.5 J	NA
Zinc-DISS	0.98 B	10 J	10 J B	7.6 J B	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)				
Top of Screen Depth (ft bls)	25	25	25	25	25
Sample Date	04/26/04	07/29/05	12/04/06	02/22/07	02/22/07
Sample ID	GWGM-79 (4/26/04)	GWGM-79 (7/29/05)	GWGM-79(12/4/06)	GWGM-79 (2/22/07)	GWGM-79-RE (2/22/07)
Alcohols					
1,4-Dioxane	<5.0	<4.9	<4.9	<4.7	<4.7 H
Acetonitrile	<50	<50	<50	<50	NA
Ethanol	<1,000	<1,000	<1,000	<1,000	NA
Ethylacetate	<5,000	<5,000	<5,000	<5,000	NA
Ethylene glycol	<5,000	<10,000	<10,000	<10,000	NA
Isobutanol	<1,000	<1,000	<1,000	<1,000	NA
Isopropanol	<1,000	<1,000	<1,000	<1,000	NA
Methanol	**580 J**	<1,000	**1,400**	<1,000	NA
n-Butanol	<1,000	<1,000	<1,000	<1,000	NA
Aldehydes					
Acetaldehyde	<100	<100	<100	<100	NA
Butanal	<100	<100	<100	<100	NA
Crotonaldehyde	<100	<100	<100	<100	NA
Cyclohexanone	<100	<100	<100	<100	NA
Decanal	<100	<100	6.2 J	<100	NA
Formaldehyde	<100	<100	<100	<100	NA
Heptanal	<100	<100	<100	<100	NA
Hexanal	<100	<100	<100	<100	NA
m-Tolualdehyde	<100	<100	<100	<100	NA
Nonanal	<100	<100	3.4 J	7.1 J	NA
Octanal	<100	<100	3.5 J	<100	NA
Paraldehyde	<100	<100	<100	<100	NA
Pentanal	<100	<100	<100	6.8 J	NA
Propanal	<100	<100	<100	<100	NA
Inorganics					
Alkalinity	380,000	380,000	240,000	230,000	NA
Bicarbonate	NA	NA	NA	NA	NA
Chloride	12,000	12,000	26,000	**99,000**	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)				
Top of Screen Depth (ft bls)	25	25	25	25	25
Sample Date	04/26/04	07/29/05	12/04/06	02/22/07	02/22/07
Sample ID	GWGM-79 (4/26/04)	GWGM-79 (7/29/05)	GWGM-79(12/4/06)	GWGM-79 (2/22/07)	GWGM-79-RE (2/22/07)
Inorganics (continued)					
Chlorides Soluble	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	<30	<30	**230**	**390**	NA
Nitrogen, Nitrate	<50	95	59	280 B	NA
Nitrogen, Nitrite	<50	<50	<50	<50	NA
Ortho-Phosphate	<50	NA	NA	NA	NA
Phosphate	NA	<50	<50	<50	NA
Phosphorus	54 J	80 J	<100	74 J	NA
Silica	NA	NA	27,600	22,400	NA
Silica, Dissolved	32,000	28,000	NA	NA	NA
Sulfate	<5,000	<5,000	<5,000	<5,000	NA
Sulfate Soluble	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	1,300	<1,000	NA
Acetic Acid	<500	310 J	<500	<500	NA
Biochemical Oxygen Demand	<2,000	<2,000	<2,000	2,200 H	NA
Chemical Oxygen Demand	28,000	32,000	24,000	33,000	NA
Total Organic Carbon	8,800	9,300	1,700	4,300	NA
Density	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	NA
Methane	28,700	29,300	30,900	25,200	NA
Suspended Solids	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)				
Top of Screen Depth (ft bls)	25	25	25	25	25
Sample Date	02/22/07	02/22/07	05/09/07	08/07/07	11/06/07
Sample ID	GWGM-999 (2/22/07)	GWGM-999-RE (2/22/07)	GWGM-79 (5/9/07)	GWGM-79 (8/7/07)	GWGM-79(11/6/07)
VOCs					
1,1-Dichloroethene	<1.0	NA	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	NA	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	NA	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	NA	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	NA	<50	<50	<50
2-Hexanone	<50	NA	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	NA	<50	<50	<50
Acetone	<100	NA	<100	<100	<100
Acrylonitrile	<25	NA	<25	<25	<25
Benzene	<1.0	NA	<1.0	0.39 J	<1.0
Bromochloromethane	<1.0	NA	<1.0	<1.0	0.37 J
Bromoform	<1.0	NA	<1.0	<1.0	<1.0
Bromomethane	<1.0	NA	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	NA	<5.0	<5.0	<5.0
Chloroethane	<1.0	NA	<1.0	<1.0	<1.0
Chloromethane	0.56 J	NA	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	NA	<1.0	<1.0	0.42 J
Diethylether	<10	NA	<10	0.73 J	<10
Ethylbenzene	<1.0	NA	<1.0	<1.0	<1.0
Furan	<10	NA	<10	<10	<10
Isopropylbenzene	<1.0	NA	<1.0	<1.0	<1.0
Methyl iodide	<5.0	NA	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	NA	<5.0	<5.0	<5.0
Methylene chloride	<1.0	NA	<1.0	<1.0	<1.0
Propionitrile	<25	NA	<25	<25	<25
Tetrachloroethene	<1.0	NA	<1.0	<1.0	<1.0
Tetrahydrofuran	<10	NA	<10	<10	<10
Toluene	<1.0	NA	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	<1.0	NA	<1.0	<1.0	<1.0
Trichloroethene	<1.0	NA	<1.0	<1.0	<1.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)				
Top of Screen Depth (ft bls)	25	25	25	25	25
Sample Date	02/22/07	02/22/07	05/09/07	08/07/07	11/06/07
Sample ID	GWGM-999 (2/22/07)	GWGM-999-RE (2/22/07)	GWGM-79 (5/9/07)	GWGM-79 (8/7/07)	GWGM-79(11/6/07)
VOCs (continued)					
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	NA	<3.0	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA
SVOCs					
1,4-Dichlorobenzene	<4.7	<4.7 H	<4.7	<4.7	<4.7
2,3-Dimethylphenol	<9.4	<9.4 H	<9.4	<9.4	<9.4
2,4-Dimethylphenol	1.0 J	<4.7 H	1.6 J	<4.7	<4.7
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.4	<9.4 H	<9.4	<9.4	<9.4
2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	<9.4	<9.4 H	2.1 J	<9.4	1.0 J
2-Methylphenol	<4.7	<4.7 H	<4.7	<4.7	<4.7
2-Nitrophenol	<4.7	<4.7 H	<4.7	<4.7	<4.7
3,4-Dimethylphenol	<9.4	<9.4 H	<9.4	<9.4	<9.4
3-Methylphenol	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<4.7 H	<4.7	<4.7	<4.7
4-Methylphenol	NA	NA	NA	NA	NA
Anthracene	<4.7	<4.7 H	<4.7	<4.7	<4.7
Benzo(a)anthracene	<4.7	<4.7 H	<4.7	<4.7	<4.7
Benzo(a)pyrene	<4.7	<4.7 H	<4.7	<4.7	<4.7
Benzo(b)fluoranthene	<4.7	<4.7 H	<4.7	<4.7	<4.7
Benzo(g,h,i)perylene	<4.7	2.3 J H	<4.7	<4.7	<4.7
Benzo(k)fluoranthene	<4.7	<4.7 H	<4.7	<4.7	<4.7
bis(2-Ethylhexyl)phthalate	<4.7	<4.7 H	<4.7	<4.7	<4.7
Butylbenzylphthalate	<4.7	<4.7 H	<4.7	<4.7	<4.7
Carbazole	<4.7	<4.7 H	<4.7	<4.7	<4.7
Chrysene	<4.7	<4.7 H	<4.7	<4.7	<4.7
Dibenzo(a,h)anthracene	<4.7	2.0 J H	<4.7	<4.7	<4.7
Diethylphthalate	<4.7	<4.7 H	<4.7	<4.7	<4.7
Di-n-butylphthalate	<4.7	<4.7 H	<4.7	<4.7	<4.7

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)				
Top of Screen Depth (ft bls)	25	25	25	25	25
Sample Date	02/22/07	02/22/07	05/09/07	08/07/07	11/06/07
Sample ID	GWGM-999 (2/22/07)	GWGM-999-RE (2/22/07)	GWGM-79 (5/9/07)	GWGM-79 (8/7/07)	GWGM-79(11/6/07)
SVOCs (continued)					
Di-n-octylphthalate	<4.7	<4.7 H	<4.7	<4.7	<4.7
Fluoranthene	<4.7	<4.7 H	<4.7	<4.7	<4.7
Indeno(1,2,3-c,d)pyrene	<4.7	1.9 J H B	<4.7	<4.7	<4.7
Naphthalene	<4.7	<4.7 H	<4.7	<4.7	<4.7
Phenol	<4.7	<4.7 H	<4.7	<4.7	<4.7
Pyrene	<4.7	<4.7 H	<4.7	<4.7	<4.7
Metals					
Aluminum	14 J	NA	<200	<200	<200
Aluminum-DISS	<200	NA	<200	20 J	<200
Antimony	<50	NA	<50	<50	<50
Antimony-DISS	<50	NA	<50	<50	<50
Arsenic	15 J	NA	18 J	18 J B	16 J
Arsenic-DISS	14 J	NA	20 J	17 J B	15 J
Barium	200 B	NA	180 B	210	210
Barium-DISS	190 B	NA	230 B	210	220
Beryllium-DISS	<1.0	NA	<1.0	<1.0	<1.0
Cadmium	<0.50	NA	<0.50	<0.50	<0.50
Cadmium-DISS	<0.50	NA	<0.50	<0.50	<0.50
Calcium	68,000	NA	64,000	71,000	82,000
Calcium-DISS	63,000	NA	77,000	72,000	75,000
Chromium	<5.0	NA	<5.0	1.2 J B	<5.0
Chromium-DISS	<5.0	NA	<5.0	1.0 J B	<5.0
Cobalt	3.1 J	NA	2.9 J	2.9 J	2.9 J
Cobalt-DISS	3.1 J	NA	3.3 J	3.1 J	3.1 J
Copper	0.72 J	NA	0.80 J	<25	1.3 J
Copper-DISS	<25	NA	0.67 J	<25	<25
Iron	5,700	NA	6,300	6,700	5,600
Iron-DISS	4,900	NA	7,000	6,500	4,800

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)				
Top of Screen Depth (ft bls)	25	25	25	25	25
Sample Date	02/22/07	02/22/07	05/09/07	08/07/07	11/06/07
Sample ID	GWGM-999 (2/22/07)	GWGM-999-RE (2/22/07)	GWGM-79 (5/9/07)	GWGM-79 (8/7/07)	GWGM-79(11/6/07)
Metals (continued)					
Lead	<3.0	NA	<3.0	<3.0	<3.0
Lead-DISS	<3.0	NA	<3.0	<3.0	<3.0
Magnesium	29,000	NA	27,000	29,000	35,000
Magnesium-DISS	24,000	NA	33,000	30,000	33,000
Manganese	860	NA	800	930	940
Manganese-DISS	780	NA	940	940	930
Mercury	<0.20	NA	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	NA	<0.20	**0.091 J**	<0.20
Molybdenum	3.5 J	NA	3.5 J	3.4 J	2.9 J
Molybdenum-DISS	3.3 J	NA	4.4 J	3.8 J	3.5 J
Nickel	1.6 J	NA	1.6 J	1.6 J	1.6 J
Nickel-DISS	1.6 J	NA	2.0 J	1.5 J	1.4 J
Potassium	5,000	NA	2,300	2,300	2500 B
Potassium-DISS	5,000	NA	2,600	2,400	2,500
Selenium	<5.0	NA	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	NA	<5.0	<5.0	<5.0
Silver	<0.20	NA	<0.20	<0.20	<0.20
Silver-DISS	<0.20	NA	<0.20	<0.20	0.14 J B
Sodium	52,000	NA	4,900	5,800	7,000 B
Sodium-DISS	41,000	NA	6,000	6,000	6,600 B
Thallium	<2.0	NA	<2.0	<2.0	<2.0
Thallium-DISS	<2.0	NA	0.36 J	<2.0	<2.0
Titanium	2.1 J	NA	1.2 J	1.8 J	1.9 J
Titanium-DISS	1.9 J	NA	1.9 J	2.2 J	2.0 J
Vanadium	<20	NA	<20	2.2 J B	<20
Vanadium-DISS	<20	NA	<20	1.9 J B	<20
Zinc	7.2 J	NA	7.3 J	<20	<20
Zinc-DISS	7.0 J B	NA	6.6 J B	<20	<20

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)				
Top of Screen Depth (ft bls)	25	25	25	25	25
Sample Date	02/22/07	02/22/07	05/09/07	08/07/07	11/06/07
Sample ID	GWGM-999 (2/22/07)	GWGM-999-RE (2/22/07)	GWGM-79 (5/9/07)	GWGM-79 (8/7/07)	GWGM-79(11/6/07)
Alcohols					
1,4-Dioxane	<4.7	<4.7 H	<4.7	<4.7	<4.7
Acetonitrile	<50	NA	<50	<50	<50
Ethanol	<1,000	NA	<1,000	<1,000	<1,000
Ethylacetate	<5,000	NA	<5,000	<5,000	<5,000
Ethylene glycol	<10,000	NA	<10,000	<10,000	<10,000
Isobutanol	<1,000	NA	<1,000	<1,000	<1,000
Isopropanol	<1,000	NA	<1,000	<1,000	<1,000
Methanol	<1,000	NA	<1,000	<1,000	**580 J**
n-Butanol	<1,000	NA	<1,000	<1,000	<1,000
Aldehydes					
Acetaldehyde	<100	NA	<100	<100	<100
Butanal	<100	NA	<100	<100	<100
Crotonaldehyde	<100	NA	<100	<100	<100
Cyclohexanone	<100	NA	<100	<100	<100
Decanal	<100	NA	8.0 J	<100	<100
Formaldehyde	<100	NA	<100	13 J	<100
Heptanal	<100	NA	<100	<100	<100
Hexanal	<100	NA	<100	7.2 J	<100
m-Tolualdehyde	<100	NA	<100	<100	<100
Nonanal	6.4 J	NA	7.3 J	<100	<100
Octanal	<100	NA	<100	<100	<100
Paraldehyde	<100	NA	<100	<100	<100
Pentanal	8.2 J	NA	<100	10 J	<100
Propanal	<100	NA	<100	<100	<100
Inorganics					
Alkalinity	220,000	NA	260,000	260,000	280,000
Bicarbonate	NA	NA	NA	NA	NA
Chloride	**96,000**	NA	27,000	28,000	30,000

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)				
Top of Screen Depth (ft bls)	25	25	25	25	25
Sample Date	02/22/07	02/22/07	05/09/07	08/07/07	11/06/07
Sample ID	GWGM-999 (2/22/07)	GWGM-999-RE (2/22/07)	GWGM-79 (5/9/07)	GWGM-79 (8/7/07)	GWGM-79(11/6/07)
Inorganics (continued)					
Chlorides Soluble	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**420**	NA	**57**	**260**	**39**
Nitrogen, Nitrate	290 B	NA	620	810	1200
Nitrogen, Nitrite	<50	NA	<50	24 J	21 J
Ortho-Phosphate	NA	NA	NA	NA	NA
Phosphate	<50	NA	<50	<50	<50
Phosphorus	66 J	NA	<100	<100	<100
Silica	23,200	NA	24,000	23,700	24,500
Silica, Dissolved	NA	NA	NA	NA	NA
Sulfate	<5,000	NA	<5,000	<5,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA
Sulfide	<1,000	NA	<1,000	<1,000	<1,000
Acetic Acid	<500	NA	<500	<500	<500
Biochemical Oxygen Demand	2,200 H	NA	2,400	<2,000	<2,000 *
Chemical Oxygen Demand	NA	NA	7,000	9,000	10,000
Total Organic Carbon	4,000	NA	1,900	2,000	1,900
Density	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	NA
Methane	27,400	NA	24,400	29,800	28.5
Suspended Solids	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)	GM-84			
Top of Screen Depth (ft bls)	25	77	77	77	77
Sample Date	11/06/07	08/19/04	08/19/04	08/01/05	12/12/06
Sample ID	GWGM-79(11/6/07)-RE	GWGM-84 (8/19/04)	GWGM-84 (8/19/04)-RE	GWGM-84 (08/01/05)	GWGM-84 (12/12/06)
VOCs					
1,1-Dichloroethene	NA	<1.0	NA	<1.0	<1.0
1,2,4-Trimethylbenzene	NA	<1.0	NA	<1.0	<1.0
1,2-Dichloroethene (total)	NA	<2.0	NA	<2.0	<2.0
1,3,5-Trimethylbenzene	NA	<1.0	NA	<1.0	<1.0
2-Butanone (MEK)	NA	<50	NA	<50	<50
2-Hexanone	NA	<50	NA	<50	<50
4-Methyl-2-pentanone (MIBK)	NA	<50	NA	<50	<50
Acetone	NA	<100	NA	<100	<100
Acrylonitrile	NA	<25	NA	<25	<25
Benzene	NA	<1.0	NA	<1.0	<1.0
Bromochloromethane	NA	<1.0	NA	<1.0	<1.0 *
Bromoform	NA	<1.0	NA	<1.0	<1.0
Bromomethane	NA	<1.0	NA	<1.0	<1.0
Carbon disulfide	NA	<5.0	NA	<5.0	<5.0
Chloroethane	NA	<1.0	NA	<1.0	<1.0
Chloromethane	NA	<1.0	NA	<1.0	<1.0
cis-1,2-Dichloroethene	NA	<1.0	NA	<1.0	<1.0
Diethylether	NA	<10	NA	<10	<10
Ethylbenzene	NA	0.54 J	NA	<1.0	<1.0
Furan	NA	<2.0	NA	<10	<10
Isopropylbenzene	NA	<1.0	NA	<1.0	<1.0
Methyl iodide	NA	<5.0	NA	<5.0	<5.0
Methyl(tert)butyl ether	NA	<5.0	NA	<5.0	<5.0
Methylene chloride	NA	<1.0	NA	<1.0	<1.0
Propionitrile	NA	<25	NA	<25	<25
Tetrachloroethene	NA	4.8	NA	<1.0	<1.0
Tetrahydrofuran	NA	<2.0	NA	<10	<10
Toluene	NA	<1.0	NA	<1.0	<1.0
trans-1,2-Dichloroethene	NA	<1.0	NA	<1.0	<1.0
Trichloroethene	NA	<1.0	NA	<1.0	<1.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)	GM-84			
Top of Screen Depth (ft bls)	25	77	77	77	77
Sample Date	11/06/07	08/19/04	08/19/04	08/01/05	12/12/06
Sample ID	GWGM-79(11/6/07)-RE	GWGM-84 (8/19/04)	GWGM-84 (8/19/04)-RE	GWGM-84 (08/01/05)	GWGM-84 (12/12/06)
VOCs (continued)					
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	NA	2.4 J	NA	<3.0	<3.0
Xylenes, m+p	NA	NA	NA	NA	NA
SVOCs					
1,4-Dichlorobenzene	<4.7 H	NA	<5.0	<4.8	<5.0
2,3-Dimethylphenol	<9.4 H	NA	<10	<9.6	<10
2,4-Dimethylphenol	<4.7 H	NA	NA	<4.8	<5.0
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.4 H	NA	<15	<9.6	<10
2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	1.1 J H	NA	<10	<9.6	<10
2-Methylphenol	<4.7 H	NA	<5.0	<4.8	<5.0
2-Nitrophenol	<4.7 H	NA	<5.0	<4.8	<5.0
3,4-Dimethylphenol	<9.4 H	NA	<10	<9.6	<10
3-Methylphenol	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7 H	NA	<5.0	<4.8	<5.0
4-Methylphenol	NA	NA	NA	NA	NA
Anthracene	<4.7 H	NA	<5.0	<4.8	<5.0
Benzo(a)anthracene	<4.7 H	NA	<5.0	<4.8	<5.0
Benzo(a)pyrene	<4.7 H	NA	<5.0	<4.8	<5.0
Benzo(b)fluoranthene	<4.7 H	NA	<5.0	<4.8	<5.0
Benzo(g,h,i)perylene	<4.7 H	NA	<5.0	<4.8	<5.0
Benzo(k)fluoranthene	<4.7 H	NA	<5.0	<4.8	<5.0
bis(2-Ethylhexyl)phthalate	<4.7 H	NA	<5.0	<4.8	<5.0
Butylbenzylphthalate	<4.7 H	NA	<5.0	<4.8	<5.0
Carbazole	<4.7 H	NA	<5.0	<4.8	<5.0
Chrysene	<4.7 H	NA	<5.0	<4.8	<5.0
Dibenzo(a,h)anthracene	<4.7 H	NA	<5.0	<4.8	<5.0
Diethylphthalate	<4.7 H	NA	<5.0	<4.8	<5.0
Di-n-butylphthalate	<4.7 H	NA	<5.0	<4.8	<5.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)	GM-84			
Top of Screen Depth (ft bls)	25	77	77	77	77
Sample Date	11/06/07	08/19/04	08/19/04	08/01/05	12/12/06
Sample ID	GWGM-79(11/6/07)-RE	GWGM-84 (8/19/04)	GWGM-84 (8/19/04)-RE	GWGM-84 (08/01/05)	GWGM-84 (12/12/06)
SVOCs (continued)					
Di-n-octylphthalate	<4.7 H	NA	<5.0	<4.8	<5.0
Fluoranthene	<4.7 H	NA	<5.0	<4.8	<5.0
Indeno(1,2,3-c,d)pyrene	<4.7 H	NA	<5.0	<4.8	<5.0
Naphthalene	<4.7 H	NA	<5.0	<4.8	<5.0
Phenol	<4.7 H	NA	<5.0	<4.8	<5.0
Pyrene	<4.7 H	NA	<5.0	<4.8	<5.0
Metals					
Aluminum	NA	660	NA	480	22 J
Aluminum-DISS	NA	<100	NA	16 J	20 J B
Antimony	NA	<25	NA	<50	5.0 J
Antimony-DISS	NA	<25	NA	<50	<50
Arsenic	NA	<10	NA	4.0 J	4.2 J
Arsenic-DISS	NA	2.6 B	NA	3.7 J	4.1 J
Barium	NA	120	NA	96 J	110
Barium-DISS	NA	110	NA	95 J	110 B
Beryllium-DISS	NA	<0.50	NA	<1.0	<1.0
Cadmium	NA	<0.50	NA	0.22 J	<0.50
Cadmium-DISS	NA	<0.50	NA	<0.50	<0.50
Calcium	NA	68,000	NA	15,000	71,000
Calcium-DISS	NA	65,000	NA	68,000	71,000 B
Chromium	NA	4.2	NA	<5.0	<5.0
Chromium-DISS	NA	<2.5	NA	<5.0	<5.0
Cobalt	NA	<5.0	NA	0.23 J	0.10 J
Cobalt-DISS	NA	<5.0	NA	0.22 J	0.24 J
Copper	NA	6.6 B	NA	2.3 J	2.7 J
Copper-DISS	NA	2.7 B	NA	2.6 J	0.45 J
Iron	NA	890	NA	13 J	<100
Iron-DISS	NA	<50	NA	<100	<100

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)	GM-84			
Top of Screen Depth (ft bls)	25	77	77	77	77
Sample Date	11/06/07	08/19/04	08/19/04	08/01/05	12/12/06
Sample ID	GWGM-79(11/6/07)-RE	GWGM-84 (8/19/04)	GWGM-84 (8/19/04)-RE	GWGM-84 (08/01/05)	GWGM-84 (12/12/06)
Metals (continued)					
Lead	NA	<1.5	NA	0.88 J	<3.0
Lead-DISS	NA	<1.5	NA	0.51 J	<3.0
Magnesium	NA	37,000	NA	41,000	38,000
Magnesium-DISS	NA	36,000	NA	38,000	37,000 B
Manganese	NA	170	NA	100	60
Manganese-DISS	NA	150	NA	89	67
Mercury	NA	<0.20	NA	<0.20	<0.20
Mercury-DISS	NA	**0.081 B**	NA	<0.20	<0.20
Molybdenum	NA	3.2 B	NA	4.5 J	<10
Molybdenum-DISS	NA	3.4 B	NA	2.1 J	<10
Nickel	NA	3.0 B	NA	1.3 J B	1.6 J
Nickel-DISS	NA	<12	NA	0.66 J	0.87 J B
Potassium	NA	3,000	NA	2,000	2,500
Potassium-DISS	NA	2,800	NA	2,200	2,600
Selenium	NA	<2.5	NA	<5.0	<5.0
Selenium-DISS	NA	<2.5	NA	<5.0	<5.0
Silver	NA	<0.20	NA	<0.20	<0.20
Silver-DISS	NA	<0.20	NA	<0.20	<0.20
Sodium	NA	6,800	NA	6,800	9,300
Sodium-DISS	NA	6,600	NA	7,900	9,000
Thallium	NA	<2.0	NA	<2.0	<2.0
Thallium-DISS	NA	<2.0	NA	<2.0	<2.0
Titanium	NA	29	NA	2.2 J	<50
Titanium-DISS	NA	<25	NA	1.0 J	1.1 J
Vanadium	NA	1.9 B	NA	2.9 J	<20
Vanadium-DISS	NA	0.59 B	NA	<20	<20
Zinc	NA	21	NA	6.2 J	37
Zinc-DISS	NA	17	NA	<20	11 J

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)	GM-84			
Top of Screen Depth (ft bls)	25	77	77	77	77
Sample Date	11/06/07	08/19/04	08/19/04	08/01/05	12/12/06
Sample ID	GWGM-79(11/6/07)-RE	GWGM-84 (8/19/04)	GWGM-84 (8/19/04)-RE	GWGM-84 (08/01/05)	GWGM-84 (12/12/06)
Alcohols					
1,4-Dioxane	<4.7 H	<5.0	<5.0	<4.8	<5.0
Acetonitrile	NA	<50	NA	<50	<50
Ethanol	NA	<1,000	NA	<1,000	<1,000
Ethylacetate	NA	<5,000	NA	<5,000	<5,000
Ethylene glycol	NA	790 J	NA	<10,000	<10,000
Isobutanol	NA	<1,000	NA	<1,000	<1,000
Isopropanol	NA	<1,000	NA	<1,000	<1,000
Methanol	NA	<1,000	NA	<1,000	<1,000
n-Butanol	NA	<1,000	NA	<1,000	<1,000
Aldehydes					
Acetaldehyde	NA	<100	NA	<100	<100
Butanal	NA	<100	NA	<100	<100
Crotonaldehyde	NA	<100	NA	39 J	<100
Cyclohexanone	NA	<100	NA	790	<100
Decanal	NA	<100	NA	<100	<100
Formaldehyde	NA	<100	NA	37 J	<100
Heptanal	NA	<100	NA	23 J	<100
Hexanal	NA	<100	NA	<100	<100
m-Tolualdehyde	NA	<100	NA	2100	<100
Nonanal	NA	<100	NA	<100	<100
Octanal	NA	<100	NA	39 J	<100
Paraldehyde	NA	<100	NA	<100	<100
Pentanal	NA	<100	NA	<100	<100
Propanal	NA	<100	NA	<100	<100
Inorganics					
Alkalinity	NA	250,000	NA	290,000	230,000
Bicarbonate	NA	NA	NA	NA	NA
Chloride	NA	35,000	NA	42,000	46,000

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-79 (continued)	GM-84			
Top of Screen Depth (ft bls)	25	77	77	77	77
Sample Date	11/06/07	08/19/04	08/19/04	08/01/05	12/12/06
Sample ID	GWGM-79(11/6/07)-RE	GWGM-84 (8/19/04)	GWGM-84 (8/19/04)-RE	GWGM-84 (08/01/05)	GWGM-84 (12/12/06)
Inorganics (continued)					
Chlorides Soluble	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	NA	<30	NA	<30	33
Nitrogen, Nitrate	NA	<50	NA	<50	<50 H
Nitrogen, Nitrite	NA	<50	NA	<50	<50 H
Ortho-Phosphate	NA	<50	NA	NA	<50
Phosphate	NA	NA	NA	<50	NA
Phosphorus	NA	110	NA	81 J	53 J
Silica	NA	NA	NA	NA	14,100
Silica, Dissolved	NA	11,000	NA	16,000	NA
Sulfate	NA	46,000	NA	44,000	39,000
Sulfate Soluble	NA	NA	NA	NA	NA
Sulfide	NA	<1,000	NA	<1,000	1,700
Acetic Acid	NA	820 B	NA	360 J	<500
Biochemical Oxygen Demand	NA	<2,000	NA	<2,000	<2,000
Chemical Oxygen Demand	NA	15,000 J	NA	<20,000	0
Total Organic Carbon	NA	620 B	NA	<1,000	<1,000
Density	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	NA
Methane	NA	NA	4.8	20	10
Suspended Solids	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-84 (continued)				GM-87A
Top of Screen Depth (ft bls)	77	77	77	77	32
Sample Date	03/02/07	05/14/07	08/14/07	11/09/07	12/05/06
Sample ID	GWGM-84 (3/2/07)	GWGM-84 (5/14/07)	GWGM-84 (8/14/07)	GWGM-84(11/9/07)	GWGM-87A (12/5/06)
VOCs					
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	<2.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	<50	<50	<50	<50	<50
2-Hexanone	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50	<50 *
Acetone	<100	<100	<100	<100	<100
Acrylonitrile	<25	<25	<25	<25	<25
Benzene	<1.0	<1.0	<1.0	<1.0	1.3
Bromochloromethane	<1.0	<1.0	<1.0	0.35 J B	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	<5.0	<5.0	<5.0 *	<5.0	<5.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	0.72 J	<1.0	<1.0	0.48 J	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	0.82 J
Diethylether	<10	<10	<10	<10	2.6 J
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	0.71 J
Furan	<10	<10	<10	<10	<10
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl iodide	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl(tert)butyl ether	<5.0	<5.0	<5.0 *	<5.0	<5.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0
Propionitrile	<25	<25	<25	<25	<25
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrahydrofuran	<10	<10	<10	<10	0.86 J
Toluene	<1.0	1.3	1.5	6.1	1.5
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-84 (continued)				GM-87A
Top of Screen Depth (ft bls)	77	77	77	77	32
Sample Date	03/02/07	05/14/07	08/14/07	11/09/07	12/05/06
Sample ID	GWGM-84 (3/2/07)	GWGM-84 (5/14/07)	GWGM-84 (8/14/07)	GWGM-84(11/9/07)	GWGM-87A (12/5/06)
VOCs (continued)					
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	<3.0	<3.0	<3.0	1.8 J
Xylenes, m+p	NA	NA	NA	NA	NA
SVOCs					
1,4-Dichlorobenzene	<4.7	<4.7	<4.7	<4.7	<5.0
2,3-Dimethylphenol	<9.4	<9.4	<9.4	<9.4	<10
2,4-Dimethylphenol	<4.7	<4.7	<4.7	<4.7	13 *
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.4	<9.4	<9.4	<9.4	13
2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	<9.4	<9.4	<9.4	<9.4	<10
2-Methylphenol	<4.7	<4.7	<4.7	<4.7	<5.0
2-Nitrophenol	<4.7	<4.7	<4.7	<4.7	<5.0
3,4-Dimethylphenol	<9.4	<9.4	<9.4	<9.4	<10
3-Methylphenol	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<4.7	<4.7	<4.7	<5.0
4-Methylphenol	NA	NA	NA	NA	NA
Anthracene	<4.7	<4.7	<4.7	<4.7	<5.0
Benzo(a)anthracene	<4.7	<4.7	<4.7	<4.7	<5.0
Benzo(a)pyrene	<4.7	<4.7	<4.7	<4.7	<5.0
Benzo(b)fluoranthene	<4.7	<4.7	<4.7	<4.7	<5.0
Benzo(g,h,i)perylene	<4.7	<4.7	<4.7	<4.7	<5.0
Benzo(k)fluoranthene	<4.7	<4.7	<4.7	<4.7	<5.0
bis(2-Ethylhexyl)phthalate	1.0 J B	<4.7	<4.7	<4.7	<5.0
Butylbenzylphthalate	<4.7	<4.7	<4.7	<4.7	<5.0
Carbazole	<4.7	<4.7	<4.7	<4.7	<5.0
Chrysene	<4.7	<4.7	<4.7	<4.7	<5.0
Dibenzo(a,h)anthracene	<4.7	<4.7	<4.7	<4.7	<5.0
Diethylphthalate	<4.7	<4.7	<4.7	<4.7	<5.0
Di-n-butylphthalate	<4.7	<4.7	<4.7	<4.7	<5.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-84 (continued)				GM-87A
Top of Screen Depth (ft bls)	77	77	77	77	32
Sample Date	03/02/07	05/14/07	08/14/07	11/09/07	12/05/06
Sample ID	GWGM-84 (3/2/07)	GWGM-84 (5/14/07)	GWGM-84 (8/14/07)	GWGM-84(11/9/07)	GWGM-87A (12/5/06)
SVOCs (continued)					
Di-n-octylphthalate	<4.7	<4.7	<4.7	<4.7	<5.0
Fluoranthene	<4.7	<4.7	<4.7	<4.7	<5.0
Indeno(1,2,3-c,d)pyrene	<4.7	<4.7	<4.7	<4.7	<5.0
Naphthalene	<4.7	<4.7	<4.7	<4.7	<5.0
Phenol	<4.7	<4.7	<4.7	<4.7	<5.0
Pyrene	<4.7	<4.7	<4.7	<4.7	<5.0
Metals					
Aluminum	120 J	28 J	28 J	150 J	18 J B
Aluminum-DISS	<200	<200	<200	<200	<200
Antimony	<50	<50	<50	<50	<50
Antimony-DISS	<50	<50	<50	<50	<50
Arsenic	4.0 J	4.4 J	5.2 J B	4.8 J	20
Arsenic-DISS	3.7 J	4.6 J	5.3 J B	4.2 J B	20 J
Barium	110 B	120 B	110	120	220 B
Barium-DISS	110 B	110 B	110	100	230 B
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<0.50	<0.50	<0.50	<0.50	<0.50
Cadmium-DISS	<0.50	<0.50	<0.50	<0.50	<0.50
Calcium	57,000	70,000	70,000	71,000	82,000
Calcium-DISS	65,000	72,000	72,000	74,000	85,000
Chromium	<5.0	<5.0	1.8 J B	1.0 J	<5.0
Chromium-DISS	<5.0	<5.0	1.4 J B	<5.0	<5.0
Cobalt	0.29 J	0.25 J	0.32 J	0.52 J	2.5 J
Cobalt-DISS	0.15 J	0.24 J	0.27 J	0.39 J	2.5 J
Copper	0.71 J	<25	<25	<25	0.74 J B
Copper-DISS	**21 J**	<25	<25	<25	0.64 J
Iron	140	49 J	55 J	450	5,600
Iron-DISS	<100	<100	28 J	31 J	5,800

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-84 (continued)				GM-87A
Top of Screen Depth (ft bls)	77	77	77	77	32
Sample Date	03/02/07	05/14/07	08/14/07	11/09/07	12/05/06
Sample ID	GWGM-84 (3/2/07)	GWGM-84 (5/14/07)	GWGM-84 (8/14/07)	GWGM-84(11/9/07)	GWGM-87A (12/5/06)
Metals (continued)					
Lead	<3.0	<3.0	<3.0	<3.0	<3.0
Lead-DISS	0.91 J	0.88 J	<3.0	<3.0	<3.0
Magnesium	34,000	36,000	36,000	36,000	44,000
Magnesium-DISS	33,000	39,000	37,000	37,000	45,000
Manganese	110	100	100	110	1,500
Manganese-DISS	100	97	100	91	1,500
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	<0.20
Molybdenum	<10	<10	1.5 J	<10	5.7 J
Molybdenum-DISS	<10	<10	<10	<10	6.0 J
Nickel	0.75 J	0.20 J	0.35 J	0.75 J	1.2 J
Nickel-DISS	<25	0.25 J	<25	0.46 J	1.8 J
Potassium	2,600	2,600	2,600	2,800 B	2,800
Potassium-DISS	2,600	2,600	2,600	2,900	2700
Selenium	<5.0	<5.0	<5.0	<5.0	<5.0
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	<0.20	<0.20	<0.20	<0.20	<0.20
Silver-DISS	<0.20	<0.20	<0.20	<0.20	<0.20
Sodium	8,700	9,300	9,700	11,000	7,900 B
Sodium-DISS	8,500	9,700	9,800	10,000	7,900
Thallium	<2.0	0.33 J	<2.0	<2.0	<2.0
Thallium-DISS	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	3.0 J	<50	1.9 J	5.3 J	2.7 J
Titanium-DISS	<50	0.79 J	1.2 J	<50	2.6 J
Vanadium	<20	<20	4.0 J B	2.1 J B	<20
Vanadium-DISS	<20	<20	3.8 J B	0.93 J	<20
Zinc	7.1 J B	<20	<20	<20	6.1 J B
Zinc-DISS	18 J B	4.3 J	<20	<20	9.4 J B

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-84 (continued)				GM-87A
Top of Screen Depth (ft bls)	77	77	77	77	32
Sample Date	03/02/07	05/14/07	08/14/07	11/09/07	12/05/06
Sample ID	GWGM-84 (3/2/07)	GWGM-84 (5/14/07)	GWGM-84 (8/14/07)	GWGM-84(11/9/07)	GWGM-87A (12/5/06)
Alcohols					
1,4-Dioxane	<4.7	<4.7	<4.7	<4.7	<5.0
Acetonitrile	<50	<50	<50	<50	<50
Ethanol	<1,000	<1,000	<1,000	<1,000	<1,000
Ethylacetate	<5,000	<5,000	<5,000	<5,000	<5,000
Ethylene glycol	<10,000	<10,000	<10,000	<10,000	<10,000
Isobutanol	<1,000	<1,000	<1,000	<1,000	<1,000
Isopropanol	<1,000	<1,000	<1,000	<1,000	<1,000
Methanol	<1,000	<1,000	<1,000	<1,000	<1,000
n-Butanol	<1,000	<1,000	<1,000	<1,000	<1,000
Aldehydes					
Acetaldehyde	<100	<100	<100	<100	<100
Butanal	<100	<100	<100	<100	<100
Crotonaldehyde	<100	<100	<100	<100	<100
Cyclohexanone	<100	<100	<100	<100	<100
Decanal	<100	<100	<100	<100	12 J
Formaldehyde	<100	<100	<100	<100	<100
Heptanal	<100	<100	<100	<100	3.9 J
Hexanal	<100	<100	<100	7.7 J	<100
m-Tolualdehyde	<100	<100	<100	<100	<100
Nonanal	12 J	<100	<100	<100	3.9 J
Octanal	<100	<100	<100	<100	2.9 J
Paraldehyde	<100	<100	<100	<100	<100
Pentanal	<100	4.6 J	9.4 J	<100	3.5 J
Propanal	<100	<100	<100	<100	<100
Inorganics					
Alkalinity	230,000	230,000	190,000	220,000	330,000
Bicarbonate	NA	NA	NA	NA	NA
Chloride	48,000	44,000	48,000	**51,000**	33,000

Footnotes on Page 223.

ARCADIS

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-84 (continued)				GM-87A
Top of Screen Depth (ft bls)	77	77	77	77	32
Sample Date	03/02/07	05/14/07	08/14/07	11/09/07	12/05/06
Sample ID	GWGM-84 (3/2/07)	GWGM-84 (5/14/07)	GWGM-84 (8/14/07)	GWGM-84(11/9/07)	GWGM-87A (12/5/06)
Inorganics (continued)					
Chlorides Soluble	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	150 B	43	78	2,000 B	49
Nitrogen, Nitrate	<50	<50	180	<50	260
Nitrogen, Nitrite	<50	<50	11 J	15 J B	<50
Ortho-Phosphate	NA	NA	NA	NA	<50 H
Phosphate	<50	<50	<50	<50	NA
Phosphorus	<100	<100	<100	<100	86 J
Silica	12,800	12,900	14,500	11,900	25,900
Silica, Dissolved	NA	NA	NA	NA	NA
Sulfate	41,000	38,000	38,000	36,000	<5,000
Sulfate Soluble	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	1,100
Acetic Acid	<500	<500	400 J	<500	<500
Biochemical Oxygen Demand	<2,000	<2,000	<2,000	<2,000 *	<2,000
Chemical Oxygen Demand	0	8,000	2,000	0	20,000
Total Organic Carbon	520 J	<1,000	<1,000	<1,000	7,800
Density	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	NA
Methane	<4	4040	40	0.02	31,400
Suspended Solids	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)			
Top of Screen Depth (ft bls)	32	32	32	32
Sample Date	12/05/06	12/05/06	12/05/06	02/19/07
Sample ID	GWGM-87A-RE (12/5/2006)	GWGM-999(12/5/06)	GWGM-999-RE (12/5/2006)	GWGM-87A (02/19/07)
VOCs				
1,1-Dichloroethene	NA	<1.0	NA	<1.0
1,2,4-Trimethylbenzene	NA	<1.0	NA	<1.0
1,2-Dichloroethene (total)	NA	<2.0	NA	<2.0
1,3,5-Trimethylbenzene	NA	<1.0	NA	<1.0
2-Butanone (MEK)	NA	<50	NA	<50
2-Hexanone	NA	<50	NA	<50
4-Methyl-2-pentanone (MIBK)	NA	<50 *	NA	<50
Acetone	NA	<100	NA	<100
Acrylonitrile	NA	<25	NA	<25
Benzene	NA	1.3	NA	1.3
Bromochloromethane	NA	<1.0	NA	<1.0 *
Bromoform	NA	<1.0	NA	<1.0
Bromomethane	NA	<1.0	NA	<1.0
Carbon disulfide	NA	<5.0	NA	<5.0
Chloroethane	NA	<1.0	NA	<1.0
Chloromethane	NA	<1.0	NA	<1.0
cis-1,2-Dichloroethene	NA	0.87 J	NA	0.64 J
Diethylether	NA	2.4 J	NA	<10
Ethylbenzene	NA	0.64 J	NA	<1.0
Furan	NA	<10	NA	<10
Isopropylbenzene	NA	<1.0	NA	<1.0
Methyl iodide	NA	<5.0	NA	<5.0
Methyl(tert)butyl ether	NA	<5.0	NA	<5.0
Methylene chloride	NA	<1.0	NA	<1.0
Propionitrile	NA	<25	NA	<25
Tetrachloroethene	NA	<1.0	NA	<1.0
Tetrahydrofuran	NA	0.76 J	NA	<10
Toluene	NA	1.6	NA	32
trans-1,2-Dichloroethene	NA	<1.0	NA	<1.0
Trichloroethene	NA	<1.0	NA	<1.0

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)			
Top of Screen Depth (ft bls)	32	32	32	32
Sample Date	12/05/06	12/05/06	12/05/06	02/19/07
Sample ID	GWGM-87A-RE (12/5/2006)	GWGM-999(12/5/06)	GWGM-999-RE (12/5/2006)	GWGM-87A (02/19/07)
VOCs (continued)				
Xylene, o	NA	NA	NA	NA
Xylenes (total)	NA	1.8 J	NA	1.6 J
Xylenes, m+p	NA	NA	NA	NA
SVOCs				
1,4-Dichlorobenzene	<5.0 H	<5.0	<5.0 H	<4.8
2,3-Dimethylphenol	<10 H	<10	<10 H	0.93 J
2,4-Dimethylphenol	20 H	12 *	16 H	12
2,4-Dimethylphenol/2,5-Dimethylphenol	20 H	12	16 H	12
2,5-Dimethylphenol	NA	NA	NA	NA
2,6-Dimethylphenol	<10 H	<10	<10 H	7.2 J
2-Methylphenol	<5.0 H	<5.0	<5.0 H	<4.8
2-Nitrophenol	<5.0 H	<5.0	<5.0 H	<4.8
3,4-Dimethylphenol	<10 H	<10	<10 H	<9.6
3-Methylphenol	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0 H	<5.0	<5.0 H	<4.8
4-Methylphenol	NA	NA	NA	NA
Anthracene	<5.0 H	<5.0	<5.0 H	<4.8
Benzo(a)anthracene	<5.0 H	<5.0	<5.0 H	<4.8
Benzo(a)pyrene	<5.0 H	<5.0	<5.0 H	<4.8
Benzo(b)fluoranthene	<5.0 H	<5.0	<5.0 H	<4.8
Benzo(g,h,i)perylene	<5.0 H	<5.0	<5.0 H	<4.8
Benzo(k)fluoranthene	<5.0 H	<5.0	<5.0 H	<4.8
bis(2-Ethylhexyl)phthalate	<5.0 H	<5.0	<5.0 H	<4.8
Butylbenzylphthalate	<5.0 H	<5.0	<5.0 H	<4.8
Carbazole	<5.0 H	<5.0	<5.0 H	<4.8
Chrysene	<5.0 H	<5.0	<5.0 H	<4.8
Dibenzo(a,h)anthracene	<5.0 H	<5.0	<5.0 H	<4.8
Diethylphthalate	<5.0 H	<5.0	<5.0 H	<4.8
Di-n-butylphthalate	<5.0 H	<5.0	<5.0 H	<4.8

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)			
Top of Screen Depth (ft bls)	32	32	32	32
Sample Date	12/05/06	12/05/06	12/05/06	02/19/07
Sample ID	GWGM-87A-RE (12/5/2006)	GWGM-999(12/5/06)	GWGM-999-RE (12/5/2006)	GWGM-87A (02/19/07)
SVOCs (continued)				
Di-n-octylphthalate	<5.0 H	<5.0	<5.0 H	<4.8
Fluoranthene	<5.0 H	<5.0	<5.0 H	<4.8
Indeno(1,2,3-c,d)pyrene	<5.0 H	<5.0	<5.0 H	<4.8
Naphthalene	<5.0 H	<5.0	<5.0 H	<4.8
Phenol	<5.0 H	<5.0	<5.0 H	<4.8
Pyrene	<5.0 H	<5.0	<5.0 H	<4.8
Metals				
Aluminum	NA	16 J B	NA	170 J
Aluminum-DISS	NA	<200	NA	<200
Antimony	NA	<50	NA	<50
Antimony-DISS	NA	<50	NA	<50
Arsenic	NA	20	NA	16 J
Arsenic-DISS	NA	19 J	NA	17 J
Barium	NA	230 B	NA	180 B
Barium-DISS	NA	210 B	NA	180 B
Beryllium-DISS	NA	<1.0	NA	<1.0
Cadmium	NA	<0.50	NA	<0.50
Cadmium-DISS	NA	<0.50	NA	<0.50
Calcium	NA	84,000	NA	77,000
Calcium-DISS	NA	79,000	NA	78,000
Chromium	NA	<5.0	NA	<5.0
Chromium-DISS	NA	<5.0	NA	<5.0
Cobalt	NA	2.5 J	NA	2.0 J
Cobalt-DISS	NA	2.4 J	NA	2.0 J
Copper	NA	0.76 J B	NA	1.3 J
Copper-DISS	NA	<25	NA	<25
Iron	NA	5,700	NA	4,800
Iron-DISS	NA	5,600	NA	4,600

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)			
Top of Screen Depth (ft bls)	32	32	32	32
Sample Date	12/05/06	12/05/06	12/05/06	02/19/07
Sample ID	GWGM-87A-RE (12/5/2006)	GWGM-999(12/5/06)	GWGM-999-RE (12/5/2006)	GWGM-87A (02/19/07)
Metals (continued)				
Lead	NA	<3.0	NA	<3.0
Lead-DISS	NA	<3.0	NA	<3.0
Magnesium	NA	45,000	NA	37,000
Magnesium-DISS	NA	42,000	NA	38,000
Manganese	NA	1,500	NA	1,500
Manganese-DISS	NA	1,400	NA	1,500
Mercury	NA	<0.20	NA	<0.20
Mercury-DISS	NA	<0.20	NA	<0.20
Molybdenum	NA	5.7 J	NA	5.8 J
Molybdenum-DISS	NA	5.9 J	NA	6.1 J
Nickel	NA	1.2 J	NA	1.4 J
Nickel-DISS	NA	1.6 J	NA	1.2 J
Potassium	NA	2,800	NA	2,700
Potassium-DISS	NA	2,500	NA	3,000
Selenium	NA	<5.0	NA	<5.0
Selenium-DISS	NA	<5.0	NA	<5.0
Silver	NA	<0.20	NA	<0.20
Silver-DISS	NA	<0.20	NA	<0.20
Sodium	NA	8,000 B	NA	7,000
Sodium-DISS	NA	7,400	NA	7,100
Thallium	NA	<2.0	NA	<2.0
Thallium-DISS	NA	<2.0	NA	<2.0
Titanium	NA	2.9 J	NA	9.5 J
Titanium-DISS	NA	2.5 J	NA	1.5 J
Vanadium	NA	<20	NA	<20
Vanadium-DISS	NA	<20	NA	<20
Zinc	NA	6.9 J B	NA	11 J
Zinc-DISS	NA	5.1 J B	NA	6.6 J B

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)			
Top of Screen Depth (ft bls)	32	32	32	32
Sample Date	12/05/06	12/05/06	12/05/06	02/19/07
Sample ID	GWGM-87A-RE (12/5/2006)	GWGM-999(12/5/06)	GWGM-999-RE (12/5/2006)	GWGM-87A (02/19/07)
Alcohols				
1,4-Dioxane	<5.0 H	<5.0	<5.0 H	<4.8
Acetonitrile	NA	<50	NA	<50
Ethanol	NA	<1,000	NA	<1,000
Ethylacetate	NA	<5,000	NA	<5,000
Ethylene glycol	NA	<10,000	NA	<10,000
Isobutanol	NA	<1,000	NA	<1,000
Isopropanol	NA	<1,000	NA	<1,000
Methanol	NA	**1,700**	NA	<1,000
n-Butanol	NA	<1,000	NA	<1,000
Aldehydes				
Acetaldehyde	NA	<100	NA	<100
Butanal	NA	<100	NA	<100
Crotonaldehyde	NA	<100	NA	<100
Cyclohexanone	NA	<100	NA	<100
Decanal	NA	6.6 J	NA	<100
Formaldehyde	NA	<100	NA	<100
Heptanal	NA	3.5 J	NA	2.8 J
Hexanal	NA	<100	NA	8.7 J
m-Tolualdehyde	NA	<100	NA	<100
Nonanal	NA	3.5 J	NA	5.8 J
Octanal	NA	2.6 J	NA	2.7 J
Paraldehyde	NA	<100	NA	<100
Pentanal	NA	3.3 J	NA	<100
Propanal	NA	<100	NA	<100
Inorganics				
Alkalinity	NA	330,000	NA	320,000
Bicarbonate	NA	NA	NA	NA
Chloride	NA	33,000	NA	32,000

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)			
Top of Screen Depth (ft bls)	32	32	32	32
Sample Date	12/05/06	12/05/06	12/05/06	02/19/07
Sample ID	GWGM-87A-RE (12/5/2006)	GWGM-999(12/5/06)	GWGM-999-RE (12/5/2006)	GWGM-87A (02/19/07)
Inorganics (continued)				
Chlorides Soluble	NA	NA	NA	NA
Nitrogen, (Ammonia)	NA	**82**	NA	**160 B**
Nitrogen, Nitrate	NA	390	NA	63
Nitrogen, Nitrite	NA	<50	NA	<50
Ortho-Phosphate	NA	<50 H	NA	NA
Phosphate	NA	NA	NA	<50
Phosphorus	NA	82 J	NA	100
Silica	NA	26,500	NA	22,600
Silica, Dissolved	NA	NA	NA	NA
Sulfate	NA	<5,000	NA	<5,000
Sulfate Soluble	NA	NA	NA	NA
Sulfide	NA	<1,000	NA	<1,000
Acetic Acid	NA	<500	NA	<500
Biochemical Oxygen Demand	NA	<2,000	NA	<2,000
Chemical Oxygen Demand	NA	NA	NA	11,000
Total Organic Carbon	NA	7,900	NA	7,300
Density	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA
Methane	NA	33,000	NA	25,200
Suspended Solids	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA

Footnotes on Page 223.

ARCADIS

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)			GM-87B	
Top of Screen Depth (ft bls)	32	32	32	117	117
Sample Date	05/08/07	08/06/07	11/07/07	12/05/06	12/05/06
Sample ID	GWGM-87A (5/8/07)	GWGM-87A (8/6/07)	GWGM-87A (11/7/07)	GWGM-87A(12/5/06)	GWGM-87B-RE (12/5/2006)
VOCs					
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	NA
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	NA
1,2-Dichloroethene (total)	<2.0	1.8 J	1.6 J	<2.0	NA
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	NA
2-Butanone (MEK)	<50	<50	<50	<50	NA
2-Hexanone	<50	<50	<50	<50	NA
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50 *	NA
Acetone	<100	<100	<100	<100	NA
Acrylonitrile	<25	<25	<25	<25	NA
Benzene	1.4	1.1	0.80 J	<1.0	NA
Bromochloromethane	<1.0	<1.0	<1.0	<1.0	NA
Bromoform	<1.0	<1.0	<1.0	<1.0	NA
Bromomethane	<1.0	<1.0	<1.0	<1.0	NA
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	NA
Chloroethane	<1.0	<1.0 *	<1.0	<1.0	NA
Chloromethane	<1.0	<1.0	<1.0	<1.0	NA
cis-1,2-Dichloroethene	1.1	1.8	1.6	<1.0	NA
Diethylether	3.7 J	3.4 J	0.77 J	<10	NA
Ethylbenzene	0.71 J	0.81 J	0.36 J	<1.0	NA
Furan	<10	<10	<10	<10	NA
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	NA
Methyl iodide	<5.0	<5.0	<5.0	<5.0	NA
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0	NA
Methylene chloride	<1.0	<1.0	<1.0	<1.0	NA
Propionitrile	<25	<25	<25	<25	NA
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	NA
Tetrahydrofuran	<10	<10	<10	<10	NA
Toluene	1.9	1.3	0.37 J	10	NA
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	NA
Trichloroethene	<1.0	<1.0	<1.0	<1.0	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)			GM-87B	
Top of Screen Depth (ft bls)	32	32	32	117	117
Sample Date	05/08/07	08/06/07	11/07/07	12/05/06	12/05/06
Sample ID	GWGM-87A (5/8/07)	GWGM-87A (8/6/07)	GWGM-87A (11/7/07)	GWGM-87A(12/5/06)	GWGM-87B-RE (12/5/2006)
VOCs (continued)					
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	2.2 J	1.8 J	<3.0	<3.0	NA
Xylenes, m+p	NA	NA	NA	NA	NA
SVOCs					
1,4-Dichlorobenzene	<4.7	<4.9	<4.7	<5.0	<5.0 H
2,3-Dimethylphenol	<9.4	<9.8	<9.4	<10	<10 H
2,4-Dimethylphenol	22	12	1.7 J	<5.0 *	<5.0 H
2,4-Dimethylphenol/2,5-Dimethylphenol	22	12	1.7 J	<10	<10 H
2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	12	7.8 J	<9.4	<10	<10 H
2-Methylphenol	<4.7	<4.9	<4.7	<5.0	<5.0 H
2-Nitrophenol	<4.7	<4.9	<4.7	<5.0	<5.0 H
3,4-Dimethylphenol	<9.4	<9.8	NA	<10	<10 H
3-Methylphenol	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<4.9	<4.7	<5.0	<5.0 H
4-Methylphenol	NA	NA	NA	NA	NA
Anthracene	<4.7	<4.9	<4.7	<5.0	<5.0 H
Benzo(a)anthracene	<4.7	<4.9	<4.7	<5.0	<5.0 H
Benzo(a)pyrene	<4.7	<4.9	<4.7	<5.0	<5.0 H
Benzo(b)fluoranthene	<4.7	<4.9	<4.7	<5.0	<5.0 H
Benzo(g,h,i)perylene	<4.7	<4.9	<4.7	<5.0	<5.0 H
Benzo(k)fluoranthene	<4.7	<4.9	<4.7	<5.0	<5.0 H
bis(2-Ethylhexyl)phthalate	2.2 J	<4.9	<4.7	<5.0	<5.0 H
Butylbenzylphthalate	<4.7	<4.9	<4.7	<5.0	<5.0 H
Carbazole	<4.7	<4.9	<4.7	<5.0	<5.0 H
Chrysene	<4.7	<4.9	<4.7	<5.0	<5.0 H
Dibenzo(a,h)anthracene	<4.7	<4.9	<4.7	<5.0	<5.0 H
Diethylphthalate	<4.7	<4.9	<4.7	<5.0	<5.0 H
Di-n-butylphthalate	<4.7	<4.9	<4.7	<5.0	<5.0 H

Footnotes on Page 223.

ARCADIS

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)			GM-87B	
Top of Screen Depth (ft bls)	32	32	32	117	117
Sample Date	05/08/07	08/06/07	11/07/07	12/05/06	12/05/06
Sample ID	GWGM-87A (5/8/07)	GWGM-87A (8/6/07)	GWGM-87A (11/7/07)	GWGM-87A(12/5/06)	GWGM-87B-RE (12/5/2006)
SVOCs (continued)					
Di-n-octylphthalate	<4.7	<4.9	<4.7	<5.0	<5.0 H
Fluoranthene	<4.7	<4.9	<4.7	<5.0	<5.0 H
Indeno(1,2,3-c,d)pyrene	<4.7	<4.9	<4.7	<5.0	<5.0 H
Naphthalene	<4.7	<4.9	<4.7	<5.0	<5.0 H
Phenol	<4.7	<4.9	<4.7	<5.0	<5.0 H
Pyrene	<4.7	<4.9	<4.7	<5.0	<5.0 H
Metals					
Aluminum	71 J	32 J	120 J	17 J B	NA
Aluminum-DISS	16 J	<200	<200	16 J B	NA
Antimony	<50	2.0 J	<50	<50	NA
Antimony-DISS	<50	<50	<50	<50	NA
Arsenic	16 J	26 B	15 J	9.2 J	NA
Arsenic-DISS	17 J	19 J B	18 J	8.8 J	NA
Barium	180	220	140	48 J B	NA
Barium-DISS	180	200	160	46 J B	NA
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	NA
Cadmium	<0.50	<0.50	<0.50	<0.50	NA
Cadmium-DISS	<0.50	<0.50	<0.50	<0.50	NA
Calcium	80,000	91,000	81,000	31,000	NA
Calcium-DISS	78,000	84,000	88,000	28,000	NA
Chromium	<5.0	1.3 J B	0.79 J	<5.0	NA
Chromium-DISS	<5.0	1.1 J B	<5.0	<5.0	NA
Cobalt	2.0 J	2.3 J	1.7 J	0.11 J	NA
Cobalt-DISS	1.9 J	2.2 J	1.7 J	0.13 J	NA
Copper	3.2 J	<25	<25	0.58 J B	NA
Copper-DISS	0.56 J	<25	<25	<25	NA
Iron	4,700	6,100	3,300	980	NA
Iron-DISS	4,500	5,200	3,500	860	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)			GM-87B	
Top of Screen Depth (ft bls)	32	32	32	117	117
Sample Date	05/08/07	08/06/07	11/07/07	12/05/06	12/05/06
Sample ID	GWGM-87A (5/8/07)	GWGM-87A (8/6/07)	GWGM-87A (11/7/07)	GWGM-87A(12/5/06)	GWGM-87B-RE (12/5/2006)
Metals (continued)					
Lead	<3.0	<3.0	<3.0	<3.0	NA
Lead-DISS	<3.0	<3.0	<3.0	<3.0	NA
Magnesium	40,000	45,000	37,000	21,000	NA
Magnesium-DISS	38,000	42,000	41,000	18,000	NA
Manganese	1,200	1,500	1,200	240	NA
Manganese-DISS	1,200	1,400	1,300	220	NA
Mercury	<0.20	<0.20	<0.20	<0.20	NA
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	NA
Molybdenum	5.2 J	5.4 J	4.7 J	7.8 J	NA
Molybdenum-DISS	4.8 J	5.5 J	4.6 J	7.4 J	NA
Nickel	1.0 J B	1.2 J	0.64 J	0.17 J	NA
Nickel-DISS	1.4 J	1.2 J	0.71 J	<25	NA
Potassium	2,400	2,600	2,200 B	3,200	NA
Potassium-DISS	2,300	2,500	2,400	2,800	NA
Selenium	<5.0	1.7 J	<5.0	<5.0	NA
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	NA
Silver	<0.20	<0.20	<0.20	<0.20	NA
Silver-DISS	<0.20	<0.20	$\boxed{0.12 J B}$	<0.20	NA
Sodium	7,600	7,600	6,800	3,400 B	NA
Sodium-DISS	7,300	7,400	7,300 B	2,900	NA
Thallium	<2.0	<2.0	<2.0	<2.0	NA
Thallium-DISS	<2.0	<2.0	<2.0	<2.0	NA
Titanium	4.7 J	3.7 J	8.3 J	2.4 J	NA
Titanium-DISS	2.1 J	2.4 J	2.6 J	2.0 J	NA
Vanadium	<20	3.2 J B	2.2 J B	<20	NA
Vanadium-DISS	<20	2.5 J B	1.1 J	<20	NA
Zinc	14 J B	<20	<20	4.6 J B	NA
Zinc-DISS	4.7 J	<20	6.8 J	4.1 J B	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)			GM-87B	
Top of Screen Depth (ft bls)	32	32	32	117	117
Sample Date	05/08/07	08/06/07	11/07/07	12/05/06	12/05/06
Sample ID	GWGM-87A (5/8/07)	GWGM-87A (8/6/07)	GWGM-87A (11/7/07)	GWGM-87A(12/5/06)	GWGM-87B-RE (12/5/2006)
Alcohols					
1,4-Dioxane	<4.7	<4.9	<4.7	<5.0	<5.0 H
Acetonitrile	<50	<50	<50	<50	NA
Ethanol	<1,000	<1,000	<1,000	<1,000	NA
Ethylacetate	<5,000	<5,000	<5,000	<5,000	NA
Ethylene glycol	<10,000	<10,000	<10,000	<10,000	NA
Isobutanol	<1,000	<1,000	<1,000	<1,000	NA
Isopropanol	<1,000	<1,000	<1,000	<1,000	NA
Methanol	<1,000	**1,500**	**530 J**	**880 J**	NA
n-Butanol	<1,000	<1,000	<1,000	<1,000	NA
Aldehydes					
Acetaldehyde	<100	<100	<100	<100	NA
Butanal	<100	<100	<100	<100	NA
Crotonaldehyde	<100	<100	<100	<100	NA
Cyclohexanone	<100	<100	<100	<100	NA
Decanal	9.4 J	<100	<100	<100	NA
Formaldehyde	<100	13 J	<100	<100	NA
Heptanal	4.5 J	<100	<100	<100	NA
Hexanal	11 J	<100	<100	<100	NA
m-Tolualdehyde	<100	<100	<100	<100	NA
Nonanal	8.0 J	<100	<100	3.1 J	NA
Octanal	3.9 J	<100	<100	3.8 J	NA
Paraldehyde	<100	<100	<100	<100	NA
Pentanal	<100	<100	<100	<100	NA
Propanal	<100	<100	<100	<100	NA
Inorganics					
Alkalinity	330,000	310,000	310,000	150,000	NA
Bicarbonate	NA	NA	NA	NA	NA
Chloride	29,000	34000 B	29,000	560 J	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87A (continued)			GM-87B	
Top of Screen Depth (ft bls)	32	32	32	117	117
Sample Date	05/08/07	08/06/07	11/07/07	12/05/06	12/05/06
Sample ID	GWGM-87A (5/8/07)	GWGM-87A (8/6/07)	GWGM-87A (11/7/07)	GWGM-87A(12/5/06)	GWGM-87B-RE (12/5/2006)
Inorganics (continued)					
Chlorides Soluble	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**38**	**190**	**33**	19 J	NA
Nitrogen, Nitrate	<50	<50 H	<50	32 J	NA
Nitrogen, Nitrite	<50	<50 H	<50	<50	NA
Ortho-Phosphate	NA	NA	NA	240	NA
Phosphate	<50	<50	<50	NA	NA
Phosphorus	120 B	<100	86 J	270	NA
Silica	22,900	26,800	25,300	19,000	NA
Silica, Dissolved	NA	NA	NA	NA	NA
Sulfate	<5,000	<5,000	21,000	5,000	NA
Sulfate Soluble	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	NA
Acetic Acid	**4,300**	<500	<500	1,000	NA
Biochemical Oxygen Demand	<2,000	2,400	<2,000 *	4,200	NA
Chemical Oxygen Demand	0	44,000	28,000	3,000	NA
Total Organic Carbon	6,800	5,500	2,500	1,900	NA
Density	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	NA
Methane	24,000	12,300	31.3	220	NA
Suspended Solids	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87B (continued)				
Top of Screen Depth (ft bls)	117	117	117	117	
Sample Date	02/20/07	05/08/07	08/06/07	11/07/07	
Sample ID	GWGM-87B (2/20/07)	GWGM-87B (5/8/07)	GWGM-87B (8/6/07)	GWGM-87B (11/7/07)	FAV
VOCs					
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	2,300
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	310
1,2-Dichloroethene (total)	<2.0	<2.0	<2.0	<2.0	19,000
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	810
2-Butanone (MEK)	<50	<50	<50	<50	40,000
2-Hexanone	<50	<50	<50	<50	ID
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50	ID
Acetone	<100	<100	<100	<100	30,000
Acrylonitrile	<25	<25	<25	<25	1,200
Benzene	<1.0	<1.0	<1.0	<1.0	1,900
Bromochloromethane	<1.0 *	<1.0	<1.0	<1.0	ID
Bromoform	0.48 J	<1.0	<1.0	<1.0	ID
Bromomethane	<1.0	<1.0	<1.0	<1.0	ID
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	640
Chloroethane	<1.0	<1.0	<1.0 *	<1.0	ID
Chloromethane	<1.0	<1.0	<1.0	<1.0	20,000
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	ID
Diethylether	<10	<10	<10	<10	11,000
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	ID
Furan	<10	<10	<10	<10	320
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0	NA
Methyl iodide	<5.0	<5.0	<5.0	<5.0	ID
Methyl(tert)butyl ether	<5.0	<5.0	<5.0	<5.0	NA
Methylene chloride	<1.0	<1.0	<1.0	<1.0	13,000
Propionitrile	<25	<25	<25	<25	17,000
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	NA
Tetrahydrofuran	<10	<10	<10	<10	2,900
Toluene	24	<1.0	0.76 J	13	150,000
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	26,000
Trichloroethene	<1.0	<1.0	<1.0	<1.0	28,000
					3,500

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87B (continued)				
Top of Screen Depth (ft bls)	117	117	117	117	
Sample Date	02/20/07	05/08/07	08/06/07	11/07/07	
Sample ID	GWGM-87B (2/20/07)	GWGM-87B (5/8/07)	GWGM-87B (8/6/07)	GWGM-87B (11/7/07)	FAV
VOCs (continued)					
Xylene, o	NA	NA	NA	NA	NA
Xylenes (total)	<3.0	<3.0	<3.0	0.95 J	730
Xylenes, m+p	NA	NA	NA	NA	NA
SVOCs					
1,4-Dichlorobenzene	<4.7	<4.7	<4.7	<4.7	210
2,3-Dimethylphenol	<9.4	<9.4	<9.4	<9.4	NA
2,4-Dimethylphenol	<4.7	<4.7	<4.7	<4.7	2,700
2,4-Dimethylphenol/2,5-Dimethylphenol	<9.4	<9.4	<9.4	<9.4	2,700
2,5-Dimethylphenol	NA	NA	NA	NA	NA
2,6-Dimethylphenol	<9.4	<9.4	<9.4	<9.4	NA
2-Methylphenol	<4.7	<4.7	<4.7	<4.7	1,500
2-Nitrophenol	<4.7	<4.7	<4.7	<4.7	ID
3,4-Dimethylphenol	<9.4	<9.4	<9.4	NA	NA
3-Methylphenol	NA	NA	NA	NA	1,271
3-Methylphenol/4-Methylphenol(m&p-cresol)	<4.7	<4.7	<4.7	<4.7	450
4-Methylphenol	NA	NA	NA	NA	450
Anthracene	<4.7	<4.7	<4.7	<4.7	ID
Benzo(a)anthracene	<4.7	<4.7	<4.7	<4.7	ID
Benzo(a)pyrene	<4.7	<4.7	<4.7	<4.7	ID
Benzo(b)fluoranthene	<4.7	<4.7	<4.7	<4.7	ID
Benzo(g,h,i)perylene	<4.7	<4.7	<4.7	<4.7	NA
Benzo(k)fluoranthene	<4.7	<4.7	<4.7	<4.7	NA
bis(2-Ethylhexyl)phthalate	<4.7	<4.7	<4.7	<4.7	285
Butylbenzylphthalate	<4.7	<4.7	<4.7	<4.7	630
Carbazole	<4.7	<4.7	<4.7	<4.7	72
Chrysene	<4.7	<4.7	<4.7	<4.7	ID
Dibenzo(a,h)anthracene	<4.7	<4.7	<4.7	<4.7	ID
Diethylphthalate	<4.7	<4.7	<4.7	<4.7	2,000
Di-n-butylphthalate	<4.7	<4.7	<4.7	<4.7	75

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87B (continued)				
Top of Screen Depth (ft bls)	117	117	117	117	
Sample Date	02/20/07	05/08/07	08/06/07	11/07/07	
Sample ID	GWGM-87B (2/20/07)	GWGM-87B (5/8/07)	GWGM-87B (8/6/07)	GWGM-87B (11/7/07)	FAV
SVOCs (continued)					
Di-n-octylphthalate	<4.7	<4.7	<4.7	<4.7	ID
Fluoranthene	<4.7	<4.7	<4.7	<4.7	28
Indeno(1,2,3-c,d)pyrene	<4.7	<4.7	<4.7	<4.7	ID
Naphthalene	<4.7	<4.7	<4.7	<4.7	200
Phenol	<4.7	<4.7	<4.7	<4.7	6800
Pyrene	<4.7	<4.7	<4.7	<4.7	ID
Metals					
Aluminum	120 J	77 J	60 J	140 J	NA
Aluminum-DISS	<200	52 J	<200	<200	NA
Antimony	<50	<50	0.68 J	<50	2,300
Antimony-DISS	<50	<50	<50	<50	2,300
Arsenic	5.0 J	6.8 J	10 J B	7.4 J	680
Arsenic-DISS	5.0 J	6.8 J	8.8 J B	4.5 J	680
Barium	46 J B	43 J	43 J	40 J	2300 H*92
Barium-DISS	46 J B	41 J	40 J	23 J	2300 H*92
Beryllium-DISS	<1.0	<1.0	<1.0	<1.0	35 H*92
Cadmium	<0.50	<0.50	<0.50	<0.50	7.8 H*92
Cadmium-DISS	<0.50	<0.50	<0.50	<0.50	7.8 H*92
Calcium	29,000	29,000	31,000	26,000	NA
Calcium-DISS	28,000	28,000	28,000	16,000	NA
Chromium	<5.0	<5.0	1.7 J B	1.9 J	32 Dissolved
Chromium-DISS	<5.0	<5.0	1.2 J B	<5.0	32 Dissolved
Cobalt	0.19 J	0.17 J	0.14 J	0.24 J	740
Cobalt-DISS	0.094 J	0.16 J	0.13 J	0.072 J	740
Copper	0.61 J	0.41 J	<25	<25	25 H*92
Copper-DISS	0.44 J	<25	<25	<25	25 H*92
Iron	1,100	980	1,100	1,000	NA
Iron-DISS	830	800	870	480	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87B (continued)				
Top of Screen Depth (ft bls)	117	117	117	117	
Sample Date	02/20/07	05/08/07	08/06/07	11/07/07	
Sample ID	GWGM-87B (2/20/07)	GWGM-87B (5/8/07)	GWGM-87B (8/6/07)	GWGM-87B (11/7/07)	FAV
Metals (continued)					
Lead	<3.0	<3.0	<3.0	<3.0	170 H*92
Lead-DISS	<3.0	<3.0	<3.0	<3.0	170 H*92
Magnesium	19,000	19,000	20,000	17,000	NA
Magnesium-DISS	18,000	18,000	18,000	11,000	NA
Manganese	220	210	190	150	7,700 H*92
Manganese-DISS	210	210	170	92	7,700 H*92
Mercury	<0.20	<0.20	<0.20	<0.20	2.8 D
Mercury-DISS	<0.20	<0.20	<0.20	<0.20	2.8 D
Molybdenum	8.2 J	7.0 J	5.5 J	5.3 J	58,000
Molybdenum-DISS	7.6 J	7.5 J	4.7 J	1.7 J	58,000
Nickel	0.57 J	0.37 J B	<25	0.36 J	870 H*92
Nickel-DISS	0.20 J	0.39 J	<25	<25	870 H*92
Potassium	2,900	2,800	2,600	2,300 B	NA
Potassium-DISS	2,800	2,700	2,400	1,400	NA
Selenium	<5.0	<5.0	<5.0	<5.0	R
Selenium-DISS	<5.0	<5.0	<5.0	<5.0	R
Silver	<0.20	<0.20	<0.20	<0.20	1.1
Silver-DISS	<0.20	<0.20	<0.20	<0.20	1.1
Sodium	3,300	7,500	7,500	6,300	NA
Sodium-DISS	3,200	7,400	6,900	4,000 B	NA
Thallium	<2.0	<2.0	<2.0	<2.0	94
Thallium-DISS	<2.0	0.28 J	<2.0	<2.0	94
Titanium	6.0 J	4.4 J	3.3 J	6.7 J	ID
Titanium-DISS	2.0 J	1.4 J	1.7 J	<50	ID
Vanadium	<20	<20	2.6 J B	1.9 J B	220
Vanadium-DISS	<20	<20	2.3 J B	<20	220
Zinc	5.6 J B	6.3 J B	<20	7.3 J	220 H*92
Zinc-DISS	7.5 J B	3.7 J	10 J	<20	220 H*92

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87B (continued)				
Top of Screen Depth (ft bls)	117	117	117	117	
Sample Date	02/20/07	05/08/07	08/06/07	11/07/07	
Sample ID	GWGM-87B (2/20/07)	GWGM-87B (5/8/07)	GWGM-87B (8/6/07)	GWGM-87B (11/7/07)	FAV
Alcohols					
1,4-Dioxane	<4.7	<4.7	<4.7	<4.7	390,000
Acetonitrile	<50	<50	<50	<50	NA
Ethanol	<1,000	<1,000	<1,000	<1,000	NLS
Ethylacetate	<5,000	<5,000	<5,000	<5,000	NA
Ethylene glycol	<10,000	<10,000	<10,000	<10,000	3,400,000
Isobutanol	<1,000	<1,000	<1,000	<1,000	NA
Isopropanol	<1,000	<1,000	<1,000	<1,000	1,000,000
Methanol	<1,000	<1,000	<1,000	**490 J**	2,700,000
n-Butanol	<1,000	<1,000	<1,000	<1,000	NA
Aldehydes					
Acetaldehyde	<100	<100	<100	<100	2,400
Butanal	<100	<100	<100	<100	NA
Crotonaldehyde	<100	<100	<100	<100	NA
Cyclohexanone	<100	<100	<100	<100	NA
Decanal	<100	40 J	<100	<100	NA
Formaldehyde	<100	<100	<100	<100	2,100
Heptanal	<100	<100	<100	<100	NA
Hexanal	5.1 J	<100	<100	<100	NA
m-Tolualdehyde	<100	<100	<100	<100	NA
Nonanal	6.0 J	7.2 J	<100	<100	NA
Octanal	<100	<100	<100	<100	NA
Paraldehyde	<100	<100	<100	<100	NA
Pentanal	<100	<100	11 J	<100	NA
Propanal	<100	<100	<100	<100	NA
Inorganics					
Alkalinity	160,000	150,000	160,000	150,000	NA
Bicarbonate	NA	NA	NA	NA	NA
Chloride	<1000	5,500	3,600 B	2,300	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-87B (continued)				
Top of Screen Depth (ft bls)	117	117	117	117	
Sample Date	02/20/07	05/08/07	08/06/07	11/07/07	
Sample ID	GWGM-87B (2/20/07)	GWGM-87B (5/8/07)	GWGM-87B (8/6/07)	GWGM-87B (11/7/07)	FAV
Inorganics (continued)					
Chlorides Soluble	NA	NA	NA	NA	NA
Nitrogen, (Ammonia)	**260**	**39**	**220**	**46**	320
Nitrogen, Nitrate	<50	<50	<50	<50	NA
Nitrogen, Nitrite	<50	<50	12 J H B	<50	NA
Ortho-Phosphate	NA	NA	NA	NA	NA
Phosphate	270	170	260	280	NA
Phosphorus	450	310 B	260	350	NA
Silica	15,800	17,900	19,300	19,700	NA
Silica, Dissolved	NA	NA	NA	NA	NA
Sulfate	5,000	5,000	5,500	5,000	NA
Sulfate Soluble	NA	NA	NA	NA	NA
Sulfide	<1,000	<1,000	<1,000	<1,000	NA
Acetic Acid	**3,100**	<500	**1,100**	<500	R
Biochemical Oxygen Demand	5,300	6,200	3,800	<2,000 *	NA
Chemical Oxygen Demand	10,000	30,000	8,000	4,000	NA
Total Organic Carbon	3,400	3,700	2,600	2,200	NA
Density	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA
Hardness as CaCO3	NA	NA	NA	NA	NA
Methane	270	290	100	0.65	NA
Suspended Solids	NA	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Top of Screen Depth (ft bls) Sample Date Sample ID	FCV	GSI	BCC
VOCs			
1,1-Dichloroethene	130	65 (I) X	NA
1,2,4-Trimethylbenzene	17	17 (I)	NA
1,2-Dichloroethene (total)	1,100	NA	NA
1,3,5-Trimethylbenzene	45	45 (I)	NA
2-Butanone (MEK)	2,200 I	2,200 (I)	NA
2-Hexanone	ID	NA	NA
4-Methyl-2-pentanone (MIBK)	ID	(I) ID	NA
Acetone	1,700	1,700 (I)	NA
Acrylonitrile	66	4.9 (I) X	NA
Benzene	200	200 (I) X	NA
Bromochloromethane	ID	NA	NA
Bromoform	ID	ID	NA
Bromomethane	35	35	NA
Carbon disulfide	ID	R	NA
Chloroethane	1,100	ID	NA
Chloromethane	ID	(I) ID	NA
cis-1,2-Dichloroethene	620	620	NA
Diethylether	ID	ID	NA
Ethylbenzene	18	18 (I)	NA
Furan	NA	NA	NA
Isopropylbenzene	ID	ID	NA
Methyl iodide	NA	NA	NA
Methyl(tert)butyl ether	730	730 X	NA
Methylene chloride	1,500	940 X	NA
Propionitrile	NA	NA	NA
Tetrachloroethene	190	45 X	NA
Tetrahydrofuran	11,000	11,000 X	NA
Toluene	270	140 (I)	NA
trans-1,2-Dichloroethene	1,500	1500	NA
Trichloroethene	200	200 X	NA

Footnotes on Page 223.

ARCADIS

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Top of Screen Depth (ft bls) Sample Date Sample ID	FCV	GSI	BCC
VOCs (continued)			
Xylene, o	NA	NA	NA
Xylenes (total)	41	35 (I)	NA
Xylenes, m+p	NA	NA	NA
SVOCs			
1,4-Dichlorobenzene	17	13	NA
2,3-Dimethylphenol	NA	NA	NA
2,4-Dimethylphenol	380	380	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	380	380	NA
2,5-Dimethylphenol	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA
2-Methylphenol	82	71 J	NA
2-Nitrophenol	ID	ID	NA
3,4-Dimethylphenol	NA	NA	NA
3-Methylphenol	71	71 J	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	25	71 J	NA
4-Methylphenol	25	71 J	NA
Anthracene	ID	ID	NA
Benzo(a)anthracene	ID	(Q) ID	NA
Benzo(a)pyrene	ID	(Q) ID	NA
Benzo(b)fluoranthene	ID	(Q) ID	NA
Benzo(g,h,i)perylene	NA	NA	NA
Benzo(k)fluoranthene	NA	(Q) NA	NA
bis(2-Ethylhexyl)phthalate	ID*	32	NA
Butylbenzylphthalate	67	14 X	NA
Carbazole	4	10 M	NA
Chrysene	ID	(Q) ID	NA
Dibenzo(a,h)anthracene	ID	(Q) ID	NA
Diethylphthalate	110	110	NA
Di-n-butylphthalate	9.7	9.7	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Top of Screen Depth (ft bls) Sample Date Sample ID	FCV	GSI	BCC
SVOCs (continued)			
Di-n-octylphthalate	ID	ID	NA
Fluoranthene	1.6	1.6	NA
Indeno(1,2,3-c,d)pyrene	ID	(Q) ID	NA
Naphthalene	13	13	NA
Phenol	450	210	NA
Pyrene	ID	ID	NA
Metals			
Aluminum	NA	(B) NA	NA
Aluminum-DISS	NA	(B) NA	NA
Antimony	240	130 X	NA
Antimony-DISS	240	130 X	NA
Arsenic	150	150 X	NA
Arsenic-DISS	150	150 X	NA
Barium	400 H*92	400 (B) G,X	NA
Barium-DISS	400 H*92	400 (B) G,X	NA
Beryllium-DISS	1.9 H*92	1.9 G	NA
Cadmium	2.1 H*92	2.1 (B) G,X	NA
Cadmium-DISS	2.1 H*92	2.1 (B) G,X	NA
Calcium	NA	NA	NA
Calcium-DISS	NA	NA	NA
Chromium	11 Dissolved	11	NA
Chromium-DISS	11 Dissolved	11	NA
Cobalt	100	100	NA
Cobalt-DISS	100	100	NA
Copper	8.3 H*92	8.3 (B) G	NA
Copper-DISS	8.3 H*92	8.3 (B) G	NA
Iron	NA	(B) NA	NA
Iron-DISS	NA	(B) NA	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Top of Screen Depth (ft bls) Sample Date Sample ID	FCV	GSI	BCC
Metals (continued)			
Lead	9.4 H*92	9.4 (B) G,X	NA
Lead-DISS	9.4 H*92	9.4 (B) G,X	NA
Magnesium	NA	(B) NA	NA
Magnesium-DISS	NA	(B) NA	NA
Manganese	1,800 H*92	1,800 (B) G,X	NA
Manganese-DISS	1,800 H*92	1,800 (B) G,X	NA
Mercury	0.77 D	0.0013 B,Z (total	0.0013
Mercury-DISS	0.77 D	0.0013 B,Z (total)	0.0013
Molybdenum	3,200	800 (B) X	NA
Molybdenum-DISS	3,200	800 (B) X	NA
Nickel	48 H*92	48 (B) G	NA
Nickel-DISS	48 H*92	48 (B) G	NA
Potassium	NA	NA	NA
Potassium-DISS	NA	NA	NA
Selenium	R	5 (B)	NA
Selenium-DISS	R	5 (B)	NA
Silver	0.06	0.2 (B) M	NA
Silver-DISS	0.06	0.2 (B) M	NA
Sodium	NA	NA	NA
Sodium-DISS	NA	NA	NA
Thallium	7.2	3.7 (B) X	NA
Thallium-DISS	7.2	3.7 (B) X	NA
Titanium	ID	NA	NA
Titanium-DISS	ID	NA	NA
Vanadium	12	12	NA
Vanadium-DISS	12	12	NA
Zinc	110 H*92	110 (B) G	NA
Zinc-DISS	110 H*92	110 (B) G	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Top of Screen Depth (ft bls) Sample Date Sample ID	FCV	GSI	BCC
Alcohols			
1,4-Dioxane	22,000	2,800 (I) X	NA
Acetonitrile	NA	NA	NA
Ethanol	NLS	(I) NA	NA
Ethylacetate	NA	(I) NA	NA
Ethylene glycol	190,000	190,000 X	NA
Isobutanol	NA	(I) NA	NA
Isopropanol	57,000	57,000 (I) X	NA
Methanol	590,000	480	NA
n-Butanol	NA	(I) NA	NA
Aldehydes			
Acetaldehyde	130	130 (I)	NA
Butanal	NA	NA	NA
Crotonaldehyde	NA	NA	NA
Cyclohexanone	NA	NA	NA
Decanal	NA	NA	NA
Formaldehyde	120	120	NA
Heptanal	NA	NA	NA
Hexanal	NA	NA	NA
m-Tolualdehyde	NA	NA	NA
Nonanal	NA	NA	NA
Octanal	NA	NA	NA
Paraldehyde	NA	NA	NA
Pentanal	NA	NA	NA
Propanal	NA	NA	NA
Inorganics			
Alkalinity	NA	NA	NA
Bicarbonate	NA	NA	NA
Chloride	NA	50,000 FF	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Top of Screen Depth (ft bls) Sample Date Sample ID	FCV	GSI	BCC
Inorganics (continued)			
Chlorides Soluble	NA	50,000 FF	NA
Nitrogen, (Ammonia)	29	CC	NA
Nitrogen, Nitrate	NA	(B,N) NA	NA
Nitrogen, Nitrite	NA	(B,N) NA	NA
Ortho-Phosphate	NA	NA	NA
Phosphate	NA	NA	NA
Phosphorus	NA	1,000 (total),EE	NA
Silica	NA	NA	NA
Silica, Dissolved	NA	NA	NA
Sulfate	NA	NA	NA
Sulfate Soluble	NA	NA	NA
Sulfide	NA	NA	NA
Acetic Acid	R	1,000 M	NA
Biochemical Oxygen Demand	NA	NA	NA
Chemical Oxygen Demand	NA	NA	NA
Total Organic Carbon	NA	NA	NA
Density	NA	NA	NA
Dissolved Organic Carbon	NA	NA	NA
Hardness as CaCO3	NA	NA	NA
Methane	NA	(K) NA	NA
Suspended Solids	NA	NA	NA
Total Dissolved Solids	NA	500,000 EE	NA

Footnotes on Page 223.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

Results in micrograms per liter (µg/L).

*	LCS or LCSD exceeds the control limit.
<	Less than the laboratory method detection limit.
Bold	Indicates a value above the Final Chronic Value (Operational Memorandum #1, January 23, 2006)
	Indicates a value above the Residential and Commercial I Direct Contact Criteria (Operational Memorandum #1, January 23, 2006).
Underline	Indicates a value above the Groundwater Surface Water Interface Protection Screening Level (Operational Memorandum #1, January 23, 2006).
	Indicates a value above the Residential and Commercial I Drinking Water Protection Criteria (Operational Memorandum #1, January 23, 2006).
*F5	Post-digestion spike recovery for furnace AA analysis exceeded control limits and sample absorbance or concentration was less than 50% of spike absorbance or concentration.
B	Constituent was also detected in laboratory blank.
D	Result was obtained from analysis of a dilution.
E	Analyte was detected at a concentration greater than the calibration range, and is therefore estimated.
ft bls	Feet below land surface.
H	Sample was prepared or analyzed after the EPA recommended holding time had been exceeded.
J	Estimated result.
M	Matrix interference reported by laboratory.
MBD	This analyte is present in the associated method blank at an amount that is less than two times the reporting limit.
N	Spiked sample recovery is not within control limits (Inorganics only).
W	Post-digestion spike for furnace A-A analysis is out of control limits while sample absorbance is less than 50% of spike absorbance.

State of Michigan Criteria Footnotes:

A	State of Michigan Drinking Water Standard.
AA	Compound may be adsorbed to particulates rather than dissolved in water; filtered groundwater sample may be more appropriate for comparison to criteria.
B	Background may be substituted if higher than the calculated cleanup criteria.
CC	The generic groundwater surface water interface criteria are based on the toxicity of unionized ammonia.
D	Calculated criterion exceeds 100%, therefore it is reduced to 100%.
E	Criterion is the aesthetic drinking water value.
EE	Applicable criteria established as required by Section 20120a(15) of the act.
F	Criterion is based on adverse impacts to plant life.
FF	The chloride groundwater surface water interface criteria is 125 mg/l when discharged to surface waters designated as public water supply sources or 50 mg/l when discharged to Great Lakes or connecting waters.
G	GSI value is pH or water hardness dependent.
I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.

Table 6-18. Summary of Constituents Detected in Groundwater Samples for the Menominee River, Ford-Kingsford Products Facility, Kingsford, Michigan.

State of Michigan Criteria Footnotes (continued):

ID	Inadequate data to develop criterion.
J	Chemical may be present in several isomer forms. Isomer specific concentrations must be added together for comparison to criteria.
K	Chemical may be flammable and/or explosive.
L	Higher groundwater concentrations, (up to 15 µg/L) may be acceptable if the soil concentration is less than 400 ppm and groundwater migrating offsite will not result in unacceptable exposures.
M	Calculated criterion is below the analytical method detection limit (MDL).
N	Concentrations of all potential nitrate-nitrogen sources must be added together and compared to nitrate criteria.
NA	Criterion or values is not available.
NLV	Chemical is not likely to volatilize under most soil conditions.
O	All polychlorinated and polybrominated dibenzodioxins, and dibenzofurans are considered as one substance.
R	Hazardous substance may exhibit the characteristic of reactivity as defined in 40 CFR 261.23.
S	Criterion defaults to the chemical-specific water solubility limit.
T	Refer to Toxic Substances Control Act (TSCA) to determine applicability of TSCA cleanup standards.
V	Criterion is the aesthetic drinking water value, which is a secondary standard.
W	Concentrations of trihalomethanes in groundwater must be added together to detemine compliance with State of Michigan Criteria.
X	The GSI criterion shown is not protective for surface water that is used as a drinking water source.
Z	Data for mercuric chloride serves as the basis for drinking water, groundwater contact, soil direct contact and the groundwater protection criteria.

Table 6-19. Summary of Dixoin/Furan Samples and TEC Results, Ford-Kingsford Products Facility, Kingsford, Michigan.

Location	Sample ID	Sample Date	Laboratory	TEC
GM-2B	GM-2B	5/5/2000	Triangle	0.35
GM-5	GM-5 (MDEQ)	5/3/2000	Triangle	0.61
GM-5	GM-5	9/17/2003	STL	0
GM-5	GM-5 (filtered)	9/17/2003	STL	0
GM-5	GWGM-5 (10/20/04)	10/20/04	Alta	0.00097
GM-5	GWGM-5 (10/20/04)	10/20/04	STL	0.0009
GM-5	GWGM-5 (12/7/04)	12/07/04	Alta	0.00004
GM-5	GWGM-5 (12/7/04)	12/07/04	STL	0.00003
GM-6	GWGM-6	7/19/2000	Triangle	0
GM-15	GM-15	5/3/2000	Triangle	0
GM-25A	GWGM-25A (10/19/04)	10/19/04	Alta	0.00005
GM-25A	GWGM-25A (10/19/04)	10/19/04	STL	0.00006
GM-25A	GWGM-25A (12/06/04)	12/06/04	Alta	0
GM-25A	GWGM-25A (12/06/04)	12/06/04	STL	0.00075
GM-25B	GM-25-B (MDEQ)	5/2/2000	Triangle	0
GM-25C	GWGM-25C	8/2/2000	Triangle	0.000033
GM-25C	GM-25C	9/15/2003	STL	0
GM-25C	GM-25C (filtered)	9/15/2003	STL	0
GM-26A	GM-26-A (MDEQ)	5/2/2000	Triangle	0
GM-26A	GWGM-26A (10/21/04)	10/21/04	Alta	0.00058
GM-26A	GWGM-26A (10/21/04)	10/21/04	STL	0.00004
GM-26A	GWGM-26A (12/10/04)	12/10/04	Alta	0.00002
GM-26A	GWGM-26A (12/10/04)	12/10/04	STL	0
GM-26B	GWGM-26B	7/18/2000	Triangle	0
GM-26C	GM-26-C (MDEQ)	5/2/2000	Triangle	0.015
GM-26C	GM-26C	9/16/2003	STL	0
GM-26C	GM-26C (filtered)	9/16/2003	STL	0
GM-26C	GWGM-26C (10/20/04)	10/20/04	Alta	0.00074
GM-26C	GWGM-26C (10/20/04)	10/20/04	STL	0.00005
GM-26C	GWGM-26C (12/09/04)	12/09/04	Alta	0
GM-26C	GWGM-26C (12/09/04)	12/09/04	STL	0.00007
GM-27A	GWGM-27A (10/20/04)	10/20/04	Alta	0.00005
GM-27A	GWGM-27A (10/20/04)	10/20/04	STL	0
GM-27A	GWGM-27A (12/07/04)	12/07/04	Alta	0
GM-27A	GWGM-27A (12/07/04)	12/07/04	STL	0.00005
GM-27B	GWGM-27B	7/19/2000	Triangle	0

Footnotes on Page 5.

Table 6-19. Summary of Dixoin/Furan Samples and TEC Results, Ford-Kingsford Products Facility, Kingsford, Michigan.

Location	Sample ID	Sample Date	Laboratory	TEC
GM-27C	GWGM-27C	8/7/2000	Triangle	0
GM-28A	GWGM-28A	7/19/2000	Triangle	0
GM-37A	GWGM-37A (11/2/04)	11/02/04	Alta	0.00006
GM-37A	GWGM-37A (11/2/04)	11/02/04	STL	0.00004
GM-37A	GWGM-37A (12/10/04)	12/10/04	Alta	0.00069
GM-37A	GWGM-37A (12/10/04)	12/10/04	STL	0.00018
GM-37B	GWGM-37B (10/27/04)	10/27/04	Alta	0.00012
GM-37B	GWGM-37B (10/27/04)	10/27/04	STL	0
GM-37B	GWGM-37B (12/13/04)	12/13/04	Alta	0.00004
GM-37B	GWGM-37B (12/13/04)	12/13/04	STL	0.00008
GM-62B	GWGM-62B (10/25/04)	10/25/04	Alta	0.5747
GM-62B	GWGM-62B (10/25/04)	10/25/04	STL	0.27504
GM-62B	GWGM-62B (12/12/04)	12/12/04	Alta	0.00882
GM-62B	GWGM-62B (12/12/04)	12/12/04	STL	0.04733
GM-62C	GWGM-62C (10/22/04)	10/22/04	Alta	0.01524
GM-62C	GWGM-62C (10/22/04)	10/22/04	STL	0.00385
GM-62C	GWGM-62C (12/11/04)	12/11/04	Alta	0.00543
GM-62C	GWGM-62C (12/11/04)	12/11/04	STL	0.0013
GM-63A	GWGM-63A	8/29/2000	Triangle	7.6
GM-63A	GWGM-63A	9/19/2000	Triangle	0.041
GM-63A	GM-63A	9/15/2003	STL	0
GM-63A	GM-63A (filtered)	9/15/2003	STL	0
GM-63B	GWGM-63B	2/7/2001	Triangle	0
GM-64A	GWGM-64A	8/30/2000	Triangle	0.0016
GM-64A	GWGM-64A	10/3/2000	Triangle	0
GM-64B	GWGM-64B	7/24/2000	Triangle	0
GM-66A	GWGM-66A	7/18/2000	Triangle	0.0013
GM-66A	GM-66A	9/16/2003	STL	0
GM-66A	GM-66A (filtered)	9/16/2003	STL	0
GM-66B	GWGM-66B	7/19/2000	Triangle	0
GM-66B	GWGM-66B	8/3/2000	Triangle	0.012
GM-67	GWGM-67	8/7/2000	Triangle	0.14
GM-68	GWGM-68	8/31/2000	Triangle	0.94
GM-68	GWGM-68	9/26/2000	Triangle	0.33
GM-70	GWGM-70	8/17/2000	Triangle	0.13

Footnotes on Page 5.

Table 6-19. Summary of Dixoin/Furan Samples and TEC Results, Ford-Kingsford Products Facility, Kingsford, Michigan.

Location	Sample ID	Sample Date	Laboratory	TEC
GM-71	GWGM-71	8/21/2000	Triangle	6.5
GM-72	GWGM-72	8/22/2000	Triangle	0.41
GM-72A	GWGM-72A (10/20/04)	10/20/04	Alta	0.00052
GM-72A	GWGM-72A (10/20/04)	10/20/04	STL	0
GM-72A	GWGM-72A (12/9/04)	12/09/04	Alta	0.00394
GM-72A	GWGM-72A (12/9/04)	12/09/04	STL	0.00885
GM-73	GWGM-73	9/6/2000	Triangle	5.9
GM-74	GWGM-74	9/7/2000	Triangle	0
GM-75	GWGM-75	9/8/2000	Triangle	0
GMEW-1	GMEW-1	11/05/2001	Triangle	0.13
GMEW-1	GMEW-1	12/03/2001	Triangle	1.5
GMEW-1	GMEW-1	12/05/2001	Triangle	0
GMEW-1	GMEW-1	12/12/2001	Triangle	0
GMEW-1	GMEW-1	12/19/2001	Triangle	0.16
GMEW-1	GMEW-1 (6/26/03)T	6/26/2003	STL	0
GMEW-1	GMEW-1 (6/26/03)D	6/26/2003	STL	0
GMEW-1	GWGMEW-1 (10/29/04)	10/29/04	Alta	0.00002
GMEW-1	GWGMEW-1 (10/29/04)	10/29/04	STL	0.00005
GMEW-1	GWGMEW-1 (12/08/04)	12/08/04	Alta	0
GMEW-1	GWGMEW-1 (12/08/04)	12/08/04	STL	0.00004
GMEW-2	GMEW-2	11/05/2001	Triangle	2.6
GMEW-2	GMEW-2	12/03/2001	Triangle	0
GMEW-2	GMEW-2	12/05/2001	Triangle	0.00008
GMEW-2	GMEW-2	12/12/2001	Triangle	0
GMEW-2	GMEW-2	12/19/2001	Triangle	6.5
GMEW-2	GMEW-2 (6/26/03)T	6/26/2003	STL	0
GMEW-2	GMEW-2 (6/26/03)D	6/26/2003	STL	0
GMEW-2	GWGMEW-2 (10/30/04)	10/30/04	Alta	0
GMEW-2	GWGMEW-2 (10/30/04)	10/30/04	STL	0.00002
GMEW-2	GWGMEW-2 (12/08/04)	12/08/04	Alta	0
GMEW-2	GWGMEW-2 (12/08/04)	12/08/04	STL	0.00003
GMEW-3	GWGMEW-3	7/24/2000	Triangle	1.3
GMEW-3	GMEW-3	11/05/2001	Triangle	2.8
GMEW-3	GMEW-3	12/03/2001	Triangle	0
GMEW-3	GMEW-3	12/05/2001	Triangle	0.12
GMEW-3	GMEW-3	12/12/2001	Triangle	0.13
GMEW-3	GMEW-3	12/19/2001	Triangle	0.000247
GMEW-3	GMEW-3 (6/26/03)T	6/26/2003	STL	0
GMEW-3	GMEW-3 (6/26/03)D	6/26/2003	STL	0
GMEW-3	GWGMEW-3 (10/29/04)	10/29/04	Alta	0.00061

Footnotes on Page 5.

Table 6-19. Summary of Dixoin/Furan Samples and TEC Results, Ford-Kingsford Products Facility, Kingsford, Michigan.

Location	Sample ID	Sample Date	Laboratory	TEC
GMEW-3	GWGMEW-3 (10/29/04)	10/29/04	STL	0.00009
GMEW-3	GWGMEW-3 (12/08/04)	12/08/04	Alta	0.00083
GMEW-3	GWGMEW-3 (12/08/04)	12/08/04	STL	0.00016
GMEW-4R	GMEW-4R (6/26/03)T	6/26/2003	STL	0
GMEW-4R	GMEW-4R (6/26/03)D	6/26/2003	STL	0
GMEW-4R	GWGMEW-4R (10/30/04)	10/30/04	Alta	0.00047
GMEW-4R	GWGMEW-4R (10/30/04)	10/30/04	STL	0.00011
GMEW-4R	GWGMEW-4R (12/13/04)	12/13/04	Alta	0.00081
GMEW-4R	GWGMEW-4R (12/13/04)	12/13/04	STL	0.00012
GMEW-5	GWGMEW-5 (10/19/04)	10/19/04	Alta	0.00005
GMEW-5	GWGMEW-5 (10/19/04)	10/19/04	STL	0.00004
GMEW-5	GWGMEW-5 (12/06/04)	12/06/04	Alta	0
GMEW-5	GWGMEW-5 (12/06/04)	12/06/04	STL	0.00004
GMEW-7	GWGMEW-7 (10/26/04)	10/26/04	Alta	0.0015
GMEW-7	GWGMEW-7 (10/26/04)	10/26/04	STL	0.00168
GMEW-7	GWGMEW-7 (12/14/04)	12/14/04	Alta	0.00301
GMEW-7	GWGMEW-7 (12/14/04)	12/14/04	STL	0.0002
GMEW-8	GWGMEW-8 (10/22/04)	10/22/04	Alta	0.00011
GMEW-8	GWGMEW-8 (10/22/04)	10/22/04	STL	0.00003
GMEW-8	GWGMEW-8 (12/12/04)	12/12/04	Alta	0.00005
GMEW-8	GWGMEW-8 (12/12/04)	12/12/04	STL	0.00157
GMEW-9	GWGMEW-9 (10/21/04)	10/21/04	Alta	0.00074
GMEW-9	GWGMEW-9 (10/21/04)	10/21/04	STL	0
GMEW-9	GWGMEW-9 (12/11/04)	12/11/04	Alta	0.00073
GMEW-9	GWGMEW-9 (12/11/04)	12/11/04	STL	0
GM-SG5	GM-SG-5 (MDEQ)	5/3/2000	Triangle	0.40
AGM-GSI-1	AGM-GSI-1	7/23/2001	Triangle	0
AGM-Seep 2	AGM-Seep 2	7/25/2001	Triangle	0.00041
Phase I System Influent	Ph 1 Inf	6/12/2001	Triangle	0
Phase I System Influent	Ph I-Inf-EW1	8/15/2001	Triangle	0.000178
Phase I System Effluent	Ph 1 Eff	5/03/2001	Triangle	0.000332
Phase I System Effluent	Ph 1 Eff	5/08/2001	Triangle	0.000019
Phase I System Effluent	Ph 1 Eff	5/17/2001	Triangle	0
Phase I System Effluent	Ph 1 Eff	6/12/2001	Triangle	0
Phase I System Effluent	Ph 1 Eff	7/12/2001	Triangle	0
Phase I System Effluent	Ph I-Eff-EW1	8/15/2001	Triangle	0

Footnotes on Page 5.

Table 6-19. Summary of Dixoin/Furan Samples and TEC Results, Ford-Kingsford Products Facility, Kingsford, Michigan.

Location	Sample ID	Sample Date	Laboratory	TEC
Phase II System Effluent	Ph II Eff	9/06/2001	Triangle	2.1
Phase II System Effluent	Ph II Eff	9/17/2001	Triangle	0
Phase II System Effluent	Ph II Eff	10/11/2001	Triangle	8.8
Phase II System Effluent	Ph II Eff	11/05/2001	Triangle	1.3
Phase II System Effluent	Ph II Eff	11/29/2001	Triangle	0
Phase II System Effluent	Ph II Eff	12/04/2001	Triangle	2.7
Phase II System Effluent	Ph II Eff	12/06/2001	Triangle	0
Phase II System Effluent	Ph II Eff	12/13/2001	Triangle	0
Phase II System Effluent	Ph II Eff	12/20/2001	Triangle	0
Phase II System Effluent	Ph II Eff	12/27/2001	Triangle	0
Phase II System Effluent	Ph II Eff	1/10/2002	Triangle	5.6
Phase II System Effluent	PhII EFF (1/22/03)T	1/22/2003	STL	0
Phase II System Effluent	PhII EFF (1/22/03)D	1/22/2003	STL	0
Phase II System Effluent	PhII EFF (2/13/03)T	2/13/2003	STL	0
Phase II System Effluent	PhII EFF (2/13/03)D	2/13/2003	STL	0
Phase II System Effluent	PhII EFF (3/4/03)T	3/04/2003	STL	0
Phase II System Effluent	PhII EFF (3/4/03)D	3/04/2003	STL	0
Phase II System Effluent	GWEFFLUENT (10/30/04)	10/30/04	Alta	0.00003
Phase II System Effluent	GWEFFLUENT (10/30/04)	10/30/04	STL	0.00012
Phase II System Effluent	GWEFFLUENT (12/09/04)	12/09/04	Alta	0
Phase II System Effluent	GWEFFLUENT (12/09/04)	12/09/04	STL	0
WWTP-Influent	WWTP-Influent	4/04/2001	Triangle	0.0175
WWTP Effluent	WWTP EFF (1/22/03)T	1/22/2003	STL	0
WWTP Effluent	WWTP EFF (1/22/03)D	1/22/2003	STL	0
WWTP Effluent	WWTP EFF (2/13/03)T	2/13/2003	STL	0
WWTP Effluent	WWTP EFF (2/13/03)D	2/13/2003	STL	0
WWTP Effluent	WWTP EFF (3/4/03)T	3/04/2003	STL	0
WWTP Effluent	WWTP EFF (3/4/03)D	3/04/2003	STL	0
WWTP Digester 1&2	WWTP-Digester 1&2	4/10/2001	Triangle	557
WWTP Digester	WWTP Digester	11/08/2001	Triangle	431

All results reported as parts per quadrillion (picograms per liter).

(1) A concentration value of zero shall be used in the TEC calculation for any congener which is not present at or above its respective quantification level. The permittee shall report all analytical results that show the presence of any of the seventeen dioxin/furan congeners at levels that are at or above respective detection levels but less than the respective quantification levels.

Alta Alta Analytical, El Dorado Hills, California.

D Laboratory Filtered Sample.

MDEQ Michigan Department of Environmental sample.

STL Severn Trent Laboratories, Inc., Knoxville, Tennessee.

T Unfiltered Sample.

TEC Toxicity equivalence concentration of 2,3,7,8-TCDD for dioxins and furans congeners.

Triangle Triangle Labs, Inc., Durham, North Carolina.

WWTP Waste Water Treatment Plant.

Table 6-20. Summary of Groundwater and Seep Water Toxicity Test Results[a], Ford-Kingsford Products Facility, Kingsford, Michigan

			WET Test TU_A	
Well	**Date**	**Laboratory**	**Fathead minnow**	***Daphnia magna***
GM-5	11/30/99	AScI	<1.0	3.6
GM-5	08/15/00	NEB	<1.0	1.0
GM-5	09/20/00	NEB	1.5	<1.0
GM-6	02/29/00	AScI	<1.0	1.3
GM-6	02/29/00	NEB (for MDEQ)	<1.0	<1.0
GM-6	07/19/00	NEB	<1.0	<1.0
GM-6	09/25/00	NEB	<1.0	<1.0
GM-8	10/21/99	AScI	<1.0	<1.0
GM-9	03/07/00	AScI	<1.0	<1.0
GM-25A	12/01/99	AScI	1.6	<1.0
GM-25A	08/21/00	NEB	1.2	1.2
GM-25A	08/25/03	NEB	1.2	1.8
GM-25B	07/13/99	MDEQ	14	16
GM-25B	08/25/99	MDEQ	9.7	8.3
GM-25B	10/20/99	AScI	7.7	5.6
GM-25C	08/02/00	NEB	<1.0	<1.0
GM-26A	11/29/99	AScI	1.4	1.8
GM-26A	11/29/99	MDEQ	NT	2.1
GM-26A	08/16/00	NEB	1.0	1.7
GM-26A	09/02/03	NEB	<1.0	1.0
GM-26B	11/30/99	AScI	<1.0	1.7
GM-26B	11/30/99	MDEQ	NT	<1.0
GM-26B	07/18/00	NEB	<1.0	<1.0
GM-26C	11/30/99	AScI	2.1	1.4
GM-26C	08/16/00	NEB	1.7	1.3
GM-26C	09/03/03	NEB	1.7	4.0
GM-27A	12/01/99	AScI	1.8	3.7
GM-27A	08/25/03	NEB	1.5	3.1
GM-27B	07/18/00	NEB	<1.0	<1.0
GM-27C	08/07/00	NEB	<1.0	<1.0
GM-28A	02/29/00	AScI	<1.0	1.3
GM-28A	07/19/00	NEB	<1.0	<1.0
GM-28B[b]	03/01/00	AScI	<1.0	<1.0
GM-29	02/29/00	AScI	<1.0	<1.0
GM-29	02/29/00	NEB (for MDEQ)	<1.0	<1.0
GM-31	10/09/00	NEB	<1.0	<1.0
GM-64A	10/03/00	NEB	<1.0	<1.0
GM-64B	07/24/00	NEB	<1.0	<1.0
GM-64B	10/04/00	NEB	<1.0	<1.0
GM-66A	07/18/00	NEB	<1.0	<1.0
GM-66B	07/19/00	NEB	<1.0	<1.0
GM-77	10/06/03	NEB	<1.0	<1.0

Footnotes on Page 2

Table 6-20. Summary of Groundwater and Seep Water Toxicity Test Results[a], Ford-Kingsford Products Facility, Kingsford, Michigan

			WET Test TU_A	
Well	**Date**	**Laboratory**	**Fathead minnow**	***Daphnia magna***
GM-78	10/06/03	NEB	<1.0	<1.0
GM-79	10/06/03	NEB	<1.0	<1.0
			WET Test TU_A	
Seep	**Date**	**Laboratory**	**Fathead minnow**	***Daphnia magna***
SP-1	05/16/00	NEB	<1.0	<1.0
KF-CA-2[c]	03/13/00	MDEQ	NT	19
SP-2	06/27/00	NEB	<1.0	1.0
SP-2	06/10/03	NEB	<1.0	<1.0
SP-2	05/17/04	NEB	<1.0	<1.0
GSI-1	07/25/01	NEB	<1.0	<1.0
GSI-1	07/25/01	NEB (for MDEQ)	<1.0	<1.0
Seep-2[d]	07/25/01	NEB	<1.0	1.4
Seep-2	07/25/01	NEB (for MDEQ)	<1.0	<1.0

a	Data are for toxicity tests conducted within required holding time.
AScI	AScI Corporation
b	Fathead minnow test initiated 3/7/00 following re-sampling.
c	Seep samples KF-CA-2 and SP-2 were collected from the same location.
d	Sampling date for the *Daphnia magna* test was 7/27/2001.
NEB	New England Bioassay
NR	Not reported.
NT	Not tested.

ARCADIS

Table 6-21. Transmissivity Estimates From Specific Capacity Data, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well	Q (gpm)	s (feet)	b (feet)	L (feet)	Partial Penetration Factor	Q/s (gpm/ft)	Corrected Q/s (gpm/ft)	t (minutes)	T (gpd/ft)	K (gpd/ft^2)
GM-5	3.2	18.35	10	10	1	0.174	0.174	40	219	22
GM-6	3.7	8.08	27	10	0.63	0.458	0.727	30	1,020	38
GM-25A	2.14	0.52	14	10	0.95	4.115	4.332	15	6,660	476
GM-25B	1.62	5.35	14	10	0.95	0.303	0.319	15	390	28
GM-25C	1.82	1.5	18	10	0.83	1.213	1.462	10	1,980	110
GM-26A	1.82	0.25	37	10	0.44	7.280	16.545	20	28,700	776
GM-26B	1.43	35.28	15	10	0.92	0.041	0.044	20	40	3
GM-26C	2.22	1.03	50	10	0.33	2.155	6.531	15	10,400	208
GM-27A	1.88	0.45	20	10	0.77	4.178	5.426	30	8,950	448
GM-27B	1.76	1.98	17	10	0.87	0.889	1.022	20	1,420	84
GM-27C	1.54	19.54	10	10	1	0.079	0.079	30	88	9
GM-28B	1.76	0.23	20	10	0.77	7.652	9.938	30	17,100	855
GM-28C	1.46	1.41	6	5	0.99	1.035	1.046	30	1,510	252
GM-29	1.88	0.17	50	10	0.33	11.059	33.512	30	62,800	1,256
GM-31	1.58	0.24	23	10	0.71	6.583	9.272	30	15,900	691

b Formation thickness.
ft Feet
ft^2 Feet squared.
gpd Gallons per day.
gpm Gallons per mintue.
L Screen length.
Q Pumping rate.
s Drawdown.
t Pumping time.
T Transmissivity.

ARCADIS

Table 6-22. Summary of Hyraulic Testing Prior to Treatment System Construction, Ford-Kingsford Products Facility, Kingsford, Michigan.

Pumping Well	Observation Well	Type of Test	Date of Test	Distance to Pumping Well (ft)	Pumping Rate (gpm)	Drawdown Duration of Test (hh:mm)	Drawdown T (ft^2/d)	Recovery Duration of Test (hh:mm)	Recovery T (ft^2/d)
Zone A Sands									
GMEW-1	--	Step	8/3/00	--	15/25/35	07:08	780	--	--
GMEW-2	GMPZ-2	Pump	10/21/01	50	20	72:32	3,710	22:32	--
GMEW-2	GMPZ-3	Pump	10/21/01	100	20	72:32	3,120	22:32	--
GMEW-5	GMPZ-5	Pump	12/3/02	15	10	09:13	4,690	01:00	1,980
GMEW-6	GMPZ-6	Pump	7/25/02	16	10	47:12	4,540	35:41	3,150
Zone B Sands									
GMEW-4	GM-25B	Step	2/13/02	16	5/10/15	06:55	260	--	110
GMEW-4R	GM-25B	Step	12/4/02	8	5/10	05:13	200	--	110
Zone C Sands									
GMEW-3	GM-65	Pump	10/29/03	10	25	48:40	2,440	21:26	--
GMEW-3	GMPZ-10	Pump	10/29/03	18	25	48:40	2,640	21:26	--
GMEW-7	GMPZ-7	Pump	11/21/03	10	23	48:04	1,770	23:01	--
GMEW-8	GMPZ-8	Pump	11/4/03	10	25	48:04	1,560	24:39	--
GMEW-9	GMPZ-9	Pump	12/3/03	11	20	30:08	3,100	33:30	--

d Day.
ft Feet.
ft^2 Feet squared.
gpm Gallons per minute.
hh Hours.
mm Minutes.
T Transmissivity.

Table 6-23. Summary of Short-Term Hydraulic Testing on Extraction Wells, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well ID	Date	SWL (ft BTOC)	Test Duration (hrs)	Max Drawdown (ft)	Flow Rate (gpm)	Total Pumped (gal)	Specific Capacity
GMEWA-1	10/10/04	15.83	4	2.14	15	3,787	7.0
GMEWA-2	10/11/04	15.80	4	2.50	15	3,580	6.0
GMEWA-3	10/19/04	15.56	4	5.25	10	2,483	
GMEWA-4	10/12/04	12.32	4	4.45	15	3,775	3.4
GMEWA-5	09/25/04	6.00	4	2.81	15	3,626	5.3
GMEWA-6	09/26/04	8.29	4	6.62	15	3,577	2.3
GMEWA-7	09/27/04	4.75	4	2.36	15	3,583	6.4
GMEWA-8	09/28/04	5.30	4	1.10	15	3,563	13.6
GMEWA-9	10/04/04	6.09	4	0.87	15	3,750	17.2
GMEWA-10	10/05/04	6.31	4	0.54	15	3,750	27.8
GMEWA-11	10/06/04	9.01	4	0.77	15	3,801	19.5
GMEWA-12	10/07/04	10.36	4	3.49	15	3,554	4.3
GMEWA-13	10/08/04	10.15	4	1.84	15	3,671	8.2
GMEWA-14	10/09/04	10.47	4	1.37	15	3,731	10.9
GMEWA-15	09/11/04	11.99	4	1.49	15	3,633	10.1
GMEWA-16	09/12/04	12.65	4	1.37	15	3,666	10.9
GMEWA-17	09/13/04	12.91	4	1.82	15	3,580	8.2
GMEWA-18	09/14/04	13.74	4	2.34	15	3,582	6.4
GMEWA-19	11/17/04	13.68	2.3	5.23	5	773	1.0
GMEWA-20	09/20/04	14.17	< 1	3.09	15	710	4.9
GMEWA-20	09/20/04	14.20	3.2	2.48	10	1,892	4.0
GMEWA-21	11/18/04	14.30	4	6.30	10	781	1.6
GMEWA-22	09/21/04	15.83	4	4.77	15	3,574	3.1
GMEWA-23	09/22/04	14.89	4	1.58	15	3,588	9.5
GMEWA-24	09/23/04	12.15	4	1.25	15	3,585	12.0
GMEWA-25	09/24/04	14.41	4	2.31	15	3,591	6.5
GMEWA-26	10/28/04	13.90	4	2.47	15	3,644	6.1
GMEWA-27	10/31/04	11.62	4	1.71	15	3,641	8.8
GMEWA-28	11/01/04	12.94	4	1.98	15	3,819	7.6
GMEWA-28A	11/02/04	14.10	4	1.32	15	3,618	11.4
GMEWB-1	11/13/04	13.59	0.4	81.60	10	259	0.1
GMEWC-1	09/04/04	5.43	4	5.30	30	7,228	5.7
GMEWC-1A	09/08/04	7.50	4	4.07	30	7,178	7.4

Footnotes on Page 2.

ARCADIS

Table 6-23. Summary of Short-Term Hydraulic Testing on Extraction Wells, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well ID	Date	SWL (ft BTOC)	Test Duration (hrs)	Max Drawdown (ft)	Flow Rate (gpm)	Total Pumped (gal)	Specific Capacity
GMEWC-2	09/02/04	6.21	4	11.10	30	7,148	2.7
GMEWC-2A	11/15/04	6.93	4	9.23	30	7,184	3.3
GMEWC-3	09/01/04	9.31	4	6.40	30	7,099	4.7
GMEWC-5	08/31/04	12.30	4	27.45	30	7,081	1.1
GMEWC-6	11/12/04	11.32	1.4	90.29	30	2,581	0.3
GMEWC-7	09/09/04	13.23	4	23.19	30	7,155	1.3
GMEWC-7A	11/14/04	13.50	4	65.32	30	7,371	0.5
GMEWC-8	09/10/04	11.32	4	12.40	30	7,148	2.4
GMEWC-8A	11/16/04	11.45	4	9.07	30	7,312	3.3
GMEWC-9	11/11/04	12.38	4	79.91	20	5,275	0.3
GMEWC-10	11/10/04	12.26	4	102.07	26	6,250	0.3

ft	Feet.
ft BTOC	Feet below top of casing.
hrs	Hours.
gal	Gallons.
gpm	Gallons per minute.
SWL	Static Water Level.

Table 6-24. Summary of Constituents Detected in Menominee River Surface Water Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Sample I.D.	SWDNC-A	SWDNC-B	SW-99	SWDNMI-A	SWDNWI-A	SWDNWI-B	SWDS-1	SWGM26-1	SWMIDC-A	SWMIDC-B
Sample Date	08/06/99	08/06/99	08/06/99	08/06/99	08/06/99	08/06/99	12/01/99	12/01/99	08/05/99	08/05/99
Barium-DISS	8.9 B	8.7 B	8.6 B	9.5 B	8.6 B	8.6 B	NA	NA	8.8 B	8.6 B
Hardness as CaCO3	100,000	99,000	100,000	94,000	96,000	94,000	NA	NA	51,000	86,000
Silica, Dissolved	NA	NA	NA	NA	NA	NA	9,200	8,700	NA	NA

Results reported in micrograms per liter (μg/L).
B Constituent was also detected in laboratory blank.
DISS Dissolved.
GW Groundwater.
NA Not analyzed.

State of Michigan Criteria Footnotes:
A State of Michigan Drinking Water Standard.
B Background may be substituted if higher than the calculated cleanup criteria.
NA Criterion or values is not available.

Table 6-24. Summary of Constituents Detected in Menominee River Surface Water Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Sample I.D. Sample Date	SWMIDMI-A 08/05/99	SWMIDWI-A 08/05/99	SWUPC-A 08/05/99	SWUPMI-A 08/05/99	SWUPWI-A 08/05/99	SWUS-1 12/01/99	GW Contact Criteria	Drinking Water Criteria
Barium-DISS	15 B	9.2 B	9.0 B	8.8 B	8.8 B	NA	14,000,000 (B)	2,000 (B) A
Hardness as CaCO3	100,000	95,000	100,000	85,000	100,000	NA	NA	NA
Silica, Dissolved	NA	NA	NA	NA	NA	9,300	NA	NA

Results reported in micrograms per liter (µg/L).
B Constituent was also detected in laboratory blank.
DISS Dissolved.
GW Groundwater.
NA Not analyzed.

State of Michigan Criteria Footnotes:
A State of Michigan Drinking Water Standard.
B Background may be substituted if higher than the calculated cleanup criteria.
NA Criterion or values is not available.

ARCADIS

Table 6-25. Summary of Soil Borings, Monitoring Wells and Test Pits for the Former Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Soil Borings:

ARCADIS	MDEQ	BLDI	EWA
GMSB-1	PB-2	SB-96-1	SB-1/1B
GMSB-20	PB-5	SB-96-2	SB-2/2B
GMSB-30	PB-6	SB-96-3	SB-3
GMSB-31		SB-96-4	SB-4
GMSB-32		SB-96-5	SB-5
GMSB-33		SB-96-6	SB-6
GMSB-34		SB-96-7	SB-7
GMSB-35		SB-96-8	SB-8
GMSB-36		SB-96-9	SB-9
GMSB-37			SB-22
GMSB-38			SB-23
GMSB-39			
GMSB-40			
GMSB-41			
GMSB-42			

Monitoring Wells:

ARCADIS	BLDI	EWA	USGS
GM-42	MW-96-1	MW-3	BR-5A/5B
GM-70	MW-96-2		
GM-71	MW-96-3		
GM-72	MW-96-4		

Test Pits:

ARCADIS	
TP-1	TP-16
TP-2	TP-17
TP-3	TP-18
TP-4	TP-19
TP-5	TP-20
TP-5A	TP-21
TP-6	TP-22
TP-7	TP-23
TP-7A	TP-24
TP-8	TP-25
TP-9	TP-26
TP-10	TP-27
TP-12	TP-27A
TP-13	TP-28
TP-14	TP-29
TP-15	TP-30

ARCADIS

Table 6-26. Summary of Soil and Waste Samples, Former Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michgian.

Sample I.D.	Location	Source	Date	Depth*	Media	VOC	SVOC	Inorganic	TOC	PCB's
GMSB-1/Composite	GMSB-1	AG&M	05/16/97	1-25	Waste	X	X	X	X	X
GMSB-1/35-45	GMSB-1	AG&M	05/16/97	35-45	Sand	X	X	X	X	X
GMSB-1/65	GMSB-1	AG&M	05/16/97	65	Sand		X		X	
GMSB-1/90	GMSB-1	AG&M	05/16/97	90	Sand	X	X		X	
GMSB-1/115	GMSB-1	AG&M	05/17/97	115	Silt	X	X		X	
GMSB-1/140	GMSB-1	AG&M	05/17/97	140	Sand	X	X		X	
GMSB-1/170	GMSB-1	AG&M	05/17/97	170	Silt	X	X		X	
GMSB-1/202	GMSB-1	AG&M	05/18/97	202	Silt				X	
GMSB-1/237	GMSB-1	AG&M	05/19/97	237	Sand	X	X		X	
GMSB-1/262	GMSB-1	AG&M	05/19/97	262	Sand				X	
GMSB-1/287	GMSB-1	AG&M	05/19/97	287	Clay/Silt				X	
GMSB-1/312	GMSB-1	AG&M	05/20/97	312	Sand	X	X		X	
GMSB-34/6	GMSB-34	AG&M	10/20/99	6	Waste	X	X	X	X	
GMSB-35/22	GMSB-35	AG&M	10/20/99	22	Waste	X	X	X	X	
GMSB-36/12	GMSB-36	AG&M	10/20/99	12	Waste	X	X	X	X	
GMSB-37/10	GMSB-37	AG&M	10/21/99	10	Waste	X	X	X	X	
GMSB-38/7	GMSB-38	AG&M	10/21/99	7	Waste	X	X	X	X	
GMSB-40/12	GMSB-40	AG&M	10/21/99	12	Waste	X	X	X	X	
GMSB-40/22	GMSB-40	AG&M	10/21/99	22	Waste			X		
GMSB-41/8	GMSB-41	AG&M	10/21/99	8	Waste	X	X	X	X	
TP-10/12	Test Pit 10	AG&M	11/03/99	12	Waste	X	X	X	X	
TP-5A/2	Test Pit 5A	AG&M	11/02/99	2	Waste	X	X	X	X	
Test Pit # 3	Test Pit 3	AG&M	12/13/98	3	Waste	X	X		X	
Test Pit # 5	Test Pit 5	AG&M	12/13/98	2	Waste	X	X		X	
Shingle Pile	Test Pit 7	AG&M	12/13/98	2	Waste	X	X		X	

Footnotes on Page 5.

Table 6-26. Summary of Soil and Waste Samples, Former Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigian.

Sample I.D.	Location	Source	Date	Depth*	Media	VOC	SVOC	Inorganic	TOC	PCB's
SB1-SS1	GMSB-1	MDEQ	05/16/97	12.5-13	Waste	X	X	X		X
SB1-SS2	GMSB-1	MDEQ	05/16/97	23-23.5	Waste	X	X	X		X
SB1-SS3	GMSB-1	MDEQ	05/16/97	35-37	Sand	X	X	X		X
SB1-SS4	GMSB-1	MDEQ	05/16/97	47-48	Sand	X	X	X		X
SB1-SS5	GMSB-1	MDEQ	05/16/97	54-55	Sand	X	X	X		X
SB1-SS6	GMSB-1	MDEQ	05/16/97	80-81	Sand	X	X	X		X
SB1-SS7	GMSB-1	MDEQ	05/17/97	122-123	Silt	X	X	X		X
SB1-SS8	GMSB-1	MDEQ	05/17/97	172-173	Silt	X	X	X		X
SB1-SS9	GMSB-1	MDEQ	05/19/97	235	Sand	X	X	X		X
SS-3	PB-2	MDEQ	05/15/96	8-12	Sand	X	X	X		X
SS-4	PB-2	MDEQ	05/15/96	12-16	Sand	X	X	X		X
SS-5	PB-2	MDEQ	05/15/96	24-28	Sand	X	X	X		X
SS-12	PB-5	MDEQ	05/16/96	8-12	Waste	X	X	X		X
SS-13	PB-5	MDEQ	05/16/96	12-16	Sand	X	X	X		X
MW-96-3 (4-6)	MW-96-3	BLDI	06/12/96	4-6	Sand	X	X	X		
MW-96-3 (20-22)	MW-96-3	BLDI	06/12/96	20-22	Sand	X	X	X		
SB-96-1 (6-8)	SB-96-1	BLDI	6/11/96	6-8	Sand	X	X	X		
SB-96-1 (14-16)	SB-96-1	BLDI	6/11/96	14-16	Sand	X	X	X		
SB-96-2 (6-8)	SB-96-2	BLDI	6/11/96	6-8	Sand	X	X	X		
SB-96-2 (18-20)	SB-96-2	BLDI	6/11/96	18-20	Sand	X	X	X		
SB-96-3 (8-10)	SB-96-3	BLDI	6/11/96	8-10	Sand	X	X	X		
SB-96-3 (18-20)	SB-96-3	BLDI	6/11/96	18-20	Sand	X	X	X		
SB-96-4 (6-8)	SB-96-4	BLDI	6/11/96	6-8	Sand	X	X			
SB-96-4 (22-24)	SB-96-4	BLDI	6/11/96	22-24	Sand	X	X			
SB-96-5 (6-8)	SB-96-5	BLDI	06/12/96	6-8	Sand			X		
SB-96-5 (8-10)	SB-96-5	BLDI	06/11/96	8-10	Sand	X	X	X		
SB-96-5 (18-20)	SB-96-5	BLDI	06/11/96	18-20	Silt	X	X	X		

Footnotes on Page 5.

Table 6-26. Summary of Soil and Waste Samples, Former Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michgian.

Sample I.D.	Location	Source	Date	Depth*	Media	VOC	SVOC	Inorganic	TOC	PCB's
SB-96-5 (22-24)	SB-96-5	BLDI	06/12/96	22-24	Silt			X		
SB-96-6 (6-8)	SB-96-6	BLDI	06/12/96	6-8	Sand	X	X	X		
SB-96-6 (24-26)	SB-96-6	BLDI	06/12/96	24-26	Silt	X	X	X		
SB-96-7 (6-8)	SB-96-7	BLDI	06/10/96	6-8	Sand	X	X	X		
SB-96-7 (16-18)	SB-96-7	BLDI	06/10/96	16-18	Sand	X	X	X		
SB-96-8 (?)	SB-96-8	BLDI	06/14/96	?	?	X	X	X		
SB-96-9 (?)	SB-96-9	BLDI	06/14/96	?	?	X	X	X		
S-1	S-1	E & E	05/04/88	0-.5	Sand	X	X	X		X
S-2	S-2	E & E	05/04/88	0-.5	Sand	X	X	X		X
S-3	S-3	E & E	05/04/88	0-.5	Waste	X	X	X		X
S-4	S-4	E & E	05/04/88	0-.5	Sand	X	X	X		X
S-5	S-5	E & E	05/04/88	0-.5	Waste	X	X	X		X
SB-1 (15)	SB-1	EWA	07/28/85	15	Sand			X		
SB-1B (15)	SB-1B	EWA	11/09/85	15	Sand	X		X		
SB-2B (15)	SB-2B	EWA	11/09/85	15	Sand	X		X		
SB-3 (52)	SB-3	EWA	07/26/85	52	Sludge	X		X		
SB-3 (54)	SB-3	EWA	07/26/85	54	Sludge	X		X		
SB-4 (54)	SB-4	EWA	07/24/85	54	Sludge	X		X		
SB-4 (56)	SB-4	EWA	07/24/85	56	Sludge	X		X		
SB-5 (5)	SB-5	EWA	06/18/85	5	Sand	X		X		
SB-5 (10)	SB-5	EWA	06/18/85	10	Sand	X		X		
SB-5 (15)	SB-5	EWA	06/18/85	15	Sand	X		X		
SB-5 (20)	SB-5	EWA	06/18/85	20	Sand	X		X		
SB-5 (25)	SB-5	EWA	06/18/85	25	Sand	X		X		
SB-5 (30)	SB-5	EWA	06/18/85	30	Sludge	X		X		
SB-5 (35)	SB-5	EWA	06/18/85	35	Sludge	X		X		
SB-6 (15)	SB-6	EWA	07/28/85	15	Sand			X		
SB-6 (16.5)	SB-6	EWA	11/08/85	16.5	Sand	X		X		

Table 6-26. Summary of Soil and Waste Samples, Former Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michgian.

Sample I.D.	Location	Source	Date	Depth*	Media	VOC	SVOC	Inorganic	TOC	PCB's
Footnotes on Page 5.										
SB-7 (45)	SB-7	EWA	07/24/85	45	Sludge	X		X		
SB-7 (54)	SB-7	EWA	07/24/85	54	Sand	X		X		
SB-8 (35)	SB-8	EWA	07/26/85	35	Sludge			X		
SB-8 (49)	SB-8	EWA	07/26/85	49	Sand/Sludge			X		
SB-9 (30)	SB-9	EWA	07/23/85	30	Sand/Sludge			X		
SB-9 (35)	SB-9	EWA	07/23/85	35	Sand/Sludge			X		
SB-22 (40)	SB-22	EWA	6/1/86	40	Sand	X		X		
SB-22 (50)	SB-22	EWA	6/1/86	50	Silt	X		X		
SB-22 (60)	SB-22	EWA	6/1/86	60	Silt	X		X		
SB-22 (75)	SB-22	EWA	6/1/86	75	Sand	X		X		
SB-22 (90)	SB-22	EWA	6/1/86	90	Sand	X		X		
SB-22 (105)	SB-23	EWA	06/01/86	105	Sand	X		X		
SB-22 (120)	SB-22	EWA	6/1/86	120	Sand	X		X		
SB-23 (40)	SB-23	EWA	6/1/86	40	Sand	X		X		
SB-23 (45)	SB-23	EWA	6/1/86	45	Sand	X		X		
SB-23 (55)	SB-23	EWA	6/1/86	55	Sand	X		X		
SB-23 (70)	SB-23	EWA	6/1/86	70	Sand	X		X		
SB-23 (85)	SB-23	EWA	6/1/86	85	Sand	X		X		
SB-23 (105)	SB-23	EWA	6/1/86	105	Silt	X		X		
SB-23 (120)	SB-23	EWA	6/1/86	120	Sand	X		X		
SSNE-1	SSNE-1	AG&M	08/05/99	0.5-1	Sand	X	X			X
SSNE-2	SSNE-2	AG&M	08/05/99	0.5-1	Sand	X	X			X
SSNE-4	SSNE-4	AG&M	08/05/99	0.5-1	Sand	X	X			X
SSNE-5	SSNE-5	AG&M	08/05/99	0.5-1	Sand	X	X			X
SSNE-6	SSNE-6	AG&M	08/05/99	0.5-1	Sand	X	X			X
SSNE-7	SSNE-7	AG&M	08/05/99	0.5-1	Sand	X	X			X
SSNE-8	SSNE-8	AG&M	08/05/99	0.5-1	Sand	X	X			X
SSNE-9	SSNE-9	AG&M	08/05/99	0.5-1	Sand	X	X			X

Table 6-26. Summary of Soil and Waste Samples, Former Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michgian.

Sample I.D.	Location	Source	Date	Depth*	Media	VOC	SVOC	Inorganic	TOC	PCB's
Footnotes on Page 5.										
SSNE-10	SSNE-10	AG&M	08/05/99	0.5-1	Sand	X	X			X
SSNE-11	SSNE-11	AG&M	08/05/99	0.5-1	Sand	X	X			X
SSNE-12	SSNE-12	AG&M	08/05/99	0.5-1	Sand	X	X			X

Note: S-1 through S-5 and SSNE-1 through SSNE-12 are surface soil samples
* Depth is in feet below land surface.
? Data unknown, historical.
SPLP Synthetic Precipitation Leaching Procedure.
SVOCs Semi-volatile Organic Compounds.
TCLP Toxic Characteristic Leaching Procedure.
TOC Total Organic Carbon.
VOCs Volatile Organic Compounds.

Table 6-26. Summary of Soil and Waste Samples, Former Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michgian.

Sample I.D.	TCLP Extraction	SPLP Extraction	Alcohols	Aldehydes	Volatile Acids	Radium
GMSB-1/Composite	X					
GMSB-1/35-45	X					
GMSB-1/65	X					
GMSB-1/90	X					
GMSB-1/115	X					
GMSB-1/140	X					
GMSB-1/170	X					
GMSB-1/202						
GMSB-1/237	X					
GMSB-1/262						
GMSB-1/287						
GMSB-1/312	X					
GMSB-34/6	X	X	X	X	X	
GMSB-35/22	X	X	X	X	X	X
GMSB-36/12	X	X	X	X	X	X
GMSB-37/10	X	X	X	X	X	X
GMSB-38/7	X	X	X	X	X	X
GMSB-40/12	X	X	X	X	X	X
GMSB-40/22						X
GMSB-41/8	X	X	X	X	X	
TP-10/12	X	X	X	X		
TP-5A/2	X	X	X	X		
Test Pit # 3	X					
Test Pit # 5	X					
Shingle Pile	X					

Footnotes on Page 10.

Table 6-26. Summary of Soil and Waste Samples, Former Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michgian.

Sample I.D.	TCLP Extraction	SPLP Extraction	Alcohols	Aldehydes	Volatile Acids	Radium
SB1-SS1						
SB1-SS2						
SB1-SS3						
SB1-SS4						
SB1-SS5						
SB1-SS6						
SB1-SS7						
SB1-SS8						
SB1-SS9						
SS-3						
SS-4						
SS-5						
SS-12						
SS-13						
MW-96-3 (4-6)						
MW-96-3 (20-22)						
SB-96-1 (6-8)						
SB-96-1 (14-16)						
SB-96-2 (6-8)						
SB-96-2 (18-20)						
SB-96-3 (8-10)						
SB-96-3 (18-20)						
SB-96-4 (6-8)						
SB-96-4 (22-24)						
SB-96-5 (6-8)						
SB-96-5 (8-10)						
SB-96-5 (18-20)						

Footnotes on Page 10.

Table 6-26. Summary of Soil and Waste Samples, Former Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michgian.

Sample I.D.	TCLP Extraction	SPLP Extraction	Alcohols	Aldehydes	Volatile Acids	Radium
SB-96-5 (22-24)						
SB-96-6 (6-8)						
SB-96-6 (24-26)						
SB-96-7 (6-8)						
SB-96-7 (16-18)						
SB-96-8 (?)						
SB-96-9 (?)						
S-1						
S-2						
S-3						
S-4						
S-5						
SB-1 (15)						
SB-1B (15)						
SB-2B (15)						
SB-3 (52)						
SB-3 (54)						
SB-4 (54)						
SB-4 (56)						
SB-5 (5)						
SB-5 (10)						
SB-5 (15)						
SB-5 (20)						
SB-5 (25)						
SB-5 (30)						
SB-5 (35)						
SB-6 (15)						
SB-6 (16.5)						

Table 6-26. Summary of Soil and Waste Samples, Former Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michgian.

Sample I.D.	TCLP Extraction	SPLP Extraction	Alcohols	Aldehydes	Volatile Acids	Radium
Footnotes on Page 10.						
SB-7 (45)						
SB-7 (54)						
SB-8 (35)						
SB-8 (49)						
SB-9 (30)						
SB-9 (35)						
SB-22 (40)						
SB-22 (50)						
SB-22 (60)						
SB-22 (75)						
SB-22 (90)						
SB-22 (105)						
SB-22 (120)						
SB-23 (40)						
SB-23 (45)						
SB-23 (55)						
SB-23 (70)						
SB-23 (85)						
SB-23 (105)						
SB-23 (120)						
SSNE-1			X			
SSNE-2			X			
SSNE-4			X			
SSNE-5			X			
SSNE-6			X			
SSNE-7			X			
SSNE-8			X			
SSNE-9			X			

Table 6-26. Summary of Soil and Waste Samples, Former Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michgian.

Sample I.D.	TCLP Extraction	SPLP Extraction	Alcohols	Aldehydes	Volatile Acids	Radium
Footnotes on Page 10.						
SSNE-10			X			
SSNE-11			X			
SSNE-12			X			

Note: S-1 through S-5 and SSNE-1 through SSNE-12 are surface soil samples
* Depth is in feet below land surface.
? Data unknown, historical.
SPLP Synthetic Precipitation Leaching Procedure.
SVOCs Semi-volatile Organic Compounds.
TCLP Toxic Characteristic Leaching Procedure.
TOC Total Organic Carbon.
VOCs Volatile Organic Compounds.

Table 6-27. Summary of Groundwater Grab and Groundwater Samples, Former Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/ Boring	Sample I.D.	Date	Depth*	VOCs	SVOCs	TOC	COD	Sulfide	BOD	Dissolved Gases	Specific Gravity
Groundwater Grab											
GMSB-1	GBGMSB-1/85	5/16/1997	85	X	X	X	X		X	X	
GMSB-1	GBGMSB-1/135	5/17/1997	135	X	X	X	X		X	X	
GMSB-1	GBGMSB-1/215	5/18/1997	215	X	X	X	X		X	X	
GMSB-1	GBGMSB-1/275	5/19/1997	275	X	X	X	X		X	X	
GMSB-1	GBGMSB-1/325	6/12/1997	325	X	X	X	X		X	X	X
BR-5A	GWBR-5A	7/1/97	88	X	X	X	X	X		X	X
Groundwater											
MW-96-1	MW-96-1	6/14/1996	65	X	X			X		X	
MW-96-2	MW-96-2	6/14/1996	60	X	X			X		X	
MW-96-3	MW-96-3	6/14/1996	66	X	X			X		X	
MW-96-4	MW-96-4	6/14/1996	60	X	X			X		X	
GM-70	GWGM-70	8/17/2000	42	X	X	X	X	X	X	X	
GM-71	GWGM-71	8/21/2000	39	X	X	X	X	X	X	X	
GM-72	GWGM-72	8/22/2000	43	X	X	X	X	X	X	X	
BR-5B	GWBR-5B	7/1/97	188	X	X	X	X	X		X	X
BR-5B	GWGM-98	7/1/97	188	X	X	X	X	X		X	X

*	Depth is in feet below land surface.
BOD	Biochemical oxygen demand.
COD	Chemical oxygen demand.
SVOCs	Semi-volatile organic compounds.
TOC	Total organic carbon.
VOCs	Volatile organic compounds.
X	Submitted for analysis.

Table 6-27. Summary of Groundwater Grab and Groundwater Samples, Former Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/ Boring	(Metals) Inorganic	Alcohols	Aldehydes	Volatile Acids	Biogeochemical Parameters
Groundwater Grab					
GMSB-1					
GMSB-1					
GMSB-1					
GMSB-1					
GMSB-1					
BR-5A	X				
Groundwater					
MW-96-1	X				
MW-96-2	X				
MW-96-3	X				
MW-96-4	X				
GM-70	X	X	X	X	X
GM-71	X	X	X	X	X
GM-72	X	X	X	X	X
BR-5B	X				
BR-5B	X				

*	Depth is in feet below land surface.
BOD	Biochemical oxygen demand.
COD	Chemical oxygen demand.
SVOCs	Semi-volatile organic compounds.
TOC	Total organic carbon.
VOCs	Volatile organic compounds.
X	Submitted for analysis.

Table 6-28. Summary of Constituents Detected in Surface Soil Samples, Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil
Depth	0.5'	0.5'	0.5'	0.5'	6"-12"	6"-12"	6"-12"	6"-12"
Sample Date	05/04/88	05/04/88	05/04/88	05/04/88	08/05/99	08/05/99	08/05/99	08/05/99
Sample I.D.	S-1	S-1 RE	S-2	S-4	SSNE-1	SSNE-2	SSNE-4	SSNE-5
VOC								
2-Butanone (MEK)	170	NA	160	33 J	<2,600	<2,600	<2,700	<2,600
4-Methyl-2-pentanone (MIBK)	<10	NA	5 J	<1,000	<2,600 J	<2,600 J	<2,700 J	<2,600 J
Acetone	<39	NA	<48	11 J	<5,300	<5,200	<5,400	<5,200
Chloroform	13	NA	12	<500	<53	<52	<54	<52
Methylene chloride	96 B	NA	110 B	<500	<260	<260	<270	<260
Toluene	4 J	NA	6	<500	<100	<100	<110	<100
Xylenes (total)	<5	NA	5	<500	<160	<160	<160	<160
SVOC								
2,4-Dimethylphenol	NA	<340	<340	3,500	<340	<340	<350	<340
2-Methylnaphthalene	NA	<340	<340	760 J	<340	<340	<350	<340
2-Methylphenol	NA	<340	<340	**1,600**	<340	<340	<350	<340
4-Methylphenol	NA	<340	<340	<3,000	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	62 J	66 J	<1,400	<340	<340	<350	<340
Naphthalene	NA	<340	<340	**1,900**	<340	<340	<350	<340
Pentachlorophenol	NA	<1,600	27 J	<6,700	<1,800	<1,800	<1,800	<1,800
Metals								
Aluminum	2,680,000	NA	2,810,000	4,430,000	NA	NA	NA	NA
Antimony	<2,900 N	NA	<2,900 N	4,500 BN	NA	NA	NA	NA
Arsenic	3,300 N+	NA	3,200 NS	2,400 N+	NA	NA	NA	NA
Barium	25,400 B	NA	17,400 B	33,100 B	NA	NA	NA	NA
Beryllium	110 B	NA	100 B	110 B	NA	NA	NA	NA
Calcium	910,000 B	NA	1,130,000	1,420,000	NA	NA	NA	NA
Chromium	**8,400**	NA	**7,000**	**10,100**	NA	NA	NA	NA
Cobalt	**3,700 B**	NA	**2,200 B**	**3,300 B**	NA	NA	NA	NA
Copper	23,500 *	NA	11,100 *	23,500 *	NA	NA	NA	NA
Iron	5,170,000	NA	4,630,000	5,540,000	NA	NA	NA	NA
Lead	2,000 +	NA	3,000 S	6,300 S	NA	NA	NA	NA

Footnotes on Page 7.

Table 6-28. Summary of Constituents Detected in Surface Soil Samples, Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil
Depth	0.5'	0.5'	0.5'	0.5'	6"-12"	6"-12"	6"-12"	6"-12"
Sample Date	05/04/88	05/04/88	05/04/88	05/04/88	08/05/99	08/05/99	08/05/99	08/05/99
Sample I.D.	S-1	S-1 RE	S-2	S-4	SSNE-1	SSNE-2	SSNE-4	SSNE-5
Metals (continued)								
Magnesium	1,880,000	NA	1,210,000	1,750,000	NA	NA	NA	NA
Manganese	**188,000 ***	NA	**108,000 ***	**112,000 ***	NA	NA	NA	NA
Nickel	7,500 B	NA	6,200 B	3,700	NA	NA	NA	NA
Potassium	315,000 B	NA	232,000 B	1,140,000	NA	NA	NA	NA
Selenium	<450 W	NA	<450 W	**470 BW**	NA	NA	NA	NA
Silver	<860 N	NA	<850 N	**1,200 BN**	NA	NA	NA	NA
Sodium	55,000 B	NA	47,000 B	92,000 B	NA	NA	NA	NA
Vanadium	12,200	NA	7,500 B	12,900	NA	NA	NA	NA
Zinc	44,700 *E	NA	23,200 *E	18,900 *E	NA	NA	NA	NA
Alcohols								
n-Propanol	NA	NA	NA	NA	<1,000	<1,000	<1,100	<1,000
Pest/PCB								
Aroclor 1242	<160	NA	1,200 D	2,300 D	<34	<34	<35 J	<34

Footnotes on Page 7.

Table 6-28. Summary of Constituents Detected in Surface Soil Samples, Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil
Depth	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"
Sample Date	08/05/99	08/05/99	08/05/99	08/05/99	08/05/99	08/05/99	08/05/99	08/05/99
Sample I.D.	SSNE-6	SSNE-7	SSNE-8	SSNE-98	SSNE-9	SSNE-10	SSNE-11	SSNE-12
VOC								
2-Butanone (MEK)	<2,600	<2,600	<2,600	<2,600	<2,700	<2,600	<2,600	<2,600
4-Methyl-2-pentanone (MIBK)	<2,600 J	<2,600 J	<2,600 J	<2,600 J	<2,700 J	<2,600 J	<2,600 J	<2,600 J
Acetone	<5,300	<5,300	<5,300	<5,300	<5,400	<5,200	<5,300	<5,300
Chloroform	<53	<53	<53	<53	<54	<52	<53	<53
Methylene chloride	<260	<260	<260	<260	<270	<260	<260	<260
Toluene	<110	<100	<110	<110	<110	<100	<100	<110
Xylenes (total)	<160	<160	<160	<160	<160	<150	<160	<160
SVOC								
2,4-Dimethylphenol	<350	<350	<350	<350	<360	<340	<340	<350
2-Methylnaphthalene	<350	<350	<350	<350	<360	<340	<340	<350
2-Methylphenol	<350	<350	<350	<350	<360	<340	<340	<350
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	<350	<350	<350	<350	<360	<340	<340	<350
Naphthalene	<350	<350	<350	<350	<360	<340	<340	<350
Pentachlorophenol	<1,800	<1,800	<1,800	<1,800	<1,800	<1,800	<1,800	<1,800
Metals								
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 7.

Table 6-28. Summary of Constituents Detected in Surface Soil Samples, Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil
Depth	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"
Sample Date	08/05/99	08/05/99	08/05/99	08/05/99	08/05/99	08/05/99	08/05/99	08/05/99
Sample I.D.	SSNE-6	SSNE-7	SSNE-8	SSNE-98	SSNE-9	SSNE-10	SSNE-11	SSNE-12
Metals (continued)								
Magnesium	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA	NA	NA
Silver	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	NA	NA	NA
Alcohols								
n-Propanol	<1,100	<1,000	<1,100	<1,100	<1,100	550 J	<1,000	<1100
Pest/PCB								
Aroclor 1242	<35 J	<34 J	<35 J	<35	<36	<34	<35 J	<35

Footnotes on Page 7.

Table 6-28. Summary of Constituents Detected in Surface Soil Samples, Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Depth Sample Date Sample I.D.	Residential Drinking Water Protection Criteria	Ambient Air Inhalation Criteria	Industrial Direct Contact Criteria	Groundwater/ Surface Water Interface Criteria	Indoor Air Inhalation Criteria
VOC					
2-Butanone (MEK)	260,000 (MEK) (I)	35,000,000 (MEK) (I)	27,000,000 (MEK) (I) C,DD	44,000 (MEK) (I)	27,000,000 (MEK) (I) C
4-Methyl-2-pentanone (MIBK)	36,000 (MIBK) (I)	53,000,000 (MIBK) (I)	2,700,000 (MIBK) (I) C	(MIBK) (I) ID	2,700,000 (MIBK) (I) C
Acetone	15,000 (I)	160,000,000 (I)	73,000,000 (I)	34,000 (I)	110,000,000 (I) C
Chloroform	1,600 W	150,000	1,500,000 C	3,400 X	38,000
Methylene chloride	100	700,000	2,300,000 C	19,000 X	240,000
Toluene	16,000 (I)	3,300,000 (I)	250,000 (I) C	2,800 (I)	250,000 (I) C
Xylenes (total)	5,600 (I) J	54,000,000 (I)	150,000 (I) C	700 (I)	150,000 (I) C J
SVOC					
2,4-Dimethylphenol	7,400	NLV	36,000,000	7,600	NLV
2-Methylnaphthalene	57,000	ID	26,000,000	ID	ID
2-Methylphenol	7,400 (J)	(J) NLV	36,000,000 (J)	1,400 (J)	(J) NLV
4-Methylphenol	7,400 (J)	(J) NLV	36,000,000 (J)	1,400 (J)	(J) NLV
bis(2-Ethylhexyl)phthalate	NLL	NLV	10,000,000 C	NLL	NLV
Naphthalene	35,000	350,000	52,000,000	870	470,000
Pentachlorophenol	22	NLV	320,000	G,X	NLV
Metals					
Aluminum	1,000 (B)	(B) NLV	370,000,000 (B) DD	(B) NA	(B) NLV
Antimony	4,300	NLV	670,000	94,000	NLV
Arsenic	4,600	NLV	37,000	70,000 X	NLV
Barium	1,300,000 (B)	(B) NLV	130,000,000 (B)	260,000 (B) G,X	(B) NLV
Beryllium	51,000	NLV	1,600,000	24,000 G	NLV
Calcium	NA	NA	NA	NA	NA
Chromium	30,000 (*VI)	(*VI) NLV	9,200,000 (*VI)	3,300 (*VI)	(*VI) NLV
Cobalt	800	NLV	9,000,000	2,000	NLV
Copper	5,800,000 (B)	(B) NLV	73,000,000 (B)	48,000 (B) G	(B) NLV
Iron	6,000 (B)	(B) NLV	580,000,000 (B)	(B) NA	(B) NLV
Lead	700,000 (B)	(B) NLV	900,000 (B) DD	1,700,000 (B) G,X	(B) NLV

Footnotes on Page 7.

Table 6-28. Summary of Constituents Detected in Surface Soil Samples, Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Depth Sample Date Sample I.D.	Residential Drinking Water Protection Criteria	Ambient Air Inhalation Criteria	Industrial Direct Contact Criteria	Groundwater/ Surface Water Interface Criteria	Indoor Air Inhalation Criteria
Metals (continued)					
Magnesium	8,000,000 (B)	(B) NLV	1,000,000,000 (B) D	(B) NA	(B) NLV
Manganese	1,000 (B)	(B) NLV	90,000,000 (B)	36,000 (B) G,X	(B) NLV
Nickel	100,000 (B)	(B) NLV	150,000,000 (B)	50,000 (B) G	(B) NLV
Potassium	NA	NA	NA	NA	NA
Selenium	4,000 (B)	(B) NLV	9,600,000 (B)	400 (B)	(B) NLV
Silver	4,500 (B)	(B) NLV	9,000,000 (B)	100 (B) M	(B) NLV
Sodium	2,500,000	NLV	1,000,000,000 D	NA	NLV
Vanadium	72,000	NLV	5,500,000 DD	190,000	NLV
Zinc	2,400,000 (B)	(B) NLV	630,000,000 (B)	110,000 (B) G	(B) NLV
Alcohols					
n-Propanol	28,000 (I)	(I) NLV	74,000,000 (I) DD	(I) NA	(I) NLV
Pest/PCB					
Aroclor 1242	(PCBs) (J,T) NLL	810,000 (PCBs) (J,T)	1,000 (PCBs) (J,T) T	(PCBs) (J,T) NLL	16,000,000 (PCBs) (J,T)

Footnotes on Page 7.

Table 6-28. Summary of Constituents Detected in Surface Soil Samples, Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Results in micrograms per kilogram (µg/Kg).

*	LCS or LCSD exceeds the control limit.
+	Correlation coefficient for method of standard addition was not within control limits.
<	Less than the laboratory method detection limit.
	Indicates a value above the Industrial and Commercial II, III, and IV Direct Contact Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
	Indicates a value above the Residential and Commercial I Drinking Water Protection Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
Bold	Indicates a value above the Residential and Commercial I Groundwater/Surface Water Interface Protection Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
italics	Indicates a value above the Residential and Commercial I Soil Volatilization to Indoor Air Inhalation Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006)
underline	Indicates a value above the Residential and Commercial I Volatile Soil Inhalation Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006)
B	Constituent was also detected in laboratory blank.
D	Result was obtained from analysis of a dilution.
E	Analyte was detected at a concentration greater than the calibration range, and is therefore estimated.
J	Estimated result.
N	Presumptive evidence of compound was identified (TICs only).
N (as N+)	Spiked sample recovery was not within control limits (Inorganics only).
NA	Not analyzed.
RE	Re-extracted sample.
S	Value was determined by Method of Standard Additions.
SVOCs	Semi volatile organic compounds.
VOCs	Volatile organic compounds.
W	Post-digestion spike for furnace A-A analysis is out of control limits while sample absorbance is less than 50% of spike absorbance.

State of Michigan Criteria Footnotes:

B	Background may be substituted if higher than the calculated cleanup criteria.
C	Value presented is a screening level based on the chemical specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat.
D	Calculated criterion exceeds 100%, therefore it is reduced to 100%.
DD	Hazardous substance causes developmental effects.

Table 6-28. Summary of Constituents Detected in Surface Soil Samples, Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

State of Michigan Criteria Footnotes (continued):

G	GSI value is pH or water hardness dependent.
I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.
ID	Inadequate data to develop criterion.
J	Chemical may be present in several isomer forms. Isomer specific concentrations must be added together for comparison to criteria.
M	Calculated criterion is below the analytical method detection limit (MDL).
NA	Criterion or values is not available.
NLL	Chemical is not likely to leach under most soil conditions.
NLV	Chemical is not likely to volatilize under most soil conditions.
T	Refer to Toxic Substances Control Act (TSCA) to determine applicability of TSCA cleanup standards.
*VI	Standard for Chromium VI.
W	Concentrations of trihalomethanes in groundwater must be added together to detemine compliance with State of Michigan Criteria.
X	The GSI criterion shown is not protective for surface water that is used as a drinking water source.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1	GMSB-34		GMSB-35		GMSB-36
Depth (ft bls)	0-31.5	6	6	22	22	12
Sample Date	05/16/97	10/20/99	10/20/99	10/20/99	10/20/99	10/20/99
Sample I.D.	GMSB-1 COMPOSITE	GMSB-34/6	GMSB-34/6 - DL	GMSB-35/22	GMSB-35/22 - DL	GMSB-36/12
VOCs						
1,1,2,2-Tetrachloroethane	<4,300	<13	<25 J	<32 J	$\boxed{\textbf{4,900 J}}$	<6.5
1,2,4-Trimethylbenzene	NA	86 J	92 J	$\boxed{\textbf{55,000 DJ}}$	$\boxed{\textbf{55,000 J}}$	$\boxed{\textbf{20,000 D}}$
1,2-Dichloroethane	<4,300	<13	<25 J	<32 J	<3,800 J	<6.5
1,3,5-Trimethylbenzene	NA	<13 J	<25 J	$\boxed{\textbf{13,000 DJ}}$	$\boxed{\textbf{13,000 J}}$	$\boxed{\textbf{4,600 D}}$
2-Butanone (MEK)	10,000 J	120 J	180 J	**140,000 DBJ**	**140,000 J**	**55,000 DB**
2-Hexanone	<43,000	<66 J	<130 J	$\boxed{\text{23,000 DJ}}$	$\boxed{\text{23,000 J}}$	1,100
4-Methyl-2-pentanone (MIBK)	<43,000	<66 J	<130 J	3,800 J	<19,000 J	540
Acetone	12,000 J	500 J	370 J	$\boxed{\textbf{95,000 DJ}}$	$\boxed{\textbf{95,000 J}}$	$\boxed{\textbf{46,000 D}}$
Benzene	<4,300	35	21 J	$\boxed{\text{3,000 DJ}}$	$\boxed{\text{3,000 J}}$	$\boxed{\textbf{8,500 D}}$
Carbon disulfide	<4,300	63 J	50 J	<32 J	<3,800 J	<6.5
Chlorobenzene	<4,300	<13	<25 J	<32 J	<3,800 J	<6.5
Diethylether	NA	<13 J	<25 J	<32 J	<3,800 J	<6.5
Ethylbenzene	$\boxed{\textbf{2,300 J}}$	15	15 J	$\boxed{\textbf{8,300 DJ}}$	$\boxed{\textbf{8,300 J}}$	$\boxed{\textbf{8,800 D}}$
Isopropylbenzene	NA	<13	<25 J	1,200 J	<3,800 J	100
Methylene chloride	<4,300	<13 J	<25 J	<32 J	<3,800 J	<6.5 J
Naphthalene	NA	NA	NA	NA	NA	NA
n-Butylbenzene	NA	NA	NA	NA	NA	NA
n-Propylbenzene	NA	<13 J	<25 J	$\boxed{\text{8,800 DJ}}$	$\boxed{\text{8,800 J}}$	$\boxed{\text{3,600 D}}$
p-Isopropyltoluene	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	NA	NA	NA	NA	NA	NA
Styrene	<4,300	<13	<25 J	<32 J	$\boxed{\textbf{6,100 J}}$	<6.5
Tetrachloroethene	<4,300	<13	<25 J	<32 J	<3,800 J	<6.5
Toluene	**3,300 J**	50	42 J	**14,000 DJ**	**14,000 J**	**16,000 D**
Trichloroethene	<4,300	<13	<25 J	<32 J	<3,800 J	48
Xylene, o	NA	NA	NA	NA	NA	NA
Xylenes (total)	$\boxed{\textbf{7,600}}$	72 J	78 J	$\boxed{\textbf{58,000 DJ}}$	$\boxed{\textbf{58,000 J}}$	$\boxed{\textbf{48,000 D}}$
Xylenes, m+p	NA	NA	NA	NA	NA	NA

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1	GMSB-34		GMSB-35		GMSB-36
Depth (ft bls)	0-31.5	6	6	22	22	12
Sample Date	05/16/97	10/20/99	10/20/99	10/20/99	10/20/99	10/20/99
Sample I.D.	GMSB-1 COMPOSITE	GMSB-34/6	GMSB-34/6 - DL	GMSB-35/22	GMSB-35/22 - DL	GMSB-36/12
SVOCs						
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	**15,000**	<4,900	NA	**76,000**	NA	**900,000**
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	3,900	<4,900	NA	56,000	NA	370,000
2-Methylphenol	**14,000**	<4,900	NA	**77,000**	NA	**810,000**
2-Nitroaniline	<6,900	<25,000	NA	<150,000	NA	<260,000
2-Nitrophenol	<1,400	<10,000	NA	<58,000	NA	<100,000
3,4-Dimethylphenol	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	<4,900	NA	**62,000**	NA	**850,000**
4-Methylphenol	**18,000**	NA	NA	NA	NA	NA
4-Nitrophenol	<6,900	<25,000	NA	<150,000	NA	<260,000
Acenaphthene	<1,400	<4,900	NA	<29,000	NA	<51,000
Anthracene	<1,400	<4,900	NA	<29,000	NA	<51,000
Benzo(a)anthracene	<1,400	<4,900	NA	<29,000	NA	<51,000
Benzoic acid	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	<1,400	<4,900	NA	<29,000	NA	<51,000
Chrysene	<1,400	<4,900	NA	<29,000	NA	<51,000
Dibenzofuran	<1,400	<4,900	NA	<29,000	NA	**140,000**
Diethylphthalate	<1,400	<4,900	NA	<29,000	NA	<51,000
Di-n-butylphthalate	<1,400	<4,900	NA	**99,000**	NA	<51,000
Fluoranthene	<1,400	<4,900	NA	<29,000	NA	<51,000
Fluorene	880 J	<4,900 J	NA	<29,000 J	NA	**62,000**
Naphthalene	**4,200**	<4,900	NA	**220,000**	NA	**370,000**
Phenanthrene	<1,400	<4,900	NA	<29,000	NA	<51,000
Phenol	**15,000**	<4,900	NA	**40,000**	NA	**660,000**
Pyrene	<1,400	<4,900 J	NA	<29,000 J	NA	<51,000

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1	GMSB-34		GMSB-35		GMSB-36
Depth (ft bls)	0-31.5	6	6	22	22	12
Sample Date	05/16/97	10/20/99	10/20/99	10/20/99	10/20/99	10/20/99
Sample I.D.	GMSB-1 COMPOSITE	GMSB-34/6	GMSB-34/6 - DL	GMSB-35/22	GMSB-35/22 - DL	GMSB-36/12
Metals						
Aluminum	3,340,000	1,600,000 J	NA	830,000 J	NA	220,000 J
Aluminum in Oil	NA	NA	NA	NA	NA	NA
Antimony	804	1,400 BJ	NA	<3,800 J	NA	640 BJ
Arsenic	884	2,500 J	NA	900 J	NA	790 J
Arsenic in Oil	NA	NA	NA	NA	NA	NA
Barium	104,000	240,000	NA	48,000	NA	78,000
Barium in Oil	NA	NA	NA	NA	NA	NA
Beryllium	<866	120 B	NA	39 B	NA	13 B
Beryllium in Oil	NA	NA	NA	NA	NA	NA
Cadmium	120	180 J	NA	R	NA	110 J
Cadmium in Oil	NA	NA	NA	NA	NA	NA
Calcium	42,600,000	40,000,000	NA	52,000,000	NA	28,000,000
Chromium	**8,270**	**22,000**	NA	2,400	NA	1,600
Chromium in Oil	NA	NA	NA	NA	NA	NA
Cobalt	<8660	780 B	NA	230 B	NA	100 B
Cobalt in Oil	NA	NA	NA	NA	NA	NA
Copper	**463,000**	**410,000**	NA	**460,000**	NA	**430,000**
Copper in Oil	NA	NA	NA	NA	NA	NA
Cyanide	NA	NA	NA	NA	NA	NA
Iron	5,530,000 MBB	2,700,000	NA	1,700,000	NA	1,200,000
Iron in Oil	NA	NA	NA	NA	NA	NA
Lead	37,100	68,000	NA	12,000	NA	11,000
Lead in Oil	NA	NA	NA	NA	NA	NA
Lithium in Oil	NA	NA	NA	NA	NA	NA
Magnesium	3,400,000	2,300,000	NA	3,000,000	NA	860,000
Manganese	**129,000**	**140,000**	NA	**360,000**	NA	**61,000**
Manganese in Oil	NA	NA	NA	NA	NA	NA
Mercury	**167**	**120 B**	NA	20 B	NA	8.3 B
Mercury in Oil	NA	NA	NA	NA	NA	NA
Molybdenum	NA	1,200 B	NA	<7,600	NA	260 B

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1	GMSB-34		GMSB-35		GMSB-36
Depth (ft bls)	0-31.5	6	6	22	22	12
Sample Date	05/16/97	10/20/99	10/20/99	10/20/99	10/20/99	10/20/99
Sample I.D.	GMSB-1 COMPOSITE	GMSB-34/6	GMSB-34/6 - DL	GMSB-35/22	GMSB-35/22 - DL	GMSB-36/12
Metals (continued)						
Molybdenum in Oil	NA	NA	NA	NA	NA	NA
Nickel	5,930	2,200 B	NA	1,600	NA	1,000 B
Nickel in Oil	NA	NA	NA	NA	NA	NA
Potassium	<866,000	310,000	NA	45,000	NA	15,000
Selenium	<433	**4,100 J**	NA	R	NA	R
Silver	<433	**270 B**	NA	**120 B**	NA	93 B
Sodium	1,160,000	68,000	NA	3,900,000	NA	420,000
Thallium	<433	<2,400	NA	<1,500	NA	<1,200
Titanium	NA	340,000	NA	59,000	NA	23,000
Titanium in Oil	NA	NA	NA	NA	NA	NA
Vanadium	11,100	6,000	NA	1,800	NA	1,300
Vanadium in Oil	NA	NA	NA	NA	NA	NA
Zinc	22,800 MBD	68,000	NA	27,000	NA	35,000
Zinc in Oil	NA	NA	NA	NA	NA	NA
Alcohols						
Ethanol	NA	1,600 J	NA	66,000	NA	370,000
Ethylacetate	NA	<13,000	NA	<38,000	NA	<6,500
Isobutanol	NA	<12,000	NA	1,000 J	NA	<5,700
Isopropanol	NA	<12,000	NA	1,500 J	NA	<5,700
Methanol	NA	**19,000 B**	NA	**610,000 B**	NA	**440,000**
n-Butanol	NA	<12,000	NA	4,300 J	NA	<5,700
n-Nitroso-di-n-butylamine	NA	<4,900	NA	<29,000	NA	<51,000
n-Propanol	NA	<2,600	NA	8,800	NA	<1,300
o-Toluidine	NA	<4,900	NA	<29,000	NA	<51,000
Aldehydes						
Acetaldehyde	NA	<4,800	NA	**25,000**	NA	**50,000**
Formaldehyde	NA	<4,800	NA	<4,000	NA	<4,000
Hexanal	NA	<4,800	NA	<4,000	NA	<4,000

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1	GMSB-34		GMSB-35		GMSB-36
Depth (ft bls)	0-31.5	6	6	22	22	12
Sample Date	05/16/97	10/20/99	10/20/99	10/20/99	10/20/99	10/20/99
Sample I.D.	GMSB-1 COMPOSITE	GMSB-34/6	GMSB-34/6 - DL	GMSB-35/22	GMSB-35/22 - DL	GMSB-36/12
Aldehydes (continued)						
m-Tolualdehyde	NA	<4,800	NA	<4,000	NA	<4,000
Paraldehyde	NA	<60	NA	1,100	NA	610
Pentanal	NA	<4,800	NA	<4,000	NA	<4,000
Propanal	NA	<4,800	NA	<4,000	NA	<4,000
Pest/PCBS						
Aldrin	<14	NA	NA	NA	NA	NA
Aroclor 1242	<140	NA	NA	NA	NA	NA
BHC (Lindane) (gamma)	<14	NA	NA	NA	NA	NA
Chlordane (alpha)	<14	NA	NA	NA	NA	NA
Chlordane (gamma)	<14	NA	NA	NA	NA	NA
Endrin	<29	NA	NA	NA	NA	NA
Heptachlor epoxide	<14	NA	NA	NA	NA	NA
Methoxychlor	<140	NA	NA	NA	NA	NA
Acetic Acid	NA	13,000	NA	$\boxed{12{,}000{,}000}$	NA	$\boxed{12{,}000{,}000}$
Total Organic Carbon	24,000,000	220,000,000	NA	460,000,000	NA	400,000,000
Total Solids	NA	NA	NA	NA	NA	NA
Percent Solids	NA	42	NA	65	NA	79

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-36 (continued)	GMSB-37	GMSB-38		GMSB-40		
Depth (ft bls)	12	10	7	7	12	12	23
Sample Date	10/20/99	10/21/99	10/21/99	10/21/99	10/20/99	10/21/99	10/21/99
Sample I.D.	GMSB-36/12 - DL	GMSB-37/10	GMSB-38/7	GMSB-38/7-RE	GMSB-40/12	GMSB-40/12	GMSB-40/23
VOCs							
1,1,2,2-Tetrachloroethane	<1,300	<5,000	<510 J	<510 J	NA	<2,000	NA
1,2,4-Trimethylbenzene	**20,000 D**	**88,000**	310 J	300 J	NA	**30,000**	NA
1,2-Dichloroethane	<1,300	<5,000	<510 J	<510 J	NA	<2,000	NA
1,3,5-Trimethylbenzene	**4,600 D**	**23,000**	<510 J	<510 J	NA	**6,300**	NA
2-Butanone (MEK)	**55,000 BD**	<110,000	<2,600 J	<2,600 J	NA	**75,000**	NA
2-Hexanone	7,800 D	32,000	<2,600 J	<2,600 J	NA	16,000	NA
4-Methyl-2-pentanone (MIBK)	6,000 JD	<25,000	<2,600 J	<2,600 J	NA	<10,000	NA
Acetone	**46,000 D**	**100,000**	<5,100 J	<5,100 J	NA	**56,000**	NA
Benzene	***8,500 D***	***21,000***	<510 J	<510 J	NA	3,200	NA
Carbon disulfide	<1,300	<5,000	<510 J	<510 J	NA	<2,000	NA
Chlorobenzene	<1,300	<5,000	<510 J	<510 J	NA	<2,000	NA
Diethylether	<1,300	<5,000	<510 J	<510 J	NA	<2,000	NA
Ethylbenzene	**8,800 D**	**40,000**	<510 J	<510 J	NA	**7,500**	NA
Isopropylbenzene	650 JD	2,900 J	<510 J	<510 J	NA	<2,000	NA
Methylene chloride	<1,300	<5,000	<510 J	<510 J	NA	<2,000	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3,600 D	19,000	<510 J	<510 J	NA	4,600	NA
p-Isopropyltoluene	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	NA	NA	NA	NA	NA	NA	NA
Styrene	<1,300	**16,000**	<510 J	<510 J	NA	<2,000	NA
Tetrachloroethene	<1,300	<5,000	<510 J	<510 J	NA	<2,000	NA
Toluene	**16,000 D**	**110,000**	310 J	300 J	NA	**19,000**	NA
Trichloroethene	<1,300	<5,000	<510 J	<510 J	NA	<2,000	NA
Xylene, o	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	**48,000 D**	***220,000***	390 J	210 J	NA	**48,000**	NA
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-36 (continued)	GMSB-37	GMSB-38		GMSB-40		
Depth (ft bls)	12	10	7	7	12	12	23
Sample Date	10/20/99	10/21/99	10/21/99	10/21/99	10/20/99	10/21/99	10/21/99
Sample I.D.	GMSB-36/12 - DL	GMSB-37/10	GMSB-38/7	GMSB-38/7-RE	GMSB-40/12	GMSB-40/12	GMSB-40/23
SVOCs							
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	**960,000**	<4,900	NA	NA	**230,000**	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	220,000	<4,900	NA	NA	150,000 J	NA
2-Methylphenol	NA	**1,000,000**	<4,900	NA	NA	**240,000**	NA
2-Nitroaniline	NA	<330,000	<25,000	NA	NA	<800,000	NA
2-Nitrophenol	NA	<130,000	<9,900	NA	NA	<320,000	NA
3,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	**1,400,000**	<4,900	NA	NA	**230,000**	NA
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	NA	470,000	<25,000	NA	NA	<800,000	NA
Acenaphthene	NA	<64,000	<4,900	NA	NA	<160,000	NA
Anthracene	NA	<64,000	<4,900	NA	NA	<160,000	NA
Benzo(a)anthracene	NA	<64,000	<4,900	NA	NA	<160,000	NA
Benzoic acid	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	<64,000	<4,900	NA	NA	<160,000	NA
Chrysene	NA	<64,000	<4,900	NA	NA	<160,000	NA
Dibenzofuran	NA	**240,000**	<4,900	NA	NA	<160,000	NA
Diethylphthalate	NA	<64,000	<4,900	NA	NA	<160,000	NA
Di-n-butylphthalate	NA	<64,000	<4,900	NA	NA	**200,000**	NA
Fluoranthene	NA	<64,000	<4,900	NA	NA	<160,000	NA
Fluorene	NA	**76,000**	<4,900 J	NA	NA	<160,000	NA
Naphthalene	NA	**160,000**	<4,900	NA	NA	**260,000**	NA
Phenanthrene	NA	<64,000	<4,900	NA	NA	<160,000	NA
Phenol	NA	**1,100,000**	<4,900	NA	NA	**200,000**	NA
Pyrene	NA	<64,000	<4,900 J	NA	NA	<160,000	NA

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-36 (continued)	GMSB-37	GMSB-38		GMSB-40		
Depth (ft bls)	12	10	7	7	12	12	23
Sample Date	10/20/99	10/21/99	10/21/99	10/21/99	10/20/99	10/21/99	10/21/99
Sample I.D.	GMSB-36/12 - DL	GMSB-37/10	GMSB-38/7	GMSB-38/7-RE	GMSB-40/12	GMSB-40/12	GMSB-40/23
Metals							
Aluminum	NA	150,000 J	640,000 J	NA	NA	4,200,000 J	8,900,000 J
Aluminum in Oil	NA	NA	NA	NA	NA	NA	NA
Antimony	NA	<2,300 J	1,500 BJ	NA	NA	35,000 J	<4,500 J
Arsenic	NA	470 J	1,600 J	NA	NA	4,600 J	7,500 J
Arsenic in Oil	NA	NA	NA	NA	NA	NA	NA
Barium	NA	19,000	260,000	NA	NA	130,000	210,000
Barium in Oil	NA	NA	NA	NA	NA	NA	NA
Beryllium	NA	<450	73 B	NA	NA	130 B	620 B
Beryllium in Oil	NA	NA	NA	NA	NA	NA	NA
Cadmium	NA	98 J	290 J	NA	NA	45 BJ	81 J
Cadmium in Oil	NA	NA	NA	NA	NA	NA	NA
Calcium	NA	9,100,000	10,000,000	NA	NA	86,000,000	46,000,000
Chromium	NA	810	**13,000**	NA	NA	**21,000**	**16,000**
Chromium in Oil	NA	NA	NA	NA	NA	NA	NA
Cobalt	NA	<450	420 B	NA	NA	420 B	1,400
Cobalt in Oil	NA	NA	NA	NA	NA	NA	NA
Copper	NA	**290,000**	**570,000**	NA	NA	**1,400,000**	**2,400,000**
Copper in Oil	NA	NA	NA	NA	NA	NA	NA
Cyanide	NA	NA	NA	NA	NA	NA	NA
Iron	NA	360,000	2,700,000	NA	NA	3,500,000	7,800,000
Iron in Oil	NA	NA	NA	NA	NA	NA	NA
Lead	NA	4,800	67,000	NA	NA	30,000	150,000
Lead in Oil	NA	NA	NA	NA	NA	NA	NA
Lithium in Oil	NA	NA	NA	NA	NA	NA	NA
Magnesium	NA	310,000	700,000	NA	NA	6,300,000	8,000,000
Manganese	NA	15,000	**310,000**	NA	NA	**690,000**	**81,000**
Manganese in Oil	NA	NA	NA	NA	NA	NA	NA
Mercury	NA	15 B	**120 B**	NA	NA	**380**	**380 B**
Mercury in Oil	NA	NA	NA	NA	NA	NA	NA
Molybdenum	NA	150 B	770 B	NA	NA	410 B	210 B

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-36 (continued)	GMSB-37	GMSB-38		GMSB-40		
Depth (ft bls)	12	10	7	7	12	12	23
Sample Date	10/20/99	10/21/99	10/21/99	10/21/99	10/20/99	10/21/99	10/21/99
Sample I.D.	GMSB-36/12 - DL	GMSB-37/10	GMSB-38/7	GMSB-38/7-RE	GMSB-40/12	GMSB-40/12	GMSB-40/23
Metals (continued)							
Molybdenum in Oil	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	590 B	1,600 B	NA	NA	2,800	9,500
Nickel in Oil	NA	NA	NA	NA	NA	NA	NA
Potassium	NA	9,200	1,100,000	NA	NA	51,000	46,000
Selenium	NA	R	**1,400 BJ**	NA	NA	**3,400 BJ**	**1,400 BJ**
Silver	NA	83 B	**300 B**	NA	NA	**530 B**	**950**
Sodium	NA	360,000	82,000	NA	NA	4,100,000	2,300,000
Thallium	NA	<910	<2,300	NA	NA	<2,000	<1,800
Titanium	NA	18,000	230,000	NA	NA	310,000	510,000
Titanium in Oil	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	1,000	3,300	NA	NA	5,100	5,400
Vanadium in Oil	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	11,000	55,000	NA	NA	57,000	**220,000**
Zinc in Oil	NA	NA	NA	NA	NA	NA	NA
Alcohols							
Ethanol	380,000 J	5,800	1,300 J	NA	NA	320,000	NA
Ethylacetate	6,000 J	1,200 J	<13,000	NA	NA	16,000 J	NA
Isobutanol	810 J	<4,400	<11,000	NA	NA	1,600 J	NA
Isopropanol	2,000 J	<4,400	<11,000	NA	NA	<90,000	NA
Methanol	**420,000 J**	**54,000 B**	<11,000	NA	NA	**830,000 B**	NA
n-Butanol	400,000 J	<4,400	<11,000	NA	NA	3,700 J	NA
n-Nitroso-di-n-butylamine	NA	<64,000	<4,900	NA	NA	<160,000	NA
n-Propanol	6,100 J	<1,000	<2,600	NA	NA	21,000	NA
o-Toluidine	NA	<64,000	<4,900	NA	NA	<160,000	NA
Aldehydes							
Acetaldehyde	NA	**2,900**	<4,000	NA	**100,000**	NA	NA
Formaldehyde	NA	**3,300**	**4,900**	NA	<20,000	NA	NA
Hexanal	NA	2,400	<4,000	NA	<20,000	NA	NA

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-36 (continued)	GMSB-37	GMSB-38		GMSB-40		
Depth (ft bls)	12	10	7	7	12	12	23
Sample Date	10/20/99	10/21/99	10/21/99	10/21/99	10/20/99	10/21/99	10/21/99
Sample I.D.	GMSB-36/12 - DL	GMSB-37/10	GMSB-38/7	GMSB-38/7-RE	GMSB-40/12	GMSB-40/12	GMSB-40/23
Aldehydes (continued)							
m-Tolualdehyde	NA	5,200	<4,000	NA	<20,000	NA	NA
Paraldehyde	NA	730	<55	NA	980	NA	NA
Pentanal	NA	8,000	<4,000	NA	<20,000	NA	NA
Propanal	NA	5,300	<4,000	NA	<20,000	NA	NA
Pest/PCBS							
Aldrin	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	NA	NA	NA	NA	NA	NA	NA
BHC (Lindane) (gamma)	NA	NA	NA	NA	NA	NA	NA
Chlordane (alpha)	NA	NA	NA	NA	NA	NA	NA
Chlordane (gamma)	NA	NA	NA	NA	NA	NA	NA
Endrin	NA	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NA	NA	NA	NA	NA	NA	NA
Acetic Acid	NA	$\boxed{10,400,000}$	5,000	NA	NA	$\boxed{18,000,000}$	NA
Total Organic Carbon	NA	930,000,000 J	200,000,000	NA	NA	520,000,000	NA
Total Solids	NA	NA	NA	NA	NA	NA	NA
Percent Solids	NA	85	45	NA	58	NA	NA

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-41	GMSB-1				PB-5		Surface Waste
Depth (ft bls)	8	12.5-13'	12.5-13'	23-23.5'	23-23.5'	8-12'	8-12'	0.5'
Sample Date	10/21/99	06/01/97	06/01/97	06/01/97	06/01/97	05/16/96	05/16/96	05/04/88
Sample I.D.	GMSB-41/8	SB1-SS1	SB1-SS1-RE	SB1-SS2	SB1-SS2-RE	SS-12	SS-12RE	S-3
VOCs								
1,1,2,2-Tetrachloroethane	<350	<12	<7,400	<170	NA	<25	NA	<1,000
1,2,4-Trimethylbenzene	**1,600**	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	<350	6 J	<7,400	17 J	NA	<25	<25	<500
1,3,5-Trimethylbenzene	470	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	<1,800	12,000	**120,000**	1,100	NA	<25	<25	45 J
2-Hexanone	<1,800	1,200	33,000	390	NA	<25	<25	<1,000
4-Methyl-2-pentanone (MIBK)	<1,800	260	<7,400	370	NA	<25	<25	<1,000
Acetone	<3,500	7,700 J	**88,000 J**	1,300 J	NA	230	220	<1,000
Benzene	<350	340	3,200 J	1,100	NA	17 J	28	<500
Carbon disulfide	<350	<12 J	<7,400	<170 J	NA	16 J	<25	<500
Chlorobenzene	<350	<12	**2,000 J**	<170	NA	<25	<25	<500
Diethylether	<350	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	320 J	170 J	**6,200 J**	**820**	NA	<25	<25	<500
Isopropylbenzene	<350	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	<350	<12 J	<7,400	<170 J	NA	<130 B	120	<500
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	230 J	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	<350	97	**4,000 J**	<170	NA	<25	<25	<500
Tetrachloroethene	<350	<12	<7,400	<170	NA	<25	<25	<500
Toluene	360	590 J	**12,000**	2,800	NA	17 J	25	<500
Trichloroethene	<350	60	830 J	<170	NA	<25	<25	<500
Xylene, o	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	**2,500**	**1,200**	**46,000**	**4,700**	NA	35	79	<500
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-41	GMSB-1				PB-5		Surface Waste
Depth (ft bls)	8	12.5-13'	12.5-13'	23-23.5'	23-23.5'	8-12'	8-12'	0.5'
Sample Date	10/21/99	06/01/97	06/01/97	06/01/97	06/01/97	05/16/96	05/16/96	05/04/88
Sample I.D.	GMSB-41/8	SB1-SS1	SB1-SS1-RE	SB1-SS2	SB1-SS2-RE	SS-12	SS-12RE	S-3
SVOCs								
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	**17,000**	**110,000**	**110,000**	**230,000**	**240,000 J**	2,400 J	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	45,000	78,000	82,000	41,000	42,000 J	2,200 J	NA	NA
2-Methylphenol	**3,500**	**140,000**	**140,000**	**270,000**	**310,000 J**	<12,000	NA	NA
2-Nitroaniline	<18,000	<43,000	<130,000	<48,000	<960,000	<31,000	NA	NA
2-Nitrophenol	<6,900	<17,000	<52,000	<19,000	<380,000	<12,000	NA	NA
3,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	**4,100**	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	**180,000**	**180,000**	**370,000**	**400,000**	1,300 J	NA	NA
4-Nitrophenol	<18,000	<43,000	<130,000	<48,000	<960,000	<31,000	NA	NA
Acenaphthene	2,800 J	**4,800 J**	<52,000	3,600 J	<380,000	<12,000	NA	NA
Anthracene	<3,400	2,200 J	<52,000	3,900 J	<380,000	<12,000	NA	NA
Benzo(a)anthracene	<3,400	<17,000	<52,000	1,100 J	<380,000	<12,000	NA	NA
Benzoic acid	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	<3,400	<17,000	<52,000	<19,000	<380,000	<12,000	NA	NA
Chrysene	<3,400	<17,000	<52,000	1,500 J	<380,000	<12,000	NA	NA
Dibenzofuran	**18,000**	**7,800 J**	**8,300 J**	**13,000 J**	<380,000	<12,000	NA	NA
Diethylphthalate	<3,400	<17,000	<52,000	**1,200,000**	**2,000,000**	<12,000	NA	NA
Di-n-butylphthalate	<3,400	**14,000 J**	**14,000 J**	1,000 J	<380,000	<12,000	NA	NA
Fluoranthene	<3,400	<17,000	<52,000	2,300 J	<380,000	<12,000	NA	NA
Fluorene	**16,000**	**9,000 J**	**5,900 J**	**17,000 J**	<380,000	<12,000	NA	NA
Naphthalene	**16,000**	**58,000**	**60,000**	**25,000**	**26,000 J**	**2,000 J**	NA	NA
Phenanthrene	4,200	1,600 J	<52,000	**11,000 J**	<380,000	<12,000	NA	NA
Phenol	<3,400	**160,000**	**160,000**	**240,000**	**280,000 J**	1,400 J	NA	NA
Pyrene	<3,400	<17,000	<52,000	2,800 J	<380,000	<12,000	NA	NA

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-41	GMSB-1				PB-5		Surface Waste
Depth (ft bls)	8	12.5-13'	12.5-13'	23-23.5'	23-23.5'	8-12'	8-12'	0.5'
Sample Date	10/21/99	06/01/97	06/01/97	06/01/97	06/01/97	05/16/96	05/16/96	05/04/88
Sample I.D.	GMSB-41/8	SB1-SS1	SB1-SS1-RE	SB1-SS2	SB1-SS2-RE	SS-12	SS-12RE	S-3
Metals								
Aluminum	1,100,000 J	1,900,000 J	NA	669,000 J	NA	860,000	NA	3,890,000
Aluminum in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	840 BJ	R	NA	2,900 J	NA	6,200 B	NA	3,100 BN
Arsenic	1,500 J	<1,000	NA	900	NA	2,500 B	NA	2,500 NS
Arsenic in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Barium	53,000	32,000	NA	**276,000**	NA	**291,000**	NA	18,100 NS
Barium in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	89 B	100	NA	50	NA	<290	NA	<40
Beryllium in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	220 J	<600	NA	<400	NA	540 B	NA	<30
Cadmium in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	6,000,000	34,100,000	NA	96,400,000	NA	98,300,000	NA	904,000 B
Chromium	**15,000**	**5,200**	NA	**8,300**	NA	**10,700**	NA	**10,300**
Chromium in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	340 B	1,300	NA	<500	NA	**2,600 B**	NA	**3,800 B**
Cobalt in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Copper	**260,000**	**186,000 J**	NA	**1,050,000 J**	NA	**546,000**	NA	16,100 *
Copper in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	NA	**1,500 J**	NA	**1,500 J**	NA	<280	NA	<1,000
Iron	2,800,000	2,400,000	NA	353,000	NA	6,320,000	NA	6,760,000
Iron in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Lead	20,000	9,500 J	NA	78,200 J	NA	125,000	NA	2,000 S
Lead in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Lithium in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	300,000	911,000 J	NA	187,000 J	NA	287,000 B	NA	1,620,000
Manganese	**320,000**	**58,200**	NA	**44,400**	NA	**210,000 N**	NA	**111,000**
Manganese in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	**100 B**	<100	NA	**100**	NA	**210 B**	NA	<100
Mercury in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum	1,200 B	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-41	GMSB-1				PB-5		Surface Waste
Depth (ft bls)	8	12.5-13'	12.5-13'	23-23.5'	23-23.5'	8-12'	8-12'	0.5'
Sample Date	10/21/99	06/01/97	06/01/97	06/01/97	06/01/97	05/16/96	05/16/96	05/04/88
Sample I.D.	GMSB-41/8	SB1-SS1	SB1-SS1-RE	SB1-SS2	SB1-SS2-RE	SS-12	SS-12RE	S-3
Metals (continued)								
Molybdenum in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	1,100 B	3,600	NA	<1,500	NA	13,300 B	NA	8,400
Nickel in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	300,000	260,000 J	NA	204,000 J	NA	262,000 B	NA	254,000 B
Selenium	**730 J**	**1,500**	NA	<700	NA	**2,700**	NA	**500 BS**
Silver	**180 B**	<400	NA	**300**	NA	<1,700	NA	**1,400 BN**
Sodium	58,000	$\boxed{2,640,000}$	NA	186,000	NA	253,000 B	NA	59,300 B
Thallium	<1,600	<1,100	NA	<700	NA	<1,600	NA	<200 W
Titanium	310,000	NA	NA	NA	NA	NA	NA	NA
Titanium in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	8,100	8,900	NA	4,500	NA	4,100 B	NA	13,600
Vanadium in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	23,000	17,900	NA	23,300	NA	96,900	NA	11,700 *E
Zinc in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Alcohols								
Ethanol	890 J	NA	NA	NA	NA	NA	NA	NA
Ethylacetate	<8,800	NA	NA	NA	NA	NA	NA	NA
Isobutanol	<7,700	NA	NA	NA	NA	NA	NA	NA
Isopropanol	<7,700	NA	NA	NA	NA	NA	NA	NA
Methanol	<7,700	NA	NA	NA	NA	NA	NA	NA
n-Butanol	<7,700	NA	NA	NA	NA	NA	NA	NA
n-Nitroso-di-n-butylamine	<3,400	NA	NA	NA	NA	NA	NA	NA
n-Propanol	<1,800	NA	NA	NA	NA	NA	NA	NA
o-Toluidine	<3,400	NA	NA	NA	NA	NA	NA	NA
Aldehydes								
Acetaldehyde	**8,400**	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	**4,200**	NA	NA	NA	NA	NA	NA	NA
Hexanal	<4,000	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-41	GMSB-1				PB-5		Surface Waste
Depth (ft bls)	8	12.5-13'	12.5-13'	23-23.5'	23-23.5'	8-12'	8-12'	0.5'
Sample Date	10/21/99	06/01/97	06/01/97	06/01/97	06/01/97	05/16/96	05/16/96	05/04/88
Sample I.D.	GMSB-41/8	SB1-SS1	SB1-SS1-RE	SB1-SS2	SB1-SS2-RE	SS-12	SS-12RE	S-3
Aldehydes (continued)								
m-Tolualdehyde	<4,000	NA	NA	NA	NA	NA	NA	NA
Paraldehyde	<45	NA	NA	NA	NA	NA	NA	NA
Pentanal	<4,000	NA	NA	NA	NA	NA	NA	NA
Propanal	<4,000	NA	NA	NA	NA	NA	NA	NA
Pest/PCBS								
Aldrin	NA	<23 J	NA	43 J	NA	<3	NA	<82
Aroclor 1242	NA	<460	NA	<320	NA	<58	NA	7,300 D
BHC (Lindane) (gamma)	NA	$\boxed{120\ J}$	NA	<16	NA	<5.5 P	NA	<82
Chlordane (alpha)	NA	11 J	NA	<16 J	NA	<3	NA	<820
Chlordane (gamma)	NA	50 J	NA	8.0 J	NA	32	NA	<820
Endrin	NA	<46	NA	57 J	NA	<5.8	NA	<160
Heptachlor epoxide	NA	25 J	NA	<16 J	NA	<3	NA	<82
Methoxychlor	NA	29 J	NA	<160	NA	<30	NA	<820
Acetic Acid	11,000	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	110,000,000	NA	NA	NA	NA	NA	NA	NA
Total Solids	NA	NA	NA	NA	NA	NA	NA	NA
Percent Solids	55	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Waste (continued)			TP Shingle (TP-7)	TP-3	TP-5	TP-5A	
Depth (ft bls)	0.5'	0.5'	0.5'	2'	3'	2'	2	2
Sample Date	05/04/88	05/04/88	05/04/88	12/17/98	12/17/98	12/17/98	11/02/99	11/02/99
Sample I.D.	S-3 RE	S-5	S-5 RE	Shingle Pile	Test Pit #3	Test Pit #5	TP-5A/2	TP-5A/2 - DL
VOCs								
1,1,2,2-Tetrachloroethane	NA	NA	<5	<5,000	<5,000	<5,000	<130	<1300
1,2,4-Trimethylbenzene	NA	NA	NA	***160,000***	***150,000***	***210,000***	**54,000 D**	**54,000 D**
1,2-Dichloroethane	NA	NA	<5	<5,000	<5,000	<5,000	<63	<630
1,3,5-Trimethylbenzene	NA	NA	NA	**57,000**	**48,000**	**55,000**	**7,000**	**9,900 D**
2-Butanone (MEK)	NA	NA	52	NA	NA	NA	25,000	32,000 D
2-Hexanone	NA	NA	6 J	NA	NA	NA	12,000	<32,000
4-Methyl-2-pentanone (MIBK)	NA	NA	<10	NA	NA	NA	<3,200	<32,000
Acetone	NA	NA	66	NA	NA	NA	13,000	<63,000
Benzene	NA	NA	<5	***16,000***	***16,000***	***18,000***	1,900	3,000 D
Carbon disulfide	NA	NA	<5	NA	NA	NA	<320	<3,200
Chlorobenzene	NA	NA	<5	<5,000	<5,000	<5,000	<63	<630
Diethylether	NA	NA	NA	NA	NA	NA	<3,200	<32,000
Ethylbenzene	NA	NA	<5	**46,000**	**36,000**	**39,000**	**3,300**	**6,000 D**
Isopropylbenzene	NA	NA	NA	<5,000	<5,000	<5,000	590	<1,300
Methylene chloride	NA	NA	18	<5,000	<5,000	<5,000	<320	<3,200
Naphthalene	NA	NA	NA	**320,000**	**390,000**	**440,000**	NA	NA
n-Butylbenzene	NA	NA	NA	220,000	230,000	370,000	NA	NA
n-Propylbenzene	NA	NA	NA	88,000	65,000	92,000	4,400	6,400 D
p-Isopropyltoluene	NA	NA	NA	140,000	170,000	250,000	NA	NA
sec-Butylbenzene	NA	NA	NA	74,000	90,000	130,000	NA	NA
Styrene	NA	NA	<5	NA	NA	NA	2,100	**4,000 D**
Tetrachloroethene	NA	NA	<5	<5,000	<5,000	<5,000	<63	<630
Toluene	NA	NA	<5	**64,000**	**38,000**	**42,000**	**6,800**	**12,000 D**
Trichloroethene	NA	NA	<5	***110,000***	**17,000**	***46,000***	**4,700**	**7,900 D**
Xylene, o	NA	NA	NA	**150,000**	**100,000**	**120,000**	NA	NA
Xylenes (total)	NA	NA	<5	NA	NA	NA	**23,000**	**43,000 D**
Xylenes, m+p	NA	NA	NA	**150,000**	**78,000**	**100,000**	NA	NA

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Waste (continued)			TP Shingle (TP-7)	TP-3	TP-5	TP-5A	
Depth (ft bls)	0.5'	0.5'	0.5'	2'	3'	2'	2	2
Sample Date	05/04/88	05/04/88	05/04/88	12/17/98	12/17/98	12/17/98	11/02/99	11/02/99
Sample I.D.	S-3 RE	S-5	S-5 RE	Shingle Pile	Test Pit #3	Test Pit #5	TP-5A/2	TP-5A/2 - DL
SVOCs								
1-Methylnaphthalene	NA	NA	NA	100,000	65,000	56,000	NA	NA
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	<340	<380	NA	**870,000**	**230,000**	**220,000**	2,300	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	1,300	<380	NA	150,000	98,000	86,000	2,200 J	NA
2-Methylphenol	<340	<380	NA	**1,000,000**	**280,000**	**210,000**	**1,800 J**	NA
2-Nitroaniline	<1,700	<1,800	NA	NA	NA	NA	<21,000	NA
2-Nitrophenol	<340	<380	NA	<45,000	<45000	310,000	<8,400	NA
3,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	**1,100,000**	**310,000**	**230,000**	**1,800 J**	NA
4-Methylphenol	1,300	<380	NA	NA	NA	NA	NA	NA
4-Nitrophenol	<1,700	<1,800	NA	<48,000	<48,000	<48,000	<21,000	NA
Acenaphthene	<340	<380	NA	<21,000	<21,000	<21,000	<4,100	NA
Anthracene	<340	<380	NA	<36,000	<36,000	<36,000	<4,100	NA
Benzo(a)anthracene	<340	<380	NA	<23,000	<23,000	<23,000	<4,100	NA
Benzoic acid	<1,700	850 J	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	<340	1,800	NA	<36,000	<36,000	<36,000	<4,100	NA
Chrysene	<340	<380	NA	<42,000	<42,000	<42,000	<4,100	NA
Dibenzofuran	<340	<380	NA	NA	NA	NA	<4,100	NA
Diethylphthalate	<340	<380	NA	<34,000	<34,000	<34,000	<4,100	NA
Di-n-butylphthalate	3,200	<380	NA	**400,000**	**320,000**	**440,000**	7,600	NA
Fluoranthene	<340	<380	NA	<38,000	<38,000	<38,000	<4,100	NA
Fluorene	<340	<380	NA	<47,000	<47,000	<47,000	<4,100	NA
Naphthalene	**3,700**	<380	NA	**270,000**	**290,000**	**260,000**	**5,600**	NA
Phenanthrene	<340	<380	NA	<35,000	<35,000	<35,000	<4,100	NA
Phenol	<340	<380	NA	**880,000**	**22,000**	**190,000**	1,300 J	NA
Pyrene	<340	<380	NA	<45,000	<45,000	<45,000	<4,100	NA

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Waste (continued)			TP Shingle (TP-7)	TP-3	TP-5	TP-5A	
Depth (ft bls)	0.5'	0.5'	0.5'	2'	3'	2'	2	2
Sample Date	05/04/88	05/04/88	05/04/88	12/17/98	12/17/98	12/17/98	11/02/99	11/02/99
Sample I.D.	S-3 RE	S-5	S-5 RE	Shingle Pile	Test Pit #3	Test Pit #5	TP-5A/2	TP-5A/2 - DL
Metals								
Aluminum	NA	$\boxed{4,100,000}$	NA	NA	NA	NA	$\boxed{2,600,000 J}$	NA
Aluminum in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	NA	3,600 BN	NA	NA	NA	NA	560 B	NA
Arsenic	NA	1,200 BN	NA	NA	NA	NA	570 J	NA
Arsenic in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Barium	NA	42,600 B	NA	NA	NA	NA	16,000	NA
Barium in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	NA	120 B	NA	NA	NA	NA	100 B	NA
Beryllium in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	NA	<340	NA	NA	NA	NA	<32 J	NA
Cadmium in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NA	2,080,000	NA	NA	NA	NA	3,300,000	NA
Chromium	NA	**17,200**	NA	NA	NA	NA	**5,400**	NA
Chromium in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NA	$\boxed{\textbf{3,900 B}}$	NA	NA	NA	NA	$\boxed{\textbf{2,100}}$	NA
Cobalt in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Copper	NA	**54,800 ***	NA	NA	NA	NA	**160,000**	NA
Copper in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	NA	<1,100	NA	NA	NA	NA	NA	NA
Iron	NA	$\boxed{7,600,000}$	NA	NA	NA	NA	$\boxed{4,400,000}$	NA
Iron in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Lead	NA	7,200	NA	NA	NA	NA	4,200	NA
Lead in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Lithium in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NA	2,060,000	NA	NA	NA	NA	1,400,000 J	NA
Manganese	NA	$\boxed{\textbf{104,000 *}}$	NA	NA	NA	NA	$\boxed{\textbf{110,000}}$	NA
Manganese in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	NA	<110	NA	NA	NA	NA	11 B	NA
Mercury in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum	NA	NA	NA	NA	NA	NA	<6,300	NA

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Waste (continued)			TP Shingle (TP-7)	TP-3	TP-5	TP-5A	
Depth (ft bls)	0.5'	0.5'	0.5'	2'	3'	2'	2	2
Sample Date	05/04/88	05/04/88	05/04/88	12/17/98	12/17/98	12/17/98	11/02/99	11/02/99
Sample I.D.	S-3 RE	S-5	S-5 RE	Shingle Pile	Test Pit #3	Test Pit #5	TP-5A/2	TP-5A/2 - DL
Metals (continued)								
Molybdenum in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	9,600	NA	NA	NA	NA	5,600	NA
Nickel in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NA	453,000 B	NA	NA	NA	NA	160,000	NA
Selenium	NA	<520	NA	NA	NA	NA	<250 J	NA
Silver	NA	<960 N	NA	NA	NA	NA	<630	NA
Sodium	NA	60,000 B	NA	NA	NA	NA	260,000	NA
Thallium	NA	<240	NA	NA	NA	NA	<1,300	NA
Titanium	NA	NA	NA	NA	NA	NA	200,000 J	NA
Titanium in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	14,800	NA	NA	NA	NA	9,900	NA
Vanadium in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	22,200 *E	NA	NA	NA	NA	13,000 J	NA
Zinc in Oil	NA	NA	NA	NA	NA	NA	NA	NA
Alcohols								
Ethanol	NA	NA	NA	NA	NA	NA	2,700 J	NA
Ethylacetate	NA	NA	NA	NA	NA	NA	5,800 J	NA
Isobutanol	NA	NA	NA	NA	NA	NA	<5,600	NA
Isopropanol	NA	NA	NA	NA	NA	NA	<5,600	NA
Methanol	NA	NA	NA	NA	NA	NA	**30,000 J**	NA
n-Butanol	NA	NA	NA	NA	NA	NA	<5,600	NA
n-Nitroso-di-n-butylamine	NA	NA	NA	NA	NA	NA	<4,100	NA
n-Propanol	NA	NA	NA	NA	NA	NA	2,200	NA
o-Toluidine	NA	NA	NA	NA	NA	NA	<4,100	NA
Aldehydes								
Acetaldehyde	NA	NA	NA	NA	NA	NA	**33,000**	NA
Formaldehyde	NA	NA	NA	NA	NA	NA	<8,000	NA
Hexanal	NA	NA	NA	NA	NA	NA	17,000	NA

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Waste (continued)			TP Shingle (TP-7)	TP-3	TP-5	TP-5A	
Depth (ft bls)	0.5'	0.5'	0.5'	2'	3'	2'	2	2
Sample Date	05/04/88	05/04/88	05/04/88	12/17/98	12/17/98	12/17/98	11/02/99	11/02/99
Sample I.D.	S-3 RE	S-5	S-5 RE	Shingle Pile	Test Pit #3	Test Pit #5	TP-5A/2	TP-5A/2 - DL
Aldehydes (continued)								
m-Tolualdehyde	NA	NA	NA	NA	NA	NA	17,000	NA
Paraldehyde	NA	NA	NA	NA	NA	NA	79	NA
Pentanal	NA	NA	NA	NA	NA	NA	<8,000	NA
Propanal	NA	NA	NA	NA	NA	NA	10,000	NA
Pest/PCBS								
Aldrin	NA	<1,800	NA	NA	NA	NA	NA	NA
Aroclor 1242	NA	48,000 D	NA	NA	NA	NA	NA	NA
BHC (Lindane) (gamma)	NA	<1,800	NA	NA	NA	NA	NA	NA
Chlordane (alpha)	NA	<18,000	NA	NA	NA	NA	NA	NA
Chlordane (gamma)	NA	<18,000	NA	NA	NA	NA	NA	NA
Endrin	NA	<3,600	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	NA	<1,800	NA	NA	NA	NA	NA	NA
Methoxychlor	NA	<18,000	NA	NA	NA	NA	NA	NA
Acetic Acid	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	NA	NA	NA	650,000,000	19,000,000	57,000,000	590,000,000	NA
Total Solids	NA	NA	NA	77.4	80.9	78.8	NA	NA
Percent Solids	NA	NA	NA	NA	NA	NA	86	NA

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	TP-5A (continued)	TP-10		TP-2	TP-3	Industrial Drinking Water Protection Criteria
Depth (ft bls)	2	12	12			
Sample Date	11/02/99	11/03/99	11/03/99	07/19/01	09/09/01	
Sample I.D.	TP-5A/2 (SPLP)	TP-10/12	TP-10/12 - DL	TP-2 Waste Char.	TP-3 Waste Char.	
VOCs						
1,1,2,2-Tetrachloroethane	<1.0	<140	<710	NA	NA	170
1,2,4-Trimethylbenzene	37	**24,000 D**	**24,000 D**	NA	NA	2,100 (I)
1,2-Dichloroethane	<1.0	<71	<360	NA	NA	100 (I)
1,3,5-Trimethylbenzene	6.4	**5,900**	**5,500 D**	NA	NA	1,800 (I)
2-Butanone (MEK)	430	8,700	<18,000	NA	NA	260,000 (MEK) (I)
2-Hexanone	110	<3,600	<18,000	NA	NA	20,000
4-Methyl-2-pentanone (MIBK)	<50	<3,600	<18,000	NA	NA	36,000 (MIBK) (I)
Acetone	220	5,800 J	<36,000	NA	NA	15,000 (I)
Benzene	10	2,500	3,000 D	NA	NA	100 (I)
Carbon disulfide	<5.0	<360	<1,800	NA	NA	R
Chlorobenzene	<1.0	<71	<360	NA	NA	2,000 (I)
Diethylether	<10	<3,600	<18,000	NA	NA	200
Ethylbenzene	7.4	**7,800**	**9,300 D**	NA	NA	1,500 (I)
Isopropylbenzene	0.54 J	660	580 JD	NA	NA	91,000
Methylene chloride	<1.0	<360	<1,800	NA	NA	100
Naphthalene	NA	NA	NA	NA	NA	35,000
n-Butylbenzene	NA	NA	NA	NA	NA	1,600
n-Propylbenzene	3.2	4,100	3,700 D	NA	NA	1,600 (I)
p-Isopropyltoluene	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	NA	NA	NA	NA	NA	1,600
Styrene	5	**2,500**	**3,000 D**	NA	NA	2,700
Tetrachloroethene	1.1	<71	<360	NA	NA	100
Toluene	25	**17,000 D**	**17,000 D**	NA	NA	16,000 (I)
Trichloroethene	18	**22,000 D**	**22,000 D**	NA	NA	100
Xylene, o	NA	NA	NA	NA	NA	5,600 (I) J
Xylenes (total)	53	**47,000 D**	**47,000 D**	NA	NA	5,600 (I) J
Xylenes, m+p	NA	NA	NA	NA	NA	5,600 (I) J

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	TP-5A (continued)	TP-10		TP-2	TP-3	Industrial
Depth (ft bls)	2	12	12			Drinking Water
Sample Date	11/02/99	11/03/99	11/03/99	07/19/01	09/09/01	Protection
Sample I.D.	TP-5A/2 (SPLP)	TP-10/12	TP-10/12 - DL	TP-2 Waste Char.	TP-3 Waste Char.	Criteria
SVOCs						
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	450	**590,000**	NA	NA	NA	7,400
2,6-Dimethylphenol	NA	NA	NA	NA	NA	330 M
2-Methylnaphthalene	<250	150,000	NA	NA	NA	57,000
2-Methylphenol	1,000	**560,000**	NA	NA	NA	7,400 (J)
2-Nitroaniline	<1,000	<230,000	NA	NA	NA	NA
2-Nitrophenol	<250	<90,000	NA	NA	NA	400
3,4-Dimethylphenol	NA	NA	NA	NA	NA	330 M
3-Methylphenol/4-Methylphenol(m&p-cresol)	980	**580,000**	NA	NA	NA	7,400 (J)
4-Methylphenol	NA	NA	NA	NA	NA	7,400 (J)
4-Nitrophenol	<1,000	<230,000	NA	NA	NA	NA
Acenaphthene	<250	<44,000	NA	NA	NA	300,000
Anthracene	<250	<44,000	NA	NA	NA	41,000
Benzo(a)anthracene	<250	<44,000	NA	NA	NA	(Q) NLL
Benzoic acid	NA	NA	NA	NA	NA	640,000
bis(2-Ethylhexyl)phthalate	<250	<44,000	NA	NA	NA	NLL
Chrysene	<250	<44,000	NA	NA	NA	(Q) NLL
Dibenzofuran	<250	**56,000**	NA	NA	NA	ID
Diethylphthalate	<250	<44,000	NA	NA	NA	110,000
Di-n-butylphthalate	<250	<44,000	NA	NA	NA	760,000 C
Fluoranthene	<250	<44,000	NA	NA	NA	730,000
Fluorene	<250	<44,000	NA	NA	NA	390,000
Naphthalene	<250	**77,000**	NA	NA	NA	35,000
Phenanthrene	<250	<44,000	NA	NA	NA	56,000
Phenol	1,000	**300,000**	NA	NA	NA	88,000
Pyrene	<250	<44,000	NA	NA	NA	480,000

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	TP-5A (continued)	TP-10		TP-2	TP-3	Industrial
Depth (ft bls)	2	12	12			Drinking Water
Sample Date	11/02/99	11/03/99	11/03/99	07/19/01	09/09/01	Protection
Sample I.D.	TP-5A/2 (SPLP)	TP-10/12	TP-10/12 - DL	TP-2 Waste Char.	TP-3 Waste Char.	Criteria
Metals						
Aluminum	990 J	2,400,000	NA	NA	NA	1,000 (B)
Aluminum in Oil	NA	NA	NA	NA	NA	1,000 (B)
Antimony	<20	690 B	NA	NA	NA	4,300
Arsenic	<10	830 J	NA	NA	NA	4,600
Arsenic in Oil	NA	NA	NA	NA	NA	4,600
Barium	14	34,000	NA	NA	NA	1,300,000 (B)
Barium in Oil	NA	NA	NA	NA	NA	1,300,000 (B)
Beryllium	<4.0	77 B	NA	NA	NA	51,000
Beryllium in Oil	NA	NA	NA	NA	NA	51,000
Cadmium	<5.0	110 J	NA	NA	NA	6,000 (B)
Cadmium in Oil	NA	NA	NA	NA	NA	6,000 (B)
Calcium	32,000	6,400,000	NA	NA	NA	NA
Chromium	1.7 B	**8,900**	NA	NA	NA	30,000 (*VI)
Chromium in Oil	NA	NA	NA	NA	NA	30,000 (*VI)
Cobalt	<10	2,000	NA	NA	NA	800
Cobalt in Oil	NA	NA	NA	NA	NA	800
Copper	18 B	**240,000**	NA	NA	NA	5,800,000 (B)
Copper in Oil	NA	NA	NA	NA	NA	5,800,000 (B)
Cyanide	NA	NA	NA	NA	NA	R
Iron	1,000	5,800,000	NA	NA	NA	6,000 (B)
Iron in Oil	NA	NA	NA	NA	NA	6,000 (B)
Lead	<5.0	17,000	NA	NA	NA	700,000 (B)
Lead in Oil	NA	NA	NA	NA	NA	700,000 (B)
Lithium in Oil	NA	NA	NA	NA	NA	3,400 (B)
Magnesium	910	1,400,000 J	NA	NA	NA	8,000,000 (B)
Manganese	120	**160,000**	NA	NA	NA	1,000 (B)
Manganese in Oil	NA	NA	NA	NA	NA	1,000 (B)
Mercury	<0.20	45 B	NA	NA	NA	1,700 (B,Z) (total)
Mercury in Oil	NA	NA	NA	NA	NA	1,700 (B,Z) (total)
Molybdenum	<10	370 B	NA	NA	NA	1,500 (B)

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	TP-5A (continued)	TP-10		TP-2	TP-3	Industrial
Depth (ft bls)	2	12	12			Drinking Water
Sample Date	11/02/99	11/03/99	11/03/99	07/19/01	09/09/01	Protection
Sample I.D.	TP-5A/2 (SPLP)	TP-10/12	TP-10/12 - DL	TP-2 Waste Char.	TP-3 Waste Char.	Criteria
Metals (continued)						
Molybdenum in Oil	NA	NA	NA	NA	NA	1,500 (B)
Nickel	6.8 B	5,100	NA	NA	NA	100,000 (B)
Nickel in Oil	NA	NA	NA	NA	NA	100,000 (B)
Potassium	340 B	180,000	NA	NA	NA	NA
Selenium	<10	<1,400 J	NA	NA	NA	4,000 (B)
Silver	<10	<650	NA	NA	NA	4,500 (B)
Sodium	6,000	210,000	NA	NA	NA	2,500,000
Thallium	<10	580 B	NA	NA	NA	2,300 (B)
Titanium	39	270,000 N	NA	NA	NA	NA
Titanium in Oil	NA	NA	NA	NA	NA	NA
Vanadium	3.9 B	14,000	NA	NA	NA	72,000
Vanadium in Oil	NA	NA	NA	NA	NA	72,000
Zinc	6.4 B	39,000 J	NA	NA	NA	2,400,000 (B)
Zinc in Oil	NA	NA	NA	NA	NA	2,400,000 (B)
Alcohols						
Ethanol	<1,000	<6,300	NA	NA	NA	38,000,000 (I)
Ethylacetate	<5,000	1,200 J	NA	NA	NA	130,000 (I)
Isobutanol	<1,000	<6,300	NA	NA	NA	46,000 (I)
Isopropanol	<1,000	<6,300	NA	NA	NA	9,400 (I)
Methanol	<1,000 J	5,400 J	NA	NA	NA	74,000
n-Butanol	<1,000	<6,300	NA	NA	NA	19,000 (I)
n-Nitroso-di-n-butylamine	<250	<44,000	NA	NA	NA	NA
n-Propanol	<1,000	<1,400	NA	NA	NA	28,000 (I)
o-Toluidine	<250	<44,000	NA	NA	NA	NA
Aldehydes						
Acetaldehyde	2,400	$\boxed{29,000}$	NA	NA	NA	19,000 (I)
Formaldehyde	<500	<8,000	NA	NA	NA	26,000
Hexanal	700	<8,000	NA	NA	NA	NA

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	TP-5A (continued)	TP-10		TP-2	TP-3	Industrial
Depth (ft bls)	2	12	12			Drinking Water
Sample Date	11/02/99	11/03/99	11/03/99	07/19/01	09/09/01	Protection
Sample I.D.	TP-5A/2 (SPLP)	TP-10/12	TP-10/12 - DL	TP-2 Waste Char.	TP-3 Waste Char.	Criteria
Aldehydes (continued)						
m-Tolualdehyde	930	<8,000	NA	NA	NA	NA
Paraldehyde	<100	<25	NA	NA	NA	NA
Pentanal	<500	<8,000	NA	NA	NA	NA
Propanal	1,800	<8,000	NA	NA	NA	NA
Pest/PCBS						
Aldrin	NA	NA	NA	NA	NA	NLL
Aroclor 1242	NA	NA	NA	<6,400	NA	(PCBs) (J,T) NLL
BHC (Lindane) (gamma)	NA	NA	NA	NA	NA	20 M
Chlordane (alpha)	NA	NA	NA	NA	NA	(J) NLL
Chlordane (gamma)	NA	NA	NA	NA	NA	(J) NLL
Endrin	NA	NA	NA	NA	NA	NLL
Heptachlor epoxide	NA	NA	NA	NA	NA	NLL
Methoxychlor	NA	NA	NA	NA	NA	16,000
Acetic Acid	$\boxed{\textbf{1,200,000}}$	NA	NA	NA	NA	84,000
Total Organic Carbon	620,000	760,000,000	NA	NA	NA	NA
Total Solids	NA	NA	NA	NA	NA	NA
Percent Solids	NA	75	NA	NA	NA	NA

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Depth (ft bls) Sample Date Sample I.D.	Groundwater/ Surface Water Interface Criteria	Ambient Air Inhalation Criteria	Industrial Direct Contact Criteria	Indoor Air Inhalation Criteria
VOCs				
1,1,2,2-Tetrachloroethane	1,600 X	34,000	240,000	23,000
1,2,4-Trimethylbenzene	570 (I)	25,000,000 (I)	110,000 (I) C	110,000 (I) C
1,2-Dichloroethane	7,200 (I) X	21,000 (I)	420,000 (I)	11,000 (I)
1,3,5-Trimethylbenzene	1,100 (I)	19,000,000 (I)	94,000 (I) C	94,000 (I) C
2-Butanone (MEK)	44,000 (MEK) (I)	35,000,000 (MEK) (I)	27,000,000 (MEK) (I) C,DD	27,000,000 (MEK) (I) C
2-Hexanone	NA	1,300,000	2,500,000 C	1,800,000
4-Methyl-2-pentanone (MIBK)	(MIBK) (I) ID	53,000,000 (MIBK) (I)	2,700,000 (MIBK) (I) C	2,700,000 (MIBK) (I) C
Acetone	34,000 (I)	160,000,000 (I)	73,000,000 (I)	110,000,000 (I) C
Benzene	4,000 (I) X	45,000 (I)	400,000 (I) C	8,400 (I)
Carbon disulfide	R	R	R	R
Chlorobenzene	940 (I)	920,000 (I)	260,000 (I) C	220,000 (I)
Diethylether	ID	100,000,000	7,400,000 C	7,400,000 C
Ethylbenzene	360 (I)	2,400,000 (I)	140,000 (I) C	140,000 (I) C
Isopropylbenzene	ID	2,000,000	390,000 C	390,000 C
Methylene chloride	19,000 X	700,000	2,300,000 C	240,000
Naphthalene	870	350,000	52,000,000	470,000
n-Butylbenzene	ID	ID	8,000,000	ID
n-Propylbenzene	(I) NA	(I) ID	8,000,000 (I)	(I) ID
p-Isopropyltoluene	NA	NA	NA	NA
sec-Butylbenzene	ID	ID	8,000,000	ID
Styrene	2,200	3,300,000	520,000 C	520,000 C
Tetrachloroethene	900 X	600,000	88,000 C	60,000
Toluene	2,800 (I)	3,300,000 (I)	250,000 (I) C	250,000 (I) C
Trichloroethene	4,000 X	260,000	500,000 C,DD	37,000
Xylene, o	700 (I)	54,000,000 (I)	150,000 (I) C	150,000 (I) C J
Xylenes (total)	700 (I)	54,000,000 (I)	150,000 (I) C	150,000 (I) C J
Xylenes, m+p	700 (I)	54,000,000 (I)	150,000 (I) C	150,000 (I) C J

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Depth (ft bls) Sample Date Sample I.D.	Groundwater/ Surface Water Interface Criteria	Ambient Air Inhalation Criteria	Industrial Direct Contact Criteria	Indoor Air Inhalation Criteria
SVOCs				
1-Methylnaphthalene	NA	NA	NA	NA
2,3-Dimethylphenol	NA	NA	NA	NA
2,4-Dimethylphenol	7,600	NLV	36,000,000	NLV
2,6-Dimethylphenol	NA	NLV	440,000	NLV
2-Methylnaphthalene	ID	ID	26,000,000	ID
2-Methylphenol	1,400 (J)	(J) NLV	36,000,000 (J)	(J) NLV
2-Nitroaniline	NA	NA	NA	NA
2-Nitrophenol	ID	NLV	2,000,000	NLV
3,4-Dimethylphenol	NA	NLV	1,000,000	NLV
3-Methylphenol/4-Methylphenol(m&p-cresol)	1,400 (J)	(J) NLV	36,000,000 (J)	(J) NLV
4-Methylphenol	1,400 (J)	(J) NLV	36,000,000 (J)	(J) NLV
4-Nitrophenol	NA	NA	NA	NA
Acenaphthene	4,400	97,000,000	130,000,000	350,000,000
Anthracene	ID	1,600,000,000	730,000,000	1,000,000,000 D
Benzo(a)anthracene	(Q) NLL	(Q) NLV	80,000 (Q)	(Q) NLV
Benzoic acid	NA	NLV	1,000,000,000 D	NLV
bis(2-Ethylhexyl)phthalate	NLL	NLV	10,000,000 C	NLV
Chrysene	(Q) NLL	(Q) ID	8,000,000 (Q)	(Q) ID
Dibenzofuran	1,700	ID	ID	ID
Diethylphthalate	2,200	NLV	740,000 C	NLV
Di-n-butylphthalate	11,000	NLV	760,000 C	NLV
Fluoranthene	5,500	890,000,000	130,000,000	1,000,000,000 D
Fluorene	5,300	150,000,000	87,000,000	1,000,000,000 D
Naphthalene	870	350,000	52,000,000	470,000
Phenanthrene	5,300	190,000	5,200,000	5,100,000
Phenol	4,200	NLV	12,000,000 C,DD	NLV
Pyrene	ID	780,000,000	84,000,000	1,000,000,000 D

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Depth (ft bls) Sample Date Sample I.D.	Groundwater/ Surface Water Interface Criteria	Ambient Air Inhalation Criteria	Industrial Direct Contact Criteria	Indoor Air Inhalation Criteria
Metals				
Aluminum	(B) NA	(B) NLV	370,000,000 (B) DD	(B) NLV
Aluminum in Oil	(B) NA	(B) NLV	370,000,000 (B) DD	(B) NLV
Antimony	94,000	NLV	670,000	NLV
Arsenic	70,000 X	NLV	37,000	NLV
Arsenic in Oil	70,000 X	NLV	37,000	NLV
Barium	260,000 (B) G,X	(B) NLV	130,000,000 (B)	(B) NLV
Barium in Oil	260,000 (B) G,X	(B) NLV	130,000,000 (B)	(B) NLV
Beryllium	24,000 G	NLV	1,600,000	NLV
Beryllium in Oil	24,000 G	NLV	1,600,000	NLV
Cadmium	2,500 (B) G,X	(B) NLV	2,100,000 (B)	(B) NLV
Cadmium in Oil	2,500 (B) G,X	(B) NLV	2,100,000 (B)	(B) NLV
Calcium	NA	NA	NA	NA
Chromium	3,300 (*VI)	(*VI) NLV	9,200,000 (*VI)	(*VI) NLV
Chromium in Oil	3,300 (*VI)	(*VI) NLV	9,200,000 (*VI)	(*VI) NLV
Cobalt	2,000	NLV	9,000,000	NLV
Cobalt in Oil	2,000	NLV	9,000,000	NLV
Copper	48,000 (B) G	(B) NLV	73,000,000 (B)	(B) NLV
Copper in Oil	48,000 (B) G	(B) NLV	73,000,000 (B)	(B) NLV
Cyanide	R	R	R	R
Iron	(B) NA	(B) NLV	580,000,000 (B)	(B) NLV
Iron in Oil	(B) NA	(B) NLV	580,000,000 (B)	(B) NLV
Lead	1,700,000 (B) G,X	(B) NLV	900,000 (B) DD	(B) NLV
Lead in Oil	1,700,000 (B) G,X	(B) NLV	900,000 (B) DD	(B) NLV
Lithium in Oil	1,900 (B)	(B) NLV	31,000,000 (B) DD	(B) NLV
Magnesium	(B) NA	(B) NLV	1,000,000,000 (B) D	(B) NLV
Manganese	36,000 (B) G,X	(B) NLV	90,000,000 (B)	(B) NLV
Manganese in Oil	36,000 (B) G,X	(B) NLV	90,000,000 (B)	(B) NLV
Mercury	100 (B,Z) (total) M	62,000 (B,Z) (total)	580,000 (B,Z) (total)	89,000 (B,Z) (total)
Mercury in Oil	50 (B,Z) (total) M	62,000 (B,Z) (total)	580,000 (B,Z) (total)	89,000 (B,Z) (total)
Molybdenum	16,000 (B) X	(B) NLV	9,600,000 (B)	(B) NLV

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Depth (ft bls) Sample Date Sample I.D.	Groundwater/ Surface Water Interface Criteria	Ambient Air Inhalation Criteria	Industrial Direct Contact Criteria	Indoor Air Inhalation Criteria
Metals (continued)				
Molybdenum in Oil	16,000 (B) X	(B) NLV	9,600,000 (B)	(B) NLV
Nickel	50,000 (B) G	(B) NLV	150,000,000 (B)	(B) NLV
Nickel in Oil	50,000 (B) G	(B) NLV	150,000,000 (B)	(B) NLV
Potassium	NA	NA	NA	NA
Selenium	400 (B)	(B) NLV	9,600,000 (B)	(B) NLV
Silver	100 (B) M	(B) NLV	9,000,000 (B)	(B) NLV
Sodium	NA	NLV	1,000,000,000 D	NLV
Thallium	4,200 (B) X	(B) NLV	130,000 (B)	(B) NLV
Titanium	NA	NA	NA	NA
Titanium in Oil	NA	NA	NA	NA
Vanadium	190,000	NLV	5,500,000 DD	NLV
Vanadium in Oil	190,000	NLV	5,500,000 DD	NLV
Zinc	110,000 (B) G	(B) NLV	630,000,000 (B)	(B) NLV
Zinc in Oil	110,000 (B) G	(B) NLV	630,000,000 (B)	(B) NLV
Alcohols				
Ethanol	(I) NA	(I) NLV	110,000,000 (I) C,DD	(I) NLV
Ethylacetate	(I) NA	59,000,000 (I)	7,500,000 (I) C	7,500,000 (I) C
Isobutanol	(I) NA	95,000,000 (I)	8,900,000 (I) C	8,900,000 (I) C
Isopropanol	1,100,000 (I)	(I) NLV	47,000,000 (I)	(I) NLV
Methanol	9,600	37,000,000	3,100,000 C	3,100,000 C
n-Butanol	(I) NA	(I) NLV	8,700,000 (I) C	(I) NLV
n-Nitroso-di-n-butylamine	NA	NA	NA	NA
n-Propanol	(I) NA	(I) NLV	74,000,000 (I) DD	(I) NLV
o-Toluidine	NA	NA	NA	NA
Aldehydes				
Acetaldehyde	2,600 (I)	210,000 (I)	95,000,000 (I)	400,000 (I)
Formaldehyde	2,400	43,000	60,000,000 C	65,000
Hexanal	NA	NA	NA	NA

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Depth (ft bls) Sample Date Sample I.D.	Groundwater/ Surface Water Interface Criteria	Ambient Air Inhalation Criteria	Industrial Direct Contact Criteria	Indoor Air Inhalation Criteria
Aldehydes (continued)				
m-Tolualdehyde	NA	NA	NA	NA
Paraldehyde	NA	NA	NA	NA
Pentanal	NA	NA	NA	NA
Propanal	NA	NA	NA	NA
Pest/PCBS				
Aldrin	NLL	200,000	4,300	7,100,000
Aroclor 1242	(PCBs) (J,T) NLL	810,000 (PCBs) (J,T)	1,000 (PCBs) (J,T) T	16,000,000 (PCBs) (J,T)
BHC (Lindane) (gamma)	20 M	ID	42,000	ID
Chlordane (alpha)	(J) NLL	4,200,000 (J)	150,000 (J)	59,000,000 (J)
Chlordane (gamma)	(J) NLL	4,200,000 (J)	150,000 (J)	59,000,000 (J)
Endrin	NLL	NLV	190,000	NLV
Heptachlor epoxide	NLL	NLV	9,500	NLV
Methoxychlor	NA	ID	5,600,000	ID
Acetic Acid	360,000	NLV	420,000,000	NLV
Total Organic Carbon	NA	NA	NA	NA
Total Solids	NA	NA	NA	NA
Percent Solids	NA	NA	NA	NA

Footnotes on Page 31.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Results in micrograms per kilogram (µg/Kg).

	Indicates a value above the Industrial and Commercial II, III, and IV Direct Contact Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
	Indicates a value above the Industrial and Commercial II, III, and IV Drinking Water Protection Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
Bold	Indicates a value above the Industrial and Commercial II, III, and IV Groundwater/Surface Water Interface Protection Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
italics	Indicates a value above the Industrial and Commercial II, III, and IV Soil Volatilization to Indoor Air Inhalation Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006)
underline	Indicates a value above the Industrial and Commercial II, III, and IV Volatile Soil Inhalation Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006)
<	Less than the laboratory method detection limit.
*	LCS or LCSD exceeds the control limit.
B	Constituent was also detected in laboratory blank.
D	Result was obtained from analysis of a dilution.
E	Analyte was detected at a concentration greater than the calibration range, and is therefore estimated.
ft bls	Feet below land surface.
J	Estimated result.
MBB	This analyte is present at a reportable level in the associated method blank but is less than 5 percent of the sample amount.
N	Spiked sample recovery is not within control limits (Inorganics only).
NA	Not analyzed.
P	Greater than 25% RPD between two columns for pesticide or PCB.
S	Value was determined by Method of Standard Additions.
SVOCs	Semi volatile organic compounds.
VOCs	Volatile organic compounds.

State of Michigan Criteria Footnotes:

B	Background may be substituted if higher than the calculated cleanup criteria.
C	Value presented is a screening level based on the chemical specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat.
D	Calculated criterion exceeds 100%, therefore it is reduced to 100%.
DD	Hazardous substance causes developmental effects.
G	GSI value is pH or water hardness dependent.
I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.

Table 6-29. Summary of Constituents Detected in Waste Samples Former Northeast Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

State of Michigan Criteria Footnotes (continued):

ID	Inadequate data to develop criterion.
J	Chemical may be present in several isomer forms. Isomer specific concentrations must be added together for comparison to criteria.
M	Calculated criterion is below the analytical method detection limit (MDL).
NA	Criterion or values is not available.
NLL	Chemical is not likely to leach under most soil conditions.
NLV	Chemical is not likely to volatilize under most soil conditions.
Q	Criterion for carcinogenic polycyclic aromatic hydrocarbons (PAHs) were developed using "relative potential potencies" (RFPs) to benzo(a)pyrene.
R	Hazardous substance may exhibit the characteristic of reactivity as defined in 40 CFR 261.23.
T	Refer to Toxic Substances Control Act (TSCA) to determine applicability of TSCA cleanup standards.
Total	Criterion established for total metal only.
*VI	Standard for Chromium VI.
X	The GSI criterion shown is not protective for surface water that is used as a drinking water source.
Z	Data for mercuric chloride serves as the basis for drinking water, groundwater contact, soil direct contact and the groundwater protection criteria.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1							
Depth (ft bls)	35-37'	35-45'	47-48'	54-55'	65'	65'	80-81'	90'
Sample Date	06/01/97	05/16/97	06/01/97	06/01/97	05/16/97	05/16/97	06/01/97	05/16/97
Sample ID	SB1-SS3	GMSB-1/35-45	SB1-SS4	SB1-SS5	GMSB-1/65	GMSB-1/65 DUP	SB1-SS6	GMSB-1/90
VOC								
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethene (total)	<12	NA	<11	3 J	NA	NA	<56	NA
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	NA	<5.5	NA	NA	NA	NA	NA	<5.5
1,4-Dichlorobenzene	NA	<5.5	NA	NA	NA	NA	NA	<5.5
2-Butanone (MEK)	100	24 J	22	12	NA	NA	600	67
2-Hexanone	17	<55	<11	<12	NA	NA	74	<55
4-Methyl-2-pentanone (MIBK)	5 J	<55	<11	<12	NA	NA	<56	<55
Acetone	<85 J	19 J	<61 J	<58 J	NA	NA	<570 J	56
Benzene	5 J	<5.5	<11	2 J	NA	NA	<56	<5.5
Carbon disulfide	<12 J	<5.5	<11	17	NA	NA	<56	<5.5
Chlorobenzene	<12	<5.5	<11	<12	NA	NA	<56	<5.5
cis-1,2-Dichloroethene	NA	<5.5	NA	NA	NA	NA	NA	<5.5
Diethylether	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	4 J	<5.5	<11	4 J	NA	NA	<56	<5.5
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	<12 J	<5.5	<11 J	<12 J	NA	NA	<56 J	<5.5
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	<12	<5.5	11	<12	NA	NA	<56	<5.5
Tetrachloroethene	<12	<5.5	<11	<12	NA	NA	<56	<5.5
Toluene	<12 J	<5.5	<11	<12	NA	NA	<56	<5.5
Trichloroethene	<12	<5.5	<11	<12	NA	NA	<56	<5.5
Xylenes (total)	24	<5.5	<11	22	NA	NA	<56	2.3 J
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1							
Depth (ft bls)	35-37'	35-45'	47-48'	54-55'	65'	65'	80-81'	90'
Sample Date	06/01/97	05/16/97	06/01/97	06/01/97	05/16/97	05/16/97	06/01/97	05/16/97
Sample ID	SB1-SS3	GMSB-1/35-45	SB1-SS4	SB1-SS5	GMSB-1/65	GMSB-1/65 DUP	SB1-SS6	GMSB-1/90
SVOC								
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	1,300	1,600	220 J	670	440	NA	1,200	400
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	160 J	170 J	220 J	76 J	<200	NA	68 J	72 J
2-Methylphenol	700	970	<370	86 J	400	NA	290 J	320
2-Nitrophenol	<380	<180	<370	<400	<200	NA	<370	<180
3,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	1,300	1,800	120 J	410	2,400	NA	3,200	1,400
Acenaphthene	<380	<180	<370	<400	<200	NA	<370	<180
bis(2-Ethylhexyl)phthalate	20 J	<180	510	24 J	<200	NA	<370	<180
Butylbenzylphthalate	<380	<180	<370	<400	<200	NA	<370	<180
Dibenzofuran	<380	<180	<370	<400	<200	NA	<370	<180
Diethylphthalate	<380	<180	<370	<400	<200	NA	<370	<180
Di-n-butylphthalate	21 J	<180	21 J	21 J	<200	NA	25 J	<180
Di-n-octylphthalate	42 J	<180	220 J	33 J	<200	NA	<370	<180
Fluoranthene	<380	<180	<370	<400	<200	NA	<370	<180
Fluorene	<380	<180	<370	21 J	<200	NA	<370	<180
Naphthalene	100 J	110 J	46 J	110 J	97 J	NA	160 J	330
Phenanthrene	<380	<180	<370	<400	<200	NA	<370	<180
Phenol	780	1,100	24 J	56 J	1,000	NA	1,400	570
Pyrene	<380	<180	<370	<400	<200	NA	<370	<180

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1							
Depth (ft bls)	35-37'	35-45'	47-48'	54-55'	65'	65'	80-81'	90'
Sample Date	06/01/97	05/16/97	06/01/97	06/01/97	05/16/97	05/16/97	06/01/97	05/16/97
Sample ID	SB1-SS3	GMSB-1/35-45	SB1-SS4	SB1-SS5	GMSB-1/65	GMSB-1/65 DUP	SB1-SS6	GMSB-1/90
Metals								
Aluminum	$\boxed{1,560,000 J}$	$\boxed{2,660,000}$	$\boxed{2,540,000 J}$	$\boxed{1,570,000 J}$	NA	NA	$\boxed{3,230,000 J}$	NA
Antimony	R	497	R	R	NA	NA	R	NA
Arsenic	<500	727	800	<500	NA	NA	2,600	NA
Barium	33,200	31,300	11,000	10,500	NA	NA	14,500	NA
Beryllium	40	<551	70	70	NA	NA	200	NA
Cadmium	<300	<27.5 Wa	1000	<300	NA	NA	<300	NA
Calcium	823,000	1,700,000	932,000	685,000	NA	NA	16,800,000	NA
Chromium	4,500	6,490	7,500	3,600	NA	NA	7,000	NA
Cobalt	$\boxed{1,500}$	<5,510	$\boxed{5,300}$	$\boxed{1,500}$	NA	NA	$\boxed{5,400}$	NA
Copper	99,900 J	139,000	178,000 J	22,400 J	NA	NA	11,000 J	NA
Cyanide	100 J	NA	80 J	80 J	NA	NA	100 J	NA
Iron	$\boxed{2,390,000}$	$\boxed{4,150,000}$	$\boxed{4,380,000}$	$\boxed{3,630,000}$	NA	NA	$\boxed{8,670,000}$	NA
Lead	5,700 J	6,900	16,400 J	2,300 J	NA	NA	3,000 J	NA
Magnesium	903,000 J	1,470,000	1,500,000 J	813,000 J	NA	NA	$\boxed{9,920,000 J}$	NA
Manganese	$\boxed{26,400}$	$\boxed{40,500}$	$\boxed{42,600}$	$\boxed{34,900}$	NA	NA	$\boxed{160,000}$	NA
Mercury	<60	<55.1	<60	<60	NA	NA	<50	NA
Molybdenum	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	3,500	5,660	12,800	4,700	NA	NA	7,800	NA
Potassium	315,000 J	<551,000	385,000 J	323,000 J	NA	NA	484,000 J	NA
Selenium	<500	<275	<500	<600	NA	NA	<500	NA
Silver	<200	<275	<200	<200	NA	NA	<200	NA
Sodium	99,100	<551,000	100,000	78,100	NA	NA	162,000	NA
Titanium	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	5,400	10,300	6,200	5,800	NA	NA	14,600	NA
Zinc	9,500	8,600 MBD	18,700	11,100	NA	NA	13,000	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1							
Depth (ft bls)	35-37'	35-45'	47-48'	54-55'	65'	65'	80-81'	90'
Sample Date	06/01/97	05/16/97	06/01/97	06/01/97	05/16/97	05/16/97	06/01/97	05/16/97
Sample ID	SB1-SS3	GMSB-1/35-45	SB1-SS4	SB1-SS5	GMSB-1/65	GMSB-1/65 DUP	SB1-SS6	GMSB-1/90
Pest/PCBs								
Chlordane (gamma)	<1.9 J	<1.9 J	<1.9 J	1.5 J	NA	NA	<16 J	NA
Endosulfan (alpha)	<1.9	<1.9 J	<1.9	<2.0	NA	NA	<16	NA
Endosulfan (beta)	<3.8 J	<3.6 J	<3.7 J	1.0 J	NA	NA	<30 J	NA
Heptachlor epoxide	<1.9 J	<1.9 J	<1.9 J	0.860 J	NA	NA	<16 J	NA
Total Organic Carbon	NA	1,200,000	NA	NA	910,000	910,000	NA	1,400,000

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1 (continued)							
Depth (ft bls)	115'	122-123'	122-123'	140'	170'	172-173'	202'	235-236'
Sample Date	05/17/97	06/01/97	06/01/97	05/17/97	05/17/97	06/01/97	05/18/97	06/01/97
Sample ID	GMSB-1/115	SB1-SS7	SB1-SS7-RE	GMSB-1/140	GMSB-1/170	SB1-SS8	GMSB-1/202	SB1-SS9
VOC								
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethene (total)	NA	<62	NA	NA	NA	<12	NA	<11
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	<12	NA	NA	<5.6	<6.2	NA	NA	NA
1,4-Dichlorobenzene	<12	NA	NA	<5.6	<6.2	NA	NA	NA
2-Butanone (MEK)	190	740	NA	<56	9.3 J	38	NA	76
2-Hexanone	<120	86	NA	<56	<62	<12	NA	9 J
4-Methyl-2-pentanone (MIBK)	<120	<62	NA	<56	<62	<12	NA	<11
Acetone	220	1,200 J	NA	<56	<62	<72 J	NA	<84 J
Benzene	<12	<62	NA	<5.6	<6.2	<12	NA	<11
Carbon disulfide	<12	<62 J	NA	<5.6	<6.2	<12	NA	<11
Chlorobenzene	<12	<62	NA	<5.6	<6.2	<12	NA	<11
cis-1,2-Dichloroethene	<12	NA	NA	<5.6	<6.2	NA	NA	NA
Diethylether	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	<12	13 J	NA	<5.6	<6.2	<12	NA	<11
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	<12	<62 J	NA	<5.6	<6.2	<12 J	NA	<23 J
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	<12	8 J	NA	<5.6	<6.2	<12	NA	<11
Tetrachloroethene	<12	<62	NA	<5.6	<6.2	<12	NA	<11
Toluene	10 J	<62	NA	<5.6	<6.2	<12	NA	<11
Trichloroethene	<12	<62	NA	<5.6	<6.2	<12	NA	<11
Xylenes (total)	8.5 J	<62	NA	<5.6	<6.2	<12	NA	<11
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1 (continued)							
Depth (ft bls)	115'	122-123'	122-123'	140'	170'	172-173'	202'	235-236'
Sample Date	05/17/97	06/01/97	06/01/97	05/17/97	05/17/97	06/01/97	05/18/97	06/01/97
Sample ID	GMSB-1/115	SB1-SS7	SB1-SS7-RE	GMSB-1/140	GMSB-1/170	SB1-SS8	GMSB-1/202	SB1-SS9
SVOC								
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	670	1,100	1100 J	<180	<200	150 J	NA	84 J
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	<390	22 J	<1200	<180	<200	<410	NA	<360
2-Methylphenol	2,000	1,900	2,000	<180	<200	100 J	NA	86 J
2-Nitrophenol	<390	<410	<1200	<180	<200	<410	NA	<360
3,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	3,400	3,500	3,500	<180	<200	440	NA	500
Acenaphthene	<390	<410	<1200	<180	<200	<410	NA	<360
bis(2-Ethylhexyl)phthalate	<390	<410	<1200	52 J	<200	<410	NA	<360
Butylbenzylphthalate	<390	<410	<1200	<180	<200	<410	NA	<360
Dibenzofuran	<390	<410	<1200	<180	<200	<410	NA	<360
Diethylphthalate	<390	<410	<1200	<180	<200	<410	NA	<360
Di-n-butylphthalate	<390	<410	<1200	<180	<200	<410	NA	<360
Di-n-octylphthalate	<390	<410	<1200	<180	<200	<410	NA	<360
Fluoranthene	<390	<410	<1200	<180	<200	<410	NA	<360
Fluorene	<390	<410	<1200	<180	<200	<410	NA	<360
Naphthalene	<390	<410	<1200	<180	<200	43 J	NA	<360
Phenanthrene	<390	<410	<1200	<180	<200	<410	NA	<360
Phenol	5,500	4,100	4,400	<180	<200	150 J	NA	230 J
Pyrene	<390	<410	<1200	<180	<200	<410	NA	<360

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1 (continued)							
Depth (ft bls)	115'	122-123'	122-123'	140'	170'	172-173'	202'	235-236'
Sample Date	05/17/97	06/01/97	06/01/97	05/17/97	05/17/97	06/01/97	05/18/97	06/01/97
Sample ID	GMSB-1/115	SB1-SS7	SB1-SS7-RE	GMSB-1/140	GMSB-1/170	SB1-SS8	GMSB-1/202	SB1-SS9
Metals								
Aluminum	NA	$\boxed{14,300,000 J}$	NA	NA	NA	$\boxed{13,200,000 J}$	NA	$\boxed{1,980,000 J}$
Antimony	NA	R	NA	NA	NA	R	NA	R
Arsenic	NA	2,600	NA	NA	NA	3,000	NA	$\boxed{5,800 J}$
Barium	NA	73,800	NA	NA	NA	83,000	NA	9,000
Beryllium	NA	600	NA	NA	NA	600	NA	90
Cadmium	NA	<300	NA	NA	NA	<300	NA	<200
Calcium	NA	28,700,000	NA	NA	NA	28,200,000	NA	20,900,000
Chromium	NA	23,500	NA	NA	NA	23,000	NA	4,000
Cobalt	NA	$\boxed{8,600}$	NA	NA	NA	$\boxed{9,600}$	NA	$\boxed{2,400}$
Copper	NA	32,200 J	NA	NA	NA	30,900 J	NA	10,900
Cyanide	NA	100 J	NA	NA	NA	<40	NA	100 J
Iron	NA	$\boxed{20,500,000}$	NA	NA	NA	$\boxed{20,500,000}$	NA	$\boxed{6,010,000}$
Lead	NA	5,200 J	NA	NA	NA	6,000 J	NA	1,600 J
Magnesium	NA	$\boxed{17,200,000 J}$	NA	NA	NA	$\boxed{15,400,000 J}$	NA	$\boxed{11,100,000}$
Manganese	NA	$\boxed{368,000}$	NA	NA	NA	$\boxed{635,000}$	NA	$\boxed{143,000}$
Mercury	NA	<60	NA	NA	NA	<60	NA	<50
Molybdenum	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	21,500	NA	NA	NA	23,000	NA	6,600
Potassium	NA	2,310,000 J	NA	NA	NA	2,340,000 J	NA	221,000
Selenium	NA	<600	NA	NA	NA	<600	NA	<500 J
Silver	NA	200	NA	NA	NA	400	NA	<200
Sodium	NA	509,000	NA	NA	NA	329,000	NA	92,300
Titanium	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	41,500	NA	NA	NA	39,700	NA	11,700
Zinc	NA	34,600	NA	NA	NA	38,700	NA	11,200

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1 (continued)							
Depth (ft bls)	115'	122-123'	122-123'	140'	170'	172-173'	202'	235-236'
Sample Date	05/17/97	06/01/97	06/01/97	05/17/97	05/17/97	06/01/97	05/18/97	06/01/97
Sample ID	GMSB-1/115	SB1-SS7	SB1-SS7-RE	GMSB-1/140	GMSB-1/170	SB1-SS8	GMSB-1/202	SB1-SS9
Pest/PCBs								
Chlordane (gamma)	NA	<2.1 J	NA	NA	NA	<2.1 J	NA	<1.8 J
Endosulfan (alpha)	NA	<2.1	NA	NA	NA	<2.1	NA	<1.8
Endosulfan (beta)	NA	<4.1 J	NA	NA	NA	<4.1 J	NA	<3.6 J
Heptachlor epoxide	NA	<2.1 J	NA	NA	NA	<2.1 J	NA	<1.8 J
Total Organic Carbon	3,900,000	NA	NA	860,000	5,100,000	NA	840,000	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1 (continued)				GMSB-97	GMSB-98
Depth (ft bls)	237'	262'	287'	312'	18-20'	18-20'
Sample Date	05/19/97	05/19/97	05/20/97	05/20/97	03/07/02	03/07/02
Sample ID	GMSB-1/237	GMSB-1/262	GMSB-1/287	GMSB-1/312	GMSB-97/18-20'	GMSB-98/18-20'
VOC						
1,2,4-Trimethylbenzene	NA	NA	NA	NA	<120	<110
1,2-Dichloroethene (total)	NA	NA	NA	NA	<120	<110
1,3,5-Trimethylbenzene	NA	NA	NA	NA	<120	<110
1,3-Dichlorobenzene	<5.8	NA	NA	<5.5	19 J	<110
1,4-Dichlorobenzene	<5.8	NA	NA	<5.5	18 J	<110
2-Butanone (MEK)	8.1 J	NA	NA	<55	<2,900	<2,800
2-Hexanone	<58	NA	NA	<55	<2,900	<2,800
4-Methyl-2-pentanone (MIBK)	<58	NA	NA	<55	<2,900	<2,800
Acetone	8.5 J	NA	NA	<55	<5,900	920 JB
Benzene	<5.8	NA	NA	<5.5	<59	<56
Carbon disulfide	<5.8	NA	NA	<5.5	97 J	120 J
Chlorobenzene	<5.8	NA	NA	<5.5	13 J	<56
cis-1,2-Dichloroethene	<5.8	NA	NA	<5.5	<59	<56
Diethylether	NA	NA	NA	NA	<2,900	<2,800
Ethylbenzene	<5.8	NA	NA	<5.5	19 J	<56
Isopropylbenzene	NA	NA	NA	NA	<120	<110
Methylene chloride	<5.8	NA	NA	<5.5	<290	<280
Naphthalene	NA	NA	NA	NA	NA	NA
n-Propylbenzene	NA	NA	NA	NA	<120	<110
Styrene	<5.8	NA	NA	<5.5	<59	<56
Tetrachloroethene	<5.8	NA	NA	<5.5	19 J	<56
Toluene	<5.8	NA	NA	<5.5	300	35 J
Trichloroethene	<5.8	NA	NA	<5.5	12 J	9.4 J
Xylenes (total)	<5.8	NA	NA	<5.5	56 J	<170
Xylenes, m+p	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1 (continued)				GMSB-97	GMSB-98
Depth (ft bls)	237'	262'	287'	312'	18-20'	18-20'
Sample Date	05/19/97	05/19/97	05/20/97	05/20/97	03/07/02	03/07/02
Sample ID	GMSB-1/237	GMSB-1/262	GMSB-1/287	GMSB-1/312	GMSB-97/18-20'	GMSB-98/18-20'
SVOC						
2,3-Dimethylphenol	NA	NA	NA	NA	<390	<370
2,4-Dimethylphenol	<190	NA	NA	<180	NA	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	<390	<370
2,6-Dimethylphenol	NA	NA	NA	NA	<390	<370
2-Methylnaphthalene	<190	NA	NA	<180	82 J	<370
2-Methylphenol	<190	NA	NA	<180	<390	<370
2-Nitrophenol	<190	NA	NA	<180	<790	<750
3,4-Dimethylphenol	NA	NA	NA	NA	<390	<370
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	<390	<370
4-Methylphenol	<190	NA	NA	<180	NA	NA
Acenaphthene	<190	NA	NA	<180	<390	<370
bis(2-Ethylhexyl)phthalate	<190	NA	NA	<180	<390	<370
Butylbenzylphthalate	<190	NA	NA	<180	<390	<370
Dibenzofuran	<190	NA	NA	<180	160 J	<370
Diethylphthalate	<190	NA	NA	<180	<390	<370
Di-n-butylphthalate	<190	NA	NA	<180	<390	<370
Di-n-octylphthalate	<190	NA	NA	<180	<390	<370
Fluoranthene	<190	NA	NA	<180	<390	<370
Fluorene	<190	NA	NA	<180	130 J	<370
Naphthalene	<190	NA	NA	<180	<390	<370
Phenanthrene	<190	NA	NA	<180	<390	<370
Phenol	<190	NA	NA	<180	<390	<370
Pyrene	<190	NA	NA	<180	<390	<370

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1 (continued)				GMSB-97	GMSB-98
Depth (ft bls)	237'	262'	287'	312'	18-20'	18-20'
Sample Date	05/19/97	05/19/97	05/20/97	05/20/97	03/07/02	03/07/02
Sample ID	GMSB-1/237	GMSB-1/262	GMSB-1/287	GMSB-1/312	GMSB-97/18-20'	GMSB-98/18-20'
Metals						
Aluminum	NA	NA	NA	NA	$\boxed{470,000}$	$\boxed{4,100,000}$
Antimony	NA	NA	NA	NA	<2,700	<2,600 N
Arsenic	NA	NA	NA	NA	490	1,600 SN*
Barium	NA	NA	NA	NA	6,000	19,000
Beryllium	NA	NA	NA	NA	31 B	200 B
Cadmium	NA	NA	NA	NA	<29	45
Calcium	NA	NA	NA	NA	410,000	10,000,000
Chromium	NA	NA	NA	NA	2,600	11,000
Cobalt	NA	NA	NA	NA	230 B	$\boxed{3,600}$
Copper	NA	NA	NA	NA	46,000 N	18,000
Cyanide	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	$\boxed{3,000,000 *}$	$\boxed{8,800,000 *}$
Lead	NA	NA	NA	NA	3,200	2,400
Magnesium	NA	NA	NA	NA	100,000 N	6,400,000 N
Manganese	NA	NA	NA	NA	$\boxed{16,000}$	$\boxed{210,000 N}$
Mercury	NA	NA	NA	NA	<120	<22
Molybdenum	NA	NA	NA	NA	<530	<510
Nickel	NA	NA	NA	NA	580 B	10,000
Potassium	NA	NA	NA	NA	220,000	420,000
Selenium	NA	NA	NA	NA	<240 W	<1,000 W
Silver	NA	NA	NA	NA	<530	<510
Sodium	NA	NA	NA	NA	59,000	170,000
Titanium	NA	NA	NA	NA	220,000	310,000
Vanadium	NA	NA	NA	NA	4,600	19,000
Zinc	NA	NA	NA	NA	1400 E	14,000 E

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1 (continued)				GMSB-97	GMSB-98
Depth (ft bls)	237'	262'	287'	312'	18-20'	18-20'
Sample Date	05/19/97	05/19/97	05/20/97	05/20/97	03/07/02	03/07/02
Sample ID	GMSB-1/237	GMSB-1/262	GMSB-1/287	GMSB-1/312	GMSB-97/18-20'	GMSB-98/18-20'
Pest/PCBs						
Chlordane (gamma)	NA	NA	NA	NA	NA	NA
Endosulfan (alpha)	NA	NA	NA	NA	NA	NA
Endosulfan (beta)	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	NA	NA	NA	NA	NA	NA
Total Organic Carbon	580,000	390,000	730,000	640,000	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-101	GMSB-103	GMSB-95		GMSB-96
Depth (ft bls)	16-18'	19-21'	10-12'	16-18'	10-12'
Sample Date	03/08/02	03/08/02	03/07/02	03/07/02	03/07/02
Sample ID	GMSB-101/16-18'	GMSB-103/19-21'	GMSB-95/10-12'	GMSB-95/16-18'	GMSB-96/10-12'
VOC					
1,2,4-Trimethylbenzene	<100	<110	38 J	35 J	170
1,2-Dichloroethene (total)	<100	<110	<110	<110	22 J
1,3,5-Trimethylbenzene	<100	<110	<110	9.2 J	47 J
1,3-Dichlorobenzene	<100	<110	<110	<110	<110
1,4-Dichlorobenzene	<100	<110	<110	<110	<110
2-Butanone (MEK)	<2,600	<2,600	<2,600	<2,700	<2,700
2-Hexanone	<2,600	<2,600	<2,600	<2,700	<2,700
4-Methyl-2-pentanone (MIBK)	<2,600	<2,600	<2,600	<2,700	<2,700
Acetone	730 JB	740 JB	770 JB	760 JB	660 JB
Benzene	68	<53	<53	<54	<54
Carbon disulfide	68 J	130 J	<260	<270	<270
Chlorobenzene	<53	5.6 J	<53	<54	<54
cis-1,2-Dichloroethene	<53	<53	<53	<54	22 J
Diethylether	<2,600	<2,600	<2,600	<2,700	<2,700
Ethylbenzene	10 J	6.6 J	13 J	<54	74
Isopropylbenzene	<100	<110	<110	<110	<110
Methylene chloride	<260	<260	<260	<270	<270
Naphthalene	NA	NA	NA	NA	NA
n-Propylbenzene	<100	<110	<110	<110	28 J
Styrene	<53	<53	<53	<54	<54
Tetrachloroethene	<53	21 J	<53	<54	7.1 J
Toluene	55 J	9.8 J	58 J	41 J	91 J
Trichloroethene	<53	<53	<53	<54	15 J
Xylenes (total)	34 J	<160	68 J	48 J	380
Xylenes, m+p	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-101	GMSB-103	GMSB-95		GMSB-96
Depth (ft bls)	16-18'	19-21'	10-12'	16-18'	10-12'
Sample Date	03/08/02	03/08/02	03/07/02	03/07/02	03/07/02
Sample ID	GMSB-101/16-18'	GMSB-103/19-21'	GMSB-95/10-12'	GMSB-95/16-18'	GMSB-96/10-12'
SVOC					
2,3-Dimethylphenol	<350	<350	89 J	30 J	230 J
2,4-Dimethylphenol	NA	NA	NA	NA	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	<350	<350	660	150 J	1,500
2,6-Dimethylphenol	<350	<350	280 J	70 J	420
2-Methylnaphthalene	<350	<350	270 J	440	2,000
2-Methylphenol	<350	<350	480	<350	790
2-Nitrophenol	<700	<710	160 J	<720	<730
3,4-Dimethylphenol	<350	<350	100 J	39 J	200 J
3-Methylphenol/4-Methylphenol(m&p-cresol)	<350	<350	470	<350	870
4-Methylphenol	NA	NA	NA	NA	NA
Acenaphthene	<350	<350	<350	35 J	74 J
bis(2-Ethylhexyl)phthalate	<350	<350	110 J	<350	<360
Butylbenzylphthalate	<350	<350	<350	<350	<360
Dibenzofuran	<350	<350	64 J	140 J	480
Diethylphthalate	<350	<350	<350	<350	<360
Di-n-butylphthalate	<350	<350	160 J	<350	65 J
Di-n-octylphthalate	<350	<350	92 J	<350	<360
Fluoranthene	<350	<350	<350	<350	<360
Fluorene	<350	<350	53 J	85 J	330 J
Naphthalene	<350	<350	200 J	110 J	860
Phenanthrene	<350	<350	18 J	<350	44 J
Phenol	<350	<350	340 J	<350	150 J
Pyrene	<350	<350	<350	<350	<360

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-101	GMSB-103	GMSB-95		GMSB-96
Depth (ft bls)	16-18'	19-21'	10-12'	16-18'	10-12'
Sample Date	03/08/02	03/08/02	03/07/02	03/07/02	03/07/02
Sample ID	GMSB-101/16-18'	GMSB-103/19-21'	GMSB-95/10-12'	GMSB-95/16-18'	GMSB-96/10-12'
Metals					
Aluminum	800,000	4,300,000	1,500,000	1,800,000	380,000
Antimony	<2,400 N	<2,400 N	410 B	<2400	<2700
Arsenic	730 N*	1,400 SN*	580	1,100	370
Barium	9800	16,000	24,000	21,000	15,000
Beryllium	36 B	120 B	68 B	100 B	25 B
Cadmium	96	37	6.8 B	49	<25
Calcium	940,000	1,000,000	480,000	2,500,000	300,000
Chromium	2,400	7,500	6,300	5,100	1,800
Cobalt	1,700	4,400	980	1,100	220 B
Copper	150,000	13,000	31,000 N	160,000 N	5,400 N
Cyanide	NA	NA	NA	NA	NA
Iron	2,200,000 *	11,000,000 *	3,500,000 *	3,100,000 *	1,400,000 *
Lead	2,600	1,800	4,700	5,400	7,900
Magnesium	210,000 N	1,800,000 N	450,000 N	400,000 N	67,000 N
Manganese	13,000 N	39,000 N	53,000	26,000	15,000
Mercury	<19	<19	6.9 B	6.7 B	<99
Molybdenum	<480	<480	650	<490	<540
Nickel	4,200	11,000	2,500	3,800	360 B
Potassium	150,000	400,000	210,000	180,000	320,000
Selenium	<190 W	<1,100 W	<190 W	<200 W	<200 W
Silver	<480	<480	<480	<490	56 B
Sodium	75,000	120,000	44,000 B	68,000	69,000
Titanium	220,000	220,000	170,000	700,000	140,000
Vanadium	5,000	15,000	6,800	14,000	2,300
Zinc	14,000 E	19,000 E	4,500 E	3,600 E	1,600 E

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-101	GMSB-103	GMSB-95		GMSB-96
Depth (ft bls)	16-18'	19-21'	10-12'	16-18'	10-12'
Sample Date	03/08/02	03/08/02	03/07/02	03/07/02	03/07/02
Sample ID	GMSB-101/16-18'	GMSB-103/19-21'	GMSB-95/10-12'	GMSB-95/16-18'	GMSB-96/10-12'
Pest/PCBs					
Chlordane (gamma)	NA	NA	NA	NA	NA
Endosulfan (alpha)	NA	NA	NA	NA	NA
Endosulfan (beta)	NA	NA	NA	NA	NA
Heptachlor epoxide	NA	NA	NA	NA	NA
Total Organic Carbon	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-97	MW-96-3		PB-2				
Depth (ft bls)	10-12'	20-22'	04-6'	8-12'	12-16'	12-16'	24-28'	24-28'
Sample Date	03/07/02	06/12/96	06/12/96	05/16/96	05/15/96	05/16/96	05/16/96	05/16/96
Sample ID	GMSB-97/10-12'	MW-96-3 (20-22')	MW-96-3 (4-6')	SS-3	SS-4	SS-4	SS-5	PB2
VOC								
1,2,4-Trimethylbenzene	<110	<10	<10	NA	NA	NA	NA	<1.1
1,2-Dichloroethene (total)	<110	<10	<10	<11	<11	NA	<11	NA
1,3,5-Trimethylbenzene	<110	<10	<10	NA	NA	NA	NA	<1.1
1,3-Dichlorobenzene	<110	NA	NA	NA	NA	NA	NA	<1.1
1,4-Dichlorobenzene	<110	NA	NA	NA	NA	NA	NA	<1.1
2-Butanone (MEK)	<2,700	<100	<100	<11	<11	NA	<11	8.9
2-Hexanone	<2,700	<100	<100	<11	<11	NA	<11	1.2 J
4-Methyl-2-pentanone (MIBK)	<2,700	<100	<100	<11	<11	NA	<11	<2.2
Acetone	<5,500	<100	<100	9 J	21	NA	37	25
Benzene	<55	<10	<10	<11	<11	NA	<11	<1.1
Carbon disulfide	<270	<100	<100	<11	<11	NA	4 J	29
Chlorobenzene	<55	<10	<10	<11	<11	NA	<11	<1.1
cis-1,2-Dichloroethene	<55	NA	NA	NA	NA	NA	NA	<1.1
Diethylether	<2,700	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	<55	<10	58	<11	<11	NA	<11	<1.1
Isopropylbenzene	<110	<10	<10	NA	NA	NA	NA	<1.1
Methylene chloride	<270	R	R	<29 B	<30 B	NA	<39 B	<1.1
Naphthalene	NA	NA	NA	NA	NA	NA	NA	8.1
n-Propylbenzene	<110	<10	<10	NA	NA	NA	NA	<1.1
Styrene	<55	<10	<10	<11	<11	NA	<11	<1.1
Tetrachloroethene	8.8 J	<10	<10	<11	<11	NA	<11	<1.1
Toluene	31 J	<10	80	<11	<11	NA	<11	<1.1
Trichloroethene	<55	<10	<10	<11	<11	NA	<11	<1.1
Xylenes (total)	34 J	<30	400	<11	<11	NA	<11	NA
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA	0.4 J

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-97	MW-96-3		PB-2				
Depth (ft bls)	10-12'	20-22'	04-6'	8-12'	12-16'	12-16'	24-28'	24-28'
Sample Date	03/07/02	06/12/96	06/12/96	05/16/96	05/15/96	05/16/96	05/16/96	05/16/96
Sample ID	GMSB-97/10-12'	MW-96-3 (20-22')	MW-96-3 (4-6')	SS-3	SS-4	SS-4	SS-5	PB2
SVOC								
2,3-Dimethylphenol	<360	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	<330	12,000	<350	<350	NA	<350	<360
2,4-Dimethylphenol/2,5-Dimethylphenol	<360	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	<360	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	<360	<330	<7,300 *	<350	<350	NA	<350	98 J
2-Methylphenol	<360	<330	8,000	<350	<350	NA	<350	<360
2-Nitrophenol	<740	<330	<7,300 *	<350	<350	NA	<350	<360
3,4-Dimethylphenol	<360	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<360	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	<330	9,400	<350	<350	NA	<350	<360
Acenaphthene	<360	<330	<7,300 *	<350	<350	NA	<350	<360
bis(2-Ethylhexyl)phthalate	<360	<330	<7,300 *	670 B	<350	NA	<350	65 JB
Butylbenzylphthalate	<360	<330	<7,300 *	<350	<350	NA	<350	150 J
Dibenzofuran	<360	<330	<7,300 *	<350	<350	NA	<350	34 J
Diethylphthalate	<360	<330	<7,300 *	<350	<350	NA	<350	200 JB
Di-n-butylphthalate	<360	<330	<7,300 *	<350	<350	NA	<350	1,400 B
Di-n-octylphthalate	<360	<330	<18,000 *	<350	<350	NA	<350	<360
Fluoranthene	<360	<330	<7,300 *	<350	<350	NA	<350	<360
Fluorene	<360	<330	<7,300 *	<350	<350	NA	<350	<360
Naphthalene	<360	<330	12,000	<350	<350	NA	<350	58 J
Phenanthrene	<360	<330	<7,300 *	<350	<350	NA	<350	<360
Phenol	<360	<330	<7,300 *	<350	<350	NA	<350	<360
Pyrene	<360	<330	<7,300 *	<350	<350	NA	<350	<360

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-97	MW-96-3		PB-2					
Depth (ft bls)	10-12'	20-22'	04-6'	8-12'	12-16'	12-16'	24-28'	24-28'
Sample Date	03/07/02	06/12/96	06/12/96	05/16/96	05/15/96	05/16/96	05/16/96	05/16/96
Sample ID	GMSB-97/10-12'	MW-96-3 (20-22')	MW-96-3 (4-6')	SS-3	SS-4	SS-4	SS-5	PB2
Metals								
Aluminum	$\boxed{470,000}$	NA	NA	$\boxed{3,450,000}$	NA	$\boxed{1,420,000}$	$\boxed{2,760,000}$	NA
Antimony	510 B	NA	NA	<2,500	NA	<2,700	<2,500	NA
Arsenic	410	NA	NA	1,100 B	NA	<810	1,400 B	NA
Barium	13,000	17,000	27,000	11,100 B	NA	11,300 B	5,800 B	NA
Beryllium	38 B	NA	NA	<120	NA	<130	<120	NA
Cadmium	6.5 B	NA	NA	<180	NA	<200	<180	NA
Calcium	480,000	NA	NA	1,540,000	NA	731,000 B	1,060,000	NA
Chromium	3,300	3,100	8,900	10,800	NA	4,700	5,000	NA
Cobalt	330 B	NA	NA	$\boxed{4200 B}$	NA	$\boxed{2,700 B}$	$\boxed{5,100 B}$	NA
Copper	7,300 N	15,000	28,000	18,200	NA	9,000	21,900	NA
Cyanide	NA	NA	NA	180 B	NA	<120	<120	NA
Iron	$\boxed{3,400,000 *}$	NA	NA	$\boxed{7,240,000}$	NA	$\boxed{3,140,000}$	$\boxed{7,630,000}$	NA
Lead	3,300	4,200	8,200	2,100	NA	4,800	2,700	NA
Magnesium	140,000 N	NA	NA	2,160,000	NA	842,000 B	1,170,000	NA
Manganese	$\boxed{100,000}$	NA	NA	$\boxed{76,200 N}$	NA	$\boxed{34,700 N}$	$\boxed{36,300 N}$	NA
Mercury	7 B	NA	NA	60 B	NA	<50	60 B	NA
Molybdenum	<500	NA	NA	NA	NA	NA	NA	NA
Nickel	640 B	NA	NA	$\boxed{121,000}$	NA	15,100	34,900	NA
Potassium	180,000	NA	NA	309,000 B	NA	214,000 B	296,000 B	NA
Selenium	<200 W	NA	NA	<610	NA	<680	<640	NA
Silver	<500	NA	NA	<670	NA	<740	<700	NA
Sodium	50,000 B	NA	NA	65,300 B	NA	51,000 B	68,300 B	NA
Titanium	240,000	NA	NA	NA	NA	NA	NA	NA
Vanadium	6,300	NA	NA	13,800	NA	7,900 B	9,900 B	NA
Zinc	2,900 E	2,500	30,000	12,200	NA	4,700	13,800	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-97	MW-96-3		PB-2				
Depth (ft bls)	10-12'	20-22'	04-6'	8-12'	12-16'	12-16'	24-28'	24-28'
Sample Date	03/07/02	06/12/96	06/12/96	05/16/96	05/15/96	05/16/96	05/16/96	05/16/96
Sample ID	GMSB-97/10-12'	MW-96-3 (20-22')	MW-96-3 (4-6')	SS-3	SS-4	SS-4	SS-5	PB2
Pest/PCBs								
Chlordane (gamma)	NA	NA	NA	<1.8	<1.8	NA	<1.8	NA
Endosulfan (alpha)	NA	NA	NA	<1.8	<1.8	NA	2.8 P	NA
Endosulfan (beta)	NA	NA	NA	<3.5	<3.5	NA	<3.5	NA
Heptachlor epoxide	NA	NA	NA	<1.8	<1.8	NA	<1.8	NA
Total Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	PB-5	SB-1	SB-1B	SB-2B	SB-3		SB-4	
Depth (ft bls)	12-16'	15'	15'	15'	52'	54'	54'	56'
Sample Date	05/16/96	07/28/85	11/09/85	11/09/85	07/26/85	07/26/85	07/24/85	07/24/85
Sample ID	SS-13	SB1 (15')	SB1-B (15')	SB2-B (15')	SB3 (52')	SB3 (54')	SB4 (54')	SB4 (56')
VOC								
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethene (total)	<12	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	<12	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	<12	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	<12	NA	NA	NA	NA	NA	NA	NA
Acetone	15	NA	NA	NA	NA	NA	NA	NA
Benzene	<12	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	1 J	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	<12	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA
Diethylether	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	<12	NA	ND	ND	ND	ND	7	ND
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	<34 B	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	<12	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	<12	NA	NA	NA	NA	NA	NA	NA
Toluene	2 J	NA	ND	ND	ND	ND	8	ND
Trichloroethene	<12	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	7 J	NA	ND	ND	ND	ND	55	ND
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	PB-5	SB-1	SB-1B	SB-2B	SB-3		SB-4	
Depth (ft bls)	12-16'	15'	15'	15'	52'	54'	54'	56'
Sample Date	05/16/96	07/28/85	11/09/85	11/09/85	07/26/85	07/26/85	07/24/85	07/24/85
Sample ID	SS-13	SB1 (15')	SB1-B (15')	SB2-B (15')	SB3 (52')	SB3 (54')	SB4 (54')	SB4 (56')
SVOC								
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	560 J	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	880 J	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	<1,900	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	<1,900	NA	NA	NA	NA	NA	NA	NA
3,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	430 J	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	<1,900	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	<1,900	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	<1,900	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	250 J	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	<1,900	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	<1,900	NA	NA	NA	NA	NA	NA	NA
Di-n-octylphthalate	<1,900	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	<1,900	NA	NA	NA	NA	NA	NA	NA
Fluorene	250 J	NA	NA	NA	NA	NA	NA	NA
Naphthalene	450 J	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	<1,900	NA	NA	NA	NA	NA	NA	NA
Phenol	<1,900	NA	NA	NA	NA	NA	NA	NA
Pyrene	<1,900	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	PB-5	SB-1	SB-1B	SB-2B	SB-3		SB-4	
Depth (ft bls)	12-16'	15'	15'	15'	52'	54'	54'	56'
Sample Date	05/16/96	07/28/85	11/09/85	11/09/85	07/26/85	07/26/85	07/24/85	07/24/85
Sample ID	SS-13	SB1 (15')	SB1-B (15')	SB2-B (15')	SB3 (52')	SB3 (54')	SB4 (54')	SB4 (56')
Metals								
Aluminum	$\boxed{861,000}$	NA	NA	NA	NA	NA	NA	NA
Antimony	<2600	NA	NA	NA	NA	NA	NA	NA
Arsenic	2,300	NA	NA	NA	NA	NA	NA	NA
Barium	206,000	29,000	<10,000	35,000	18,000	16,000	12,000	11,000
Beryllium	<130	NA	NA	NA	NA	NA	NA	NA
Cadmium	280 B	NA	NA	NA	NA	NA	NA	NA
Calcium	5,250,000	NA	NA	NA	NA	NA	NA	NA
Chromium	5,100	16,000	15,000	10,000	11,000	26,000	5,000	7,900
Cobalt	$\boxed{2,400\ B}$	NA	NA	NA	NA	NA	NA	NA
Copper	62,600	14,000	16,000	17,000	9,800	11,000	7,800	5,700
Cyanide	<120	NA	NA	NA	NA	NA	NA	NA
Iron	$\boxed{11,200,000}$	NA	NA	NA	NA	NA	NA	NA
Lead	92,200	<9,100	<5,300	<5,400	<2,700	<1,200	<8,800	<9,600
Magnesium	1,580,000	NA	NA	NA	NA	NA	NA	NA
Manganese	$\boxed{71,200\ N}$	NA	NA	NA	NA	NA	NA	NA
Mercury	90 B	NA	NA	NA	NA	NA	NA	NA
Molybdenum	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	7,300 B	NA	NA	NA	NA	NA	NA	NA
Potassium	169,000 B	NA	NA	NA	NA	NA	NA	NA
Selenium	<660	NA	NA	NA	NA	NA	NA	NA
Silver	<720	NA	NA	NA	NA	NA	NA	NA
Sodium	57,400 B	NA	NA	NA	NA	NA	NA	NA
Titanium	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	4,600 B	NA	NA	NA	NA	NA	NA	NA
Zinc	99,900	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	PB-5	SB-1	SB-1B	SB-2B	SB-3		SB-4	
Depth (ft bls)	12-16'	15'	15'	15'	52'	54'	54'	56'
Sample Date	05/16/96	07/28/85	11/09/85	11/09/85	07/26/85	07/26/85	07/24/85	07/24/85
Sample ID	SS-13	SB1 (15')	SB1-B (15')	SB2-B (15')	SB3 (52')	SB3 (54')	SB4 (54')	SB4 (56')
Pest/PCBs								
Chlordane (gamma)	<3.4 P	NA	NA	NA	NA	NA	NA	NA
Endosulfan (alpha)	<2	NA	NA	NA	NA	NA	NA	NA
Endosulfan (beta)	<3.9	NA	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	<2	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-5							SB-6	
Depth (ft bls)	05'	10'	15'	20'	25'	30'	35'	15'	16.5'
Sample Date	06/18/85	06/18/85	06/18/85	06/18/85	06/18/85	06/18/85	06/18/85	07/28/85	11/08/85
Sample ID	SB5 (05')	SB5 (10')	SB5 (15')	SB5 (20')	SB5 (25')	SB5 (30')	SB5 (35')	SB6 (15')	SB6 (16.5')
VOC									
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	97	70	1,800	6,400	1,600	1,300	23,000	NA	NA
2-Hexanone	31	89	370	ND	ND	ND	1,500	NA	NA
4-Methyl-2-pentanone (MIBK)	10	16	ND	89	93	ND	500	NA	NA
Acetone	$\boxed{16,000}$	3,000	3,500	11,000	$\boxed{36,000}$	7,600	$\boxed{68,000}$	NA	NA
Benzene	ND	ND	$\boxed{230}$	50	$\boxed{170}$	17	$\boxed{470}$	NA	NA
Carbon disulfide	ND	ND	ND	ND	19	ND	79	NA	NA
Chlorobenzene	ND	11	ND	31	120	28	ND	NA	NA
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylether	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ND	11	550	66	360	90	$\boxed{1,600}$	NA	ND
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	ND	24	1,100	140	520	120	1,900	NA	ND
Trichloroethene	ND	ND	100	15	ND	ND	19	NA	NA
Xylenes (total)	ND	82	2,700	520	3,300	750	$\boxed{10,000}$	NA	ND
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-5							SB-6	
Depth (ft bls)	05'	10'	15'	20'	25'	30'	35'	15'	16.5'
Sample Date	06/18/85	06/18/85	06/18/85	06/18/85	06/18/85	06/18/85	06/18/85	07/28/85	11/08/85
Sample ID	SB5 (05')	SB5 (10')	SB5 (15')	SB5 (20')	SB5 (25')	SB5 (30')	SB5 (35')	SB6 (15')	SB6 (16.5')
SVOC									
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-5							SB-6	
Depth (ft bls)	05'	10'	15'	20'	25'	30'	35'	15'	16.5'
Sample Date	06/18/85	06/18/85	06/18/85	06/18/85	06/18/85	06/18/85	06/18/85	07/28/85	11/08/85
Sample ID	SB5 (05')	SB5 (10')	SB5 (15')	SB5 (20')	SB5 (25')	SB5 (30')	SB5 (35')	SB6 (15')	SB6 (16.5')
Metals									
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	<12,000	<12,000	<12,000	<11,000	<16,000	<12,000	<12,000	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	39,000	20,000	22,000	100,000	36,000	130,000	21,000	18,000	<11,000
Beryllium	<2,400	<2,400	<2,400	<2,200	<3,200	<2,400	<2,300	NA	NA
Cadmium	<2,400	<2,400	<2,400	<2,200	<3,200	<2,400	<2,300	NA	NA
Calcium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	12,000	9,800	12,000	11,000	9,500	4,900	8,100	9,200	7,600
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	6,000	7,300	29,000	<2,200	320,000	56,000	85,000	9,400	9,400
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	<2,400	<2,400	<2,400	<2,200	11,000	13,000	3,500	<9,400	<5,500
Magnesium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	ND	ND	ND	<420	<600	<460	ND	NA	NA
Molybdenum	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	3,600	3,600	13,000	4,400	6,300	<2,400	3,500	NA	NA
Potassium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	710	<490	<490	<440	950	<490	<460	NA	NA
Silver	<1,200	<1,200	<1,200	<1,100	<1,600	<1,200	<1,200	NA	NA
Sodium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Titanium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	11,000	7,300	12,000	23,000	48,000	35,000	12,000	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-5							SB-6	
Depth (ft bls)	05'	10'	15'	20'	25'	30'	35'	15'	16.5'
Sample Date	06/18/85	06/18/85	06/18/85	06/18/85	06/18/85	06/18/85	06/18/85	07/28/85	11/08/85
Sample ID	SB5 (05')	SB5 (10')	SB5 (15')	SB5 (20')	SB5 (25')	SB5 (30')	SB5 (35')	SB6 (15')	SB6 (16.5')
Pest/PCBs									
Chlordane (gamma)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan (alpha)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan (beta)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-7		SB-8		SB-9		SB-22		
Depth (ft bls)	45'	54'	35'	49'	30'	35'	40'	50'	60'
Sample Date	07/24/85	07/24/85	07/26/85	07/26/85	07/23/85	07/23/85	06/01/86	06/01/86	06/01/86
Sample ID	SB7 (45')	SB7 (54')	SB8 (35')	SB8 (49')	SB9 (30')	SB9 (35')	SB-22 (40')	SB-22 (50')	SB-22 (60')
VOC									
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA	NA	ND	ND	ND
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	NA	ND	ND	ND
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylether	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ND	ND	NA	NA	NA	NA	ND	ND	ND
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	NA	NA	NA	NA	NA	NA	ND	ND	ND
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA	ND	ND	ND
Toluene	ND	ND	NA	NA	NA	NA	ND	ND	ND
Trichloroethene	NA	NA	NA	NA	NA	NA	ND	ND	ND
Xylenes (total)	ND	ND	NA	NA	NA	NA	NA	NA	NA
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-7		SB-8		SB-9		SB-22		
Depth (ft bls)	45'	54'	35'	49'	30'	35'	40'	50'	60'
Sample Date	07/24/85	07/24/85	07/26/85	07/26/85	07/23/85	07/23/85	06/01/86	06/01/86	06/01/86
Sample ID	SB7 (45')	SB7 (54')	SB8 (35')	SB8 (49')	SB9 (30')	SB9 (35')	SB-22 (40')	SB-22 (50')	SB-22 (60')
SVOC									
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-7		SB-8		SB-9		SB-22		
Depth (ft bls)	45'	54'	35'	49'	30'	35'	40'	50'	60'
Sample Date	07/24/85	07/24/85	07/26/85	07/26/85	07/23/85	07/23/85	06/01/86	06/01/86	06/01/86
Sample ID	SB7 (45')	SB7 (54')	SB8 (35')	SB8 (49')	SB9 (30')	SB9 (35')	SB-22 (40')	SB-22 (50')	SB-22 (60')
Metals									
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	39,000	24,000	22,000	16,000	16,000	1,000	14,000	2,900	20,000
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	13,000	$\boxed{31,000}$	12,000	7,100	11,000	9,000	12,000	19,000	14,000
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	11,000	16,000	11,000	7,600	27,000	8,400	10,000	15,000	25,000
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	<6,300	<810	<2,000	<2,000	<7,500	<10,000	ND	ND	ND
Magnesium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Titanium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-7		SB-8		SB-9		SB-22		
Depth (ft bls)	45'	54'	35'	49'	30'	35'	40'	50'	60'
Sample Date	07/24/85	07/24/85	07/26/85	07/26/85	07/23/85	07/23/85	06/01/86	06/01/86	06/01/86
Sample ID	SB7 (45')	SB7 (54')	SB8 (35')	SB8 (49')	SB9 (30')	SB9 (35')	SB-22 (40')	SB-22 (50')	SB-22 (60')
Pest/PCBs									
Chlordane (gamma)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan (alpha)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan (beta)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-22 (continued)				SB-23			
Depth (ft bls)	75'	90'	105'	120'	40'	45'	55'	70'
Sample Date	06/01/86	06/01/86	06/01/86	06/01/86	06/01/86	06/01/86	06/01/86	06/01/86
Sample ID	SB-22 (75')	SB-22 (90')	SB-22 (105')	SB-22 (120')	SB-23 (40')	SB-23 (45')	SB-23 (55')	SB-23 (70')
VOC								
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA
Diethylether	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	7	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-22 (continued)				SB-23			
Depth (ft bls)	75'	90'	105'	120'	40'	45'	55'	70'
Sample Date	06/01/86	06/01/86	06/01/86	06/01/86	06/01/86	06/01/86	06/01/86	06/01/86
Sample ID	SB-22 (75')	SB-22 (90')	SB-22 (105')	SB-22 (120')	SB-23 (40')	SB-23 (45')	SB-23 (55')	SB-23 (70')
SVOC								
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	NA
3,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-22 (continued)				SB-23			
Depth (ft bls)	75'	90'	105'	120'	40'	45'	55'	70'
Sample Date	06/01/86	06/01/86	06/01/86	06/01/86	06/01/86	06/01/86	06/01/86	06/01/86
Sample ID	SB-22 (75')	SB-22 (90')	SB-22 (105')	SB-22 (120')	SB-23 (40')	SB-23 (45')	SB-23 (55')	SB-23 (70')
Metals								
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA
Barium	14,000	ND	17,000	18,000	14,000	14,000	16,000	24,000
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	19,000	9,000	22,000	12,000	7,000	8,200	9,300	7,000
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA
Copper	9,600	6,700	7,600	8,000	90,000	24,000	14,000	12,000
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA	NA
Lead	ND	ND	ND	ND	ND	ND	ND	ND
Magnesium	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA	NA	NA
Silver	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA	NA	NA	NA
Titanium	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	**SB-22 (continued)**				**SB-23**			
Depth (ft bls)	**75'**	**90'**	**105'**	**120'**	**40'**	**45'**	**55'**	**70'**
Sample Date	**06/01/86**	**06/01/86**	**06/01/86**	**06/01/86**	**06/01/86**	**06/01/86**	**06/01/86**	**06/01/86**
Sample ID	**SB-22 (75')**	**SB-22 (90')**	**SB-22 (105')**	**SB-22 (120')**	**SB-23 (40')**	**SB-23 (45')**	**SB-23 (55')**	**SB-23 (70')**
Pest/PCBs								
Chlordane (gamma)	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan (alpha)	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan (beta)	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-23 (continued)			SB-96-1		SB-96-2	
Depth (ft bls)	85'	105'	120'	6-8'	14-16'	6-8'	18-20'
Sample Date	06/01/86	06/01/86	06/01/86	06/11/96	06/11/96	06/11/96	06/11/96
Sample ID	SB-23 (85')	SB-23 (105')	SB-23 (120')	SB-96-1 (6-8')	SB-96-1 (14-16')	SB-96-2 (6-8')	SB-96-2 (18-20')
VOC							
1,2,4-Trimethylbenzene	NA	NA	NA	<10	17	<10	<10
1,2-Dichloroethene (total)	NA	NA	NA	<10	<10	<10	<10
1,3,5-Trimethylbenzene	NA	NA	NA	<10	<10	<10	<10
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	NA	NA	NA	<100	<100	<100	<100
2-Hexanone	NA	NA	NA	<100	<100	<100	<100
4-Methyl-2-pentanone (MIBK)	NA	NA	NA	<100	<100,000	<100,000	<100
Acetone	NA	NA	NA	<100	<100	<100	<100
Benzene	ND	ND	ND	<10	<10	<10	<10
Carbon disulfide	NA	NA	NA	<100	<100	<100	<100
Chlorobenzene	ND	ND	ND	<10	<10	<10	<10
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA
Diethylether	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ND	ND	ND	<10	<10	<10	<10
Isopropylbenzene	NA	NA	NA	<10	<10	<10	<10
Methylene chloride	ND	ND	ND	11	11	<10	<10
Naphthalene	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	NA	NA	NA	<10	<10	<10	<10
Styrene	NA	NA	NA	<10	<10	<10	<10
Tetrachloroethene	ND	ND	ND	<10	<10	<10	<10
Toluene	ND	ND	ND	15	20	<10	<10
Trichloroethene	ND	ND	ND	<10	<10	<10	<10
Xylenes (total)	NA	NA	NA	<30	<30	<30	<30
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-23 (continued)			SB-96-1		SB-96-2	
Depth (ft bls)	85'	105'	120'	6-8'	14-16'	6-8'	18-20'
Sample Date	06/01/86	06/01/86	06/01/86	06/11/96	06/11/96	06/11/96	06/11/96
Sample ID	SB-23 (85')	SB-23 (105')	SB-23 (120')	SB-96-1 (6-8')	SB-96-1 (14-16')	SB-96-2 (6-8')	SB-96-2 (18-20')
SVOC							
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	<330	7,200	<330	<330
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	<330	610	<330	<330
2-Methylphenol	NA	NA	NA	<330	2,000	<330	<330
2-Nitrophenol	NA	NA	NA	<330	<410 *	<330	<330
3,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	NA	NA	<330	6,300	<330	<330
Acenaphthene	NA	NA	NA	<330	<410 *	<330	<330
bis(2-Ethylhexyl)phthalate	NA	NA	NA	<330	<410 *	<330	<330
Butylbenzylphthalate	NA	NA	NA	<330	<410 *	<330	<330
Dibenzofuran	NA	NA	NA	<330	<410 *	<330	<330
Diethylphthalate	NA	NA	NA	<330	<410 *	<330	<330
Di-n-butylphthalate	NA	NA	NA	<330	<410 *	<330	<330
Di-n-octylphthalate	NA	NA	NA	<330	<4,100 *	<330	<330
Fluoranthene	NA	NA	NA	<330	620	<330	<330
Fluorene	NA	NA	NA	<330	<410 *	<330	<330
Naphthalene	NA	NA	NA	<330	820	<330	<330
Phenanthrene	NA	NA	NA	<330	880	<330	<330
Phenol	NA	NA	NA	<330	4,000	<330	<330
Pyrene	NA	NA	NA	<330	770 *	<330	<330

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-23 (continued)			SB-96-1		SB-96-2	
Depth (ft bls)	85'	105'	120'	6-8'	14-16'	6-8'	18-20'
Sample Date	06/01/86	06/01/86	06/01/86	06/11/96	06/11/96	06/11/96	06/11/96
Sample ID	SB-23 (85')	SB-23 (105')	SB-23 (120')	SB-96-1 (6-8')	SB-96-1 (14-16')	SB-96-2 (6-8')	SB-96-2 (18-20')
Metals							
Aluminum	NA	NA	NA	NA	NA	NA	NA
Antimony	NA	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA
Barium	26,000	140,000	18,000	14,000	61,000	11,000	14,000
Beryllium	NA	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA	NA
Calcium	NA	NA	NA	NA	NA	NA	NA
Chromium	8,200	$\boxed{40,000}$	6,900	13,000	6,100	9,400	7,400
Cobalt	NA	NA	NA	NA	NA	NA	NA
Copper	10,000	34,000	5,200	22,000	117,000	14,000	9,100
Cyanide	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA
Lead	ND	ND	ND	7,500	31,000	4,800	5,600
Magnesium	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	NA	NA	NA	NA
Molybdenum	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA	NA
Silver	NA	NA	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA	NA	NA
Titanium	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	25,000	22,000	14,000	12,000

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-23 (continued)			SB-96-1		SB-96-2	
Depth (ft bls)	85'	105'	120'	6-8'	14-16'	6-8'	18-20'
Sample Date	06/01/86	06/01/86	06/01/86	06/11/96	06/11/96	06/11/96	06/11/96
Sample ID	SB-23 (85')	SB-23 (105')	SB-23 (120')	SB-96-1 (6-8')	SB-96-1 (14-16')	SB-96-2 (6-8')	SB-96-2 (18-20')
Pest/PCBs							
Chlordane (gamma)	NA	NA	NA	NA	NA	NA	NA
Endosulfan (alpha)	NA	NA	NA	NA	NA	NA	NA
Endosulfan (beta)	NA	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-96-3		SB-96-4		SB-96-5	
Depth (ft bls)	8-10'	18-20'	6-8'	22-24'	6-8'	8-10'
Sample Date	06/12/96	06/12/96	06/12/96	06/12/96	06/12/96	06/11/96
Sample ID	SB-96-3 (8-10')	SB-96-3 (18-20')	SB-96-4 (6-8')	SB-96-4 (22-24')	SB-96-5 (6-8')	SB-96-5 (8-10')
VOC						
1,2,4-Trimethylbenzene	<10	<10	<10	<10	NA	<10
1,2-Dichloroethene (total)	<10	<10	<10	<10	NA	<10
1,3,5-Trimethylbenzene	<10	<10	<10	<10	NA	<10
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	<100	<100	<100	<100	NA	<100
2-Hexanone	<100	<100	<100	<100	NA	<100
4-Methyl-2-pentanone (MIBK)	<100	<100	<100	<100	NA	<100
Acetone	<100	<100	<100	<100	NA	<100
Benzene	<10	<10	<10	<10	NA	<10
Carbon disulfide	<100	<100	<100	<100	NA	<100
Chlorobenzene	<10	<10	<10	<10	NA	<10
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA
Diethylether	NA	NA	NA	NA	NA	NA
Ethylbenzene	<10	<10	<10	<10	NA	<10
Isopropylbenzene	<10	<10	<10	<10	NA	<10
Methylene chloride	R	R	R	R	NA	<10
Naphthalene	NA	NA	NA	NA	NA	NA
n-Propylbenzene	<10	<10	<10	<10	NA	<10
Styrene	<10	<10	<10	<10	NA	<10
Tetrachloroethene	<10	<10	<10	<10	NA	<10
Toluene	<10	<10	<10	<10	NA	<10
Trichloroethene	<10	<10	<10	<10	NA	<10
Xylenes (total)	<30	<30	<30	<30	NA	<30
Xylenes, m+p	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-96-3		SB-96-4		SB-96-5	
Depth (ft bls)	8-10'	18-20'	6-8'	22-24'	6-8'	8-10'
Sample Date	06/12/96	06/12/96	06/12/96	06/12/96	06/12/96	06/11/96
Sample ID	SB-96-3 (8-10')	SB-96-3 (18-20')	SB-96-4 (6-8')	SB-96-4 (22-24')	SB-96-5 (6-8')	SB-96-5 (8-10')
SVOC						
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	<330	<330	<330	<330	NA	<330
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	<330	<330	<330	<330	NA	<330
2-Methylphenol	<330	<330	<330	<330	NA	<330
2-Nitrophenol	<330	<330	<330	<330	NA	<330
3,4-Dimethylphenol	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA
4-Methylphenol	<330	<330	<330	<330	NA	<330
Acenaphthene	<330	<330	<330	<330	NA	<330
bis(2-Ethylhexyl)phthalate	<330	<330	<330	<330	NA	<330
Butylbenzylphthalate	<330	<330	<330	<330	NA	<330
Dibenzofuran	<330	<330	<330	<330	NA	<330
Diethylphthalate	<330	<330	<330	<330	NA	<330
Di-n-butylphthalate	<330	<330	<330	<330	NA	<330
Di-n-octylphthalate	<330	<330	<330	<330	NA	<330
Fluoranthene	<330	<330	<330	<330	NA	<330
Fluorene	<330	<330	<330	<330	NA	<330
Naphthalene	<330	<330	<330	<330	NA	<330
Phenanthrene	<330	<330	<330	<330	NA	<330
Phenol	<330	<330	<330	<330	NA	<330
Pyrene	<330	<330	<330	<330	NA	<330

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-96-3		SB-96-4		SB-96-5	
Depth (ft bls)	8-10'	18-20'	6-8'	22-24'	6-8'	8-10'
Sample Date	06/12/96	06/12/96	06/12/96	06/12/96	06/12/96	06/11/96
Sample ID	SB-96-3 (8-10')	SB-96-3 (18-20')	SB-96-4 (6-8')	SB-96-4 (22-24')	SB-96-5 (6-8')	SB-96-5 (8-10')
Metals						
Aluminum	NA	NA	NA	NA	NA	NA
Antimony	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA
Barium	12,000	21,000	NA	NA	7,600	9,100
Beryllium	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA
Calcium	NA	NA	NA	NA	NA	NA
Chromium	8,200	5,100	NA	NA	9,000	9,000
Cobalt	NA	NA	NA	NA	NA	NA
Copper	12,000	18,000	NA	NA	12,000	16,000
Cyanide	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA
Lead	1,600	5,300	NA	NA	1,400	2,900
Magnesium	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	NA	NA	NA
Molybdenum	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA
Silver	NA	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA	NA
Titanium	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA
Zinc	9,500	4,500	NA	NA	12,000	13,000

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-96-3		SB-96-4		SB-96-5	
Depth (ft bls)	8-10'	18-20'	6-8'	22-24'	6-8'	8-10'
Sample Date	06/12/96	06/12/96	06/12/96	06/12/96	06/12/96	06/11/96
Sample ID	SB-96-3 (8-10')	SB-96-3 (18-20')	SB-96-4 (6-8')	SB-96-4 (22-24')	SB-96-5 (6-8')	SB-96-5 (8-10')
Pest/PCBs						
Chlordane (gamma)	NA	NA	NA	NA	NA	NA
Endosulfan (alpha)	NA	NA	NA	NA	NA	NA
Endosulfan (beta)	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	NA	NA	NA	NA	NA	NA
Total Organic Carbon	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-96-5		SB-96-6		SB-96-7	
Depth (ft bls)	18-20'	22-24'	6-8'	24-26'	6-8'	16-18'
Sample Date	06/11/96	06/12/96	06/12/96	06/12/96	06/10/96	06/10/96
Sample ID	SB-96-5 (18-20')	SB-96-5 (22-24')	SB-96-6 (6-8')	SB-96-6 (24-26')	SB-96-7 (6-8')	SB-96-7 (16-18')
VOC						
1,2,4-Trimethylbenzene	<10	NA	<10	<10	<10	28
1,2-Dichloroethene (total)	<10	NA	<10	<10	<10	<10
1,3,5-Trimethylbenzene	<10	NA	<10	<10	<10	<10
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	<100	NA	<100	<100	<100	<100
2-Hexanone	<100	NA	<100	<100	<100	<100
4-Methyl-2-pentanone (MIBK)	<100	NA	<100	<100	<100	<100
Acetone	<100	NA	<100	<100	<100	<100
Benzene	<10	NA	<10	<10	<10	<10
Carbon disulfide	<100	NA	<100	<100	<100	<100
Chlorobenzene	<10	NA	<10	<10	<10	<10
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA
Diethylether	NA	NA	NA	NA	NA	NA
Ethylbenzene	<10	NA	<10	<10	<10	<10
Isopropylbenzene	<10	NA	<10	<10	<10	<10
Methylene chloride	<10	NA	R	R	<10	44
Naphthalene	NA	NA	NA	NA	NA	NA
n-Propylbenzene	<10	NA	<10	<10	<10	<10
Styrene	<10	NA	<10	<10	<10	<10
Tetrachloroethene	<10	NA	<10	<10	<10	<10
Toluene	20	NA	11	<10	<10	<10
Trichloroethene	<10	NA	<10	<10	<10	<10
Xylenes (total)	<30	NA	<30	<30	<30	<30
Xylenes, m+p	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-96-5		SB-96-6		SB-96-7	
Depth (ft bls)	18-20'	22-24'	6-8'	24-26'	6-8'	16-18'
Sample Date	06/11/96	06/12/96	06/12/96	06/12/96	06/10/96	06/10/96
Sample ID	SB-96-5 (18-20')	SB-96-5 (22-24')	SB-96-6 (6-8')	SB-96-6 (24-26')	SB-96-7 (6-8')	SB-96-7 (16-18')
SVOC						
2,3-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	<330	NA	<1,800 *	<330	<330	<330
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,6-Dimethylphenol	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	<330	NA	<1,800 *	<330	<330	<330
2-Methylphenol	<330	NA	<1,800 *	<330	<330	<330
2-Nitrophenol	<330	NA	<1,800 *	<330	<330	<330
3,4-Dimethylphenol	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA
4-Methylphenol	<330	NA	<1,800 *	<330	<330	<330
Acenaphthene	<330	NA	<1,800 *	<330	<330	<330
bis(2-Ethylhexyl)phthalate	<330	NA	<1,800 *	<330	<330	630
Butylbenzylphthalate	<330	NA	<1,800 *	<330	<330	<330
Dibenzofuran	<330	NA	<1,800 *	<330	<330	<330
Diethylphthalate	<330	NA	<1,800 *	<330	<330	<330
Di-n-butylphthalate	<330	NA	<1,800 *	<330	<330	<330
Di-n-octylphthalate	<330	NA	<1,800 *	<330	<330	<330
Fluoranthene	<330	NA	<1,800 *	<330	<330	<330
Fluorene	<330	NA	<1,800 *	<330	<330	<330
Naphthalene	<330	NA	<1,800 *	<330	<330	<330
Phenanthrene	<330	NA	<1,800 *	<330	<330	<330
Phenol	<330	NA	<1,800 *	<330	<330	<330
Pyrene	<330	NA	<1,800 *	<330	<330	<330

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-96-5		SB-96-6		SB-96-7	
Depth (ft bls)	18-20'	22-24'	6-8'	24-26'	6-8'	16-18'
Sample Date	06/11/96	06/12/96	06/12/96	06/12/96	06/10/96	06/10/96
Sample ID	SB-96-5 (18-20')	SB-96-5 (22-24')	SB-96-6 (6-8')	SB-96-6 (24-26')	SB-96-7 (6-8')	SB-96-7 (16-18')
Metals						
Aluminum	NA	NA	NA	NA	NA	NA
Antimony	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA
Barium	16,000	11,000	12,000	23,000	21,000	8,300
Beryllium	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA
Calcium	NA	NA	NA	NA	NA	NA
Chromium	8,100	6,700	9,600	10,000	9,000	7,700
Cobalt	NA	NA	NA	NA	NA	NA
Copper	11,000	12,000	17,000	17,000	12,000	10,000
Cyanide	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA
Lead	5,600	6,600	1,900	4,500	9,200	1,500
Magnesium	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	NA	NA	NA
Molybdenum	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA
Silver	NA	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA	NA
Titanium	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA
Zinc	12,000	6,600	14,000	19,000	14,000	10,000

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-96-5		SB-96-6		SB-96-7	
Depth (ft bls)	18-20'	22-24'	6-8'	24-26'	6-8'	16-18'
Sample Date	06/11/96	06/12/96	06/12/96	06/12/96	06/10/96	06/10/96
Sample ID	SB-96-5 (18-20')	SB-96-5 (22-24')	SB-96-6 (6-8')	SB-96-6 (24-26')	SB-96-7 (6-8')	SB-96-7 (16-18')
Pest/PCBs						
Chlordane (gamma)	NA	NA	NA	NA	NA	NA
Endosulfan (alpha)	NA	NA	NA	NA	NA	NA
Endosulfan (beta)	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	NA	NA	NA	NA	NA	NA
Total Organic Carbon	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-96-8	SB-96-9	TP-32		
Depth (ft bls)	NA	NA	4'	Residential	Commerical
Sample Date	06/14/96	06/14/96	03/06/02	Drinking Water	Ambient Air
Sample ID	SB-96-8	SB-96-9	TP-32/4'	Protection	Inhalation
VOC					
1,2,4-Trimethylbenzene	<10	<10	340	2,100 (I)	25,000,000 (I)
1,2-Dichloroethene (total)	<10	<10	<180	NA	NA
1,3,5-Trimethylbenzene	<10	<10	110 J	1,800 (I)	19,000,000 (I)
1,3-Dichlorobenzene	NA	NA	<180	170	ID
1,4-Dichlorobenzene	NA	NA	<180	1,700	260,000
2-Butanone (MEK)	<100	<100	26,000	260,000 (MEK) (I)	35,000,000 (MEK) (I)
2-Hexanone	<100	<100	<4,600	20,000	1,300,000
4-Methyl-2-pentanone (MIBK)	<100	<100	<4,600	36,000 (MIBK) (I)	53,000,000 (MIBK) (I)
Acetone	<100	<100	1,600 JB	15,000 (I)	160,000,000 (I)
Benzene	<10	<10	$\boxed{1,300}$	100 (I)	45,000 (I)
Carbon disulfide	<100	<100	<460	R	R
Chlorobenzene	<10	<10	<92	2,000 (I)	920,000 (I)
cis-1,2-Dichloroethene	NA	NA	<92	1,400	210,000
Diethylether	NA	NA	$\boxed{1,600 J}$	200	100,000,000
Ethylbenzene	<10	<10	250	1,500 (I)	2,400,000 (I)
Isopropylbenzene	<10	<10	17 J	91,000	2,000,000
Methylene chloride	<10	R	<460	100	700,000
Naphthalene	NA	NA	NA	35,000	350,000
n-Propylbenzene	<10	<10	99 J	1,600 (I)	(I) ID
Styrene	<10	<10	<92	2,700	3,300,000
Tetrachloroethene	<10	<10	<92	100	600,000
Toluene	<10	<10	1,100	16,000 (I)	3,300,000 (I)
Trichloroethene	<10	<10	<92	100	260,000
Xylenes (total)	<30	<30	1,000	5,600 (I) J	54,000,000 (I)
Xylenes, m+p	NA	NA	NA	5,600 (I) J	54,000,000 (I)

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-96-8	SB-96-9	TP-32		
Depth (ft bls)	NA	NA	4'	Residential	Commerical
Sample Date	06/14/96	06/14/96	03/06/02	Drinking Water	Ambient Air
Sample ID	SB-96-8	SB-96-9	TP-32/4'	Protection	Inhalation
SVOC					
2,3-Dimethylphenol	NA	NA	<3,000	NA	NA
2,4-Dimethylphenol	<330	<330	NA	7,400	NLV
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	<3,000	7,400	NLV
2,6-Dimethylphenol	NA	NA	<3,000	330 M	NLV
2-Methylnaphthalene	<330	<330	950 J	57,000	ID
2-Methylphenol	<330	<330	<3,000	7,400 (J)	(J) NLV
2-Nitrophenol	<330	<330	<6,200	400	NLV
3,4-Dimethylphenol	NA	NA	<3,000	330 M	NLV
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	<3,000	7,400 (J)	(J) NLV
4-Methylphenol	<330	<330	NA	7,400 (J)	(J) NLV
Acenaphthene	<330	<330	<3,000	300,000	97,000,000
bis(2-Ethylhexyl)phthalate	<330	<330	<3,000	NLL	NLV
Butylbenzylphthalate	<330	<330	<3,000	310,000 C	NLV
Dibenzofuran	<330	<330	320 J	ID	ID
Diethylphthalate	<330	<330	<3,000	110,000	NLV
Di-n-butylphthalate	<330	<330	<3,000	760,000 C	NLV
Di-n-octylphthalate	<330	<330	<3,000	100,000,000	NLV
Fluoranthene	<330	<330	<3,000	730,000	890,000,000
Fluorene	<330	<330	<3,000	390,000	150,000,000
Naphthalene	<330	<330	290 J	35,000	350,000
Phenanthrene	<330	<330	290 J	56,000	190,000
Phenol	<330	<330	<3,000	88,000	NLV
Pyrene	<330	<330	<3,000	480,000	780,000,000

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-96-8	SB-96-9	TP-32		
Depth (ft bls)	NA	NA	4'	Residential	Commerical
Sample Date	06/14/96	06/14/96	03/06/02	Drinking Water	Ambient Air
Sample ID	SB-96-8	SB-96-9	TP-32/4'	Protection	Inhalation
Metals					
Aluminum	NA	NA	$\boxed{1,000,000}$	1,000 (B)	(B) NLV
Antimony	NA	NA	<4,200 N	4,300	NLV
Arsenic	NA	NA	1,000 N*	4,600	NLV
Barium	15,000	88,000	160,000	1,300,000 (B)	(B) NLV
Beryllium	NA	NA	190 B	51,000	NLV
Cadmium	NA	NA	270	6,000 (B)	(B) NLV
Calcium	NA	NA	130,000,000	NA	NA
Chromium	12,000	28,000	6,000	30,000 (*VI)	(*VI) NLV
Cobalt	NA	NA	520 B	800	NLV
Copper	18,000	36,000	310,000	5,800,000 (B)	(B) NLV
Cyanide	NA	NA	NA	R	R
Iron	NA	NA	$\boxed{2,200,000 *}$	6,000 (B)	(B) NLV
Lead	2,600	9,700	70,000	700,000 (B)	(B) NLV
Magnesium	NA	NA	310,000 N	8,000,000 (B)	(B) NLV
Manganese	NA	NA	$\boxed{110,000 N}$	1,000 (B)	(B) NLV
Mercury	NA	NA	99	1,700 (B,Z) (total)	62,000 (B,Z) (total)
Molybdenum	NA	NA	<840	1,500 (B)	(B) NLV
Nickel	NA	NA	2,200	100,000 (B)	(B) NLV
Potassium	NA	NA	190,000	NA	NA
Selenium	NA	NA	<3,700 W	4,000 (B)	(B) NLV
Silver	NA	NA	150 B	4,500 (B)	(B) NLV
Sodium	NA	NA	190,000	2,500,000	NLV
Titanium	NA	NA	160,000	NA	NA
Vanadium	NA	NA	3,200	72,000	NLV
Zinc	20,000	46,000	33,000 E	2,400,000 (B)	(B) NLV

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-96-8	SB-96-9	TP-32		
Depth (ft bls)	NA	NA	4'	Residential	Commerical
Sample Date	06/14/96	06/14/96	03/06/02	Drinking Water	Ambient Air
Sample ID	SB-96-8	SB-96-9	TP-32/4'	Protection	Inhalation
Pest/PCBs					
Chlordane (gamma)	NA	NA	NA	(J) NLL	4,200,000 (J)
Endosulfan (alpha)	NA	NA	NA	(J) NLL	(J) ID
Endosulfan (beta)	NA	NA	NA	(J) NLL	(J) ID
Heptachlor epoxide	NA	NA	NA	NLL	NLV
Total Organic Carbon	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Depth (ft bls) Sample Date Sample ID	Commerical Direct Contact	Commerical Indoor Air Inhalation
VOC		
1,2,4-Trimethylbenzene	110,000 (I) C	110,000 (I) C
1,2-Dichloroethene (total)	NA	NA
1,3,5-Trimethylbenzene	94,000 (I) C	94,000 (I) C
1,3-Dichlorobenzene	170,000 C	ID
1,4-Dichlorobenzene	1,900,000	100,000
2-Butanone (MEK)	27,000,000 (MEK) (I) C,DD	27,000,000 (MEK) (I) C
2-Hexanone	2,500,000 C	1,800,000
4-Methyl-2-pentanone (MIBK)	2,700,000 (MIBK) (I) C	2,700,000 (MIBK) (I) C
Acetone	73,000,000 (I)	110,000,000 (I) C
Benzene	400,000 (I) C	8,400 (I)
Carbon disulfide	R	R
Chlorobenzene	260,000 (I) C	220,000 (I)
cis-1,2-Dichloroethene	640,000 C	41,000
Diethylether	7,400,000 C	7,400,000 C
Ethylbenzene	140,000 (I) C	140,000 (I) C
Isopropylbenzene	390,000 C	390,000 C
Methylene chloride	2,300,000 C	240,000
Naphthalene	52,000,000	470,000
n-Propylbenzene	8,000,000 (I)	(I) ID
Styrene	520,000 C	520,000 C
Tetrachloroethene	88,000 C	60,000
Toluene	250,000 (I) C	250,000 (I) C
Trichloroethene	500,000 C,DD	37,000
Xylenes (total)	150,000 (I) C	150,000 (I) C J
Xylenes, m+p	150,000 (I) C	150,000 (I) C J

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Depth (ft bls) Sample Date Sample ID	Commerical Direct Contact	Commerical Indoor Air Inhalation
SVOC		
2,3-Dimethylphenol	NA	NA
2,4-Dimethylphenol	36,000,000	NLV
2,4-Dimethylphenol/2,5-Dimethylphenol	36,000,000	NLV
2,6-Dimethylphenol	440,000	NLV
2-Methylnaphthalene	26,000,000	ID
2-Methylphenol	36,000,000 (J)	(J) NLV
2-Nitrophenol	2,000,000	NLV
3,4-Dimethylphenol	1,000,000	NLV
3-Methylphenol/4-Methylphenol(m&p-cresol)	36,000,000 (J)	(J) NLV
4-Methylphenol	36,000,000 (J)	(J) NLV
Acenaphthene	130,000,000	350,000,000
bis(2-Ethylhexyl)phthalate	10,000,000 C	NLV
Butylbenzylphthalate	310,000 C	NLV
Dibenzofuran	ID	ID
Diethylphthalate	740,000 C	NLV
Di-n-butylphthalate	760,000 C	NLV
Di-n-octylphthalate	20,000,000	NLV
Fluoranthene	130,000,000	1,000,000,000 D
Fluorene	87,000,000	1,000,000,000 D
Naphthalene	52,000,000	470,000
Phenanthrene	5,200,000	5,100,000
Phenol	12,000,000 C,DD	NLV
Pyrene	84,000,000	1,000,000,000 D

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Depth (ft bls) Sample Date Sample ID	Commerical Direct Contact	Commerical Indoor Air Inhalation
Metals		
Aluminum	370,000,000 (B) DD	(B) NLV
Antimony	670,000	NLV
Arsenic	37,000	NLV
Barium	130,000,000 (B)	(B) NLV
Beryllium	1,600,000	NLV
Cadmium	2,100,000 (B)	(B) NLV
Calcium	NA	NA
Chromium	9,200,000 (*VI)	(*VI) NLV
Cobalt	9,000,000	NLV
Copper	73,000,000 (B)	(B) NLV
Cyanide	R	R
Iron	580,000,000 (B)	(B) NLV
Lead	900,000 (B) DD	(B) NLV
Magnesium	1,000,000,000 (B) D	(B) NLV
Manganese	90,000,000 (B)	(B) NLV
Mercury	580,000 (B,Z) (total)	89,000 (B,Z) (total)
Molybdenum	9,600,000 (B)	(B) NLV
Nickel	150,000,000 (B)	(B) NLV
Potassium	NA	NA
Selenium	9,600,000 (B)	(B) NLV
Silver	9,000,000 (B)	(B) NLV
Sodium	1,000,000,000 D	NLV
Titanium	NA	NA
Vanadium	5,500,000 DD	NLV
Zinc	630,000,000 (B)	(B) NLV

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Depth (ft bls) Sample Date Sample ID	Commerical Direct Contact	Commerical Indoor Air Inhalation
Pest/PCBs		
Chlordane (gamma)	150,000 (J)	59,000,000 (J)
Endosulfan (alpha)	4,400,000 (J)	(J) ID
Endosulfan (beta)	4,400,000 (J)	(J) ID
Heptachlor epoxide	9,500	NLV
Total Organic Carbon	NA	NA

Footnotes on Page 56.

Table 6-30. Summary of Constituents Detected in Subsurface Soil Samples Collected in the Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Results in micrograms per kilogram (µg/Kg).

*	LCS or LCSD exceeds the control limit.
<	Less than the laboratory method detection limit.
$\boxed{}$	Indicates a value above the Final Chronic Value (Operational Memorandum #1, January 23, 2006).
A	Non target compound is a suspected aldol-condensation product.
B	Constituent was also detected in laboratory blank.
E	Analyte was detected at a concentration greater than the calibration range, and is therefore estimated.
ft bls	Feet below land surface.
J	Estimated result.
MBD	This analyte is present in the associated method blank at an amount that is less than two times the reporting limit.
N	Presumptive evidence of compound was identified (TICs only).
P	Greater than 25% RPD between two columns for pesticide or PCB.
R	Rejected result.
S	Value was determined by Method of Standard Additions.
W	Post-digestion spike for furnace A-A analysis is out of control limits while sample absorbance is less than 50% of spike absorbance.
Wa	Matrix interference reported by laboratory.

State of Michigan Criteria Footnotes:

B	Background may be substituted if higher than the calculated cleanup criteria.
C	Value presented is a screening level based on the chemical specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat.
D	Calculated criterion exceeds 100%, therefore it is reduced to 100%.
DD	Hazardous substance causes developmental effects.
I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.
J	Chemical may be present in several isomer forms. Isomer specific concentrations must be added together for comparison to criteria.
M	Calculated criterion is below the analytical method detection limit (MDL).
NA	Criterion or values is not available.
NLL	Chemical is not likely to leach under most soil conditions.
NLV	Chemical is not likely to volatilize under most soil conditions.
R	Chemical may exhibit characteristic of reactivity.
*VI	Standard for Chromium VI.
Z	Data for mercuric chloride serves as the basis for drinking water, groundwater contact, soil direct contact and the groundwater protection criteria.

Table 6-31. Summary of Radioactive Isotopes Detected in Waste Samples from the Former Northeast and Southwest Pits, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-35	GMSB-36	GMSB-37	GMSB-38	GMSB-40		GMSB-48/22
Depth (ft bls)	22	12	10	7	12	23	22
Sample Date	10/20/99	10/20/99	10/21/99	10/21/99	10/21/99	10/21/99	10/22/99
Sample ID	GMSB-35/22	GMSB-36/12	GMSB-37/10	GMSB-38/7	GMSB-40/12	GMSB-40/23	GMSB-48/22
Area	NE Pit	NE Pit	NE Pit	NE Pit	NE Pit	NE Pit	SW Pit
Ac-228	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ra-226	0.38	0.57	0.19	0.91	-0.03	1.18	0.44
U-234	0.31	0.29	0.30	0.29	0.15	0.41	0.26
U-235	0.02	0.07	0.03	0.00	-0.01	0.08	0.02
U-238	0.29	0.26	0.22	0.17	0.1	0.37	0.14

Results are in picrocuries per gram (pCi/g).

1 Environmental Protection Agency document "Radiation Site Cleanup Regulations: Technical Support Document For The Development of Radionuclide Cleanup Levels for Soil - Review Draft" September 1994 EPA 402-R-96-011A.

2 Oak Ridge National Laboratory document "State Background Radiation Levels: Results of Measurements Taken During 1975-1979. ORNL/TM-7343

( ) Typical values.

? As present in source document.

\- Negative value.

ft bls Feet below land surface.

Table 6-31. Summary of Radioactive Isotopes Detected in Waste Samples from the Former Northeast and Southwest Pits, Ford-Kingsford Products Facility, Kingsford, Michgian.

Well/Boring Depth (ft bls) Sample Date Sample ID Area	Range Background Levels EPA [(1)]	Range Background Levels Michigan [(2)]	Fernald Cincinnati [(1)]	Weldon Springs St Louis [(2)]
Ac-228	--	--	--	--
Ra-226	0.23-4.2 (1.0)	0.46-2.0	0.59-2.5	0.31-1.4
U-234	0.12-3.8 (0.96)	--	?-2.1	--
U-235	0.001-0.03 (0.007)	--	0.04-0.11	--
U-238	0.12-3.8 (0.96)	0.34-1.2	0.68-2.2	0.33-1.7

Results are in picrocuries per gram (pCi/g).

1 Environmental Protection Agency document "Radiation Site Cleanup Regulations: Technical Support Document For The Development of Radionuclide Cleanup Levels for Soil - Review Draft" September 1994 EPA 402-R-96-011A.

2 Oak Ridge National Laboratory document "State Background Radiation Levels: Results of Measurements Taken During 1975-1979. ORNL/TM-7343

( ) Typical values.

? As present in source document.

\- Negative value.

ft bls Feet below land surface.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1	GMSB-2	GMSB-4	GMSB-34
Depth (ft bls)	0-31.5	5-25	5	6
Sample Date	5/16/1997	5/17/1997	6/3/1997	10/20/1999
Sample I.D.	GMSB-1 COMPOSITE (TCLP)	GMSB-2/0525 (TCLP)	GMSB-4/5-25 (TCLP)	GMSB-34/6 (SPLP)
Location	NE Pit	SW Pit	Riverside Disposal	NE Pit
Type	Wood/Charcoal	Wood/Charcoal	Wood/Charcoal	Wood
VOC				
1,2,4-Trimethylbenzene	NA	NA	NA	<1.0
1,3,5-Trimethylbenzene	NA	NA	NA	<1.0
1,4-Dichlorobenzene	NA	NA	NA	<1.0
2-Butanone (MEK)	NA	NA	NA	26 J
2-Hexanone	NA	NA	NA	<50
4-Methyl-2-pentanone (MIBK)	NA	NA	NA	<50
Acetone	NA	NA	NA	<100
Benzene	NA	NA	NA	<1.0
Carbon disulfide	NA	NA	NA	<5.0
Chloromethane	NA	NA	NA	<1.0
Ethylbenzene	NA	NA	NA	<1.0
Ethylene oxide	NA	NA	NA	R
Isopropylbenzene	NA	NA	NA	<1.0
Methylene chloride	NA	NA	NA	<1.0
Methylethylketone	NA	NA	NA	NA
n-Propylbenzene	NA	NA	NA	<1.0
Styrene	NA	NA	NA	<1.0
Tetrachloroethene	NA	NA	NA	<1.0
Toluene	NA	NA	NA	<1
Trichloroethene	NA	NA	NA	<1.0
Xylenes (total)	NA	NA	NA	<3.0
SVOC				
2,4-Dimethylphenol	NA	NA	NA	11
2-Methylphenol	2,800	7.8 J	<50	9.3
2-Nitroaniline	NA	NA	NA	<20
2-Picoline	NA	NA	NA	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	<5.0

Footnotes on Page 3.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1	GMSB-2	GMSB-4	GMSB-34
Depth (ft bls)	0-31.5	5-25	5	6
Sample Date	5/16/1997	5/17/1997	6/3/1997	10/20/1999
Sample I.D.	GMSB-1 COMPOSITE (TCLP)	GMSB-2/0525 (TCLP)	GMSB-4/5-25 (TCLP)	GMSB-34/6 (SPLP)
Location	NE Pit	SW Pit	Riverside Disposal	NE Pit
Type	Wood/Charcoal	Wood/Charcoal	Wood/Charcoal	Wood
SVOC (continued)				
4-Methylphenol	3,300	<50	<50	NA
Cresols (total)	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	<5.0
Phenol	NA	NA	NA	<5.0
Metals				
Aluminum	NA	NA	NA	95 B
Arsenic	NA	NA	NA	<10
Barium	NA	NA	NA	19
Calcium	NA	NA	NA	91,000
Chromium	NA	NA	NA	<10
Cobalt	NA	NA	NA	<10
Copper	NA	NA	NA	7.7 B
Iron	NA	NA	NA	58
Lead	NA	NA	NA	<5.0
Magnesium	NA	NA	NA	810
Manganese	NA	NA	NA	53
Molybdenum	NA	NA	NA	6.2 B
Nickel	NA	NA	NA	<40
Potassium	NA	NA	NA	550 B
Sodium	NA	NA	NA	1,500
Titanium	NA	NA	NA	6.6 B
Vanadium	NA	NA	NA	1.4 B
Zinc	NA	NA	NA	4.3 B
Alcohols				
1-Propanol	NA	NA	NA	<1,000
Ethanol	NA	NA	NA	<1,000

Footnotes on Page 3.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-1	GMSB-2	GMSB-4	GMSB-34
Depth (ft bls)	0-31.5	5-25	5	6
Sample Date	5/16/1997	5/17/1997	6/3/1997	10/20/1999
Sample I.D.	GMSB-1 COMPOSITE (TCLP)	GMSB-2/0525 (TCLP)	GMSB-4/5-25 (TCLP)	GMSB-34/6 (SPLP)
Location	NE Pit	SW Pit	Riverside Disposal	NE Pit
Type	Wood/Charcoal	Wood/Charcoal	Wood/Charcoal	Wood
Alcohols (continued)				
Ethylacetate	NA	NA	NA	<5,000
Methanol	NA	NA	NA	4,300 J
n-Butanol	NA	NA	NA	<1,000
Aldehydes				
Acetaldehyde	NA	NA	NA	<100
Formaldehyde	NA	NA	NA	<100
Hexanal	NA	NA	NA	<100
m-Tolualdehyde	NA	NA	NA	<100
Pentanal	NA	NA	NA	<100
Propanal	NA	NA	NA	<100
Acetic Acid	NA	NA	NA	<2,500
Chemical Oxygen Demand	800,000	34,000 J	30,000	NA
Total Organic Carbon	720,000	26,000	7,000	24,000

Results in micrograms per liter (µg/L).

<	Less than the laboratory method detection limit.
B	Constituent was also detected in laboratory blank.
D	Result was obtained from analysis of a dilution.
ft bls	Feet below land surface.
J	Estimated results.
NA	Not analyzed.
R	Rejected results.
SPLP	Synthetic Precipitation Leaching Procedure.
SVOC	Semi-Volatile Organic Compounds.
TCLP	Toxicity Characteristic Leaching Procedure.
VOC	Volatile Organic Compounds.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-34 (continued)	GMSB-35		
Depth (ft bls)	6	22	22	22
Sample Date	10/20/1999	10/20/1999	10/20/1999	10/20/1999
Sample I.D.	GMSB-34/6 (TCLP)	GMSB-35/22 (SPLP)	GMSB-35/22 (TCLP)	GMSB-35/22 - DL (TCLP)
Location	NE Pit	NE Pit	NE Pit	NE Pit
Type	Wood	Sludge	Sludge	Sludge
VOC				
1,2,4-Trimethylbenzene	<4	80	78	75 D
1,3,5-Trimethylbenzene	<4	<25	17	16 D
1,4-Dichlorobenzene	<4	<25	<4	<10
2-Butanone (MEK)	<200	12,000	7,600 D	7,600 D
2-Hexanone	<200	1,100 J	950	1,100 D
4-Methyl-2-pentanone (MIBK)	<200	<1200	<200	<500
Acetone	<400	6,400	5,400 D	5,400 D
Benzene	<4	43	44	<10
Carbon disulfide	<20	<120	<20	<50
Chloromethane	<4	<25	<4	<10
Ethylbenzene	<4	37	35	34 D
Ethylene oxide	R	R	R	R
Isopropylbenzene	<4	<25	<4	<10
Methylene chloride	<4	<25	<4	<50
Methylethylketone	NA	NA	NA	NA
n-Propylbenzene	<4	<25	<4	<10
Styrene	<4	28	25	<10
Tetrachloroethene	<4	<25	<4	<10
Toluene	<4	150	140	150 D
Trichloroethene	<4	<25	<4	<10
Xylenes (total)	<12	260	260	250 D
SVOC				
2,4-Dimethylphenol	<25	190	420	NA
2-Methylphenol	<25	240	930	NA
2-Nitroaniline	<100	<100	3,100	NA
2-Picoline	<50	<50	<500	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<25	280	1,100	NA

Footnotes on Page 6.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-34 (continued)	GMSB-35		
Depth (ft bls)	6	22	22	22
Sample Date	10/20/1999	10/20/1999	10/20/1999	10/20/1999
Sample I.D.	GMSB-34/6 (TCLP)	GMSB-35/22 (SPLP)	GMSB-35/22 (TCLP)	GMSB-35/22 - DL (TCLP)
Location	NE Pit	NE Pit	NE Pit	NE Pit
Type	Wood	Sludge	Sludge	Sludge
SVOC (continued)				
4-Methylphenol	NA	NA	NA	NA
Cresols (total)	NA	NA	NA	NA
Dibenzofuran	<25	<25	<250	NA
Phenol	<25	250	1,600	NA
Metals				
Aluminum	<2,000	120 B	<2,000	NA
Arsenic	<200	<10	<200	NA
Barium	<1,000	46	<1,000	NA
Calcium	290,000	1,300,000	1,400,000	NA
Chromium	<200	<10	<200	NA
Cobalt	<100	<10	<100	NA
Copper	<200	110	<200	NA
Iron	570	42 B	1,400	NA
Lead	<200	2.6 B	<200	NA
Magnesium	17,000	40 B	32,000	NA
Manganese	740	6.6 B	3,300	NA
Molybdenum	<100	2.2 B	<100	NA
Nickel	<400	<40	<400	NA
Potassium	<10,000	1,000	<10,000	NA
Sodium	NA	100,000	NA	NA
Titanium	<100	3.1 B	<100	NA
Vanadium	<100	1.1 B	<100	NA
Zinc	<200	5.1 B	<200	NA
Alcohols				
1-Propanol	<1,000	<1,000	2,600	NA
Ethanol	<1,000	5,800	5,400	NA

Footnotes on Page 6.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-34 (continued)	GMSB-35		
Depth (ft bls)	6	22	22	22
Sample Date	10/20/1999	10/20/1999	10/20/1999	10/20/1999
Sample I.D.	GMSB-34/6 (TCLP)	GMSB-35/22 (SPLP)	GMSB-35/22 (TCLP)	GMSB-35/22 - DL (TCLP)
Location	NE Pit	NE Pit	NE Pit	NE Pit
Type	Wood	Sludge	Sludge	Sludge
Alcohols (continued)				
Ethylacetate	<5,000	<5,000	16,000	NA
Methanol	7,100 J	57,000 J	55,000 J	NA
n-Butanol	R	1,400	<1,000	NA
Aldehydes				
Acetaldehyde	<100	950	800	NA
Formaldehyde	<100	<200	<200	NA
Hexanal	<100	<200	<200	NA
m-Tolualdehyde	<100	<200	<200	NA
Pentanal	<100	<200	<200	NA
Propanal	<100	<200	<200	NA
Acetic Acid	NA	870,000	NA	NA
Chemical Oxygen Demand	NA	NA	NA	NA
Total Organic Carbon	NA	1,800,000	NA	NA

Results in micrograms per liter (µg/L).

<	Less than the laboratory method detection limit.
B	Constituent was also detected in laboratory blank.
D	Result was obtained from analysis of a dilution.
ft bls	Feet below land surface.
J	Estimated results.
NA	Not analyzed.
R	Rejected results.
SPLP	Synthetic Precipitation Leaching Procedure.
SVOC	Semi-Volatile Organic Compounds.
TCLP	Toxicity Characteristic Leaching Procedure.
VOC	Volatile Organic Compounds.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-36		GMSB-37	
Depth (ft bls)	12	12	10	10
Sample Date	10/20/1999	10/20/1999	10/21/1999	10/21/1999
Sample I.D.	GMSB-36/12 (SPLP)	GMSB-36/12 (TCLP)	GMSB-37/10 (SPLP)	GMSB-37/10 (TCLP)
Location	NE Pit	NE Pit	NE Pit	NE Pit
Type	Sludge	Sludge	Tar	Tar
VOC				
1,2,4-Trimethylbenzene	NA	34	13	12
1,3,5-Trimethylbenzene	NA	8	<4.0	2.4 J
1,4-Dichlorobenzene	NA	<4	<4.0	<4
2-Butanone (MEK)	NA	2,100	2,200	850
2-Hexanone	NA	230	280	120 J
4-Methyl-2-pentanone (MIBK)	NA	200	<200	<200
Acetone	NA	1,800	2,000	910
Benzene	NA	110	32	23
Carbon disulfide	NA	<20	<20	<20
Chloromethane	NA	<4	<4.0	<4
Ethylbenzene	NA	38	9.6	9.7
Ethylene oxide	NA	R	R	R
Isopropylbenzene	NA	<4	<4.0	<4
Methylene chloride	NA	<4	28	<4
Methylethylketone	NA	NA	NA	NA
n-Propylbenzene	NA	<4	<4.0	<4
Styrene	NA	<4	<4.0	4.8
Tetrachloroethene	NA	<4	7.3	<4
Toluene	NA	170	66	59
Trichloroethene	NA	<4	<4.0	<4
Xylenes (total)	NA	210	58	55
SVOC				
2,4-Dimethylphenol	NA	4,200	780	5,300
2-Methylphenol	NA	6,800	1,200	7,400
2-Nitroaniline	NA	2,100	230	1,400
2-Picoline	NA	<500	<100	<500
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	7,800	1,900	11,000

Footnotes on Page 9.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-36		GMSB-37	
Depth (ft bls)	12	12	10	10
Sample Date	10/20/1999	10/20/1999	10/21/1999	10/21/1999
Sample I.D.	GMSB-36/12 (SPLP)	GMSB-36/12 (TCLP)	GMSB-37/10 (SPLP)	GMSB-37/10 (TCLP)
Location	NE Pit	NE Pit	NE Pit	NE Pit
Type	Sludge	Sludge	Tar	Tar
SVOC (continued)				
4-Methylphenol	NA	NA	NA	NA
Cresols (total)	NA	NA	NA	NA
Dibenzofuran	NA	<250	190	<250
Phenol	NA	9,300	1,900	11,000
Metals				
Aluminum	NA	<2,000	260	<2,000
Arsenic	NA	<200	4.1 B	<200
Barium	NA	<1,000	50	<1,000
Calcium	NA	1,100,000	240,000	340,000
Chromium	NA	<200	0.87 B	<200
Cobalt	NA	<100	<10	<100
Copper	NA	<200	16 B	<200
Iron	NA	1,300	820	2,000
Lead	NA	<200	4.9 B	<200
Magnesium	NA	23,000	8,400	12,000
Manganese	NA	1,900	310	440
Molybdenum	NA	<100	<10	<100
Nickel	NA	<400	4.9 B	<400
Potassium	NA	<10,000	120 B	<10,000
Sodium	NA	NA	8,000	NA
Titanium	NA	<100	0.55 B	<100
Vanadium	NA	<100	<10	<100
Zinc	NA	<200	76	<200
Alcohols				
1-Propanol	NA	870 J	<1,000	<1,000
Ethanol	NA	32,000	3,200	<1,000

Footnotes on Page 9.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-36		GMSB-37	
Depth (ft bls)	12	12	10	10
Sample Date	10/20/1999	10/20/1999	10/21/1999	10/21/1999
Sample I.D.	GMSB-36/12 (SPLP)	GMSB-36/12 (TCLP)	GMSB-37/10 (SPLP)	GMSB-37/10 (TCLP)
Location	NE Pit	NE Pit	NE Pit	NE Pit
Type	Sludge	Sludge	Tar	Tar
Alcohols (continued)				
Ethylacetate	NA	2,600 J	1,000 J	<5,000
Methanol	NA	33,000 J	33,000 J	17,000 J
n-Butanol	NA	R	<1,000	R
Aldehydes				
Acetaldehyde	NA	2,000	4,000	120
Formaldehyde	NA	<200	<1,000	140
Hexanal	NA	<200	<1,000	100
m-Tolualdehyde	NA	<200	1,000	220
Pentanal	NA	<200	<1,000	340
Propanal	NA	<200	<1,000	230
Acetic Acid	720,000	NA	120,000	NA
Chemical Oxygen Demand	NA	NA	NA	NA
Total Organic Carbon	NA	NA	2,000,000	NA

Results in micrograms per liter (µg/L).

<	Less than the laboratory method detection limit.
B	Constituent was also detected in laboratory blank.
D	Result was obtained from analysis of a dilution.
ft bls	Feet below land surface.
J	Estimated results.
NA	Not analyzed.
R	Rejected results.
SPLP	Synthetic Precipitation Leaching Procedure.
SVOC	Semi-Volatile Organic Compounds.
TCLP	Toxicity Characteristic Leaching Procedure.
VOC	Volatile Organic Compounds.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-38		GMSB-40		GMSB-41
Depth (ft bls)	7	7	12	12	8
Sample Date	10/21/1999	10/21/1999	10/21/1999	10/21/1999	10/21/1999
Sample I.D.	GMSB-38/7 (SPLP)	GMSB-38/7 (TCLP)	GMSB-40/12 (SPLP)	GMSB-40/12 (TCLP)	GMSB-41/8 (SPLP)
Location	NE Pit	NE Pit	NE Pit	NE Pit	NE Pit
Type	Wood	Wood	Sludge	Sludge	Wood
VOC					
1,2,4-Trimethylbenzene	<1.0	<4	NA	31	NA
1,3,5-Trimethylbenzene	<1.0	<4	NA	6.3	NA
1,4-Dichlorobenzene	<1.0	<4	NA	<4	NA
2-Butanone (MEK)	<50	<200	NA	1,700	NA
2-Hexanone	<50	<200	NA	230	NA
4-Methyl-2-pentanone (MIBK)	<50	<200	NA	<200	NA
Acetone	<100	<400	NA	1,600	NA
Benzene	<1.0	<4	NA	24	NA
Carbon disulfide	<5.0	<20	NA	<20	NA
Chloromethane	<1.0	<4	NA	<4	NA
Ethylbenzene	<1.0	<4	NA	14	NA
Ethylene oxide	R	R	NA	R	NA
Isopropylbenzene	<1.0	<4	NA	<4	NA
Methylene chloride	<1.0	<4	NA	<4	NA
Methylethylketone	NA	NA	NA	NA	NA
n-Propylbenzene	<1.0	<4	NA	<4	NA
Styrene	<1.0	<4	NA	<4	NA
Tetrachloroethene	<1.0	<4	NA	<4	NA
Toluene	<1.0	<4	NA	66	NA
Trichloroethene	<1.0	<4	NA	<4	NA
Xylenes (total)	<3.0	<12	NA	98	NA
SVOC					
2,4-Dimethylphenol	<5.0	<25	NA	980	NA
2-Methylphenol	<5.0	<25	NA	1,500	NA
2-Nitroaniline	<20	<100	NA	2,200	NA
2-Picoline	<10	<50	NA	<500	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5.0	<25	NA	1,800	NA

Footnotes on Page 12.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-38		GMSB-40		GMSB-41
Depth (ft bls)	7	7	12	12	8
Sample Date	10/21/1999	10/21/1999	10/21/1999	10/21/1999	10/21/1999
Sample I.D.	GMSB-38/7 (SPLP)	GMSB-38/7 (TCLP)	GMSB-40/12 (SPLP)	GMSB-40/12 (TCLP)	GMSB-41/8 (SPLP)
Location	NE Pit	NE Pit	NE Pit	NE Pit	NE Pit
Type	Wood	Wood	Sludge	Sludge	Wood
SVOC (continued)					
4-Methylphenol	NA	NA	NA	NA	NA
Cresols (total)	NA	NA	NA	NA	NA
Dibenzofuran	<5.0	<25	NA	<250	NA
Phenol	<5.0	170	NA	2,300	NA
Metals					
Aluminum	67 B	<2,000	NA	<2,000	NA
Arsenic	<10	<200	NA	<200	NA
Barium	9.9 B	<1,000	NA	<1,000	NA
Calcium	11,000	110,000	NA	1,600,000	NA
Chromium	<10	<200	NA	<200	NA
Cobalt	<10	<100	NA	<100	NA
Copper	9.7 B	<200	NA	<200	NA
Iron	94	600	NA	3,400	NA
Lead	<5.0	<200	NA	<200	NA
Magnesium	1,400	7,900	NA	46,000	NA
Manganese	33	2,300	NA	1,700	NA
Molybdenum	3.7 B	<100	NA	<100	NA
Nickel	<40	<400	NA	<400	NA
Potassium	2,400	<10,000	NA	<10,000	NA
Sodium	2,000	NA	NA	NA	NA
Titanium	5.1 B	<100	NA	<100	NA
Vanadium	<10	<100	NA	<100	NA
Zinc	5.4 B	<200	NA	<200	NA
Alcohols					
1-Propanol	<1,000	<1,000	NA	1,200	NA
Ethanol	<1,000	<1,000	NA	14,000	NA

Footnotes on Page 12.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-38		GMSB-40		GMSB-41
Depth (ft bls)	7	7	12	12	8
Sample Date	10/21/1999	10/21/1999	10/21/1999	10/21/1999	10/21/1999
Sample I.D.	GMSB-38/7 (SPLP)	GMSB-38/7 (TCLP)	GMSB-40/12 (SPLP)	GMSB-40/12 (TCLP)	GMSB-41/8 (SPLP)
Location	NE Pit	NE Pit	NE Pit	NE Pit	NE Pit
Type	Wood	Wood	Sludge	Sludge	Wood
Alcohols (continued)					
Ethylacetate	<5,000	<5,000	NA	1,400 J	NA
Methanol	<1,000 J	R	NA	39,000 J	NA
n-Butanol	<1,000	R	NA	R	NA
Aldehydes					
Acetaldehyde	<100	<100	NA	2,500	NA
Formaldehyde	<100	110	NA	<500	NA
Hexanal	<100	<100	NA	<500	NA
m-Tolualdehyde	<100	<100	NA	<500	NA
Pentanal	<100	<100	NA	<500	NA
Propanal	<100	<100	NA	<500	NA
Acetic Acid	<2,500	NA	22,000	NA	<2,500
Chemical Oxygen Demand	NA	NA	NA	NA	NA
Total Organic Carbon	19,000	NA	NA	NA	NA

Results in micrograms per liter (µg/L).

<	Less than the laboratory method detection limit.
B	Constituent was also detected in laboratory blank.
D	Result was obtained from analysis of a dilution.
ft bls	Feet below land surface.
J	Estimated results.
NA	Not analyzed.
R	Rejected results.
SPLP	Synthetic Precipitation Leaching Procedure.
SVOC	Semi-Volatile Organic Compounds.
TCLP	Toxicity Characteristic Leaching Procedure.
VOC	Volatile Organic Compounds.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-41 (continued)	GMSB-43		GMSB-44	
Depth (ft bls)	8	3	3	15	15
Sample Date	10/21/1999	10/21/1999	10/21/1999	10/21/1999	10/21/1999
Sample I.D.	GMSB-41/8 (TCLP)	GMSB-43/3 (SPLP)	GMSB-43/3 (TCLP)	GMSB-44/15 (SPLP)	GMSB-44/15 (TCLP)
Location	NE Pit	SW Pit	SW Pit	SW Pit	SW Pit
Type	Wood	Sawdust	Sawdust	Wood	Wood
VOC					
1,2,4-Trimethylbenzene	5.1	NA	<4	NA	<4
1,3,5-Trimethylbenzene	<4	NA	<4	NA	<4
1,4-Dichlorobenzene	<4	NA	<4	NA	<4
2-Butanone (MEK)	<200	NA	<200	NA	<200
2-Hexanone	<200	NA	<200	NA	<200
4-Methyl-2-pentanone (MIBK)	<200	NA	<200	NA	<200
Acetone	<400	NA	<400	NA	<400
Benzene	<4	NA	<4	NA	<4
Carbon disulfide	<20	NA	<20	NA	<20
Chloromethane	<4	NA	<4	NA	2.2 J
Ethylbenzene	<4	NA	<4	NA	<4
Ethylene oxide	R	NA	R	NA	R
Isopropylbenzene	<4	NA	<4	NA	<4
Methylene chloride	<4	NA	<4	NA	<4
Methylethylketone	NA	NA	NA	NA	NA
n-Propylbenzene	<4	NA	<4	NA	<4
Styrene	<4	NA	<4	NA	<4
Tetrachloroethene	<4	NA	<4	NA	<4
Toluene	2.4 J	NA	<4	NA	<4
Trichloroethene	<4	NA	<4	NA	<4
Xylenes (total)	13	NA	<12	NA	<12
SVOC					
2,4-Dimethylphenol	210	NA	<25	NA	<25
2-Methylphenol	<25	NA	<25	NA	<25
2-Nitroaniline	<100	NA	<100	NA	<100
2-Picoline	<50	NA	<50	NA	<50
3-Methylphenol/4-Methylphenol(m&p-cresol)	<25	NA	<25	NA	<25

Footnotes on Page 15.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-41 (continued)	GMSB-43		GMSB-44	
Depth (ft bls)	8	3	3	15	15
Sample Date	10/21/1999	10/21/1999	10/21/1999	10/21/1999	10/21/1999
Sample I.D.	GMSB-41/8 (TCLP)	GMSB-43/3 (SPLP)	GMSB-43/3 (TCLP)	GMSB-44/15 (SPLP)	GMSB-44/15 (TCLP)
Location	NE Pit	SW Pit	SW Pit	SW Pit	SW Pit
Type	Wood	Sawdust	Sawdust	Wood	Wood
SVOC (continued)					
4-Methylphenol	NA	NA	NA	NA	NA
Cresols (total)	NA	NA	NA	NA	NA
Dibenzofuran	<25	NA	<25	NA	<25
Phenol	<25	NA	<25	NA	<25
Metals					
Aluminum	<2,000	NA	<2,000	NA	<2,000
Arsenic	<200	NA	<200	NA	<200
Barium	<1,000	NA	<1,000	NA	2,300
Calcium	100,000	NA	93,000	NA	48,000
Chromium	<200	NA	<200	NA	<200
Cobalt	<100	NA	2500	NA	<100
Copper	<200	NA	<200	NA	<200
Iron	650	NA	67,000	NA	1,500
Lead	<200	NA	<200	NA	<200
Magnesium	<5,000	NA	<5,000	NA	7,200
Manganese	4,800	NA	4,100	NA	2,700
Molybdenum	<100	NA	<100	NA	<100
Nickel	<400	NA	<400	NA	<400
Potassium	<10,000	NA	<10,000	NA	<10,000
Sodium	NA	NA	NA	NA	NA
Titanium	<100	NA	<100	NA	<100
Vanadium	<100	NA	<100	NA	<100
Zinc	<200	NA	270	NA	<200
Alcohols					
1-Propanol	<1,000	NA	<1,000	NA	<1,000
Ethanol	<1,000	NA	<1,000	NA	<1,000

Footnotes on Page 15.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-41 (continued)	GMSB-43		GMSB-44	
Depth (ft bls)	8	3	3	15	15
Sample Date	10/21/1999	10/21/1999	10/21/1999	10/21/1999	10/21/1999
Sample I.D.	GMSB-41/8 (TCLP)	GMSB-43/3 (SPLP)	GMSB-43/3 (TCLP)	GMSB-44/15 (SPLP)	GMSB-44/15 (TCLP)
Location	NE Pit	SW Pit	SW Pit	SW Pit	SW Pit
Type	Wood	Sawdust	Sawdust	Wood	Wood
Alcohols (continued)					
Ethylacetate	<5,000	NA	<5,000	NA	<5,000
Methanol	R	NA	R	NA	R
n-Butanol	R	NA	R	NA	R
Aldehydes					
Acetaldehyde	230	NA	<100	NA	<100
Formaldehyde	110	NA	370	NA	<100
Hexanal	<100	NA	<100	NA	<100
m-Tolualdehyde	<100	NA	<100	NA	<100
Pentanal	<100	NA	<100	NA	<100
Propanal	<100	NA	<100	NA	<100
Acetic Acid	NA	<2,500	NA	<2,500	NA
Chemical Oxygen Demand	NA	NA	NA	NA	NA
Total Organic Carbon	NA	NA	NA	NA	NA

Results in micrograms per liter (µg/L).

<	Less than the laboratory method detection limit.
B	Constituent was also detected in laboratory blank.
D	Result was obtained from analysis of a dilution.
ft bls	Feet below land surface.
J	Estimated results.
NA	Not analyzed.
R	Rejected results.
SPLP	Synthetic Precipitation Leaching Procedure.
SVOC	Semi-Volatile Organic Compounds.
TCLP	Toxicity Characteristic Leaching Procedure.
VOC	Volatile Organic Compounds.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-45		GMSB-47		GMSB-48
Depth (ft bls)	10	10	15	15	22
Sample Date	10/21/1999	10/21/1999	10/22/1999	10/22/1999	10/22/1999
Sample I.D.	GMSB-45/10 (SPLP)	GMSB-45/10 (TCLP)	GMSB-47/15 (SPLP)	GMSB-47/15 (TCLP)	GMSB-48/22 (SPLP)
Location	SW Pit	SW Pit	SW Pit	SW Pit	SW Pit
Type	Wood/Charcoal	Wood/Charcoal	Wood	Wood	Wood/Charcoal
VOC					
1,2,4-Trimethylbenzene	0.57 J	<4	NA	<4	<1.0
1,3,5-Trimethylbenzene	<1.0	<4	NA	<4	<1.0
1,4-Dichlorobenzene	<1.0	<4	NA	<4	<1.0
2-Butanone (MEK)	<50	<200	NA	<200	<50
2-Hexanone	<50	<200	NA	<200	<50
4-Methyl-2-pentanone (MIBK)	<50	<200	NA	<200	<50
Acetone	<100	<400	NA	<400	<100
Benzene	<1.0	<4	NA	<4	<1.0
Carbon disulfide	<5.0	<20	NA	3 J	<5.0
Chloromethane	<1.0	<4	NA	<4	<1.0
Ethylbenzene	<1.0	<4	NA	<4	<1.0
Ethylene oxide	R	R	NA	R	R
Isopropylbenzene	<1.0	<4	NA	<4	<1.0
Methylene chloride	<1.0	<4	NA	<4	<1.0
Methylethylketone	NA	NA	NA	NA	NA
n-Propylbenzene	<1.0	<4	NA	<4	<1.0
Styrene	<1.0	<4	NA	<4	<1.0
Tetrachloroethene	<1.0	<4	NA	<4	<1.0
Toluene	<1.2	<4	NA	<4	<1.0
Trichloroethene	<1.0	<4	NA	<4	<1.0
Xylenes (total)	<3.0	<12	NA	<12	<3.0
SVOC					
2,4-Dimethylphenol	20	<25	NA	80	12
2-Methylphenol	35	<25	NA	49	6.4
2-Nitroaniline	<20	<100	NA	<100	<20
2-Picoline	<10	<50	NA	8.9 J	<10
3-Methylphenol/4-Methylphenol(m&p-cresol)	50	40	NA	180	11

Footnotes on Page 18.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-45		GMSB-47		GMSB-48
Depth (ft bls)	10	10	15	15	22
Sample Date	10/21/1999	10/21/1999	10/22/1999	10/22/1999	10/22/1999
Sample I.D.	GMSB-45/10 (SPLP)	GMSB-45/10 (TCLP)	GMSB-47/15 (SPLP)	GMSB-47/15 (TCLP)	GMSB-48/22 (SPLP)
Location	SW Pit	SW Pit	SW Pit	SW Pit	SW Pit
Type	Wood/Charcoal	Wood/Charcoal	Wood	Wood	Wood/Charcoal
SVOC (continued)					
4-Methylphenol	NA	NA	NA	NA	NA
Cresols (total)	NA	NA	NA	NA	NA
Dibenzofuran	<5.0	<25	NA	<25	<5.0
Phenol	74	<25	NA	<25	20
Metals					
Aluminum	99 B	<2,000	NA	<2,000	54 B
Arsenic	<10	<200	NA	<200	<10
Barium	15	<1,000	NA	<1,000	7.1 B
Calcium	3,000	18,000	NA	61,000	5,100
Chromium	0.94 B	<200	NA	<200	<10
Cobalt	<10	<100	NA	<100	<10
Copper	85	<200	NA	240	110
Iron	170	<500	NA	1,700	56
Lead	<5.0	<200	NA	200	<5.0
Magnesium	750	<5,000	NA	14,000	890
Manganese	28	310	NA	770	150
Molybdenum	<10	<100	NA	<100	2.5 B
Nickel	<40	<400	NA	<400	<40
Potassium	2,900	<10,000	NA	<10,000	2,100
Sodium	2,000	NA	NA	NA	2,700
Titanium	8.5 B	<100	NA	<100	0.70 B
Vanadium	<10	<100	NA	<100	<10
Zinc	7.8 B	<200	NA	<200	3.3 B
Alcohols					
1-Propanol	<1,000	<1,000	NA	<1,000	<1,000
Ethanol	<1,000	<1,000	NA	<1,000	<1,000

Footnotes on Page 18.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-45		GMSB-47		GMSB-48
Depth (ft bls)	10	10	15	15	22
Sample Date	10/21/1999	10/21/1999	10/22/1999	10/22/1999	10/22/1999
Sample I.D.	GMSB-45/10 (SPLP)	GMSB-45/10 (TCLP)	GMSB-47/15 (SPLP)	GMSB-47/15 (TCLP)	GMSB-48/22 (SPLP)
Location	SW Pit	SW Pit	SW Pit	SW Pit	SW Pit
Type	Wood/Charcoal	Wood/Charcoal	Wood	Wood	Wood/Charcoal
Alcohols (continued)					
Ethylacetate	<5,000	<5,000	NA	<5,000	<5,000
Methanol	<1,000 J	3,200 J	NA	R	R
n-Butanol	<1,000	R	NA	R	<1,000
Aldehydes					
Acetaldehyde	410	410	NA	250	480
Formaldehyde	120	150	NA	220	460
Hexanal	<100	<100	NA	<100	<100
m-Tolualdehyde	<100	<100	NA	<100	<100
Pentanal	<100	<100	NA	<100	<100
Propanal	<100	<100	NA	<100	<100
Acetic Acid	39,000	NA	3,700	NA	2,600
Chemical Oxygen Demand	NA	NA	NA	NA	NA
Total Organic Carbon	43,000	NA	NA	NA	12,000

Results in micrograms per liter (µg/L).

<	Less than the laboratory method detection limit.
B	Constituent was also detected in laboratory blank.
D	Result was obtained from analysis of a dilution.
ft bls	Feet below land surface.
J	Estimated results.
NA	Not analyzed.
R	Rejected results.
SPLP	Synthetic Precipitation Leaching Procedure.
SVOC	Semi-Volatile Organic Compounds.
TCLP	Toxicity Characteristic Leaching Procedure.
VOC	Volatile Organic Compounds.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-48 (continued)	TP-2	TP-3	TP-5	TP-5A
Depth (ft bls)	22	2	3	2	2
Sample Date	10/22/1999	12/17/1998	12/17/1998	12/17/1998	11/2/1999
Sample I.D.	GMSB-48/22 (TCLP)	Shingle Pile (TCLP)	Test Pit #3 (TCLP)	Test Pit #5 (TCLP)	TP-5A/2 (SPLP)
Location	SW Pit	NE Pit	NE Pit	NE Pit	NE Pit
Type	Wood/Charcoal	Tar	Tar	Tar	Tar
VOC					
1,2,4-Trimethylbenzene	<4	NA	NA	NA	37
1,3,5-Trimethylbenzene	<4	NA	NA	NA	6.4
1,4-Dichlorobenzene	<4	<5.6	<5.6	<5.6	<1.0
2-Butanone (MEK)	<200	NA	NA	NA	430
2-Hexanone	<200	NA	NA	NA	110
4-Methyl-2-pentanone (MIBK)	<200	NA	NA	NA	<50
Acetone	<400	NA	NA	NA	220
Benzene	<4	17	23	17	10
Carbon disulfide	<20	NA	NA	NA	<5.0
Chloromethane	<4	NA	NA	NA	<1.0
Ethylbenzene	<4	NA	NA	NA	7.4
Ethylene oxide	R	NA	NA	NA	R
Isopropylbenzene	<4	NA	NA	NA	0.54 J
Methylene chloride	<4	NA	NA	NA	<1.0
Methylethylketone	NA	290	860	360	NA
n-Propylbenzene	<4	NA	NA	NA	3.2
Styrene	<4	NA	NA	NA	5
Tetrachloroethene	<4	<7	<7	<7	1.1
Toluene	<4	NA	NA	NA	25
Trichloroethene	<4	89	86	45	18
Xylenes (total)	<12	NA	NA	NA	53
SVOC					
2,4-Dimethylphenol	<25	NA	NA	NA	450
2-Methylphenol	<25	NA	NA	NA	1,000
2-Nitroaniline	<100	NA	NA	NA	<1,000
2-Picoline	<50	NA	NA	NA	<500
3-Methylphenol/4-Methylphenol(m&p-cresol)	<25	NA	NA	NA	980

Footnotes on Page 21.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-48 (continued)	TP-2	TP-3	TP-5	TP-5A
Depth (ft bls)	22	2	3	2	2
Sample Date	10/22/1999	12/17/1998	12/17/1998	12/17/1998	11/2/1999
Sample I.D.	GMSB-48/22 (TCLP)	Shingle Pile (TCLP)	Test Pit #3 (TCLP)	Test Pit #5 (TCLP)	TP-5A/2 (SPLP)
Location	SW Pit	NE Pit	NE Pit	NE Pit	NE Pit
Type	Wood/Charcoal	Tar	Tar	Tar	Tar
SVOC (continued)					
4-Methylphenol	NA	NA	NA	NA	NA
Cresols (total)	NA	6,500	2,700	2,500	NA
Dibenzofuran	<25	NA	NA	NA	<250
Phenol	<25	3,200	1,500	1,300	1,000
Metals					
Aluminum	<2,000	NA	NA	NA	990 J
Arsenic	<200	NA	NA	NA	<10
Barium	<1,000	NA	NA	NA	14
Calcium	20,000	NA	NA	NA	32,000
Chromium	<200	NA	NA	NA	1.7 B
Cobalt	<100	NA	NA	NA	<10
Copper	2,800	NA	NA	NA	18 B
Iron	590	NA	NA	NA	1,000
Lead	<200	NA	NA	NA	<5.0
Magnesium	<5,000	NA	NA	NA	910
Manganese	890	NA	NA	NA	120
Molybdenum	<100	NA	NA	NA	<10
Nickel	<400	NA	NA	NA	6.8 B
Potassium	<10,000	NA	NA	NA	340 B
Sodium	NA	NA	NA	NA	6,000
Titanium	<100	NA	NA	NA	39
Vanadium	<100	NA	NA	NA	3.9 B
Zinc	<200	NA	NA	NA	6.4 B
Alcohols					
1-Propanol	<1,000	NA	NA	NA	<1,000
Ethanol	<1,000	NA	NA	NA	<1,000

Footnotes on Page 21.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-48 (continued)	TP-2	TP-3	TP-5	TP-5A
Depth (ft bls)	22	2	3	2	2
Sample Date	10/22/1999	12/17/1998	12/17/1998	12/17/1998	11/2/1999
Sample I.D.	GMSB-48/22 (TCLP)	Shingle Pile (TCLP)	Test Pit #3 (TCLP)	Test Pit #5 (TCLP)	TP-5A/2 (SPLP)
Location	SW Pit	NE Pit	NE Pit	NE Pit	NE Pit
Type	Wood/Charcoal	Tar	Tar	Tar	Tar
Alcohols (continued)					
Ethylacetate	<5,000	NA	NA	NA	<5,000
Methanol	R	NA	NA	NA	<1,000 J
n-Butanol	R	NA	NA	NA	<1,000
Aldehydes					
Acetaldehyde	160	NA	NA	NA	2,400
Formaldehyde	970	NA	NA	NA	<500
Hexanal	<100	NA	NA	NA	700
m-Tolualdehyde	<100	NA	NA	NA	930
Pentanal	<100	NA	NA	NA	<500
Propanal	<100	NA	NA	NA	1,800
Acetic Acid	NA	NA	NA	NA	1,200,000
Chemical Oxygen Demand	NA	NA	NA	NA	NA
Total Organic Carbon	NA	NA	NA	NA	620,000

Results in micrograms per liter (µg/L).

<	Less than the laboratory method detection limit.
B	Constituent was also detected in laboratory blank.
D	Result was obtained from analysis of a dilution.
ft bls	Feet below land surface.
J	Estimated results.
NA	Not analyzed.
R	Rejected results.
SPLP	Synthetic Precipitation Leaching Procedure.
SVOC	Semi-Volatile Organic Compounds.
TCLP	Toxicity Characteristic Leaching Procedure.
VOC	Volatile Organic Compounds.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	TP-5A (continued)	TP-10	
Depth (ft bls)	2	12	12
Sample Date	11/2/1999	11/3/1999	11/3/1999
Sample I.D.	TP-5A/2 (TCLP)	TP-10/12 (SPLP)	TP-10/12 (TCLP)
Location	NE Pit	NE Pit	NE Pit
Type	Tar	Organic/Wood	Organic/Wood
VOC			
1,2,4-Trimethylbenzene	26	NA	36
1,3,5-Trimethylbenzene	4.4	NA	7.2
1,4-Dichlorobenzene	<4	NA	15
2-Butanone (MEK)	260	NA	160 J
2-Hexanone	<200	NA	120 J
4-Methyl-2-pentanone (MIBK)	<200	NA	<200
Acetone	150 J	NA	160 J
Benzene	6.1	NA	25
Carbon disulfide	<20	NA	<20
Chloromethane	<4	NA	<4
Ethylbenzene	4.9	NA	41
Ethylene oxide	R	NA	R
Isopropylbenzene	<4	NA	<4
Methylene chloride	<7.8	NA	<11
Methylethylketone	NA	NA	NA
n-Propylbenzene	<4	NA	<4
Styrene	3 J	NA	<4
Tetrachloroethene	<4	NA	<4
Toluene	16	NA	110
Trichloroethene	9.8	NA	82
Xylenes (total)	35	NA	190
SVOC			
2,4-Dimethylphenol	470	NA	3,500
2-Methylphenol	990	NA	5,800
2-Nitroaniline	<1,000	NA	<1,000
2-Picoline	<500	NA	<500
3-Methylphenol/4-Methylphenol(m&p-cresol)	990	NA	7,500

Footnotes on Page 24.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	TP-5A (continued)	TP-10	
Depth (ft bls)	2	12	12
Sample Date	11/2/1999	11/3/1999	11/3/1999
Sample I.D.	TP-5A/2 (TCLP)	TP-10/12 (SPLP)	TP-10/12 (TCLP)
Location	NE Pit	NE Pit	NE Pit
Type	Tar	Organic/Wood	Organic/Wood
SVOC (continued)			
4-Methylphenol	NA	NA	NA
Cresols (total)	NA	NA	NA
Dibenzofuran	<250	NA	<250
Phenol	1,000	NA	6,200
Metals			
Aluminum	<2,000	NA	<2,000
Arsenic	<200	NA	<200
Barium	<1,000	NA	<1,000
Calcium	50,000	NA	160,000
Chromium	<200	NA	<200
Cobalt	<100	NA	<100
Copper	<200	NA	<200
Iron	1,200	NA	2,800
Lead	<200	NA	<200
Magnesium	<5,000	NA	<5,000
Manganese	750	NA	880
Molybdenum	<100	NA	<100
Nickel	<400	NA	<400
Potassium	<10,000	NA	<10,000
Sodium	NA	NA	NA
Titanium	<100	NA	<100
Vanadium	<100	NA	<100
Zinc	<200	NA	<200
Alcohols			
1-Propanol	<1,000	NA	<1,000
Ethanol	<1,000	NA	<1,000

Footnotes on Page 24.

Table 6-32. Summary of Constituents Detected in Waste Sample TCLP/SPLP Extracts, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	TP-5A (continued)	TP-10	
Depth (ft bls)	2	12	12
Sample Date	11/2/1999	11/3/1999	11/3/1999
Sample I.D.	TP-5A/2 (TCLP)	TP-10/12 (SPLP)	TP-10/12 (TCLP)
Location	NE Pit	NE Pit	NE Pit
Type	Tar	Organic/Wood	Organic/Wood
Alcohols (continued)			
Ethylacetate	<5,000	NA	<5,000
Methanol	<1,000 J	NA	2,800 J
n-Butanol	R	NA	R
Aldehydes			
Acetaldehyde	1,400	NA	1,100
Formaldehyde	<400	NA	<400
Hexanal	740	NA	<400
m-Tolualdehyde	740	NA	<400
Pentanal	<400	NA	<400
Propanal	430	NA	<400
Acetic Acid	NA	47,000	NA
Chemical Oxygen Demand	NA	NA	NA
Total Organic Carbon	NA	NA	NA

Results in micrograms per liter (µg/L).

<	Less than the laboratory method detection limit.
B	Constituent was also detected in laboratory blank.
D	Result was obtained from analysis of a dilution.
ft bls	Feet below land surface.
J	Estimated results.
NA	Not analyzed.
R	Rejected results.
SPLP	Synthetic Precipitation Leaching Procedure.
SVOC	Semi-Volatile Organic Compounds.
TCLP	Toxicity Characteristic Leaching Procedure.
VOC	Volatile Organic Compounds.

Table 6-33. Comparison of Leaching Data from Wood Samples to Groundwater Samples, Former Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Sample/Boring	GMSB-34		GMSB-38		GMSB-41	GMSB-1				
	SPLP Wood	TCLP Wood	SPLP Wood	TCLP Wood	TCLP Wood	85 ft Water	135 ft Water	215 ft. Water	275 ft. Water	325 ft Water
VOCs										
MEK	26J	<200	<50	<200	<200	1,600	<10	920	<50J	<10
2-Hexanone	<50	<200	<50	<200	<200	160	<10	210	<50J	<10
Acetone	<100	<400	<100	<400	<400	2,000	<10	1,100	<50J	16
SVOCs										
2,4-DMP	11	<25	<5	<25	210	1,100	2.3J	2,300J	130	100
2-MP	9.3	<25	<5	<25	<25	1,000	<5	2,600J	<12	<10
4-MP	<5	<25	<5	<25	<25	5,600	<5	12,000J	<12	8.7J
Phenol	<5	<25	<5	170	<25	2,000	<5	3,300J	<12	<10

Results in micrograms per liter (μg/L).

<	Less than detection limit.
2,4-DMP	2,4-Dimethylphenol.
2-MP	2-Methylphenol.
4-MP	4-Methylphenol.
ft	Feet below ground surface.
J	Estimated result.
MEK	2-butanone.
SPLP	Synthetic Precipitation Leaching Procedures.
SVOCs	Semi-volatile organic compounds.
TCLP	Toxicity Characteristics Leaching Procedures.
VOCs	Volatile organic compounds.

Table 6-34. Comparison of Leaching Data from Wood Sludge Samples to Groundwater Samples, Former Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Sample/Boring	GMSB-35		GMSB-36	GMSB-40	GMSB-1				
	SPLP Sludge	TCLP Sludge	TCLP Sludge	TCLP Sludge	85 ft Water	135 ft Water	215 ft. Water	275 ft. Water	325 ft Water
VOCs									
MEK	12,000	7,100E	2,100	1,700	1,600	<10	920	<50J	<10
2-Hexanone	1,100J	950	230	230	160	<10	210	<50J	<10
Acetone	6,400	5,000	1,800	1,600	2,000	<10	1,100	<50J	16
SVOCs									
2,4-DMP	190	420	4,200	980	1,100	2.3J	2,300J	130	100
2-MP	240	930	6,800	1,500	1,000	<5	2,600J	<12	<10
4-MP	280	1,100	7,800	1,800	5,600	<5	12,000J	<12	8.7J
Phenol	250	1,600	9,300	2,300	2,000	<5	3,300J	<12	<10

Results in micrograms per liter (µg/L).

<	Less than detection limit.
2,4-DMP	2,4-Dimethylphenol.
2-MP	2-Methylphenol.
4-MP	4-Methylphenol.
E	Analyte was detected at a concentration greater than the calibration range, and is therefore estimated.
ft	Feet below ground surface.
J	Estimated result.
MEK	2-butanone.
SPLP	Synthetic Precipitation Leaching Procedures.
SVOCs	Semi-volatile organic compounds.
TCLP	Toxicity Characteristic Leaching Procedures.
VOCs	Volatile organic compounds.

Table 6-35. Comparison of Leaching Data from Wood Tar Samples to Groundwater Samples, Former Northeast Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Sample/Boring	GMSB-37 SPLP Tar	GMSB-37 TCLP Tar	TP-5A SPLP Tar	TP-5A TCLP Tar	GMSB-1 85 ft Water	GMSB-1 135 ft Water	GMSB-1 215 ft. Water	GMSB-1 275 ft. Water	GMSB-1 325 ft Water
VOCs									
MEK	2,200	850	430	260	1,600	<10	920	<50J	<10
2-Hexanone	280	120J	110	<200	160	<10	210	<50J	<10
Acetone	2,000	910	220	260	2,000	<10	1,100	<50J	16
SVOCs									
2,4-DMP	780	5,300	450	470	1,100	2.3J	2,300 J	130	100
2-MP	1,200	7,400	1,000	990	1,000	<5	2,600 J	<12	<10
4-MP	1,900	11,000	980	990	5,600	<5	12,000 J	<12	8.7 J
Phenol	1,900	11,000	1,000	1,000	2,000	<5	3,300 J	<12	<10

Results in micrograms per liter (µg/L).

<	Less than detection limit.
2,4-DMP	2,4-Dimethylphenol.
2-MP	2-Methylphenol.
4-MP	4-Methylphenol.
ft	Feet below ground surface.
J	Estimated result.
MEK	2-butanone.
SPLP	Synthetic Precipitation Leaching Procedures.
SVOCs	Semi-volatile organic compounds.
TCLP	Toxicity Characteristic Leaching Procedures.
VOCs	Volatile organic compounds.

Table 6-36. Summary of Constituents Detected in Surface Soil Samples, Former Southwest Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Soil		Surface Waste	Surface Soil				
Sample Date	05/04/88	05/15/96	05/15/96	08/10/99	08/10/99	08/10/99	08/10/99	08/10/99
Sample ID	S-6	SS-32	SS-33	SSLP-1	SSLP-2	SSLP-3	SSLP-4	SSLP-5
Depth	0.5'	0-1'	0.2-0.7'	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"
VOC								
2-Butanone (MEK)	37 J	<12	<11	<2,700	<2,800	<3,000	<2,700	<2,900
Acetone	<1,000	<12	5 J	R	R	R	R	R
Toluene	<500	<12	<11	<110	<110	<120	<110	<120
SVOC								
4-Chloroaniline	<430	<360	<360	<360	<380	<390	<360	<390
Benzo(a)anthracene	<430	65 J	130 J	<360	<380	<390	<360	<390
Benzo(a)pyrene	<430	<360	98 J	<360	<380	<390	<360	<390
Benzo(b)fluoranthene	<430	100 J	140 J	<360	<380	<390	<360	<390
Benzo(g,h,i)perylene	<430	36 J	79 J	<360	<380	<390	<360	<390
Benzo(k)fluoranthene	<430	53 J	130 J	<360	<380	<390	<360	<390
bis(2-Ethylhexyl)phthalate	2,000	<360 BJ	<360 BJ	<360	<380	<390	<360	110
Chrysene	<430	69 J	140 J	<360	<380	<390	<360	<390
Fluoranthene	<430	100 J	350 J	<360	<380	<390	<360	<390
Indeno(1,2,3-c,d)pyrene	<430	40 J	73 J	<360	<380	<390	<360	<390
Phenanthrene	<430	53 J	94 J	<360	<380	<390	<360	<390
Pyrene	<430	89 J	290 J	<360	<380	<390	<360	<390
Metals								
Aluminum	$\boxed{3,950,000}$	$\boxed{3,580,000}$	$\boxed{5,100,000}$	$\boxed{6,400,000}$	$\boxed{5,400,000}$	$\boxed{6,700,000}$	$\boxed{6,300,000}$	$\boxed{6,700,000}$
Arsenic	3,600 N	2,100 B	2,600	2,400	1,700	1,700	1,400	1,700
Barium	163,000	16,900 B	30,100 B	47,000	34,000	67,000	32,000	110,000
Beryllium	390 B	<130	<120	250	230	240	230	230 J
Cadmium	1,100 B	290 B	220 B	89 J	93 J	260 J	42 J	530 J
Calcium	12,100,000	3,890,000	1,090,000	1,800,000 J	2,200,000 J	2,500,000 J	1,200,000 J	3,700,000 J
Chromium	**16,200**	**11,300**	**10,900**	**14,000**	**24,000**	**18,000**	**15,000**	**17,000**
Cobalt	$\boxed{\textbf{4,400 B}}$	$\boxed{\textbf{4,500 B}}$	$\boxed{\textbf{4,800 B}}$	$\boxed{\textbf{6,000}}$	$\boxed{\textbf{5,300}}$	$\boxed{\textbf{5,700}}$	$\boxed{\textbf{5,400}}$	$\boxed{\textbf{4,000}}$
Copper	**48,800 ***	19,100	27,100	32,000	23,000	33,000	23,000	40,000
Iron	$\boxed{12,400,000}$	$\boxed{7,710,000}$	$\boxed{8,340,000}$	$\boxed{16,000,000 *}$	$\boxed{14,000,000 *}$	$\boxed{15,000,000 *}$	$\boxed{13,000,000 *}$	$\boxed{11,000,000 *}$

Footnotes on Page 9.

Table 6-36. Summary of Constituents Detected in Surface Soil Samples, Former Southwest Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Soil		Surface Waste	Surface Soil				
Sample Date	05/04/88	05/15/96	05/15/96	08/10/99	08/10/99	08/10/99	08/10/99	08/10/99
Sample ID	S-6	SS-32	SS-33	SSLP-1	SSLP-2	SSLP-3	SSLP-4	SSLP-5
Depth	0.5'	0-1'	0.2-0.7'	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"
Metals (continued)								
Lead	63,500	92,100	30,500	8,300	10,000	34,000	8,800	26,000
Magnesium	3,120,000	3,870,000	1,940,000	3,300,000 *	3,000,000 *	3,300,000 *	2,600,000 *	2,100,000 *
Manganese	**423,000 ***	**127,000 N**	**148,000 N**	**770,000**	**210,000**	**290,000**	**270,000**	**240,000**
Mercury	<120	**80 B**	**140**	25 J	18 J	**68 J**	10 J	**180**
Molybdenum				<420 J	210 J	<420 J	<170 J	600 J
Nickel	11,600	8,800	9,200	17,000	14,000	13,000	13,000	10,000
Potassium	914,000 B	386,000 B	353,000 B	840,000 J	470,000 J	480,000 J	570,000 J	350,000 J
Selenium	**800 BW**	<670	<620	<1,000 WN	<1,000 WN	<450 WN	<1,000 WN	<470 WN
Silver	<1,000 N	<730	<680	**120 J**	<570	**590 J**	<540	**2,600**
Sodium	95,300 B	55,300 B	35,400 B	130,000	57,000	72,000	71,000	58,000
Titanium				480,000 J	420,000 J	390,000 J	440,000 J	270,000 J
Vanadium	16,800	13,500	14,900	28,000	23,000	31,000	34,000	22,000
Zinc	**757,000 *E**	41,500	33,400	39,000 N	27,000 N	63,000 N	24,000 N	92,000 N

Footnotes on Page 9.

Table 6-36. Summary of Constituents Detected in Surface Soil Samples, Former Southwest Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Soil						
Sample Date	08/10/99	08/10/99	08/10/99	08/10/99	08/10/99	08/10/99	08/10/99
Sample ID	SSLP-6	SSLP-7	SSLP-8	SSLP-99 (SSLP-8)	SSLP-9	SSLP-10	SSLP-11
Depth	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"
VOC							
2-Butanone (MEK)	<2,800	<2,700	<2,800	<2,900	<2,900	<2,700	<2,800
Acetone	R	R	R	R	R	R	R
Toluene	<110	<110	86 J	<110	<110	<110	<110
SVOC							
4-Chloroaniline	<380	<360	230 J	220 J	350 J	<350	<380
Benzo(a)anthracene	<380	<360	<370	<380	<380	<350	<380
Benzo(a)pyrene	<380	<360	<370	<380	110 J	<350	<380
Benzo(b)fluoranthene	<380	<360	<370	<380	120 J	<350	<380
Benzo(g,h,i)perylene	<380	<360	<370	<380	100 J	<350	<380
Benzo(k)fluoranthene	<380	<360	<370	<380	<380	<350	<380
bis(2-Ethylhexyl)phthalate	<380	<360	<370	250 J	210 J	<350	<380
Chrysene	<380	<360	<370	<380	<380	<350	<380
Fluoranthene	<380	<360	320 J	<380	<380	<350	<380
Indeno(1,2,3-c,d)pyrene	<380	<360	<370	<380	110 J	<350	<380
Phenanthrene	<380	<360	280 J	<380	<380	<350	<380
Pyrene	<380	<360	250 J	<380	<380	<350	<380
Metals							
Aluminum	5,700,000	7,400,000	7,500,000	6,600,000	9,300,000	5,600,000	8,900,000
Arsenic	1,600	1,100	1,400	3,500	3,300 WS	2,600	3,000
Barium	27,000	23,000	130,000	120,000	170,000	24,000	56,000
Beryllium	190 J	250	260	220 J	280	210 J	280
Cadmium	80 J	<27 J	520 J	630 J	1,100 J	38 J	140 J
Calcium	1,900,000 J	2,200,000 J	2,200,000 J	1,900,000 J	4,900,000 J	2,400,000 J	34,000,000 J
Chromium	**18,000**	**18,000**	**20,000**	**17,000**	**23,000**	**16,000**	**21,000**
Cobalt	**4,700**	**7,800**	**5,900**	**4,600**	**4,500**	**5,200**	**6,700**
Copper	20,000	23,000	46,000	45,000	**60,000**	25,000	27,000
Iron	13,000,000 *	16,000,000 *	16,000,000 *	12,000,000 *	14,000,000 *	12,000,000 *	16,000,000 *

Footnotes on Page 9.

Table 6-36. Summary of Constituents Detected in Surface Soil Samples, Former Southwest Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Soil						
Sample Date	08/10/99	08/10/99	08/10/99	08/10/99	08/10/99	08/10/99	08/10/99
Sample ID	SSLP-6	SSLP-7	SSLP-8	SSLP-99 (SSLP-8)	SSLP-9	SSLP-10	SSLP-11
Depth	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"
Metals (continued)							
Lead	9,400	3,200	53,000	56,000	38,000	4,200	13,000
Magnesium	3,000,000 *	4,700,000 *	3,200,000 *	2,500,000 *	2,700,000 *	3,500,000 *	22,000,000 *
Manganese	**210,000**	**260,000**	**420,000 J**	**280,000 J**	**230,000**	**280,000**	**530,000**
Mercury	11 J	<110	**170**	**220**	**600 B**	5.6 J	13 J
Molybdenum	<200 J	<160 J	950 J	760 J	870	<130 J	<300 J
Nickel	15,000	17,000	15,000	13,000	13,000	13,000	16,000
Potassium	460,000 J	580,000 J	370,000 J	390,000 J	390,000 J	580,000 J	1,000,000 J
Selenium	<1,000 WN	<1,000 WN	<1,100 WN	<1,100 WN	<1,000 WN	<1,100 WN	<1,000 WN
Silver	<570	<550	**2,800**	**2,400**	**5,100**	<540	<570
Sodium	74,000	73,000	56,000	67,000	54,000	97,000	140,000
Titanium	410,000 J	570,000 J	390,000 J	310,000 J	280,000 J	380,000 J	530,000 J
Vanadium	26,000	27,000	26,000	22,000	27,000	24,000	37,000
Zinc	22,000 N	19,000 N	100,000 N	98,000 J	**120,000 N**	25,000 N	52,000 N

Footnotes on Page 9.

Table 6-36. Summary of Constituents Detected in Surface Soil Samples, Former Southwest Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Soil					
Sample Date	08/10/99	08/10/99	08/05/99	Residential	Indoor Air	Residential Drinking Water
Sample ID	SSLP-12	SSLP-13	SSNE-3	Direct Contact	Inhalation	Protection
Depth	6"-12"	6"-12"	6"-12"	Criteria	Criteria	Criteria
VOC						
2-Butanone (MEK)	<2,800	<2,900	<2,600	27,000,000 (MEK) (I) C,DD	27,000,000 (MEK) (I) C	260,000 (MEK) (I)
Acetone	R	R	<5,200	23,000,000 (I)	110,000,000 (I) C	15,000 (I)
Toluene	<110	<110	<100	250,000 (I) C	250,000 (I) C	16,000 (I)
SVOC						
4-Chloroaniline	<370	<380	<340	NE	NE	NE
Benzo(a)anthracene	<370	<380	<340	20,000 (Q)	(Q) NLV	(Q) NLL
Benzo(a)pyrene	<370	<380	<340	2,000 (Q)	(Q) NLV	(Q) NLL
Benzo(b)fluoranthene	<370	<380	<340	20,000 (Q)	(Q) ID	(Q) NLL
Benzo(g,h,i)perylene	<370	<380	<340	2,500,000	NLV	NLL
Benzo(k)fluoranthene	<370	<380	<340 J	200,000 (Q)	(Q) NLV	(Q) NLL
bis(2-Ethylhexyl)phthalate	<370	<380	<340	2,800,000	NLV	NLL
Chrysene	<370	<380	<340	2,000,000 (Q)	(Q) ID	(Q) NLL
Fluoranthene	<370	<380	<340	46,000,000	1,000,000,000 D	730,000
Indeno(1,2,3-c,d)pyrene	<370	<380	<340	20,000 (Q)	(Q) NLV	(Q) NLL
Phenanthrene	<370	<380	<340	1,600,000	2,800,000	56,000
Pyrene	<370	<380	<340	29,000,000	1,000,000,000 D	480,000
Metals						
Aluminum	6,800,000	8,000,000	NA	50,000,000 (B) DD	(B) NLV	1,000 (B)
Arsenic	1,800	2,200	NA	7,600	NLV	4,600
Barium	47,000	100,000	NA	37,000,000 (B)	(B) NLV	1,300,000 (B)
Beryllium	230	270	NA	410,000	NLV	51,000
Cadmium	220 J	410 J	NA	550,000 (B)	(B) NLV	6,000 (B)
Calcium	2,100,000 J	2,500,000 J	NA	NE	NE	NE
Chromium	**20,000**	**17,000**	NA	2,500,000 total/dissolved	total/dissolved NLV	30,000 (*VI)
Cobalt	**5,600**	**4,400**	NA	2,600,000	NLV	800
Copper	31,000	36,000	NA	20,000,000 (B)	(B) NLV	5,800,000 (B)
Iron	15,000,000 *	12,000,000 *	NA	160,000,000 (B)	(B) NLV	6,000 (B)

Footnotes on Page 9.

Table 6-36. Summary of Constituents Detected in Surface Soil Samples, Former Southwest Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Soil			Residential Direct Contact Criteria	Indoor Air Inhalation Criteria	Residential Drinking Water Protection Criteria
Sample Date	08/10/99	08/10/99	08/05/99			
Sample ID	SSLP-12	SSLP-13	SSNE-3			
Depth	6"-12"	6"-12"	6"-12"			
Metals (continued)						
Lead	19,000	23,000	NA	400,000 (B)	(B) NLV	700,000 (B)
Magnesium	4,000,000 *	2,400,000 *	NA	1,000,000,000 (B) D	(B) NLV	8,000,000 (B)
Manganese	$\boxed{\textbf{250,000}}$	$\boxed{\textbf{320,000}}$	NA	25,000,000 (B)	(B) NLV	1,000 (B)
Mercury	43 J	**120**	NA	160,000 (B,Z) (total)	48,000 (B,Z) (total)	1,700 (B,Z) (total)
Molybdenum	<300 J	660 J	NA	2,600,000 (B)	(B) NLV	1,500 (B)
Nickel	15,000	11,000	NA	40,000,000 (B)	(B) NLV	100,000 (B)
Potassium	470,000 J	520,000 J	NA	NE	NE	NE
Selenium	<1,000 WN	<1,100 WN	NA	2,600,000 (B)	(B) NLV	4,000 (B)
Silver	**210 J**	**2,200**	NA	2,500,000 (B)	(B) NLV	4,500 (B)
Sodium	87,000	57,000	NA	1,000,000,000 D	NLV	2,500,000
Titanium	430,000 J	380,000 J	NA	NE	NE	NE
Vanadium	29,000	26,000	NA	750,000 DD	NLV	72,000
Zinc	92,000 N	68,000 N	NA	170,000,000 (B)	(B) NLV	2,400,000 (B)

Footnotes on Page 9.

Table 6-36. Summary of Constituents Detected in Surface Soil Samples, Former Southwest Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Date Sample ID Depth	Groundwater/ Surface Water Interface Criteria	Ambient Air Inhalation Criteria
VOC		
2-Butanone (MEK)	44,000 (MEK) (I)	67,000,000,000 (MEK) (I)
Acetone	34,000 (I)	390,000,000,000 (I)
Toluene	2,800 (I)	27,000,000,000 (I)
SVOC		
4-Chloroaniline	NE	NE
Benzo(a)anthracene	(Q) NLL	(Q) ID
Benzo(a)pyrene	(Q) NLL	1,500,000 (Q)
Benzo(b)fluoranthene	(Q) NLL	(Q) ID
Benzo(g,h,i)perylene	NLL	800,000,000
Benzo(k)fluoranthene	(Q) NLL	(Q) ID
bis(2-Ethylhexyl)phthalate	NLL	700,000,000
Chrysene	(Q) NLL	(Q) ID
Fluoranthene	5,500	9,300,000,000
Indeno(1,2,3-c,d)pyrene	(Q) NLL	(Q) ID
Phenanthrene	5,300	6,700,000
Pyrene	ID	6,700,000,000
Metals		
Aluminum	(B) NA	(B) ID
Arsenic	70,000 X	720,000
Barium	260,000 (B) G,X	330,000,000 (B)
Beryllium	24,000 G	1,300,000
Cadmium	2,500 (B) G,X	1,700,000 (B)
Calcium	NE	NE
Chromium	3,300 (*VI)	260,000 total/dissolved
Cobalt	2,000	13,000,000
Copper	48,000 (B) G	130,000,000 (B)
Iron	(B) NA	(B) ID

Footnotes on Page 9.

Table 6-36. Summary of Constituents Detected in Surface Soil Samples, Former Southwest Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Date Sample ID Depth	Groundwater/ Surface Water Interface Criteria	Ambient Air Inhalation Criteria
Metals (continued)		
Lead	1,700,000 (B) G,X	100,000,000 (B)
Magnesium	(B) NA	6,700,000,000 (B)
Manganese	36,000 (B) G,X	3,300,000 (B)
Mercury	50 (B,Z) (total) M	20,000,000 (B,Z) (total)
Molybdenum	16,000 (B) X	(B) ID
Nickel	50,000 (B) G	13,000,000 (B)
Potassium	NE	NE
Selenium	400 (B)	130,000,000 (B)
Silver	100 (B) M	6,700,000 (B)
Sodium	NA	ID
Titanium	NE	NE
Vanadium	190,000	ID
Zinc	110,000 (B) G	(B) ID

Footnotes on Page 9.

Table 6-36. Summary of Constituents Detected in Surface Soil Samples, Former Southwest Pit Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Results in micrograms per kilogram (µg/Kg).

<	Less than the laboratory method detection limit.
[box]	Indicates a value above the Residential and Commercial I Drinking Water Protection Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
Bold	Indicates a value above the Residential and Commercial I Groundwater/Surface Water Interface Protection Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
*	LCS or LCSD exceeds the control limit.
J	Estimated result.
R	Rejected result.
B	Constituent was also detected in laboratory blank.
W	Post-digestion spike for furnace A-A analysis is out of control limits while sample absorbance is less than 50% of spike absorbance.
N	Spiked sample recovery is not within control limits (Inorganics only).
E	Analyte was detected at a concentration greater than the calibration range, and is therefore estimated.

State of Michigan Criteria Footnotes:

I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.
C	Value presented is a screening level based on the chemical specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat.
DD	Hazardous substance causes developmental effects.
Q	Criterion for carcinogenic polycyclic aromatic hydrocarbons (PAHs) were developed using "relative potential potencies" (RFPs) to benzo(a)pyrene.
NLL	Chemical is not likely to leach under most soil conditions.
NLV	Chemical is not likely to volatilize under most soil conditions.
ID	Inadequate data to develop criterion.
D	Calculated criterion exceeds 100%, therefore it is reduced to 100%.
B	Background may be substituted if higher than the calculated cleanup criteria.
Z	Data for mercuric chloride serves as the basis for drinking water, groundwater contact, soil direct contact and the groundwater protection criteria.
NE	Not established.
*VI	Standard for Chromium VI.
NA	Criterion or values is not available.
X	The GSI criterion shown is not protective for surface water that is used as a drinking water source.
G	GSI value is pH or water hardness dependent.
M	Calculated criterion is below the analytical method detection limit (MDL).

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-2						
Sample Depth (ft bls)	5-25'	35'	60'	85'	110'	110'	135'
Sample Date	05/17/97	05/17/97	05/17/97	05/17/97	05/19/97	05/19/97	05/19/97
Sample I.D.	GMSB-2/0525	GMSB-2/35	GMSB-2/60	GMSB-2/85	GMSB-2/110	GMSB-2/110 DUP	GMSB-2/135
VOC's							
1,1,1-Trichloroethane	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
1,1,2,2-Tetrachloroethane	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
1,1,2-Trichloroethane	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
1,1-Dichloroethane	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
1,1-Dichloroethene	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
1,2-Dichloropropane	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	48 J	47 J	NA	NA	<61 J	NA	NA
2-Chloroethyl vinyl ether	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	<97	<55	NA	NA	<61 J	NA	NA
4-Methyl-2-pentanone (MIBK)	<97	<55	NA	NA	<61 J	NA	NA
Acetone	79 J	71	NA	NA	<61 J	NA	NA
Acrylonitrile	NA	NA	NA	NA	NA	NA	NA
Benzene	7.5 J	<5.5	NA	NA	<6.1 J	NA	NA
Bromodichloromethane	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
Bromoform	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
Bromomethane	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
Carbon disulfide	<9.7	3.2 J	NA	NA	<6.1 J	NA	NA
Carbon tetrachloride	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
Chlorobenzene	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
Chloroethane	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
Chloroform	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
Chloromethane	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
cis-1,3-Dichloropropene	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
Dibromochloromethane	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
Ethylbenzene	18	<5.5	NA	NA	<6.1 J	NA	NA
Methylene chloride	<9.7	<5.5	NA	NA	<6.1 J	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-2						
Sample Depth (ft bls)	5-25'	35'	60'	85'	110'	110'	135'
Sample Date	05/17/97	05/17/97	05/17/97	05/17/97	05/19/97	05/19/97	05/19/97
Sample I.D.	GMSB-2/0525	GMSB-2/35	GMSB-2/60	GMSB-2/85	GMSB-2/110	GMSB-2/110 DUP	GMSB-2/135
VOC's (continued)							
Naphthalene	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
Toluene	14	<5.5	NA	NA	<6.1 J	NA	NA
trans-1,2-Dichloroethene	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
trans-1,3-Dichloropropene	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
Trichloroethene	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	<9.7	<5.5	NA	NA	<6.1 J	NA	NA
Xylene, o	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	190	<5.5	NA	NA	<6.1 J	NA	NA
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA
SVOCs							
2,4-Dimethylphenol	<4,000	230	NA	NA	<200	NA	NA
2-Methylnaphthalene	5,200	<180	NA	NA	<200	NA	NA
2-Methylphenol	**2,200 J**	**300**	NA	NA	<200	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	**5,100**	**1,500**	NA	NA	<200	NA	NA
Acenaphthene	<4,000	<180	NA	NA	<200	NA	NA
Anthracene	1,400 J	<180	NA	NA	<200	NA	NA
Benzo(a)anthracene	1,400 J	<180	NA	NA	<200	NA	NA
Benzo(a)pyrene	<4,000	<180	NA	NA	<200	NA	NA
Benzo(b)fluoranthene	900 J	<180	NA	NA	<200	NA	NA
Benzo(g,h,i)perylene	<4,000	<180	NA	NA	<200	NA	NA
Benzo(k)fluoranthene	<4,000	<180	NA	NA	<200	NA	NA
bis(2-Ethylhexyl)phthalate	<4,000	<180	NA	NA	<200	NA	NA
Butylbenzylphthalate	<4,000	<180	NA	NA	<200	NA	NA
Carbazole	1,100 J	<180	NA	NA	<200	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-2						
Sample Depth (ft bls)	5-25'	35'	60'	85'	110'	110'	135'
Sample Date	05/17/97	05/17/97	05/17/97	05/17/97	05/19/97	05/19/97	05/19/97
Sample I.D.	GMSB-2/0525	GMSB-2/35	GMSB-2/60	GMSB-2/85	GMSB-2/110	GMSB-2/110 DUP	GMSB-2/135
SVOCs (continued)							
Chrysene	1,400 J	<180	NA	NA	<200	NA	NA
Dibenzofuran	1,500 J	<180	NA	NA	<200	NA	NA
Diethylphthalate	<4,000	<180	NA	NA	<200	NA	NA
Di-n-butylphthalate	<4,000	<180	NA	NA	<200	NA	NA
Di-n-octylphthalate	<4,000	<180	NA	NA	<200	NA	NA
Fluoranthene	4,100	<180	NA	NA	<200	NA	NA
Fluorene	2,000 J	<180	NA	NA	<200	NA	NA
Naphthalene	**3,900 J**	<180	NA	NA	<200	NA	NA
n-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine	3,000 J	<180	NA	NA	<200	NA	NA
Phenanthrene	**7,600**	<180	NA	NA	<200	NA	NA
Phenol	2,000 J	340	NA	NA	<200	NA	NA
Pyrene	2,700 J	<180	NA	NA	<200	NA	NA
Metals							
Aluminum	$\boxed{484,000}$	$\boxed{4,210,000}$	NA	NA	NA	NA	NA
Antimony	$\boxed{5,410}$	488	NA	NA	NA	NA	NA
Arsenic	1880 Wa	1,000	NA	NA	NA	NA	NA
Barium	**261,000**	13,100	NA	NA	NA	NA	NA
Beryllium	<971	<553	NA	NA	NA	NA	NA
Cadmium	394	<27.6 Wa	NA	NA	NA	NA	NA
Calcium	2,840,000	927,000	NA	NA	NA	NA	NA
Chromium	**29,000**	**9,470**	NA	NA	NA	NA	NA
Cobalt	<9,710	<5,530	NA	NA	NA	NA	NA
Copper	**646,000**	13,800	NA	NA	NA	NA	NA
Cyanide	NA	NA	NA	NA	NA	NA	NA
Iron	$\boxed{4,460,000}$	$\boxed{5,950,000}$	NA	NA	NA	NA	NA
Lead	276,000	1,990	NA	NA	NA	NA	NA
Magnesium	<971,000	2,240,000	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-2						
Sample Depth (ft bls)	5-25'	35'	60'	85'	110'	110'	135'
Sample Date	05/17/97	05/17/97	05/17/97	05/17/97	05/19/97	05/19/97	05/19/97
Sample I.D.	GMSB-2/0525	GMSB-2/35	GMSB-2/60	GMSB-2/85	GMSB-2/110	GMSB-2/110 DUP	GMSB-2/135
Metals (continued)							
Manganese	**86,900**	**54,900**	NA	NA	NA	NA	NA
Mercury	**304**	<55.3	NA	NA	NA	NA	NA
Molybdenum	NA	NA	NA	NA	NA	NA	NA
Nickel	4,960	13,500	NA	NA	NA	NA	NA
Potassium	<971,000	<553,000	NA	NA	NA	NA	NA
Selenium	<486	<276	NA	NA	NA	NA	NA
Silver	<486	<276	NA	NA	NA	NA	NA
Sodium	<971,000	<553,000	NA	NA	NA	NA	NA
Thallium	<486	<276	NA	NA	NA	NA	NA
Titanium	NA	NA	NA	NA	NA	NA	NA
Vanadium	3,460	12,400	NA	NA	NA	NA	NA
Zinc	**322,000 MBB**	19,900 MBD	NA	NA	NA	NA	NA
Alcohols							
Acrolein	NA	NA	NA	NA	NA	NA	NA
Ethanol	NA	NA	NA	NA	NA	NA	NA
Ethylacetate	NA	NA	NA	NA	NA	NA	NA
Methanol	NA	NA	NA	NA	NA	NA	NA
n-Propanol	NA	NA	NA	NA	NA	NA	NA
Aldehydes							
Acetaldehyde	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	NA	NA	NA	NA	NA	NA	NA
Pest/PCBs							
4,4'-DDE	<32	<3.6	NA	NA	NA	NA	NA
Aldrin	<16	<1.9	NA	NA	NA	NA	NA
Aroclor 1254	<320	<36	NA	NA	NA	NA	NA
Chlordane (gamma)	<16	<1.9	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-2						
Sample Depth (ft bls)	5-25'	35'	60'	85'	110'	110'	135'
Sample Date	05/17/97	05/17/97	05/17/97	05/17/97	05/19/97	05/19/97	05/19/97
Sample I.D.	GMSB-2/0525	GMSB-2/35	GMSB-2/60	GMSB-2/85	GMSB-2/110	GMSB-2/110 DUP	GMSB-2/135
Pest/PCBs							
Dieldrin	<32	<3.6	NA	NA	NA	NA	NA
Endrin	<32	<3.6	NA	NA	NA	NA	NA
Endrin aldehyde	<32	<3.6	NA	NA	NA	NA	NA
Endrin ketone	<32	<3.6	NA	NA	NA	NA	NA
Heptachlor	<16	<1.9	NA	NA	NA	NA	NA
Heptachlor epoxide	<16	<1.9	NA	NA	NA	NA	NA
Total Organic Carbon	27,000,000	1,900,000	1,400,000	800,000	2,400,000	2,400,000	1,100,000
Acetic Acid	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Nitrate	NA	NA	NA	NA	NA	NA	NA
Percent Solids	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-2 (continued)						
Sample Depth (ft bls)	160'	185'	215'	245'	300'	300'	323'
Sample Date	05/19/97	05/19/97	05/19/97	05/20/97	05/20/97	05/20/97	05/30/97
Sample I.D.	GMSB-2/160	GMSB-2/185	GMSB-2/215	GMSB-2/245'	GMSB-2/300'	GMSB-2/300' DUP	GMSB-2/323
VOC's							
1,1,1-Trichloroethane	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
1,1,2,2-Tetrachloroethane	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
1,1,2-Trichloroethane	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
1,1-Dichloroethane	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
1,1-Dichloroethene	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
1,2-Dichloropropane	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	NA	NA	NA	11 J	92	NA	<57 J
2-Chloroethyl vinyl ether	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	<59	14 J	NA	<57 J
4-Methyl-2-pentanone (MIBK)	NA	NA	NA	<59	<56	NA	<57 J
Acetone	NA	NA	NA	10 J	76	NA	<57 J
Acrylonitrile	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
Bromodichloromethane	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
Bromoform	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
Bromomethane	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
Carbon disulfide	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
Carbon tetrachloride	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
Chlorobenzene	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
Chloroethane	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
Chloroform	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
Chloromethane	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
cis-1,3-Dichloropropene	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
Dibromochloromethane	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
Ethylbenzene	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
Methylene chloride	NA	NA	NA	<5.9	<5.6	NA	<5.7 J

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-2 (continued)						
Sample Depth (ft bls)	160'	185'	215'	245'	300'	300'	323'
Sample Date	05/19/97	05/19/97	05/19/97	05/20/97	05/20/97	05/20/97	05/30/97
Sample I.D.	GMSB-2/160	GMSB-2/185	GMSB-2/215	GMSB-2/245'	GMSB-2/300'	GMSB-2/300' DUP	GMSB-2/323
VOC's (continued)							
Naphthalene	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
Toluene	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
trans-1,2-Dichloroethene	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
trans-1,3-Dichloropropene	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
Trichloroethene	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
Xylene, o	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	NA	NA	NA	<5.9	<5.6	NA	<5.7 J
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA
SVOCs							
2,4-Dimethylphenol	NA	NA	NA	46 J	190	NA	<190
2-Methylnaphthalene	NA	NA	NA	<200	<180	NA	<190
2-Methylphenol	NA	NA	NA	120 J	**360**	NA	<190
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	NA	NA	280	**1,600**	NA	<190
Acenaphthene	NA	NA	NA	<200	<180	NA	<190
Anthracene	NA	NA	NA	<200	<180	NA	<190
Benzo(a)anthracene	NA	NA	NA	<200	<180	NA	<190
Benzo(a)pyrene	NA	NA	NA	<200	<180	NA	<190
Benzo(b)fluoranthene	NA	NA	NA	<200	<180	NA	<190
Benzo(g,h,i)perylene	NA	NA	NA	<200	<180	NA	<190
Benzo(k)fluoranthene	NA	NA	NA	<200	<180	NA	<190
bis(2-Ethylhexyl)phthalate	NA	NA	NA	<200	<180	NA	<190
Butylbenzylphthalate	NA	NA	NA	<200	<180	NA	<190
Carbazole	NA	NA	NA	<200	<180	NA	<190

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-2 (continued)						
Sample Depth (ft bls)	160'	185'	215'	245'	300'	300'	323'
Sample Date	05/19/97	05/19/97	05/19/97	05/20/97	05/20/97	05/20/97	05/30/97
Sample I.D.	GMSB-2/160	GMSB-2/185	GMSB-2/215	GMSB-2/245'	GMSB-2/300'	GMSB-2/300' DUP	GMSB-2/323
SVOCs (continued)							
Chrysene	NA	NA	NA	<200	<180	NA	<190
Dibenzofuran	NA	NA	NA	<200	<180	NA	<190
Diethylphthalate	NA	NA	NA	<200	<180	NA	<190
Di-n-butylphthalate	NA	NA	NA	<200	<180	NA	<190
Di-n-octylphthalate	NA	NA	NA	<200	<180	NA	<190
Fluoranthene	NA	NA	NA	<200	<180	NA	<190
Fluorene	NA	NA	NA	<200	<180	NA	<190
Naphthalene	NA	NA	NA	<200	<180	NA	<190
n-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine	NA	NA	NA	<200	<180	NA	<190
Phenanthrene	NA	NA	NA	<200	<180	NA	<190
Phenol	NA	NA	NA	270	900	NA	<190
Pyrene	NA	NA	NA	<200	<180	NA	<190
Metals							
Aluminum	NA	NA	NA	NA	NA	NA	NA
Antimony	NA	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA	NA
Calcium	NA	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA	NA
Cobalt	NA	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	NA	NA	NA
Cyanide	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA
Magnesium	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-2 (continued)						
Sample Depth (ft bls)	160'	185'	215'	245'	300'	300'	323'
Sample Date	05/19/97	05/19/97	05/19/97	05/20/97	05/20/97	05/20/97	05/30/97
Sample I.D.	GMSB-2/160	GMSB-2/185	GMSB-2/215	GMSB-2/245'	GMSB-2/300'	GMSB-2/300' DUP	GMSB-2/323
Metals (continued)							
Manganese	NA	NA	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	NA	NA	NA	NA
Molybdenum	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA	NA
Silver	NA	NA	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	NA	NA
Titanium	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	NA	NA
Alcohols							
Acrolein	NA	NA	NA	NA	NA	NA	NA
Ethanol	NA	NA	NA	NA	NA	NA	NA
Ethylacetate	NA	NA	NA	NA	NA	NA	NA
Methanol	NA	NA	NA	NA	NA	NA	NA
n-Propanol	NA	NA	NA	NA	NA	NA	NA
Aldehydes							
Acetaldehyde	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	NA	NA	NA	NA	NA	NA	NA
Pest/PCBs							
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA
Aldrin	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	NA	NA	NA	NA	NA	NA	NA
Chlordane (gamma)	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	**GMSB-2 (continued)**						
Sample Depth (ft bls)	**160'**	**185'**	**215'**	**245'**	**300'**	**300'**	**323'**
Sample Date	**05/19/97**	**05/19/97**	**05/19/97**	**05/20/97**	**05/20/97**	**05/20/97**	**05/30/97**
Sample I.D.	**GMSB-2/160**	**GMSB-2/185**	**GMSB-2/215**	**GMSB-2/245'**	**GMSB-2/300'**	**GMSB-2/300' DUP**	**GMSB-2/323**
Pest/PCBs							
Dieldrin	NA	NA	NA	NA	NA	NA	NA
Endrin	NA	NA	NA	NA	NA	NA	NA
Endrin aldehyde	NA	NA	NA	NA	NA	NA	NA
Endrin ketone	NA	NA	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	620,000	1,600,000	3,300,000	550,000	860,000	760,000	14,000,000
Acetic Acid	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Nitrate	NA	NA	NA	NA	NA	NA	NA
Percent Solids	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-2 (continued)	GMSB-43	GMSB-44	GMSB-45	GMSB-47	GMSB-48
Sample Depth (ft bls)	355'	3	15	10	15	22
Sample Date	05/30/97	10/21/99	10/21/99	10/21/99	10/22/99	10/21/99
Sample I.D.	GMSB-2/355	GMSB-43/3	GMSB-44/15	GMSB-45/10	GMSB-47/15	GMSB-48/22
VOC's						
1,1,1-Trichloroethane	<6 J	<57	<42	<13	<62	NA
1,1,2,2-Tetrachloroethane	<6 J	<57	<42	<13	<62	NA
1,1,2-Trichloroethane	<6 J	<57	<42	<13	<62	NA
1,1-Dichloroethane	<6 J	<57	<42	<13	<62 J	NA
1,1-Dichloroethene	<6 J	<57	<42	<13	<62 J	NA
1,2,4-Trimethylbenzene	NA	<57	<42	13	**810**	NA
1,2-Dichloroethane	<6 J	<57	<42	<13	<62	NA
1,2-Dichloropropane	<6 J	<57	<42	<13	<62	NA
1,3,5-Trimethylbenzene	NA	<57	<42	<13	260	NA
2-Butanone (MEK)	50 J	<280	<210	130	290 J	NA
2-Chloroethyl vinyl ether	NA	NA	NA	NA	NA	NA
2-Hexanone	<60 J	<280	<210	<64	<310	NA
4-Methyl-2-pentanone (MIBK)	<60 J	<280	<210	<64	<310	NA
Acetone	44 J	<570	260 J	520	660	NA
Acrylonitrile	NA	<1,100	<850	<260	<1,200	NA
Benzene	<6 J	<57	<42	<13	<62	NA
Bromodichloromethane	<6 J	<57	<42	<13	<62	NA
Bromoform	<6 J	<57	<42	<13	<62	NA
Bromomethane	<6 J	<110 J	<85 J	<26 J	<120 J	NA
Carbon disulfide	<6 J	330	<42	<13	1,500	NA
Carbon tetrachloride	<6 J	<57	<42	<13	<62	NA
Chlorobenzene	<6 J	<57	<42	<13	<62	NA
Chloroethane	<6 J	<110	<85	<26	<120 J	NA
Chloroform	<6 J	<57	<42	<13	<62 J	NA
Chloromethane	<6 J	57 J	<85	<26	<120 J	NA
cis-1,3-Dichloropropene	<6 J	<57	<42	<13	<62	NA
Dibromochloromethane	<6 J	<57	<42	<13	<62	NA
Ethylbenzene	<6 J	<57	<42	<13	74	NA
Methylene chloride	<6 J	<57	<42	<13	<62 J	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-2 (continued)	GMSB-43	GMSB-44	GMSB-45	GMSB-47	GMSB-48
Sample Depth (ft bls)	355'	3	15	10	15	22
Sample Date	05/30/97	10/21/99	10/21/99	10/21/99	10/22/99	10/21/99
Sample I.D.	GMSB-2/355	GMSB-43/3	GMSB-44/15	GMSB-45/10	GMSB-47/15	GMSB-48/22
VOC's (continued)						
Naphthalene	NA	NA	NA	NA	NA	NA
n-Propylbenzene	NA	<57	<42	<13	120	NA
Tetrachloroethene	<6 J	<57	<42	<13	<62	NA
Toluene	<6 J	<57	<42	15	170	NA
trans-1,2-Dichloroethene	<6 J	<57	<42	<13	<62 J	NA
trans-1,3-Dichloropropene	<6 J	<57	<42	<13	<62	NA
Trichloroethene	<6 J	<57	<44	<13	<62	NA
Trichlorofluoromethane	NA	<57	<42	<13	<62 J	NA
Vinyl chloride	<6 J	<110	<85	<26	<120 J	NA
Xylene, o	NA	NA	NA	NA	NA	NA
Xylenes (total)	<6 J	<110	<85	<26	**760**	NA
Xylenes, m+p	NA	NA	NA	NA	NA	NA
SVOCs						
2,4-Dimethylphenol	440	<750	<3,400	<4,900	4,600 J	NA
2-Methylnaphthalene	<200	<750	<3,400	<4,900	13,000	NA
2-Methylphenol	**750**	<750	<3,400	**2,600 J**	<5,000	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	<750	<3,400	**3,400 J**	$\boxed{8,300}$	NA
4-Methylphenol	**2,400**	NA	NA	NA	NA	NA
Acenaphthene	<200	<750	<3,400	<4,900	<5,000	NA
Anthracene	<200	<750	<3,400	<4,900	<5,000	NA
Benzo(a)anthracene	<200	<750	<3,400	<4,900	<5,000	NA
Benzo(a)pyrene	<200	<750	<3,400	<4,900	<5,000	NA
Benzo(b)fluoranthene	<200	<750	<3,400	<4,900	<5,000	NA
Benzo(g,h,i)perylene	<200	<750	<3,400	<4,900	<5,000	NA
Benzo(k)fluoranthene	<200	<750	<3,400	<4,900	<5,000	NA
bis(2-Ethylhexyl)phthalate	<200	7400	<3,400	<4,900	<5,000	NA
Butylbenzylphthalate	<200	<750	<3,400	<4,900	<5,000	NA
Carbazole	<200	<750	<3,400	<4,900	<5,000	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-2 (continued)	GMSB-43	GMSB-44	GMSB-45	GMSB-47	GMSB-48
Sample Depth (ft bls)	355'	3	15	10	15	22
Sample Date	05/30/97	10/21/99	10/21/99	10/21/99	10/22/99	10/21/99
Sample I.D.	GMSB-2/355	GMSB-43/3	GMSB-44/15	GMSB-45/10	GMSB-47/15	GMSB-48/22
SVOCs (continued)						
Chrysene	<200	<750	<3,400	<4,900	<5,000	NA
Dibenzofuran	<200	<750	<3,400	<4,900	**3,900 J**	NA
Diethylphthalate	<200	<750	<3,400	<4,900	<5,000	NA
Di-n-butylphthalate	<200	<750	<3,400	<4,900	<5,000	NA
Di-n-octylphthalate	<200	<750	<3,400	<4,900	<5,000	NA
Fluoranthene	<200	<750	<3,400	<4,900	<5,000	NA
Fluorene	<200	<750 J	<3,400	<4,900	<5,000 J	NA
Naphthalene	<200	<750	<3,400	<4,900	**6,600**	NA
n-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine	<200	<750	<3400	<4,900	<5,000	NA
Phenanthrene	<200	<750	<3400	<4,900	<5,000	NA
Phenol	2100	<750	<3400	3,600 J	<5,000	NA
Pyrene	<200	<750 J	<3400	<4,900	<5,000 J	NA
Metals						
Aluminum	NA	3,300,000 J	930,000 J	230,000 J	1,000,000 J	NA
Antimony	NA	<5,700 J	2,700 BJ	740 BJ	13,000 J	NA
Arsenic	NA	2,100 J	1,600 J	1,300 J	12,000 J	NA
Barium	NA	39,000	**320,000**	130,000	**320,000**	NA
Beryllium	NA	120 B	43 B	<1,200	50 B	NA
Cadmium	NA	270 J	140 J	R	**3,900 J**	NA
Calcium	NA	6,200,000	2,600,000	3,900,000	7,400,000	NA
Chromium	NA	**23,000**	**14,000**	**6,000**	**43,000**	NA
Cobalt	NA	**2,700**	400 B	<1,200	**22,000**	NA
Copper	NA	40,000	**150,000**	**89,000**	**4,900,000**	NA
Cyanide	NA	NA	NA	NA	NA	NA
Iron	NA	23,000,000	3,500,000	430,000	8,300,000	NA
Lead	NA	18,000	130,000	23,000	1,700,000	NA
Magnesium	NA	1,100,000	560,000	630,000	1,500,000	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-2 (continued)	GMSB-43	GMSB-44	GMSB-45	GMSB-47	GMSB-48
Sample Depth (ft bls)	355'	3	15	10	15	22
Sample Date	05/30/97	10/21/99	10/21/99	10/21/99	10/22/99	10/21/99
Sample I.D.	GMSB-2/355	GMSB-43/3	GMSB-44/15	GMSB-45/10	GMSB-47/15	GMSB-48/22
Metals (continued)						
Manganese	NA	$\boxed{270,000}$	$\boxed{180,000}$	$\boxed{190,000}$	$\boxed{240,000}$	NA
Mercury	NA	<230	**140 B**	21 B	**210 B**	NA
Molybdenum	NA	$\boxed{1,600 B}$	$\boxed{1,600 B}$	780 B	$\boxed{6,500 B}$	NA
Nickel	NA	8,100	1,300 B	<2,300	**94,000**	NA
Potassium	NA	320,000	380,000	520,000	500,000	NA
Selenium	NA	R	**1,300 J**	**2,600 J**	**1,200 BJ**	NA
Silver	NA	<1,100	**140 B**	<1,200	**540 B**	NA
Sodium	NA	31,000	41,000	42,000	47,000	NA
Thallium	NA	<2,300	<1,500	<2,300	<2,500	NA
Titanium	NA	240,000	270,000	100,000	410,000	NA
Vanadium	NA	14,000	4,600	770 B	6,900	NA
Zinc	NA	53,000	28,000	36,000	**200,000**	NA
Alcohols						
Acrolein	NA	R	R	R	R	NA
Ethanol	NA	970 J	970 J	13,000	1,100 J	NA
Ethylacetate	NA	<11,000	<8,500	<13,000	700 J	NA
Methanol	NA	<10,000	<7,400	**18,000 B**	<12,000	NA
n-Propanol	NA	<2,300	<1,700	800 J	750 J	NA
Aldehydes						
Acetaldehyde	NA	<4,000	<2,000	$\boxed{20,000}$	**12,000**	**8,000**
Formaldehyde	NA	***14,000 #***	<2,000	**7,800**	**11,000**	$\boxed{50,000 \#}$
Pest/PCBs						
4,4'-DDE	NA	NA	NA	NA	NA	NA
Aldrin	NA	NA	NA	NA	NA	NA
Aroclor 1254	NA	NA	NA	NA	NA	NA
Chlordane (gamma)	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-2 (continued)	GMSB-43	GMSB-44	GMSB-45	GMSB-47	GMSB-48
Sample Depth (ft bls)	355'	3	15	10	15	22
Sample Date	05/30/97	10/21/99	10/21/99	10/21/99	10/22/99	10/21/99
Sample I.D.	GMSB-2/355	GMSB-43/3	GMSB-44/15	GMSB-45/10	GMSB-47/15	GMSB-48/22
Pest/PCBs						
Dieldrin	NA	NA	NA	NA	NA	NA
Endrin	NA	NA	NA	NA	NA	NA
Endrin aldehyde	NA	NA	NA	NA	NA	NA
Endrin ketone	NA	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	NA	NA	NA	NA	NA	NA
Total Organic Carbon	900,000	340,000,000	86,000,000	270,000,000	230,000,000	NA
Acetic Acid	NA	18,000	7,000	$\boxed{220,000}$	32,000	NA
Nitrogen, Nitrate	NA	NA	NA	NA	NA	NA
Percent Solids	NA	51	78	40	40	39

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-48 (continued)	GMSB-2					
Sample Depth (ft bls)	22	13-14.5'	23.5-24.5'	23.5-24.5'	26.5-27.5'	26.5-27.5'	43.5-44.5'
Sample Date	10/22/99	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97
Sample I.D.	GMSB-48/22	SB2-SS11	SB2-SS12	SB2-SS12-RE	SB2-SS13	SB2-SS13-RE	SB2-SS14
VOC's							
1,1,1-Trichloroethane	<13	<2,000	<27	<27 J	<42	<5,000	<11
1,1,2,2-Tetrachloroethane	<13	<2,000	<27 J	<27 J	<42	<5,000	<11
1,1,2-Trichloroethane	<13	<2,000	<27	<27 J	<42	<5,000	<11
1,1-Dichloroethane	<13	<2,000	<27	<27 J	<42	<5,000	<11
1,1-Dichloroethene	<13	<2,000	<27	<27 J	<42	<5,000	<11
1,2,4-Trimethylbenzene	<13	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	<13	<2,000	<27	<27 J	<42	<5,000	<11
1,2-Dichloropropane	<13	<2,000	<27	<27 J	<42	<5,000	<11
1,3,5-Trimethylbenzene	<13	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	<66	<2,000	180	220 J	3,500	2,000 J	18
2-Chloroethyl vinyl ether	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	<66	<2,000	<27 J	<27 J	280	<5,000	<11
4-Methyl-2-pentanone (MIBK)	<66	<2,000	<27 J	<27 J	240	<5,000	<11
Acetone	<130	2,200 J	420 J	510 J	4,600 J	3,400 J	<49 J
Acrylonitrile	<260	NA	NA	NA	NA	NA	NA
Benzene	<13	$\boxed{570\ J}$	14 J	18 J	$\boxed{140}$	<5,000	<11
Bromodichloromethane	<13	<2,000	<27 J	<27 J	<42	<5,000	<11 J
Bromoform	<13	<2,000	<27	<27 J	<42	<5,000	<11
Bromomethane	<26 J	<2,000	<27	<27 J	<42	<5,000	<11
Carbon disulfide	<13	<2,000	<27	<27 J	<42 J	<5,000	<11
Carbon tetrachloride	<13	<2,000	<27	<27 J	<42	<5,000	<11
Chlorobenzene	<13	<2,000	<27 J	<27 J	<42	<5,000	<11
Chloroethane	<26	<2,000	<27	<27 J	<42	<5,000	<11
Chloroform	<13	<2,000	<27	<27 J	<42	<5,000	<11
Chloromethane	<26	<2,000	<27	<27 J	<42	<5,000	<11
cis-1,3-Dichloropropene	<13	<2,000	<27	<27 J	<42	<5,000	<11
Dibromochloromethane	<13	<2,000	<27 J	<27 J	<42	<5,000	<11 J
Ethylbenzene	<13	$\boxed{2,000}$	<27 J	<27 J	70 J	<5,000	<11
Methylene chloride	<13	<2,000	<27 J	<27 J	<42 J	<5,000	<11 J

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-48 (continued)	GMSB-2					
Sample Depth (ft bls)	22	13-14.5'	23.5-24.5'	23.5-24.5'	26.5-27.5'	26.5-27.5'	43.5-44.5'
Sample Date	10/22/99	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97
Sample I.D.	GMSB-48/22	SB2-SS11	SB2-SS12	SB2-SS12-RE	SB2-SS13	SB2-SS13-RE	SB2-SS14
VOC's (continued)							
Naphthalene	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	<13	NA	NA	NA	NA	NA	NA
Tetrachloroethene	<13	<2,000	<27 J	<27 J	<42	<5,000	<11
Toluene	<13	1,000 J	<27	<29 J	**9,600 J**	**6,400**	<11
trans-1,2-Dichloroethene	<13	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	<13	<2,000	<27	<27 J	<42	<5,000	<11
Trichloroethene	<13	<2,000	4 J	<27 J	<42	<5,000	<11
Trichlorofluoromethane	<13	NA	NA	NA	NA	NA	NA
Vinyl chloride	<26	<2,000	<27	<27 J	<42	<5,000	<11
Xylene, o	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	<26	**20,000**	44 J	61 J	57	<5,000	<11
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA
SVOCs							
2,4-Dimethylphenol	<5,100	**26,000**	**13,000**	**14,000 J**	**36,000 J**	NA	47 J
2-Methylnaphthalene	<5,100	19,000 J	7,500	8,000	<42,000	NA	21 J
2-Methylphenol	<5,100	**27,000**	**12,000**	**13,000 J**	**71,000**	NA	19 J
3-Methylphenol/4-Methylphenol(m&p-cresol)	<5,100	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	**42,000**	**21,000**	**22,000 J**	**330,000**	NA	<380
Acenaphthene	<5,100	<22,000	540 J	560 J	<42,000	NA	<380
Anthracene	<5,100	5,000 J	57 J	<4,600	<42,000	NA	<380
Benzo(a)anthracene	<5,100	4,200 J	<920	<4,600	<42,000	NA	<380
Benzo(a)pyrene	<5,100	1,700 J	<920	<4,600	<42,000	NA	<380
Benzo(b)fluoranthene	<5,100	1,300 J	<920	<4,600	<42,000	NA	<380
Benzo(g,h,i)perylene	<5,100	1,600 J	<920	<4,600	<42,000	NA	<380
Benzo(k)fluoranthene	<5,100	1,400 J	<920	<4,600	<42,000	NA	<380
bis(2-Ethylhexyl)phthalate	<5,100	<22,000	<920	<4,600	<42,000	NA	<380
Butylbenzylphthalate	<5,100	<22,000	<920	<4,600	<42,000	NA	<380
Carbazole	<5,100	**3,600 J**	<920	<4,600	<42,000	NA	<380

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-48 (continued)	GMSB-2					
Sample Depth (ft bls)	22	13-14.5'	23.5-24.5'	23.5-24.5'	26.5-27.5'	26.5-27.5'	43.5-44.5'
Sample Date	10/22/99	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97
Sample I.D.	GMSB-48/22	SB2-SS11	SB2-SS12	SB2-SS12-RE	SB2-SS13	SB2-SS13-RE	SB2-SS14
SVOCs (continued)							
Chrysene	<5,100	5,300 J	94 J	<4,600	<42,000	NA	<380
Dibenzofuran	<5,100	**5,200 J**	1,700	**1,900 J**	<42,000	NA	<380
Diethylphthalate	<5,100	**12,000 J**	<920	<4,600	<42,000	NA	<380
Di-n-butylphthalate	<5,100	<22,000	240 J	260 J	<42,000	NA	<380
Di-n-octylphthalate	<5,100	<24,000	<920	<4,600	<42,000	NA	<380
Fluoranthene	<5,100	**9,700 J**	<920	<4,600	<42,000	NA	<380
Fluorene	<5,100 J	**8,500 J**	1,700	1,700 J	<42,000	NA	<380
Naphthalene	<5,100	**16,000 J**	**4,100**	**4,300 J**	<42,000	NA	27 J
n-Nitrosodimethylamine	NA	80,000	<920	<4,600	<42,000	NA	<380
n-Nitrosodiphenylamine	<5,100	NA	NA	NA	NA	NA	NA
Phenanthrene	<5,100	**26,000**	160 J	<4,600	<42,000	NA	<380
Phenol	<5,100	**20,000 J**	**15,000**	**17,000 J**	**73,000**	NA	31 J
Pyrene	<5,100 J	10,000 J	97 J	<4,600	3,600 J	NA	<380
Metals							
Aluminum	180,000 J	199,000 J	47,000 J	NA	1,650,000 J	NA	1,330,000 J
Antimony	610 BJ	7,700 J	4,400 J	NA	R	NA	R
Arsenic	720 J	1,200	<1,000	NA	<1,600	NA	<500
Barium	94,000	198,000	66,600	NA	63,700	NA	3,200
Beryllium	31 B	<40	<50	NA	<80	NA	60
Cadmium	R	<500	<600	NA	<900	NA	<300
Calcium	5,000,000	3,830,000	2,530,000	NA	6,540,000	NA	513,000
Chromium	1,500	**12,600**	**4,200**	NA	<3,700	NA	**4,400**
Cobalt	<1,200	<700	<800	NA	<1,300	NA	1,700
Copper	**2,000,000**	**625,000 J**	**1,840,000 J**	NA	7,000 J	NA	10,100 J
Cyanide	NA	**700 J**	**900 J**	NA	**800 J**	NA	70 J
Iron	730,000	4,500,000	997,000	NA	1,070,000	NA	3,440,000
Lead	6,900	1,240,000 J	104,000 J	NA	1,800 J	NA	5,600 J
Magnesium	620,000	728,000 J	400,000 J	NA	504,000 J	NA	880,000 J

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-48 (continued)	GMSB-2					
Sample Depth (ft bls)	22	13-14.5'	23.5-24.5'	23.5-24.5'	26.5-27.5'	26.5-27.5'	43.5-44.5'
Sample Date	10/22/99	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97
Sample I.D.	GMSB-48/22	SB2-SS11	SB2-SS12	SB2-SS12-RE	SB2-SS13	SB2-SS13-RE	SB2-SS14
Metals (continued)							
Manganese	$\boxed{310,000}$	$\boxed{100,000}$	$\boxed{136,000}$	NA	$\boxed{156,000}$	NA	$\boxed{22,500}$
Mercury	<220	**400**	<100	NA	<200	NA	<50
Molybdenum	480 B	NA	NA	NA	NA	NA	NA
Nickel	350 B	3,000	<2,500	NA	<4,000	NA	4,200
Potassium	750,000	914,000 J	189,000 J	NA	421,000 J	NA	238,000 J
Selenium	**740 BJ**	<1,000	<1,200	NA	<1,900	NA	<500
Silver	<1,200	**600**	<400	NA	<700	NA	**200**
Sodium	53,000	287,000	138,000	NA	298,000	NA	63,700
Thallium	<2,400	<1,000	<1,200	NA	<1,900	NA	<500
Titanium	50,000	NA	NA	NA	NA	NA	NA
Vanadium	800 B	3,000	<1,300	NA	2,800	NA	6,200
Zinc	29,000	49,500	26,300	NA	26,200	NA	8,500
Alcohols							
Acrolein	R	NA	NA	NA	NA	NA	NA
Ethanol	1,300 J	NA	NA	NA	NA	NA	NA
Ethylacetate	<13,000	NA	NA	NA	NA	NA	NA
Methanol	<12,000	NA	NA	NA	NA	NA	NA
n-Propanol	<2,600	NA	NA	NA	NA	NA	NA
Aldehydes							
Acetaldehyde	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	NA	NA	NA	NA	NA	NA	NA
Pest/PCBs							
4,4'-DDE	NA	<59 J	<9.2 J	NA	<14 J	NA	<3.8 J
Aldrin	NA	240 J	<4.7 J	NA	<7.1 J	NA	<1.9 J
Aroclor 1254	NA	<590	<92	NA	<140	NA	<38
Chlordane (gamma)	NA	30 J	<4.7 J	NA	<7.1 J	NA	<1.9 J

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-48 (continued)	GMSB-2					
Sample Depth (ft bls)	22	13-14.5'	23.5-24.5'	23.5-24.5'	26.5-27.5'	26.5-27.5'	43.5-44.5'
Sample Date	10/22/99	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97
Sample I.D.	GMSB-48/22	SB2-SS11	SB2-SS12	SB2-SS12-RE	SB2-SS13	SB2-SS13-RE	SB2-SS14
Pest/PCBs							
Dieldrin	NA	54 J	<9.2	NA	<14	NA	<3.8
Endrin	NA	230	<9.2	NA	<14	NA	<3.8
Endrin aldehyde	NA	59 J	<9.2 J	NA	<14 J	NA	<3.8 J
Endrin ketone	NA	130 J	<9.2 J	NA	<14 J	NA	<3.8 J
Heptachlor	NA	<30	<4.7	NA	<7.1	NA	<1.9
Heptachlor epoxide	NA	55 J	<4.7 J	NA	<7.1 J	NA	<1.9 J
Total Organic Carbon	150,000,000	NA	NA	NA	NA	NA	NA
Acetic Acid	$\boxed{94,000}$	NA	NA	NA	NA	NA	NA
Nitrogen, Nitrate	NA	NA	NA	NA	NA	NA	NA
Percent Solids	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-2 (continued)							PB-3
Sample Depth (ft bls)	83-85'	133-134'	161-162'	161-162'	224-225'	224-225'	284-285'	24'
Sample Date	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97	05/15/96
Sample I.D.	SB2-SS15	SB2-SS16	SB2-SS17	SB2-SS17 -RE	SB2-SS18	SB2-SS18 -RE	SB2-SS19	PB3
VOC's								
1,1,1-Trichloroethane	<12	<12	<61	NA	<120	NA	<12	<1.1
1,1,2,2-Tetrachloroethane	<12	<12	<61	NA	<120	NA	<12	<1.1
1,1,2-Trichloroethane	<12	<12	<61	NA	<120	NA	<12	<1.1
1,1-Dichloroethane	<12	<12	<61	NA	<120	NA	<12	<1.1
1,1-Dichloroethene	<12	<12	<61	NA	<120	NA	<12	<1.1
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	1 J
1,2-Dichloroethane	<12	<12	<61	NA	<120	NA	<12	<1.1
1,2-Dichloropropane	<12	<12	<61	NA	<120	NA	<12	<1.1
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	<1.1
2-Butanone (MEK)	<12	13	550 J	NA	820	NA	120	4.2 J
2-Chloroethyl vinyl ether	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	<12	<12	27 J	NA	28 J	NA	15	2.1 J
4-Methyl-2-pentanone (MIBK)	<12	<12	<61	NA	<120	NA	<12	<2.2
Acetone	<35 J	<41 J	480 J	NA	1,000 J	NA	<140 J	8.1
Acrylonitrile	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	<12	<12	<61	NA	<120	NA	<12	<1.1
Bromodichloromethane	<12 J	<12	<61	NA	<120	NA	<12	<1.1
Bromoform	<12	<12	<61	NA	<120	NA	<12	<1.1
Bromomethane	<12	<12	<61	NA	<120	NA	<12	<2.2
Carbon disulfide	<12	<12	<61	NA	<120	NA	<12	<1.1
Carbon tetrachloride	<12	<12	<61	NA	<120	NA	<12	<1.1
Chlorobenzene	<12	<12	<61	NA	<120	NA	<12	<1.1
Chloroethane	<12	<12	<61 J	NA	<120	NA	<12	<1.1
Chloroform	<12	<12	<61	NA	<120	NA	<12	<1.1
Chloromethane	<12	<12 J	<61 J	NA	<120 J	NA	<12 J	<1.1
cis-1,3-Dichloropropene	<12	<12	<61	NA	<120	NA	<12	<1.1
Dibromochloromethane	<12 J	<12 J	NA	NA	<120 J	NA	<12 J	<1.1
Ethylbenzene	<12	<12	<61	NA	<120	NA	<12	<1.1
Methylene chloride	<12 J	<12 J	<61 J	NA	<120 J	NA	<31 J	<1.1

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-2 (continued)							PB-3
Sample Depth (ft bls)	83-85'	133-134'	161-162'	161-162'	224-225'	224-225'	284-285'	24'
Sample Date	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97	05/15/96
Sample I.D.	SB2-SS15	SB2-SS16	SB2-SS17	SB2-SS17 -RE	SB2-SS18	SB2-SS18 -RE	SB2-SS19	PB3
VOC's (continued)								
Naphthalene	NA	NA	NA	NA	NA	NA	NA	3.4
n-Propylbenzene	NA	NA	NA	NA	NA	NA	NA	<1.1
Tetrachloroethene	<12	<12	<61	NA	<120	NA	<12	<1.1
Toluene	<12	<12	9 J	NA	<120	NA	<12	<1.1
trans-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	<1.1
trans-1,3-Dichloropropene	<12	<12	<61	NA	<120	NA	<12	<1.1
Trichloroethene	<12	<12	<61	NA	<120	NA	<12	<1.1
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	NA	<1.1
Vinyl chloride	<12	<12 J	<61 J	NA	<120 J	NA	<12 J	<1.1
Xylene, o	NA	NA	NA	NA	NA	NA	NA	.4 J
Xylenes (total)	<12	<12	7 J	NA	<120	NA	<12	NA
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA	.8 J
SVOCs								
2,4-Dimethylphenol	<390	110 J	1,000	940 J	2,600	2,700 J	440	<380
2-Methylnaphthalene	<390	29 J	<410	<1,200	<410	<4100	<390	<380
2-Methylphenol	<390	<410	**1,800**	**1,700**	$\boxed{\textbf{5,600}}$	$\boxed{\textbf{5,700}}$	**690**	<380
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	<390	<410	**2,900**	**2,800**	$\boxed{\textbf{8,600}}$	$\boxed{\textbf{9,100}}$	**2,200**	<380
Acenaphthene	<390	<410	<410	<1,200	<410	<4,100	<390	<380
Anthracene	<390	<410	<410	<1,200	<410	<4,100	<390	<380
Benzo(a)anthracene	<390	<410	<410	<1,200	<410	<4,100	<390	<380
Benzo(a)pyrene	<390	<410	<410	<1,200	<410	<4,100	<390	<380
Benzo(b)fluoranthene	<390	<410	<410	<1,200	<410	<4,100	<390	<380
Benzo(g,h,i)perylene	<390	<410	<410	<1,200	<410	<4,100	<390	<380
Benzo(k)fluoranthene	<390	<410	<410	<1,200	<410	<4,100	<390	<380
bis(2-Ethylhexyl)phthalate	<390	<410	<410	<1,200	1,500	<4,100	<390	73 JB
Butylbenzylphthalate	<390	<410	<410	<1,200	<410	<4,100	<390	<380
Carbazole	<390	<410	<410	<1,200	<410	<4,100	<390	<380

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-2 (continued)							PB-3
Sample Depth (ft bls)	83-85'	133-134'	161-162'	161-162'	224-225'	224-225'	284-285'	24'
Sample Date	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97	05/15/96
Sample I.D.	SB2-SS15	SB2-SS16	SB2-SS17	SB2-SS17 -RE	SB2-SS18	SB2-SS18 -RE	SB2-SS19	PB3
SVOCs (continued)								
Chrysene	<390	<410	<410	<1,200	<410	<4,100	<390	<380
Dibenzofuran	<390	<410	<410	<1,200	<410	<4,100	<390	<380
Diethylphthalate	<390	<410	<410	<1,200	<410	<4,100	<390	450 B
Di-n-butylphthalate	<390	<410	24 J	<1,200	23 J	<4,100	<390	1,100 B
Di-n-octylphthalate	<390	<410	<410	<1,200	44 J	<4,100	<390	<380
Fluoranthene	<390	<410	<410	<1,200	<410	<4,100	<390	<380
Fluorene	<390	<410	<410	<1,200	<410	<4,100	<390	<380
Naphthalene	<390	21 J	<410	<1,200	<410	<4,100	<390	<380
n-Nitrosodimethylamine	<390	<410	<410	<1,200	<410	<4,100	<390	NA
n-Nitrosodiphenylamine	NA	NA	NA	NA	NA	NA	NA	<380
Phenanthrene	<390	<410	<410	<1,200	<410	<4,100	<390	<380
Phenol	23 J	<410	3,800	3,600	**12,000**	**13,000**	1,900	<380
Pyrene	<390	<410	<410	<1,200	37 J	<4,100	<390	<380
Metals								
Aluminum	2,440,000 J	1,150,000 J	4,580,000 J	NA	7,480,000 J	NA	1,120 J	NA
Antimony	R	R	R	NA	R	NA	R	NA
Arsenic	<500	500 J	1,000 J	NA	3,600 J	NA	0.50 J	NA
Barium	6,900	5,200	23,500	NA	47,400	NA	6.8	NA
Beryllium	100	70	300	NA	400	NA	0.1	NA
Cadmium	<300	<300	<300	NA	<300	NA	<0.30	NA
Calcium	1,090,000	795,000	12,900,000	NA	18,900,000	NA	4170	NA
Chromium	**3,900**	2,800	**9,800**	NA	**13,600**	NA	2.5	NA
Cobalt	1,800	1,100	**3,800**	NA	**6,100**	NA	1.1	NA
Copper	5,800 J	6,500	12,400	NA	20,900	NA	4.9	NA
Cyanide	100 J	100 J	100 J	NA	100 J	NA	0.20 J	NA
Iron	3,180,000	2,570,000	8,070,000	NA	12,600,000	NA	2520	NA
Lead	2,300 J	1,500 J	2,800	NA	3,900	NA	1.4 J	NA
Magnesium	1,020,000 J	598,000	7,680,000	NA	10,200,000	NA	2010	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-2 (continued)							PB-3
Sample Depth (ft bls)	83-85'	133-134'	161-162'	161-162'	224-225'	224-225'	284-285'	24'
Sample Date	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97	05/15/96
Sample I.D.	SB2-SS15	SB2-SS16	SB2-SS17	SB2-SS17 -RE	SB2-SS18	SB2-SS18 -RE	SB2-SS19	PB3
Metals (continued)								
Manganese	$\boxed{31,000}$	$\boxed{21,500}$	$\boxed{180,000}$	NA	$\boxed{340,000}$	NA	57.6	NA
Mercury	<60	<60	<60	NA	<60	NA	<0.060	NA
Molybdenum	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	4,500	NA	9,000	NA	14,700	NA	2.5	NA
Potassium	362,000 J	164,000	837,000	NA	1,470,000	NA	279	NA
Selenium	<600	<600 J	<600 J	NA	<600 J	NA	<0.50 J	NA
Silver	<200	<200	<200	NA	<200	NA	<0.20	NA
Sodium	89,700	61,800	131,000	NA	254,000	NA	72	NA
Thallium	<600	<600	<600	NA	<600	NA	<0.50	NA
Titanium	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	9,300	8,600	19,900	NA	27,400	NA	6.6	NA
Zinc	16,500	8,700	21,000	NA	29,400	NA	8.5	NA
Alcohols								
Acrolein	NA	NA	NA	NA	NA	NA	NA	NA
Ethanol	NA	NA	NA	NA	NA	NA	NA	NA
Ethylacetate	NA	NA	NA	NA	NA	NA	NA	NA
Methanol	NA	NA	NA	NA	NA	NA	NA	NA
n-Propanol	NA	NA	NA	NA	NA	NA	NA	NA
Aldehydes								
Acetaldehyde	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	NA	NA	NA	NA	NA	NA	NA	NA
Pest/PCBs								
4,4'-DDE	<3.3 J	<4.1 J	<4.1 J	NA	<4.1 J	NA	<3.9 J	NA
Aldrin	<1.7 J	<2.1 J	<2.1 J	NA	<2.1 J	NA	<2.0 J	NA
Aroclor 1254	<33	<41	<41	NA	<41	NA	<39	NA
Chlordane (gamma)	<1.7 J	<2.1 J	<2.1 J	NA	<2.1	NA	<2.0 J	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-2 (continued)							PB-3
Sample Depth (ft bls)	83-85'	133-134'	161-162'	161-162'	224-225'	224-225'	284-285'	24'
Sample Date	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97	06/01/97	05/15/96
Sample I.D.	SB2-SS15	SB2-SS16	SB2-SS17	SB2-SS17 -RE	SB2-SS18	SB2-SS18 -RE	SB2-SS19	PB3
Pest/PCBs								
Dieldrin	<3.3	<4.1	<4.1	NA	<4.1	NA	<3.9	NA
Endrin	<3.3	<4.1	<4.1	NA	<4.1	NA	<3.9	NA
Endrin aldehyde	<3.3 J	<4.1 J	<4.1 J	NA	<4.1 J	NA	<3.9 J	NA
Endrin ketone	<3.3 J	<4.1 J	<4.1 J	NA	<4.1 J	NA	<3.9 J	NA
Heptachlor	<1.7	<2.1	<2.1	NA	0.70 J	NA	<2.0	NA
Heptachlor epoxide	<1.7 J	<2.1 J	<2.1 J	NA	<2.1 J	NA	<2.0 J	NA
Total Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA
Acetic Acid	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Nitrate	NA	2,400	NA	NA	NA	NA	NA	NA
Percent Solids	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	PB-3 (continued)				PB-4				PB-6
Sample Depth (ft bls)	4-8'	8-12'	12-16'	16-20'	8-12'	8-12'	12-16'	16-20'	26'
Sample Date	05/15/96	05/15/96	05/15/96	05/15/96	05/15/96	05/15/96	05/15/96	05/15/96	05/15/96
Sample I.D.	SS-6	SS-8	SS-7	SS-31	SS-9	SS-9RE	SS-10	SS-11	PB6
VOC's									
1,1,1-Trichloroethane	<11	<11	<11	<11	<19	<19	<48	<11	<1.1
1,1,2,2-Tetrachloroethane	<11	<11	<11	<11	<19	<19	<48	<11	<1.1
1,1,2-Trichloroethane	<11	<11	<11	<11	<19	<19	<48	<11	<1.1
1,1-Dichloroethane	<11	<11	<11	<11	<19	<19	<48	<11	<1.1
1,1-Dichloroethene	<11	<11	<11	<11	<19	<19	<48	<11	<1.1
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	<1.1
1,2-Dichloroethane	<11	<11	<11	<11	<19	<19	<48	<11	<1.1
1,2-Dichloropropane	<11	<11	<11	<11	<19	<19	<48	<11	<1.1
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	<1.1
2-Butanone (MEK)	5 J	<11	<11	<11	<19	<19	80	<11	3.2 J
2-Chloroethyl vinyl ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	<11	<11	<11	<11	<19	<19	<48	<11	<2.3
4-Methyl-2-pentanone (MIBK)	<11	<11	<11	<11	<19	<19	<48	<11	<2.3
Acetone	25 B	18	11	34	270	36	220	<11 BJ	11
Acrylonitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	<11	<11	<11	<11	14 J	<19	<48	<11	<1.1
Bromodichloromethane	<11	<11	<11	<11	<19	<19	<48	<11	<1.1
Bromoform	<11	<11	<11	<11	<19	<19	<48	<11	<1.1
Bromomethane	<11	<11	<11	<11	<19	<19	<48	<11	<2.3
Carbon disulfide	<11	7 J	<11	<11	<19	<19	<48	3 J	<1.1
Carbon tetrachloride	<11	<11	<11	<11	<19	<19	<48	<11	<1.1
Chlorobenzene	<11	<11	<11	<11	<19	<19	<48	<11	<1.1
Chloroethane	<11	<11	<11	<11	<19	<19	<48	<11	<1.1
Chloroform	<11	<11	<11	<11	<19	<19	<48	<11	<1.1
Chloromethane	<11	<11	<11	<11	<19	<19	<48	<11	<1.1
cis-1,3-Dichloropropene	<11	<11	<11	<11	<19	<19	<48	<11	<1.1
Dibromochloromethane	<11	<11	<11	<11	<19	<19	<48	<11	<1.1
Ethylbenzene	<11	<11	<11	<11	<19	<19	<48	<11	<1.1
Methylene chloride	<33 B	12	21	36	69	<43 B	<130 B	<34 B	<1.1

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	PB-3 (continued)				PB-4				PB-6
Sample Depth (ft bls)	4-8'	8-12'	12-16'	16-20'	8-12'	8-12'	12-16'	16-20'	26'
Sample Date	05/15/96	05/15/96	05/15/96	05/15/96	05/15/96	05/15/96	05/15/96	05/15/96	05/15/96
Sample I.D.	SS-6	SS-8	SS-7	SS-31	SS-9	SS-9RE	SS-10	SS-11	PB6
VOC's (continued)									
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	6.7
n-Propylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	<1.1
Tetrachloroethene	<11	<11	<11	<11	<19	<19	<48	<11	<1.1
Toluene	<11	<11	<11	<11	6 J	<19	6 J	<11	<1.1
trans-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	<1.1
trans-1,3-Dichloropropene	<11	<11	<11	<11	<19	<19	<48	<11	<1.1
Trichloroethene	<11	<11	<11	<11	<19	<19	<48	<11	<1.1
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	NA	NA	<1.1
Vinyl chloride	<11	<11	<11	<11	<19	<19	<48	<11	<1.1
Xylene, o	NA	NA	NA	NA	NA	NA	NA	NA	<1.1
Xylenes (total)	<11	<11	<11	<11	4 JX	<19	12 J	2 J	NA
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA	NA	.4 J
SVOCs									
2,4-Dimethylphenol	78 J	<390	<360	<370	1,900 J	NA	$\boxed{\textbf{14,000}}$	260 J	<370
2-Methylnaphthalene	54 J	<390	<360	<370	3,600 J	NA	7,400	210 J	390
2-Methylphenol	<370	<390	<360	<370	960 J	NA	$\boxed{\textbf{10,000}}$	55 J	<370
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	140 J	<390	<360	<370	**1,500 J**	NA	$\boxed{\textbf{18,000}}$	80 J	<370
Acenaphthene	<370	<390	<360	<370	<5,400	NA	<5,900	<370	87 J
Anthracene	<370	<390	<360	<370	<5,400	NA	<5,900	<370	<370
Benzo(a)anthracene	<370	<390	<360	<370	<5,400	NA	<5,900	<370	<370
Benzo(a)pyrene	<370	<390	<360	<370	<5,400	NA	<5,900	<370	<370
Benzo(b)fluoranthene	<370	<390	<360	<370	<5,400	NA	<5,900	<370	<370
Benzo(g,h,i)perylene	<370	<390	<360	<370	<5,400	NA	<5,900	<370	<370
Benzo(k)fluoranthene	<370	<390	<360	<370	<5,400	NA	<5,900	<370	<370
bis(2-Ethylhexyl)phthalate	<370 BJ	<390 BJ	<520 B	<370 BJ	<5,400	NA	<5,900	<370 BJ	78 JB
Butylbenzylphthalate	<370	<390	<360	<370	<5,400	NA	<5,900	66 J	<370
Carbazole	<370	<390	<360	<370	<5,400	NA	<5,900	<370	<370

Footnotes on Page 56.

Table 6-37. **Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.**

Well/Boring	**PB-3 (continued)**				**PB-4**				**PB-6**
Sample Depth (ft bls)	**4-8'**	**8-12'**	**12-16'**	**16-20'**	**8-12'**	**8-12'**	**12-16'**	**16-20'**	**26'**
Sample Date	**05/15/96**	**05/15/96**	**05/15/96**	**05/15/96**	**05/15/96**	**05/15/96**	**05/15/96**	**05/15/96**	**05/15/96**
Sample I.D.	**SS-6**	**SS-8**	**SS-7**	**SS-31**	**SS-9**	**SS-9RE**	**SS-10**	**SS-11**	**PB6**
SVOCs (continued)									
Chrysene	<370	<390	<360	<370	<5,400	NA	<5,900	<370	32 J
Dibenzofuran	<370	<390	<360	<370	730 J	NA	1,700 J	40 J	38 J
Diethylphthalate	<370	<390	<360	<370	<5,400	NA	<5,900	<370	470 B
Di-n-butylphthalate	<370	<390	<360	<370	<5,400	NA	<5,900	<370	1,300 B
Di-n-octylphthalate	<370	<390	<360	<370	<5,400	NA	<5,900	<370	<370
Fluoranthene	<370	<390	<360	<370	<5,400	NA	<5,900	<370	46 J
Fluorene	<370	<390	<360	<370	<5,400	NA	1,400 J	<370	<370
Naphthalene	60 J	<390	<360	<370	**2,400 J**	NA	**5,200 J**	160 J	**4,200**
n-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine	<370	<390	<360	<370	<5,400	NA	<5,900	<370	<370
Phenanthrene	<370	<390	<360	<370	770 J	NA	840 J	<370	82 J
Phenol	<370	<390	<360	<370	<5,400	NA	3,100 J	<370	<370
Pyrene	<370	<390	<360	<370	<5,400	NA	<5,900	<370	37 J
Metals									
Aluminum	$\boxed{7,140,000}$	$\boxed{6,670,000}$	$\boxed{2,840,000}$	$\boxed{1,590,000}$	$\boxed{2,940,000}$	NA	$\boxed{1,600,000}$	$\boxed{301,000}$	NA
Antimony	<2,700	<2,700	<2,500	<2,700	$\boxed{6,100 B}$	NA	$\boxed{10,000 B}$	<2,600	NA
Arsenic	1,700 B	1,500 B	1,100 B	<810	$\boxed{18,100}$	NA	2,800 B	920 B	NA
Barium	46,000	24,800 B	10,600 B	6,800 B	**261,000**	NA	202,000	33,900 B	NA
Beryllium	<130	<130	<120	<130	<170	NA	<190	<130	NA
Cadmium	210 B	<200	240 B	250 B	910 B	NA	620 B	360 B	NA
Calcium	1,100,000	298,000 B	542,000 B	362,000 B	6,490,000	NA	12,800,000	237,000 B	NA
Chromium	**14,900**	**13,700**	**4,100**	**6,000**	$\boxed{42,500}$	NA	**23,200**	**4,200**	NA
Cobalt	$\boxed{5,700 B}$	$\boxed{5,600 B}$	$\boxed{3,600 B}$	$\boxed{2,300 B}$	$\boxed{6,300 B}$	NA	$\boxed{2,800 B}$	$\boxed{1,600 B}$	NA
Copper	28,100	14,800	**67,300**	24,600	**265,000**	NA	**2,210,000**	**57,900**	NA
Cyanide	<120	<130	<120	<120	<160	NA	<170	<120	NA
Iron	$\boxed{10,700,000}$	$\boxed{7,170,000}$	$\boxed{4,930,000}$	$\boxed{2,840,000}$	$\boxed{84,800,000}$	NA	$\boxed{7,050,000}$	$\boxed{1,030,000}$	NA
Lead	5,300	4,500	4,400	2,500	190,000	NA	219,000	19,100	NA
Magnesium	1,870,000	2,010,000	1,330,000	800,000 B	2,940,000	NA	3,190,000	62,200 B	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	PB-3 (continued)				PB-4				PB-6
Sample Depth (ft bls)	**4-8'**	**8-12'**	**12-16'**	**16-20'**	**8-12'**	**8-12'**	**12-16'**	**16-20'**	**26'**
Sample Date	**05/15/96**	**05/15/96**	**05/15/96**	**05/15/96**	**05/15/96**	**05/15/96**	**05/15/96**	**05/15/96**	**05/15/96**
Sample I.D.	**SS-6**	**SS-8**	**SS-7**	**SS-31**	**SS-9**	**SS-9RE**	**SS-10**	**SS-11**	**PB6**
Metals (continued)									
Manganese	**255,000 N**	**50,400 N**	**36,900 N**	25,600 N	**647,000**	NA	**228,000 N**	8,400 N	NA
Mercury	**90 B**	**90 B**	**60 B**	**70 B**	**360**	NA	**920**	**60 B**	NA
Molybdenum	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	10,300	9,300	8,000 B	**66,300**	**101,000**	NA	**86,000**	13,400	NA
Potassium	392,000 B	276,000 B	248,000 B	208,000 B	332,000 B	NA	482,000 B	195,000 B	NA
Selenium	<680	<680	<620	<670	**1,300 B**	NA	**1,200 B**	<650	NA
Silver	<740	<740	<680	<740	<940	NA	<1,100	<720	NA
Sodium	43,100 B	37,600 B	37,300 B	38,300 B	67,100 B	NA	87,000 B	33,500 B	NA
Thallium	<720	<720	<660	<720	2,200 B	NA	<1,000	<700	NA
Titanium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	23,700	19,400	11,000	5,200 B	9,900 B	NA	7,200 B	1,800 B	NA
Zinc	26,600	17,400	9,900	5,100	**116,000**	NA	**131,000**	10,800	NA
Alcohols									
Acrolein	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethanol	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylacetate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methanol	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propanol	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldehydes									
Acetaldehyde	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pest/PCBs									
4,4'-DDE	<3.7	<3.9	<3.6	<3.7	<5.4	NA	13 P	<3.7	NA
Aldrin	<1.9	<2	<1.8	<1.9	<2.8	NA	<3	<1.9	NA
Aroclor 1254	<37	<39	<36	<37	95	NA	120 P	<37	NA
Chlordane (gamma)	<1.9	<2	<1.8	<1.9	<2.8	NA	<3	<1.9	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	PB-3 (continued)				PB-4				PB-6
Sample Depth (ft bls)	4-8'	8-12'	12-16'	16-20'	8-12'	8-12'	12-16'	16-20'	26'
Sample Date	05/15/96	05/15/96	05/15/96	05/15/96	05/15/96	05/15/96	05/15/96	05/15/96	05/15/96
Sample I.D.	SS-6	SS-8	SS-7	SS-31	SS-9	SS-9RE	SS-10	SS-11	PB6
Pest/PCBs									
Dieldrin	<3.7	<3.9	<3.6	<3.7	<5.4	NA	<5.9	<3.7	NA
Endrin	<3.7	<3.9	<3.6	<3.7	26 P	NA	14 P	<3.7	NA
Endrin aldehyde	<3.7	<3.9	<3.6	<3.7	<5.4	NA	<5.9	<3.7	NA
Endrin ketone	<3.7	<3.9	<3.6	<3.7	8.8 P	NA	<5.9	<3.7	NA
Heptachlor	<1.9	<2	<1.8	<1.9	<2.8	NA	<3	<1.9	NA
Heptachlor epoxide	<1.9	<2	<1.8	<1.9	<2.8	NA	<3	<1.9	NA
Total Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetic Acid	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Solids	NA	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	PB-6 (continued)		SB-10		SB-10B		SB-11	
Sample Depth (ft bls)	16-19'	16-19'	40'	50'	40'	50'	35'	45'
Sample Date	05/15/96	05/15/96	07/27/85	11/10/85	11/10/85	11/10/85	07/27/85	07/27/85
Sample I.D.	SS-14	SS-14RE	SB10 (40')	SB10 (50')	SB10-B (40')	SB10-B (50')	SB11 (35')	SB11 (45')
VOC's								
1,1,1-Trichloroethane	<16	<16	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	<16	<16	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	<16	<16	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	<16	<16	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	<16	<16	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	<16	<16	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	<16	<16	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	29	39	NA	NA	240	0	NA	NA
2-Chloroethyl vinyl ether	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	<16	<16	NA	NA	12	0	NA	NA
4-Methyl-2-pentanone (MIBK)	<16	<16	NA	NA	NA	NA	NA	NA
Acetone	94 B	140 B	NA	NA	200	0	NA	NA
Acrylonitrile	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5 J	2 J	NA	NA	14	0	NA	NA
Bromodichloromethane	<16	<16	NA	NA	NA	NA	NA	NA
Bromoform	<16	<16	NA	NA	NA	NA	NA	NA
Bromomethane	<16	<16	NA	NA	NA	NA	NA	NA
Carbon disulfide	2 J	<16	NA	NA	71	0	NA	NA
Carbon tetrachloride	<16	<16	NA	NA	NA	NA	NA	NA
Chlorobenzene	<16	<16	NA	NA	NA	NA	NA	NA
Chloroethane	<16	<16	NA	NA	NA	NA	NA	NA
Chloroform	<16	<16	NA	NA	NA	NA	NA	NA
Chloromethane	<16	<16	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	<16	<16	NA	NA	NA	NA	NA	NA
Dibromochloromethane	<16	<16	NA	NA	NA	NA	NA	NA
Ethylbenzene	<16	<16	NA	NA	0	0	NA	NA
Methylene chloride	<38 B	110 B	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	PB-6 (continued)		SB-10		SB-10B		SB-11	
Sample Depth (ft bls)	16-19'	16-19'	40'	50'	40'	50'	35'	45'
Sample Date	05/15/96	05/15/96	07/27/85	11/10/85	11/10/85	11/10/85	07/27/85	07/27/85
Sample I.D.	SS-14	SS-14RE	SB10 (40')	SB10 (50')	SB10-B (40')	SB10-B (50')	SB11 (35')	SB11 (45')
VOC's (continued)								
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	<16	<16	NA	NA	NA	NA	NA	NA
Toluene	140	11 J	NA	NA	31	0	NA	NA
trans-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	<16	<16	NA	NA	NA	NA	NA	NA
Trichloroethene	<16	<16	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	<16	<16	NA	NA	NA	NA	NA	NA
Xylene, o	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	5 J	2 J	NA	NA	58	0	NA	NA
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs								
2,4-Dimethylphenol	**15,000 J**	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	8,000 J	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	**5,900 J**	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	**6,600 J**	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	<22,000	NA	NA	NA	NA	NA	NA	NA
Anthracene	<22,000	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	<22,000	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	<22,000	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	<22,000	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	<22,000	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	<22,000	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	<22,000	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	<22,000	NA	NA	NA	NA	NA	NA	NA
Carbazole	<22,000	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	PB-6 (continued)		SB-10		SB-10B		SB-11	
Sample Depth (ft bls)	16-19'	16-19'	40'	50'	40'	50'	35'	45'
Sample Date	05/15/96	05/15/96	07/27/85	11/10/85	11/10/85	11/10/85	07/27/85	07/27/85
Sample I.D.	SS-14	SS-14RE	SB10 (40')	SB10 (50')	SB10-B (40')	SB10-B (50')	SB11 (35')	SB11 (45')
SVOCs (continued)								
Chrysene	<22,000	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	**4,100 J**	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	<22,000	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	<22,000	NA	NA	NA	NA	NA	NA	NA
Di-n-octylphthalate	<22,000	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	<22,000	NA	NA	NA	NA	NA	NA	NA
Fluorene	2,800 J	NA	NA	NA	NA	NA	NA	NA
Naphthalene	**4,600 J**	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine	<22,000	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	2,600 J	NA	NA	NA	NA	NA	NA	NA
Phenol	3,600 J	NA	NA	NA	NA	NA	NA	NA
Pyrene	4,000 J	NA	NA	NA	NA	NA	NA	NA
Metals								
Aluminum	7,210,000	NA	NA	NA	NA	NA	NA	NA
Antimony	<3,000	NA	NA	NA	NA	NA	NA	NA
Arsenic	2,200 B	NA	NA	NA	NA	NA	NA	NA
Barium	48,300 B	NA	8,800	4,900	44,000	15,000	26,000	130,000
Beryllium	<150	NA	NA	NA	NA	NA	NA	NA
Cadmium	<220	NA	NA	NA	NA	NA	NA	NA
Calcium	990,000 B	NA	NA	NA	NA	NA	NA	NA
Chromium	**13,500**	NA	**6,200**	2,900	**5,800**	**6,600**	**8,400**	**90,000**
Cobalt	**4,700 B**	NA	NA	NA	NA	NA	NA	NA
Copper	20,600	NA	10,000	5,800	**150,000**	26,000	23,000	**51,000**
Cyanide	<140	NA	NA	NA	NA	NA	NA	NA
Iron	9,420,000	NA	NA	NA	NA	NA	NA	NA
Lead	23,000	NA	<8,400	12,000	<6,900	<6,100	24,000	22,000
Magnesium	1,730,000	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	PB-6 (continued)		SB-10		SB-10B		SB-11	
Sample Depth (ft bls)	16-19'	16-19'	40'	50'	40'	50'	35'	45'
Sample Date	05/15/96	05/15/96	07/27/85	11/10/85	11/10/85	11/10/85	07/27/85	07/27/85
Sample I.D.	SS-14	SS-14RE	SB10 (40')	SB10 (50')	SB10-B (40')	SB10-B (50')	SB11 (35')	SB11 (45')
Metals (continued)								
Manganese	$\boxed{\textbf{251,000 N}}$	NA	NA	NA	NA	NA	NA	NA
Mercury	**220**	NA	NA	NA	NA	NA	NA	NA
Molybdenum	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	17,400	NA	NA	NA	NA	NA	NA	NA
Potassium	366,000 B	NA	NA	NA	NA	NA	NA	NA
Selenium	<760	NA	NA	NA	NA	NA	NA	NA
Silver	<830	NA	NA	NA	NA	NA	NA	NA
Sodium	34,200 B	NA	NA	NA	NA	NA	NA	NA
Thallium	<810	NA	NA	NA	NA	NA	NA	NA
Titanium	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	21,800	NA	NA	NA	NA	NA	NA	NA
Zinc	26,900	NA	NA	NA	NA	NA	NA	NA
Alcohols								
Acrolein	NA	NA	NA	NA	NA	NA	NA	NA
Ethanol	NA	NA	NA	NA	NA	NA	NA	NA
Ethylacetate	NA	NA	NA	NA	NA	NA	NA	NA
Methanol	NA	NA	NA	NA	NA	NA	NA	NA
n-Propanol	NA	NA	NA	NA	NA	NA	NA	NA
Aldehydes								
Acetaldehyde	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	NA	NA	NA	NA	NA	NA	NA	NA
Pest/PCBs								
4,4'-DDE	15	NA	NA	NA	NA	NA	NA	NA
Aldrin	<5.4 P	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	110 P	NA	NA	NA	NA	NA	NA	NA
Chlordane (gamma)	<2.3	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	PB-6 (continued)		SB-10		SB-10B		SB-11	
Sample Depth (ft bls)	16-19'	16-19'	40'	50'	40'	50'	35'	45'
Sample Date	05/15/96	05/15/96	07/27/85	11/10/85	11/10/85	11/10/85	07/27/85	07/27/85
Sample I.D.	SS-14	SS-14RE	SB10 (40')	SB10 (50')	SB10-B (40')	SB10-B (50')	SB11 (35')	SB11 (45')
Pest/PCBs								
Dieldrin	<4.4	NA	NA	NA	NA	NA	NA	NA
Endrin	16 P	NA	NA	NA	NA	NA	NA	NA
Endrin aldehyde	<4.4	NA	NA	NA	NA	NA	NA	NA
Endrin ketone	<4.4	NA	NA	NA	NA	NA	NA	NA
Heptachlor	<2.3	NA	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	<2.3	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA
Acetic Acid	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Nitrate	NA	NA	NA	NA	NA	NA	NA	NA
Percent Solids	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-11B		SB-12					
Sample Depth (ft bls)	40'	45'	05'	10'	15'	20'	25'	30'
Sample Date	11/11/85	11/11/85	06/19/85	06/19/85	06/19/85	06/19/85	06/19/85	06/19/85
Sample I.D.	SB11-B (40')	SB11-B (45')	SB12 (05')	SB12 (10')	SB12 (15')	SB12 (20')	SB12 (25')	SB12 (30')
VOC's								
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	0	0	0	0	0	160	130	240
2-Chloroethyl vinyl ether	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	0	0	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	NA	NA	0	0	0	10	0	7
Acetone	0	0	8,000	2,100	450	**44,000**	24,000	29,000
Acrylonitrile	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0	0	0	0	0	5	0	5
Bromodichloromethane	NA	NA	0	0	0	0	0	0
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	0	0	0	0	0	90	13	11
Carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	0	0	0	0	0	25	0	0
Methylene chloride	NA	NA	0	0	180	110	0	0

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-11B		SB-12					
Sample Depth (ft bls)	40'	45'	05'	10'	15'	20'	25'	30'
Sample Date	11/11/85	11/11/85	06/19/85	06/19/85	06/19/85	06/19/85	06/19/85	06/19/85
Sample I.D.	SB11-B (40')	SB11-B (45')	SB12 (05')	SB12 (10')	SB12 (15')	SB12 (20')	SB12 (25')	SB12 (30')
VOC's (continued)								
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0	0	0	0	6	27	5	7
trans-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, o	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	15	0	0	0	6	290	42	26
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs								
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-11B		SB-12					
Sample Depth (ft bls)	40'	45'	05'	10'	15'	20'	25'	30'
Sample Date	11/11/85	11/11/85	06/19/85	06/19/85	06/19/85	06/19/85	06/19/85	06/19/85
Sample I.D.	SB11-B (40')	SB11-B (45')	SB12 (05')	SB12 (10')	SB12 (15')	SB12 (20')	SB12 (25')	SB12 (30')
SVOCs (continued)								
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA
Metals								
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	NA	NA	<12,000	<11,000	<15,000	<23,000	<32,000	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA
Barium	85,000	13,000	46,000	28,000	240,000	260,000	**320,000**	NA
Beryllium	NA	NA	<2,400	<2,200	2,900	<4,600	<6,400	NA
Cadmium	NA	NA	<2,400	<2,200	<2,900	<4,600	<6,400	NA
Calcium	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	**20,000**	**32,000**	**8,300**	**11,000**	**19,000**	**32,000**	**19,000**	NA
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA
Copper	31,000	44,000	3,600	11,000	**120,000**	**4,200,000**	**3,200,000**	NA
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA	NA
Lead	12,000	<6,700	12,000	44,000	43,000	350,000	180,000	NA
Magnesium	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-11B		SB-12					
Sample Depth (ft bls)	40'	45'	05'	10'	15'	20'	25'	30'
Sample Date	11/11/85	11/11/85	06/19/85	06/19/85	06/19/85	06/19/85	06/19/85	06/19/85
Sample I.D.	SB11-B (40')	SB11-B (45')	SB12 (05')	SB12 (10')	SB12 (15')	SB12 (20')	SB12 (25')	SB12 (30')
Metals (continued)								
Manganese	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	NA	NA	<450	<420	<280	**1,300**	**870**	NA
Molybdenum	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	<2,400	5,600	5,900	7,000	9,700	NA
Potassium	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	240	220	<290	**460**	<640	NA
Silver	NA	NA	<1,200	<1,100	<1,500	<2,300	<3,200	NA
Sodium	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	<12,000	<11,000	<15,000	<23,000	<32,000	NA
Titanium	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	56,000	27,000	37,000	81,000	39,000	NA
Alcohols								
Acrolein	NA	NA	NA	NA	NA	NA	NA	NA
Ethanol	NA	NA	NA	NA	NA	NA	NA	NA
Ethylacetate	NA	NA	NA	NA	NA	NA	NA	NA
Methanol	NA	NA	NA	NA	NA	NA	NA	NA
n-Propanol	NA	NA	NA	NA	NA	NA	NA	NA
Aldehydes								
Acetaldehyde	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	NA	NA	NA	NA	NA	NA	NA	NA
Pest/PCBs								
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (gamma)	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-11B		SB-12					
Sample Depth (ft bls)	40'	45'	05'	10'	15'	20'	25'	30'
Sample Date	11/11/85	11/11/85	06/19/85	06/19/85	06/19/85	06/19/85	06/19/85	06/19/85
Sample I.D.	SB11-B (40')	SB11-B (45')	SB12 (05')	SB12 (10')	SB12 (15')	SB12 (20')	SB12 (25')	SB12 (30')
Pest/PCBs								
Dieldrin	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	NA	NA	NA	NA	NA	NA	NA	NA
Endrin aldehyde	NA	NA	NA	NA	NA	NA	NA	NA
Endrin ketone	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA
Acetic Acid	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Nitrate	NA	NA	NA	NA	NA	NA	NA	NA
Percent Solids	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-12 (continued)	SB-13		SB-21				
Sample Depth (ft bls)	35'	50'	54'	45'	55'	65'	80'	93'
Sample Date	06/19/85	07/25/85	07/25/85	06/01/86	06/01/86	06/01/86	06/01/86	06/01/86
Sample I.D.	SB12 (35')	SB13 (50')	SB13 (54')	SB-21 (45')	SB-21 (55')	SB-21 65'	SB-21 (80')	SB-21 (93')
VOC's								
1,1,1-Trichloroethane	NA	NA	NA	0	0	0	0	0
1,1,2,2-Tetrachloroethane	NA	NA	NA	0	0	0	0	0
1,1,2-Trichloroethane	NA	NA	NA	0	0	0	0	0
1,1-Dichloroethane	NA	NA	NA	0	0	0	0	0
1,1-Dichloroethene	NA	NA	NA	0	0	0	0	0
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	0	0	0	0	0
1,2-Dichloropropane	NA	NA	NA	0	0	0	0	0
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	590	0	0	NA	NA	NA	NA	NA
2-Chloroethyl vinyl ether	NA	NA	NA	0	0	0	0	0
2-Hexanone	NA	0	0	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	23	NA	NA	NA	NA	NA	NA	NA
Acetone	**100,000**	0	0	NA	NA	NA	NA	NA
Acrylonitrile	NA	NA	NA	0	0	0	0	0
Benzene	6	0	0	0	0	0	0	0
Bromodichloromethane	0	NA	NA	0	0	0	0	0
Bromoform	NA	NA	NA	0	0	0	0	0
Bromomethane	NA	NA	NA	0	0	0	0	0
Carbon disulfide	26	0	0	NA	NA	NA	NA	NA
Carbon tetrachloride	NA	NA	NA	0	0	0	0	0
Chlorobenzene	NA	NA	NA	0	0	0	0	0
Chloroethane	NA	NA	NA	0	0	0	0	0
Chloroform	NA	NA	NA	0	0	0	0	0
Chloromethane	NA	NA	NA	0	0	0	0	0
cis-1,3-Dichloropropene	NA	NA	NA	0	0	0	0	0
Dibromochloromethane	NA	NA	NA	0	0	0	0	0
Ethylbenzene	0	0	0	0	0	0	0	0
Methylene chloride	0	NA	NA	0	0	0	0	0

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-12 (continued)	SB-13		SB-21				
Sample Depth (ft bls)	35'	50'	54'	45'	55'	65'	80'	93'
Sample Date	06/19/85	07/25/85	07/25/85	06/01/86	06/01/86	06/01/86	06/01/86	06/01/86
Sample I.D.	SB12 (35')	SB13 (50')	SB13 (54')	SB-21 (45')	SB-21 (55')	SB-21 65'	SB-21 (80')	SB-21 (93')
VOC's (continued)								
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	0	0	0	0	0
Toluene	9	0	0	0	0	0	0	0
trans-1,2-Dichloroethene	NA	NA	NA	0	0	0	0	0
trans-1,3-Dichloropropene	NA	NA	NA	0	0	0	0	0
Trichloroethene	NA	NA	NA	0	0	0	0	0
Trichlorofluoromethane	NA	NA	NA	0	0	0	0	0
Vinyl chloride	NA	NA	NA	0	0	0	0	0
Xylene, o	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	24	0	0	NA	NA	NA	NA	NA
Xylenes, m+p	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs								
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-12 (continued)	SB-13		SB-21				
Sample Depth (ft bls)	35'	50'	54'	45'	55'	65'	80'	93'
Sample Date	06/19/85	07/25/85	07/25/85	06/01/86	06/01/86	06/01/86	06/01/86	06/01/86
Sample I.D.	SB12 (35')	SB13 (50')	SB13 (54')	SB-21 (45')	SB-21 (55')	SB-21 65'	SB-21 (80')	SB-21 (93')
SVOCs (continued)								
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA
Metals								
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	<30,5000	NA	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA
Barium	200,000	16,000	16,000	12,000	7,800	9,600	12,000	14,000
Beryllium	<6,100	NA	NA	NA	NA	NA	NA	NA
Cadmium	<6,100	NA	NA	NA	NA	NA	NA	NA
Calcium	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	**12,000**	**8,400**	**7,400**	**12,000**	**4,200**	**18,000**	**10,000**	**16,000**
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA
Copper	**970,000**	24,000	7,800	19,000	5,600	10,000	8,400	44,000
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA	NA
Lead	85,000	<2,500	<820	0	0	0	0	22,000
Magnesium	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-12 (continued)	SB-13		SB-21				
Sample Depth (ft bls)	35'	50'	54'	45'	55'	65'	80'	93'
Sample Date	06/19/85	07/25/85	07/25/85	06/01/86	06/01/86	06/01/86	06/01/86	06/01/86
Sample I.D.	SB12 (35')	SB13 (50')	SB13 (54')	SB-21 (45')	SB-21 (55')	SB-21 65'	SB-21 (80')	SB-21 (93')
Metals (continued)								
Manganese	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	**1,000**	NA	NA	NA	NA	NA	NA	NA
Molybdenum	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	9,100	NA	NA	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	**610**	NA	NA	NA	NA	NA	NA	NA
Silver	<3,000	NA	NA	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	<30,000	NA	NA	NA	NA	NA	NA	NA
Titanium	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	64,000	NA	NA	NA	NA	NA	NA	NA
Alcohols								
Acrolein	NA	NA	NA	0	0	0	0	0
Ethanol	NA	NA	NA	NA	NA	NA	NA	NA
Ethylacetate	NA	NA	NA	NA	NA	NA	NA	NA
Methanol	NA	NA	NA	NA	NA	NA	NA	NA
n-Propanol	NA	NA	NA	NA	NA	NA	NA	NA
Aldehydes								
Acetaldehyde	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	NA	NA	NA	NA	NA	NA	NA	NA
Pest/PCBs								
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (gamma)	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-12 (continued)	SB-13		SB-21				
Sample Depth (ft bls)	35'	50'	54'	45'	55'	65'	80'	93'
Sample Date	06/19/85	07/25/85	07/25/85	06/01/86	06/01/86	06/01/86	06/01/86	06/01/86
Sample I.D.	SB12 (35')	SB13 (50')	SB13 (54')	SB-21 (45')	SB-21 (55')	SB-21 65'	SB-21 (80')	SB-21 (93')
Pest/PCBs								
Dieldrin	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	NA	NA	NA	NA	NA	NA	NA	NA
Endrin aldehyde	NA	NA	NA	NA	NA	NA	NA	NA
Endrin ketone	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA
Acetic Acid	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Nitrate	NA	NA	NA	NA	NA	NA	NA	NA
Percent Solids	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-21 (continued)			Residential	
Sample Depth (ft bls)	101'	106'	Residential	Drinking Water	Indoor Air
Sample Date	06/01/86	06/01/86	Direct Contact	Protection	Inhalation
Sample I.D.	SB-21 (101')	SB-21 (106')	Criteria	Criteria	Criteria
VOC's					
1,1,1-Trichloroethane	0	0	460,000 C	4,000	250,000
1,1,2,2-Tetrachloroethane	0	0	53,000	170	4,300
1,1,2-Trichloroethane	0	0	180,000	100	4,600
1,1-Dichloroethane	0	0	890,000 C	18,000	230,000
1,1-Dichloroethene	0	0	200,000 (I)	140 (I)	62 (I)
1,2,4-Trimethylbenzene	NA	NA	110,000 (I) C	2,100 (I)	110,000 (I) C
1,2-Dichloroethane	0	0	91,000 (I)	100 (I)	2,100 (I)
1,2-Dichloropropane	0	0	140,000 (I)	100 (I)	4,000 (I)
1,3,5-Trimethylbenzene	NA	NA	94,000 (I) C	1,800 (I)	94,000 (I) C
2-Butanone (MEK)	NA	NA	27,000,000 (MEK) (I) C,DD	260,000 (MEK) (I)	27,000,000 (MEK) (I) C
2-Chloroethyl vinyl ether	0	0	ID	ID	ID
2-Hexanone	NA	NA	2,500,000 C	20,000	990,000
4-Methyl-2-pentanone (MIBK)	NA	NA	2,700,000 (MIBK) (I) C	36,000 (MIBK) (I)	2,700,000 (MIBK) (I) C
Acetone	NA	NA	23,000,000 (I)	15,000 (I)	110,000,000 (I) C
Acrylonitrile	0	0	16,000 (I)	100 (I) M	6,600 (I)
Benzene	0	0	180,000 (I)	100 (I)	1,600 (I)
Bromodichloromethane	0	0	110,000	1,600 W	1,200
Bromoform	0	0	820,000	1,600 W	150,000
Bromomethane	0	0	320,000	200	860
Carbon disulfide	NA	NA	R	R	R
Carbon tetrachloride	0	0	96,000	100	190
Chlorobenzene	0	0	260,000 (I) C	2,000 (I)	120,000 (I)
Chloroethane	0	0	950,000 C	8,600	950,000 C
Chloroform	0	0	1,200,000	1,600 W	7,200
Chloromethane	0	0	1,100,000 (I) C	5,200 (I)	2,300 (I)
cis-1,3-Dichloropropene	0	0	NA	NA	NA
Dibromochloromethane	0	0	110,000	1,600 W	3,900
Ethylbenzene	0	0	140,000 (I) C	1,500 (I)	87,000 (I)
Methylene chloride	0	0	1,300,000	100	45,000

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-21 (continued)			Residential	
Sample Depth (ft bls)	101'	106'	Residential	Drinking Water	Indoor Air
Sample Date	06/01/86	06/01/86	Direct Contact	Protection	Inhalation
Sample I.D.	SB-21 (101')	SB-21 (106')	Criteria	Criteria	Criteria
VOC's (continued)					
Naphthalene	NA	NA	16,000,000	35,000	250,000
n-Propylbenzene	NA	NA	2,500,000 (I)	1,600 (I)	(I) ID
Tetrachloroethene	0	0	88,000 C	100	11,000
Toluene	0	0	250,000 (I) C	16,000 (I)	250,000 (I) C
trans-1,2-Dichloroethene	0	0	1,400,000 C	2,000	23,000
trans-1,3-Dichloropropene	0	0	NA	NA	NA
Trichloroethene	0	0	500,000 C,DD	100	7,100
Trichlorofluoromethane	0	0	560,000 C	52,000	560,000 C
Vinyl chloride	0	0	3,800	40	270
Xylene, o	NA	NA	NA	5,600 (I) J	150,000 (I) C
Xylenes (total)	NA	NA	150,000 (I) C	5,600 (I) J	150,000 (I) C
Xylenes, m+p	NA	NA	NA	5,600 (I) J	150,000 (I) C
SVOCs					
2,4-Dimethylphenol	NA	NA	11,000,000	7,400	NLV
2-Methylnaphthalene	NA	NA	8,100,000	57,000	ID
2-Methylphenol	NA	NA	11,000,000 (J)	7,400 (J)	(J) NLV
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	11,000,000 (J)	7,400 (J)	(J) NLV
4-Methylphenol	NA	NA	11,000,000 (J)	7,400 (J)	(J) NLV
Acenaphthene	NA	NA	41,000,000	300,000	190,000,000
Anthracene	NA	NA	230,000,000	41,000	1,000,000,000 D
Benzo(a)anthracene	NA	NA	20,000 (Q)	(Q) NLL	(Q) NLV
Benzo(a)pyrene	NA	NA	2,000 (Q)	(Q) NLL	(Q) NLV
Benzo(b)fluoranthene	NA	NA	20,000 (Q)	(Q) NLL	(Q) ID
Benzo(g,h,i)perylene	NA	NA	2,500,000	NLL	NLV
Benzo(k)fluoranthene	NA	NA	200,000 (Q)	(Q) NLL	(Q) NLV
bis(2-Ethylhexyl)phthalate	NA	NA	2,800,000	NLL	NLV
Butylbenzylphthalate	NA	NA	310,000 C	310,000 C	NLV
Carbazole	NA	NA	530,000	9,400	NLV

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-21 (continued)			Residential	
Sample Depth (ft bls)	101'	106'	Residential	Drinking Water	Indoor Air
Sample Date	06/01/86	06/01/86	Direct Contact	Protection	Inhalation
Sample I.D.	SB-21 (101')	SB-21 (106')	Criteria	Criteria	Criteria
SVOCs (continued)					
Chrysene	NA	NA	2,000,000 (Q)	(Q) NLL	(Q) ID
Dibenzofuran	NA	NA	ID	ID	ID
Diethylphthalate	NA	NA	740,000 C	110,000	NLV
Di-n-butylphthalate	NA	NA	760,000 C	760,000 C	NLV
Di-n-octylphthalate	NA	NA	6,900,000	100,000,000	NLV
Fluoranthene	NA	NA	46,000,000	730,000	1,000,000,000 D
Fluorene	NA	NA	27,000,000	390,000	580,000,000
Naphthalene	NA	NA	16,000,000	35,000	250,000
n-Nitrosodimethylamine	NA	NA	1,700,000	5,400	NLV
n-Nitrosodiphenylamine	NA	NA	1,700,000	5,400	NLV
Phenanthrene	NA	NA	1,600,000	56,000	2,800,000
Phenol	NA	NA	12,000,000 C,DD	88,000	NLV
Pyrene	NA	NA	29,000,000	480,000	1,000,000,000 D
Metals					
Aluminum	NA	NA	50,000,000 (B) DD	1,000 (B)	(B) NLV
Antimony	NA	NA	180,000	4,300	NLV
Arsenic	NA	NA	7,600	4,600	NLV
Barium	14,000	7,000	37,000,000 (B)	1,300,000 (B)	(B) NLV
Beryllium	NA	NA	410,000	51,000	NLV
Cadmium	NA	NA	550,000 (B)	6,000 (B)	(B) NLV
Calcium	NA	NA	NA	NA	NA
Chromium	**6,100**	3,000	2,500,000 total/dissolved	30,000 (*VI)	total/dissolved NLV
Cobalt	NA	NA	2,600,000	800	NLV
Copper	20,000	5,400	20,000,000 (B)	5,800,000 (B)	(B) NLV
Cyanide	NA	NA	R	R	R
Iron	NA	NA	160,000,000 (B)	6,000 (B)	(B) NLV
Lead	46,000	0	400,000 (B)	700,000 (B)	(B) NLV
Magnesium	NA	NA	1,000,000,000 (B) D	8,000,000 (B)	(B) NLV

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-21 (continued)			Residential	
Sample Depth (ft bls)	101'	106'	Residential	Drinking Water	Indoor Air
Sample Date	06/01/86	06/01/86	Direct Contact	Protection	Inhalation
Sample I.D.	SB-21 (101')	SB-21 (106')	Criteria	Criteria	Criteria
Metals (continued)					
Manganese	NA	NA	25,000,000 (B)	1,000 (B)	(B) NLV
Mercury	NA	NA	160,000 (B,Z) (total)	1,700 (B,Z) (total)	48,000 (B,Z) (total)
Molybdenum	NA	NA	2,600,000 (B)	1,500 (B)	(B) NLV
Nickel	NA	NA	40,000,000 (B)	100,000 (B)	(B) NLV
Potassium	NA	NA	NA	NA	NA
Selenium	NA	NA	2,600,000 (B)	4,000 (B)	(B) NLV
Silver	NA	NA	2,600,000 (B)	4,500 (B)	(B) NLV
Sodium	NA	NA	1,000,000,000 D	2,500,000	NLV
Thallium	NA	NA	35,000 (B)	2,300 (B)	(B) NLV
Titanium	NA	NA	NA	NA	NA
Vanadium	NA	NA	750,000 DD	72,000	NLV
Zinc	NA	NA	170,000,000 (B)	2,400,000 (B)	(B) NLV
Alcohols					
Acrolein	0	0	3,600,000 (I)	2,400 (I)	410 (I)
Ethanol	NA	NA	110,000,000 (I) C,DD	38,000,000 (I)	(I) NLV
Ethylacetate	NA	NA	7,500,000 (I) C	130,000 (I)	7,500,000 (I) C
Methanol	NA	NA	3,100,000 C	74,000	3,100,000 C
n-Propanol	NA	NA	13,000,000 (I) DD	28,000 (I)	(I) NLV
Aldehydes					
Acetaldehyde	NA	NA	29,000,000 (I)	19,000 (I)	220,000 (I)
Formaldehyde	NA	NA	41,000,000	26,000	12,000
Pest/PCBs					
4,4'-DDE	NA	NA	45,000	NLL	NLV
Aldrin	NA	NA	1,000	NLL	1,300,000
Aroclor 1254	NA	NA	(PCBs) (J,T) T	(PCBs) (J,T) NLL	3,000,000 (PCBs) (J,T)
Chlordane (gamma)	NA	NA	31,000 (J)	(J) NLL	11,000,000 (J)

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SB-21 (continued)			Residential	
Sample Depth (ft bls)	101'	106'	Residential	Drinking Water	Indoor Air
Sample Date	06/01/86	06/01/86	Direct Contact	Protection	Inhalation
Sample I.D.	SB-21 (101')	SB-21 (106')	Criteria	Criteria	Criteria
Pest/PCBs					
Dieldrin	NA	NA	1,100	NLL	140,000
Endrin	NA	NA	65,000	NLL	NLV
Endrin aldehyde	NA	NA	NA	NA	NA
Endrin ketone	NA	NA	NA	NA	NA
Heptachlor	NA	NA	5,600	NLL	350,000
Heptachlor epoxide	NA	NA	3,100	NLL	NLV
Total Organic Carbon	NA	NA	NA	NA	NA
Acetic Acid	NA	NA	130,000,000	84,000	NLV
Nitrogen, Nitrate	NA	NA	(B,N) ID	200,000 (B,N) N	(B,N) NLV
Percent Solids	NA	NA	NA	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Depth (ft bls) Sample Date Sample I.D.	Ambient Air Inhalation Criteria	Groundwater/ Surface Water Interface Criteria
VOC's		
1,1,1-Trichloroethane	3,800,000	4,000
1,1,2,2-Tetrachloroethane	10,000	1,600 X
1,1,2-Trichloroethane	17,000	6,600 X
1,1-Dichloroethane	2,100,000	15,000
1,1-Dichloroethene	1,100 (I)	1,300 (I) X
1,2,4-Trimethylbenzene	21,000,000 (I)	570 (I)
1,2-Dichloroethane	6,200 (I)	7,200 (I) X
1,2-Dichloropropane	25,000 (I)	5,800 (I) X
1,3,5-Trimethylbenzene	16,000,000 (I)	1,100 (I)
2-Butanone (MEK)	29,000,000 (MEK) (I)	44,000 (MEK) (I)
2-Chloroethyl vinyl ether	ID	NA
2-Hexanone	1,100,000	NA
4-Methyl-2-pentanone (MIBK)	45,000,000 (MIBK) (I)	(MIBK) (I) ID
Acetone	130,000,000 (I)	34,000 (I)
Acrylonitrile	5,000 (I)	100 (I) M,X
Benzene	13,000 (I)	4,000 (I) X
Bromodichloromethane	9,100	ID
Bromoform	900,000	ID
Bromomethane	11,000	700
Carbon disulfide	R	R
Carbon tetrachloride	3,500	900 X
Chlorobenzene	770,000	940 (I)
Chloroethane	30,000,000	ID
Chloroform	45,000	3,400 X
Chloromethane	40,000	(I) ID
cis-1,3-Dichloropropene	NA	NA
Dibromochloromethane	24,000	ID
Ethylbenzene	720,000 (I)	360 (I)
Methylene chloride	210,000	19,000 X

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Depth (ft bls) Sample Date Sample I.D.	Ambient Air Inhalation Criteria	Groundwater/ Surface Water Interface Criteria
VOC's (continued)		
Naphthalene	300,000	870
n-Propylbenzene	(I) ID	(I) NA
Tetrachloroethene	180,000	900 X
Toluene	2,800,000 (I)	2,800 (I)
trans-1,2-Dichloroethene	280,000	30,000
trans-1,3-Dichloropropene	NA	NA
Trichloroethene	78,000	4,000 X
Trichlorofluoromethane	92,000,000	NA
Vinyl chloride	4200	300
Xylene, o	46,000,000 (I) J	700 (I)
Xylenes (total)	46,000,000 (I)	700 (I)
Xylenes, m+p	46,000,000 (I) J	700 (I)
SVOCs		
2,4-Dimethylphenol	NLV	7,600
2-Methylnaphthalene	ID	ID
2-Methylphenol	(J) NLV	1,400 (J)
3-Methylphenol/4-Methylphenol(m&p-cresol)	(J) NLV	1,400 (J)
4-Methylphenol	(J) NLV	1,400 (J)
Acenaphthene	81,000,000	4,400
Anthracene	1,400,000,000	ID
Benzo(a)anthracene	(Q) NLV	(Q) NLL
Benzo(a)pyrene	(Q) NLV	(Q) NLL
Benzo(b)fluoranthene	(Q) ID	(Q) NLL
Benzo(g,h,i)perylene	NLV	NLL
Benzo(k)fluoranthene	(Q) NLV	(Q) NLL
bis(2-Ethylhexyl)phthalate	NLV	NLL
Butylbenzylphthalate	NLV	26,000 X
Carbazole	NLV	1,100

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Depth (ft bls) Sample Date Sample I.D.	Ambient Air Inhalation Criteria	Groundwater/ Surface Water Interface Criteria
SVOCs (continued)		
Chrysene	ID	(Q) NLL
Dibenzofuran	ID	1,700
Diethylphthalate	NLV	2,200
Di-n-butylphthalate	NLV	11,000
Di-n-octylphthalate	NLV	ID
Fluoranthene	740,000,000	5,500
Fluorene	130,000,000	5,300
Naphthalene	300,000	870
n-Nitrosodimethylamine	NLV	NA
n-Nitrosodiphenylamine	NLV	NA
Phenanthrene	160,000	5,300
Phenol	NLV	4,200
Pyrene	650,000,000	ID
Metals		
Aluminum	(B) NLV	(B) NA
Antimony	NLV	94,000
Arsenic	NLV	70,000 X
Barium	(B) NLV	260,000 (B) G,X
Beryllium	NLV	24,000 G
Cadmium	(B) NLV	2,500 (B) G,X
Calcium	NA	NA
Chromium	total/dissolved NLV	3,300 (*VI)
Cobalt	NLV	2,000
Copper	(B) NLV	48,000 (B) G
Cyanide	R	R
Iron	(B) NLV	(B) NA
Lead	(B) NLV	1,700,000 (B) G,X
Magnesium	(B) NLV	(B) NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Depth (ft bls) Sample Date Sample I.D.	Ambient Air Inhalation Criteria	Groundwater/ Surface Water Interface Criteria
Metals (continued)		
Manganese	(B) NLV	36,000 (B) G,X
Mercury	52,000 (B,Z) (total)	100 (B,Z) (total) M
Molybdenum	(B) NLV	16,000 (B) X
Nickel	(B) NLV	50,000 (B) G
Potassium	NA	NA
Selenium	(B) NLV	400 (B)
Silver	(B) NLV	100 (B) M
Sodium	NLV	NA
Thallium	(B) NLV	4,200 (B) X
Titanium	NA	NA
Vanadium	NLV	190,000
Zinc	(B) NLV	110,000 (B) G
Alcohols		
Acrolein	310 (I)	(I) NA
Ethanol	(I) NLV	(I) NA
Ethylacetate	49,000,000 (I)	(I) NA
Methanol	31,000,000	9,600
n-Propanol	(I) NLV	(I) NA
Aldehydes		
Acetaldehyde	170,000 (I)	2,600 (I)
Formaldehyde	13,000	2,400
Pest/PCBs		
4,4'-DDE	NLV	NLL
Aldrin	58,000	NLL
Aroclor 1254	240,000 (PCBs) (J,T)	(PCBs) (J,T) NLL
Chlordane (gamma)	1,200,000 (J)	(J) NLL

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Depth (ft bls) Sample Date Sample I.D.	Ambient Air Inhalation Criteria	Groundwater/ Surface Water Interface Criteria
Pest/PCBs		
Dieldrin	19,000	NLL
Endrin	NLV	NLL
Endrin aldehyde	NA	NA
Endrin ketone	NA	NA
Heptachlor	62,000	NLL
Heptachlor epoxide	NLV	NLL
Total Organic Carbon	NA	NA
Acetic Acid	NLV	360,000
Nitrogen, Nitrate	(B,N) NLV	(B,N) NA
Percent Solids	NA	NA

Footnotes on Page 56.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit IRAP, Ford-Kingsford Products Facility, Kingsford, Michigan.

Results in micrograms per kilogram (μg/Kg).

<	Less than the laboratory method detection limit.
(shaded)	Indicates a value above the Residential and Commercial I Direct Contact Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
(boxed)	Indicates a value above the Residential and Commercial I Drinking Water Protection Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
Bold	Indicates a value above the Residential and Commercial I Groundwater/Surface Water Interface Protection Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
italics	Indicates a value above the Residential and Commercial I Soil Volatilization to Indoor Air Inhalation Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006)
underline	Indicates a value above the Residential and Commercial I Volatile Soil Inhalation Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006)
B	Constituent was also detected in laboratory blank.
ft bls	Feet below land surface.
J	Estimated result.
MBB	This analyte is present at a reportable level in the associated method blank but is less than 5 percent of the sample amount.
MBD	This analyte is present in the associated method blank at an amount that is less than two times the reporting limit.
N	Spiked sample recovery is not within control limits (Inorganics only).
NA	Not analyzed.
P	Greater than 25% RPD between two columns for pesticide or PCB.
R	Rejected result.
SVOCs	Semi volatile organic compounds.
VOCs	Volatile organic compounds.
Wa	Matrix interference reported by laboratory.
X	Laboratory defined qualifier.
#	Formaldehyde result was evaluated according to the finite VSIC criteria. Part 201 standards were not exceeded with respect to the 2 meter finite VSIC evaluation.

State of Michigan Criteria Footnotes:

B	Background may be substituted if higher than the calculated cleanup criteria.
C	Value presented is a screening level based on the chemical specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat.
D	Calculated criterion exceeds 100%, therefore it is reduced to 100%.

Table 6-37. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Former Southwest Pit IRAP, Ford-Kingsford Products Facility, Kingsford, Michigan.

State of Michigan Criteria Footnotes (continued):

DD	Hazardous substance causes developmental effects.
G	GSI value is pH or water hardness dependent.
I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.
ID	Inadequate data to develop criterion.
J	Chemical may be present in several isomer forms. Isomer specific concentrations must be added together for comparison to criteria.
M	Calculated criterion is below the analytical method detection limit (MDL).
N	Concentrations of all potential nitrate-nitrogen sources must be added together and compared to nitrate criteria.
NA	Criterion or values is not available.
NLL	Chemical is not likely to leach under most soil conditions.
NLV	Chemical is not likely to volatilize under most soil conditions.
Q	Criterion for carcinogenic polycyclic aromatic hydrocarbons (PAHs) were developed using "relative potential potencies" (RFPs) to benzo(a)pyrene.
R	Chemical may exhibit characteristic of reactivity.
T	Refer to Toxic Substances Control Act (TSCA) to determine applicability of TSCA cleanup standards.
Total	Criterion established for total metal only.
*VI	Standard for Chromium VI.
W	Concentrations of trihalomethanes in groundwater must be added together to detemine compliance with State of Michigan Criteria.
X	The GSI criterion shown is not protective for surface water that is used as a drinking water source.
Z	Data for mercuric chloride serves as the basis for drinking water, groundwater contact, soil direct contact and the groundwater protection criteria.

Table 6-38. Summary of Constituents Detected in Soil and Waste Samples TCLP/SPLP Extracts, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-2	GMSB-43		GMSB-44	
Depth (ft bls)	5-25'	3'	3'	15'	15'
Sample Date	5/17/1997	10/21/1999	10/21/1999	10/21/1999	10/21/1999
Sample Name	GMSB-2/0525 (TCLP)	GMSB-43/3 (SPLP)	GMSB-43/3 (TCLP)	GMSB-44/15 (SPLP)	GMSB-44/15 (TCLP)
Type	Waste	Waste	Waste	Waste	Waste
VOC					
1,2,4-Trimethylbenzene	NA	NA	<4	NA	<4
Carbon disulfide	NA	NA	<20	NA	<20
Chloromethane	NA	NA	<4	NA	2.2 J
SVOC					
2,4-Dimethylphenol	NA	NA	<25	NA	<25
2-Methylphenol	7.8 J	NA	<25	NA	<25
2-Picoline	NA	NA	<50	NA	<50
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	<25	NA	<25
4-Methylphenol	<50	NA	NA	NA	NA
Phenol	NA	NA	<25	NA	<25
Metals					
Aluminum	NA	NA	<2,000	NA	<2,000
Barium	NA	NA	<1,000	NA	2,300
Calcium	NA	NA	93,000	NA	48,000
Chromium	NA	NA	<200	NA	<200
Cobalt	NA	NA	2,500	NA	<100
Copper	NA	NA	<200	NA	<200
Iron	NA	NA	67,000	NA	1,500
Lead	NA	NA	<200	NA	<200
Magnesium	NA	NA	<5,000	NA	7,200
Manganese	NA	NA	4,100	NA	2,700
Molybdenum	NA	NA	<100	NA	<100
Potassium	NA	NA	<10,000	NA	<10,000

Footnotes on Page 2.

Table 6-38. Summary of Constituents Detected in Soil and Waste Samples TCLP/SPLP Extracts, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-2	GMSB-43		GMSB-44	
Depth (ft bls)	5-25'	3'	3'	15'	15'
Sample Date	5/17/1997	10/21/1999	10/21/1999	10/21/1999	10/21/1999
Sample Name	GMSB-2/0525 (TCLP)	GMSB-43/3 (SPLP)	GMSB-43/3 (TCLP)	GMSB-44/15 (SPLP)	GMSB-44/15 (TCLP)
Type	Waste	Waste	Waste	Waste	Waste
Metals (continued)					
Sodium	NA	NA	NA	NA	NA
Titanium	NA	NA	<100	NA	<100
Zinc	NA	NA	270	NA	<200
Alcohols					
Methanol	NA	NA	R	NA	R
n-Butanol	NA	NA	R	NA	R
Aldehydes					
Acetaldehyde	NA	NA	<100	NA	<100
Formaldehyde	NA	NA	370	NA	<100
Acetic Acid	NA	<2,500	NA	<2,500	NA
Chemical Oxygen Demand	34,000 J	NA	NA	NA	NA
Total Organic Carbon	26,000	NA	NA	NA	NA

Results are in micrograms per liter (µg/L).

<	Less than the laboratory method detection limit.
B	Constituent was also detected in laboratory blank.
ft bls	Feet below land surface.
J	Estimated result.
NA	Not analyzed.
R	Rejected result.
SPLP	Synthetic Precipitation Leaching Procedures.
SVOCs	Semi volatile organic compounds.
TCLP	Toxicity Characteristic Leaching Procedures.
VOCs	Volatile Organic Compounds.

Table 6-38. Summary of Constituents Detected in Soil and Waste Samples TCLP/SPLP Extracts, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-45		GMSB-47	
Depth (ft bls)	10'	10'	15'	15'
Sample Date	10/21/1999	10/21/1999	10/22/1999	10/22/1999
Sample Name	GMSB-45/10 (SPLP)	GMSB-45/10 (TCLP)	GMSB-47/15 (SPLP)	GMSB-47/15 (TCLP)
Type	Waste	Waste	Waste	Waste
VOC				
1,2,4-Trimethylbenzene	0.57 J	<4	NA	<4
Carbon disulfide	<5.0	<20	NA	3 J
Chloromethane	<1.0	<4	NA	<4
SVOC				
2,4-Dimethylphenol	20	<25	NA	80
2-Methylphenol	35	<25	NA	49
2-Picoline	<10	<50	NA	8.9 J
3-Methylphenol/4-Methylphenol(m&p-cresol)	50	40	NA	180
4-Methylphenol	NA	NA	NA	NA
Phenol	74	<25	NA	<25
Metals				
Aluminum	99 B	<2,000	NA	<2,000
Barium	15	<1,000	NA	<1,000
Calcium	3,000	18,000	NA	61,000
Chromium	0.94 B	<200	NA	<200
Cobalt	<10	<100	NA	<100
Copper	85	<200	NA	240
Iron	170	<500	NA	1,700
Lead	<5.0	<200	NA	200
Magnesium	750	<5,000	NA	14,000
Manganese	28	310	NA	770
Molybdenum	<10	<100	NA	<100
Potassium	2,900	<10,000	NA	<10,000

Table 6-38. Summary of Constituents Detected in Soil and Waste Samples TCLP/SPLP Extracts, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-45		GMSB-47	
Depth (ft bls)	10'	10'	15'	15'
Sample Date	10/21/1999	10/21/1999	10/22/1999	10/22/1999
Sample Name	GMSB-45/10 (SPLP)	GMSB-45/10 (TCLP)	GMSB-47/15 (SPLP)	GMSB-47/15 (TCLP)
Type	Waste	Waste	Waste	Waste
Metals (continued)				
Sodium	2,000	NA	NA	NA
Titanium	8.5 B	<100	NA	<100
Zinc	7.8 B	<200	NA	<200
Alcohols				
Methanol	<1,000 J	3,200 J	NA	R
n-Butanol	<1,000	R	NA	R
Aldehydes				
Acetaldehyde	410	410	NA	250
Formaldehyde	120	150	NA	220
Acetic Acid	39,000	NA	3,700	NA
Chemical Oxygen Demand	NA	NA	NA	NA
Total Organic Carbon	43,000	NA	NA	NA

Results are in micrograms per liter (µg/L).

<	Less than the laboratory method detection limit.
B	Constituent was also detected in laboratory blank.
ft bls	Feet below land surface.
J	Estimated result.
NA	Not analyzed.
R	Rejected result.
SPLP	Synthetic Precipitation Leaching Procedures.
SVOCs	Semi volatile organic compounds.
TCLP	Toxicity Characteristic Leaching Procedures.
VOCs	Volatile Organic Compounds.

Table 6-38. Summary of Constituents Detected in Soil and Waste Samples TCLP/SPLP Extracts, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-48	
Depth (ft bls)	22'	22'
Sample Date	10/22/1999	10/22/1999
Sample Name	GMSB-48/22 (SPLP)	GMSB-48/22 (TCLP)
Type	Waste	Waste
VOC		
1,2,4-Trimethylbenzene	<1.0	<4
Carbon disulfide	<5.0	<20
Chloromethane	<1.0	<4
SVOC		
2,4-Dimethylphenol	12	<25
2-Methylphenol	6.4	<25
2-Picoline	<10	<50
3-Methylphenol/4-Methylphenol(m&p-cresol)	11	<25
4-Methylphenol	NA	NA
Phenol	20	<25
Metals		
Aluminum	54 B	<2,000
Barium	7.1 B	<1,000
Calcium	5,100	20,000
Chromium	<10	<200
Cobalt	<10	<100
Copper	110	2,800
Iron	56	590
Lead	<5.0	<200
Magnesium	890	<5,000
Manganese	150	890
Molybdenum	2.5 B	<100
Potassium	2,100	<10,000

Table 6-38. Summary of Constituents Detected in Soil and Waste Samples TCLP/SPLP Extracts, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-48	
Depth (ft bls)	22'	22'
Sample Date	10/22/1999	10/22/1999
Sample Name	GMSB-48/22 (SPLP)	GMSB-48/22 (TCLP)
Type	Waste	Waste
Metals (continued)		
Sodium	2,700	NA
Titanium	0.70 B	<100
Zinc	3.3 B	<200
Alcohols		
Methanol	R	R
n-Butanol	<1,000	R
Aldehydes		
Acetaldehyde	480	160
Formaldehyde	460	970
Acetic Acid	2,600	NA
Chemical Oxygen Demand	NA	NA
Total Organic Carbon	12,000	NA

Chemical Oxygen Demand

<	Less than the laboratory method detection limit.
B	Constituent was also detected in laboratory blank.
ft bls	Feet below land surface.
J	Estimated result.
NA	Not analyzed.
R	Rejected result.
SPLP	Synthetic Precipitation Leaching Procedures.
SVOCs	Semi volatile organic compounds.
TCLP	Toxicity Characteristic Leaching Procedures.
VOCs	Volatile Organic Compounds.

Table 6-39. Comparison of Leaching Data from Waste Samples and Groundwater Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSG-43		GMSB-44		GMSB-45		GMSB-47		GMSB-48
	TCLP	SPLP	TCLP	SPLP	SPLP	TCLP	TCLP	SPLP	SPLP
Depth (ft bls)	3'	3'	15'	15'	10'	10'	15'	15'	22'
Sample Matrix	Sawdust	Sawdust	Wood	Wood	Wood/Charcoal	Wood/Charcoal	Wood	Wood	Wood/Charcoal
VOCs									
2-Butanone (MEK)	<200	NA	<200	NA	<50	<200	<200	NA	<50
2-Hexanone	<200	NA	<200	NA	<50	<200	<200	NA	<50
Acetone	<400	NA	<400	NA	<100	<400	<400	NA	<100
SVOCs									
2,4-DMP	<25	NA	<25	NA	20	<25	80	NA	12
2-MP	<25	NA	<25	NA	35	<25	49	NA	6.4
4-MP	<25	NA	<25	NA	50	40	180	NA	11
Phenol	<25	NA	<25	NA	74	<25	<25	NA	20
Acetic Acid	NA	<2,500	NA	<2,500	39,000	NA	NA	3,700	2,600
TOC	NA	NA	NA	NA	43,000	NA	NA	NA	12,000

Results in micrograms per liter (µg/L).

<	Less than the laboratory method detection limit.
2,4-DMP	2,4-Dimethylphenol.
2-MP	2-Methylphenol.
4-MP	4-Methylphenol.
ft bls	Feet below land surface.
J	Estimated result.
NA	Not available.
SPLP	Synthetic Precipitation Leaching Procedures.
SVOCs	Semi-volatile organic compounds.
TCLP	Toxicity Characteristic Leaching Procedures.
VOCs	Volatile organic compounds.

Table 6-39. Comparison of Leaching Data from Waste Samples and Groundwater Samples, Former Southwest Pit, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-48 (continued)	GMSB-2			
	TCLP	TCLP			
Depth (ft bls)	22'	5 - 25'	93'	265'	345'
Sample Matrix	Wood/Charcoal	Wood/Charcoal	Groundwater	Groundwater	Groundwater
VOCs					
2-Butanone (MEK)	<200	NA	<10	2,300	1,700
2-Hexanone	<200	NA	<10	1,100	590
Acetone	<400	NA	<10	1,500	1,000 J
SVOCs					
2,4-DMP	<25	NA	18	3,900	3,000
2-MP	<25	7.8 J	40	7,500	5,300
4-MP	<25	<50	8.7 J	13,000	14,000
Phenol	<25	NA	40	12,000	9,200
Acetic Acid	NA	NA	NA	NA	NA
TOC	NA	26,000	14,000	2,300,000	1,700,000

Results in micrograms per liter (µg/L).

<	Less than the laboratory method detection limit.
2,4-DMP	2,4-Dimethylphenol.
2-MP	2-Methylphenol.
4-MP	4-Methylphenol.
ft bls	Feet below land surface.
J	Estimated result.
NA	Not available.
SPLP	Synthetic Precipitation Leaching Procedures.
SVOCs	Semi-volatile organic compounds.
TCLP	Toxicity Characteristic Leaching Procedures.
VOCs	Volatile organic compounds.

Table 6-40. Summary of Constituents Detected in Waste Material Removed from the Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Depth (ft bls) Sample Date Sample ID	Surface Waste 0 08/15/88 9 (94738)	Surface Waste 0 08/15/88 11 (94740)	Residential Direct Contact	Residential Drinking Water Protection	Residential Indoor Air Inhalation	Residential Ambient Air Particulates	Residential Groundwater/ Surface Water Interface
SVOCs							
2,4-Dimethylphenol	<3,300	**45,000**	11,000,000	7,400	NLV	NLV	7,600
Di-n-butylphthalate	**16,000**	<16,000	760,000 C	760,000 C	NLV	NLV	11,000
Phenol	<3,300	**18,000**	12,000,000 C,DD	88,000	NLV	NLV	4,200
Metals							
Barium	**350,000**	26,000	37,000,000 (B)	1,300,000 (B)	(B) NLV	(B) NLV	260,000 (B) G,X
Cadmium	**120,000**	**120,000**	550,000 (B)	6,000 (B)	(B) NLV	(B) NLV	2,500 (B) G,X
Chromium	**36,000,000**	**3,500**	2,500,000 total/dissolved	30,000 (*VI)	total/dissolved NLV	total/dissolved NLV	3,300 (*VI)
Copper	36,000	**1,400,000**	20,000,000 (B)	5,800,000 (B)	(B) NLV	(B) NLV	48,000 (B) G
Lead	**12,000,000**	14,000	400,000 (B)	700,000 (B)	(B) NLV	(B) NLV	1,700,000 (B) G,X
Nickel	10,000	9,200	40,000,000 (B)	100,000 (B)	(B) NLV	(B) NLV	50,000 (B) G
Zinc	**96,000,000**	**320,000**	170,000,000 (B)	2,400,000 (B)	(B) NLV	(B) NLV	110,000 (B) G

Results in micrograms per kilogram (µg/Kg).

< Less than the laboratory method detection limit.

[shaded] Indicates a value above the Final Acute Values (Michigan Part 4 Rule 323.1057, December 11, 2006).

[boxed] Indicates a value above the Final Chronic Values (Michigan Part 4 Rule 323.1057, December 11, 2006).

Bold Indicates a value above the Groundwater/Surface Water Interface Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).

State of Michigan Criteria Footnotes:

C Value presented is a screening level based on the chemical specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat.

DD Hazardous substance causes developmental effects.

B Background may be substituted if higher than the calculated cleanup criteria.

*VI Standard for Chromium VI.

G GSI value is pH or water hardness dependent.

X The GSI criterion shown is not protective for surface water that is used as a drinking water source.

Table 6-41. Summary of Constituents Detected in the Surface Soil at the Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface soil	Surface soil
Depth	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'
Sample Date	08/15/88	08/15/88	08/15/88	08/15/88	08/15/88	08/15/88	08/15/88	08/15/88	09/10/01	09/10/01
Sample ID	1 (94730)	2 (94731)	3 (94732)	4 (94733)	5 (94734)	6 (94735)	7 (94736)	8 (94737)	RDAUS-1	RDAUS-2
VOC										
Benzene	<2	<2	<2	<2	<2	<2	<2	<2	<56	<92
Carbon disulfide	<10	<10	<10	<10	<10	<10	<10	<10	<280	<460
Methylene chloride	<5	<5	<5	<5	<5	<5	<5	<5	<280	<460
Tetrachloroethene	<2	<2	<2	<2	<2	<2	<2	<2	<56	<92
Toluene	<2	<2	<2	<2	<2	<2	<2	<2	<110	<180
Trichloroethene	<2	<2	<2	<2	<2	<2	<2	<2	<56	<92
Xylenes (total)	<10	<10	<10	<10	<10	<10	<10	<10	<170	<270
SVOC										
2,4-Dimethylphenol	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	<370	<510
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	<370	<510
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	<370	<510
Acenaphthene	<330	<330	<330	<330	<330	<330	<330	<330	NA	NA
Acenaphthylene	<330	<330	<330	<330	<330	<330	<330	<330	<370	<510
Anthracene	<330	<330	<330	<330	<330	<330	<330	<330	<370	<510
Benzo(a)anthracene	<330	<330	<330	<330	680	<330	<330	<330	<370	78 J
Benzo(a)pyrene	<330	<330	<330	<330	1,400	<330	<330	<330	<370	180 J
Benzo(b)fluoranthene	<330	<330	<330	<330	1,700	<330	<330	<330	<370	300 J
Benzo(g,h,i)perylene	<330	<330	<330	<330	790	<330	<330	<330	43 J	220 JB
Benzo(k)fluoranthene	<330	<330	<330	<330	1,000	<330	<330	<330	<370	220 J
bis(2-Ethylhexyl)phthalate	<330	<330	<330	<330	620	<330	<330	<330	<370	1500
Butylbenzylphthalate	330	<330	<330	<330	<330	<330	<330	<330	<370	<510
Carbazole	NA	NA	NA	NA	NA	NA	NA	NA	<370	<510
Chrysene	<330	<330	<330	<330	1,500	<330	<330	<330	<370	250 J
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	<370	<510
Di-n-butylphthalate	640	<330	<330	<330	<330	<330	<330	<330	35 J	220 J
Fluoranthene	<330	<330	<330	<330	1400	<330	<330	<330	<370	320 J

Footnotes on Page 16.

Table 6-41. Summary of Constituents Detected in the Surface Soil at the Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface soil	Surface soil
Depth	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'
Sample Date	08/15/88	08/15/88	08/15/88	08/15/88	08/15/88	08/15/88	08/15/88	08/15/88	09/10/01	09/10/01
Sample ID	1 (94730)	2 (94731)	3 (94732)	4 (94733)	5 (94734)	6 (94735)	7 (94736)	8 (94737)	RDAUS-1	RDAUS-2
SVOC (continued)										
Fluorene	<330	<330	<330	<330	<330	<330	<330	<330	<370	<510
Indeno(1,2,3-c,d)pyrene	<330	<330	<330	<330	930	<330	<330	<330	<370	180 J
Naphthalene	<330	<330	<330	<330	**1,700**	<330	<330	<330	<370	<510
Phenanthrene	<330	<330	<330	<330	<330	<330	<330	<330	35 J	120 J
Pyrene	<330	<330	<330	<330	2200	<330	<330	<330	<370	300 J
Metals										
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA	4,100,000	6,200,000
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	<2,600	<3,800
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	3,200	6,400
Barium	**490,000**	**670,000**	110,000	**1,100,000**	100,000	**540,000**	**290,000**	**360,000**	51,000	170,000
Beryllium	570	<200	230	1,500	460	940	290	580	270	360
Cadmium	**2,700**	1,600	<200	530	930	**3,100**	**3,400**	1,200	180	1,100
Calcium	NA	NA	NA	NA	NA	NA	NA	NA	1,500,000	4,700,000
Chromium	**30,000**	**6,500**	**18,000**	**24,000**	**44,000**	**21,000**	**14,000**	**15,000**	**9,900**	**18,000**
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA	**3,600**	**5,500**
Copper	**290,000**	**180,000**	16,000	**280,000**	**180,000**	**320,000**	**140,000**	**110,000**	28,000	**170,000**
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA	NA	9,000,000	21,000,000
Lead	160,000	64,000	31,000	130,000	140,000	93,000	79,000	68,000	26,000	65,000
Magnesium	NA	NA	NA	NA	NA	NA	NA	NA	1,700,000	2,300,000
Manganese	NA	NA	NA	NA	NA	NA	NA	NA	**260,000**	**980,000**
Mercury	**190**	<100	<100	<100	**370**	**180**	**310**	**190**	22 B	**71 B**
Molybdenum	NA	NA	NA	NA	NA	NA	NA	NA	390 B	970
Nickel	17,000	7,200	9,600	24,000	31,000	25,000	11,000	13,000	14,000	14,000 E
Potassium	NA	NA	NA	NA	NA	NA	NA	NA	610,000	950,000
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	<220 UW	<1,500 UWN
Silver	NA	NA	NA	NA	NA	NA	NA	NA	<510	<770
Sodium	NA	NA	NA	NA	NA	NA	NA	NA	35,000 E	85,000 E

Footnotes on Page 16.

Table 6-41. Summary of Constituents Detected in the Surface Soil at the Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface soil	Surface soil
Depth	**0'**	**0'**	**0'**	**0'**	**0'**	**0'**	**0'**	**0'**	**0'**	**0'**
Sample Date	**08/15/88**	**08/15/88**	**08/15/88**	**08/15/88**	**08/15/88**	**08/15/88**	**08/15/88**	**08/15/88**	**09/10/01**	**09/10/01**
Sample ID	**1 (94730)**	**2 (94731)**	**3 (94732)**	**4 (94733)**	**5 (94734)**	**6 (94735)**	**7 (94736)**	**8 (94737)**	**RDAUS-1**	**RDAUS-2**
Metals (continued)										
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	<1,000	$\boxed{2,900}$
Titanium	NA	NA	NA	NA	NA	NA	NA	NA	280,000	430,000
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	16,000	23,000
Zinc	**450,000**	**280,000**	71,000	**140,000**	**250,000**	**330,000**	**190,000**	**140,000**	34,000	**150,000**
Pest/PCBs										
4,4'-DDD	<16	<16	<16	<16	<16	<16	<16	<16	NA	NA
4,4'-DDE	<16	<16	<16	<16	<16	<16	<16	<16	NA	NA
BHC (alpha)	<8	<8	<8	<8	<8	<8	<8	<8	NA	NA
Chlordane (gamma)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	<16	<16	<16	<16	<16	<16	<16	<16	NA	NA
Endosulfan (beta)	<16	<16	<16	<16	<16	<16	<16	<16	NA	NA
Endrin ketone	<16	<16	<16	<16	<16	<16	<16	<16	NA	NA
Heptachlor	<8	<8	<8	<8	<8	<8	<8	<8	NA	NA
Methoxychlor	<80	<80	<80	<80	<80	<80	<80	<80	NA	NA

Footnotes on Page 16.

ARCADIS

Table 6-41. Summary of Constituents Detected in the Surface Soil at the Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface soil	Surface soil	Surface soil	Surface soil	Surface soil	Surface soil	Surface soil	SDB-3	SDB-3	SDB-4
Depth	0'	0'	0'	0'	0'	0'	0'	0-0.5'	0-0.5'	0-0.67'
Sample Date	09/10/01	09/10/01	09/10/01	09/10/01	09/10/01	09/10/01	09/10/01	05/13/96	05/13/96	05/13/96
Sample ID	RDAUS-3	RDAUS-4	RDAUS-5	RDAUS-6	RDAUS-7	RDAUS-8	RDAUS-9	SS-19	SS-19RE	SS-21
VOC										
Benzene	<80	<68	<56	<80	<69	<62	<60	<13	<13	<12
Carbon disulfide	<400	<340	<280	<400	<350	<310	<300	3 J	<13	<12
Methylene chloride	<400	<340	<280	<400	<350	<310	<300	<13 BJ	96 B	<12 BJ
Tetrachloroethene	160	<68	<56	<80	<69	<62	<60	<13	<13	<12
Toluene	100 J	54 J	54 J	<160	<140	<120	<120	2 J	<13	<12
Trichloroethene	76 J	<68	<56	<80	<69	<62	<60	<13	<13	<12
Xylenes (total)	<240	<200	<170	<240	<210	<190	<180	<13	<13	<12
SVOC										
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	**34,000**	NA	<380
2-Methylnaphthalene	<420	<430	37 J	<510	<440	<390	<380	15,000	NA	1,300
2-Methylphenol	<420	<430	<370	<510	<440	<390	<380	**15,000**	NA	<380
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	**20,000**	NA	<380
Acenaphthene	<420	<430	<370	160 J	<440	<390	<380	<12,000	NA	<380
Acenaphthylene	<420	<430	<370	62 J	<440	<390	<380	<12,000	NA	<380
Anthracene	<420	<430	<370	480 J	<440	<390	<380	<12,000	NA	<380
Benzo(a)anthracene	43 J	<430	<370	3,000	95 J	25 J	<380	1,400 J	NA	120 J
Benzo(a)pyrene	63 J	<430	<370	4,000	200 J	69 J	44 J	<12,000	NA	42 J
Benzo(b)fluoranthene	79 J	35 J	<370	4,600	340 J	98 J	<380	<12,000	NA	<380
Benzo(g,h,i)perylene	79 J	47 J	36 J	2,800 B	210 J	110 J	70 J	<12,000	NA	52 J
Benzo(k)fluoranthene	55 J	<430	<370	4,200	250 J	78 J	<380	2,000 J	NA	52 J
bis(2-Ethylhexyl)phthalate	<420	<430	<370	550	<440	<390	<380	<12,000	NA	<380
Butylbenzylphthalate	<420	<430	<370	97 J	<440	<390	<380	<12,000	NA	<380
Carbazole	<420	<430	<370	630	42 J	<390	<380	<12,000	NA	<380
Chrysene	79 J	33 J	<370	4,800	270 J	71 J	<380	1,900 J	NA	240 J
Dibenzofuran	<420	<430	<370	84 J	<440	<390	<380	**9,600 J**	NA	330 J
Di-n-butylphthalate	37 J	40 J	<370	61 J	75 J	<390	<380	<12,000	NA	<380
Fluoranthene	110 J	<430	<370	**8,500**	380 J	78 J	<380	4,200 J	NA	120 J

Footnotes on Page 16.

ARCADIS

Table 6-41. Summary of Constituents Detected in the Surface Soil at the Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface soil	Surface soil	Surface soil	Surface soil	Surface soil	Surface soil	Surface soil	SDB-3	SDB-3	SDB-4
Depth	0'	0'	0'	0'	0'	0'	0'	0-0.5'	0-0.5'	0-0.67'
Sample Date	09/10/01	09/10/01	09/10/01	09/10/01	09/10/01	09/10/01	09/10/01	05/13/96	05/13/96	05/13/96
Sample ID	RDAUS-3	RDAUS-4	RDAUS-5	RDAUS-6	RDAUS-7	RDAUS-8	RDAUS-9	SS-19	SS-19RE	SS-21
SVOC (continued)										
Fluorene	<420	<430	<370	230 J	<440	<390	<380	5,200 J	NA	<380
Indeno(1,2,3-c,d)pyrene	<420	<430	<370	2,000	160 J	85 J	<380	<12,000	NA	<380
Naphthalene	<420	<430	<370	<510	<440	<390	<380	**7,600 J**	NA	690
Phenanthrene	52 J	35 J	30 J	4,500	140 J	26 J	<380	**12,000 J**	NA	830
Pyrene	96 J	<430	<370	7,500	320 J	<390	<380	4,500 J	NA	160 J
Metals										
Aluminum	5,200,000	4,700,000	4,800,000	7,100,000	5,500,000	5,800,000	3,000,000	1,480,000	NA	4,160,000
Antimony	<3,200	<3300	<2800	<3,800	<3,000	<3,000	<2,900	<3,400 N	NA	3,200 BN
Arsenic	2,900	4,200	3,900	6,800	4,600	2,300	1,500	33,400	NA	3,900
Barium	190,000	69,000	46,000	52,000	130,000	120,000	75,000	177,000 N	NA	**5,730,000 N**
Beryllium	270	290	230	300 B	240	290	140 B	210 B	NA	650 B
Cadmium	800	160	91	640	740	350	200	**7,900**	NA	**4,300**
Calcium	6,000,000	1,500,000	1,400,000	7,200,000	4,000,000	3,600,000	4,700,000	1,850,000	NA	2,360,000
Chromium	**14,000**	**11,000**	**9,800**	**40,000**	**14,000**	**14,000**	**6,500**	**4,900**	NA	**45,500**
Cobalt	**4,900**	**4,100**	**4,500**	**7,000**	**4,200**	**3,700**	**2,600**	1,300 B	NA	**11,900 B**
Copper	**75,000**	29,000	26,000	42,000	47,000	27,000	18,000	**118,000,000 N***	NA	**227,000 N***
Cyanide	NA	NA	NA	NA	NA	NA	NA	**550 B**	NA	**160 B**
Iron	21,000,000	11,000,000	11,000,000	18,000,000	13,000,000	11,000,000	7,500,000	4,130,000 *	NA	12,800,000 *
Lead	59,000	73,000	160,000	95,000	55,000	25,000	9,500	**2,220,000**	NA	**3,530,000**
Magnesium	2,400,000	1,800,000	2,400,000	6,100,000	2,200,000	2,100,000	1,200,000	420,000 B	NA	894,000 B
Manganese	**710,000**	**330,000**	**250,000**	**550,000**	**640,000**	**440,000**	**420,000**	**206,000 ***	NA	**546,000 ***
Mercury	**70 B**	22 B	14 B	**60 B**	49 B	28 B	22 B	**22,400**	NA	**190**
Molybdenum	470 B	<660	<560	1,600	420 B	<600	<580	NA	NA	NA
Nickel	11,000	10,000	12,000	20,000 E	10,000	9,700	5,900	3,600 B	NA	8,400 B
Potassium	590,000	480,000	480,000	570,000	680,000	490,000	240,000	621,000 B	NA	337,000 B
Selenium	<510 UW	**450 B**	<1,100	<1,400 UWN	<1,300	<1,100 UW	<1,200	**19,300 N**	NA	**2,000 N**
Silver	<640	<660	<560	<770	<610	<600	<580	**88,200**	NA	**970 B**
Sodium	44,000 E	52,000 E	48,000 E	120,000 E	280,000 E	50,000 E	28,000 E	121,000 B	NA	63,100 B

Footnotes on Page 16.

ARCADIS

Table 6-41. Summary of Constituents Detected in the Surface Soil at the Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface soil	Surface soil	Surface soil	Surface soil	Surface soil	Surface soil	Surface soil	SDB-3	SDB-3	SDB-4
Depth	0'	0'	0'	0'	0'	0'	0'	0-0.5'	0-0.5'	0-0.67'
Sample Date	09/10/01	09/10/01	09/10/01	09/10/01	09/10/01	09/10/01	09/10/01	05/13/96	05/13/96	05/13/96
Sample ID	RDAUS-3	RDAUS-4	RDAUS-5	RDAUS-6	RDAUS-7	RDAUS-8	RDAUS-9	SS-19	SS-19RE	SS-21
Metals (continued)										
Thallium	1,300 B	<1,300	<1,100	1,000 B	1,300	990 B	<1,200	<8,900	NA	2,400 B
Titanium	400,000	310,000	320,000	390,000	320,000	340,000	230,000	NA	NA	NA
Vanadium	19,000	17,000	17,000	29,000	19,000	18,000	14,000	<680	NA	14,600
Zinc	**120,000**	38,000	25,000	**150,000**	87,000	65,000	38,000	<1,100 N*	NA	**2,780,000 N***
Pest/PCBs										
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	89 P	NA	<3.8
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	86 P	NA	<3.8
BHC (alpha)	NA	NA	NA	NA	NA	NA	NA	44 P	NA	<1.9
Chlordane (gamma)	NA	NA	NA	NA	NA	NA	NA	<11	NA	3.7 P
Dieldrin	NA	NA	NA	NA	NA	NA	NA	73 P	NA	<3.8
Endosulfan (beta)	NA	NA	NA	NA	NA	NA	NA	<22	NA	6.9
Endrin ketone	NA	NA	NA	NA	NA	NA	NA	55 P	NA	<3.8
Heptachlor	NA	NA	NA	NA	NA	NA	NA	42 P	NA	<1.9
Methoxychlor	NA	NA	NA	NA	NA	NA	NA	170	NA	<19

Footnotes on Page 16.

Table 6-41. Summary of Constituents Detected in the Surface Soil at the Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil
Depth	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"
Sample Date	08/06/99	08/06/99	08/06/99	08/05/99	08/05/99	08/06/99	08/05/99	08/05/99	08/06/99
Sample ID	SSRIV-1	SSRIV-2	SSRIV-3	SSRIV-4	SSRIV-97 (SSRIV-4)	SSRIV-5	SSRIV-6	SSRIV-7	SSRIV-8
VOC									
Benzene	<69	<70	<75	<76	<74	<62	<67	<70	47
Carbon disulfide	<350	<350	<370	<380	<370	<310	<330	<350	<350
Methylene chloride	<350	<350	<370	<380	<370	<310	<330	<350	<350
Tetrachloroethene	120	<70	<75	380	410	110	110	120	<69
Toluene	<140	<140	<150	<150	<150	<120	<130	<140	130
Trichloroethene	93	<70	<75	<76	<74	<62	<67	<70	<69
Xylenes (total)	<210	<210	<220	<230	<220	<180	<200	<210	<210
SVOC									
2,4-Dimethylphenol	<460	<460	<480	<500	<480	<400	<430	<460	<460
2-Methylnaphthalene	<460	<460	<480	<500	<480	<400	<430	<460	<460
2-Methylphenol	<460	<460	<480	<500	<480	<400	<430	<460	<460
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	<460	<460	<480	<500	<480	<400	<430	<460	<460
Acenaphthylene	<460	<460	<480	<500	<480	<400	<430	<460	<460
Anthracene	<460	<460	<480	<500	<480	<400	<430	<460	<460
Benzo(a)anthracene	<460	<460	<480	<500	<480	<400	<430	<460	<460
Benzo(a)pyrene	<460	<460	<480	<500	<480	<400	<430	<460	<460
Benzo(b)fluoranthene	<460	<460	<480	<500	<480	<400	<430	<460	<460
Benzo(g,h,i)perylene	<460	<460	<480	<500	<480	<400	<430	<460	<460
Benzo(k)fluoranthene	<460 J	<460	<480 J	<500	<480	<400 J	<430	<460	<460 J
bis(2-Ethylhexyl)phthalate	<460	<460	<480	<500	<480	<400	<430	<460	<460
Butylbenzylphthalate	<460	<460	<480	<500	<480	<400	<430	<460	<460
Carbazole	<460	<460	<480	<500	<480	<400	<430	<460	<460
Chrysene	<460	<460	<480	<500	<480	<400	<430	<460	<460
Dibenzofuran	<460	<460	<480	<500	<480	<400	<430	<460	<460
Di-n-butylphthalate	450 J	<460	<480	<500	<480	<400	<430	<460	<460
Fluoranthene	<460	<460	<480	<500	<480	<400	<430	<460	<460

Footnotes on Page 16.

Table 6-41. Summary of Constituents Detected in the Surface Soil at the Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil
Depth	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"
Sample Date	08/06/99	08/06/99	08/06/99	08/05/99	08/05/99	08/06/99	08/05/99	08/05/99	08/06/99
Sample ID	SSRIV-1	SSRIV-2	SSRIV-3	SSRIV-4	SSRIV-97 (SSRIV-4)	SSRIV-5	SSRIV-6	SSRIV-7	SSRIV-8
SVOC (continued)									
Fluorene	<460	<460	<480	<500	<480	<400	<430	<460	<460
Indeno(1,2,3-c,d)pyrene	<460	<460	<480	<500	<480	<400	<430	<460	<460
Naphthalene	<460	<460	<480	<500	<480	<400	<430	<460	<460
Phenanthrene	<460	<460	<480	<500	<480	<400	<430	<460	<460
Pyrene	<460	<460	<480	<500	<480	<400	<430	<460	<460
Metals									
Aluminum	14,000,000	5,300,000	7,800,000	5,500,000	5,400,000	7,300,000	5,600,000	10,000,000	4,500,000
Antimony	3,800 J	<2,000 J	<3,200 J	<2,000 J	<2,300 J	<3,100 J	<500 J	<1,500 J	<2,400 J
Arsenic	8,500	3,700	5,300	4,900	4,500	1,600	2,400	16,000	5,300
Barium	**1,300,000**	140,000	**540,000**	**550,000**	**570,000**	110,000	**380,000**	**730,000**	**360,000**
Beryllium	2,100 J	310 J	930 J	610 J	610 J	300 J	360 J	1,300	370 J
Cadmium	2,200	1,700	**3,900**	**29,000**	**30,000**	**3,800**	1,900	**6,300**	2200 J
Calcium	110,000,000 J	7,300,000 J	30,000,000 J	29,000,000 J	27,000,000 J	4,700,000 J	61,000,000 J	39,000,000 J	18,000,000 J
Chromium	**22,000**	**19,000**	**28,000**	**20,000**	**24,000**	**17,000**	**19,000**	**29,000**	**10,000**
Cobalt	**10,000**	**5,300**	**5,800**	**5,000**	**5,400**	**4,500**	**3,800**	**7,500**	**3,500**
Copper	**400,000**	**61,000**	**420,000**	**270,000**	**270,000**	38,000	**220,000**	**1,500,000**	**130,000**
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	27,000,000	24,000,000	17,000,000	17,000,000	17,000,000	17,000,000	12,000,000	28,000,000	16,000,000
Lead	170,000	99,000	250,000	150,000	150,000	61,000	240,000	160,000	220,000
Magnesium	4,400,000	2,200,000	2,200,000	2,800,000	2,000,000	2,100,000	3,500,000	2,700,000	2,500,000
Manganese	**3,500,000 J**	**550,000 J**	**1,600,000 J**	**1,700,000 J**	**1,600,000 J**	**370,000 J**	**760,000 J**	**2,100,000 J**	**1,500,000 J**
Mercury	**51 J**	**650 J**	**270**	**200**	**210**	**480 J**	**75 J**	**320**	**130**
Molybdenum	3,200 J	<570 J	2,500 J	2,900 J	2,800 J	1,000 J	<540 J	3,400	690 J
Nickel	25,000	14,000	30,000	19,000	23,000	19,000	10,000	41,000	8,800
Potassium	9,000,000 J	760,000 J	3,200,000 J	1,700,000 J	1,800,000 J	960,000 J	840,000 J	4,600,000 J	1,200,000 J
Selenium	<2,800 J	<1,400 J	<1,500 J	<1,500 J	<590 J	<1,200 J	<1,300 J	<2,800 J	<1,300 J
Silver	**430 J**	<700	**550 J**	**430 J**	**360 J**	<620	**130 J**	**500 J**	**110 J**
Sodium	550,000	46,000	280,000	200,000 J	130,000 J	48,000	68,000	380,000	76,000

Footnotes on Page 16.

Table 6-41. Summary of Constituents Detected in the Surface Soil at the Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil
Depth	**6"-12"**	**6"-12"**	**6"-12"**	**6"-12"**	**6"-12"**	**6"-12"**	**6"-12"**	**6"-12"**	**6"-12"**
Sample Date	**08/06/99**	**08/06/99**	**08/06/99**	**08/05/99**	**08/05/99**	**08/06/99**	**08/05/99**	**08/05/99**	**08/06/99**
Sample ID	SSRIV-1	SSRIV-2	SSRIV-3	SSRIV-4	SSRIV-97 (SSRIV-4)	SSRIV-5	SSRIV-6	SSRIV-7	SSRIV-8
Metals (continued)									
Thallium	1,600 J	<510 J	950 J	<690 J	<740 J	<620 J	<670 J	890 J	<690 J
Titanium	800,000 J	270,000 J	440,000 J	280,000 J	280,000 J	290,000 J	460,000 J	570,000 J	270,000 J
Vanadium	26,000	18,000	26,000	22,000	22,000	23,000	21,000	31,000	15,000
Zinc	**340,000 J**	**260,000 J**	**370,000 J**	**390,000 J**	**380,000 J**	**120,000 J**	**270,000 J**	**390,000 J**	**1,300,000 J**
Pest/PCBs									
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA
BHC (alpha)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (gamma)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan (beta)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin ketone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NA	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 16.

Table 6-41. Summary of Constituents Detected in the Surface Soil at the Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Depth Sample Date Sample ID	Surface Soil 6"-12" 08/06/99 SSRIV-9	Surface Soil 6"-12" 08/05/99 SSRIV-10	Surface Soil 6"-12" 08/05/99 SSRIV-11	Surface Soil 6"-12" 08/06/99 SSRIV-12	Surface Soil 6"-12" 08/06/99 SSRIV-96 (SSRIV-12)	Surface Soil 6"-12" 08/06/99 SSRIV-13	Residential Direct Contact Criteria	Residential Drinking Water Protection Criteria
VOC								
Benzene	<66	<72	52 J	<57	<57	<79	180,000 (I)	100 (I)
Carbon disulfide	<330	<360	<400	<280	<280	<400	R	R
Methylene chloride	<330	<360	<400	<280	<280	<400	1,300,000	100
Tetrachloroethene	<66	$\boxed{210}$	$\boxed{260}$	<57	<57	<79	88,000 C	100
Toluene	<130	<140	<160	<110	<110	140	250,000 (I) C	16,000 (I)
Trichloroethene	<66	<72	<81	<57	<57	<79	500,000 C,DD	100
Xylenes (total)	<200	110	<240	<170	<170	<240	150,000 (I) C	5,600 (I) J
SVOC								
2,4-Dimethylphenol	<430	<480	<530	<380	<380	<520	11,000,000	7,400
2-Methylnaphthalene	<430	<480	<530	<380	<380	<520	8,100,000	57,000
2-Methylphenol	<430	<480	<530	<380	<380	<520	11,000,000 (J)	7,400 (J)
4-Methylphenol	NA	NA	NA	NA	NA	NA	11,000,000 (J)	7,400 (J)
Acenaphthene	<430	<480	<530	<380	<380	<520	41,000,000	300,000
Acenaphthylene	<430	<480	<530	<380	<380	<520	1,600,000	5,900
Anthracene	<430	<480	<530	<380	<380	<520	230,000,000	41,000
Benzo(a)anthracene	<430	<480	<530	<380	<380	<520	20,000 (Q)	(Q) NLL
Benzo(a)pyrene	<430	<480	<530	<380	<380	<520	2,000 (Q)	(Q) NLL
Benzo(b)fluoranthene	<430	<480	<530	<380	<380	<520	20,000 (Q)	(Q) NLL
Benzo(g,h,i)perylene	<430	<480	<530	<380	<380	<520	2,500,000	NLL
Benzo(k)fluoranthene	<430	<480	<530	<380	<380	<520 J	200,000 (Q)	(Q) NLL
bis(2-Ethylhexyl)phthalate	<430	230 J	<530	<380	<380	<520	2,800,000	NLL
Butylbenzylphthalate	<430	<480	<530	<380	<380	<520	310,000 C	310,000 C
Carbazole	<430	<480	<530	<380	<380	<520	530,000	9,400
Chrysene	<430	<480	<530	<380	<380	<520	2,000,000 (Q)	(Q) NLL
Dibenzofuran	<430	<480	<530	<380	<380	<520	ID	ID
Di-n-butylphthalate	<430	<480	<530	<380	<380	1700	760,000 C	760,000 C
Fluoranthene	<430	<480	<530	<380	<380	<520	46,000,000	730,000

Footnotes on Page 16.

Table 6-41. Summary of Constituents Detected in the Surface Soil at the Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil		Residential
Depth	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"	6"-12"	Residential	Drinking Water
Sample Date	08/06/99	08/05/99	08/05/99	08/06/99	08/06/99	08/06/99	Direct Contact	Protection
Sample ID	SSRIV-9	SSRIV-10	SSRIV-11	SSRIV-12	SSRIV-96 (SSRIV-12)	SSRIV-13	Criteria	Criteria
SVOC (continued)								
Fluorene	<430	<480	<530	<380	<380	<520	27,000,000	390,000
Indeno(1,2,3-c,d)pyrene	<430	<480	<530	<380	<380	<520	20,000 (Q)	(Q) NLL
Naphthalene	<430	<480	<530	<380	<380	<520	16,000,000	35,000
Phenanthrene	<430	<480	<530	<380	<380	<520	1,600,000	56,000
Pyrene	<430	<480	<530	<380	<380	<520	29,000,000	480,000
Metals								
Aluminum	5,500,000	11,000,000	4,600,000	8,300,000	8,100,000	6,700,000	50,000,000 (B) DD	1,000 (B)
Antimony	<2,500 J	3,900 J	<1,300 J	<2,800 J	<2,800 J	<1,000 J	180,000	4,300
Arsenic	1,700	6,400	4,200	1,700	1,100	6,600	7,600	4,600
Barium	**530,000**	**930,000**	**420,000**	43,000	41,000	**710,000**	37,000,000 (B)	1,300,000 (B)
Beryllium	590 J	1,200 J	480 J	280 J	260 J	820 J	410,000	51,000
Cadmium	1,800	**8,600**	**3,100**	44	32	**2,900**	550,000 (B)	6,000 (B)
Calcium	15,000,000 J	24,000,000 J	28,000,000 J	820,000 J	860,000 J	17,000,000 J	NA	NA
Chromium	**12,000**	**63,000**	**17,000**	**14,000**	**17,000**	**24,000**	2,500,000 total/dissolved	30,000 (*VI)
Cobalt	**5,800**	**10,000**	**4,500**	**4,800**	**4,800**	**5,700**	2,600,000	800
Copper	**150,000**	**500,000**	**220,000**	8,300	7,700	**630,000**	20,000,000 (B)	5,800,000 (B)
Cyanide	NA	NA	NA	NA	NA	NA	R	R
Iron	12,000,000	30,000,000	12,000,000	12,000,000	14,000,000	20,000,000	160,000,000 (B)	6,000 (B)
Lead	190,000	610,000	120,000	6,000	5,300	170,000	400,000 (B)	700,000 (B)
Magnesium	3,100,000	3,800,000	2,000,000	1,700,000	2,000,000	1,400,000	1,000,000,000 (B) D	8,000,000 (B)
Manganese	**1,500,000 J**	**2,600,000 J**	**1,300,000 J**	**330,000 J**	**410,000 J**	**1,800,000 J**	25,000,000 (B)	1,000 (B)
Mercury	**250**	**1,200 J**	**76 J**	17 J	14 J	**400**	160,000 (B,Z) (total)	1,700 (B,Z) (total)
Molybdenum	<650 J	5,200 J	2,000 J	<260 J	<210 J	<2,300 J	2,600,000 (B)	1,500 (B)
Nickel	13,000	38,000	19,000	11,000	12,000	25,000	40,000,000 (B)	100,000 (B)
Potassium	1,400,000 J	3,800,000 J	2,200,000 J	310,000 J	270,000 J	2,400,000 J	NA	NA
Selenium	<2,500 J	<2,900 J	<1,600 J	<1,100 J	<1,100 J	<1,500 J	2,600,000 (B)	4,000 (B)
Silver	**170 J**	**970**	**250 J**	<570	<570	**870**	2,500,000 (B)	4,500 (B)
Sodium	95,000	350,000	120,000	27,000 J	34,000	170,000	1,000,000,000 D	2,500,000

Footnotes on Page 16.

Table 6-41. Summary of Constituents Detected in the Surface Soil at the Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Depth Sample Date Sample ID	Surface Soil 6"-12" 08/06/99 SSRIV-9	Surface Soil 6"-12" 08/05/99 SSRIV-10	Surface Soil 6"-12" 08/05/99 SSRIV-11	Surface Soil 6"-12" 08/06/99 SSRIV-12	Surface Soil 6"-12" 08/06/99 SSRIV-96 (SSRIV-12)	Surface Soil 6"-12" 08/06/99 SSRIV-13	Residential Direct Contact Criteria	Residential Drinking Water Protection Criteria
Metals (continued)								
Thallium	<660 J	1,200 J	<810 J	<400 J	<570 J	<770 J	35,000 (B)	2,300 (B)
Titanium	460,000 J	540,000 J	240,000 J	420,000 J	350,000 J	310,000 J	NA	NA
Vanadium	16,000	33,000	18,000	27,000	27,000	20,000	750,000 DD	72,000
Zinc	**300,000 J**	**970,000 J**	**260,000 J**	21,000 J	23,000 J	**390,000 J**	170,000,000 (B)	2,400,000 (B)
Pest/PCBs								
4,4'-DDD	NA	NA	NA	NA	NA	NA	95,000	NLL
4,4'-DDE	NA	NA	NA	NA	NA	NA	45,000	NLL
BHC (alpha)	NA	NA	NA	NA	NA	NA	2,600	18
Chlordane (gamma)	NA	NA	NA	NA	NA	NA	31,000 (J)	(J) NLL
Dieldrin	NA	NA	NA	NA	NA	NA	1,100	NLL
Endosulfan (beta)	NA	NA	NA	NA	NA	NA	1,400,000 (J)	(J) NLL
Endrin ketone	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	NA	NA	NA	5,600	NLL
Methoxychlor	NA	NA	NA	NA	NA	NA	1,900,000	16,000

Footnotes on Page 16.

Table 6-41. Summary of Constituents Detected in the Surface Soil at the Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Depth Sample Date Sample ID	Indoor Air Inhalation Criteria	Ambient Air Inhalation Criteria	Groundwater/ Surface Water Interface Criteria
VOC			
Benzene	1,600 (I)	380,000,000 (I)	4,000 (I) X
Carbon disulfide	R	R	R
Methylene chloride	45,000	6,600,000,000	19,000 X
Tetrachloroethene	11,000	5,400,000,000	900 X
Toluene	250,000 (I) C	27,000,000,000 (I)	2,800 (I)
Trichloroethene	7,100	1,800,000,000	4,000 X
Xylenes (total)	150,000 (I) C	290,000,000,000 (I)	700 (I)
SVOC			
2,4-Dimethylphenol	NLV	4,700,000,000	7,600
2-Methylnaphthalene	ID	NA	ID
2-Methylphenol	(J) NLV	NA	1,400 (J)
4-Methylphenol	(J) NLV	67,000,000,000 (J)	1,400 (J)
Acenaphthene	190,000,000	14,000,000,000	4,400
Acenaphthylene	1,600,000	2,300,000,000	ID
Anthracene	1000000000 D	67,000,000,000	ID
Benzo(a)anthracene	(Q) NLV	(Q) ID	(Q) NLL
Benzo(a)pyrene	(Q) NLV	1,500,000 (Q)	(Q) NLL
Benzo(b)fluoranthene	(Q) ID	(Q) ID	(Q) NLL
Benzo(g,h,i)perylene	NLV	800,000,000	NLL
Benzo(k)fluoranthene	(Q) NLV	(Q) ID	(Q) NLL
bis(2-Ethylhexyl)phthalate	NLV	700,000,000	NLL
Butylbenzylphthalate	NLV	47,000,000,000	26,000 X
Carbazole	NLV	ID	1,100
Chrysene	(Q) ID	(Q) ID	(Q) NLL
Dibenzofuran	ID	ID	1,700
Di-n-butylphthalate	NLV	3,300,000,000	11,000
Fluoranthene	1,000,000,000 D	9,300,000,000	5,500

Footnotes on Page 16.

Table 6-41. Summary of Constituents Detected in the Surface Soil at the Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Depth Sample Date Sample ID	Indoor Air Inhalation Criteria	Ambient Air Inhalation Criteria	Groundwater/ Surface Water Interface Criteria
SVOC (continued)			
Fluorene	580,000,000	9,300,000,000	5,300
Indeno(1,2,3-c,d)pyrene	(Q) NLV	(Q) ID	(Q) NLL
Naphthalene	250,000	NA	870
Phenanthrene	2,800,000	6,700,000	5,300
Pyrene	1,000,000,000 D	6,700,000,000	ID
Metals			
Aluminum	(B) NLV	(B) ID	(B) NA
Antimony	NLV	13,000,000	94,000
Arsenic	NLV	720,000	70,000 X
Barium	(B) NLV	330,000,000 (B)	260,000 (B) G,X
Beryllium	NLV	1,300,000	24,000 G
Cadmium	(B) NLV	1,700,000 (B)	2,500 (B) G,X
Calcium	NA	NA	NA
Chromium	total/dissolved NLV	260,000 total/dissolved	3,300 (*VI)
Cobalt	NLV	13,000,000	2,000
Copper	(B) NLV	130,000,000 (B)	48,000 (B) G
Cyanide	R	R	R
Iron	(B) NLV	(B) ID	(B) NA
Lead	(B) NLV	100,000,000 (B)	1,700,000 (B) G,X
Magnesium	(B) NLV	6,700,000,000 (B)	(B) NA
Manganese	(B) NLV	3,300,000 (B)	36,000 (B) G,X
Mercury	48,000 (B,Z) (total)	20,000,000 (B,Z) (total)	50 (B,Z) (total) M
Molybdenum	(B) NLV	(B) ID	16,000 (B) X
Nickel	(B) NLV	13,000,000 (B)	50,000 (B) G
Potassium	NA	NA	NA
Selenium	(B) NLV	130,000,000 (B)	400 (B)
Silver	(B) NLV	6,700,000 (B)	100 (B) M
Sodium	NLV	ID	NA

Footnotes on Page 16.

Table 6-41. Summary of Constituents Detected in the Surface Soil at the Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Depth Sample Date Sample ID	Indoor Air Inhalation Criteria	Ambient Air Inhalation Criteria	Groundwater/ Surface Water Interface Criteria
Metals (continued)			
Thallium	(B) NLV	(B) ID	4,200 (B) X
Titanium	NA	NA	NA
Vanadium	NLV	ID	190,000
Zinc	(B) NLV	(B) ID	110,000 (B) G
Pest/PCBs			
4,4'-DDD	NLV	44,000,000	NLL
4,4'-DDE	NLV	32,000,000	NLL
BHC (alpha)	30,000	1,700,000	NA
Chlordane (gamma)	11,000,000 (J)	31,000,000 (J)	(J) NLL
Dieldrin	140,000	680,000	NLL
Endosulfan (beta)	(J) ID	(J) ID	(J) NLL
Endrin ketone	NA	NA	NA
Heptachlor	350,000	2,400,000	NLL
Methoxychlor	ID	ID	NA

Footnotes on Page 16.

Table 6-41. Summary of Constituents Detected in the Surface Soil at the Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Results in micrograms per kilogram (µg/Kg).

(shaded)	Indicates a value above the Residential and Commercial I Direct Contact Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
(boxed)	Indicates a value above the Residential and Commercial I Drinking Water Protection Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
Bold	Indicates a value above the Residential and Commercial I Groundwater/Surface Water Interface Protection Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
italics	Indicates a value above the Residential and Commercial I Soil Volatilization to Indoor Air Inhalation Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006)
<u>underline</u>	Indicates a value above the Residential and Commercial I Particulate Soil Inhalation Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006)
<	Less than the laboratory method detection limit.
*	LCS or LCSD exceeds the control limit.
B	Constituent was also detected in laboratory blank.
E	Analyte was detected at a concentration greater than the calibration range, and is therefore estimated.
J	Estimated result.
N	Spiked sample recovery is not within control limits (Inorganics only).
NA	Not analyzed.
P	Greater than 25% RPD between two columns for pesticide or PCB.

State of Michigan Criteria Footnotes:

B	Background may be substituted if higher than the calculated cleanup criteria.
C	Value presented is a screening level based on the chemical specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat.
DD	Hazardous substance causes developmental effects.
G	GSI value is pH or water hardness dependent.
I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.
ID	Inadequate data to develop criterion.
J	Chemical may be present in several isomer forms. Isomer specific concentrations must be added together for comparison to criteria.
M	Calculated criterion is below the analytical method detection limit (MDL).
NA	Criterion or values is not available.
NLL	Chemical is not likely to leach under most soil conditions.

Table 6-41. Summary of Constituents Detected in the Surface Soil at the Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

State of Michigan Criteria Footnotes (continued):

NLV	Chemical is not likely to volatilize under most soil conditions.
Q	Criterion for carcinogenic polycyclic aromatic hydrocarbons (PAHs) were developed using "relative potential potencies" (RFPs) to benzo(a)pyrene.
R	Hazardous substance may exhibit the characteristic of reactivity as defined in 40 CFR 261.23.
Total	Criterion established for total metal only.
*VI	Standard for Chromium VI.
X	The GSI criterion shown is not protective for surface water that is used as a drinking water source.
Z	Data for mercuric chloride serves as the basis for drinking water, groundwater contact, soil direct contact and the groundwater protection criteria.

ARCADIS

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-4			SDB-1		SDB-3		
Sample Date	06/03/97	06/03/97	06/03/97	05/13/96	05/13/96	05/13/96	05/13/96	05/13/96
Sample ID	GMSB-4/5-25	GMSB-4/27	GMSB-4/55	SS-15	SS-16	SS-20	SS-20RE	SS-17
Depth (ft bls)	05-25'	27'	55'	4-8'	16-22'	4-8'	4-8'	8-14'
VOC								
1,1,2,2-Tetrachloroethane	<8.5 J	<5.2 J	NA	<11	<17	<21	<21	<14
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethene (total)	NA	NA	NA	<11	<17	<21	<21	2 J
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	<85 J	<52 J	NA	<11	<17	<21	<21	NA
2-Hexanone	<85 J	<52 J	NA	<11	<17	<21	<21	<14
4-Methyl-2-pentanone (MIBK)	<85 J	<52 J	NA	<11	<17	<21	<21	<14
Acetone	63 J	<52 J	NA	<11	<17	<21	<21	<14
Benzene	5.9 J	<5.2 J	NA	<11	<17 BJ	<21	18 J	16 B
cis-1,2-Dichloroethene	<8.5 J	<5.2 J	NA	<11	<17	<21	<21	2 J
Ethylbenzene	<8.5 J	<5.2 J	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NA	NA	NA	<11	<17	<21	<21	<14
Methylene chloride	<8.5 J	<5.2 J	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	<11 BJ	<17 BJ	<21 BJ	51 B	<14 BJ
n-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	<8.5 J	<5.2 J	NA	NA	NA	NA	NA	NA
Toluene	<8.5 J	<5.2 J	NA	<11	<17	<21	16 J	6 J
Trichloroethene	<8.5 J	<5.2 J	NA	<11	<17	<21	<21	5 J
Xylene, o	NA	NA	NA	<11	<17	<21	7 J	23
Xylenes (total)	23 J	<5.2 J	NA	NA	NA	NA	NA	NA
Xylenes, m+p	NA	NA	NA	<11	<17	<21	<21	<14
				NA	NA	NA	NA	NA
SVOC								
1,2,4-Trichlorobenzene	<280	<170	NA	<320	<350	<17,000	NA	<11,000
2,4-Dimethylphenol	900	<170	NA	<320	<350	<17,000	NA	$\boxed{76,000}$
2-Methylnaphthalene	350	<170	NA	<320	<350	<17,000	NA	8,100 J

Footnotes on Page 21.

ARCADIS

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-4			SDB-1		SDB-3		
Sample Date	06/03/97	06/03/97	06/03/97	05/13/96	05/13/96	05/13/96	05/13/96	05/13/96
Sample ID	GMSB-4/5-25	GMSB-4/27	GMSB-4/55	SS-15	SS-16	SS-20	SS-20RE	SS-17
Depth (ft bls)	05-25'	27'	55'	4-8'	16-22'	4-8'	4-8'	8-14'
SVOC (continued)								
2-Methylphenol	<280	<170	NA	<320	<350	<17,000	NA	**48,000**
4-Methylphenol	340	<170	NA	<320	<350	<17,000	NA	**49,000**
Acenaphthene	190 J	<170	NA	<320	<350	<17,000	NA	<11,000
Anthracene	<280	<170	NA	<320	<350	<17,000	NA	<11,000
Benzo(a)anthracene	110 J	<170	NA	<320	<350	<17,000	NA	<11,000
Benzo(a)pyrene	<280	<170	NA	<320	<350	<17,000	NA	<11,000
Benzo(b)fluoranthene	85 J	<170	NA	<320	<350	<17,000	NA	<11,000
Benzo(g,h,i)perylene	<280	<170	NA	<320	<350	<17,000	NA	<11,000
Benzo(k)fluoranthene	<280	<170	NA	<320	<350	<17,000	NA	<11,000
bis(2-Ethylhexyl)phthalate	<280	<170	NA	52 J	<350	<17,000	NA	<11,000
Butylbenzylphthalate	<280	<170	NA	<320	<350	<17,000	NA	<11,000
Chrysene	120 J	<170	NA	<320	<350	<17,000	NA	<11,000
Dibenzofuran	160 J	<170	NA	<320	<350	<17,000	NA	<11,000
Diethylphthalate	<280	<170	NA	<320	<350	<17,000	NA	**3,000 J**
Di-n-butylphthalate	460	<170	NA	<320	<350	<17,000	NA	<11,000
Fluoranthene	370	<170	NA	<320	<350	<17,000	NA	1,500 J
Fluorene	180 J	<170	NA	<320	<350	<17,000	NA	3,200 J
Indeno(1,2,3-c,d)pyrene	<280	<170	NA	<320	<350	<17,000	NA	<11,000
Naphthalene	430	<170	NA	<320	<350	<17,000	NA	**6,200 J**
n-Nitrosodiphenylamine	<280	<170	NA	<320	<350	<17,000	NA	<11,000
Phenanthrene	570	<170	NA	<320	<350	<17,000	NA	4,800 J
Phenol	<280	<170	NA	<320	<350	<17,000	NA	**31,000**
Pyrene	270 J	<170	NA	<320	<350	<17,000	NA	2,100 J
Metals								
Aluminum	3,600,000	NA	NA	5,290,000	3,290,000	6,680,000	NA	6,470,000
Antimony	15,000	NA	NA	<2,400 N	<2,900 N	**2,920,000 N**	NA	15,900 BN
Arsenic	5,320	NA	NA	3,800	1,000 B	53,200	NA	17,700
Barium	**375,000**	NA	NA	18,700 BN	11,400 BN	**1,960,000 N**	NA	**799,000 N**

Footnotes on Page 21.

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-4			SDB-1		SDB-3		
Sample Date	06/03/97	06/03/97	06/03/97	05/13/96	05/13/96	05/13/96	05/13/96	05/13/96
Sample ID	GMSB-4/5-25	GMSB-4/27	GMSB-4/55	SS-15	SS-16	SS-20	SS-20RE	SS-17
Depth (ft bls)	05-25'	27'	55'	4-8'	16-22'	4-8'	4-8'	8-14'
Metals (continued)								
Beryllium	<855	NA	NA	290 B	<140	1,100 B	NA	740 B
Cadmium	**3,330**	NA	NA	280 B*	210 B	**4,200**	NA	**4,100**
Calcium	22,700,000	NA	NA	1,350,000	4,780,000	43,700,000	NA	22,500,000
Chromium	**41,900**	NA	NA	**12,900**	**13,000**	**32,600**	NA	**30,000**
Cobalt	<8,550	NA	NA	**6,100 B**	**3,500 B**	**22,300**	NA	**15,100**
Copper	**159,000**	NA	NA	26,800	17,900 N*	**20,700,000 N***	NA	**19,000,000 N***
Cyanide	NA	NA	NA	<110	<120	**700 B**	NA	**510 B**
Iron	21,600,000 MBB	NA	NA	10,100,000 *	7,300,000 *	45,300,000 *	NA	56,800,000 *
Lead	249,000	NA	NA	2,100	2,100	**17,700,000**	NA	**1,910,000**
Magnesium	2,760,000	NA	NA	3,680,000	4,360,000	3,590,000	NA	4,210,000
Manganese	**830,000**	NA	NA	**162,000 ***	**141,000 ***	**1,460,000 ***	NA	**862,000 ***
Mercury	**361 J**	NA	NA	<50	<60	**5,200**	NA	**1,200**
Nickel	26,000	NA	NA	37,700	23,200	**141,000**	NA	**144,000**
Potassium	1,580,000	NA	NA	516,000 B	333,000 B	2,040,000 B	NA	1,390,000 B
Selenium	**1,550**	NA	NA	<600 N	<710 N	**2,200 N**	NA	<4,500 N
Silver	<427	NA	NA	<650	<780	**14,400**	NA	**9,600**
Sodium	<855,000	NA	NA	58,900 B	77,500 B	106,000 B	NA	220,000 B
Thallium	<427	NA	NA	2,000	1,400 B	**4,300 B**	NA	**11,100 B**
Vanadium	13,700	NA	NA	17,700	11,000 B	13,800 B	NA	15,000
Zinc	**1,580,000**	NA	NA	18,900 N*	18,100 N*	**2,230,000 N***	NA	**2,080,000 N***
Pest/PCBs								
4,4'-DDD	<56	NA	NA	<3.3	<3.6	<5.6	NA	14
4,4'-DDE	<56	NA	NA	<3.3	<3.6	<5.6	NA	<4.6
Aldrin	<29	NA	NA	<1.7	<1.8	<2.9	NA	<2.4
Aroclor 1248	<290	NA	NA	<33	<36	<56	NA	<46
Aroclor 1260	<560	NA	NA	<33	<36	<56	NA	<46
BHC (alpha)	<29	NA	NA	<1.7	<1.8	<2.9	NA	15 P
BHC (delta)	<29	NA	NA	<1.7	<1.8	<2.9	NA	<2.4

Footnotes on Page 21.

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-4			SDB-1		SDB-3		
Sample Date	06/03/97	06/03/97	06/03/97	05/13/96	05/13/96	05/13/96	05/13/96	05/13/96
Sample ID	GMSB-4/5-25	GMSB-4/27	GMSB-4/55	SS-15	SS-16	SS-20	SS-20RE	SS-17
Depth (ft bls)	05-25'	27'	55'	4-8'	16-22'	4-8'	4-8'	8-14'
Pest/PCBs (continued)								
BHC (Lindane) (gamma)	<29	NA	NA	<1.7	<1.8	<2.9	NA	<2.4
Chlordane (alpha)	<29	NA	NA	<1.7	<1.8	<2.9	NA	<2.4
Chlordane (gamma)	<29	NA	NA	<1.7	<1.8	<2.9	NA	<2.4
Dieldrin	<56	NA	NA	<3.3	<3.6	<5.6	NA	5.7 P
Endosulfan (beta)	<56	NA	NA	<3.3	<3.6	6.7 P	NA	<4.6
Endrin	<56	NA	NA	<3.3	<3.6	<5.6	NA	<4.6
Endrin aldehyde	<56	NA	NA	<3.3	<3.6	<5.6	NA	<4.6
Endrin ketone	<56	NA	NA	<3.3	<3.6	<5.6	NA	<4.6
Heptachlor	<29	NA	NA	<1.7	<1.8	4.1 P	NA	3.1 P
Heptachlor epoxide	<29	NA	NA	<1.7	<1.8	<2.9	NA	17 P
Total Organic Carbon	43,000,000	950,000	8,200,000	NA	NA	NA	NA	NA

Footnotes on Page 21.

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SDB-3 (continued)		SDB-4	SDB-6			SDB-7	
Sample Date	05/13/96	05/13/96	05/13/96	05/14/96	05/14/96	05/14/96	05/14/96	05/14/96
Sample ID	SS-17RE	SDB3	SS-22	SS-25	SS-26	SDB6	SS-27	SS-27RE
Depth (ft bls)	8-14'	12'	16-20'	4-8'	12-16'	20'	9-12'	9-12'
VOC								
1,1,2,2-Tetrachloroethane	<14	NA	<11	<21	***19,000***	<1.2	<29	<29
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	110	NA	NA
1,2-Dichloroethene (total)	<14	NA	<11	130	<16,000	NA	<29	<29
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	30	NA	NA
2-Butanone (MEK)	<14	NA	<11	<21	<16,000	6.1	<29	<29
2-Hexanone	<14	NA	<11	<21	<16,000	4.4	<29	<29
4-Methyl-2-pentanone (MIBK)	<14	NA	<11	<21	<16,000	3.1	<29	<29
Acetone	34 B	NA	<11 BJ	17 J	7,300 J	18	<29	<29
Benzene	5 J	NA	<11	<21	<16,000	<1.2	4 J	<29
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	3.3	NA	NA
Ethylbenzene	<14	NA	<11	9 J	**3,200 J**	9.2	<29	<29
Isopropylbenzene	NA	NA	NA	NA	NA	3.9	NA	NA
Methylene chloride	50 B	NA	<11 BJ	<56 B	<16,000 BJ	<1.2	<110 B	<84 B
Naphthalene	NA	NA	NA	NA	NA	56	NA	NA
n-Butylbenzene	NA	NA	NA	NA	NA	16	NA	NA
n-Propylbenzene	NA	NA	NA	NA	NA	7.7	NA	NA
p-Isopropyltoluene	NA	NA	NA	NA	NA	26	NA	NA
sec-Butylbenzene	NA	NA	NA	NA	NA	6.6	NA	NA
Tetrachloroethene	<10 J	NA	<11	35	<16,000	<1.2	<29	<29
Toluene	15	NA	<11	2 J	**4,500 J**	13	<29	<29
Trichloroethene	37	NA	<11	<21	<16,000	<1.2	<29	<29
Xylene, o	NA	NA	NA	NA	NA	31	NA	NA
Xylenes (total)	<14	NA	<11	52	**28,000**	NA	<29	<29
Xylenes, m+p	NA	NA	NA	NA	NA	49	NA	NA
SVOC								
1,2,4-Trichlorobenzene	NA	<13,000	<350	<580	<11,000	<7,900	<540	NA
2,4-Dimethylphenol	NA	**42,000**	<350	<580	<11,000	**29,000**	<540	NA
2-Methylnaphthalene	NA	4,900 J	<350	340 J	<11,000	26,000	300 J	NA

Footnotes on Page 21.

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SDB-3 (continued)		SDB-4	SDB-6			SDB-7	
Sample Date	05/13/96	05/13/96	05/13/96	05/14/96	05/14/96	05/14/96	05/14/96	05/14/96
Sample ID	SS-17RE	SDB3	SS-22	SS-25	SS-26	SDB6	SS-27	SS-27RE
Depth (ft bls)	8-14'	12'	16-20'	4-8'	12-16'	20'	9-12'	9-12'
SVOC (continued)								
2-Methylphenol	NA	**32,000**	<350	<580	<11,000	**21,000**	<540	NA
4-Methylphenol	NA	**32,000**	<350	1,000	**1,600 J**	**35,000**	<540	NA
Acenaphthene	NA	<13,000	<350	<580	<11,000	<7,900	<540	NA
Anthracene	NA	<13,000	<350	<580	<11,000	<7,900	<540	NA
Benzo(a)anthracene	NA	<13,000	<350	<580	<11,000	<7,900	<540	NA
Benzo(a)pyrene	NA	<13,000	<350	<580	<11,000	<7,900	<540	NA
Benzo(b)fluoranthene	NA	<13,000	<350	<580	<11,000	<7,900	<540	NA
Benzo(g,h,i)perylene	NA	<13,000	<350	<580	<11,000	<7,900	<540	NA
Benzo(k)fluoranthene	NA	<13,000	<350	<580	<11,000	<7,900	<540	NA
bis(2-Ethylhexyl)phthalate	NA	<13,000	<350	<580	<11,000 BJ	<7,900	<540	NA
Butylbenzylphthalate	NA	<13,000	<350	<580	<11,000	<7,900	<540	NA
Chrysene	NA	<13,000	<350	<580	<11,000	<7,900	74 J	NA
Dibenzofuran	NA	<13,000	<350	220 J	<11,000	**1,900 J**	150 J	NA
Diethylphthalate	NA	<13,000	<350	<580	<11,000	<7,900	<540	NA
Di-n-butylphthalate	NA	3,400 JB	<350	130 J	1,300 J	2,800 JB	<540	NA
Fluoranthene	NA	<13,000	<350	<580	<11,000	<7,900	68 J	NA
Fluorene	NA	1,900 J	<350	110 J	<11,000	1,200 J	<540	NA
Indeno(1,2,3-c,d)pyrene	NA	<13,000	<350	<580	<11,000	<7,900	<540	NA
Naphthalene	NA	**6,900 J**	<350	800	**4,200 J**	**64,000**	200 J	NA
n-Nitrosodiphenylamine	NA	<13,000	<350	<580	<11,000	<7,900	<540	NA
Phenanthrene	NA	2,500 J	<350	700	<11,000	<7,900	230 J	NA
Phenol	NA	**20,000**	<350	240 J	<11,000	**20,000**	<540	NA
Pyrene	NA	1,300 J	<350	<580	<11,000	<7,900	71 J	NA
Metals								
Aluminum	NA	NA	3,450,000	868,000	13,800,000	NA	812,000	NA
Antimony	NA	NA	<2,500 N	<4,900 N	62,100 N	NA	<4,100 N	NA
Arsenic	NA	NA	1,900 B	2,100 B	15,900	NA	1,300 B	NA
Barium	NA	NA	13,300 BN	**427,000 N**	**5,600,000 N**	NA	82,100 N	NA

Footnotes on Page 21.

ARCADIS

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SDB-3 (continued)		SDB-4	SDB-6			SDB-7	
Sample Date	05/13/96	05/13/96	05/13/96	05/14/96	05/14/96	05/14/96	05/14/96	05/14/96
Sample ID	SS-17RE	SDB3	SS-22	SS-25	SS-26	SDB6	SS-27	SS-27RE
Depth (ft bls)	8-14'	12'	16-20'	4-8'	12-16'	20'	9-12'	9-12'
Metals (continued)								
Beryllium	NA	NA	280 B	<240	1,600	NA	410 B	NA
Cadmium	NA	NA	<180	<360	**4,800**	NA	<300	NA
Calcium	NA	NA	8,700,000	10,400,000	76,400,000	NA	183,000,000	NA
Chromium	NA	NA	**10,500**	2,600 B	**39,500**	NA	**5,100**	NA
Cobalt	NA	NA	**3,800 B**	1,800 B	**22,200**	NA	730 B	NA
Copper	NA	NA	18,900 N*	35,300 N*	**497,000 N***	NA	**199,000 N***	NA
Cyanide	NA	NA	<110	<220	<140	NA	<190	NA
Iron	NA	NA	7,380,000 *	1,710,000 *	52,500,000 *	NA	1,410,000 *	NA
Lead	NA	NA	2,000	28,400	384,000	NA	60,900	NA
Magnesium	NA	NA	6,920,000	935,000 B	4,720,000	NA	599,000 B	NA
Manganese	NA	NA	**149,000 ***	**393,000 ***	**2,530,000 ***	NA	**60,900 ***	NA
Mercury	NA	NA	<50	<110	**730**	NA	**110 B**	NA
Nickel	NA	NA	**93,800**	<1,500	30,600	NA	2,000 B	NA
Potassium	NA	NA	344,000 B	1,740,000 B	9,590,000	NA	533,000 B	NA
Selenium	NA	NA	<620 N	<1,200 N	**1,000 BN**	NA	**2,400 N**	NA
Silver	NA	NA	<680	<1,400	**3,300**	NA	**2,300 B**	NA
Sodium	NA	NA	62,500 B	118,000 B	635,000 B	NA	46,900 B	NA
Thallium	NA	NA	960 B	<1,300	<870	NA	<1,100	NA
Vanadium	NA	NA	11,200	1,100 B	18,100	NA	5,000 B	NA
Zinc	NA	NA	17,300 N*	61,600 N*	**2,150,000 N***	NA	33,900 N*	NA
Pest/PCBs								
4,4'-DDD	NA	NA	<3.5	<5.7	4.4 P	NA	<5.4	NA
4,4'-DDE	NA	NA	<3.5	<5.7	<4.3	NA	<5.4	NA
Aldrin	NA	NA	<1.8	<2.9	<2.2	NA	<2.8	NA
Aroclor 1248	NA	NA	<35	<57	<43	NA	<54	NA
Aroclor 1260	NA	NA	<35	<57	<43	NA	<54	NA
BHC (alpha)	NA	NA	<1.8	<2.9	<2.2	NA	<2.8	NA
BHC (delta)	NA	NA	<1.8	<2.9	<2.2	NA	<2.8	NA

Footnotes on Page 21.

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SDB-3 (continued)		SDB-4	SDB-6			SDB-7	
Sample Date	05/13/96	05/13/96	05/13/96	05/14/96	05/14/96	05/14/96	05/14/96	05/14/96
Sample ID	SS-17RE	SDB3	SS-22	SS-25	SS-26	SDB6	SS-27	SS-27RE
Depth (ft bls)	8-14'	12'	16-20'	4-8'	12-16'	20'	9-12'	9-12'
Pest/PCBs (continued)								
BHC (Lindane) (gamma)	NA	NA	<1.8	12 P	<2.2	NA	<2.8	NA
Chlordane (alpha)	NA	NA	<1.8	<2.9	<2.2	NA	<2.8	NA
Chlordane (gamma)	NA	NA	<1.8	<2.9	<2.2	NA	2.8 P	NA
Dieldrin	NA	NA	<3.5	<5.7	<4.3	NA	<5.4	NA
Endosulfan (beta)	NA	NA	<3.5	<5.7	4.5	NA	<5.4	NA
Endrin	NA	NA	<3.5	<5.7	<4.3	NA	<5.4	NA
Endrin aldehyde	NA	NA	<3.5	<5.7	<4.3	NA	<5.4	NA
Endrin ketone	NA	NA	<3.5	<5.7	6.7 P	NA	<5.4	NA
Heptachlor	NA	NA	<1.8	<2.9	<2.2	NA	<2.8	NA
Heptachlor epoxide	NA	NA	<1.8	<2.9	7.8 P	NA	2.6 JP	NA
Total Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 21.

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SDB-7 (continued)			SDB-8					
Sample Date	05/14/96	05/14/96	05/14/96	05/13/96	05/13/96	05/13/96	05/13/96	05/13/96	05/13/96
Sample ID	SS-28	SS-28RE	SDB7	SS-29	SS-29RE	SS-30	SS-18	SS-18RE	SDB8
Depth (ft bls)	16-19.5'	16-19.5'	16-19.5'	4-6'	4-6'	8-10'	10-22'	10-22'	14'
VOC									
1,1,2,2-Tetrachloroethane	<14	<14	<1.8	<12	<12	<64	<12	<12	NA
1,2,4-Trimethylbenzene	NA	NA	3.6	NA	NA	NA	NA	NA	NA
1,2-Dichloroethene (total)	<14	<14	NA	29	95	17 J	9 J	1 JX	NA
1,3,5-Trimethylbenzene	NA	NA	<1.8	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	<14	<14	9.6	<12	<12	140	9 J	<12	NA
2-Hexanone	<14	<14	4	<12	<12	<64	<12	<12	NA
4-Methyl-2-pentanone (MIBK)	<14	<14	<3.5	<12	<12	<64	<12	<12	NA
Acetone	39	13 J	37	<12 BJ	<12	460	55 B	64	NA
Benzene	<14	<14	<1.8	<12	11 J	<64	2 J	<12	NA
cis-1,2-Dichloroethene	NA	NA	<1.8	NA	NA	NA	NA	NA	NA
Ethylbenzene	<14	<14	<1.8	<12	<12	<64	<12	<12	NA
Isopropylbenzene	NA	NA	<1.8	NA	NA	NA	NA	NA	NA
Methylene chloride	98 B	37	<1.8	<12 BJ	66 B	77	<12 BJ	18	NA
Naphthalene	NA	NA	1.9	NA	NA	NA	NA	NA	NA
n-Butylbenzene	NA	NA	<1.8	NA	NA	NA	NA	NA	NA
n-Propylbenzene	NA	NA	<1.8	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	NA	NA	<1.8	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	NA	NA	<1.8	NA	NA	NA	NA	NA	NA
Tetrachloroethene	<14	<14	<1.8	<12	<12	<64	<12	<12	NA
Toluene	5 J	<14	<1.8	<12	3 J	31 J	3 J	1 J	NA
Trichloroethene	<14	<14	<1.8	29	96	<64	10 J	2 J	NA
Xylene, o	NA	NA	2.1	NA	NA	NA	NA	NA	NA
Xylenes (total)	<14	<14	NA	<12	<12	28 J	5 J	1 JX	NA
Xylenes, m+p	NA	NA	3.7	NA	NA	NA	NA	NA	NA
SVOC									
1,2,4-Trichlorobenzene	<400	NA	<4,900	<520	<520	<20,000	<770	NA	<7,900
2,4-Dimethylphenol	<400	NA	<4,900	<520	<520	$\boxed{51,000}$	2,500	NA	$\boxed{51,000}$
2-Methylnaphthalene	<400	NA	<4,900	<520	<520	9,400 J	890	NA	6,400 J

Footnotes on Page 21.

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SDB-7 (continued)			SDB-8					
Sample Date	05/14/96	05/14/96	05/14/96	05/13/96	05/13/96	05/13/96	05/13/96	05/13/96	05/13/96
Sample ID	SS-28	SS-28RE	SDB7	SS-29	SS-29RE	SS-30	SS-18	SS-18RE	SDB8
Depth (ft bls)	16-19.5'	16-19.5'	16-19.5'	4-6'	4-6'	8-10'	10-22'	10-22'	14'
SVOC (continued)									
2-Methylphenol	<400	NA	<4,900	<520	<520	**30,000**	1,100	NA	**21,000**
4-Methylphenol	<400	NA	<4,900	<520	<520	**98,000**	**2,800**	NA	**34,000**
Acenaphthene	<400	NA	<4,900	<520	<520	<20,000	<770	NA	<7,900
Anthracene	<400	NA	1,100 J	<520	<520	<20,000	150 J	NA	620 J
Benzo(a)anthracene	42 J	NA	1,800 J	200 J	290 J	<20,000	280 J	NA	2,800 J
Benzo(a)pyrene	<400	NA	1,400 J	75 J	91 J	<20,000	<770	NA	3,900 J
Benzo(b)fluoranthene	<400	NA	940 J	170 J	160 J	<20,000	140 J	NA	<7,900
Benzo(g,h,i)perylene	150 J	NA	520 J	100 J	69 J	<20,000	<770	NA	2,900 J
Benzo(k)fluoranthene	<400	NA	13,000 J	74 J	87 J	<20,000	<770	NA	<7,900
bis(2-Ethylhexyl)phthalate	80 J	NA	<4,900	<520	<520	<20,000 BJ	<770	NA	<7,900
Butylbenzylphthalate	41 J	NA	<4,900	<520	<520	<20,000	87 J	NA	<7,900
Chrysene	49 J	NA	1,600 J	330 J	320 J	<20,000	400 J	NA	6,300 J
Dibenzofuran	<400	NA	<4,900	<520	<520	**4,200 J**	290 J	NA	**4,700 J**
Diethylphthalate	<400	NA	**2,800 JB**	<520	<520	<20,000	<770	NA	<7,900
Di-n-butylphthalate	<400	NA	3,100 JB	<520	<520	<20,000	<770	NA	2,200 JB
Fluoranthene	<400	NA	2,500 J	160 J	140 J	<20,000	280 J	NA	1,000 J
Fluorene	<400	NA	<4,900	<520	<520	**5,900 J**	430 J	NA	3,000 J
Indeno(1,2,3-c,d)pyrene	<400	NA	680 J	74 J	<520	<20,000	<770	NA	<7,900
Naphthalene	<400	NA	<4,900	<520	<520	**4,300 J**	760 J	NA	**5,500 J**
n-Nitrosodiphenylamine	<400	NA	<4,900	<520	<520	3,200 J	<770	NA	<7,900
Phenanthrene	<400	NA	2,900 J	100 J	100 J	**5,400 J**	700 J	NA	3,100 J
Phenol	<400	NA	<4,900	<520	<520	<20,000	590 J	NA	**16,000**
Pyrene	<400	NA	3,300 J	550	710	3,500 J	590 J	NA	8,800
Metals									
Aluminum	4,940,000	NA	NA	4,640,000	NA	3,970,000	2,660,000	NA	NA
Antimony	<4,200 N	NA	NA	<3,500 N	NA	4,000 BN	<4,900 N	NA	NA
Arsenic	6,000	NA	NA	2,300 B	NA	17,800	3,400 B	NA	NA
Barium	190,000 N	NA	NA	**446,000 N**	NA	**832,000 N**	**401,000 N**	NA	NA

Footnotes on Page 21.

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SDB-7 (continued)			SDB-8					
Sample Date	05/14/96	05/14/96	05/14/96	05/13/96	05/13/96	05/13/96	05/13/96	05/13/96	05/13/96
Sample ID	SS-28	SS-28RE	SDB7	SS-29	SS-29RE	SS-30	SS-18	SS-18RE	SDB8
Depth (ft bls)	16-19.5'	16-19.5'	16-19.5'	4-6'	4-6'	8-10'	10-22'	10-22'	14'
Metals (continued)									
Beryllium	840 B	NA	NA	720 B	NA	650 B	280 B	NA	NA
Cadmium	**4,100**	NA	NA	1,600	NA	**18,000**	**18,900**	NA	NA
Calcium	28,000,000	NA	NA	32,600,000	NA	62,500,000	6,630,000	NA	NA
Chromium	**33,600**	NA	NA	**12,400**	NA	**34,300**	**630,000**	NA	NA
Cobalt	**4,600 B**	NA	NA	**4,700 B**	NA	**7,800 B**	**8,200 B**	NA	NA
Copper	**225,000 N***	NA	NA	**74,200 N***	NA	**10,100,000 N***	**13,800,000**	NA	NA
Cyanide	<180	NA	NA	**260 B**	NA	**460 B**	**210 B**	NA	NA
Iron	28,200,000 *	NA	NA	15,900,000 *	NA	110,000,000 *	23,300,000 *	NA	NA
Lead	79,500	NA	NA	186,000	NA	**1,930,000**	386,000	NA	NA
Magnesium	2,160,000	NA	NA	2,280,000	NA	9,410,000	3,250,000	NA	NA
Manganese	**726,000 ***	NA	NA	**1,580,000 ***	NA	**1,880,000 ***	**314,000 ***	NA	NA
Mercury	**100 B**	NA	NA	**1,200**	NA	**2,900**	**730**	NA	NA
Nickel	49,500	NA	NA	11,500	NA	**54,600**	43,100	NA	NA
Potassium	2,270,000	NA	NA	1,700,000	NA	2,400,000	801,000 B	NA	NA
Selenium	**1,500 BN**	NA	NA	<880 N	NA	**1,700 N**	**8,000 N**	NA	NA
Silver	**1,600 B**	NA	NA	**1,000 B**	NA	**5,100**	**3,100 B**	NA	NA
Sodium	207,000 B	NA	NA	104,000 B	NA	211,000 B	455,000 B	NA	NA
Thallium	<1,100	NA	NA	<940	NA	<1,000	**5,100**	NA	NA
Vanadium	10,900 B	NA	NA	12,500 B	NA	5,800 B	**235,000**	NA	NA
Zinc	**309,000 N***	NA	NA	**251,000 N***	NA	**4,790,000 N***	**1,340,000 N***	NA	NA
Pest/PCBs									
4,4'-DDD	<4	NA	NA	<5.2	NA	<4.3	15 P	NA	NA
4,4'-DDE	<4	NA	NA	<5.2	NA	<4.3	13 P	NA	NA
Aldrin	<2	NA	NA	<2.7	NA	7.4 P	<2.0	NA	NA
Aroclor 1248	<40	NA	NA	<52	NA	<43	<39	NA	NA
Aroclor 1260	<40	NA	NA	<52	NA	<43	<39	NA	NA
BHC (alpha)	<2	NA	NA	<2.7	NA	<2.2	2.1 P	NA	NA
BHC (delta)	<2	NA	NA	<2.7	NA	<2.2	5.4	NA	NA

Footnotes on Page 21.

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SDB-7 (continued)			SDB-8					
Sample Date	05/14/96	05/14/96	05/14/96	05/13/96	05/13/96	05/13/96	05/13/96	05/13/96	05/13/96
Sample ID	SS-28	SS-28RE	SDB7	SS-29	SS-29RE	SS-30	SS-18	SS-18RE	SDB8
Depth (ft bls)	16-19.5'	16-19.5'	16-19.5'	4-6'	4-6'	8-10'	10-22'	10-22'	14'
Pest/PCBs (continued)									
BHC (Lindane) (gamma)	<2	NA	NA	<2.7	NA	<2.2	<2.0	NA	NA
Chlordane (alpha)	<2	NA	NA	7.7	NA	3 P	<2.0	NA	NA
Chlordane (gamma)	<2	NA	NA	<2.7	NA	<2.2	<2.0	NA	NA
Dieldrin	<4	NA	NA	13 P	NA	18	4.6 P	NA	NA
Endosulfan (beta)	<4	NA	NA	<5.2	NA	<4.3	<3.9	NA	NA
Endrin	<4	NA	NA	<5.2	NA	5.5 P	<3.9	NA	NA
Endrin aldehyde	<4	NA	NA	<5.2	NA	<4.3	<3.9	NA	NA
Endrin ketone	<4	NA	NA	12 P	NA	12	4.5 P	NA	NA
Heptachlor	<2	NA	NA	<2.7	NA	6.3 P	11 P	NA	NA
Heptachlor epoxide	<2	NA	NA	<2.7	NA	26 P	13 P	NA	NA
Total Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes on Page 21.

ARCADIS

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SDB-10			Residential Direct Contact Criteria	Residential Drinking Water Protection Criteria
Sample Date	05/14/96	05/14/96	05/14/96		
Sample ID	SS-23	SS-24	SS-24RE		
Depth (ft bls)	4-8'	8-20'	8-20'		
VOC					
1,1,2,2-Tetrachloroethane	<74	<12	<12	53,000	170
1,2,4-Trimethylbenzene	NA	NA	NA	110,000 (I) C	2,100 (I)
1,2-Dichloroethene (total)	<74	<12	<12	NE	NE
1,3,5-Trimethylbenzene	NA	NA	NA	94,000 (I) C	1,800 (I)
2-Butanone (MEK)	180	<12	<12	27,000,000 (MEK) (I) C,DD	260,000 (MEK) (I)
2-Hexanone	<74	<12	<12	2,500,000 C	20,000
4-Methyl-2-pentanone (MIBK)	<74	<12	<12	2,700,000 (MIBK) (I) C	36,000 (MIBK) (I)
Acetone	790	37	11 J	23,000,000 (I)	15,000 (I)
Benzene	<74	<12	<12	180,000 (I)	100 (I)
cis-1,2-Dichloroethene	NA	NA	NA	640,000 C	1,400
Ethylbenzene	77	<12	<12	140,000 (I) C	1,500 (I)
Isopropylbenzene	NA	NA	NA	390,000 C	91,000
Methylene chloride	$\boxed{\text{170 B}}$	55	<38 B	1,300,000	100
Naphthalene	NA	NA	NA	16,000,000	35,000
n-Butylbenzene	NA	NA	NA	2,500,000	1,600
n-Propylbenzene	NA	NA	NA	2,500,000 (I)	1,600 (I)
p-Isopropyltoluene	NA	NA	NA	NE	NE
sec-Butylbenzene	NA	NA	NA	2,500,000	1,600
Tetrachloroethene	<74	<12	<12	88,000 C	100
Toluene	28 J	<12	<12	250,000 (I) C	16,000 (I)
Trichloroethene	<74	<12	<12	500,000 C,DD	100
Xylene, o	NA	NA	NA	NE	5,600 (I) J
Xylenes (total)	620	<12	<12	150,000 (I) C	5,600 (I) J
Xylenes, m+p	NA	NA	NA	NE	5,600 (I) J
SVOC					
1,2,4-Trichlorobenzene	**2,700 J**	<33,000	NA	990,000 DD	4,200
2,4-Dimethylphenol	<10,000	<33,000	NA	11,000,000	7,400
2-Methylnaphthalene	<10,000	<33,000	NA	8,100,000	57,000

Footnotes on Page 21.

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SDB-10			Residential Direct Contact Criteria	Residential Drinking Water Protection Criteria
Sample Date	05/14/96	05/14/96	05/14/96		
Sample ID	SS-23	SS-24	SS-24RE		
Depth (ft bls)	4-8'	8-20'	8-20'		
SVOC (continued)					
2-Methylphenol	<10,000	<33,000	NA	11,000,000 (J)	7,400 (J)
4-Methylphenol	<10,000	<33,000	NA	11,000,000 (J)	7,400 (J)
Acenaphthene	<10,000	<33,000	NA	41,000,000	300,000
Anthracene	<10,000	<33,000	NA	230,000,000	41,000
Benzo(a)anthracene	<10,000	<33,000	NA	20,000 (Q)	(Q) NLL
Benzo(a)pyrene	<10,000	<33,000	NA	2,000 (Q)	(Q) NLL
Benzo(b)fluoranthene	<10,000	<33,000	NA	20,000 (Q)	(Q) NLL
Benzo(g,h,i)perylene	<10,000	<33,000	NA	2,500,000	NLL
Benzo(k)fluoranthene	<10,000	<33,000	NA	200,000 (Q)	(Q) NLL
bis(2-Ethylhexyl)phthalate	<10,000	<33,000	NA	2,800,000	NLL
Butylbenzylphthalate	<10,000	<33,000	NA	310,000 C	310,000 C
Chrysene	<10,000	<33,000	NA	2,000,000 (Q)	(Q) NLL
Dibenzofuran	<10,000	<33,000	NA	ID	ID
Diethylphthalate	<10,000	<33,000	NA	740,000 C	110,000
Di-n-butylphthalate	<10,000	<33,000	NA	760,000 C	760,000 C
Fluoranthene	<10,000	<33,000	NA	46,000,000	730,000
Fluorene	<10,000	<33,000	NA	27,000,000	390,000
Indeno(1,2,3-c,d)pyrene	<10,000	<33,000	NA	20,000 (Q)	(Q) NLL
Naphthalene	**9,300 J**	<33,000	NA	16,000,000	35,000
n-Nitrosodiphenylamine	<10,000	<33,000	NA	1,700,000	5,400
Phenanthrene	<10,000	<33,000	NA	1,600,000	56,000
Phenol	<10,000	<33,000	NA	12,000,000 C,DD	88,000
Pyrene	<10,000	<33,000	NA	29,000,000	480,000
Metals					
Aluminum	$\boxed{6{,}420{,}000}$	$\boxed{741{,}000}$	NA	50,000,000 (B) DD	1,000 (B)
Antimony	<3,300 N	<3,600 N	NA	180,000	4,300
Arsenic	4,400	3,500	NA	7,600	4,600
Barium	**613,000 N**	$\boxed{\textbf{2,910,000 N}}$	NA	37,000,000 (B)	1,300,000 (B)

Footnotes on Page 21.

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SDB-10				
Sample Date	05/14/96	05/14/96	05/14/96	Residential	Residential Drinking Water
Sample ID	SS-23	SS-24	SS-24RE	Direct Contact	Protection
Depth (ft bls)	4-8'	8-20'	8-20'	Criteria	Criteria
Metals (continued)					
Beryllium	690 B	<170	NA	410,000	51,000
Cadmium	1,600	**8,600**	NA	550,000 (B)	6,000 (B)
Calcium	54,400,000	15,000,000	NA	NE	NE
Chromium	**11,000**	**30,200**	NA	2,500,000 total/dissolved	30,000 (*VI)
Cobalt	**4,100 B**	**47,800**	NA	2,600,000	800
Copper	**112,000 N***	**128,000 N***	NA	20,000,000 (B)	5,800,000 (B)
Cyanide	<140	**1,400**	NA	12,000 (P,R)	4,000 (P,R)
Iron	23,900,000 *	79,900,000 *	NA	160,000,000 (B)	6,000 (B)
Lead	91,700	544,000	NA	400,000 (B)	700,000 (B)
Magnesium	4,440,000	282,000 B	NA	1,000,000,000 (B) D	8,000,000 (B)
Manganese	**1,660,000 ***	**350,000 ***	NA	25,000,000 (B)	1,000 (B)
Mercury	**80 B**	**6,800**	NA	160,000 (B,Z) (total)	1,700 (B,Z) (total)
Nickel	10,200 B	14,400	NA	40,000,000 (B)	100,000 (B)
Potassium	3,240,000	244,000 B	NA	NE	NE
Selenium	<830 N	**3,400 N**	NA	2,600,000 (B)	4,000 (B)
Silver	**1,200 B**	**3,400**	NA	2,500,000 (B)	4,500 (B)
Sodium	188,000 B	178,000 B	NA	1,000,000,000 D	2,500,000
Thallium	<890	960 B	NA	35,000 (B)	2,300 (B)
Vanadium	13,100 B	<730	NA	750,000 DD	72,000
Zinc	**190,000 N***	**772,000 N***	NA	170,000,000 (B)	2,400,000 (B)
Pest/PCBs					
4,4'-DDD	<5.2	<5.3	NA	95,000	NLL
4,4'-DDE	<5.2	<5.3	NA	45,000	NLL
Aldrin	<2.7	<2.7	NA	1,000	NLL
Aroclor 1248	<52 JP	300 P	NA	(PCBs) (J,T) T	(PCBs) (J,T) NLL
Aroclor 1260	40 JP	42 JP	NA	(PCBs) (J,T) T	(PCBs) (J,T) NLL
BHC (alpha)	<2.7	<5.5 P	NA	2,600	18
BHC (delta)	<2.7	<2.7	NA	NE	NE

Footnotes on Page 21.

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SDB-10			Residential Direct Contact Criteria	Residential Drinking Water Protection Criteria
Sample Date	05/14/96	05/14/96	05/14/96		
Sample ID	SS-23	SS-24	SS-24RE		
Depth (ft bls)	4-8'	8-20'	8-20'		
Pest/PCBs (continued)					
BHC (Lindane) (gamma)	<2.7	<2.7	NA	8,300	20 M
Chlordane (alpha)	<2.7	<2.7	NA	31,000 (J)	(J) NLL
Chlordane (gamma)	<2.7	<2.7	NA	31,000 (J)	(J) NLL
Dieldrin	<5.2	<5.3	NA	1,100	NLL
Endosulfan (beta)	<5.2	<15 P	NA	1,400,000 (J)	(J) NLL
Endrin	<5.2	36	NA	65,000	NLL
Endrin aldehyde	<5.2	33 P	NA	NE	NE
Endrin ketone	<5.2	<5.3	NA	NE	NE
Heptachlor	<2.7	<2.7	NA	5,600	NLL
Heptachlor epoxide	<2.7	<2.7	NA	3,100	NLL
Total Organic Carbon	NA	NA	NA	NE	NE

Footnotes on Page 21.

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Date Sample ID Depth (ft bls)	Indoor Air Inhalation Criteria	Groundwater/ Surface Water Interface Protection Criteria	Ambient Air Inhalation Criteria
VOC			
1,1,2,2-Tetrachloroethane	4,300	1,600 X	54,000,000
1,2,4-Trimethylbenzene	110,000 (I) C	570 (I)	82,000,000,000 (I)
1,2-Dichloroethene (total)	NE	NE	NE
1,3,5-Trimethylbenzene	94,000 (I) C	1,100 (I)	82,000,000,000 (I)
2-Butanone (MEK)	27,000,000 (MEK) (I) C	44,000 (MEK) (I)	67,000,000,000 (MEK) (I)
2-Hexanone	990,000	NE	2,700,000,000
4-Methyl-2-pentanone (MIBK)	2,700,000 (MIBK) (I) C	(MIBK) (I) ID	140,000,000,000 (MIBK) (I)
Acetone	110,000,000 (I) C	34,000 (I)	390,000,000,000 (I)
Benzene	1,600 (I)	4,000 (I) X	380,000,000 (I)
cis-1,2-Dichloroethene	22,000	12,000	2,300,000,000
Ethylbenzene	87,000 (I)	360 (I)	10,000,000,000 (I)
Isopropylbenzene	390,000 C	ID	5,800,000,000
Methylene chloride	45,000	19,000 X	6,600,000,000
Naphthalene	250,000	870	200,000,000
n-Butylbenzene	ID	ID	ID
n-Propylbenzene	(I) ID	(I) NE	1,300,000,000 (I)
p-Isopropyltoluene	NE	NE	NE
sec-Butylbenzene	ID	ID	ID
Tetrachloroethene	11,000	900 X	5,400,000,000
Toluene	250,000 (I) C	2,800 (I)	27,000,000,000 (I)
Trichloroethene	7,100	4,000 X	1,800,000,000
Xylene, o	150,000 (I) C	700 (I)	290,000,000,000 (I)
Xylenes (total)	150,000 (I) C	700 (I)	290,000,000,000 (I)
Xylenes, m+p	150,000 (I) C	700 (I)	290,000,000,000 (I)
SVOC			
1,2,4-Trichlorobenzene	1,100,000 C	1,800	NE
2,4-Dimethylphenol	NLV	7,600	4,700,000,000
2-Methylnaphthalene	ID	ID	NE

Footnotes on Page 21.

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Date Sample ID Depth (ft bls)	Indoor Air Inhalation Criteria	Groundwater/ Surface Water Interface Protection Criteria	Ambient Air Inhalation Criteria
SVOC (continued)			
2-Methylphenol	(J) NLV	1,400 (J)	NE
4-Methylphenol	(J) NLV	1,400 (J)	67,000,000,000 (J)
Acenaphthene	190,000,000	4,400	14,000,000,000
Anthracene	1,000,000,000 D	ID	67,000,000,000
Benzo(a)anthracene	(Q) NLV	(Q) NLL	(Q) ID
Benzo(a)pyrene	(Q) NLV	(Q) NLL	1,500,000 (Q)
Benzo(b)fluoranthene	(Q) ID	(Q) NLL	(Q) ID
Benzo(g,h,i)perylene	NLV	NLL	800,000,000
Benzo(k)fluoranthene	(Q) NLV	(Q) NLL	(Q) ID
bis(2-Ethylhexyl)phthalate	NLV	NLL	700,000,000
Butylbenzylphthalate	NLV	26,000 X	47,000,000,000
Chrysene	(Q) ID	(Q) NLL	(Q) ID
Dibenzofuran	ID	1,700	ID
Diethylphthalate	NLV	2,200	3,300,000,000
Di-n-butylphthalate	NLV	11,000	3,300,000,000
Fluoranthene	1,000,000,000 D	5,500	9,300,000,000
Fluorene	580,000,000	5,300	9,300,000,000
Indeno(1,2,3-c,d)pyrene	(Q) NLV	(Q) NLL	(Q) ID
Naphthalene	250,000	870	NE
n-Nitrosodiphenylamine	NLV	NE	ID
Phenanthrene	2,800,000	5,300	6,700,000
Phenol	NLV	4,200	40,000,000,000
Pyrene	1,000,000,000 D	ID	6,700,000,000
Metals			
Aluminum	(B) NLV	(B) NE	(B) ID
Antimony	NLV	94,000	13,000,000
Arsenic	NLV	70,000 X	720,000
Barium	(B) NLV	260,000 (B) G,X	330,000,000 (B)

Footnotes on Page 21.

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Date Sample ID Depth (ft bls)	Indoor Air Inhalation Criteria	Groundwater/ Surface Water Interface Protection Criteria	Ambient Air Inhalation Criteria
Metals (continued)			
Beryllium	NLV	24,000 G	1,300,000
Cadmium	(B) NLV	2,500 (B) G,X	1,700,000 (B)
Calcium	NE	NE	NE
Chromium	total/dissolved NLV	3,300 (*VI)	260,000 total/dissolved
Cobalt	NLV	2,000	13,000,000
Copper	(B) NLV	48,000 (B) G	130,000,000 (B)
Cyanide	(P,R) NLV	100 (P,R)	250,000 (P,R)
Iron	(B) NLV	(B) NE	(B) ID
Lead	(B) NLV	1,700,000 (B) G,X	100,000,000 (B)
Magnesium	(B) NLV	(B) NE	6,700,000,000 (B)
Manganese	(B) NLV	36,000 (B) G,X	3,300,000 (B)
Mercury	48,000 (B,Z) (total)	50 (B,Z) (total) M	20,000,000 (B,Z) (total)
Nickel	(B) NLV	50,000 (B) G	13,000,000 (B)
Potassium	NE	NE	NE
Selenium	(B) NLV	400 (B)	130,000,000 (B)
Silver	(B) NLV	100 (B) M	6,700,000 (B)
Sodium	NLV	NE	ID
Thallium	(B) NLV	4,200 (B) X	(B) ID
Vanadium	NLV	190,000	ID
Zinc	(B) NLV	110,000 (B) G	(B) ID
Pest/PCBs			
4,4'-DDD	NLV	NLL	44,000,000
4,4'-DDE	NLV	NLL	32,000,000
Aldrin	1,300,000	NLL	640,000
Aroclor 1248	3,000,000 (PCBs) (J,T)	(PCBs) (J,T) NLL	5,200,000 (PCBs) (J,T)
Aroclor 1260	3,000,000 (PCBs) (J,T)	(PCBs) (J,T) NLL	5,200,000 (PCBs) (J,T)
BHC (alpha)	30,000	NE	1,700,000
BHC (delta)	NE	NE	NE

Footnotes on Page 21.

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Date Sample ID Depth (ft bls)	Indoor Air Inhalation Criteria	Groundwater/ Surface Water Interface Protection Criteria	Ambient Air Inhalation Criteria
Pest/PCBs (continued)			
BHC (Lindane) (gamma)	ID	20 M	ID
Chlordane (alpha)	11,000,000 (J)	(J) NLL	31,000,000 (J)
Chlordane (gamma)	11,000,000 (J)	(J) NLL	31,000,000 (J)
Dieldrin	140,000	NLL	680,000
Endosulfan (beta)	(J) ID	(J) NLL	(J) ID
Endrin	NLV	NLL	ID
Endrin aldehyde	NE	NE	NE
Endrin ketone	NE	NE	NE
Heptachlor	350,000	NLL	2,400,000
Heptachlor epoxide	NLV	NLL	1,200,000
Total Organic Carbon	NE	NE	NE

Footnotes on Page 21.

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Results in micrograms per kilogram (µg/Kg).

<	Less than the laboratory method detection limit.
	Indicates a value above the Residential and Commercial I Direct Contact Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
	Indicates a value above the Residential and Commercial I Drinking Water Protection Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
Bold	Indicates a value above the Residential and Commercial I Groundwater/Surface Water Interface Protection Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
italics	Indicates a value above the Residential and Commercial I Soil Volatilization to Indoor Air Inhalation Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006)
underline	Indicates a value above the Residential and Commercial I Particulate Soil Inhalation Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006)
B	Constituent was also detected in laboratory blank.
ft bls	Feet below land surface.
J	Estimated result.
N	Spiked sample recovery is not within control limits (Inorganics only).
NA	Not analyzed.
P	Greater than 25% RPD between two columns for pesticide or PCB.
SVOCs	Semi-Volatile Organic Compounds.
VOCs	Volatile Organic Compounds.

State of Michigan Criteria Footnotes:

B	Background may be substituted if higher than the calculated cleanup criteria.
C	Value presented is a screening level based on the chemical specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat.
D	Calculated criterion exceeds 100%, therefore it is reduced to 100%.
DD	Hazardous substance causes developmental effects.
G	GSI value is pH or water hardness dependent.
I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.
ID	Inadequate data to develop criterion.
J	Chemical may be present in several isomer forms. Isomer specific concentrations must be added together for comparison to criteria.
M	Calculated criterion is below the analytical method detection limit (MDL).
NA	Criterion or values is not available.

Table 6-42. Summary of Constituents Detected in Subsurface Soil and Waste Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

State of Michigan Criteria Footnotes (continued):

NE	Not established.
NLL	Chemical is not likely to leach under most soil conditions.
NLV	Chemical is not likely to volatilize under most soil conditions.
P	Amenable or Method OIA-1677 analysis are used to quanitfy cyanide concentrations for compliance with all groundwater criteria.
Q	Criterion for carcinogenic polycyclic aromatic hydrocarbons (PAHs) were developed using "relative potential potencies" (RFPs) to benzo(a)pyrene.
R	Chemical may exhibit characteristic of reactivity.
T	Refer to Toxic Substances Control Act (TSCA) to determine applicability of TSCA cleanup standards.
*VI	Standard for Chromium VI.
X	The GSI criterion shown is not protective for surface water that is used as a drinking water source.
Z	Data for mercuric chloride serves as the basis for drinking water, groundwater contact, soil direct contact and the groundwater protection criteria.

Table 6-43. Summary of Constituents Detected in Soil and Waste TCLP Extracts, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMSB-4	GMSB-4	GMSB-4	GMSB-4
Depth (ft bls)	5'-25'	27'	109'	185'
Sample Date	6/3/1997	6/3/1997	6/4/1997	6/9/1997
Sample Name	GMSB-4/5-25 (TCLP)	GMSB-4/27 (TCLP)	GMSB-4/109 (TCLP)	GMSB-4/185 (TCLP)
SVOC				
1,4-Dichlorobenzene	<50	<50	<50	<50
2,4,5-Trichlorophenol	<250	<250	<250	<250
2,4,6-Trichlorophenol	<50	<50	<50	<50
2,4-Dinitrotoluene	<50	<50	<50	<50
2-Methylphenol	<50	<50	<50	<50
3-Methylphenol	<50	<50	<50	<50
4-Methylphenol	<50	<50	<50	<50
Hexachlorobenzene	<50	<50	<50	<50
Hexachlorobutadiene	<50	<50	<50	<50
Hexachloroethane	<50	<50	<50	<50
Nitrobenzene	<50	<50	<50	<50
Pentachlorophenol	<250	<250	<250	<250
Pyridine	<100	<100	<100	<100
Chemical Oxygen Demand	30,000	<10,000	<10,000	11,000
Total Organic Carbon	7,000	1,000	<1,000	<1,000

Results are reported in micrograms per liter (µg/L).

< Less than the laboratroy method detection limit.

ft bls Feet below land surface.

SVOC Semi-volatile organic compounds.

TCLP Toxicity Characteristic Leaching Procedure.

Table 6-44. Comparison of Leaching Data from Waste Samples to Groundwater Samples, Riverside Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Sample/Boring	GMSB-4 TCLP Wood/Charcoal	GMSB-4 115 ft. Water	GMSB-4 183.5 ft. Water
VOCs			
MEK	NA	<10	<500
2-Hexanone	NA	<10	<500
Acetone	NA	<10	<500
SVOCs			
2,4-DMP	NA	4.9	390
2-MP	<50	<5	<33
4-MP	<50	<5	<33
Phenol	NA	<5	<33

Results in micrograms per liter (µg/L).

<	Less than the laboratory method detection limit.
MEK	2-butanone
2,4-DMP	2,4-Dimethylphenol
2-MP	2-Methylphenol
4-MP	4-Methylphenol
NA	Not analzyed.
SVOCs	Semi volatile organic compounds.
TCLP	Toxicity Characteristic Leaching Procedures.
VOCs	Volatile Organic Compounds.

Table 6-45. Summary of Surface Waste Material, Former Plant Site, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SCTE-7	SCTAR-1	SCTar-2/5	
Sample Date	05/24/02	04/10/02	12/15/03	Residential
Sample ID	SCTE-7/5 (5/24/02)	SCTAR-1/2.5 (4/10/02)	SCTar-02/5 (12/15/03)	Direct Contact
Depth (ft bls)	5	2.5	5	Criteria
VOC				
1,2,4-Trimethylbenzene	***600,000***	**19,000**	<70	110,000 (I) C
1,2-Dibromoethane	***7,800 J***	<370	<35	92 M
1,3,5-Trimethylbenzene	***130,000***	**4,600**	<70	94,000 (I) C
2-Butanone (MEK)	**150,000 J**	32,000	<1,700	27,000,000 (MEK) (I) C,DD
2-Hexanone	17,000 J	<19,000	<1,700	2,500,000 C
Acetone	**170,000 J**	<37,000	<3,500	23,000,000 (I)
Benzene	***9,600***	940	<35	180,000 (I)
Ethylbenzene	***110,000***	**3,000**	<35	140,000 (I) C
Isopropylbenzene	9,300 J	2,200	<70	390,000 C
n-Propylbenzene	65,000	7,600	<70	2,500,000 (I)
Styrene	**61,000**	<370	<35	400,000
Toluene	**220,000**	**5,300**	<70	250,000 (I) C
Xylenes (total)	***670,000***	**51,000**	<170	150,000 (I) C
SVOC				
2,4-Dimethylphenol/2,5-Dimethylphenol	**190,000**	<140,000	<350	11,000,000
2,6-Dimethylphenol	<120,000	220,000	<350	140,000
2-Methylnaphthalene	43,000 J	<140,000	<350	8,100,000
2-Methylphenol	<120,000	**160,000**	<350	11,000,000 (J)
2-Nitroaniline	150,000 J	2,100,000	<1,800	NE
Benzo(g,h,i)perylene	19,000 JB	<140,000	<350	2,500,000
Dimethylphthalate	14,000 J	<140,000	<350	790,000 C
Naphthalene	**180,000**	**240,000**	<350	16,000,000
Metals				
Aluminum	3,900,000 *	1,800,000	NA	50,000,000 (B) DD
Antimony	4,500 B	560 B	NA	180,000
Arsenic	11,000 N	560	NA	7,600
Barium	**5,500,000 ***	22,000	NA	37,000,000 (B)
Beryllium	350 B	120 B	NA	410,000

Footnotes on Page 5.

Table 6-45. Summary of Surface Waste Material, Former Plant Site, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SCTE-7	SCTAR-1	SCTar-2/5	
Sample Date	05/24/02	04/10/02	12/15/03	Residential
Sample ID	SCTE-7/5 (5/24/02)	SCTAR-1/2.5 (4/10/02)	SCTar-02/5 (12/15/03)	Direct Contact
Depth (ft bls)	5	2.5	5	Criteria
Metals (continued)				
Cadmium	**52,000**	42	NA	550,000 (B)
Calcium	27,000,000 *	3,400,000	NA	NE
Chromium	**400,000**	**3,900**	NA	2,500,000 total/dissolved
Cobalt	**5,500**	1,600	NA	2,600,000
Copper	**840,000**	**210,000**	NA	20,000,000 (B)
Iron	74,000,000	3,800,000	NA	160,000,000 (B)
Lead	**4,800,000**	11,000	NA	400,000 (B)
Magnesium	4,200,000 *	900,000	NA	1,000,000,000 (B) D
Manganese	**420,000**	**380,000**	NA	25,000,000 (B)
Mercury	**170 B**	<26	NA	160,000 (B,Z) (total)
Molybdenum	4,400	<640	NA	2,600,000 (B)
Nickel	11,000	3,600	NA	40,000,000 (B)
Potassium	390,000 E	190,000	NA	NE
Selenium	<650 WN*	**560 Y**	NA	2,600,000 (B)
Silver	**490 B**	<640	NA	2,500,000 (B)
Sodium	490,000	1,900,000	NA	1,000,000,000 D
Titanium	170,000 N	130,000	NA	NE
Vanadium	9,700	7,000	NA	750,000 DD
Zinc	**10,000,000 ***	28,000	NA	170,000,000 (B)

Footnotes on Page 5.

Table 6-45. Summary of Surface Waste Material, Former Plant Site, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Date Sample ID Depth (ft bls)	Residential Drinking Water Protection Criteria	Indoor Air Inhalation Criteria	Groundwater/ Surface Water Interface Protection Criteria
VOC			
1,2,4-Trimethylbenzene	2,100 (I)	110,000 (I) C	570 (I)
1,2-Dibromoethane	20 M	670	20 M
1,3,5-Trimethylbenzene	1,800 (I)	94,000 (I) C	1,100 (I)
2-Butanone (MEK)	260,000 (MEK) (I)	27,000,000 (MEK) (I) C	44,000 (MEK) (I)
2-Hexanone	20,000	990,000	NA
Acetone	15,000 (I)	110,000,000 (I) C	34,000 (I)
Benzene	100 (I)	1,600 (I)	4,000 (I) X
Ethylbenzene	1,500 (I)	87,000 (I)	360 (I)
Isopropylbenzene	91,000	390,000 C	ID
n-Propylbenzene	1,600 (I)	(I) ID	(I) NA
Styrene	2,700	250,000	2,200
Toluene	16,000 (I)	250,000 (I) C	2,800 (I)
Xylenes (total)	5,600 (I) J	150,000 (I) C	700 (I)
SVOC			
2,4-Dimethylphenol/2,5-Dimethylphenol	7,400	NLV	7,600
2,6-Dimethylphenol	330 M	NLV	NA
2-Methylnaphthalene	57,000	ID	ID
2-Methylphenol	7,400 (J)	(J) NLV	1400 (J)
2-Nitroaniline	NE	NE	NE
Benzo(g,h,i)perylene	NLL	NLV	NLL
Dimethylphthalate	790,000 C	NLV	NA
Naphthalene	35,000	250,000	870
Metals			
Aluminum	1,000 (B)	(B) NLV	(B) NA
Antimony	4,300	NLV	94,000
Arsenic	4,600	NLV	70,000 X
Barium	1,300,000 (B)	(B) NLV	260,000 (B) G,X
Beryllium	51,000	NLV	24,000 G

Footnotes on Page 5.

Table 6-45. Summary of Surface Waste Material, Former Plant Site, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Date Sample ID Depth (ft bls)	Residential Drinking Water Protection Criteria	Indoor Air Inhalation Criteria	Groundwater/ Surface Water Interface Protection Criteria
Metals (continued)			
Cadmium	6,000 (B)	(B) NLV	2,500 (B) G,X
Calcium	NE	NE	NE
Chromium	30,000 (*VI)	total/dissolved NLV	3,300 (*VI)
Cobalt	800	NLV	2,000
Copper	5,800,000 (B)	(B) NLV	48,000 (B) G
Iron	6,000 (B)	(B) NLV	(B) NA
Lead	700,000 (B)	(B) NLV	1,700,000 (B) G,X
Magnesium	8,000,000 (B)	(B) NLV	(B) NA
Manganese	1,000 (B)	(B) NLV	36,000 (B) G,X
Mercury	1,700 (B,Z) (total)	48,000 (B,Z) (total)	50 (B,Z) (total) M
Molybdenum	1,500 (B)	(B) NLV	16,000 (B) X
Nickel	100,000 (B)	(B) NLV	50,000 (B) G
Potassium	NE	NE	NE
Selenium	4,000 (B)	(B) NLV	400 (B)
Silver	4,500 (B)	(B) NLV	100 (B) M
Sodium	2,500,000	NLV	NA
Titanium	NE	NE	NE
Vanadium	72,000	NLV	190,000
Zinc	2,400,000 (B)	(B) NLV	110,000 (B) G

Footnotes on Page 5.

Table 6-45. Summary of Surface Waste Material, Former Plant Site, Ford-Kingsford Products Facility, Kingsford, Michigan.

Results in micrograms per kilogram (µg/Kg).

<	Less than the laboratory method detection limit.
	Indicates a value above the Residential and Commercial I Direct Contact Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
	Indicates a value above the Residential and Commercial I Drinking Water Protection Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
Bold	Indicates a value above the Residential and Commercial I Groundwater/Surface Water Interface Protection Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
Italic	Indicates a value above the Residential and Commercial I Soil Volatilization to Indoor Air Inhalation Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006)
*	LCS or LCSD exceeds the control limit.
B	Constituent was also detected in laboratory blank.
E	Analyte was detected at a concentration greater than the calibration range, and is therefore estimated.
ft bls	Feet below land surface.
J	Estimated result.
N	Spiked sample recovery is not within control limits (Inorganics only).
NA	Not analyzed.
SVOC	Semi-volatile Organic Compounds.
VOC	Volatile Organic Compounds.
W	Post-digestion spike for furnace A-A analysis is out of control limits while sample absorbance is less than 50% of spike absorbance.
Y	Elevated detection limits were reported due to sample matrix interference which required sample or extract dilution.

State of Michigan Criteria Footnotes:

B	Background may be substituted if higher than the calculated cleanup criteria.
C	Value presented is a screening level based on the chemical specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat.
DD	Hazardous substance causes developmental effects.
G	GSI value is pH or water hardness dependent.
I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.
ID	Inadequate data to develop criterion.
J	Chemical may be present in several isomer forms. Isomer specific concentrations must be added together for comparison to criteria.
M	Calculated criterion is below the analytical method detection limit (MDL).
NA	Criterion or values is not available.
NE	Not established.
NLL	Chemical is not likely to leach under most soil conditions.

Table 6-45. Summary of Surface Waste Material, Former Plant Site, Ford-Kingsford Products Facility, Kingsford, Michigan.

State of Michigan Criteria Footnotes (continued):

NLV	Chemical is not likely to volatilize under most soil conditions.
*VI	Standard for Chromium VI.
X	The GSI criterion shown is not protective for surface water that is used as a drinking water source.
Z	Data for mercuric chloride serves as the basis for drinking water, groundwater contact, soil direct contact and the groundwater protection criteria.

Table 6-46. Summary of Constituents Detected in Subsurface Soil Samples, Former Plant Site, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GM-12	GM-35	GM-40B	GM-41	GM-42	GM-56	SCTE-1	SCTE-2
Sample Date	09/30/97	07/20/98	08/06/98	08/06/98	08/06/98	09/28/98	04/02/02	04/02/02
Sample ID	GM-12/50	GM-35/35	GM-40B/10	GBGM-41/49	GM-42/1.5	GM-56/34	SCTE-1 4/2.8	SCTE-2 4/3.5
Depth (ft bls)	50'	35'	10'	49'	1.5'	34	2.8'	3.5'
VOC								
1,2,4-Trimethylbenzene	NA	<10 J	<10	<10	<10	<10 J	230	<84
1,3,5-Trimethylbenzene	NA	<10 J	<10	<10	<10	<10 J	<88	<84
1,4-Dichlorobenzene	<5.8	<330	<330	<330	<330	<330 J	<88	<84
Acetone	13 J	<50 J	R	R	R	<50 J	<4,400	<4,200
Benzene	<5.8	<5.9	<5.2	<5.8	<5.2	<5.4 J	<44	<42
Carbon disulfide	<5.8	9.5	<5.2	<5.8	<5.2	<5.4 J	<220	<210
Ethylbenzene	<5.8	<5.9	<5.2	<5.8	<5.2	<5.4 J	<44	<42
n-Propylbenzene	NA	<10 J	<10	<10	<10	<10 J	<88	<84
Styrene	<5.8	<5.9	<5.2	<5.8	<5.2	<5.4 J	<44	<42
Toluene	<5.8	<5.9	<5.2	<5.8	<5.2	<5.4 J	130	<84
Trichloroethene	<5.8	<5.9	<5.2	<5.8	<5.2	<5.4 J	$\boxed{350}$	<42
Xylenes (total)	<5.8	<12	<10	<12	<10	<11 J	460	<120
SVOC								
2,4-Dimethylphenol/2,5-Dimethylphenol	NA	NA	NA	NA	NA	NA	1,000	<360
2-Methylnaphthalene	<190	<330	<330	<330	<330	<330	810	<360
2-Methylphenol	<190	<330	<330	<330	<330	<330	620	<360
3-Methylphenol/4-Methylphenol(m&p-cresol)	NA	NA	NA	NA	NA	NA	680	<360
bis(2-Ethylhexyl)phthalate	<190	<330	<330	<330	<330	<330	<370	<360
Naphthalene	<190	<390	<350	<330	<350	<330	**1,700**	<360
Metals								
Aluminum	$\boxed{3,520,000}$	$\boxed{1,600,000}$	$\boxed{3,700,000}$	$\boxed{1,600,000}$	$\boxed{1,600,000}$	$\boxed{2,200,000}$	NA	NA
Antimony	536	R	<2,500	<2,500 J	<2,500 J	<2,500 J	NA	NA
Arsenic	1,610 Wa	480 J	1,100 J	1,600 J	650 J	1,300	NA	NA
Barium	8,130	8,600 J	9,900 J	11,000	12,000	15,000	NA	NA
Cadmium	<28.8	R	67	53	93	<43	NA	NA

Footnotes on Page 13.

Table 6-46. Summary of Constituents Detected in Subsurface Soil Samples, Former Plant Site, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	**GM-12**	**GM-35**	**GM-40B**	**GM-41**	**GM-42**	**GM-56**	**SCTE-1**	**SCTE-2**
Sample Date	**09/30/97**	**07/20/98**	**08/06/98**	**08/06/98**	**08/06/98**	**09/28/98**	**04/02/02**	**04/02/02**
Sample ID	**GM-12/50**	**GM-35/35**	**GM-40B/10**	**GBGM-41/49**	**GM-42/1.5**	**GM-56/34**	**SCTE-1 4/2.8**	**SCTE-2 4/3.5**
Depth (ft bls)	**50'**	**35'**	**10'**	**49'**	**1.5'**	**34**	**2.8'**	**3.5'**
Metals (continued)								
Calcium	1,030,000 L	790,000	1,100,000	18,000,000	2,900,000	8,900,000	NA	NA
Chromium	**6,740**	**5,000**	**11,000**	**4,700**	**4,200**	**5,900**	NA	NA
Copper	9,370	10,000 J	18,000	45,000	8,600	18,000	NA	NA
Iron	$\boxed{8{,}930{,}000\ MBB}$	$\boxed{8{,}700{,}000\ J}$	$\boxed{7{,}100{,}000}$	$\boxed{4{,}600{,}000}$	$\boxed{3{,}200{,}000}$	$\boxed{5{,}500{,}000}$	NA	NA
Lead	1,620	<2,000	3,100	1,400	3,900	3,500 J	NA	NA
Magnesium	1,680,000	680,000 J	2,800,000	$\boxed{10{,}000{,}000}$	1,500,000	6,000,000 J	NA	NA
Manganese	$\boxed{\mathbf{36{,}500}}$	$\boxed{20{,}000\ J}$	$\boxed{\mathbf{170{,}000}}$	$\boxed{\mathbf{160{,}000}}$	$\boxed{\mathbf{70{,}000}}$	$\boxed{\mathbf{380{,}000}}$	NA	NA
Nickel	10,000	7,200	11,000	7,200	5,700	7,400	NA	NA
Potassium	<576,000	210,000	290,000	240,000	180,000	290,000	NA	NA
Sodium	<576,000	30,000	38,000	89,000	51,000	100,000	NA	NA
Titanium	NA	120,000	250,000	100,000	99,000	190,000	NA	NA
Vanadium	12,200	15,000 J	13,000	8,400	6,000	10,000	NA	NA
Zinc	16,500 L	13,000 J	14,000	**1,700,000**	110,000	10,000	NA	NA

Footnotes on Page 13.

Table 6-46. Summary of Constituents Detected in Subsurface Soil Samples, Former Plant Site, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	**SCTE-3**	**SCTE-4**	**SCTE-5**	**SCTE-6**	**SCTE-8**
Sample Date	**04/10/02**	**04/11/02**	**04/16/02**	**05/07/02**	**12/11/03**
Sample ID	**SCTE-3/2.75 (4/10/02)**	**SCTE-4/7.5 (4/11/02)**	**SCTE-5/6.5 (4/16/02)**	**SCTE-6/9 (5/7/02)**	**SCTE-08/5 (12/11/03)**
Depth (ft bls)	**2.75'**	**7.5'**	**6.5'**	**9'**	**5**
VOC					
1,2,4-Trimethylbenzene	<87	**870**	$\boxed{\textbf{2,300}}$	<240	<78
1,3,5-Trimethylbenzene	<87	220	510	<240	<78
1,4-Dichlorobenzene	<87	<64	<140	<240	<78
Acetone	<4,300	<3,200	<7,000	<12,000	<3,900
Benzene	<43	53	<70	<120	<39
Carbon disulfide	<220	<160	<350	<600	<200
Ethylbenzene	<43	220	250	<120	<39
n-Propylbenzene	<87	<64	220	<240	<78
Styrene	<43	<32	<70	<120	<39
Toluene	<87	390	320	<240	<78
Trichloroethene	<43	<32	<70	<120	<39
Xylenes (total)	<130	**1,700**	**2,400**	<360	<200
SVOC					
2,4-Dimethylphenol/2,5-Dimethylphenol	<370	<370	<350	<350	<360
2-Methylnaphthalene	<370	<370	<350	<350	<360
2-Methylphenol	<370	<370	<350	<350	<360
3-Methylphenol/4-Methylphenol(m&p-cresol)	<370	<370	<350	<350	<360
bis(2-Ethylhexyl)phthalate	<370	<370	<350	<350	<360
Naphthalene	<370	<370	<350	<350	<360
Metals					
Aluminum	NA	NA	NA	NA	NA
Antimony	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA

Footnotes on Page 13.

Table 6-46. Summary of Constituents Detected in Subsurface Soil Samples, Former Plant Site, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SCTE-3	SCTE-4	SCTE-5	SCTE-6	SCTE-8
Sample Date	04/10/02	04/11/02	04/16/02	05/07/02	12/11/03
Sample ID	SCTE-3/2.75 (4/10/02)	SCTE-4/7.5 (4/11/02)	SCTE-5/6.5 (4/16/02)	SCTE-6/9 (5/7/02)	SCTE-08/5 (12/11/03)
Depth (ft bls)	2.75'	7.5'	6.5'	9'	5
Metals (continued)					
Calcium	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA
Magnesium	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA
Titanium	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA

Footnotes on Page 13.

Table 6-46. Summary of Constituents Detected in Subsurface Soil Samples, Former Plant Site, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SCTE-9	SCTE-10	SCTE-11	SCTE-12	SCTE-13
Sample Date	12/11/03	12/11/03	12/11/03	12/12/03	12/12/03
Sample ID	SCTE-09/5 (12/11/03)	SCTE-10/5 (12/11/03)	SCTE-11/2 (12/11/03)	SCTE-12/3.5 (12/12/03)	SCTE-13/4 (12/12/03)
Depth (ft bls)	5	5	2	3.5	4
VOC					
1,2,4-Trimethylbenzene	<120	<79	100	<73	<120
1,3,5-Trimethylbenzene	<120	<79	<70	<73	<120
1,4-Dichlorobenzene	<120	<79	<70	<73	<120
Acetone	<6,000	<4,000	<3,500	<3,600	<6,200
Benzene	<60	<40	<35	<36	<62
Carbon disulfide	<300	<200	<180	<180	<310
Ethylbenzene	<60	<40	<35	<36	<62
n-Propylbenzene	<120	<79	<70	<73	<120
Styrene	<60	<40	<35	<36	<62
Toluene	<120	<79	<70	<73	<120
Trichloroethene	<60	<40	<35	<36	<62
Xylenes (total)	<300	<200	280	<180	<310
SVOC					
2,4-Dimethylphenol/2,5-Dimethylphenol	<340	<340	<350	<3,400	<350
2-Methylnaphthalene	<340	<340	<350	<3,400	<350
2-Methylphenol	<340	<340	<350	<3,400	<350
3-Methylphenol/4-Methylphenol(m&p-cresol)	<340	<340	<350	<3,400	<350
bis(2-Ethylhexyl)phthalate	<340	<340	<350	<3,400	<350
Naphthalene	<340	<340	<350	<3,400	<350
Metals					
Aluminum	NA	NA	NA	NA	NA
Antimony	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA

Footnotes on Page 13.

Table 6-46. Summary of Constituents Detected in Subsurface Soil Samples, Former Plant Site, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SCTE-9	SCTE-10	SCTE-11	SCTE-12	SCTE-13
Sample Date	12/11/03	12/11/03	12/11/03	12/12/03	12/12/03
Sample ID	SCTE-09/5 (12/11/03)	SCTE-10/5 (12/11/03)	SCTE-11/2 (12/11/03)	SCTE-12/3.5 (12/12/03)	SCTE-13/4 (12/12/03)
Depth (ft bls)	5	5	2	3.5	4
Metals (continued)					
Calcium	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA
Magnesium	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA
Titanium	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA

Footnotes on Page 13.

Table 6-46. Summary of Constituents Detected in Subsurface Soil Samples, Former Plant Site, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SCTE-14	SCTE-15	SCTE-16	SCTE-17	SCTE-18
Sample Date	12/12/03	12/12/03	12/15/03	12/15/03	12/15/03
Sample ID	SCTE-14/5 (12/12/03)	SCTE-15/2 (12/12/03)	SCTE-16/5 (12/15/03)	SCTE-17/5 (12/15/03)	SCTE-18/7 (12/15/03)
Depth (ft bls)	5	2	5	5	7
VOC					
1,2,4-Trimethylbenzene	<100	<100	<100	<100	<100
1,3,5-Trimethylbenzene	<100	<100	<100	<100	<100
1,4-Dichlorobenzene	<100	<100	<100	<100	<100
Acetone	<5,200	<5,300	<5,200	<5,200	<5,300
Benzene	<52	<53	<52	<52	<53
Carbon disulfide	<260	<260	<260	<260	<260
Ethylbenzene	<52	<53	<52	**540**	<53
n-Propylbenzene	<100	<100	<100	<100	<100
Styrene	<52	<53	<52	$\boxed{\textbf{3,800}}$	<53
Toluene	<100	320	<100	<100	<100
Trichloroethene	<52	<53	<52	<52	<53
Xylenes (total)	<260	<260	<260	<260	<260
SVOC					
2,4-Dimethylphenol/2,5-Dimethylphenol	<3,400	<3,500	<340	<340	<350
2-Methylnaphthalene	<3,400	<3,500	<340	<340	<350
2-Methylphenol	<3,400	<3,500	<340	<340	<350
3-Methylphenol/4-Methylphenol(m&p-cresol)	<3,400	<3,500	<340	<340	<350
bis(2-Ethylhexyl)phthalate	<3,400	<3,500	<340	<340	<350
Naphthalene	<3,400	<3,500	<340	<340	<350
Metals					
Aluminum	NA	NA	NA	NA	NA
Antimony	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA

Footnotes on Page 13.

Table 6-46. Summary of Constituents Detected in Subsurface Soil Samples, Former Plant Site, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	**SCTE-14**	**SCTE-15**	**SCTE-16**	**SCTE-17**	**SCTE-18**
Sample Date	**12/12/03**	**12/12/03**	**12/15/03**	**12/15/03**	**12/15/03**
Sample ID	**SCTE-14/5 (12/12/03)**	**SCTE-15/2 (12/12/03)**	**SCTE-16/5 (12/15/03)**	**SCTE-17/5 (12/15/03)**	**SCTE-18/7 (12/15/03)**
Depth (ft bls)	**5**	**2**	**5**	**5**	**7**
Metals (continued)					
Calcium	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA
Magnesium	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA
Titanium	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA

Footnotes on Page 13.

Table 6-46. Summary of Constituents Detected in Subsurface Soil Samples, Former Plant Site, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Date Sample ID Depth (ft bls)	SCTE-19 12/17/03 SCTE-19/3 (12/17/03) 3	SCTE-20 09/23/04 SCTE-20 (9/23/04)	SCTE-21 09/23/04 SCTE-21 (9/23/04)	Residential Drinking Water Protection Criteria	Industrial Ambient Air Inhalation Criteria
VOC					
1,2,4-Trimethylbenzene	<110	<110	<96	2,100 (I)	25,000,000 (I)
1,3,5-Trimethylbenzene	<110	<110	<96	1,800 (I)	19.000.000 (I)
1,4-Dichlorobenzene	<110	4.0 J	3.5 J	1,700	260,000
Acetone	<5,300	<5,500	<4,800	15,000 (I)	160,000,000 (I)
Benzene	<53	<55	<48	100 (I)	45,000 (I)
Carbon disulfide	<260	<270	<240	16,000 (I,R)	1,600,000 (I,R)
Ethylbenzene	<53	<55	<48	1,500 (I)	2,400,000 (I)
n-Propylbenzene	<110	<110	<96	1,600 (I)	(I) ID
Styrene	<53	<55	<48	2,700	3,300,000
Toluene	<110	2.7 J	2.7 J	16,000 (I)	3,300,000 (I)
Trichloroethene	<53	<55	<48	100	260,000
Xylenes (total)	<260	<270	<240	5,600 (I) J	54,000,000 (I)
SVOC					
2,4-Dimethylphenol/2,5-Dimethylphenol	<350	<690	<690	7,400	NLV
2-Methylnaphthalene	<350	<340	<350	57,000	ID
2-Methylphenol	<350	<340	<350	7,400 (J)	(J) NLV
3-Methylphenol/4-Methylphenol(m&p-cresol)	<350	<340	<350	7,400 (J)	(J) NLV
bis(2-Ethylhexyl)phthalate	<350	160 J	180 J	NLL	NLV
Naphthalene	<350	<340	<350	35,000	350,000
Metals					
Aluminum	NA	NA	NA	1,000 (B)	(B) NLV
Antimony	NA	NA	NA	4,300	NLV
Arsenic	NA	NA	NA	4,600	NLV
Barium	NA	NA	NA	1,300,000 (B)	(B) NLV
Cadmium	NA	NA	NA	6,000 (B)	(B) NLV

Footnotes on Page 13.

Table 6-46. Summary of Constituents Detected in Subsurface Soil Samples, Former Plant Site, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SCTE-19	SCTE-20	SCTE-21	Residential	Industrial
Sample Date	12/17/03	09/23/04	09/23/04	Drinking Water	Ambient Air
Sample ID	SCTE-19/3 (12/17/03)	SCTE-20 (9/23/04)	SCTE-21 (9/23/04)	Protection	Inhalation
Depth (ft bls)	3			Criteria	Criteria
Metals (continued)					
Calcium	NA	NA	NA	NE	NE
Chromium	NA	NA	NA	30,000 (*VI)	(*VI) NLV
Copper	NA	NA	NA	5,800,000 (B)	(B) NLV
Iron	NA	NA	NA	6,000 (B)	(B) NLV
Lead	NA	NA	NA	700,000 (B)	(B) NLV
Magnesium	NA	NA	NA	8,000,000 (B)	(B) NLV
Manganese	NA	NA	NA	1,000 (B)	(B) NLV
Nickel	NA	NA	NA	100,000 (B)	(B) NLV
Potassium	NA	NA	NA	NE	NE
Sodium	NA	NA	NA	2,500,000	NLV
Titanium	NA	NA	NA	NE	NE
Vanadium	NA	NA	NA	72,000	NLV
Zinc	NA	NA	NA	2,400,000 (B)	(B) NLV

Footnotes on Page 13.

Table 6-46. Summary of Constituents Detected in Subsurface Soil Samples, Former Plant Site, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Date Sample ID Depth (ft bls)	Industrial Direct Contact Criteria	Residential Groundwater-Surface Water Interface Criteria	Industrial Indoor Air Inhalation Criteria
VOC			
1,2,4-Trimethylbenzene	110,000 (I) C	570 (I)	110,000 (I) C
1,3,5-Trimethylbenzene	94,000 (I) C	1,100 (I)	94,000 (I) C
1,4-Dichlorobenzene	1,900,000	290	100,000
Acetone	73,000,000 (I)	34,000 (I)	110,000,000 (I) C
Benzene	400,000 (I) C	4,000 (I) X	8,400 (I)
Carbon disulfide	280,000 (I,R) C,DD	(I,R) ID	140,000 (I,R)
Ethylbenzene	140,000 (I) C	360 (I)	140,000 (I) C
n-Propylbenzene	8,000,000 (I)	(I) NE	(I) ID
Styrene	520,000 C	2,200	520,000 C
Toluene	250,000 (I) C	2,800 (I)	250,000 (I) C
Trichloroethene	500,000 C,DD	4,000 X	37,000
Xylenes (total)	150,000 (I) C	700 (I)	150,000 (I) C J
SVOC			
2,4-Dimethylphenol/2,5-Dimethylphenol	36,000,000	7,600	NLV
2-Methylnaphthalene	26,000,000	ID	ID
2-Methylphenol	36,000,000 (J)	1,400 (J)	(J) NLV
3-Methylphenol/4-Methylphenol(m&p-cresol)	36,000,000 (J)	1,400 (J)	(J) NLV
bis(2-Ethylhexyl)phthalate	10,000,000 C	NLL	NLV
Naphthalene	52,000,000	870	470,000
Metals			
Aluminum	370,000,000 (B) DD	(B) NE	(B) NLV
Antimony	670,000	94,000	NLV
Arsenic	37,000	70,000 X	NLV
Barium	130,000,000 (B)	260,000 (B) G,X	(B) NLV
Cadmium	2,100,000 (B)	2,500 (B) G,X	(B) NLV

Footnotes on Page 13.

Table 6-46. Summary of Constituents Detected in Subsurface Soil Samples, Former Plant Site, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Date Sample ID Depth (ft bls)	Industrial Direct Contact Criteria	Residential Groundwater- Surface Water Interface Criteria	Industrial Indoor Air Inhalation Criteria
Metals (continued)			
Calcium	NE	NE	NE
Chromium	9,200,000 (*VI)	3,300 (*VI)	(*VI) NLV
Copper	73,000,000 (B)	48,000 (B) G	(B) NLV
Iron	580,000,000 (B)	(B) NE	(B) NLV
Lead	900,000 (B) DD	1,700,000 (B) G,X	(B) NLV
Magnesium	1,000,000,000 (B) D	(B) NE	(B) NLV
Manganese	90,000,000 (B)	36,000 (B) G,X	(B) NLV
Nickel	150,000,000 (B)	50,000 (B) G	(B) NLV
Potassium	NE	NE	NE
Sodium	1,000,000,000 D	NE	NLV
Titanium	NE	NE	NE
Vanadium	5,500,000 DD	190,000	NLV
Zinc	630,000,000 (B)	110,000 (B) G	(B) NLV

Footnotes on Page 13.

Table 6-46. Summary of Constituents Detected in Subsurface Soil Samples, Former Plant Site, Ford-Kingsford Products Facility, Kingsford, Michigan.

Results in micrograms per kilogram (µg/Kg).

<	Less than the laboratory method detection limit.
	Indicates a value above the Residential and Commercial I Drinking Water Protection Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
Bold	Indicates a value above the Residential and Commercial I Groundwater/Surface Water Interface Protection Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
ft bls	Feet below land surface.
J	Estimated result.
L	Serial dilution indicates that interference is present.
MBB	This analyte is present at a reportable level in the associated method blank but is less than 5 percent of the sample amount.
NA	Not analyzed.
R	Rejected result.
SVOC	Semi-volatile organic compounds.
VOC	Volatile organic compounds.
Wa	Matrix interference reported by laboratory.

State of Michigan Criteria Footnotes:

A	State of Michigan Drinking Water Standard.
AA	Compound may be adsorbed to particulates rather than dissolved in water; filtered groundwater sample may be more appropriate for comparison to criteria.
AC	The GSI Criteria for unionized ammonia are 29 µg/L and 53 µg/L for coldwater and warmwater streams, respectively.
AD	Substance causes developmental effects. Residential and Commercial I direct contact criteria are protective of both prenatal and postnatal exposure.
B	Background may be substituted if higher than the calculated cleanup criteria.
C	Value presented is a screening level based on the chemical specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat.
D	Calculated criterion exceeds 100%, therefore it is reduced to 100%.
DD	Hazardous substance causes developmental effects.
G	GSI value is pH or water hardness dependent.
I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.
ID	Inadequate data to develop criterion.

Table 6-46. Summary of Constituents Detected in Subsurface Soil Samples, Former Plant Site, Ford-Kingsford Products Facility, Kingsford, Michigan.

State of Michigan Criteria Footnotes (continued):

J	Chemical may be present in several isomer forms. Isomer specific concentrations must be added together for comparison to criteria.
NE	Not established.
NLL	Chemical is not likely to leach under most soil conditions.
NLV	Chemical is not likely to volatilize under most soil conditions.
R	Hazardous substance may exhibit the characteristic of reactivity as defined in 40 CFR 261.23.
X	The GSI criterion shown is not protective for surface water that is used as a drinking water source.
*VI	Standard for Chromium VI.

Table 6-47. Summary of Constituents Detected in Waste Material Samples, Former West Breen Avenue Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMGP-2	GMGP-3	GMGP-17		
Sample Date	12/12/00	12/12/00	04/04/02		Residential
Sample ID	GMGP-2/18	GMGP-3/15	GMGP-17/2'-4' (4/4/02)	Residential	Drinking Water
Depth (ft bls)	18'	15'	2-4'	Direct Contact	Protection
VOCs					
1,2,4-Trimethylbenzene	<150	<160	18 J	110,000 (I) C	2,100 (I)
Carbon disulfide	<380	<410	19 J	280,000 (I,R) C,DD	16,000 (I,R)
Ethylbenzene	<77	<82	15 J	140,000 (I) C	1,500 (I)
Toluene	<150	<160	120 J	250,000 (I) C	16,000 (I)
Trichloroethene	<77	<82	64 J	500,000 C,DD	100
Xylenes (total)	<230	<250	75 J	150,000 (I) C	5,600 (I) J
SVOCs					
2,4-Dimethylphenol	<580	630	<430	11,000,000	7,400
2-Methylnaphthalene	<580	97 J	<430	8,100,000	57,000
2-Methylphenol	<580	360 J	<430	11,000,000 (J)	7,400 (J)
3-Methylphenol/4-Methylphenol(m&p-cresol)	<580	820	<430	11,000,000 (J)	7,400 (J)
Anthracene	<580	76 J	<430	230,000,000	41,000
bis(2-Ethylhexyl)phthalate	630 B	<560	120 J	2,800,000	NLL
Carbazole	14 J	<560	<430	530,000	9,400
Dibenzofuran	<580	200 J	<430	ID	ID
Di-n-butylphthalate	52 J	<560	<430	760,000 C	760,000 C
Phenanthrene	<580	360 J	24 J	1,600,000	56,000
Metals					
Aluminum	11,000,000	160,000	8,000,000	50,000,000 (B) DD	1,000 (B)
Antimony	1,400 B	<3,900	14,000 N	180,000	4,300
Arsenic	12,000 J	<860 J	5,300 SN	7,600	4,600
Barium	**1,900,000**	31,000	**2,300,000 ***	37,000,000 (B)	1,300,000 (B)
Beryllium	2,900	<310	1,300	410,000	51,000
Cadmium	480 J	930 J	990 N	550,000 (B)	6,000 (B)
Calcium	65,000,000	1,400,000 J	86,000,000		
Chromium	**22,000**	2,600	**27,000**	2,500,000 total/dissolved	30,000 (*VI)
Cobalt	**6,700**	170 B	**6,500 E**	2,600,000	800

Footnotes on Page 5.

Table 6-47. Summary of Constituents Detected in Waste Material Samples, Former West Breen Avenue Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	GMGP-2	GMGP-3	GMGP-17		
Sample Date	12/12/00	12/12/00	04/04/02		Residential
Sample ID	GMGP-2/18	GMGP-3/15	GMGP-17/2'-4' (4/4/02)	Residential	Drinking Water
Depth (ft bls)	18'	15'	2-4'	Direct Contact	Protection
Metals (continued)					
Copper	**90,000**	**1,500,000**	**91,000**	20,000,000 (B)	5,800,000 (B)
Iron	7,900,000 J	540,000 J	13,000,000	160,000,000 (B)	6,000 (B)
Lead	270,000	35,000	710,000 *	400,000 (B)	700,000 (B)
Magnesium	4,700,000	95,000	2,900,000	1,000,000,000 (B) D	8,000,000 (B)
Manganese	**1,900,000**	28,000	**2,600,000**	25,000,000 (B)	1,000 (B)
Mercury	<140 J	20 BJ	**150**	160,000 (B,Z) (total)	1,700 (B,Z) (total)
Molybdenum	2,300	<770	1,300	2,600,000 (B)	1,500 (B)
Nickel	18,000	1,000 B	18,000	40,000,000 (B)	100,000 (B)
Potassium	2,800,000	200,000	1,900,000 N		
Silver	<180	<770	**820**	2,500,000 (B)	4,500 (B)
Sodium	990,000	450,000	900,000 N	1,000,000,000 D	2,500,000
Titanium	370,000	8,000	370,000 N		
Vanadium	27,000	590 B	25,000	750,000 DD	72,000
Zinc	**2,200,000 J**	54,000 J	**2,200,000 ***	170,000,000 (B)	2,400,000 (B)

Footnotes on Page 5.

Table 6-47. Summary of Constituents Detected in Waste Material Samples, Former West Breen Avenue Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Date Sample ID Depth (ft bls)	Residential Indoor-Inhalation	Groundwater/ Surface Water Interface Protection
VOCs		
1,2,4-Trimethylbenzene	110,000 (I) C	570 (I)
Carbon disulfide	76,000 (I,R)	(I,R) ID
Ethylbenzene	87,000 (I)	360 (I)
Toluene	250,000 (I) C	2,800 (I)
Trichloroethene	7,100	4,000 X
Xylenes (total)	150,000 (I) C	700 (I)
SVOCs		
2,4-Dimethylphenol	NLV	7,600
2-Methylnaphthalene	ID	ID
2-Methylphenol	(J) NLV	1,400 (J)
3-Methylphenol/4-Methylphenol(m&p-cresol)	(J) NLV	1,400 (J)
Anthracene	1,000,000,000 D	ID
bis(2-Ethylhexyl)phthalate	NLV	NLL
Carbazole	NLV	1,100
Dibenzofuran	ID	1,700
Di-n-butylphthalate	NLV	11,000
Phenanthrene	2,800,000	5,300
Metals		
Aluminum	(B) NLV	(B) NA
Antimony	NLV	94,000
Arsenic	NLV	70,000 X
Barium	(B) NLV	260,000 (B) G,X
Beryllium	NLV	24,000 G
Cadmium	(B) NLV	2,500 (B) G,X
Calcium		
Chromium	total/dissolved NLV	3,300 (*VI)
Cobalt	NLV	2,000

Footnotes on Page 5.

Table 6-47. Summary of Constituents Detected in Waste Material Samples, Former West Breen Avenue Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Date Sample ID Depth (ft bls)	Residential Indoor-Inhalation	Groundwater/ Surface Water Interface Protection
Metals (continued)		
Copper	(B) NLV	48,000 (B) G
Iron	(B) NLV	(B) NA
Lead	(B) NLV	1,700,000 (B) G,X
Magnesium	(B) NLV	(B) NA
Manganese	(B) NLV	36,000 (B) G,X
Mercury	48,000 (B,Z) (total)	50 (B,Z) (total) M
Molybdenum	(B) NLV	16,000 (B) X
Nickel	(B) NLV	50,000 (B) G
Potassium		
Silver	(B) NLV	100 (B) M
Sodium	NLV	NA
Titanium		
Vanadium	NLV	190,000
Zinc	(B) NLV	110,000 (B) G

Footnotes on Page 5.

Table 6-47. Summary of Constituents Detected in Waste Material Samples, Former West Breen Avenue Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Results in micrograms per kilogram (μg/Kg).

<	Less than the laboratory method detection limit.
(boxed)	Indicates a value above the Residential and Commercial I Drinking Water Protection Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
(shaded)	Indicates a value above the Residential and Commercial I Direct Contact Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
*	LCS or LCSD exceeds the control limit.
Bold	Indicates a value above the Groundwater Surface Water Interface Protection Screening Level (Operational Memorandum #1, January 23, 2006).
B	Constituent was also detected in laboratory blank.
E	Analyte was detected at a concentration greater than the calibration range, and is therefore estimated.
ft bls	Feet below land surface.
J	Estimated result.
N	Spiked sample recovery is not within control limits (Inorganics only).
S	Value was determined by Method of Standard Additions.
SVOC	Semi-volatile organic compounds.
VOC	Volatile organic compounds.

State of Michigan Criteria Footnotes:

B	Background may be substituted if higher than the calculated cleanup criteria.
C	Value presented is a screening level based on the chemical specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat.
D	Calculated criterion exceeds 100%, therefore it is reduced to 100%.
DD	Hazardous substance causes developmental effects.
G	GSI value is pH or water hardness dependent.
I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.
ID	Inadequate data to develop criterion.
J	Chemical may be present in several isomer forms. Isomer specific concentrations must be added together for comparison to criteria.
NA	Criterion or values is not available.
NLL	Chemical is not likely to leach under most soil conditions.
NLV	Chemical is not likely to volatilize under most soil conditions.
R	Hazardous substance may exhibit the characteristic of reactivity as defined in 40 CFR 261.23.
X	The GSI criterion shown is not protective for surface water that is used as a drinking water source.
*VI	Standard for Chromium VI.

Table 6-48. Summary of Constituents Detected in Surface Soil Samples, Former West Breen Avenue Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SSWB-1 (9/7/2005)	SSWB-2 (9/7/2005)	SSWB-3 (9/7/2005)	SSWB-4 (9/7/2005)	SSWB-4-RE (9/5/05)
Sample Type	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil
Sample Date	09/07/05	09/07/05	09/07/05	09/07/05	09/07/05
Sample ID	SSWB-1	SSWB-2	SSWB-3	SSWB-4	SSWB-4-RE
VOCs					
2-Butanone (MEK)	<260	240 J	<270	<280	NA
SVOCs					
Anthracene	37 J	<350	<360	<360	<370
Benzo(a)pyrene	28 J	<350	<360	<360	<370
Benzo(g,h,i)perylene	86 J *	<350	<360	<360	<370
bis(2-Ethylhexyl)phthalate	53 J	<350	<360	<360	<370
Carbazole	36 J	<350	<360	<360	<370
Dibenzo(a,h)anthracene	78 J	<350	<360	<360	<370
Di-n-butylphthalate	47 J	<350	<360	<360	<370
Fluoranthene	46 J	<350	31 J	<360	<370
Hexachlorobenzene	29 J	<350	<360	<360	<370
Indeno(1,2,3-c,d)pyrene	96 J	<350	<360	<360	<370
Phenanthrene	40 J	<350	<360	<360	<370
Pyrene	35 J	<350	28 J	<360	<370
Metals					
Aluminum	$\boxed{3,800,000}$	$\boxed{3,300,000}$	$\boxed{4,900,000}$	$\boxed{4,700,000}$	NA
Antimony	$\boxed{4,600}$	<2,400	<2,400	<2,600	NA
Arsenic	2,800	2,200	2,100	1,600	NA
Barium	19,000	18,000	30,000	58,000	NA
Beryllium	180 J	140 J	200	180 J	NA
Calcium	2,800,000	2,900,000	3,700,000	2,100,000	NA
Chromium	**15,000**	**8,200**	**12,000**	**11,000**	NA
Cobalt	$\boxed{\textbf{4,100}}$	$\boxed{\textbf{3,300}}$	$\boxed{\textbf{4,800}}$	$\boxed{\textbf{2,400}}$	NA
Copper	11,000	9,300	11,000	7,200	NA
Iron	$\boxed{17,000,000}$	$\boxed{9,500,000}$	$\boxed{11,000,000}$	$\boxed{10,000,000}$	NA
Lead	36,000 B	7,100 B	7,900 B	22,000 B	NA
Magnesium	2,500,000	2,200,000	2,200,000	1,200,000	NA

Footnotes on Page 5.

Table 6-48. Summary of Constituents Detected in Surface Soil Samples, Former West Breen Avenue Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	SSWB-1 (9/7/2005)	SSWB-2 (9/7/2005)	SSWB-3 (9/7/2005)	SSWB-4 (9/7/2005)	SSWB-4-RE (9/5/05)
Sample Type	Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil
Sample Date	09/07/05	09/07/05	09/07/05	09/07/05	09/07/05
Sample ID	SSWB-1	SSWB-2	SSWB-3	SSWB-4	SSWB-4-RE
Metals (continued)					
Manganese	**170,000**	**220,000**	**390,000**	**200,000**	NA
Mercury	8 J	14 J	13 J	46	NA
Nickel	11,000	7,900	9,000	5,500	NA
Potassium	430,000 B	370,000 B	550,000 B	590,000 B	NA
Sodium	120,000 B	100,000 B	160,000 B	110,000 B	NA
Vanadium	45,000	22,000	20,000	23,000	NA
Zinc	38,000	37,000	68,000	38,000	NA

Footnotes on Page 5.

Table 6-48. Summary of Constituents Detected in Surface Soil Samples, Former West Breen Avenue Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Type Sample Date Sample ID	Residential Direct Contact Criteria	Residential Drinking Water Protection Criteria	Groundwater/ Surface Water Interface Criteria	Indoor Air Inhalation Criteria	Ambient Air Inhalation Criteria
VOCs					
2-Butanone (MEK)	27,000,000 (MEK) (I) C,DD	260,000 (MEK) (I)	44,000 (MEK) (I)	27,000,000 (MEK) (I) C	29,000,000 (MEK) (I)
SVOCs					
Anthracene	230,000,000	41,000	ID	1,000,000,000 D	1,400,000,000
Benzo(a)pyrene	2,000 (Q)	(Q) NLL	(Q) NLL	(Q) NLV	(Q) NLV
Benzo(g,h,i)perylene	2,500,000	NLL	NLL	NLV	NLV
bis(2-Ethylhexyl)phthalate	2,800,000	NLL	NLL	NLV	NLV
Carbazole	530,000	9,400	1100	NLV	NLV
Dibenzo(a,h)anthracene	2,000 (Q)	(Q) NLL	(Q) NLL	(Q) NLV	(Q) NLV
Di-n-butylphthalate	760,000 C	760,000 C	11,000	NLV	NLV
Fluoranthene	46,000,000	730,000	5,500	1,000,000,000 D	740,000,000
Hexachlorobenzene	8,900	1,800 (C-66)	350 (C-66)	41,000	17,000
Indeno(1,2,3-c,d)pyrene	20,000 (Q)	(Q) NLL	(Q) NLL	(Q) NLV	(Q) NLV
Phenanthrene	1,600,000	56,000	5,300	2,800,000	160,000
Pyrene	29,000,000	480,000	ID	1,000,000,000 D	650,000,000
Metals					
Aluminum	50,000,000 (B) DD	1,000 (B)	(B) NE	(B) NLV	(B) NLV
Antimony	180,000	4,300	94,000	NLV	NLV
Arsenic	7,600	4,600	70,000 X	NLV	NLV
Barium	37,000,000 (B)	1,300,000 (B)	260,000 (B) G,X	(B) NLV	(B) NLV
Beryllium	410,000	51,000	24,000 G	NLV	NLV
Calcium	NE	NE	NE	NE	NE
Chromium	2,500,000 total/dissolved	30,000 (*VI)	3,300 (*VI)	total/dissolved NLV	total/dissolved NLV
Cobalt	2,600,000	800	2,000	NLV	NLV
Copper	20,000,000 (B)	5,800,000 (B)	48,000 (B) G	(B) NLV	(B) NLV
Iron	160,000,000 (B)	6,000 (B)	(B) NE	(B) NLV	(B) NLV
Lead	400,000 (B)	700,000 (B)	1,700,000 (B) G,X	(B) NLV	(B) NLV
Magnesium	1,000,000,000 (B) D	8,000,000 (B)	(B) NE	(B) NLV	(B) NLV

Footnotes on Page 5.

Table 6-48. Summary of Constituents Detected in Surface Soil Samples, Former West Breen Avenue Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring Sample Type Sample Date Sample ID	Residential Direct Contact Criteria	Residential Drinking Water Protection Criteria	Groundwater/ Surface Water Interface Criteria	Indoor Air Inhalation Criteria	Ambient Air Inhalation Criteria
Metals (continued)					
Manganese	25,000,000 (B)	1,000 (B)	36,000 (B) G,X	(B) NLV	(B) NLV
Mercury	160,000 (B,Z) (total)	1,700 (B,Z) (total)	50 (B,Z) (total) M	48,000 (B,Z) (total)	52,000 (B,Z) (total)
Nickel	40,000,000 (B)	100,000 (B)	50,000 (B) G	(B) NLV	(B) NLV
Potassium	NE	NE	NE	NE	NE
Sodium	1,000,000,000 D	2,500,000	NE	NLV	NLV
Vanadium	750,000 DD	72,000	190,000	NLV	NLV
Zinc	170,000,000 (B)	2,400,000 (B)	110,000 (B) G	(B) NLV	(B) NLV

Footnotes on Page 5.

Table 6-48. Summary of Constituents Detected in Surface Soil Samples, Former West Breen Avenue Disposal Area, Ford-Kingsford Products Facility, Kingsford, Michigan.

Results in micrograms per kilogram (µg/Kg).

<	Less than the laboratory method detection limit.
☐	Indicates a value above the Residential and Commercial I Drinking Water Protection Criteria (MDEQ RRD Operational Mem. #1, January 23, 2006).
Bold	Indicates a value above the Residential and Commercial I Groundwater/Surface Water Interface Protection Criteria (MDEQ RRD Operational Memorandum #1, January 23, 2006).
*	LCS or LCSD exceeds the control limit.
J	Estimated result.
B	Constituent was also detected in laboratory blank.
NA	Not abailable.
RE	Reextracted sample.
SVOC	Semi-volatile organic compound.
VOC	Volatile organic compound.

State of Michigan Criteria Footnotes:

C	Value presented is a screening level based on the chemical specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat.
D	Calculated criterion exceeds 100%, therefore it is reduced to 100%.
DD	Hazardous substance causes developmental effects.
G	GSI value is pH or water hardness dependent.
I	Chemical may exhibit the characteristic of ignitability, as defined in 40 CFR 261.21.
ID	Inadequate data to develop criterion.
NE	Not established.
NLL	Chemical is not likely to leach under most soil conditions.
NLV	Chemical is not likely to volatilize under most soil conditions.
Q	Criterion for carcinogenic polycyclic aromatic hydrocarbons (PAHs) were developed using "relative potential potencies" (RFPs) to benzo(a)pyrene.
*VI	Standard for Chromium VI.
X	The GSI criterion shown is not protective for surface water that is used as a drinking water source.
Z	Data for mercuric chloride serves as the basis for drinking water, groundwater contact, soil direct contact and the groundwater protection criteria.

Table 6-49. Summary of Methane Solubility Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Ground Elevation (ft msl)	Sampling Date	Air Pressure at Sampling (" Hg)	Air Pressure at Sampling (Atm)	Total Pressure (Atm)	Methane Conc. (mg/L)	Methane Solubility* (mg/L)	Solubility under Pressure (mg/L)	Ratio of Observed to Calculated
BR-2	1142.13	6/29/97	29.88	0.9985896	1.824817249	0.023	30	54.74451746	0.000420133
BR-3	1125.53	6/28/97	29.91	0.9995922	1.944947604	2.9	30	58.34842811	0.049701425
BR-5A	1119.70	7/1/97	29.83	0.9969186	2.633745751	0.82	30	79.01237253	0.010378121
BR-5B	1119.92	7/1/97	29.80	0.995916	4.965170239	15.8	30	148.9551072	0.106072227
BR-6	1106.80	6/29/97	29.91	0.9995922	5.037846178	0.013	30	151.1353853	8.60156E-05
GM-1	1121.79	6/24/97	29.77	0.9949134	5.407358273	98.4	30	162.2207482	0.606580854
GM-1	1121.79	10/9/97	28.61	0.9561462	5.356796245	91.7	30	160.7038874	0.570614697
GM-1	1121.79	10/7/98	29.94	1.0005948	5.383847475	73.8	30	161.5154243	0.456922305
GM-1	1121.79	4/16/99	29.53	0.9868926	5.393145188	165	30	161.7943557	1.019813079
GM-1	1121.79	4/28/2004	29.53	0.98702628	5.451663263	28.3	30	163.5498979	0.173035877
GM-2A	1121.30	7/2/97	29.41	0.9828822	1.002343665	11.7	30	30.07030995	0.389088108
GM-2A	1121.30	10/12/97	28.51	0.9528042	0.962240062	19.2	30	28.86720185	0.66511469
GM-2B	1121.33	6/26/97	30.00	1.0026	7.110551289	70.7	30	213.3165387	0.331432342
GM-2B	1121.33	10/21/97	28.91	0.9661722	7.050828705	460	30	211.5248612	2.174685271
GM-2B	1121.33	11/22/98	29.67	0.9915714	7.061484371	217	30	211.8445311	1.024336096
GM-2B	1121.33	4/16/99	29.63	0.9902346	7.082262872	165	30	212.4678862	0.776587949
GM-2B	1121.33	5/25/2004	29.80	0.9957489	7.108712991	77.5	30	213.2613897	0.363403803
GM-2C	1121.36	11/6/98	30.21	1.0096182	1.667179819	5.6	30	50.01539457	0.111965527
GM-2C	1121.36	4/13/99	29.89	0.9989238	1.633485506	5.18	30	49.00456517	0.105704438
GM-2C	1121.36	5/4/2004	29.74	0.99401106	1.706418626	0.57	30	51.19255877	0.011134431
GM-3A	1119.54	10/10/97	30.34	1.0139628	2.086702338	0.006	30	62.60107014	9.5845E-05
GM-3A	1119.54	10/9/98	30.18	1.0086156	2.037124536	0.14	30	61.11373608	0.002290811
GM-3A	1119.54	4/13/99	30.22	1.0099524	2.009564009	0.0014	30	60.28692027	2.32223E-05
GM-3A	1119.54	5/11/2004	29.99	1.00239948	2.08486975	0.53	30	62.54609251	0.008473751
GM-3B	1119.61	6/26/97	30.03	1.0036026	4.104167812	127	30	123.1250344	1.031471793
GM-3B	1119.61	10/14/97	28.86	0.9645012	4.053271585	84.3	30	121.5981475	0.69326714
GM-3B	1119.61	10/8/98	30.28	1.0119576	4.077138331	61.7	30	122.3141499	0.504438775
GM-3B	1119.61	4/17/99	29.84	0.9972528	4.081305254	95.6	30	122.4391576	0.780795963
GM-3B	1119.61	5/11/2004	30.03	1.0034355	4.111077609	28.4	30	123.3323283	0.230272147
GM-4	1125.54	6/26/97	30.03	1.0036026	2.368558983	0.02	30	71.05676949	0.000281465
GM-4	1125.54	10/14/97	28.78	0.9618276	2.315578897	0.0043	30	69.46736691	6.18996E-05
GM-4	1125.54	10/20/98	30.16	1.0079472	2.317173024	0.02	30	69.51519073	0.000287707
GM-4	1125.54	4/21/99	29.88	0.9985896	2.273610425	0.057	30	68.20831276	0.000835675

Footnotes on Page 13.

Table 6-49. Summary of Methane Solubility Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Ground Elevation (ft msl)	Sampling Date	Air Pressure at Sampling (" Hg)	Air Pressure at Sampling (Atm)	Total Pressure (Atm)	Methane Conc. (mg/L)	Methane Solubility* (mg/L)	Solubility under Pressure (mg/L)	Ratio of Observed to Calculated
GM-4	1125.54	5/22/2004	29.85	0.99748674	2.347109848	0.065	30	70.41329543	0.000923121
GM-4	1125.54	1/8/2007	28.41	0.9494622	2.26989311	0.0001	30	68.09679331	1.4685E-06
GM-5	1122.18	7/2/97	29.41	0.9828822	6.255169979	74.4	30	187.6550994	0.39647204
GM-5	1122.18	10/15/97	29.09	0.9721878	6.224719243	36.4	30	186.7415773	0.194921777
GM-5	1122.18	4/18/99	29.99	1.0022658	6.255976726	92.2	30	187.6793018	0.49126355
GM-6	1124.07	6/28/97	29.96	1.0012632	3.758009198	62.5	30	112.7402759	0.554371537
GM-6	1124.07	10/22/97	28.89	0.9655038	3.704262686	64.8	30	111.1278806	0.583111994
GM-6	1124.07	10/10/98	30.15	1.007613	3.737525766	57.1	30	112.125773	0.509249555
GM-6	1124.07	4/19/99	29.95	1.000929	3.745290429	25.2	30	112.3587129	0.224281672
GM-6	1124.07	7/19/2000	30.07	1.00483914	3.742713414	59.3	30	112.2814024	0.528137329
GM-7	1107.63	6/29/97	29.88	0.9985896	4.251602954	16.3	30	127.5480886	0.127794937
GM-7	1107.63	10/11/97	28.84	0.9638328	4.205051327	31.7	30	126.1515398	0.251285082
GM-7	1107.63	10/23/98	30.22	1.0099524	4.18747886	25.3	30	125.6243658	0.201394052
GM-7	1107.63	5/1/99	30.15	1.007613	4.19369071	31.6	30	125.8107213	0.251170963
GM-7	1107.63	9/23/2003	29.81	0.99611652	4.257681124	16.6	30	127.7304337	0.129961197
GM-7	1107.63	5/3/2004	30.08	1.00517334	4.262314884	20.1	30	127.8694465	0.157191577
GM-8	1043.64	6/30/97	29.91	0.9995922	3.374480666	0.02	30	101.23442	0.000197561
GM-8	1043.64	10/12/97	28.59	0.9554778	3.332725231	0.0001	30	99.98175694	1.00018E-06
GM-8	1043.64	10/9/98	30.08	1.0052736	3.374559523	0.02	30	101.2367857	0.000197557
GM-8	1043.64	4/13/99	28.95	0.967509	3.363333284	0.0001	30	100.8999985	9.9108E-07
GM-8	1043.64	10/21/99	29.59	0.9888978	3.359952947	0.051	30	100.7985884	0.000505959
GM-9	1053.04	10/13/97	29.65	0.990903	5.691436528	0.17	30	170.7430958	0.000995648
GM-9	1053.04	10/11/98	30.18	1.0086156	5.685264603	0.24	30	170.5579381	0.001407146
GM-9	1053.04	4/18/99	29.99	1.0022658	5.686581441	0.32	30	170.5974432	0.001875761
GM-9	1053.04	9/10/2003	30.29	1.01215812	5.69175583	0.037	30	170.7526749	0.000216688
GM-9	1053.04	5/3/2004	30.18	1.00868244	5.737523554	0.48	30	172.1257066	0.00278866
GM-9	1053.04	7/28/2005	30.09	1.00554096	5.687792506	0.37	30	170.6337752	0.002168387
GM-10	1056.20	10/14/97	29.99	1.0022658	5.810721997	0.028	30	174.3216599	0.000160623
GM-10	1056.20	11/6/98	30.22	1.0099524	5.793934331	0.024	30	173.8180299	0.000138075
GM-10	1056.20	4/27/99	30.12	1.0066104	5.802092287	1.06	30	174.0627686	0.006089757
GM-11	1067.84	10/15/97	30.34	1.0139628	6.064212956	0.12	30	181.9263887	0.000659607
GM-12	1120.49	10/22/97	30.07	1.0049394	7.944720881	0.47	30	238.3416264	0.001971959
GM-12	1120.49	10/10/98	30.13	1.0069446	7.926085133	0.22	30	237.782554	0.000925215

Footnotes on Page 13.

Table 6-49. Summary of Methane Solubility Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Ground Elevation (ft msl)	Sampling Date	Air Pressure at Sampling (" Hg)	Air Pressure at Sampling (Atm)	Total Pressure (Atm)	Methane Conc. (mg/L)	Methane Solubility* (mg/L)	Solubility under Pressure (mg/L)	Ratio of Observed to Calculated
GM-12	1120.49	4/19/99	29.95	1.000929	7.912992637	0.27	30	237.3897791	0.00113737
GM-13	1116.10	10/22/97	30.17	1.0082814	9.079186814	24.8	30	272.3756044	0.091050739
GM-13	1116.10	4/20/99	29.95	1.000929	9.037629415	38.8	30	271.1288824	0.143105374
GM-13	1116.1	5/18/2004	30.19	1.00901664	9.091716881	16	30	272.7515064	0.058661454
GM-14	1115.05	10/21/97	30.09	1.0056078	4.319659385	7.33	30	129.5897816	0.056563102
GM-14	1115.05	10/28/98	30.02	1.0032684	4.266307358	7.29	30	127.9892207	0.056957922
GM-14	1115.05	5/2/99	30.16	1.0079472	4.238845253	8.46	30	127.1653576	0.066527552
GM-15	1127.20	10/20/97	30.11	1.0062762	4.953710008	2.06	30	148.6113003	0.013861665
GM-15	1127.20	10/11/98	30.17	1.0082814	4.92180508	2.14	30	147.6541524	0.014493328
GM-15	1127.20	4/20/99	29.88	0.9985896	4.864049359	2.8	30	145.9214808	0.019188402
GM-15	1127.2	5/10/2004	29.98	1.00203186	4.925286273	2.96	30	147.7585882	0.020032677
GM-16	1130.25	10/22/97	30.11	1.0062762	2.219374182	0.0055	30	66.58122547	8.26059E-05
GM-16	1130.25	10/9/98	30.08	1.0052736	2.211589557	0.0001	30	66.3476867	1.50721E-06
GM-16	1130.25	4/14/99	29.99	1.0022658	2.216543265	0.0065	30	66.49629795	9.77498E-05
GM-16	1130.25	9/23/2003	29.81	0.99611652	2.22543239	0.09	30	66.76297169	0.001348053
GM-16	1130.25	4/27/2004	28.65	0.957483	2.215991067	0.0001	30	66.47973201	1.50422E-06
GM-17	1111.84	10/28/97	29.93	1.0002606	6.264292	12.4	30	187.92876	0.06598245
GM-17	1111.84	10/12/98	30.00	1.0026	6.238913556	11.9	30	187.1674067	0.063579446
GM-17	1111.84	4/26/99	29.95	1.000929	6.218075962	5.88	30	186.5422788	0.031521004
GM-17	1111.84	5/16/2004	30.15	1.007613	6.26722134	1.23	30	188.0166402	0.006541974
GM-17	1111.84	1/15/2007	30.15	1.007613	6.193208799	0.19	30	185.796264	0.001022626
GM-18	1120.13	12/4/97	29.59	0.9888978	1.201794432	0.0001	30	36.05383295	2.77363E-06
GM-18	1120.13	11/7/98	30.34	1.0139628	1.203269777	0.0001	30	36.09809332	2.77023E-06
GM-19	1117.13	12/4/97	29.58	0.9885636	1.127447691	0.0001	30	33.82343072	2.95653E-06
GM-21	1055.99	12/3/97	29.81	0.9962502	1.326210492	0.019	30	39.78631477	0.000477551
GM-21	1055.99	10/13/98	30.00	1.0026	1.238496545	0.03	30	37.15489635	0.000807431
GM-22	1064.23	12/5/97	29.66	0.9912372	1.292005295	0.022	30	38.76015884	0.000567593
GM-22	1064.23	10/10/98	30.13	1.0069446	1.238123214	0.03	30	37.14369642	0.000807674
GM-22	1064.23	4/13/99	30.07	1.0049394	1.321925382	0.16	30	39.65776147	0.004034519
GM-23	1055.90	12/3/97	29.71	0.9929082	1.206689444	0.123	30	36.20068331	0.003397726
GM-23	1055.90	10/10/98	30.14	1.0072788	1.167688451	0.01	30	35.03065352	0.000285464
GM-23	1055.90	5/12/04	28.62	0.9564804	1.286145822	0.0001	30	38.58437465	2.59172E-06
GM-24A	1099.38	11/9/98	30.10	1.005942	2.040348349	32.7	30	61.21045048	0.534222502

Footnotes on Page 13.

Table 6-49. Summary of Methane Solubility Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Ground Elevation (ft msl)	Sampling Date	Air Pressure at Sampling (" Hg)	Air Pressure at Sampling (Atm)	Total Pressure (Atm)	Methane Conc. (mg/L)	Methane Solubility* (mg/L)	Solubility under Pressure (mg/L)	Ratio of Observed to Calculated
GM-24A	1099.38	5/4/99	29.83	0.9969186	1.630890564	34.7	30	48.92671693	0.709223961
GM-24B	1099.22	11/17/98	30.07	1.0049394	3.637544841	9.44	30	109.1263452	0.086505234
GM-24B	1099.22	5/5/99	28.35	0.947457	2.881218927	5.01	30	86.43656781	0.05796158
GM-24B	1099.22	5/4/2004	29.83	0.99681834	3.219553534	8.55	30	96.58660603	0.088521591
GM-24C	1099.22	11/20/98	29.92	0.9999264	5.080052015	0.02	30	152.4015605	0.000131232
GM-24C	1099.22	5/13/99	30.06	1.0046052	5.128371676	0.18	30	153.8511503	0.001169962
GM-24C	1099.22	9/24/2003	29.67	0.9915714	5.097055894	0.19	30	152.9116768	0.001242547
GM-24C	1099.22	4/29/2004	29.83	0.99681834	5.166289771	0.35	30	154.9886931	0.002258229
GM-25A	1047.71	10/5/98	29.84	0.9972528	1.541289207	38.9	30	46.2386762	0.841287061
GM-25A	1047.71	4/16/99	29.52	0.9865584	1.565094676	28.4	30	46.95284029	0.604862237
GM-25A	1047.71	9/9/2003	30.22	1.01005266	1.55998648	40.2	30	46.79959441	0.858981803
GM-25A	1047.71	5/12/2004	29.77	0.99504708	1.58390383	38.2	30	47.51711491	0.803920863
GM-25B	1047.85	10/6/98	29.82	0.9965844	3.90577854	107	30	117.1733562	0.913176881
GM-25B	1047.85	4/27/99	30.10	1.005942	3.924572002	112.3	30	117.7371601	0.953819507
GM-25B	1047.85	10/20/99	28.82	0.9631644	3.877371342	108.7	30	116.3211403	0.934481899
GM-25B	1047.85	9/9/2003	30.22	1.01005266	3.924554472	23.9	30	117.7366342	0.202995441
GM-25B	1047.85	5/18/2004	30.16	1.00798062	3.978212991	137	30	119.3463897	1.147919098
GM-25C	1047.94	11/9/98	30.14	1.0072788	7.116114701	9.05	30	213.483441	0.042392047
GM-25C	1047.94	4/20/99	29.89	0.9989238	7.121323753	26.5	30	213.6397126	0.124040609
GM-25C	1047.94	8/2/00	29.96	1.0012632	7.120419575	30.3	30	213.6125873	0.141845574
GM-25C	1047.94	9/15/2003	30.03	1.0034355	7.119348298	8.47	30	213.5804489	0.039657188
GM-25C	1047.94	5/4/2004	29.71	0.99297504	7.171105551	35.3	30	215.1331665	0.164084416
GM-25C	1047.94	8/1/2005	30.14	1.0072788	7.118473667	32.7	30	213.55421	0.153122713
GM-26A	1047.31	10/7/98	29.91	0.9995922	1.876242735	59	30	56.28728205	1.048194154
GM-26A	1047.31	4/14/99	29.99	1.0022658	1.913711075	53.5	30	57.41133226	0.931871773
GM-26A	1047.31	5/13/2004	30.02	1.0031013	1.915431187	37.3	30	57.46293562	0.64911407
GM-26B	1047.17	10/7/98	30.00	1.0026	3.989345129	0.32	30	119.6803539	0.002673789
GM-26B	1047.17	4/15/99	29.71	0.9929082	4.006486561	0.072	30	120.1945968	0.000599029
GM-26B	1047.17	7/18/00	30.17	1.0082814	3.987359892	6.34	30	119.6207967	0.053000817
GM-26B	1047.17	9/9/2003	30.28	1.01182392	3.995325472	13.1	30	119.8597642	0.109294392
Gm-26B	1047.17	4/27/2004	29.95	1.00099584	4.081509846	16.4	30	122.4452954	0.133937363
GM-26B	1047.17	7/28/2005	30.06	1.00447152	3.966742383	12	30	119.0022715	0.100838411
GM-26C	1047.27	10/25/98	30.19	1.0089498	5.743983198	128	30	172.3194959	0.742806258

Footnotes on Page 13.

Table 6-49. Summary of Methane Solubility Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Ground Elevation (ft msl)	Sampling Date	Air Pressure at Sampling (" Hg)	Air Pressure at Sampling (Atm)	Total Pressure (Atm)	Methane Conc. (mg/L)	Methane Solubility* (mg/L)	Solubility under Pressure (mg/L)	Ratio of Observed to Calculated
GM-26C	1047.27	4/17/99	29.90	0.999258	5.750804156	134	30	172.5241247	0.77670297
GM-26C	1047.27	9/16/2003	30.07	1.00483914	5.743116115	63.5	30	172.2934835	0.368557178
GM-26C	1047.27	5/18/2004	30.15	1.007613	5.780094974	199	30	173.4028492	1.147616668
GM-27A	1052.45	10/8/98	30.31	1.0129602	1.755739446	48.2	30	52.67218337	0.91509402
GM-27A	1052.45	4/15/99	29.60	0.989232	1.761793185	27.4	30	52.85379554	0.518411208
GM-27A	1052.45	9/10/2003	30.23	1.01042028	1.751430302	40.4	30	52.54290905	0.76889538
GM-27A	1052.45	5/13/2004	30.04	1.0037697	1.780164203	25.4	30	53.4049261	0.475611556
GM-27B	1052.61	10/26/98	30.12	1.0066104	5.151017823	0.05	30	154.5305347	0.000323561
GM-27B	1052.61	4/14/99	29.88	0.9985896	5.171304609	0.18	30	155.1391383	0.001160249
GM-27B	1052.61	7/18/00	30.17	1.0082814	5.161534944	0.049	30	154.8460483	0.000316443
GM-27B	1052.61	9/10/2003	30.27	1.0114563	5.159107301	0.011	30	154.773219	7.10717E-05
GM-27B	1052.61	4/30/2004	30.13	1.00691118	5.220613214	0.01	30	156.6183964	6.38495E-05
GM-27B	1052.61	8/5/2005	30.31	1.01285994	5.158151976	0.011	30	154.7445593	7.10849E-05
GM-27B	1052.61	12/7/2006	30.44	1.01740506	5.136453605	0.005	30	154.0936081	3.24478E-05
GM-27B	1052.61	2/22/2007	30.16	1.00798062	5.117888174	0.07	30	153.5366452	0.000455917
GM-27B	1052.61	5/11/2007	30.28	1.01182392	5.129103241	0.01	30	153.8730972	6.49886E-05
GM-27B	1052.61	8/8/2007	31.26	1.04460894	5.146260115	0.05	30	154.3878034	0.00032386
GM-27B	1052.61	11/8/2007	31.23	1.04357292	7.071319384	0.01	30	212.1395815	4.71388E-05
GM-27C	1052.53	11/9/98	30.13	1.0069446	7.086293433	0.08	30	212.588803	0.000376313
GM-27C	1052.53	4/26/99	29.95	1.000929	7.088829083	13.5	30	212.6648725	0.063480159
GM-27C	1052.53	8/7/00	29.79	0.9955818	7.063430677	1.1	30	211.9029203	0.005191056
GM-27C	1052.53	9/11/2003	30.14	1.0072788	7.088101987	0.088	30	212.6430596	0.000413839
GM-27C	1052.53	4/30/2004	30.08	1.00517334	7.138483508	0.12	30	214.1545052	0.000560343
GM-27C	1052.53	8/5/2005	30.26	1.0111221	7.067765891	0.09	30	212.0329767	0.000424462
GM-28A	1062.08	10/28/98	30.05	1.004271	1.769460418	37.6	30	53.08381253	0.708313857
GM-28A	1062.08	4/19/99	29.95	1.000929	1.776144021	30.3	30	53.28432062	0.56864758
GM-28A	1062.08	7/19/00	30.09	1.0056078	1.781707433	23.6	30	53.45122298	0.441524042
GM-28A	1062.08	4/28/2004	29.58	0.98842992	1.844144637	33.5	30	55.3243391	0.605520112
GM-28A	1062.08	7/26/2005	29.91	0.9995922	1.776871315	30.7	30	53.30613946	0.575918652
GM-28A	1062.08	12/5/2006	30.09	1.00554096	1.765717576	20.8	30	52.97152728	0.392663777
GM-28A	1062.08	2/21/2007	29.71	0.99297504	1.749908078	20.7	30	52.49724235	0.394306426
GM-28A	1062.08	5/10/2007	29.99	1.00239948	1.75992226	23.7	30	52.7976678	0.448883464
GM-28A	1062.08	8/7/2007	31.06	1.03799178	1.783129991	25.9	30	53.49389974	0.484167356

Footnotes on Page 13.

Table 6-49. Summary of Methane Solubility Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Ground Elevation (ft msl)	Sampling Date	Air Pressure at Sampling (" Hg)	Air Pressure at Sampling (Atm)	Total Pressure (Atm)	Methane Conc. (mg/L)	Methane Solubility* (mg/L)	Solubility under Pressure (mg/L)	Ratio of Observed to Calculated
GM-28A	1062.08	11/5/2007	30.80	1.02926916	1.78236888	20	30	53.47106639	0.374034059
GM-28B	1061.85	11/8/98	30.20	1.009284	4.119874815	0.1	30	123.5962445	0.000809086
GM-28B	1061.85	4/19/99	29.95	1.000929	4.123609513	0.41	30	123.7082854	0.003314249
GM-28B	1061.85	4/28/2004	29.63	0.99016776	4.187745426	0.01	30	125.6323628	7.95973E-05
GM-28B	1061.85	7/26/2005	29.93	1.00029402	4.120910439	0.01	30	123.6273132	8.08883E-05
GM-28B	1061.85	12/5/2006	30.09	1.00554096	4.103452336	0.063	30	123.1035701	0.000511764
GM-28B	1061.85	2/21/2007	29.71	0.99297504	4.092950511	0.02	30	122.7885153	0.000162882
GM-28B	1061.85	5/10/2007	29.97	1.00169766	4.102557743	0.01	30	123.0767323	8.12501E-05
GM-28B	1061.85	8/7/2007	31.01	1.03622052	4.124106293	0.02	30	123.7231888	0.000161651
GM-28B	1061.85	11/5/2007	30.84	1.03063938	4.127076403	0.1	30	123.8122921	0.000807674
GM-29	1053.15	10/9/98	30.18	1.0086156	2.44139224	29.2	30	73.24176719	0.398679621
GM-29	1053.15	4/16/99	29.59	0.9888978	2.435238491	22.4	30	73.05715473	0.306609258
GM-29	1053.15	9/10/2003	30.29	1.01215812	2.448768079	8.75	30	73.46304236	0.119107509
GM-29	1053.15	5/3/2004	30.11	1.00620936	2.489114015	6.27	30	74.67342046	0.083965619
GM-29	1053.15	7/28/2005	30.09	1.00554096	2.447753461	6.12	30	73.43260384	0.083341727
GM-29	1053.15	12/8/2006	30.13	1.00691118	2.440277561	7.7	30	73.20832683	0.105179292
GM-29	1053.15	2/20/2007	29.71	0.99297504	2.426931162	18	30	72.80793487	0.247225801
GM-29	1053.15	5/9/2007	30.04	1.0037697	2.430943797	21.1	30	72.9283139	0.289325214
GM-29	1053.15	8/7/2007	31.07	1.03832598	2.455769344	11.9	30	73.67308033	0.161524399
GM-29	1053.15	11/6/2007	31.31	1.04634678	2.470277299	7.93	30	74.10831898	0.107005531
GM-30	1121.73	10/27/98	29.89	0.9989238	1.214179397	27.4	30	36.42538192	0.752222724
GM-30	1121.73	5/12/99	30.06	1.0046052	1.243450452	8.46	30	37.30351355	0.226788289
GM-31	1121.73	10/24/98	30.09	1.0056078	1.980155401	6.98	30	59.40466204	0.117499196
GM-31	1121.73	5/3/99	29.92	0.9999264	2.006025164	5.03	30	60.18075492	0.083581537
GM-32	1116.14	10/25/98	30.17	1.0082814	3.939885712	11	30	118.1965714	0.093065305
GM-32	1116.14	4/27/99	30.10	1.005942	3.912777175	33.2	30	117.3833152	0.282834063
GM-32	1116.14	9/25/2003	30.04	1.0037697	3.99493789	14.4	30	119.8481367	0.120152056
GM-32	1116.14	5/26/2004	29.75	0.99437868	3.984072516	8.24	30	119.5221755	0.068941182
GM-34A	1088.08	10/8/98	30.27	1.0116234	1.629377477	0.11	30	48.88132431	0.002250348
GM-34A	1088.08	4/17/99	29.83	0.9969186	1.593441988	0.22	30	47.80325964	0.004602197
GM-34A	1088.08	4/29/04	28.57	0.9548094	1.625050458	0.0001	30	48.75151375	2.05122E-06
GM-34B	1088.01	10/12/98	29.98	1.0019316	2.444733843	0.11	30	73.34201529	0.001499822
GM-34B	1088.01	4/14/99	28.62	0.9564804	2.412256953	0.014	30	72.36770858	0.000193456

Footnotes on Page 13.

Table 6-49. Summary of Methane Solubility Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Ground Elevation (ft msl)	Sampling Date	Air Pressure at Sampling (" Hg)	Air Pressure at Sampling (Atm)	Total Pressure (Atm)	Methane Conc. (mg/L)	Methane Solubility* (mg/L)	Solubility under Pressure (mg/L)	Ratio of Observed to Calculated
GM-34B	1088.01	9/24/2003	29.65	0.99086958	2.455492253	0.004	30	73.6647676	5.43E-05
GM-34B	1088.01	4/28/2004	29.63	0.99016776	2.509931251	0.05	30	75.29793752	0.000664029
GM-35	1120.49	11/4/98	30.26	1.0112892	1.10210937	0.57	30	33.06328109	0.017239668
GM-35	1120.49	5/4/99	28.51	0.9528042	1.015611655	4.21	30	30.46834965	0.138176175
GM-35	1120.49	11/3/98	28.98	0.9685116	1.334740986	0.02	30	40.04222958	0.000499473
GM-36	1127.17	11/3/98	30.26	1.0112892	2.904948714	0.02	30	87.14846143	0.000229493
GM-36	1127.17	5/5/99	28.36	0.9477912	2.809899551	0.026	30	84.29698654	0.000308433
GM-36	1127.17	5/4/2004	29.71	0.99297504	2.910519079	0.02	30	87.31557238	0.000229054
GM-37A	1117.35	11/18/98	30.02	1.0032684	3.457477079	66.1	30	103.7243124	0.637266215
GM-37A	1117.35	9/25/2003	30.06	1.00447152	3.496718517	28.5	30	104.9015555	0.271683293
GM-37A	1117.35	5/17/2004	29.92	0.99995982	3.482181214	31.7	30	104.4654364	0.303449649
GM-37B	1117.29	5/14/99	30.21	1.0096182	8.866152628	121	30	265.9845789	0.454913591
GM-37B	1117.29	9/25/2003	30.03	1.0034355	8.866162213	161	30	265.9848664	0.605297595
GM-37B	1117.29	5/27/2004	29.62	0.98983356	8.900329323	20.8	30	267.0098797	0.077899739
GM-38A	1097.22	10/13/98	29.98	1.0019316	2.43500311	0.04	30	73.05009331	0.000547569
GM-38A	1097.22	4/15/99	29.74	0.9939108	2.443789939	0.0083	30	73.31369818	0.000113212
GM-38B	1097.30	10/14/98	30.12	1.0066104	4.399097587	0.88	30	131.9729276	0.006668034
GM-38B	1097.30	4/29/99	30.45	1.017639	4.401574937	0.91	30	132.0472481	0.006891473
GM-38C	1097.29	10/20/98	30.20	1.009284	5.572997532	0.37	30	167.189926	0.002213052
GM-38C	1097.29	4/30/99	30.30	1.012626	5.576339532	0.64	30	167.290186	0.003825688
GM-39	1087.29	10/12/98	30.01	1.0029342	2.516210536	9.12	30	75.48631607	0.120816599
GM-39	1087.29	4/15/99	29.66	0.9912372	2.510410949	5.88	30	75.31232848	0.078074867
GM-40A	1115.18	10/26/98	30.14	1.0072788	2.218607558	1.46	30	66.55822674	0.021935681
GM-40A	1115.18	4/28/99	30.34	1.0139628	2.199342938	0.23	30	65.98028815	0.00348589
GM-40A	1115.18	5/3/2004	30.18	1.00868244	2.276036628	0.5	30	68.28109883	0.007322671
GM-40B	1115.15	10/26/98	30.10	1.005942	3.543599082	54	30	106.3079725	0.50795814
GM-40B	1115.15	4/27/99	30.12	1.0066104	3.516549638	63.1	30	105.4964891	0.59812417
GM-40B	1115.15	5/19/2004	30.07	1.00483914	3.599996005	23.8	30	107.9998801	0.220370615
GM-41	1120.17	10/19/98	30.02	1.0032684	1.191690765	8.32	30	35.75072296	0.232722566
GM-41	1120.17	4/16/99	29.52	0.9865584	1.144903956	3.62	30	34.34711867	0.105394576
GM-42	1121.17	10/20/98	30.19	1.0089498	2.115304596	0.47	30	63.45913787	0.007406341
GM-42	1121.17	4/16/99	29.62	0.9899004	2.072665541	0.82	30	62.17996623	0.013187527
GM-49	1121.69	4/17/99	29.84	0.9972528	1.407712788	9.2	30	42.23138364	0.217847468

Footnotes on Page 13.

Table 6-49. Summary of Methane Solubility Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Ground Elevation (ft msl)	Sampling Date	Air Pressure at Sampling (" Hg)	Air Pressure at Sampling (Atm)	Total Pressure (Atm)	Methane Conc. (mg/L)	Methane Solubility* (mg/L)	Solubility under Pressure (mg/L)	Ratio of Observed to Calculated
GM-50	1120.64	10/14/98	30.12	1.0066104	1.494916248	33	30	44.84748744	0.735827175
GM-50	1120.64	4/17/99	29.90	0.999258	1.517050916	30.4	30	45.51152748	0.667962639
GM-51	1095.88	10/20/98	30.20	1.009284	1.658884111	1.86	30	49.76652332	0.037374522
GM-51	1095.88	4/18/99	29.99	1.0022658	1.671622246	5.4	30	50.14866739	0.10767983
GM-52	1119.74	4/19/99	29.95	1.000929	1.900579448	30.4	30	57.01738345	0.533170731
GM-53A	1103.76	4/19/99	29.95	1.000929	1.740759539	31.7	30	52.22278617	0.607014721
GM-53B	1103.83	11/5/98	30.18	1.0086156	5.165997333	131	30	154.97992	0.845270794
GM-53B	1103.83	5/1/99	30.29	1.0122918	5.17675043	147	30	155.3025129	0.946539739
GM-54	1126.88	10/24/98	30.03	1.0036026	1.91711197	0.08	30	57.51335911	0.001390981
GM-54	1126.88	5/1/99	30.15	1.007613	1.917289051	0.091	30	57.51867154	0.001582095
GM-55	1126.68	10/24/98	30.03	1.0036026	1.282255394	19.1	30	38.46766181	0.49652095
GM-55	1126.68	5/1/99	30.25	1.010955	1.290492406	22.8	30	38.71477217	0.588922489
GM-56	1118.56	10/21/98	30.28	1.0119576	1.201264577	0.03	30	36.03793732	0.000832456
GM-56	1118.56	4/20/99	29.96	1.0012632	1.173762548	0.3	30	35.21287645	0.008519611
GM-57	1130.81	4/20/99	29.88	0.9985896	1.220037482	14.3	30	36.60112445	0.390698379
GM-58	1130.90	4/26/99	29.95	1.000929	1.198492356	7.69	30	35.95477069	0.213879823
GM-58	1130.9	5/22/2004	29.86	0.99785436	1.230212457	0.056	30	36.9063737	0.001517353
GM-59	1129.97	11/17/98	30.07	1.0049394	2.297062725	0.16	30	68.91188174	0.002321806
GM-59	1129.97	4/28/99	30.32	1.0132944	2.308071561	0.17	30	69.24214683	0.002455152
GM-59	1129.97	5/15/2004	30.27	1.0114563	2.380540873	0.49	30	71.41622618	0.006861186
GM-59	1129.97	7/29/2005	30.32	1.01319414	2.326548154	0.09	30	69.79644461	0.001289464
GM-59	1129.97	1/11/2007	29.79	0.9954147	2.552331896	0.089	30	76.56995689	0.001162336
GM-61	1209.08	5/3/99	29.88	0.9985896	1.718663803	5.71	30	51.5599141	0.110744948
GM-61	1209.08	5/16/2004	30.22	1.01005266	1.691793675	1.11	30	50.75381024	0.021870279
GM-61	1209.08	7/30/2005	30.32	1.01319414	1.68402494	0.76	30	50.52074819	0.015043324
GM-61	1209.08	1/9/2007	30.03	1.0034355	1.696971342	0.007	30	50.90914026	0.0001375
GM-62A	1124.78	8/23/99	29.88	0.9985896	2.374456198	8.47	30	71.23368595	0.118904418
GM-62A	1124.78	5/11/2004	30.17	1.00831482	2.44138633	12.8	30	73.24158991	0.174764093
GM-62B	1124.74	8/24/99	29.96	1.0012632	4.9015177	66.2	30	147.045531	0.450200693
GM-62B	1124.74	5/19/2004	30.22	1.01005266	4.934781426	64.1	30	148.0434428	0.432981014
GM-62C	1124.77	8/24/99	29.96	1.0012632	8.444094063	298	30	253.3228219	1.1763646
GM-62C	1124.77	5/18/2004	30.18	1.00868244	8.473333733	52.6	30	254.200012	0.206923672
GM-63A	1049.72	10/18/2000	30.10	1.00587516	2.120781205	52.5	30	63.62343616	0.82516763

Footnotes on Page 13.

Table 6-49. Summary of Methane Solubility Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Ground Elevation (ft msl)	Sampling Date	Air Pressure at Sampling (" Hg)	Air Pressure at Sampling (Atm)	Total Pressure (Atm)	Methane Conc. (mg/L)	Methane Solubility* (mg/L)	Solubility under Pressure (mg/L)	Ratio of Observed to Calculated
GM-63A	1049.72	9/15/2003	30.03	1.0034355	2.116867192	36.8	30	63.50601576	0.579472662
GM-63A	1049.72	5/5/2004	30.02	1.0031013	2.168135361	48.3	30	65.04406084	0.742573563
GM-63B	1049.72	2/7/2001	30.33	1.01356176	3.917448228	0.023	30	117.5234468	0.000195706
GM-63B	1049.72	9/11/2003	30.21	1.00971846	3.912130575	0.023	30	117.3639172	0.000195972
GM-63B	1049.72	4/27/2004	29.91	0.9995922	3.990465519	0.03	30	119.7139656	0.000250597
GM-64A	1054.73	8/30/00	30.14	1.0072788	1.781314338	35.6	30	53.43943014	0.666174768
GM-64A	1054.73	10/19/2000	30.04	1.0037697	1.779574462	44.1	30	53.38723386	0.826040175
GM-64A	1054.73	9/8/2003	30.20	1.00935084	1.781617154	37.4	30	53.44851462	0.69973881
GM-64A	1054.73	5/4/2004	29.74	0.99401106	1.822597674	36.9	30	54.67793022	0.674860951
GM-64B	1055.13	9/8/2003	30.20	1.00935084	4.101364802	32.9	30	123.0409441	0.267390666
GM-64B	1055.13	5/11/2004	30.09	1.00554096	4.128221473	91.8	30	123.8466442	0.741239301
GM-66A	1045.70	7/18/00	30.13	1.0069446	1.89450535	26.9	30	56.83516051	0.473298567
GM-66A	1045.7	9/16/2003	30.09	1.00554096	1.896935029	38.7	30	56.90805087	0.680044377
GM-66A	1045.7	4/27/2004	30.03	1.0034355	1.975919006	37.9	30	59.27757019	0.639364938
GM-66A	1045.7	7/27/2005	30.17	1.00831482	1.890273027	30.8	30	56.70819082	0.543131416
GM-66B	1045.72	7/19/00	30.12	1.0066104	4.819288307	82.6	30	144.5786492	0.571315339
GM-66B	1045.72	8/3/00	30.13	1.0069446	4.820212249	93.2	30	144.6063675	0.644508272
GM-66B	1045.72	9/11/2003	30.21	1.00971846	4.818857919	73.2	30	144.5657376	0.506344043
GM-66B	1045.72	5/10/2004	30.02	1.0031013	4.851163689	83.3	30	145.5349107	0.572371259
GM-66B	1045.72	7/27/2005	30.17	1.00831482	4.81362096	71.1	30	144.4086288	0.49235285
GM-66B	1045.72	12/8/2006	30.27	1.0114563	4.774890803	22.7	30	143.2467241	0.158467847
GM-66B	1045.72	3/1/2007	29.68	0.9919056	4.767134931	19.3	30	143.0140479	0.134951778
GM-66B	1045.72	5/14/2007	29.85	0.99748674	4.772126329	30.2	30	143.1637899	0.210947196
GM-66B	1045.72	8/14/2007	31.16	1.04146746	4.798119938	30.4	30	143.9435981	0.211193831
GM-66B	1045.72	11/9/2007	31.33	1.0470486	4.814906164	30.2	30	144.4471849	0.209072956
GM-67	1115.90	8/7/00	29.79	0.9955818	2.67546007	12.9	30	80.26380211	0.160720021
GM-67	1115.9	5/17/2004	29.96	1.00133004	2.726323525	23.1	30	81.78970574	0.282431631
GM-67	1115.9	1/12/2007	30.22	1.01005266	2.671059207	9.98	30	80.13177621	0.124544849
GM-68	1105.72	10/17/2000	30.18	1.00868244	4.373156912	0.02	30	131.1947074	0.000152445
GM-68	1105.72	5/24/2004	30.02	1.0031013	4.333960514	0.077	30	130.0188154	0.000592222
GM-68	1105.72	7/31/2005	30.14	1.0072788	4.321920127	0.02	30	129.6576038	0.000154252
GM-68	1105.72	1/12/2007	28.96	0.9678432	4.261548708	0.0001	30	127.8464613	7.82188E-07
GM-70	1117.95	8/17/00	30.00	1.0026	1.180996762	16.3	30	35.42990286	0.460063356

Footnotes on Page 13.

Table 6-49. Summary of Methane Solubility Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Ground Elevation (ft msl)	Sampling Date	Air Pressure at Sampling (" Hg)	Air Pressure at Sampling (Atm)	Total Pressure (Atm)	Methane Conc. (mg/L)	Methane Solubility* (mg/L)	Solubility under Pressure (mg/L)	Ratio of Observed to Calculated
GM-71	1118.00	8/21/00	30.15	1.007613	1.33668868	2.63	30	40.1006604	0.065584955
GM-72	1118.83	8/22/00	30.08	1.0052736	1.379169624	13.6	30	41.37508871	0.328700202
GM-72	1118.83	9/24/2003	29.67	0.9915714	1.393185268	11.8	30	41.79555803	0.282326653
GM-72	1118.83	1/5/2004	30.18	1.00868244	1.382578464	12.7	30	41.47735391	0.306191182
GM-72	1118.83	4/16/2004	29.88	0.99855618	1.385131643	10.4	30	41.55394929	0.250277054
GM-72A	1118.83	7/25/2005	29.95	1.00099584	1.483699145	19.9	30	44.51097435	0.447080755
GM-72A	1118.83	12/12/2006	29.87	0.99818856	1.442558676	14.9	30	43.27676029	0.344295643
GM-72A	1118.83	11/8/2007	31.25	1.04424132	1.426688593	13	30	42.8006578	0.30373365
GM-73	1111.42	9/6/00	30.29	1.0122918	1.217226923	0.0001	30	36.5168077	2.73847E-06
GM-74	1100.95	9/7/00	29.89	0.9989238	1.25870487	0.0001	30	37.7611461	2.64822E-06
GM-75	1089.05	9/8/00	30.02	1.0032684	1.330279985	0.024	30	39.90839956	0.000601377
GM-77	1043.06	9/22/2003	29.70	0.99260742	4.136223752	34.3	30	124.0867126	0.276419604
GM-77	1043.06	5/11/2004	30.21	1.00971846	4.180462894	84.6	30	125.4138868	0.674566447
GM-77	1043.06	7/28/2005	30.07	1.00483914	4.120147886	60.4	30	123.6044366	0.488655599
GM-78	1049.24	9/18/2003	30.16	1.00798062	1.543465777	31.9	30	46.30397331	0.68892576
GM-78	1049.24	4/29/2004	29.89	0.99889038	1.611336785	37.1	30	48.34010354	0.767478704
GM-78	1049.24	7/29/2005	30.32	1.01319414	1.547499814	28.5	30	46.42499443	0.61389345
GM-78	1049.24	12/8/2006	30.24	1.01075448	1.51734231	12.2	30	45.52026931	0.268012474
GM-78	1049.24	2/28/2007	30.17	1.00831482	1.515197521	7.04	30	45.45592563	0.154875297
GM-78	1049.24	5/11/2007	30.29	1.01215812	1.521399786	5.65	30	45.64199359	0.12378951
GM-78	1049.24	8/14/2007	31.14	1.04076564	1.536148384	5.62	30	46.08445153	0.121950025
GM-78	1049.24	11/8/2007	31.25	1.04424132	1.549354797	4.78	30	46.4806439	0.102838506
GM-79	1052.81	9/18/2003	30.16	1.00798062	1.599786077	1.76	30	47.99358231	0.03667157
GM-79	1052.81	4/26/2004	29.87	0.99818856	1.685237247	28.7	30	50.55711741	0.56767477
GM-79	1052.81	7/29/2005	30.32	1.01319414	1.605884209	29.3	30	48.17652627	0.608180005
GM-79	1052.81	12/4/2006	30.03	1.0034355	1.565459018	30.9	30	46.96377055	0.657953985
GM-79	1052.81	2/22/2007	30.06	1.00447152	1.565905297	25.2	30	46.97715891	0.536430908
GM-79	1052.81	5/9/2007	30.03	1.0034355	1.571651303	24.4	30	47.14953908	0.517502408
GM-79	1052.81	8/7/2007	31.05	1.03762416	1.592570782	29.8	30	47.77712346	0.623729472
GM-79	1052.81	11/6/2007	31.39	1.04915406	1.603510941	28.5	30	48.10532822	0.592449965
GM-80	1120.7462	5/3/2004	30.02	1.0031013	3.307037983	0.73	30	99.21113948	0.007358045
GM-84	1052.7204	8/26/2004	29.83	0.99681834	3.073285882	0.0048	30	92.19857645	5.20615E-05
GM-84	1052.7204	8/1/2005	30.12	1.00657698	3.042942109	0.02	30	91.28826327	0.000219086

Footnotes on Page 13.

Table 6-49. Summary of Methane Solubility Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Ground Elevation (ft msl)	Sampling Date	Air Pressure at Sampling (" Hg)	Air Pressure at Sampling (Atm)	Total Pressure (Atm)	Methane Conc. (mg/L)	Methane Solubility* (mg/L)	Solubility under Pressure (mg/L)	Ratio of Observed to Calculated
GM-84	1052.7204	12/12/2006	29.94	1.00062822	3.016647272	0.01	30	90.49941816	0.000110498
GM-84	1052.7204	3/2/2007	27.81	0.9294102	2.942480545	0.0001	30	88.27441636	1.13283E-06
GM-84	1052.7204	5/14/2007	29.77	0.99504708	3.015194322	4.04	30	90.45582965	0.044662683
GM-84	1052.7204	8/14/2007	31.15	1.04109984	3.045618936	0.04	30	91.36856807	0.000437787
GM-84	1052.7204	11/9/2007	31.34	1.0473828	3.06251724	0.02	30	91.8755172	0.000217686
GM-85	1070.49	9/1/2004	30.30	1.01249232	2.714191021	0.01	30	81.42573063	0.000122811
GM-85	1070.49	7/31/2005	30.07	1.00483914	2.665255946	0.01	30	79.95767837	0.000125066
GM-85	1070.49	1/12/2007	30.24	1.01075448	2.647876502	0.005	30	79.43629505	6.29435E-05
GM-87A	1054.92	12/5/2006	30.13	1.00691118	1.719023875	31.4	30	51.57071625	0.608872676
GM-87A	1054.92	2/19/2007	29.51	0.98632446	1.709642241	25.2	30	51.28926723	0.491330864
GM-87A	1054.92	5/8/2007	30.12	1.00657698	1.726651183	24	30	51.7995355	0.463324618
GM-87A	1054.92	8/6/2007	31.18	1.04216928	1.749269173	12.3	30	52.4780752	0.234383596
GM-87A	1054.92	11/7/2007	31.56	1.0547352	1.762424835	31.3	30	52.87274504	0.591987421
GM-87B	1055.01	12/5/2006	30.09	1.00554096	4.374733363	0.22	30	131.2420009	0.001676293
GM-87B	1055.01	2/20/2007	29.72	0.99330924	4.366629832	0.27	30	130.998895	0.002061086
GM-87B	1055.01	5/8/2007	30.08	1.00517334	4.378788803	0.29	30	131.3636641	0.002207612
GM-87B	1055.01	8/6/2007	31.18	1.04216928	4.402220692	0.1	30	132.0666207	0.000757194
GM-87B	1055.01	11/7/2007	31.53	1.05366576	4.414896654	0.65	30	132.4468996	0.004907627
GM-118D	1116.64	10/21/98	30.33	1.0136286	1.253063593	0.006	30	37.59190779	0.000159609
GM-118D	1116.64	4/29/99	30.48	1.0186416	1.235666421	0.0087	30	37.06999264	0.000234691
CW-1	1084.50	10/14/97	28.90	0.965838	3.796596539	19.13	30	113.8978962	0.167957448
CW-1	1084.50	10/22/98	30.30	1.012626	3.817435919	17.2	30	114.5230776	0.15018807
CW-1	1084.50	4/29/99	30.39	1.0156338	3.82073859	14.6	30	114.6221577	0.127375023
MW-1B	1114.00	6/27/97	30.00	1.0026	2.581042756	18.2	30	77.43128269	0.23504712
MW-2B	1122.50	6/28/97	30.03	1.0036026	1.80034318	34.8	30	54.01029541	0.644321601
MW-5	1142.40	10/22/98	30.45	1.017639	1.987763541	0.02	30	59.63290623	0.000335385
MW-5	1142.40	4/18/99	28.73	0.9601566	1.916127348	0.11	30	57.48382045	0.001913582
MW-8	1131.40	6/29/97	28.63	0.9568146	2.992306912	86	30	89.76920736	0.958012246
MW-8	1131.40	10/24/98	30.09	1.0056078	3.00129257	57.3	30	90.0387771	0.636392473
MW-8	1131.40	5/3/99	29.97	1.0015974	2.992564239	68.7	30	89.77692717	0.765230022
MW-8	1131.44	5/12/2004	29.89	0.99889038	3.051780062	21.1	30	91.55340186	0.230466586
MW-9A	1115.03	7/2/97	29.47	0.9848874	1.633897769	0.014	30	49.01693308	0.000285616

Footnotes on Page 13.

Table 6-49. Summary of Methane Solubility Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Ground Elevation (ft msl)	Sampling Date	Air Pressure at Sampling (" Hg)	Air Pressure at Sampling (Atm)	Total Pressure (Atm)	Methane Conc. (mg/L)	Methane Solubility* (mg/L)	Solubility under Pressure (mg/L)	Ratio of Observed to Calculated
MW-10	1131.41	6/30/97	29.87	0.9982554	1.728650077	0.011	30	51.85950232	0.000212112
UG-1	1178.23	5/21/2004	30.06	1.00447152	1.43321349	0.36	30	42.99640471	0.008372793
UG-1	1178.23	7/31/2005	30.06	1.00447152	1.427610947	0.003	30	42.82832842	7.00471E-05
UG-1	1178.23	1/9/2007	28.66	0.9578172	1.376238697	0.0001	30	41.2871609	2.42206E-06
UG-2	1127.16	7/1/97	29.80	0.995916	1.538772924	0.02	30	46.16318772	0.000433246
UG-2	1127.16	10/27/98	30.02	1.0032684	1.499535756	0.22	30	44.98607269	0.004890402
UG-2	1127.16	5/3/99	29.88	0.9985896	1.478049328	0.1	30	44.34147983	0.002255225
UG-3	1125.24	5/10/2004	30.07	1.00483914	1.556247314	0.06	30	46.68741941	0.001285143
UG-3	1125.24	8/2/2005	30.07	1.00483914	1.84050265	0.004	30	55.21507951	7.2444E-05
UG-3	1125.24	1/11/2007	28.53	0.9534726	1.731931198	0.0001	30	51.95793595	1.92463E-06
UG-4	1115.01	10/13/97	29.65	0.990903	3.109843715	0.13	30	93.29531144	0.001393425
UG-4	1115.01	10/23/98	30.14	1.0072788	3.050142879	0.22	30	91.50428637	0.002404259
UG-4	1115.01	5/2/99	30.13	1.0069446	3.043911265	0.22	30	91.31733796	0.002409181
UG-4	1115.01	1/11/2007	29.79	0.9954147	2.87845887	0.027	30	86.35376609	0.000312667
UG-5	1103.63	5/22/2004	29.83	0.99681834	3.934320066	0.077	30	118.029602	0.000652379
UG-5	1103.63	8/3/2005	29.90	0.999258	3.827952444	0.06	30	114.8385733	0.000522473
UG-6	1103.96	10/21/97	30.07	1.0049394	6.946583625	0.15	30	208.3975088	0.000719778
GMEW-3	1065.40	7/24/00	30.13	1.0069446	4.55689273	86.8	30	136.7067819	0.634935581
GMEWC-1	1045.19	7/26/2005	29.99	1.00239948	4.911794971	89.9	30	147.3538491	0.610096041
GMEWA-4	1049.23	8/2/2005	30.07	1.00483914	1.482824514	38.6	30	44.48473542	0.867713377
GMEWA-26	1049.22	7/27/2005	30.12	1.00657698	1.614305454	32.3	30	48.42916362	0.666953496
GMPZA-26	1049.35	12/6/2006	29.80	0.9957489	1.461644576	8.87	30	43.84933729	0.202283559
GMPZA-26	1049.35	2/27/2007	30.03	1.0034355	1.469626047	27	30	44.08878141	0.612400686
GMPZA-26	1049.35	8/13/2007	31.55	1.05436758	1.500801791	26.4	30	45.02405374	0.586353245
GMPZA-29	1049.23	12/6/2006	29.80	0.9957489	1.393529449	27.4	30	41.80588347	0.655410142
GMPZA-29	1049.23	2/26/2007	29.74	0.99401106	1.402112083	22.5	30	42.06336248	0.534907308
GMPZA-29	1049.23	8/10/2007	31.35	1.04775042	1.438748943	20.1	30	43.1624683	0.465682358
GMPZA-34	1047.76	12/8/2006	30.18	1.00868244	1.673468391	0.09	30	50.20405172	0.001792684
GMPZA-34	1047.76	2/26/2007	29.72	0.99330924	1.667236182	0.01	30	50.01708545	0.000199932
GMPZA-34	1047.76	8/9/2007	31.16	1.04146746	1.702714962	0.02	30	51.08144887	0.000391532
GMPZA-38	1044.22	12/7/2006	30.43	1.01703744	1.793726814	0.006	30	53.81180442	0.0001115
GMPZA-38	1044.22	2/23/2007	30.48	1.01877528	1.799297973	0.01	30	53.97893919	0.000185257

Footnotes on Page 13.

Table 6-49. Summary of Methane Solubility Detected in Groundwater Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Well/Boring	Ground Elevation (ft msl)	Sampling Date	Air Pressure at Sampling (" Hg)	Air Pressure at Sampling (Atm)	Total Pressure (Atm)	Methane Conc. (mg/L)	Methane Solubility* (mg/L)	Solubility under Pressure (mg/L)	Ratio of Observed to Calculated
GMPZA-38	1044.22	8/9/2007	31.18	1.04216928	1.817974042	0.02	30	54.53922126	0.000366709
GMPZA-41	1039.36	12/7/2006	30.44	1.01740506	1.79232521	0.002	30	53.7697563	3.71956E-05
GMPZA-41	1039.36	2/23/2007	30.50	1.0191429	1.799370722	0.01	30	53.98112167	0.00018525
GMPZA-41	1039.36	8/8/2007	31.24	1.04390712	1.814109339	0.08	30	54.42328017	0.001469959
GMPZC-12	1043.03	12/6/2006	29.85	0.99748674	5.033381753	13.3	30	151.0014526	0.088078623
GMPZC-12	1043.03	3/1/2007	29.76	0.99471288	5.023825867	6.91	30	150.714776	0.045848192
GMPZC-12	1043.03	8/14/2007	31.16	1.04146746	5.053772818	5.58	30	151.6131846	0.036804187
GMPZC-14	1047.85	12/6/2006	29.85	0.99748674	4.062077729	77.2	30	121.8623319	0.633501746
GMPZC-14	1047.85	2/28/2007	30.18	1.00868244	4.063837567	121	30	121.915127	0.992493737
GMPZC-14	1047.85	8/10/2007	31.35	1.04775042	4.094649168	102	30	122.839475	0.830351969
GMPZC-17	1047.41	12/7/2006	30.42	1.01670324	4.634766498	0.035	30	139.0429949	0.000251721
GMPZC-17	1047.41	2/27/2007	30.02	1.0031013	4.637677316	0.02	30	139.1303195	0.00014375
GMPZC-17	1047.41	8/13/2007	31.52	1.05333156	4.674933266	0.01	30	140.247998	7.13023E-05

Suitable range for methane solubility ranges from approximately 25-30 mg/L.

*	Methane Solubility Calculated from CRC Chemcial Handbook for 8 Deg C and Atmospheric Pressure.
" Hg	Inches of mercury.
Atm	Atmosphere (unit of pressure).
ft msl	Feet above mean sea level.
mg/L	Milligrams per liter.

Table 6-50. Summary of VOCs Detected in Soil Vapor Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Sample I.D.	SV-Emmet	SV-Breen	SVGM-24B	SVGM-30	SVGM-100
Sample Date	7/12/1999	7/14/1999	7/12/1999	7/13/1999	7/12/1999
1,1,1,2-Tetrachloroethane	<0.15	<0.12	<0.1	<0.1	<0.1
1,1,1-Trichloroethane	<0.15	<0.12	<0.1	<0.1	<0.1
1,1,2,2-Tetrachloroethane	<0.15	<0.12	<0.1	<0.1	<0.1
1,1,2-Trichloroethane	<0.15	<0.12	<0.1	<0.1	<0.1
1,1-Dichloroethane	<0.15	<0.12	<0.1	<0.1	<0.1
1,1-Dichloroethene	<0.15	<0.12	<0.1	<0.1	<0.1
1,1-Dichloropropene	<0.15	<0.12	<0.1	<0.1	<0.1
1,2,3-Trichlorobenzene	<0.75	<0.6	<0.5	<0.5	<0.5
1,2,3-Trichloropropane	<0.15	<0.12	<0.1	<0.1	<0.1
1,2,4-Trichlorobenzene	<0.75	<0.6	<0.5	<0.5	<0.5
1,2,4-Trimethylbenzene	<0.15	<0.12	<0.1	<0.1	<0.1
1,2-Dibromo-3-chloropropane	<0.75	<0.6	<0.5	<0.5	<0.5
1,2-Dibromomethane	<0.15	<0.12	<0.1	<0.1	<0.1
1,2-Dichlorobenzene	<0.15	<0.12	<0.1	<0.1	<0.1
1,2-Dichloroethane	<0.15	<0.12	<0.1	<0.1	<0.1
1,2-Dichloropropane	<0.15	<0.12	<0.1	<0.1	<0.1
1,3,5-Trimethylbenzene	<0.15	<0.12	<0.1	<0.1	<0.1
1,3-Dichlorobenzene	<0.15	<0.12	<0.1	<0.1	<0.1
1,3-Dichloropropane	<0.15	<0.12	<0.1	<0.1	<0.1
1,4-Dichlorobenzene	<0.15	<0.12	<0.1	<0.1	<0.1
2,2-Dichloropropane	<0.15	<0.12	<0.1	<0.1	<0.1
2-Butanone (MEK)	<1.5	<1.2	<1	<1	<1
2-Chlorotoluene	<0.15	<0.12	<0.1	<0.1	<0.1
2-Hexanone	<1.5	<1.2	<1	<1	<1
4-Chlorotoluene	<0.15	<0.12	<0.1	<0.1	<0.1
4-Methyl-2-pentanone (MIBK)	<1.5	<1.2	<1	<1	<1
Acetone	<1.5	<1.2	<1	<1	<1
Benzene	<0.15	<0.12	<0.1	<0.1	<0.1
Bromobenzene	<0.15	<0.12	<0.1	<0.1	<0.1
Bromochloromethane	<0.15	<0.12	<0.1	<0.1	<0.1
Bromodichloromethane	<0.15	<0.12	<0.1	<0.1	<0.1
Bromoform	<0.15	<0.12	<0.1	<0.1	<0.1
Bromomethane	<0.3	<0.3	<0.2	<0.2	<0.2
Carbon tetrachloride	<0.15	<0.12	<0.1	<0.1	<0.1
Chlorobenzene	<0.15	<0.12	<0.1	<0.1	<0.1
Chloroethane	<0.3	<0.3	<0.2	<0.2	<0.2
Chloroform	<0.15	<0.12	<0.1	<0.1	<0.1
Chloromethane	<0.3	<0.3	<0.2	<0.2	<0.2
cis-1,2-Dichloroethene	<0.15	<0.12	<0.1	<0.1	<0.1
cis-1,3-Dichloropropene	<0.15	<0.12	<0.1	<0.1	<0.1
Dibromochloromethane	<0.15	<0.12	<0.1	<0.1	<0.1
Dibromomethane	<0.15	<0.12	<0.1	<0.1	<0.1

Footnotes on Page 2.

Table 6-50. Summary of VOCs Detected in Soil Vapor Samples, Ford-Kingsford Products Facility, Kingsford, Michigan.

Sample I.D.	SV-Emmet	SV-Breen	SVGM-24B	SVGM-30	SVGM-100
Sample Date	7/12/1999	7/14/1999	7/12/1999	7/13/1999	7/12/1999
Dichlorodifluoromethane	<0.3	<0.3	<0.2	<0.2	<0.2
Ethylbenzene	<0.15	<0.12	<0.1	<0.1	<0.1
Hexachlorobutadiene	<0.75	<0.6	<0.5	<0.5	<0.5
Isopropylbenzene	<0.15	<0.12	<0.1	<0.1	<0.1
Methylene chloride	<0.15	<0.12	<0.1	<0.1	<0.1
n-Butylbenzene	<0.15	<0.12	<0.1	<0.1	<0.1
n-Propylbenzene	<0.15	<0.12	<0.1	<0.1	<0.1
Naphthalene	<0.75	<0.6	<0.5	<0.5	<0.5
p-Isopropyltoluene	<0.15	<0.12	<0.1	<0.1	<0.1
sec-Butylbenzene	<0.15	<0.12	<0.1	<0.1	<0.1
Styrene	<0.15	<0.12	<0.1	<0.1	<0.1
tert-Butylbenzene	<0.15	<0.12	<0.1	<0.1	<0.1
Tetrachloroethene	<0.15	<0.12	<0.1	<0.1	<0.1
Toluene	<0.15	<0.12	<0.1	<0.1	<0.1
trans-1,2-Dichloroethene	<0.15	<0.12	<0.1	<0.1	<0.1
trans-1,3-Dichloropropene	<0.15	<0.12	<0.1	<0.1	<0.1
Trichloroethene	<0.15	<0.12	<0.1	<0.1	<0.1
Trichlorofluoromethane	<0.3	<0.3	<0.2	<0.2	<0.2
Vinyl acetate	<0.75	<0.6	<0.5	<0.5	<0.5
Vinyl chloride	<0.3	<0.3	<0.2	<0.2	<0.2
Xylene, o	<0.15	<0.12	<0.1	<0.1	<0.1
Xylenes, m+p	<0.15	<0.12	<0.1	<0.1	<0.1

Results in milligrams per cubic meter (mg/m^3).

SV-Emmet is soil vapor extraction system at Grant and Emmet.

SV-Breen is soil vapor extraction system at Breen and Garfield.

SVGM-24 B is vent at Well GM-24B.

SVGM-30 is vent at Well GM-30.

SVGM-100 is vent at Gas Probe GM-100.

< Less than detection limit.

VOC Volatile Organic Compounds.

ARCADIS

Table 6-51. Evaluation of Methane Mass from the Passive Venting Program Through December 2007, Based on Average Operating Conditions, Ford-Kingsford Products Facility, Kingsford, Michigan.

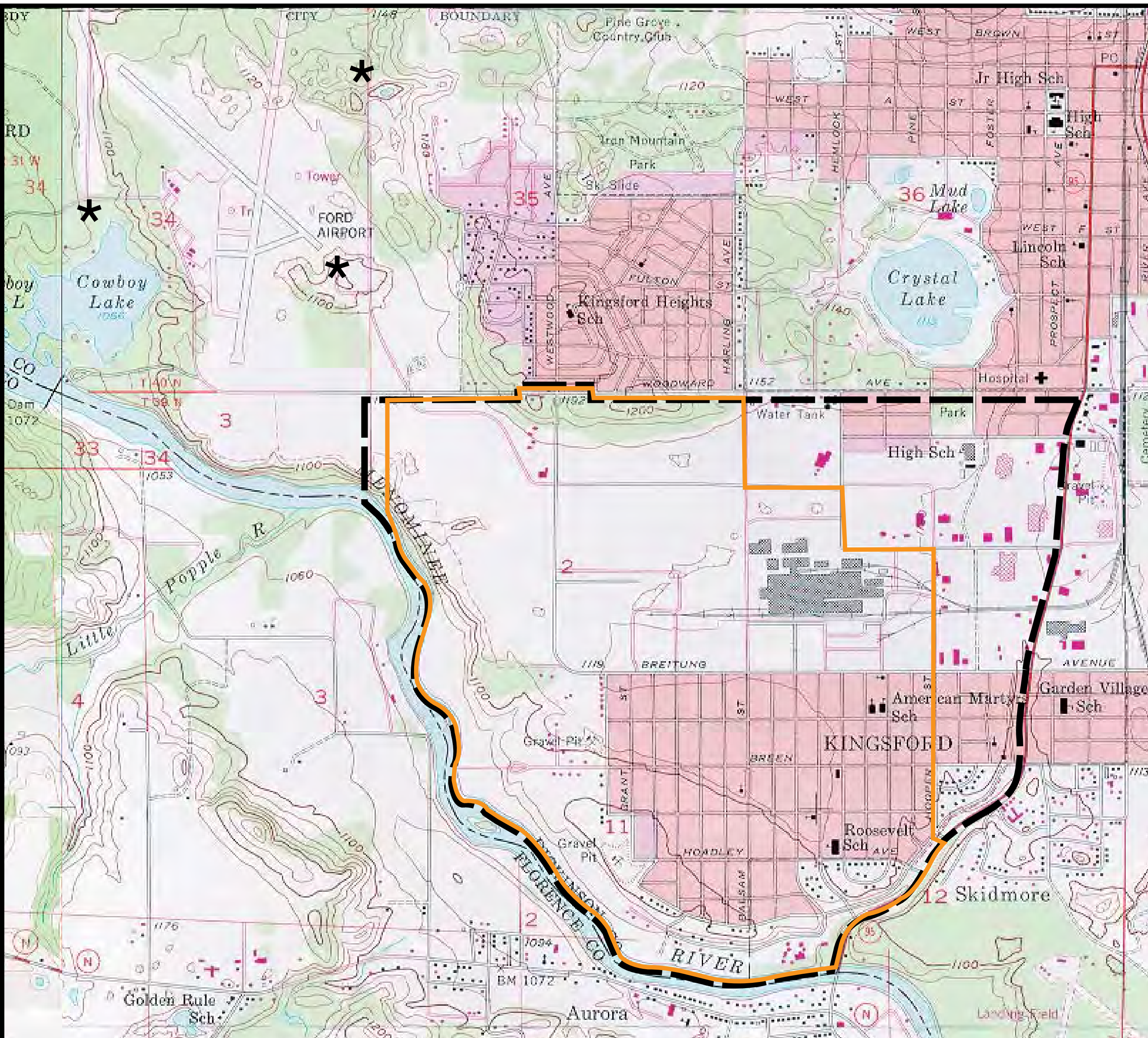
		Average Operating Conditions					
Passive Vent	Dates Venting	Pressure (in. water)	Flow Rate (scfm)	Methane Content (%)	Methane Mass (lbs/hr)	Methane Mass (lbs/mo)	Methane Mass Total (lbs)
GM-24B[4]	6/15/99 - 12/31/07	92.7	0.3	103.7	0.84	601	51,323
GM-33[1,4]	7/13/99 - 5/26/05	71.7	1.4	101.0	3.80	2,733	163,630
GM-33R[1,4]	6/16/05 - 12/31/07	66.6	0.9	98.3	2.38	1,710	53,444
GM-50[1,4]	6/15/99 - 12/31/07	46.3	0.8	98.6	2.12	1,525	141,323
GM-52[4]	6/15/99 - 1/1/01	2.3	0.4	14.3	0.15	111	9,765
GM-100[3]	12/15/98 - 10/17/99	33.6	0.6	93.1	1.45	1,044	10,438
GMSG-109[3]	7/14/99 - 7/20/99	11.1	0.1	51.0	0.11	79	946
GMSG-112[3]	6/15/99 - 7/20/99	1.7	0.1	55.4	0.12	86	86
GMSG-116[4]	7/13/99 - 6/13/03	26.8	0.3	88.2	0.71	511	23,405
GMSG-117[2,4]	6/15/99 - 12/31/07	53.4	3.5	100.5	9.44	6,799	606,020
GMSG-128[4]	6/15/99 - 12/31/07	102.5	0.5	103.9	1.39	1,004	93,300
GMSG-215[4]	6/30/99 - 12/31/07	62.0	0.2	89.3	0.48	345	29,467
GM-82A	7/12/04 - 12/31/07	72.3	0.9	98.7	2.38	1,717	71,999
GM-82B	11/12/04 - 12/31/07	4.8	0.0	95.2	0.01	4	132
GMSG-136	6/27/04 - 12/31/07	0.4	2.7	107.4	7.79	5,605	18,072
GMPZB-1	5/24/05 - 12/31/07	8.9	6.6	84.5	14.97	10,780	391,640

1	Beginning in October 1999 GM-33 and GM-50 were vented until the 1,000 lbs/month limit was reached. Each month both of these probes was vented 1 to 2 weeks until the 1,000 lbs/month limit is reached. Beginning June 2000 both probes were vented for the entire month in accordance with the MDEQ air permit
2	Beginning in October 1999 GMSG-117 vented for approximately four days when the 1,000 lbs/month limit was reached. Each month GMSG-117 was vented for approximately the same amount of time until the 1,000 lbs/month limit is reached. Beginning June 2000 GMSG-117 was vented for the entire month in accordance with the MDEQ air permit
3	Average data collected during short-term passive venting program monitoring from June 1999 through July 1999
4	Average data collected during passive venting program monitoring from June 1999 through December 2007
%	Percentage by volume.
scfm	Standard cubic feet per minute.
lbs/hr	Pounds per hour.
lbs/mo	Pounds per month.

Calculation Formula:

$$\text{Methane Mass Throughput (lbs/hr)} = \frac{\text{Flow Rate (cfm)}}{\text{(min)}} \times \text{Methane Content (\%)} \times \frac{\text{Density of Methane (g)}}{\text{(L)}} \times \frac{3.785\ \text{L}}{1\ \text{gallon}} \times \frac{7.481\ \text{gallons}}{1\ \text{cu.ft}} \times \frac{1\ \text{lb}}{453.6\ \text{g}} \times \frac{60\ \text{min}}{\text{hour}}$$

Note: Density of Methane = 0.7168 g/L (Merck Index, 12th Edition)



SOURCE: USGS 7.5 Minute Topographic Map, IRON MOUNTAIN, MICHIGAN Quadrangle, 1955 Photorevised 1982

N

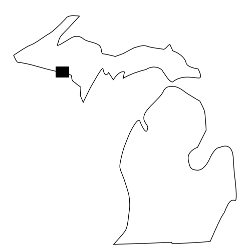
0 1000 2000 4000

SCALE IN FEET

AREA OF CONCERN

STUDY AREA

* KINGSFORD CITY WATER SUPPLY WELLS



MICHIGAN

ARCADIS

SITE LOCATION

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

3-1

DRAFTER: LMB
APPROVED:
CHECKED: TA
DRAWING: SITE_LOC_AREAOFCON.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 19JAN09

NOTES
1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
DATE OF PHOTOGRAPHY: 05/04/97
ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

STUDY AREA

AREA OF CONCERN

NO.	DATE	REVISION DESCRIPTION	BY	CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

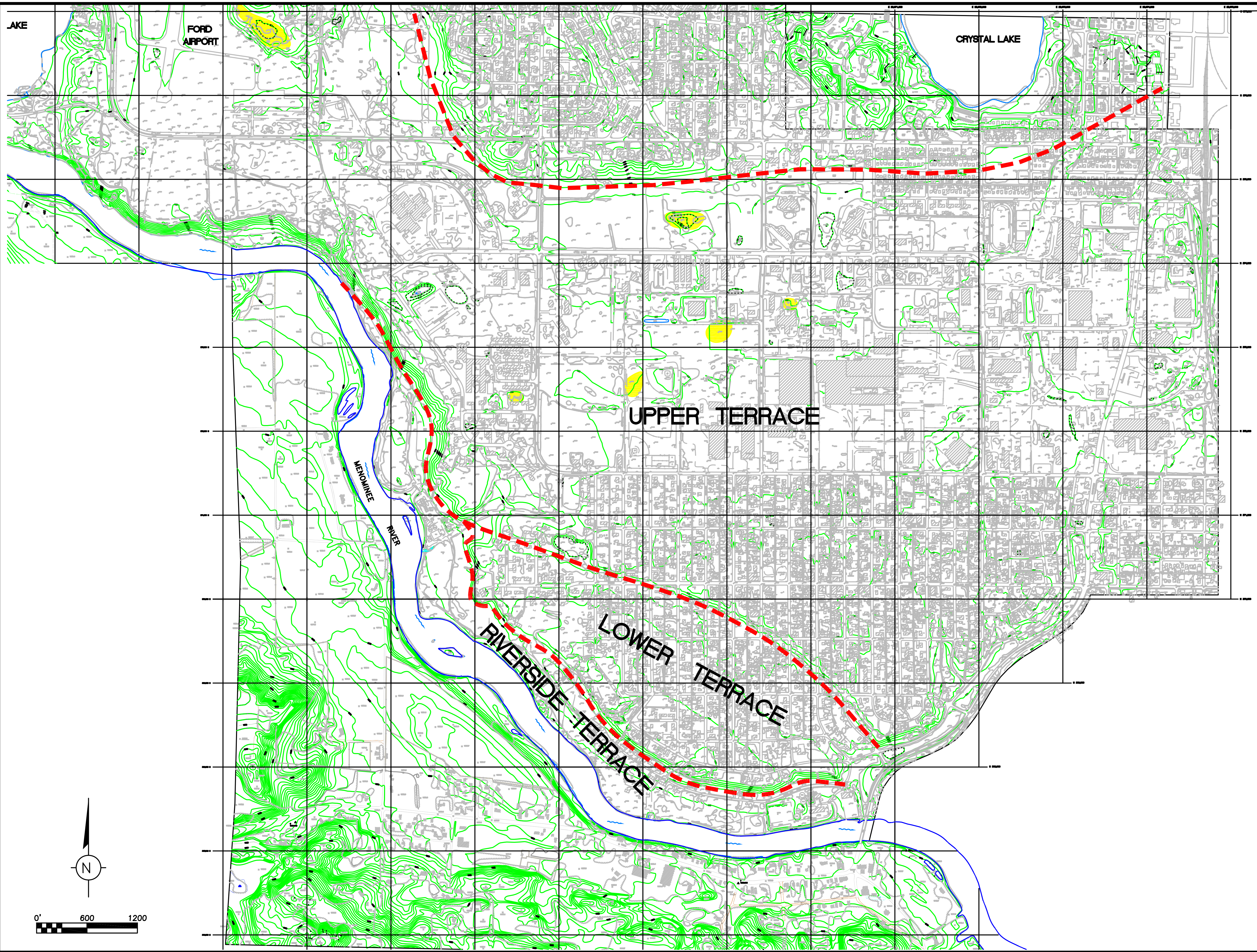
REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

SITE DETAILS

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CES	06/05/02	EC	BE
		LEAD DESIGN PROF. BE	CHECKED BE
		PROJECT NUMBER WI001225.0001	FIGURE 3-2

Page Setup: ----
Pen Table: ----
Path\Name : G:\project\FORD\WI0637\CJ2009\cadd\RI Report\FORDGCM1201.dwg



NOTES

1. THIS MAP WAS COMPILED TO MEET NATIONAL MAP ACCURACY STANDARDS FOR FIVE FOOT CONTOUR INTERVAL MAPPING. FIELD CHECKING OF THIS MAP IS RECOMMENDED BEFORE USE. FIVE FOOT CONTOUR INTERVAL BASED ON MEAN SEA LEVEL. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM. DATE OF PHOTOGRAPHY: 05/04/97 ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

TOPOGRAPHIC LEGEND

- FENCE
- ROAD
- BUILDING
- SHORELINE
- UTILITY POLE
- TRAIL OR PATH
- 5-FOOT CONTOUR INTERVAL
- SURVEY SPOT ELEVATION
- TREE OR BUSH
- APPROXIMATE LOCATIONS OF KNOWN GLACIAL KETTLES

Path\Name : G:\project\FORD\WI0637\CJ2008\CADD\RI Revision\FORDTPO1201.dwg

Page Setup: ----
Pen Table: ----

NO.	DATE	REVISION DESCRIPTION	BY / CKD

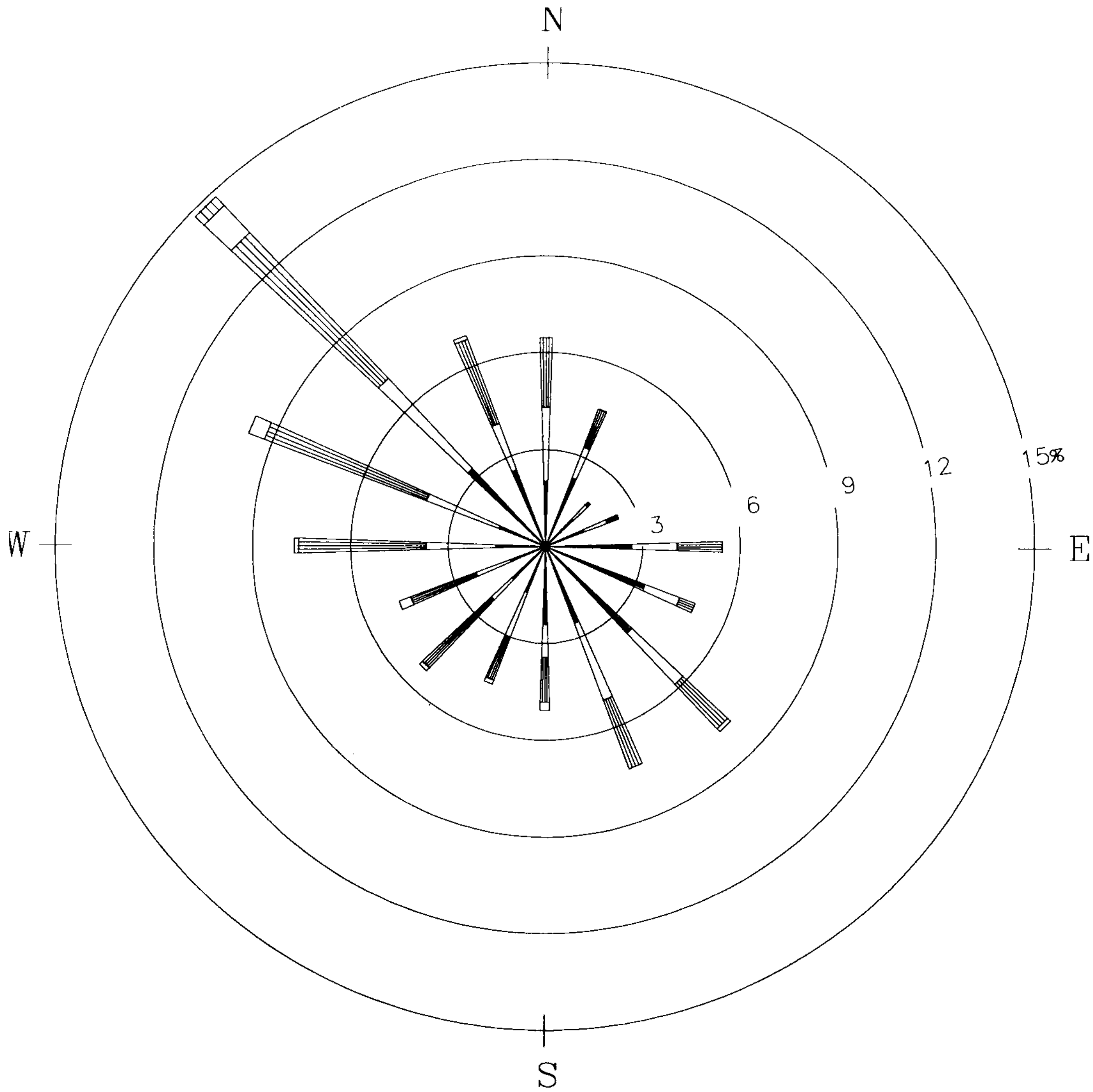
ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

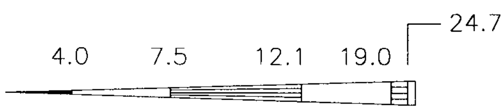
REMEDIAL INVESTIGATION REPORT

FORD/KINGSFORD SITE
KINGSFORD, MICHIGAN

SITE TOPOGRAPHY

DRAWN	CES
DATE	06/05/02
PROJECT MANAGER	EC
DEPARTMENT MANAGER	BE
LEAD DESIGN PROF.	BE
CHECKED	BE
PROJECT NUMBER	WI00925.0001
FIGURE	3-3





WIND SPEED CLASS BOUNDARIES
(MILES/HOUR)

NOTES:
Diagram of the frequency of occurrence for each wind direction.
Wind direction is the direction from which the wind is blowing.
Example - wind is blowing from the north 6.5 percent of the time.

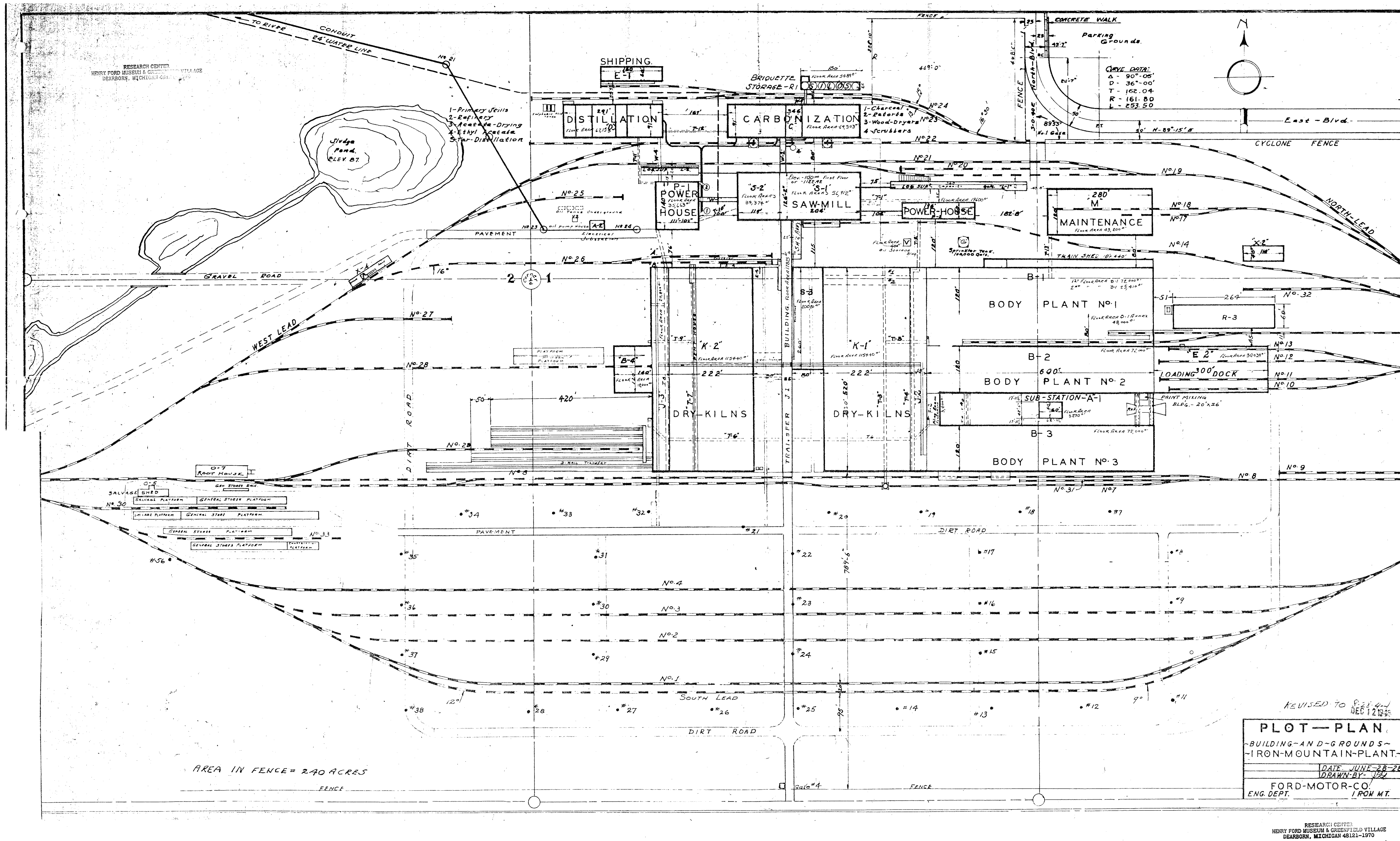
ARCADIS

WINDROSE
COMPOSITE OF DAILY WIND DATA
(1997-2002)

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
3-4

DWG DATE: 19JAN09 | PN: FORD\WI0637\CJ2009 | FILE NO.: GRAPHICS\RI REPORT | DRAWING: WINDROSE.AI | CHECKED: BE | APPROVED: | DRAFTER: LMB



NOTE: Figure is a reduced unaltered reproduction of an original print.

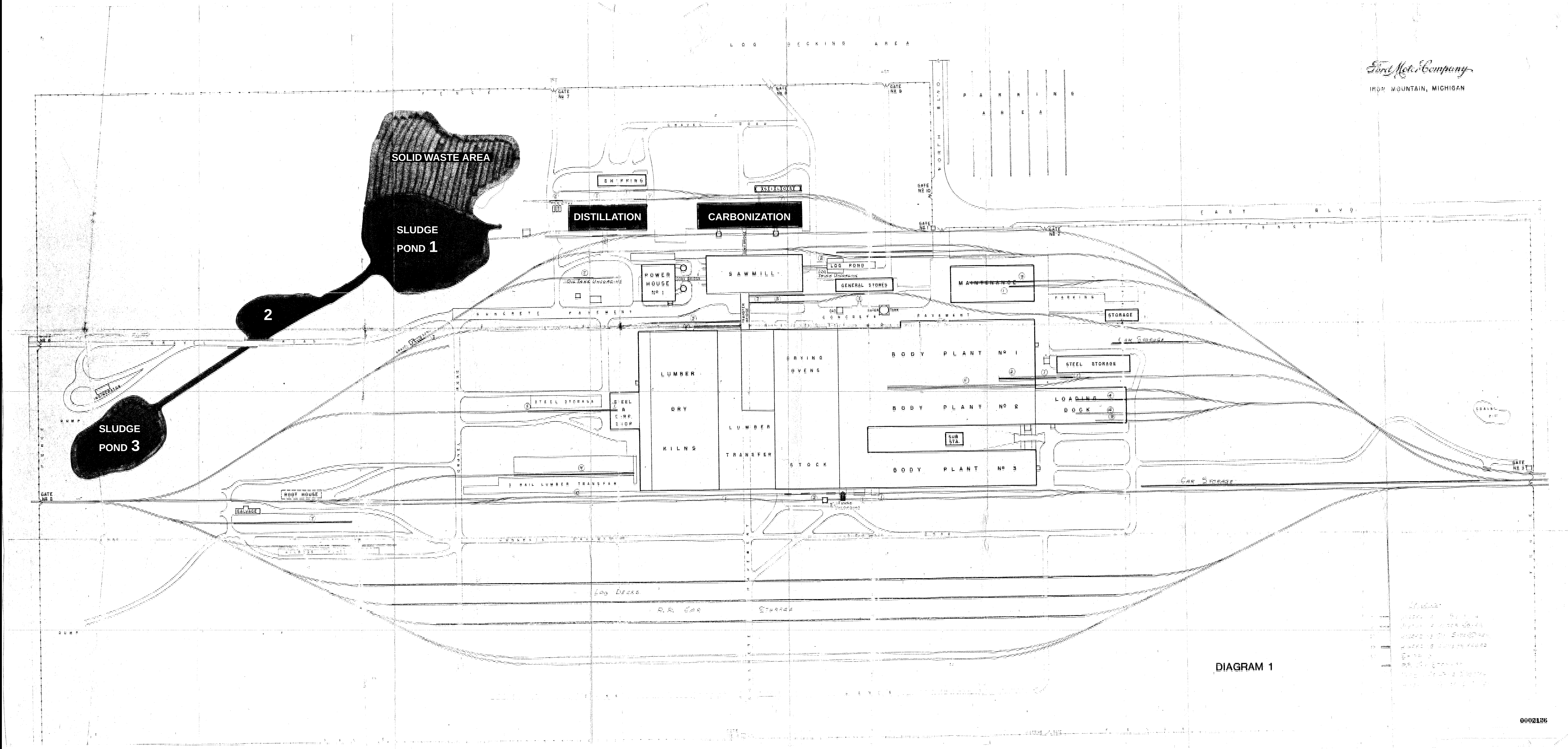
ARCADIS

FORMER FORD PLANT
1920'S LAYOUT

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
3-5

DWG DATE: 19JAN09 | PN: FORDWI0637\CJ2009 | FILE NO.: GRAPHICS\RI REPORT | DRAWING: PLOT_PLAN.AI | CHECKED: BE | APPROVED: | DRAFTER: LMB



NOTE: Figure is a reduced unaltered reproduction of an original print.

ARCADIS

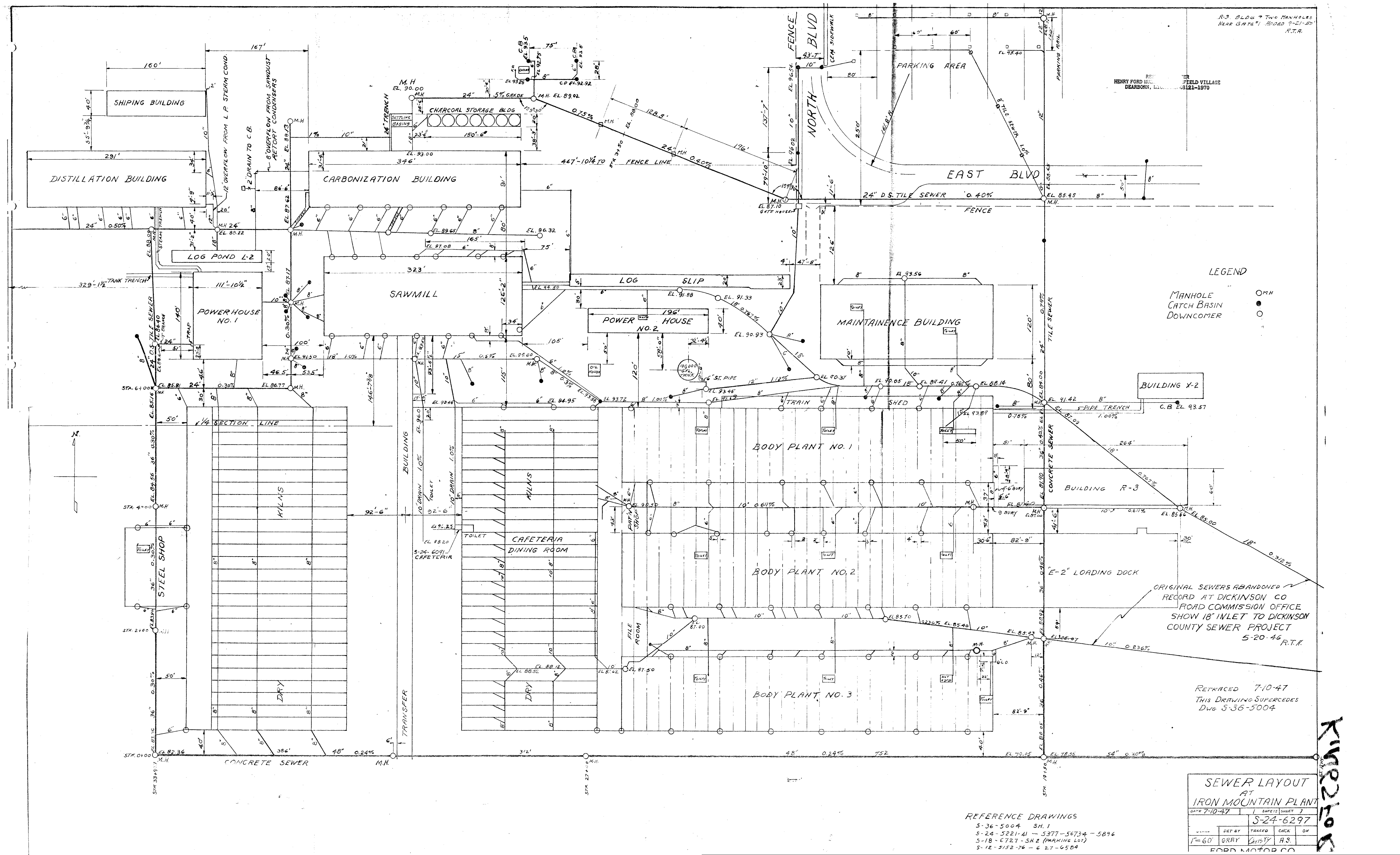
FORMER FORD PLANT
1920'S LAYOUT

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
3-6

DWG DATE: 19JAN09 | PN: FORDWI0637\CJ2009 | FILE NO.: GRAPHICS\RI REPORT | DRAWING: DIAGRAM_1.AI | CHECKED: BE | APPROVED: | DRAFTER: LMB

DRAFTER: LMB
APPROVED:
CHECKED: BE
DRAWING: SEWER.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORDWI0637\CJ2009
DWG DATE: 19JAN09



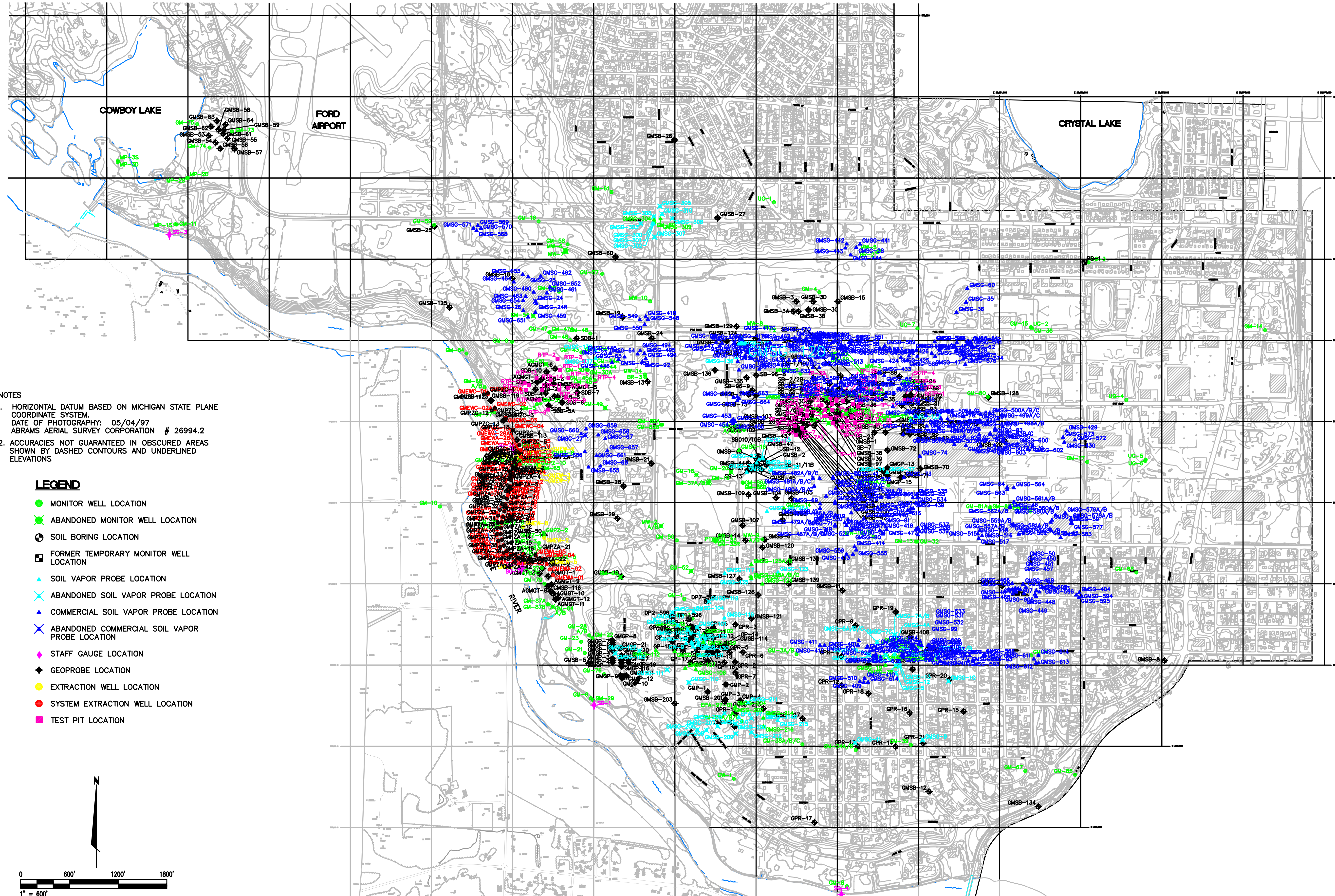
NOTE: **Figure is a reduced unaltered reproduction of an original print.**

ARCADIS

FORMER FORD PLANT
1940'S LAYOUT

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
3-7



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- MONITOR WELL LOCATION
- ABANDONED MONITOR WELL LOCATION
- SOIL BORING LOCATION
- FORMER TEMPORARY MONITOR WELL LOCATION
- SOIL VAPOR PROBE LOCATION
- ABANDONED SOIL VAPOR PROBE LOCATION
- COMMERCIAL SOIL VAPOR PROBE LOCATION
- ABANDONED COMMERCIAL SOIL VAPOR PROBE LOCATION
- STAFF GAUGE LOCATION
- GEOPROBE LOCATION
- EXTRACTION WELL LOCATION
- SYSTEM EXTRACTION WELL LOCATION
- TEST PIT LOCATION

Path\Name : G:\project\FORD\WI0637\CJ2009\cadd\RI Report\FORDBSE.dwg

Page Setup: ----
Pen Table: ----

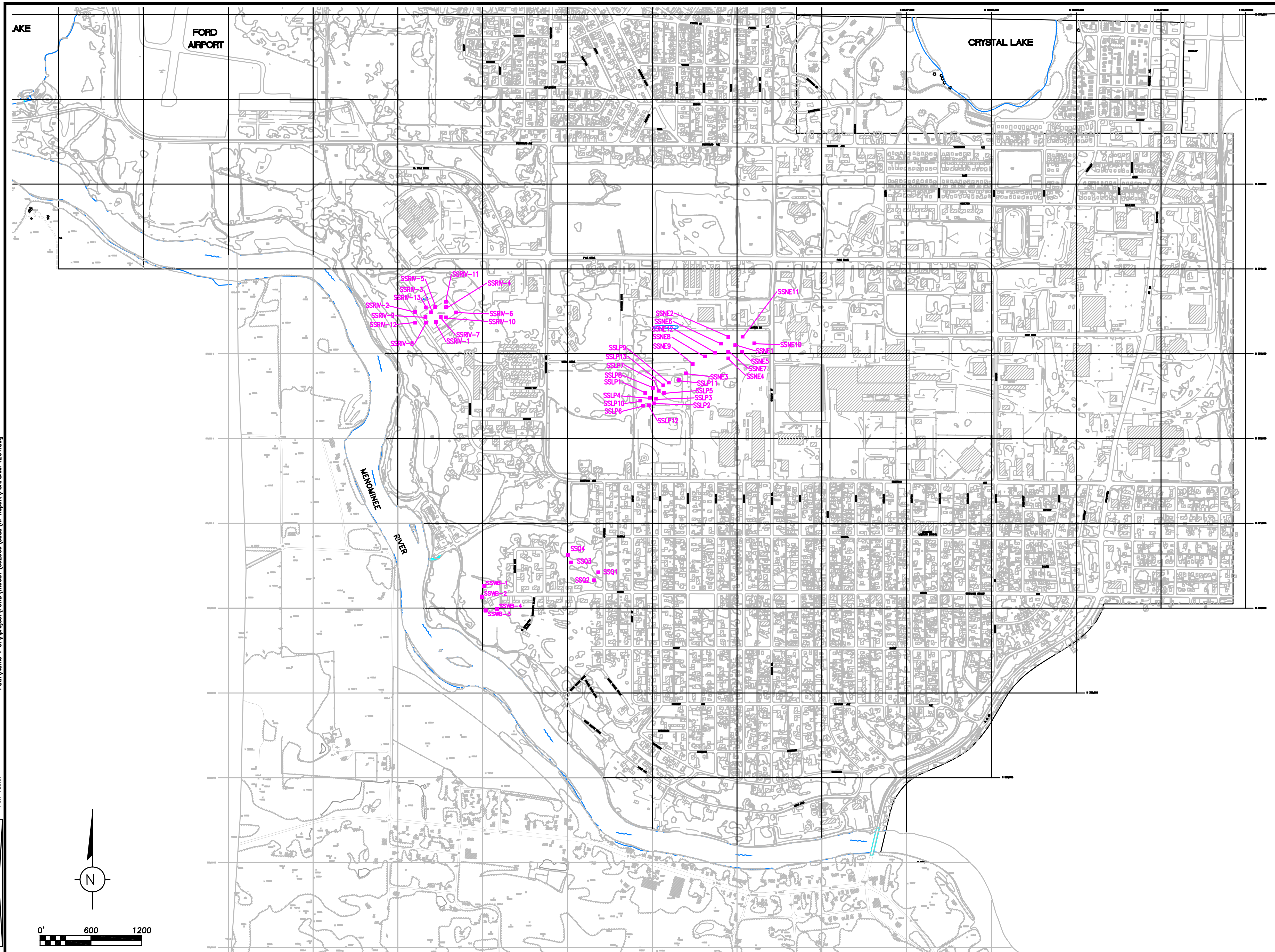
NO.	DATE	REVISION DESCRIPTION	BY	CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

BASE MAP

DRAWN JMG	DATE 08/21/02
PROJECT MANAGER EC	DEPARTMENT MANAGER BE
LEAD DESIGN PROF. BE	CHECKED BE
PROJECT NUMBER WI000950.0013	FIGURE 5-1



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM. DATE OF PHOTOGRAPHY: 05/04/97 ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

■ SURFACE SOIL SAMPLE LOCATION

Path\Name : G:\project\FORD\WI0637\CJ2009\cadd\RI Report\FSRFSAMP1201.dwg

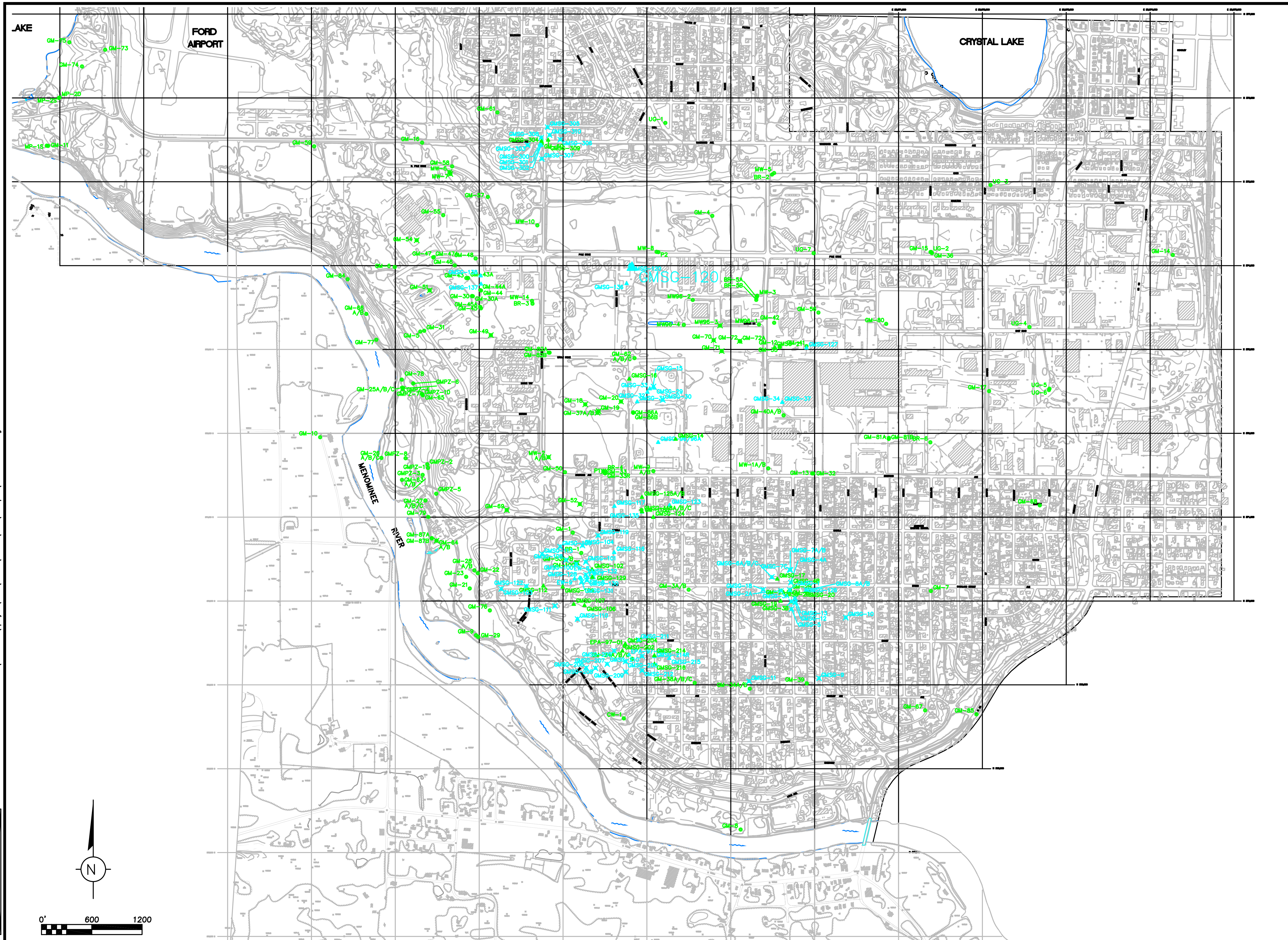
Page Setup: -----
Pen Table: -----

NO.	DATE	REVISION DESCRIPTION	BY	CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CES	6/05/2002	EC	BE
LOCATION OF SURFACE SOIL SAMPLES		LEAD DESIGN PROF. BE	CHECKED BE
		PROJECT NUMBER WI00925.0001	FIGURE 5-2



NOTES
1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
DATE OF PHOTOGRAPHY: 05/04/97
ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- MONITOR WELL LOCATION
- SOIL VAPOR PROBE LOCATION

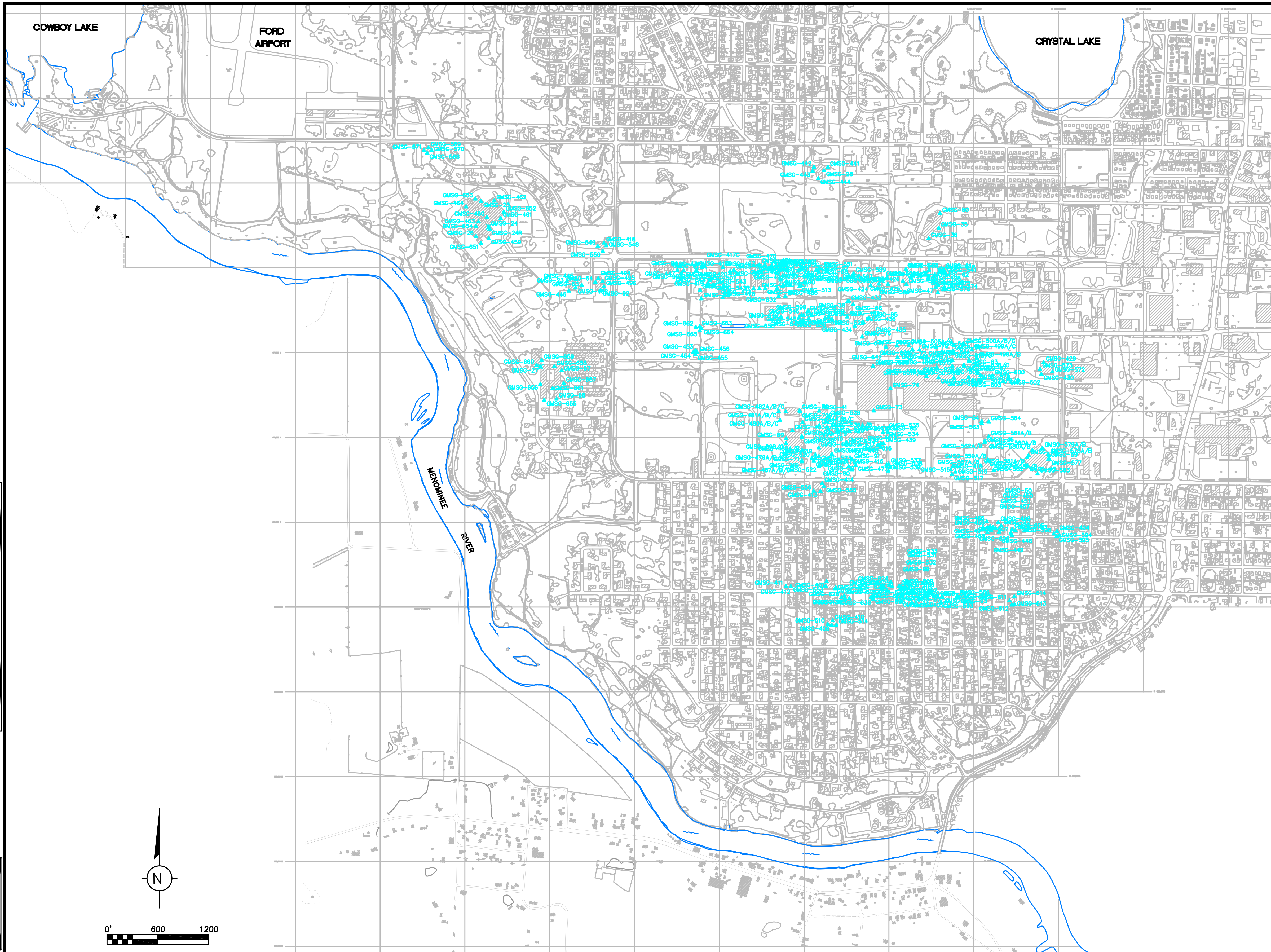
NO.	DATE	REVISION DESCRIPTION	BY	CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

LOCATION OF SOIL VAPOR PROBES AND MONITORING WELLS USED TO MONITOR SOIL VAPOR

DRAWN: CES	DATE: 06/05/02
PROJECT MANAGER: EC	DEPARTMENT MANAGER: BE
LEAD DESIGN PROF.: BE	CHECKED: BE
PROJECT NUMBER: WI00925.0001	FIGURE: 5-3



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- ▲ COMMERCIAL SOIL VAPOR PROBES
- ✱ ABANDONED COMMERCIAL SOIL VAPOR PROBES

Page Setup: ----
Pen Table: ----

NO.	DATE	REVISION DESCRIPTION	BY	CKD

ARCADIS
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

LOCATIONS OF COMMERCIAL SOIL VAPOR PROBES

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CCM	8/25/04	EC	BE
		LEAD DESIGN PROF.	CHECKED
		BE	BE
		PROJECT NUMBER	FIGURE
		WI001095	5-4

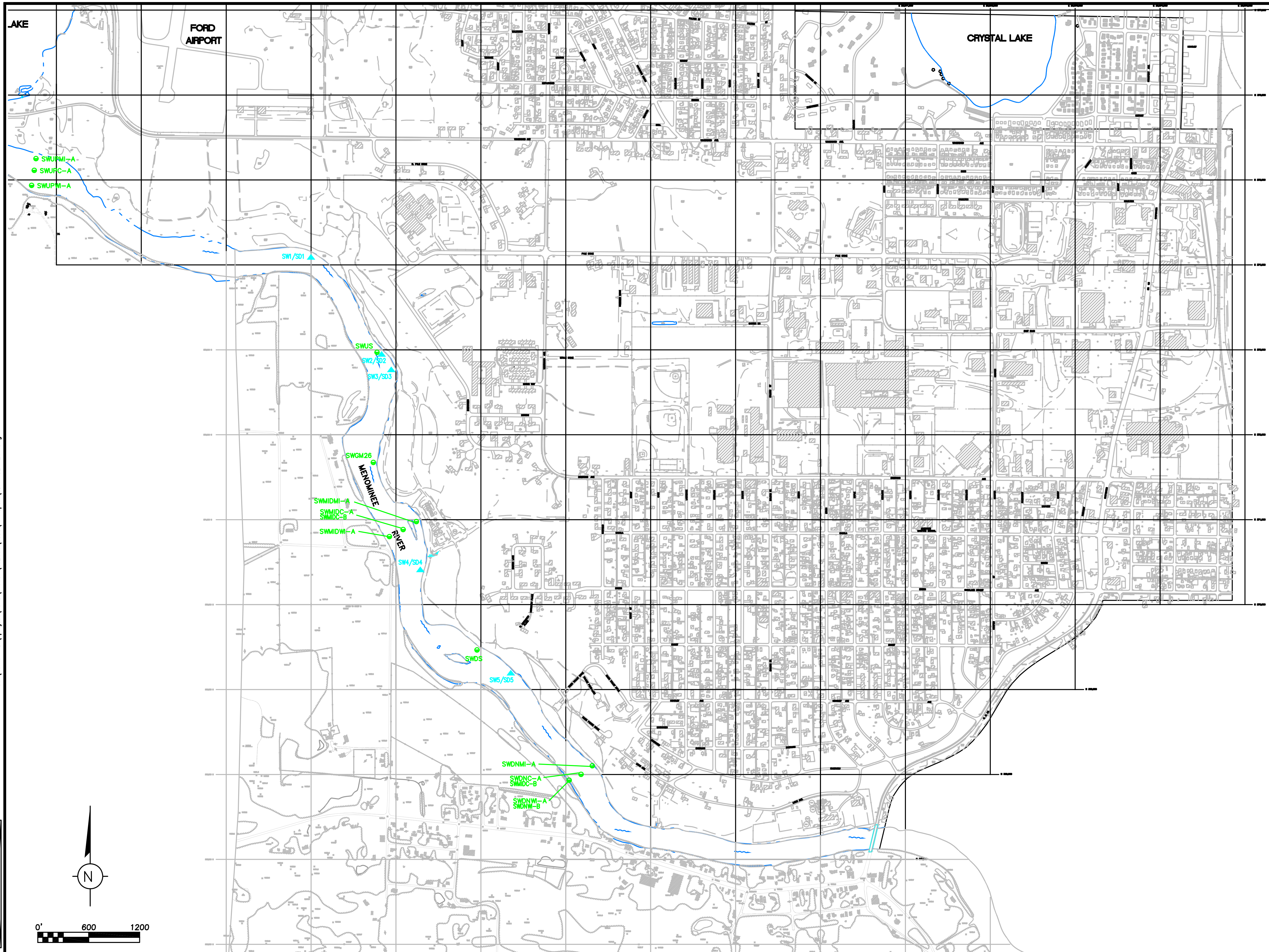
NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

HISTORICAL SURFACE WATER SAMPLE

REMEDIAL INVESTIGATION SURFACE WATER SAMPLE



Path\Name : G:\project\FORD\WI0637\CJ2009\cadd\RI Report\FSRFWSLM1201.dwg

Page Setup: ----
Pen Table: ----

NO.	DATE	REVISION DESCRIPTION	BY / CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

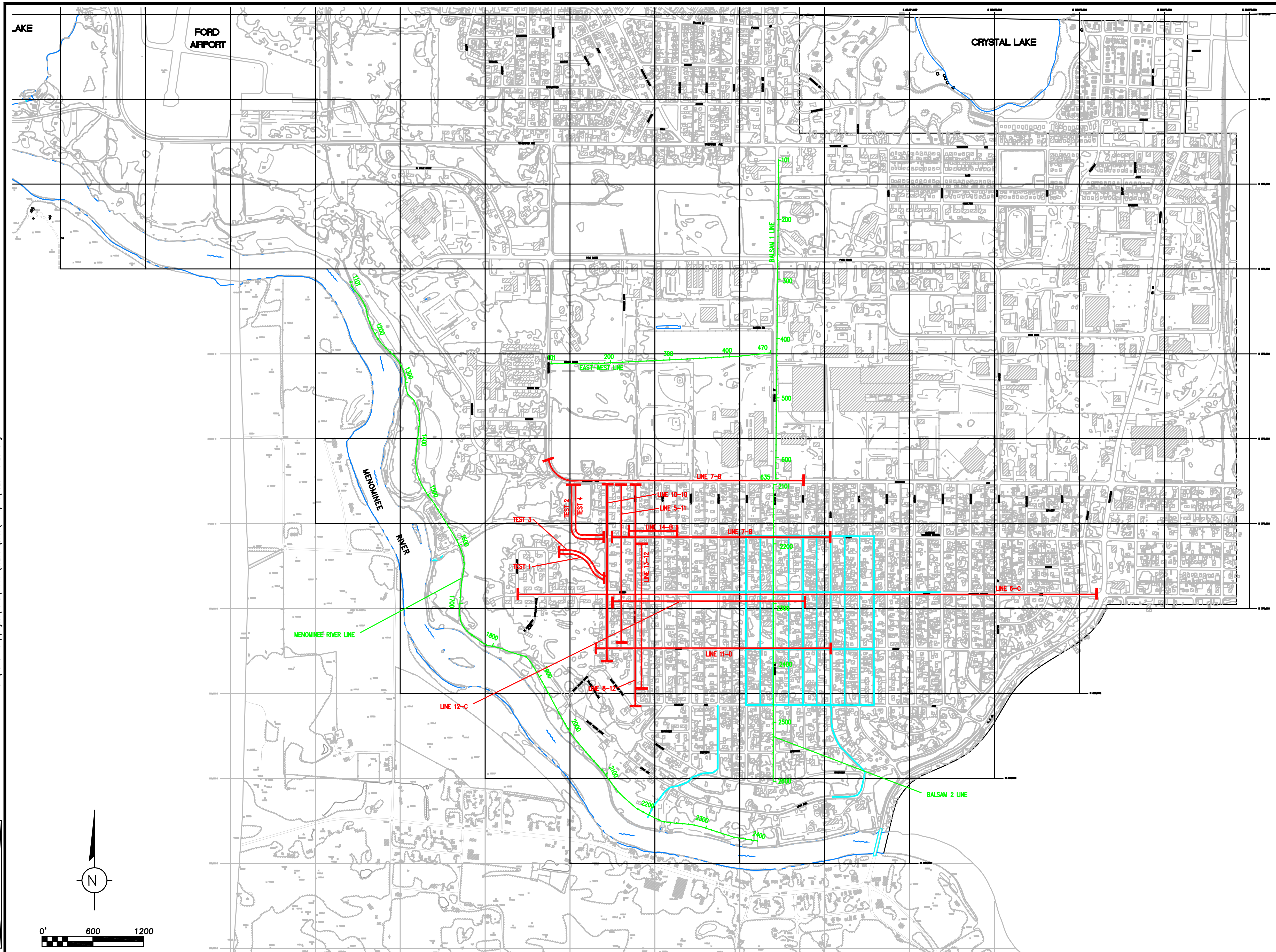
REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CES	06/05/02	EC	BE
		LEAD DESIGN PROF. BE	CHECKED BE

LOCATION OF SURFACE WATER SAMPLES

PROJECT NUMBER: WI00925.0001

FIGURE: 5-5



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

200 — LOCATION OF EXTENDED BEDROCK SEISMIC LINES AND SHOTPOINTS

LOCATION OF GROUND PENETRATING RADAR LINES

LINE 7-B — LOCATION OF PILOT GROUND PENETRATING RADAR LINES

Path\Name : G:\project\FORD\WI0637\CJ2009\cadd\RI Report\FGEOPHYS1201.dwg

Page Setup: -----
Pen Table: -----

NO.	DATE	REVISION DESCRIPTION	BY / CKD

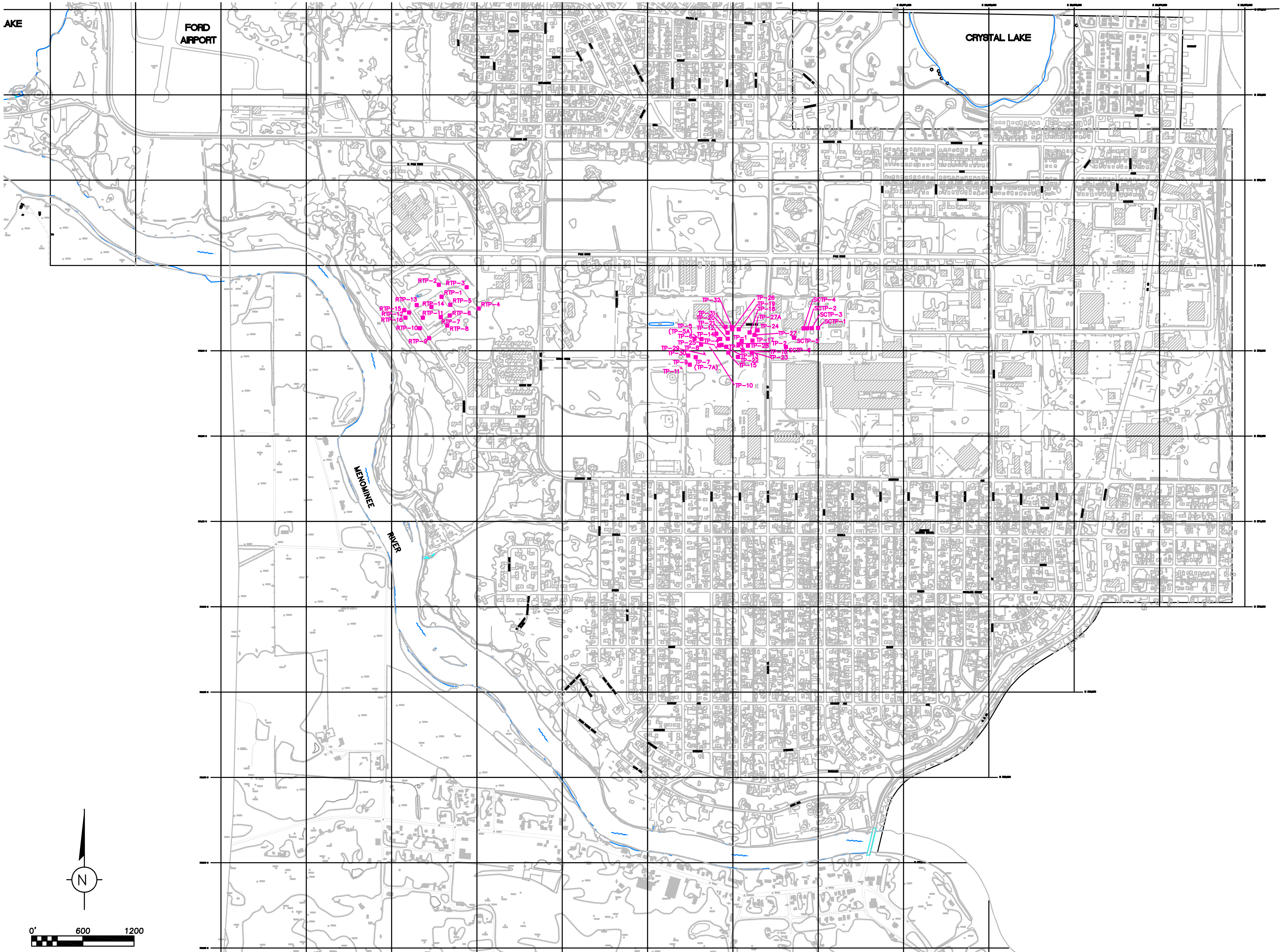
ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DRAWN	DATE
CES	06/05/02

LOCATION OF GEOPHYSICAL SURVEYS

PROJECT MANAGER	DEPARTMENT MANAGER
EC	BE
LEAD DESIGN PROF.	CHECKED
BE	BE
PROJECT NUMBER	FIGURE
WI00925.0001	5-6



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

■ TEST PIT LOCATION

Path\Name : G:\project\FORD\WI0637\(J2009)cadd\RI Report\TESTPIT1201.dwg

Page Setup: ----
Plot Table: ----

NO.	DATE	REVISION DESCRIPTION	BY	CKD

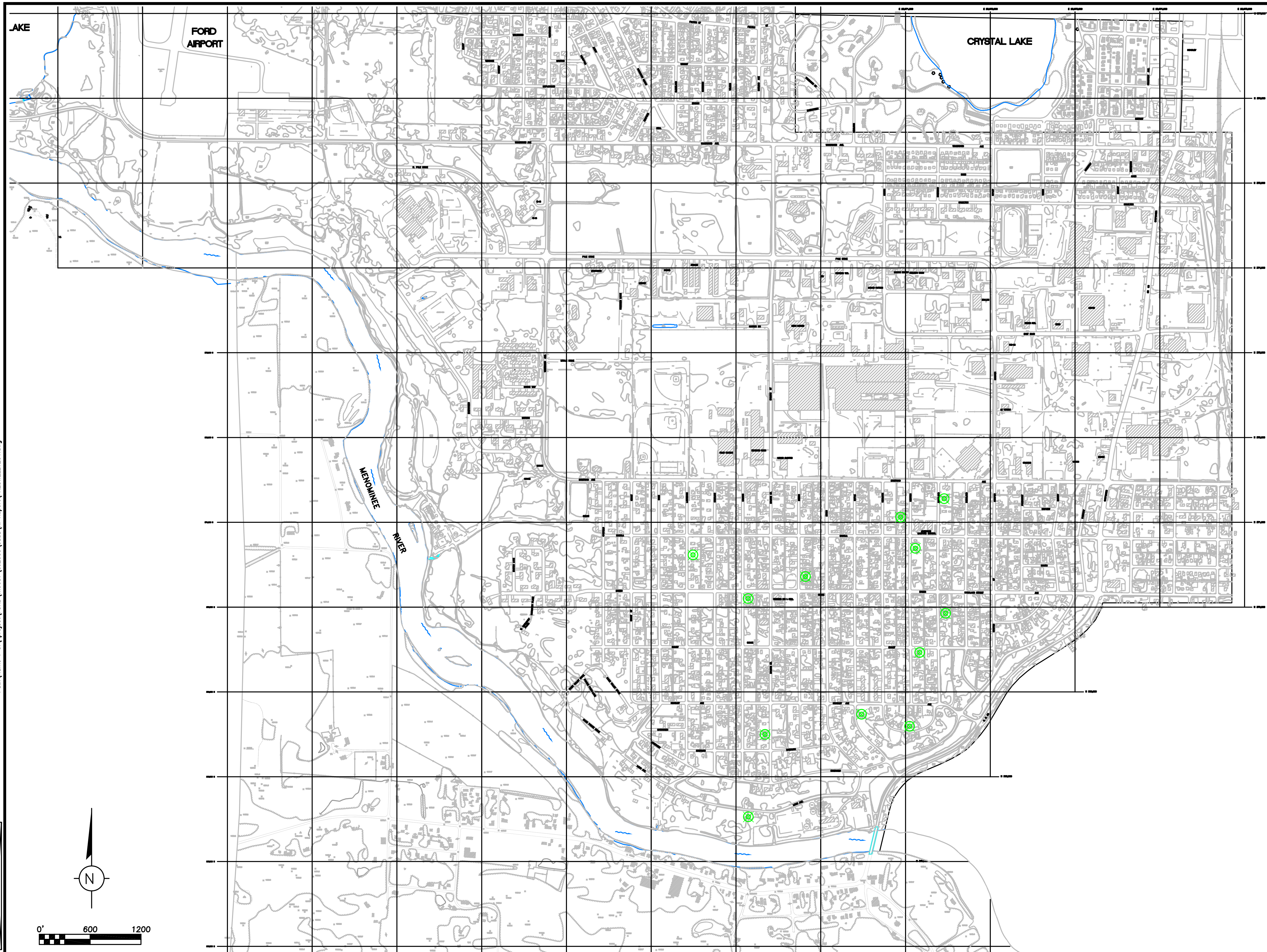
ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

LOCATION OF TEST PITS

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
JMG	6/05/02	EC	BE
		LEAD DESIGN PROF.	CHECKED
		BE	BE
		PROJECT NUMBER	FIGURE
		WI00925.0001	5-7



NOTES
1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
DATE OF PHOTOGRAPHY: 05/04/97
ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

ABANDONED RESIDENTIAL WELL LOCATION

Path\Name : G:\project\FORD\WI00637\CJ2009\cadd\RI Report\FRESWELL1201.dwg
Page Setup: ----
Pen Table: ----

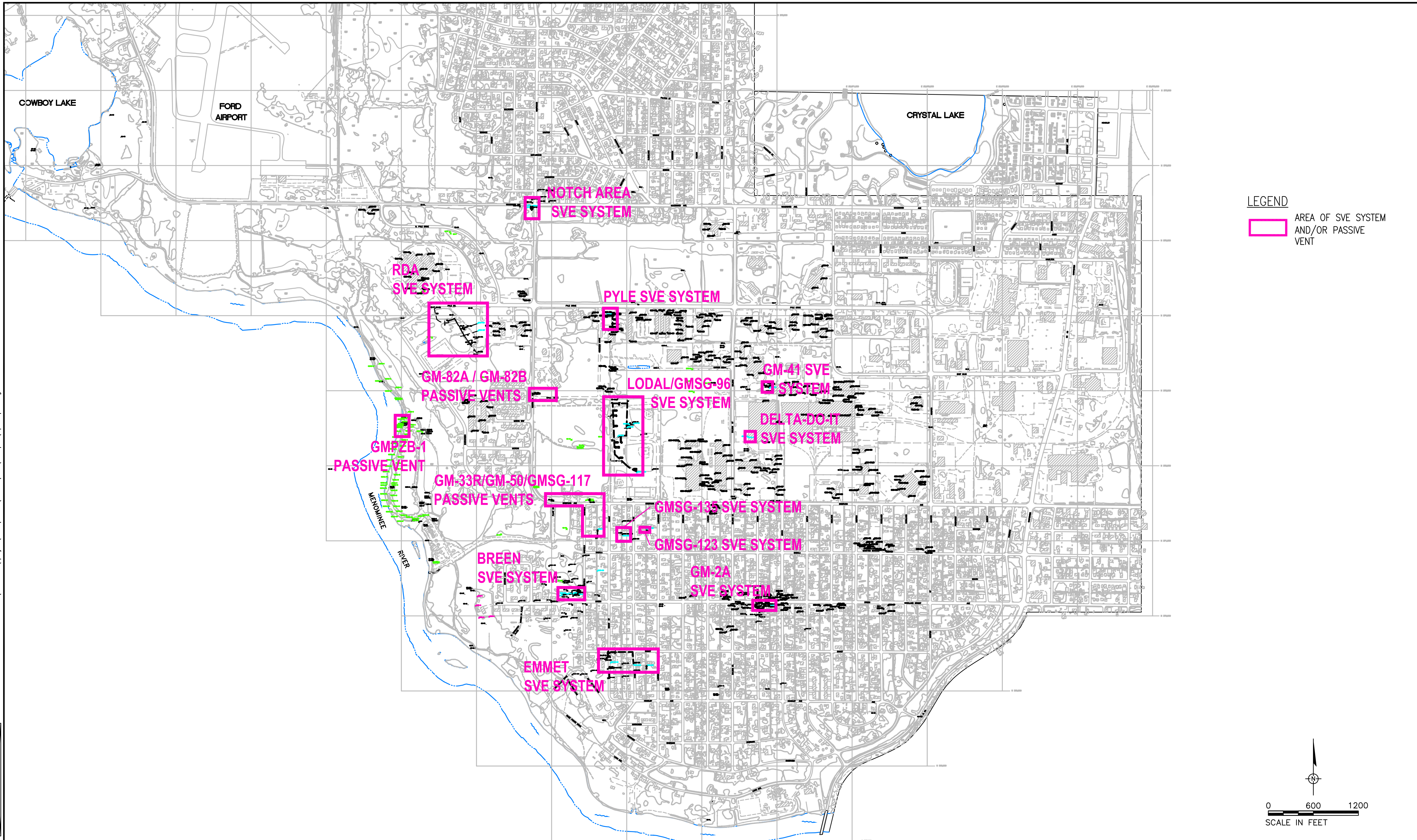
NO.	DATE	REVISION DESCRIPTION	BY	CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DRAWN	CES
DATE	6/05/2002
PROJECT MANAGER	EC
DEPARTMENT MANAGER	BE
LEAD DESIGN PROF.	BE
CHECKED	BE
PROJECT NUMBER	WI00925.0001
FIGURE	5-8

LOCATION OF RESIDENTIAL WATER SUPPLY WELLS ABANDONED



Path\Name : G:\project\FORD\WI0637\CJ2009\cadd\RI Report\Pipe Depths.dwg

Page Setup: ——
Pen Table: BLACKGRAY.ctb

REV.	ISSUED DATE	DESCRIPTION

KEYPLAN

SEAL

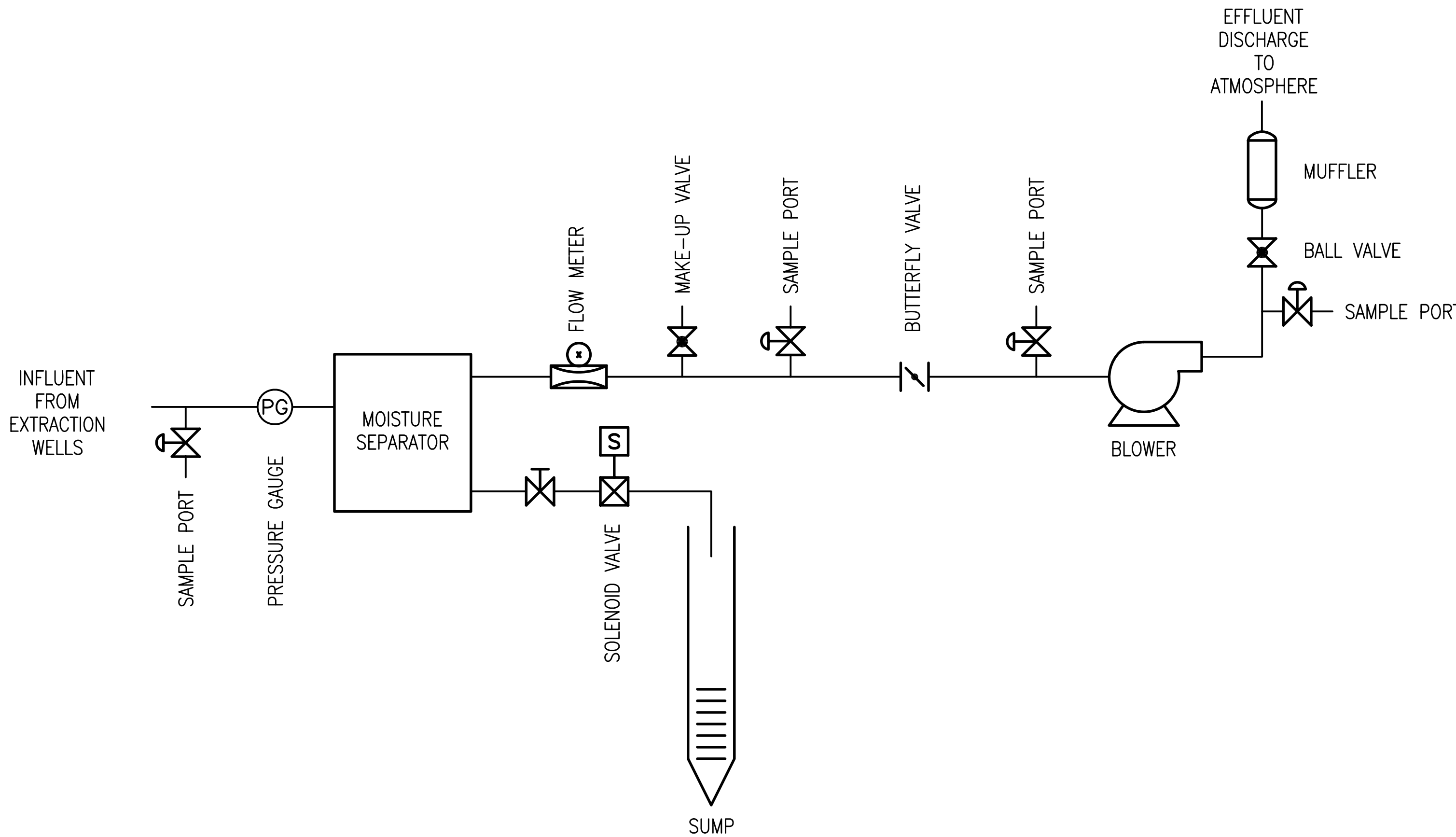
ARCADIS

126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

PROJECT MANAGER: R. STUDEBAKER	DEPARTMENT MANAGER: M. MAIERLE	LEAD DESIGN PROF.	CHECKED BY
SHEET TITLE: LOCATIONS OF SVE SYSTEMS AND PASSIVE VENTS		TASK/PHASE NUMBER: 0009.00001	DRAWN BY: C. MCKEOUGH
		PROJECT NUMBER: WI001095	DRAWING NUMBER: 5-9



Path\Name : G:\Aproject\FORD\WI0637\CJ2009\cadd\RI Report\SVE O&M PLAN FIGURES\5-10.dwg

Page Setup: ----
Pen Table: BLACKGRAY.ctb

Area Manager	M. MAIERLE
Project Director	R. STUDEBAKER
Task Manager	J. COTA
Technical Review	M. HULL

ARCADIS

126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

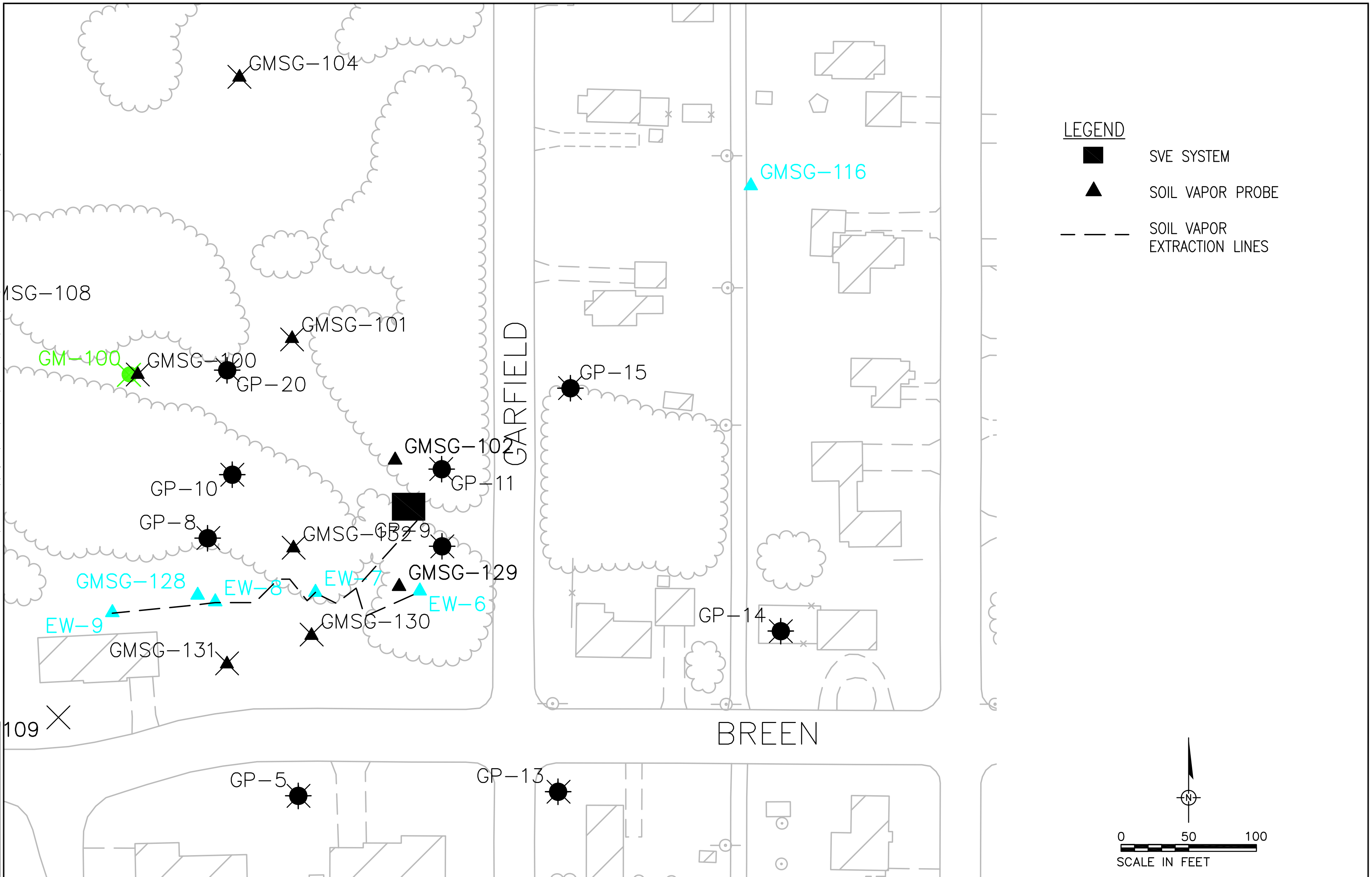
BREEN SVE SYSTEM LAYOUT

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number: WI001225.0015

Drawing Date: 9/06/05

Figure: 5–10



Area Manager	M. MAIERLE
Project Director	R. STUDEBAKER
Task Manager	J. COTA
Technical Review	M. HULL

ARCADIS

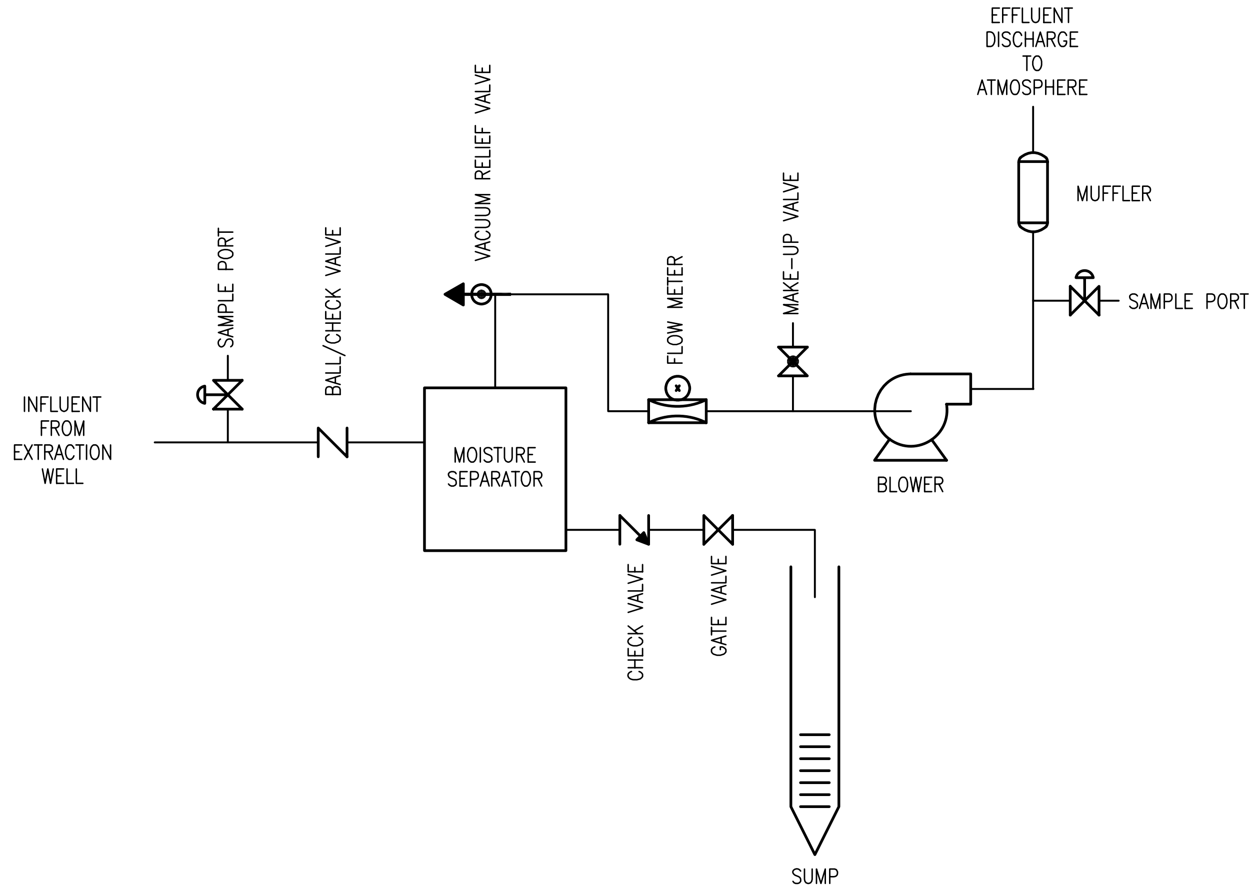
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

BREEN SVE SYSTEM EXTRACTION WELL LOCATIONS

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number	WI001225.0015
Drawing Date	9/06/05
Figure	5-11

Path\Name : G:\Aproject\FORD\WI0637\CJ2009\cadd\RI Report\SVE O&M PLAN FIGURES\5-11.dwg
Page Setup: ----
Pen Table: BLACKGRAY.ctb



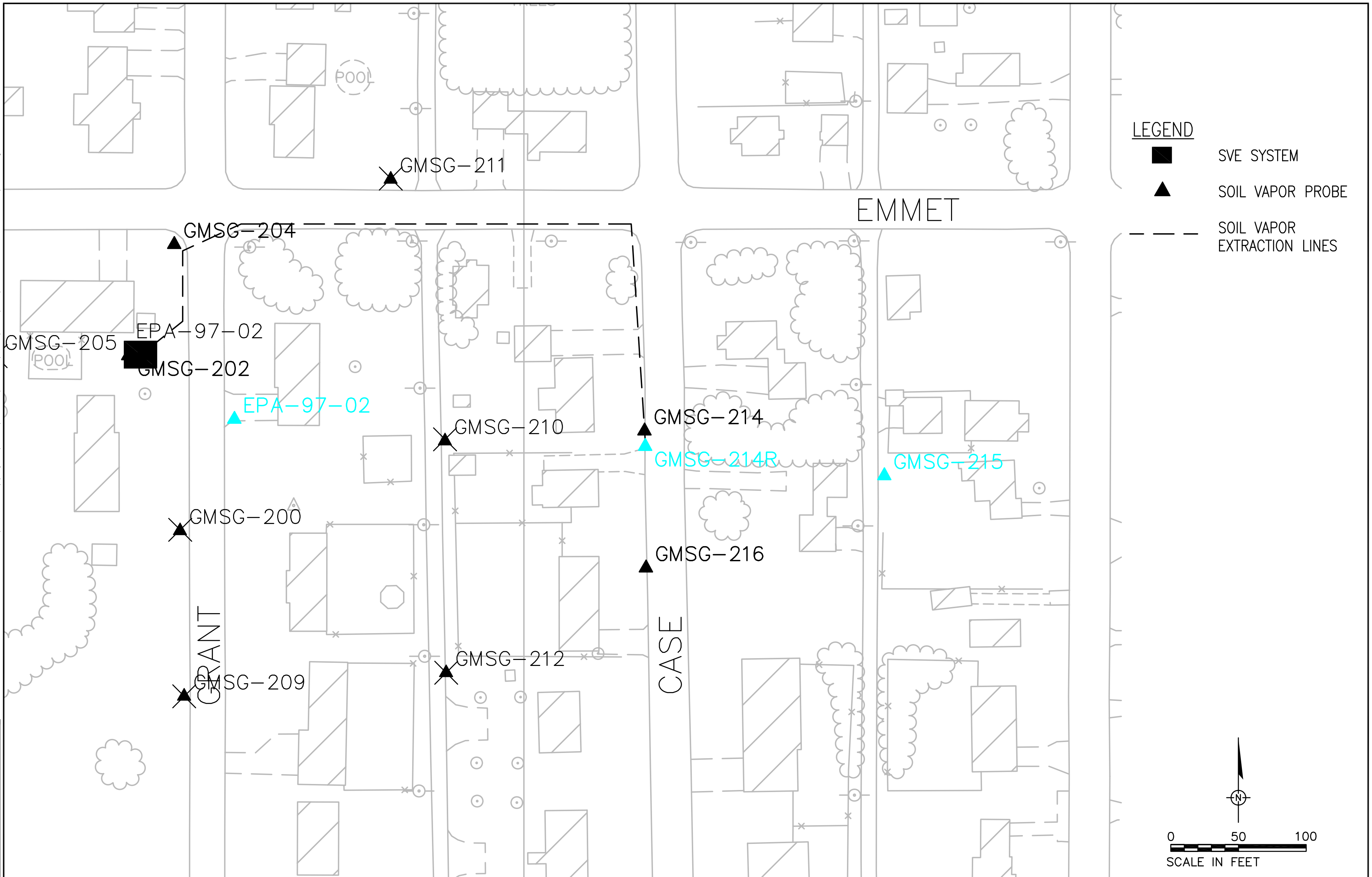
Area Manager	M. MAIERLE
Project Director	R. STUDEBAKER
Task Manager	J. COTA
Technical Review	M. HULL

ARCADIS
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

EMMET SVE SYSTEM LAYOUT

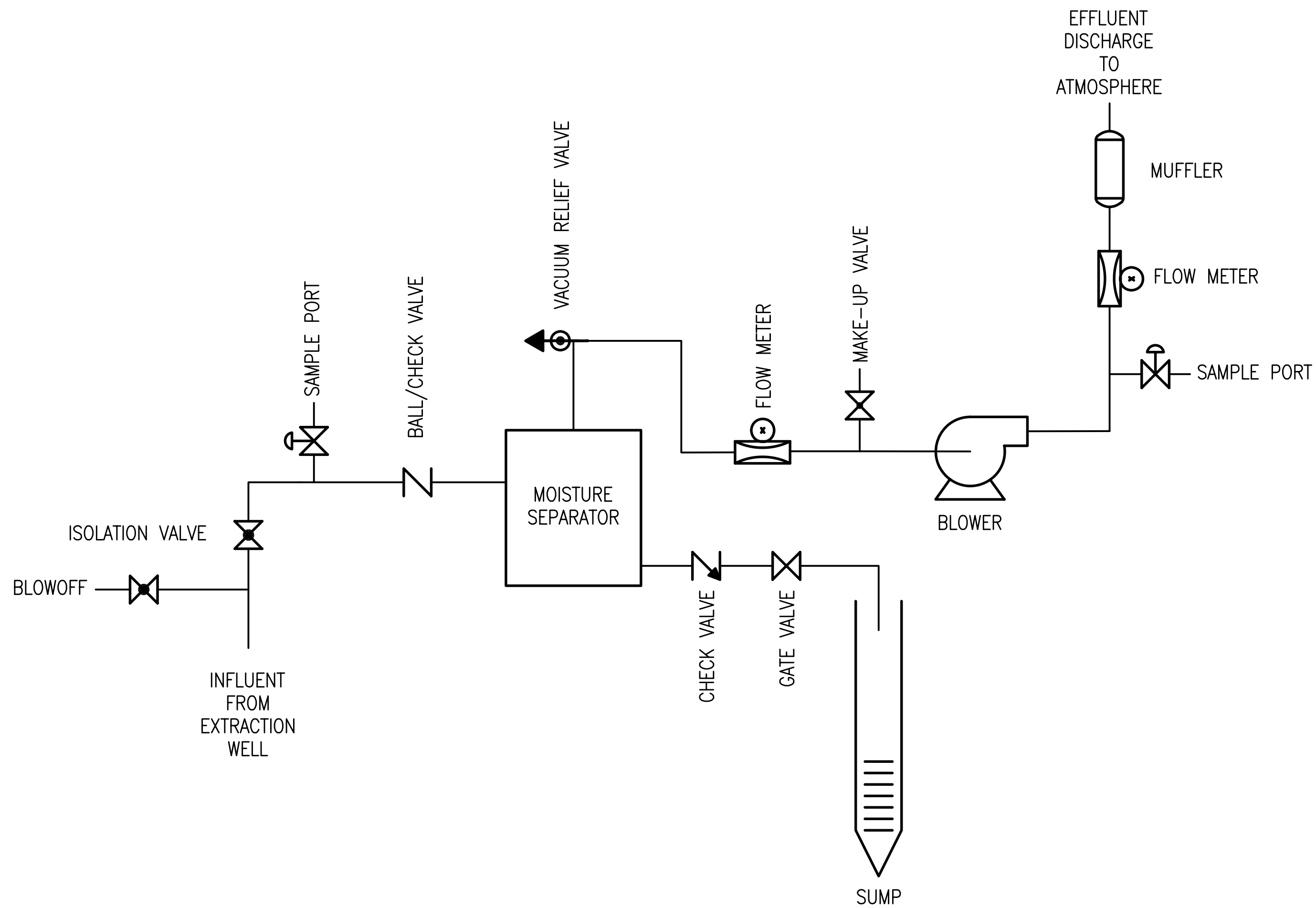
REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number: WI001225.0015
Drawing Date: 9/16/05
Figure: 5–12



Path\Name : G:\project\FORD\WI0637\CJ2009\cadd\RI Report\SVE O&M PLAN FIGURES\5-13.dwg
Page Setup: ----
Pen Table: BLACKGRAY.ctb

Area Manager: M. MAIERLE	ARCADIS	EMMET/GMSG-214R SVE SYSTEM EXTRACTION WELL LOCATIONS	Project Number: WI001225.0015
Project Director: R. STUDEBAKER			Drawing Date: 9/06/05
Task Manager: J. COTA	126 North Jefferson Street, Suite 400 Milwaukee, Wisconsin 53202 Tel: 414-276-7742 Fax: 414-276-7603 www.arcadis-us.com	REMEDIAL INVESTIGATION REPORT FORD/KINGSFORD PRODUCTS FACILITY KINGSFORD, MICHIGAN	Figure: 5-13
Technical Review: M. HULL			



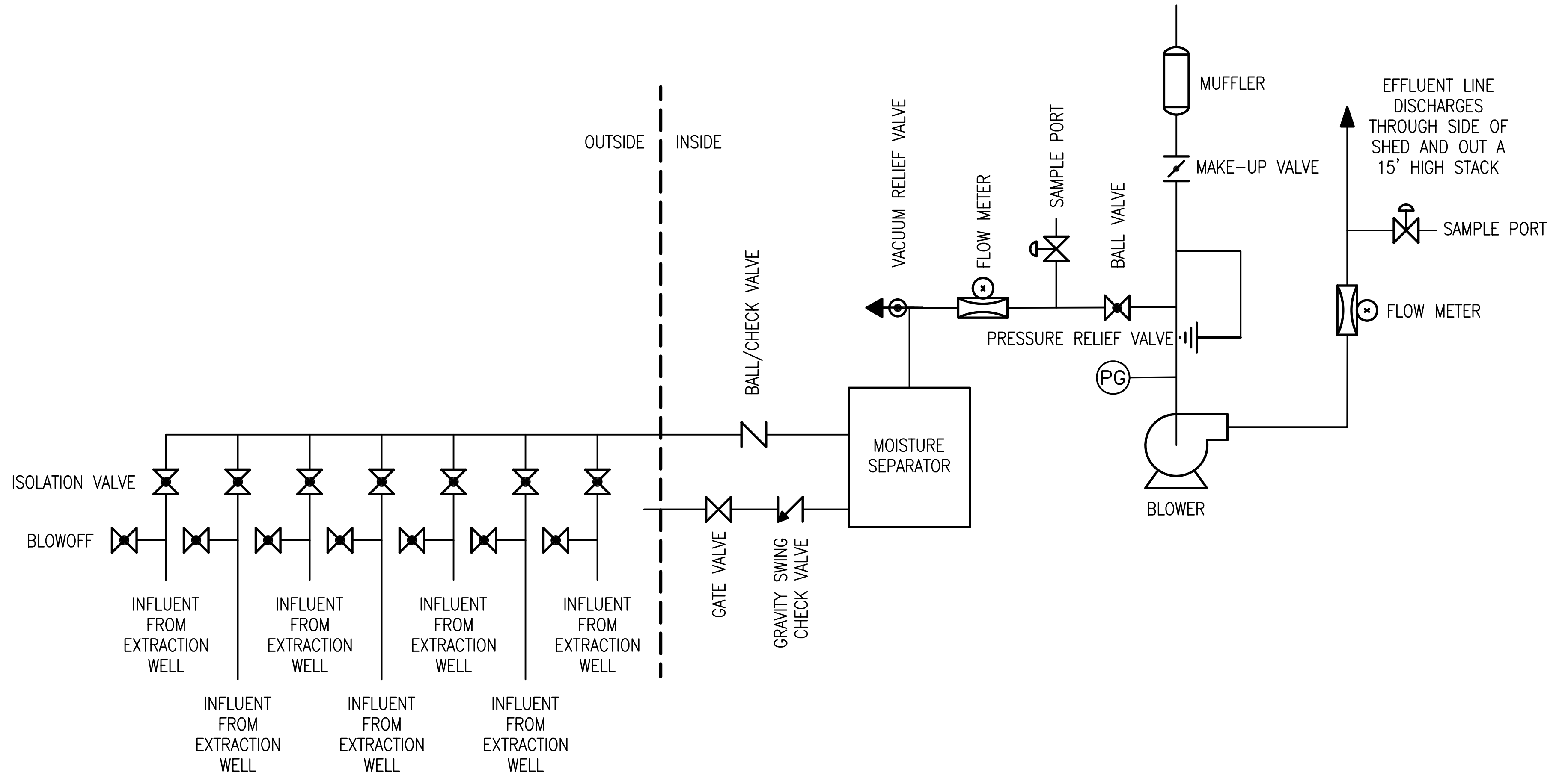
Area Manager: M. MAIERLE
Project Director: R. STUDEBAKER
Task Manager: J. COTA
Technical Review: M. HULL

ARCADIS
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

GMSG-214R SVE SYSTEM LAYOUT

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number: WI001225.0015
Drawing Date: 9/16/05
Figure: 5-14



Path\Name : G:\Aproject\FORD\WI0637\CJ2009\cadd\RI Report\SVE O&M PLAN FIGURES\5-15.dwg
Page Setup: ----
Pen Table: BLACKGRAY.ctb

Area Manager	M. MAIERLE
Project Director	R. STUDEBAKER
Task Manager	J. COTA
Technical Review	M. HULL

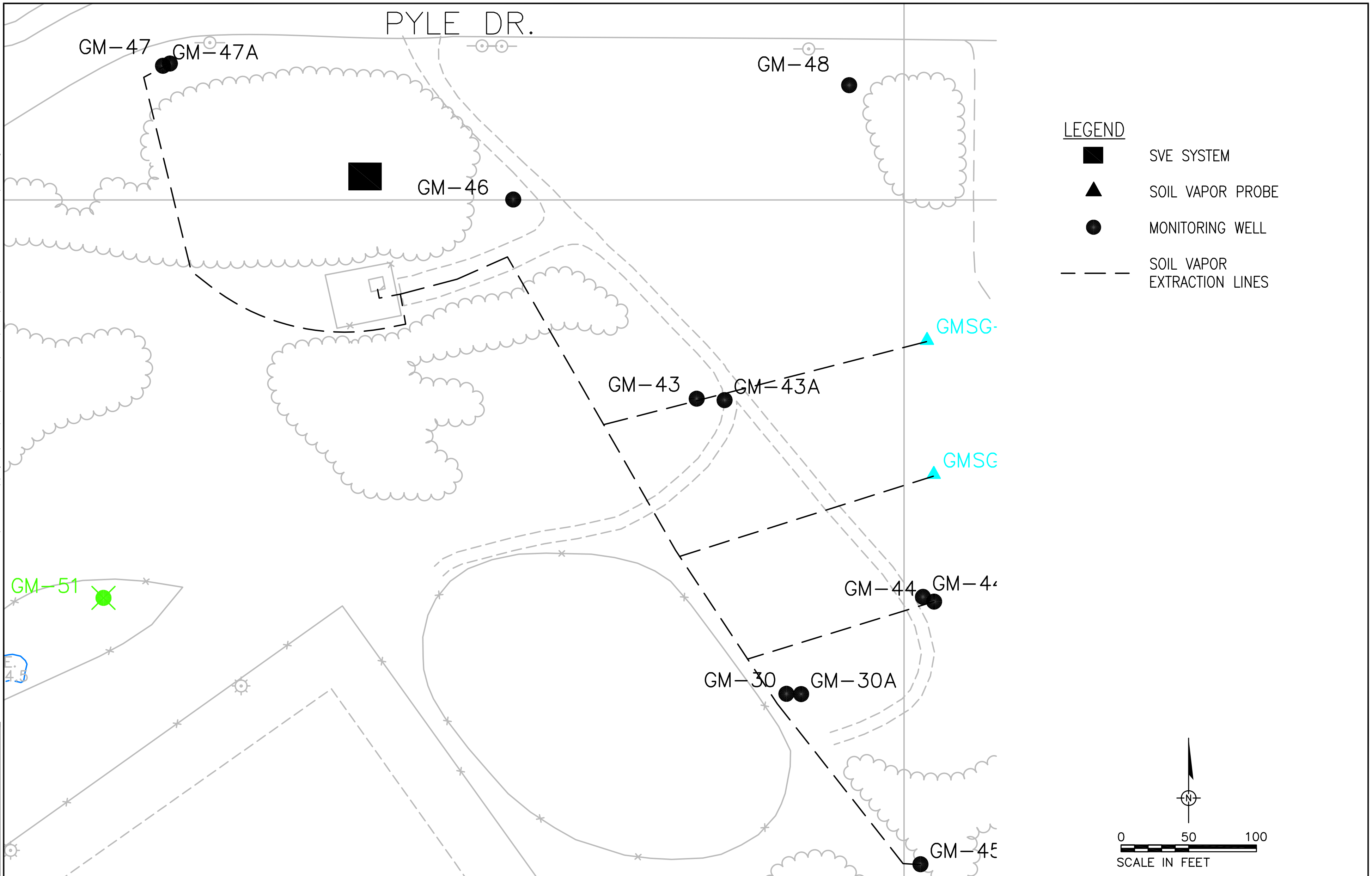
ARCADIS

126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

RDA SVE SYSTEM LAYOUT

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number	WI001225.0015
Drawing Date	9/06/05
Figure	5–15



Path\Name : G:\Aproject\FORD\WI0637\CJ2009\cadd\RI Report\SVE O&M PLAN FIGURES\5-16.dwg

Page Setup: ——— Pen Table: BLACKGRAY.ctb

Area Manager	M. MAIERLE
Project Director	R. STUDEBAKER
Task Manager	J. COTA
Technical Review	M. HULL

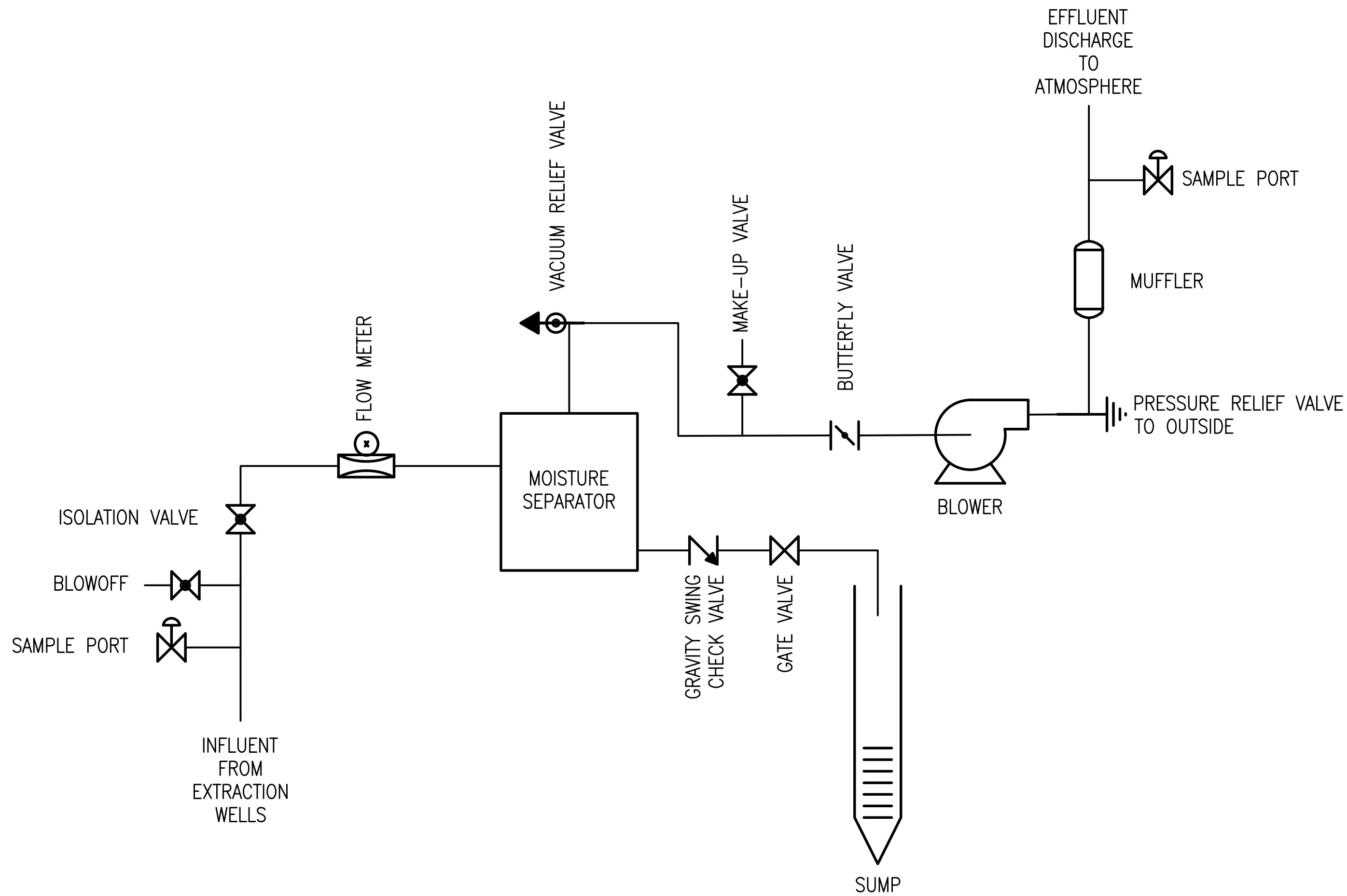
ARCADIS

126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

RDA SVE SYSTEM EXTRACTION WELL LOCATIONS

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number	WI001225.0015
Drawing Date	9/06/05
Figure	5-16



Path Name : G:\Aproject\FORD\WI0637\CJ2009\cadd\RI Report\SVE O&M PLAN FIGURES\5-17.dwg

Page Setup: ----
Pen Table: BLACKGRAY.ctb

Area Manager	M. MAIERLE
Project Director	R. STUDEBAKER
Task Manager	J. COTA
Technical Review	M. HULL

ARCADIS

126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

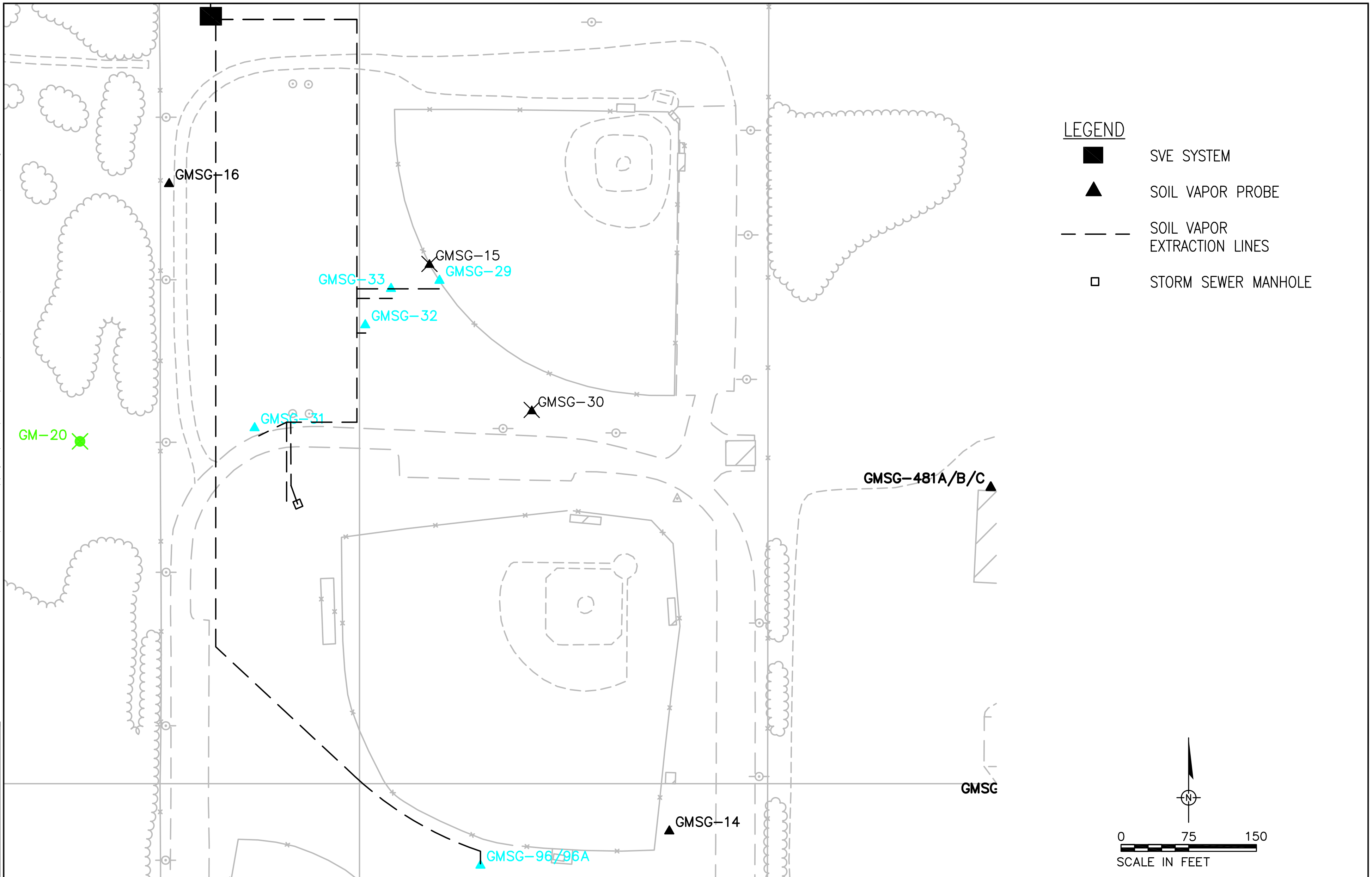
LODAL SVE SYSTEM LAYOUT

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number
WI001225.0015

Drawing Date
9/06/05

Figure
5–17



Path\Name : G:\Aproject\FORD\WI0637\CJ2009\cadd\RI Report\SVE O&M PLAN FIGURES\5-18.dwg

Page Setup: ----
Pen Table: BLACKGRAY.ctb

Area Manager: M. MAIERLE

Project Director: R. STUDEBAKER

Task Manager: J. COTA

Technical Review: M. HULL

ARCADIS

126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

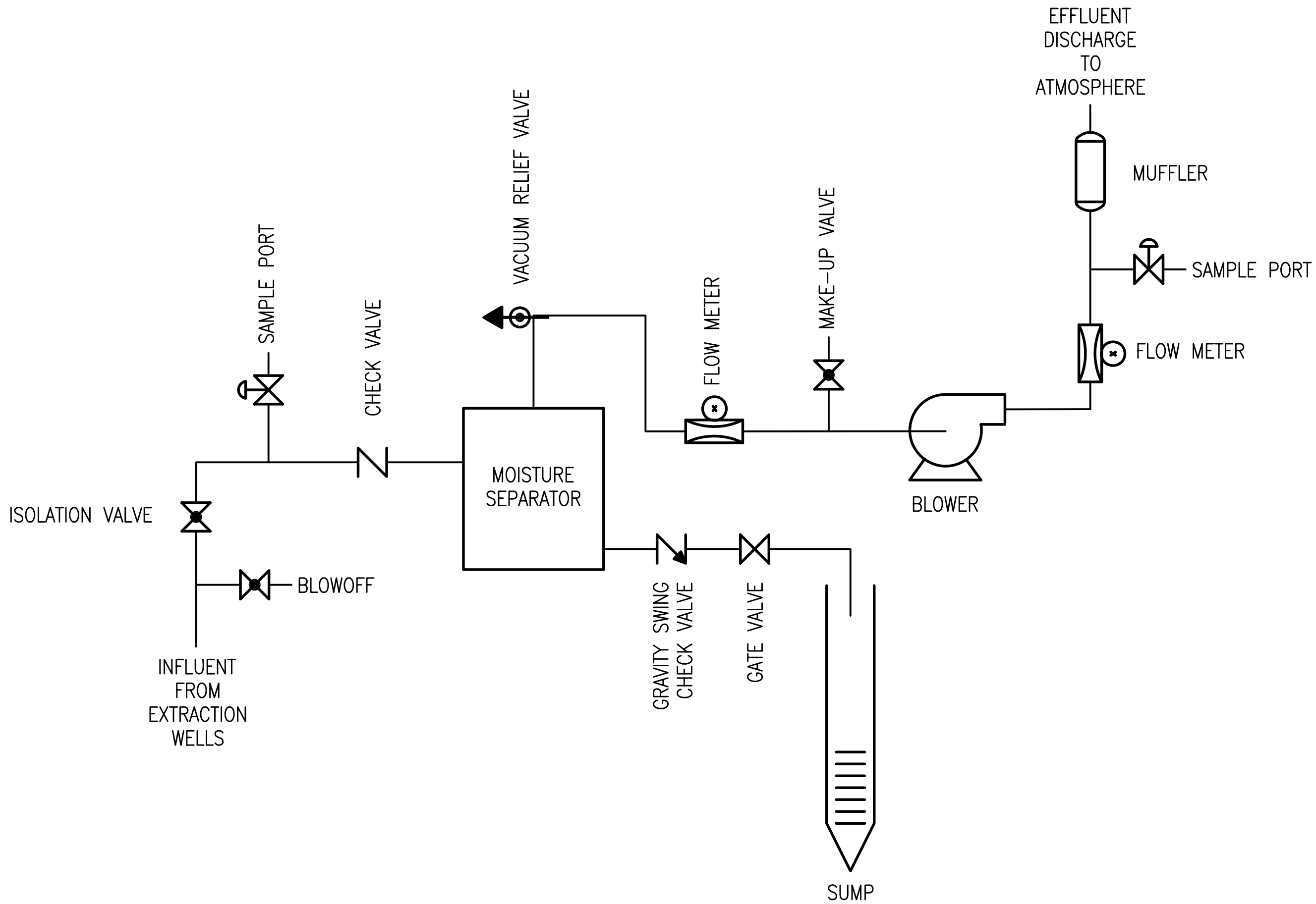
LODAL/GMSG-96 SVE SYSTEM EXTRACTION WELL LOCATIONS

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number: WI001225.0015

Drawing Date: 9/06/05

Figure: 5–18



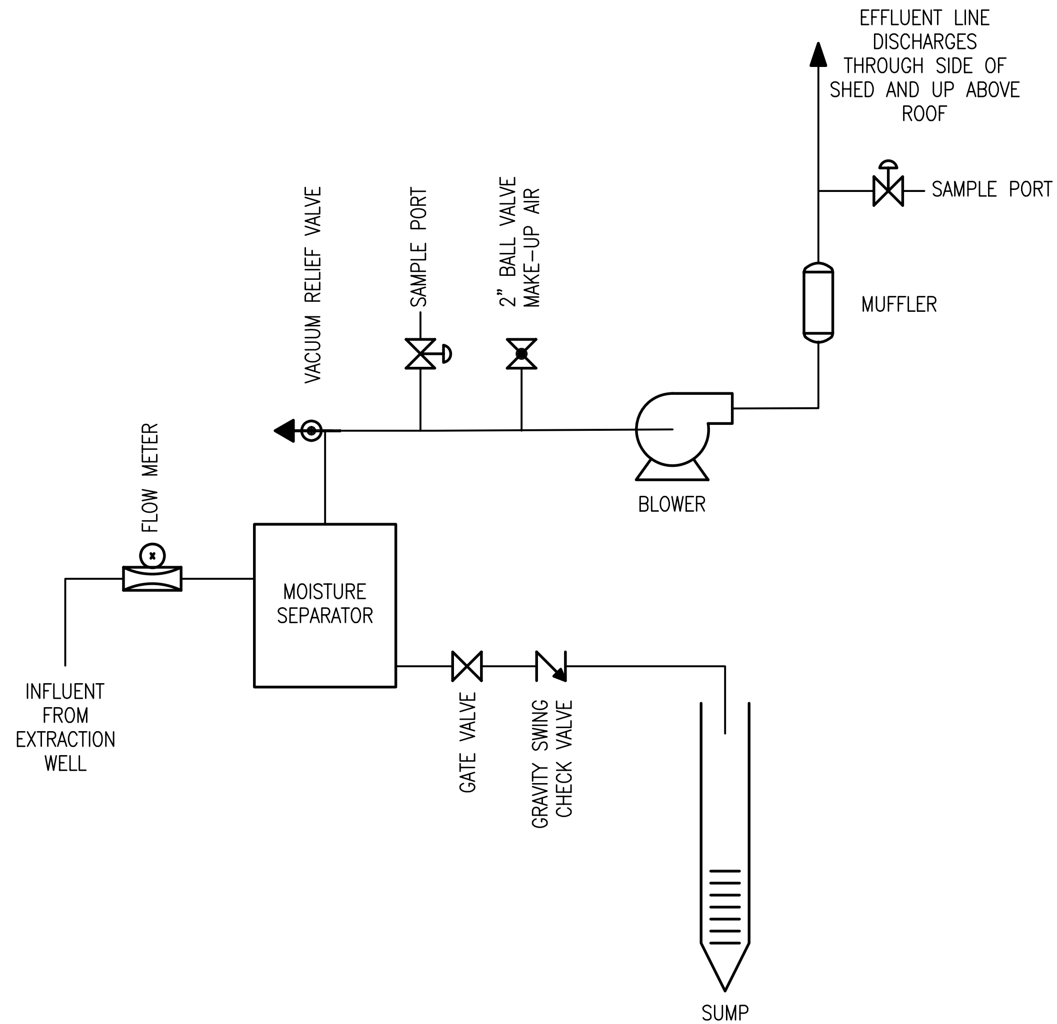
Area Manager	M. MAIERLE
Project Director	R. STUDEBAKER
Task Manager	J. COTA
Technical Review	M. HULL

ARCADIS
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

GMSG-96/96A SVE SYSTEM LAYOUT

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number: WI001225.0015
Drawing Date: 9/06/05
Figure: 5-19



Path Name : G:\Aproject\FORD\WI0637\CJ2009\cadd\RI Report\SVE O&M PLAN FIGURES\5-20.dwg
Page Setup: ----
Pen Table: BLACKGRAY.ctb

Area Manager	M. MAIERLE
Project Director	R. STUDEBAKER
Task Manager	J. COTA
Technical Review	M. HULL

ARCADIS

126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

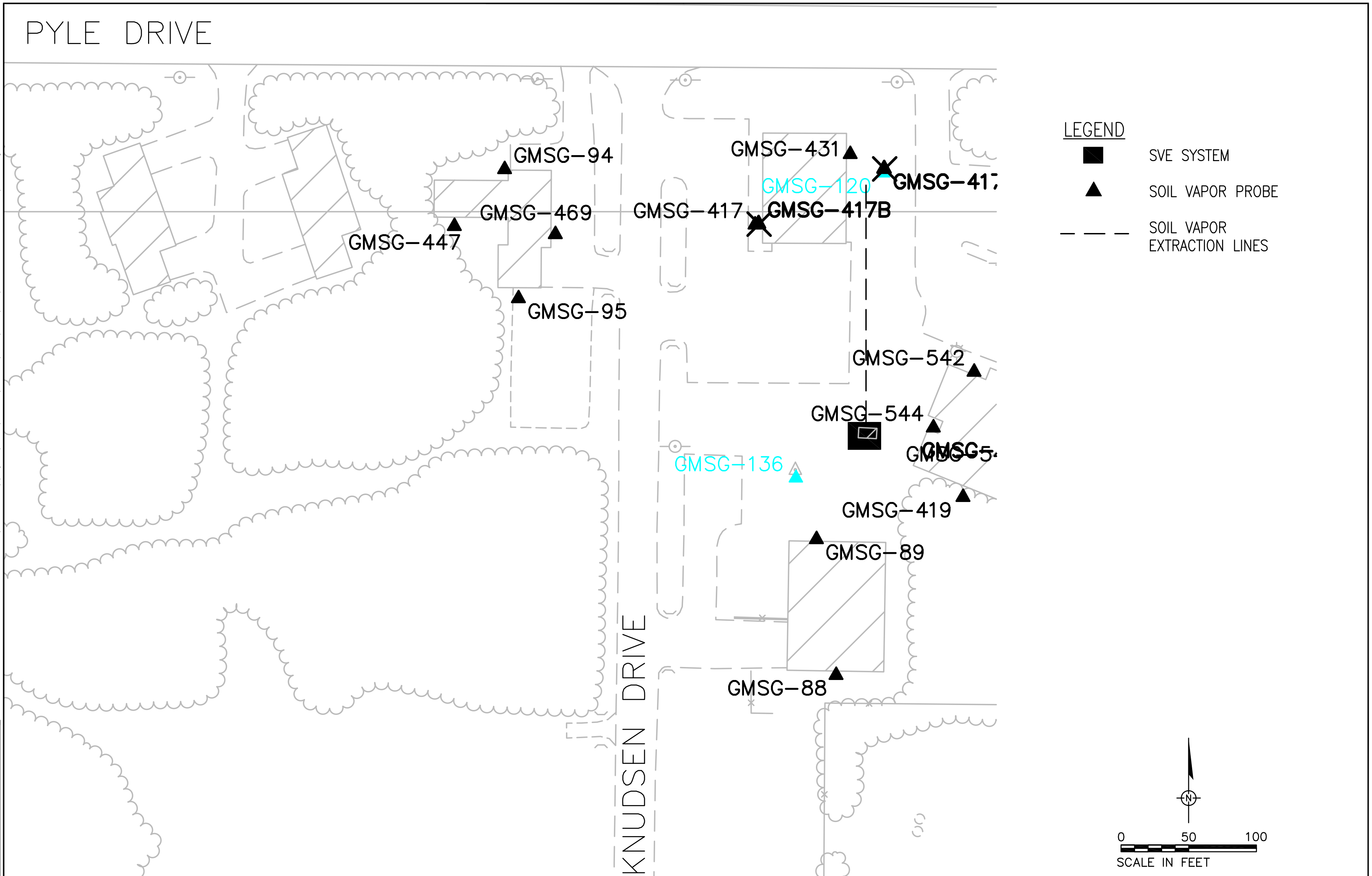
PYLE SVE SYSTEM LAYOUT

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number: WI001225.0015

Drawing Date: 9/06/05

Figure: 5–20



Path Name : G:\aproject\FORD\WI0637\CJ2009\cadd\RI Report\SVE O&M PLAN FIGURES\5-21.dwg
Page Setup: ----
Pen Table: BLACKGRAY.ctb

Area Manager	M. MAIERLE
Project Director	R. STUDEBAKER
Task Manager	J. COTA
Technical Review	M. HULL

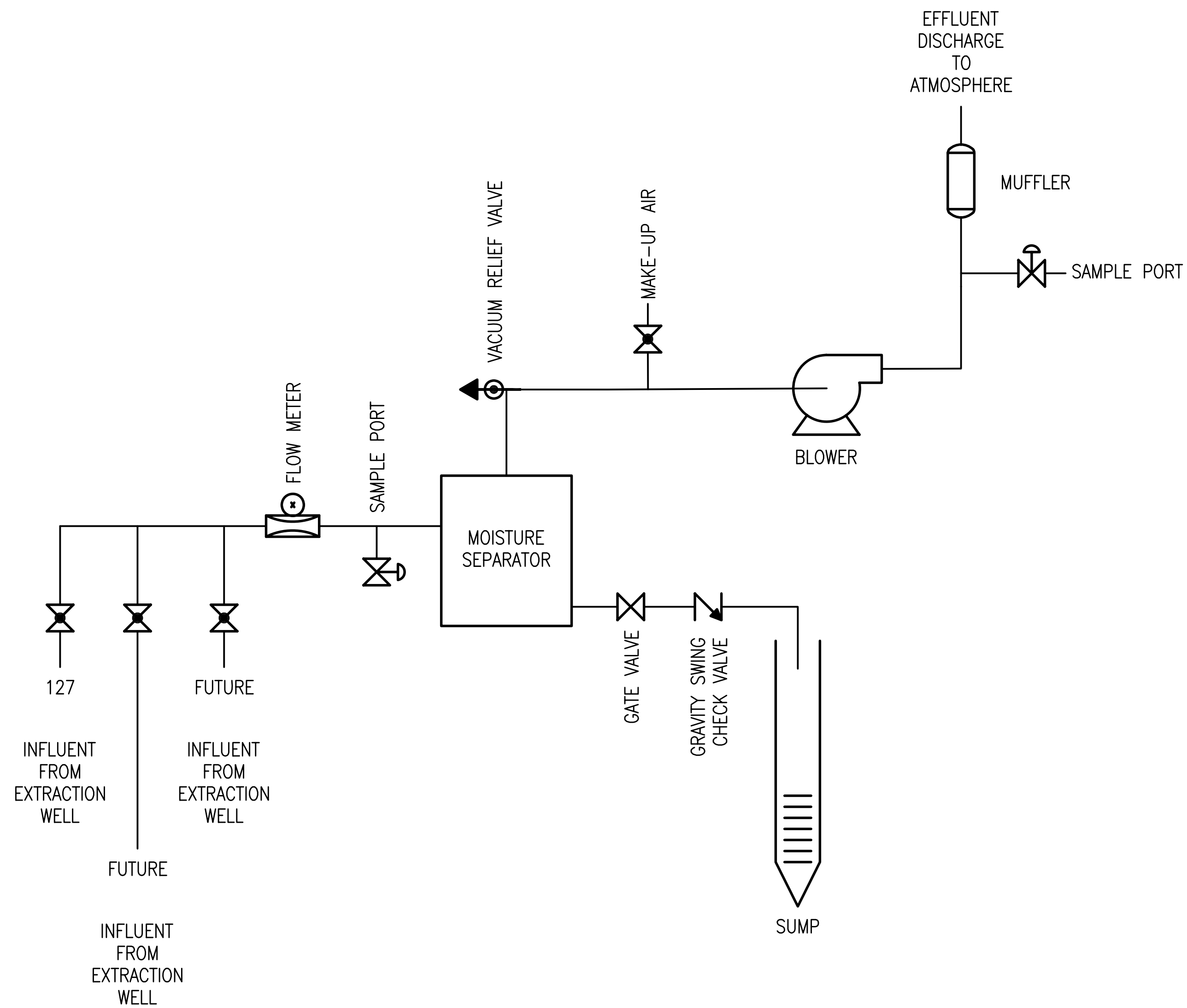
ARCADIS

126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

PYLE SVE SYSTEM EXTRACTION WELL LOCATIONS

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number	WI001225.0015
Drawing Date	9/06/05
Figure	5-21



Path\Name : G:\Aproject\FORD\WI0637\CJ2009\cadd\RI Report\SVE O&M PLAN FIGURES\5-22.dwg
Page Setup: ----
Pen Table: BLACKGRAY.ctb

Area Manager: M. MAIERLE
Project Director: R. STUDEBAKER
Task Manager: J. COTA
Technical Review: M. HULL

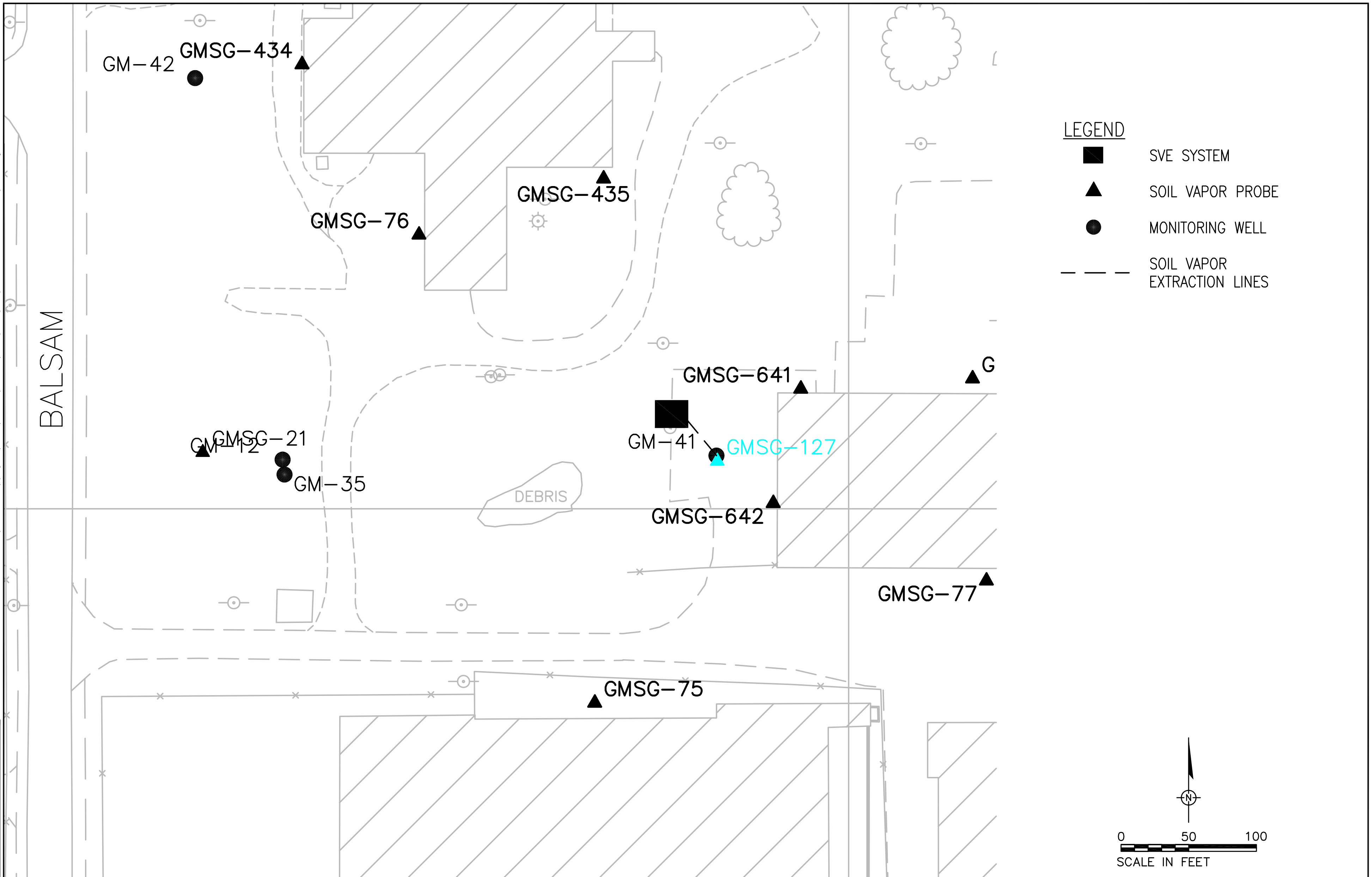
ARCADIS

126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

GM-41 SVE SYSTEM LAYOUT

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number: WI001225.0015
Drawing Date: 9/06/05
Figure: 5-22



Path\Name : G:\Aproject\FORD\WI0637\CJ2009\cadd\RI Report\SVE O&M PLAN FIGURES\5-23.dwg

Page Setup: ____
Pen Table: BLACKGRAY.ctb

Area Manager
M. MAIERLE

Project Director
R. STUDEBAKER

Task Manager
J. COTA

Technical Review
M. HULL

ARCADIS
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

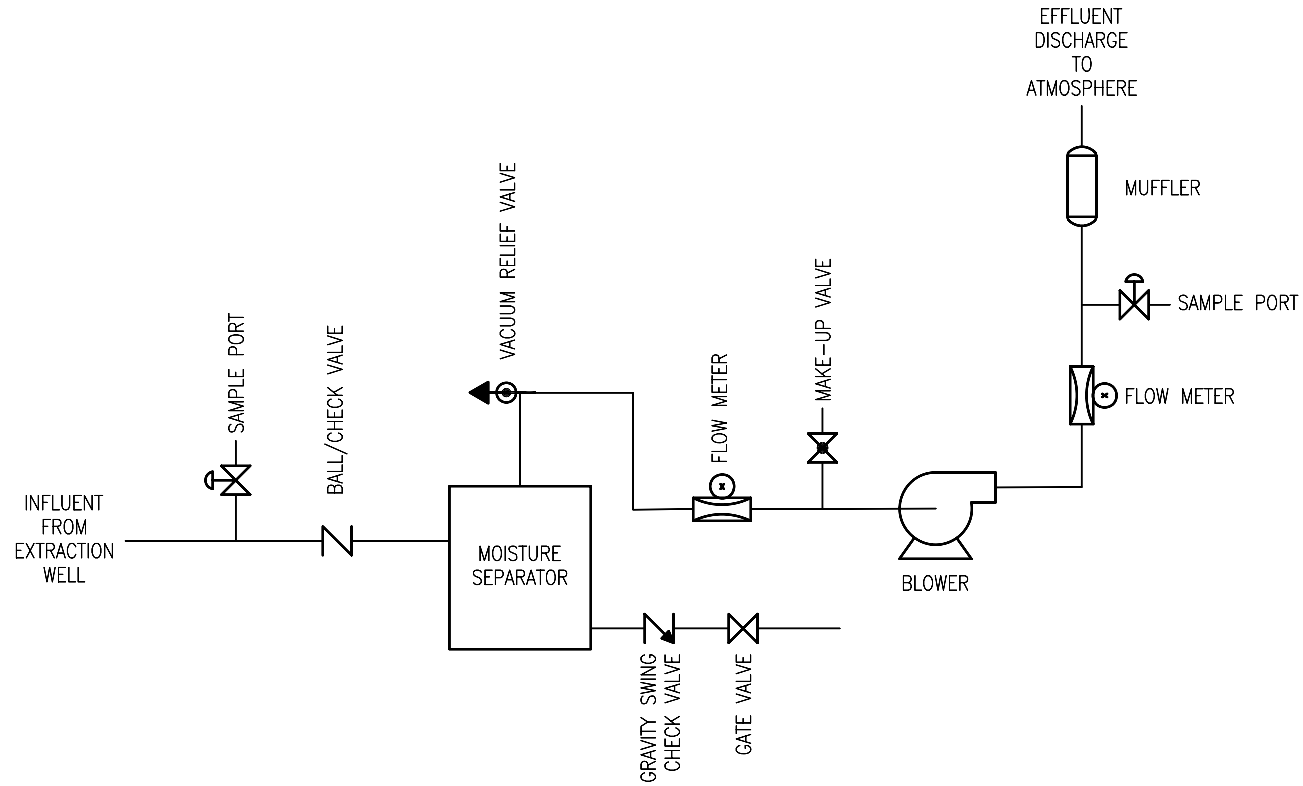
GM-41 SVE SYSTEM EXTRACTION WELL LOCATIONS

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number
WI001225.0015

Drawing Date
9/06/05

Figure
5-23



Path Name : G:\Aproject\FORD\WI0637\CJ2009\cadd\RI Report\SVE O&M PLAN FIGURES\5-24.dwg

Page Setup: ----
Pen Table: BLACKGRAY.ctb

Area Manager	M. MAIERLE
Project Director	R. STUDEBAKER
Task Manager	J. COTA
Technical Review	M. HULL

ARCADIS
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

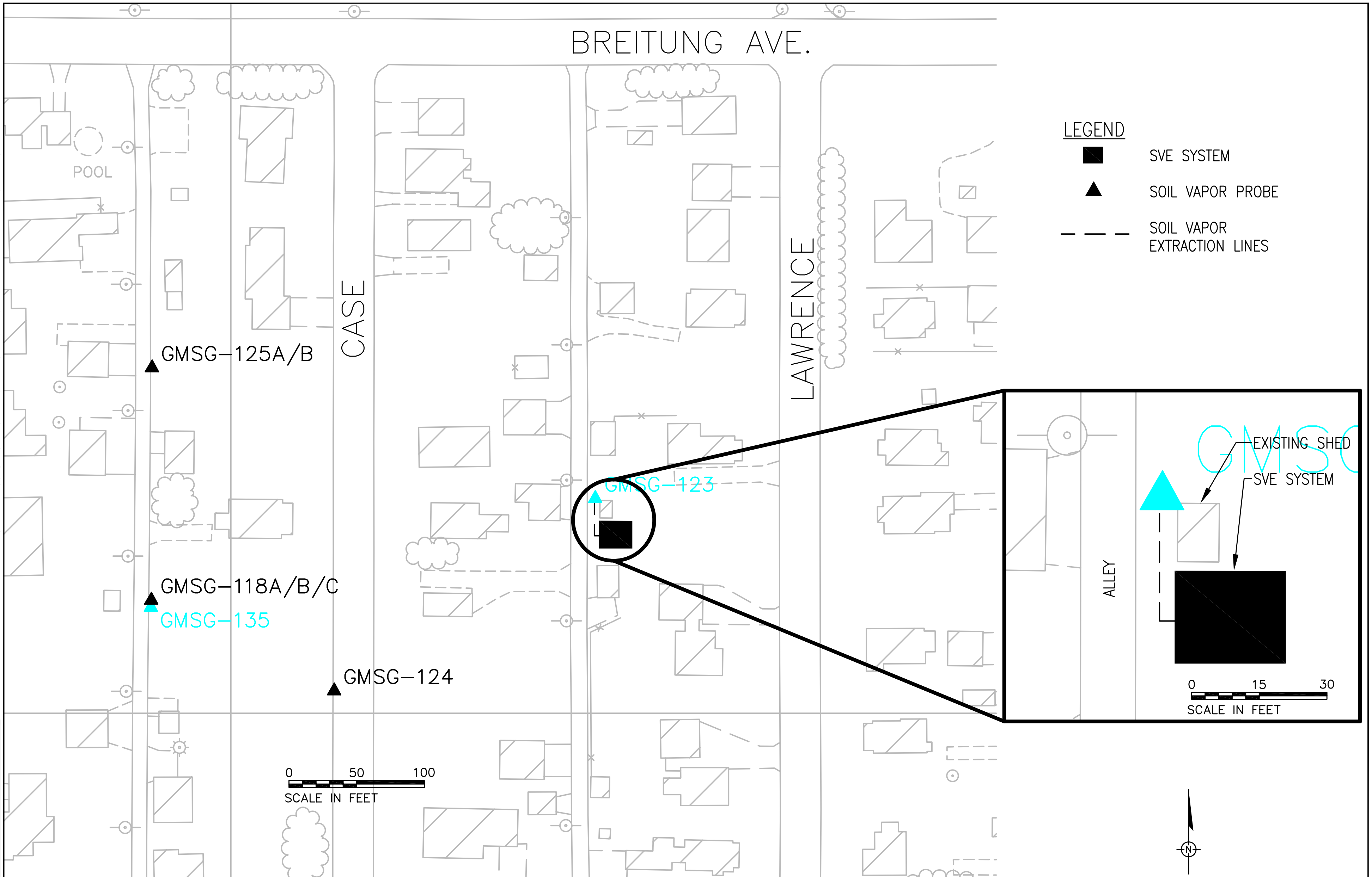
GMSG–123 SVE SYSTEM LAYOUT

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number: WI001225.0015

Drawing Date: 9/06/05

Figure: 5–24



Path\Name : G:\Aproject\FORD\WI0637\CJ2009\cadd\RI Report\SVE O&M PLAN FIGURES\5-25.dwg

Page Setup: ----
Pen Table: BLACKGRAY.ctb

Area Manager
M. MAIERLE

Project Director
R. STUDEBAKER

Task Manager
J. COTA

Technical Review
M. HULL

ARCADIS
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

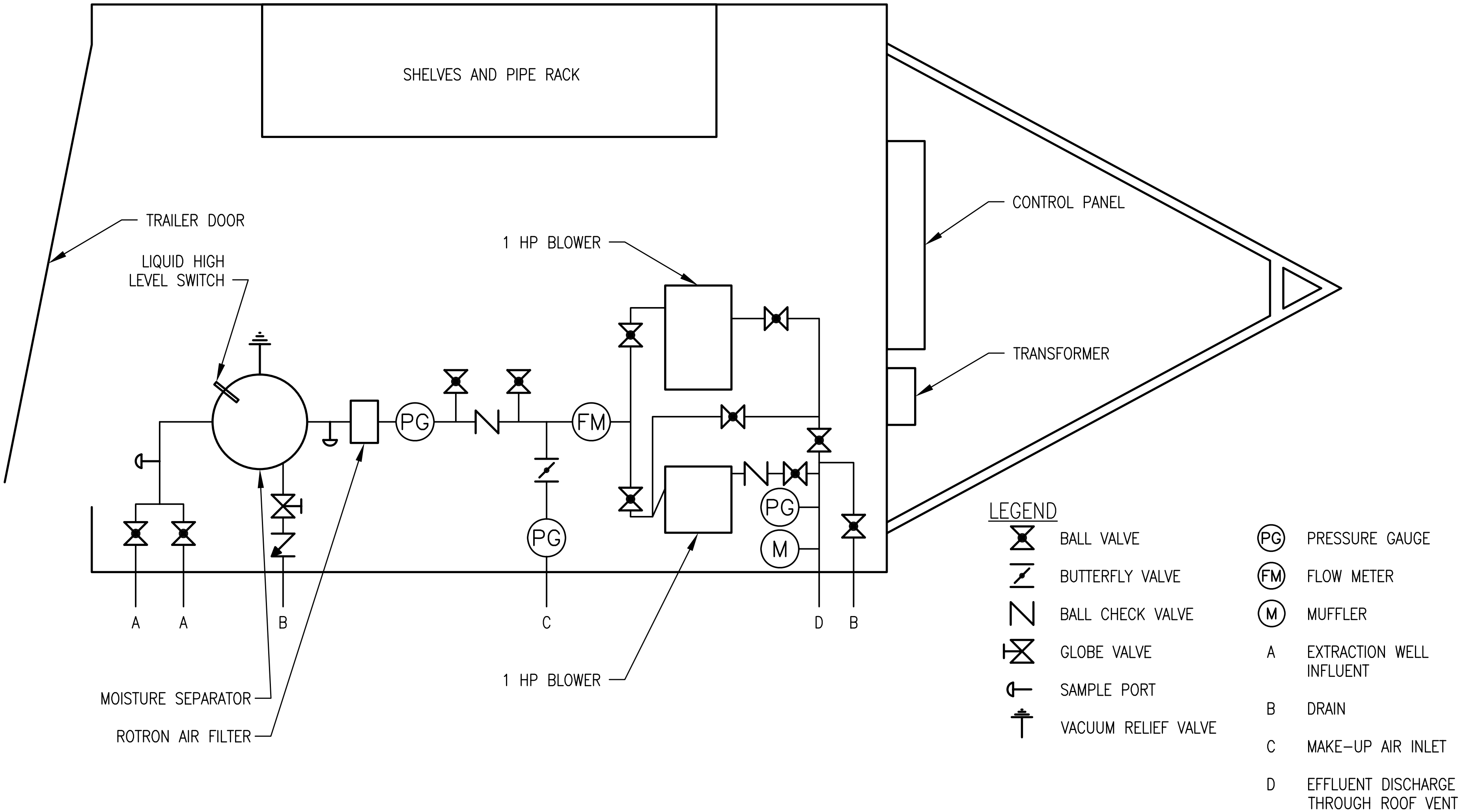
GMSG-123 SVE SYSTEM EXTRACTION WELL LOCATIONS

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number
WI001225.0015

Drawing Date
9/06/05

Figure
5-25



Page Setup: ----
Pen Table: BLACKGRAY.ctb
Path\Name : G:\Aproject\FORD\WI0637\CJ2009\cadd\RI Report\SVE O&M PLAN FIGURES\5-26.dwg

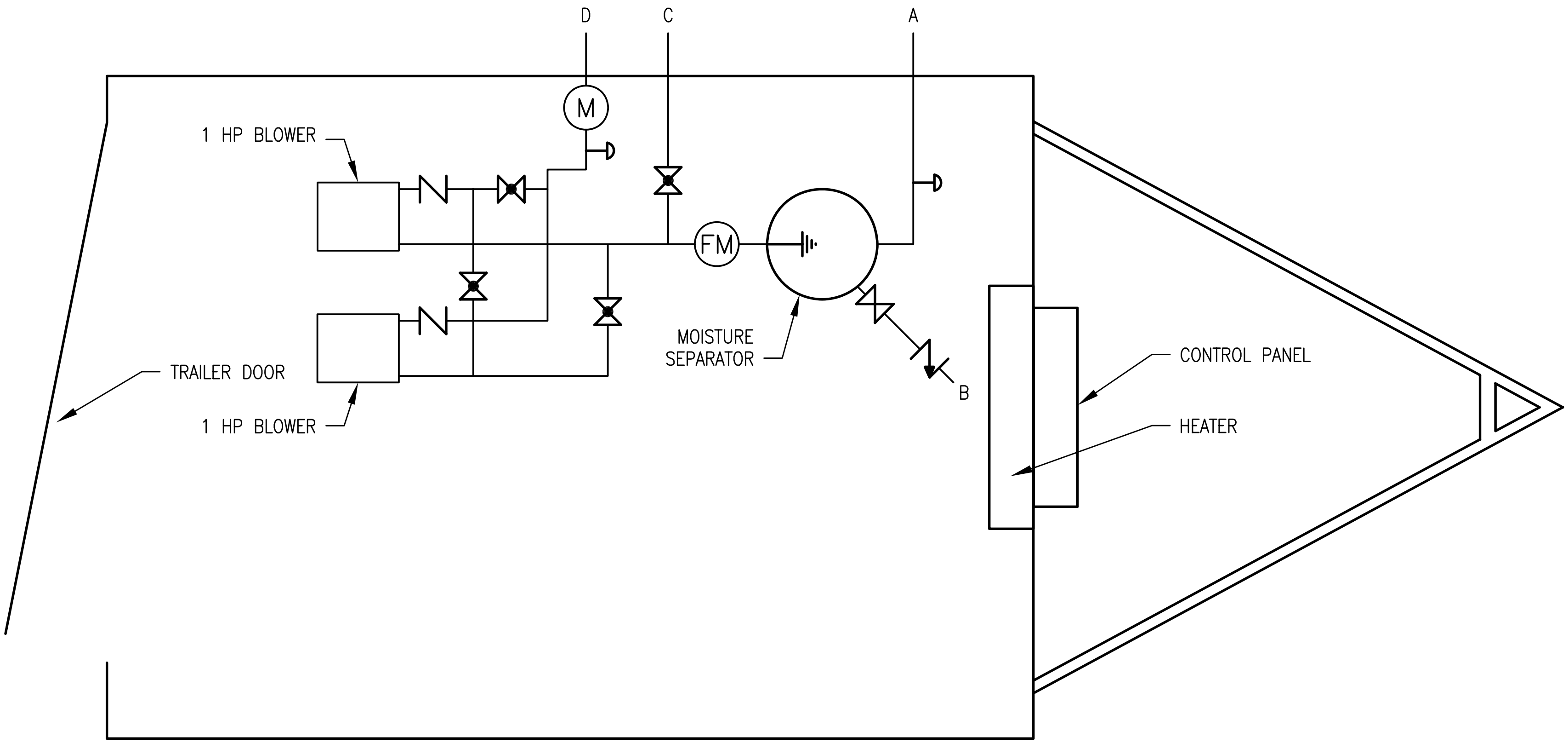
Area Manager
M. MAIERLE
Project Director
R. STUDEBAKER
Task Manager
J. COTA
Technical Review
M. HULL

ARCADIS
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

MOBILE SVE-01 SYSTEM LAYOUT

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number
WI001225.0015
Drawing Date
9/29/05
Figure
5-26



LEGEND

BALL VALVE	GRAVITY SWING/ CHECK VALVE	A EXTRACTION WELL INFLUENT
BUTTERFLY VALVE	SAMPLE PORT	B DRAIN
BALL CHECK VALVE	FM FLOW METER	C MAKE-UP AIR INLET
GLOBE VALVE	M MUFFLER	D EFFLUENT DISCHARGE THROUGH ROOF VENT
GATE VALVE	VACUUM RELIEF VALVE	

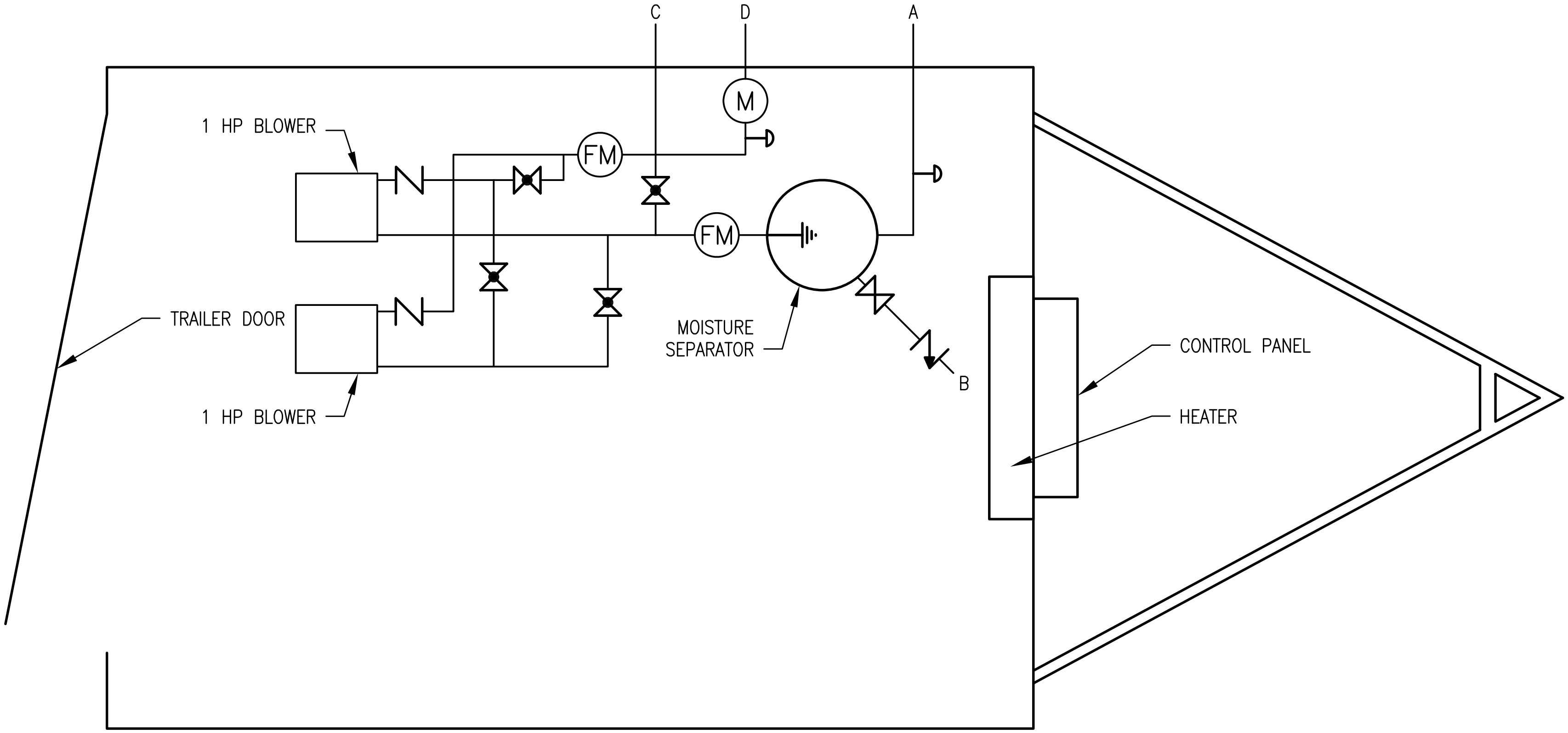
Area Manager M. MAIERLE
Project Director R. STUDEBAKER
Task Manager J. COTA
Technical Review M. HULL

ARCADIS
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

MOBILE SVE-02 SYSTEM LAYOUT

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number WI001225.0015
Drawing Date 9/29/05
Figure 5-27



LEGEND

	BALL VALVE		GRAVITY SWING/ CHECK VALVE	A	EXTRACTION WELL INFLUENT
	BUTTERFLY VALVE		SAMPLE PORT	B	DRAIN
	BALL CHECK VALVE	FM	FLOW METER	C	MAKE–UP AIR INLET
	GLOBE VALVE	M	MUFFLER	D	EFFLUENT DISCHARGE THROUGH ROOF VENT
	GATE VALVE		VACUUM RELIEF VALVE		

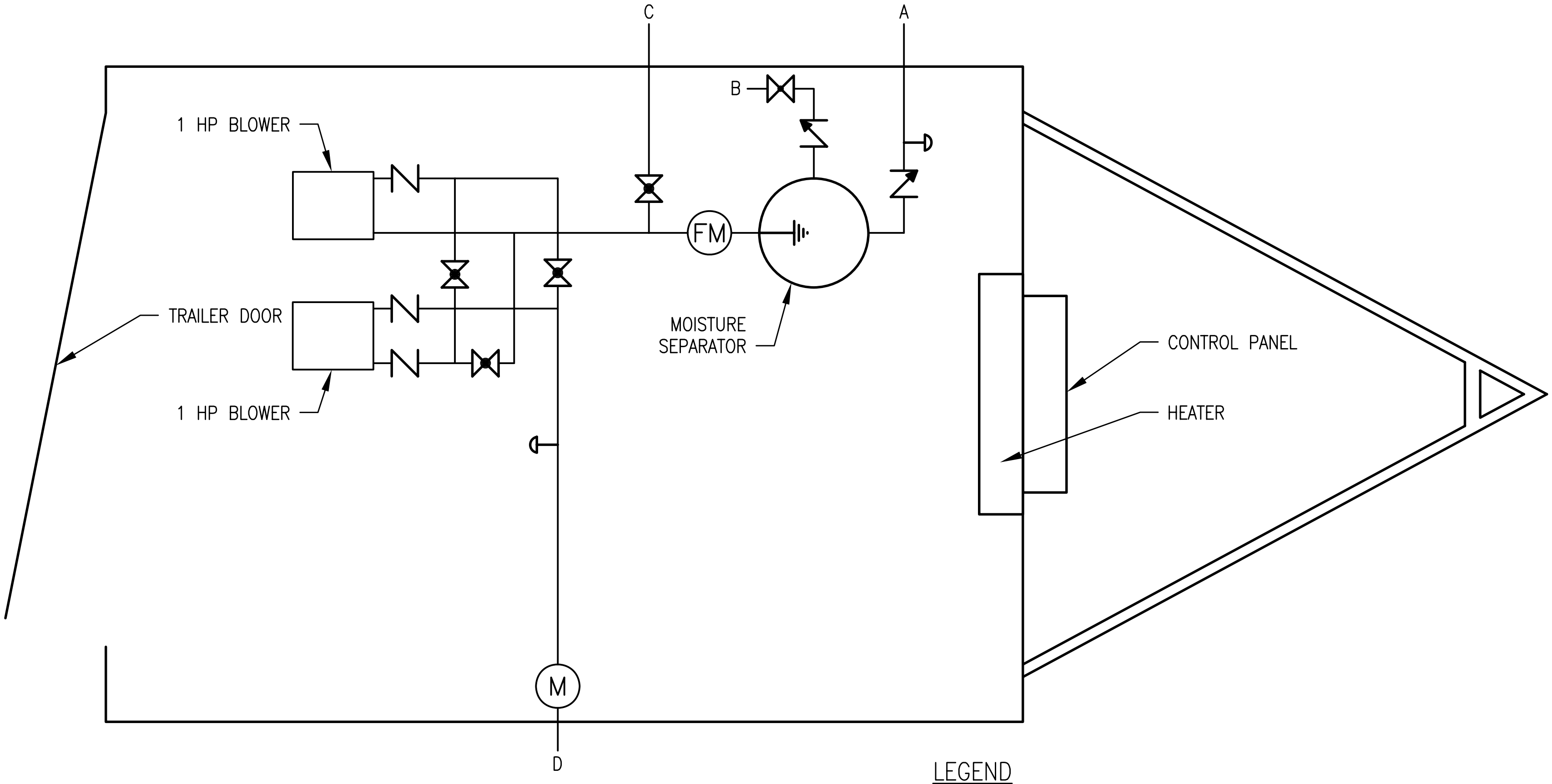
Area Manager: M. MAIERLE
Project Director: R. STUDEBAKER
Task Manager: J. COTA
Technical Review: M. HULL

ARCADIS
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

MOBILE SVE–03 SYSTEM LAYOUT

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number: WI001225.0015
Drawing Date: 9/29/05
Figure: 5–28



LEGEND

BALL VALVE	GRAVITY SWING/ CHECK VALVE	A	EXTRACTION WELL INFLUENT
BUTTERFLY VALVE	SAMPLE PORT	B	DRAIN
BALL CHECK VALVE	FLOW METER	C	MAKE-UP AIR INLET
GLOBE VALVE	MUFFLER	D	EFFLUENT DISCHARGE THROUGH ROOF VENT
GATE VALVE	VACUUM RELIEF VALVE		

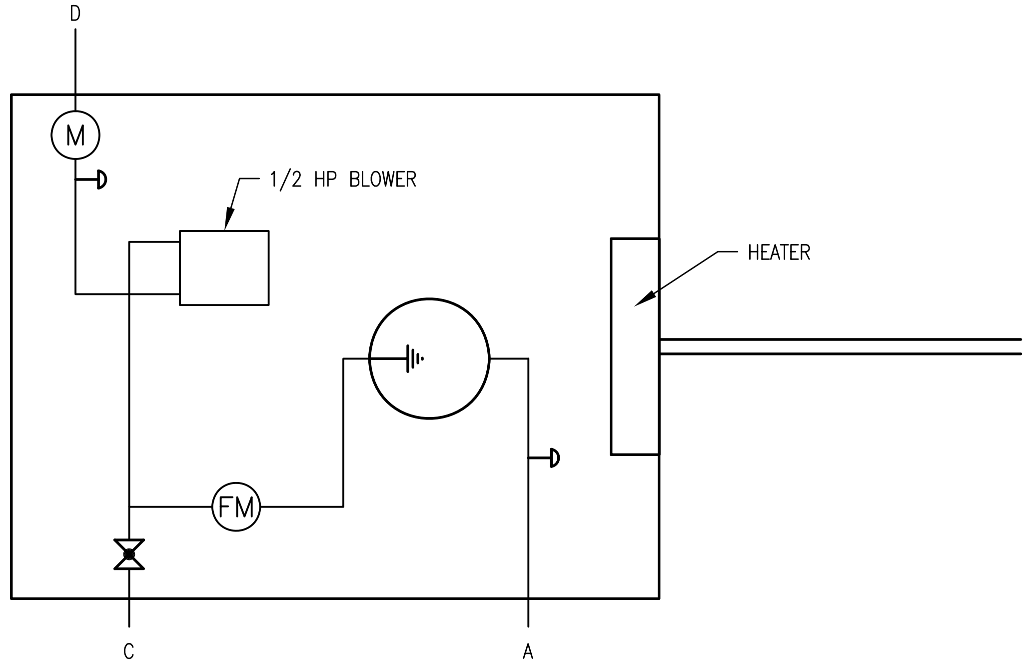
Area Manager
M. MAIERLE
Project Director
R. STUDEBAKER
Task Manager
J. COTA
Technical Review
M. HULL

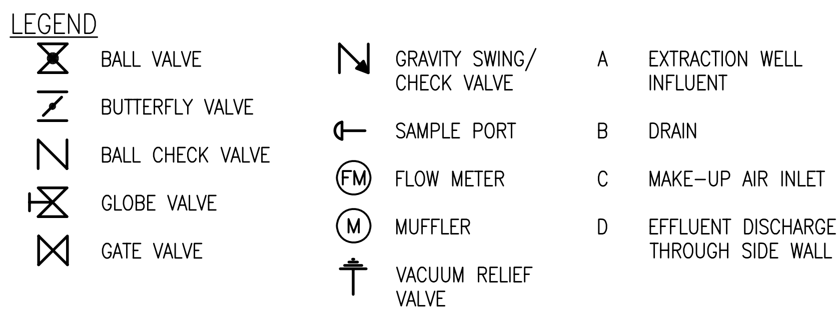
ARCADIS
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

MOBILE SVE-04 SYSTEM LAYOUT

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number
WI001225.0015
Drawing Date
9/29/05
Figure
5-29





Path\Name : G:\Aproject\FORD\WI0637\CJ2009\cadd\RI Report\SVE O&M PLAN FIGURES\5-30.dwg

Page Setup: ----
Pen Table: BLACKGRAY.ctb

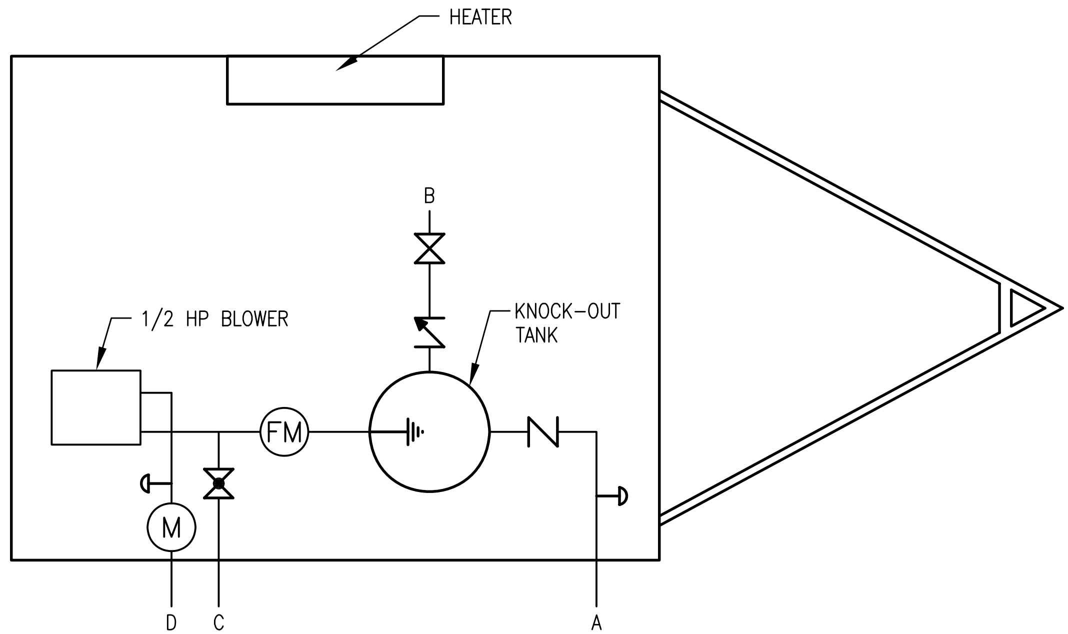
Area Manager
M. MAIERLE
Project Director
R. STUDEBAKER
Task Manager
J. COTA
Technical Review
M. HULL

ARCADIS
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

MINI SVE-01 SYSTEM LAYOUT

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number
WI001225.0015
Drawing Date
9/29/05
Figure
5-30



LEGEND

BALL VALVE	GRAVITY SWING/ CHECK VALVE	A	EXTRACTION WELL INFLUENT
BUTTERFLY VALVE	SAMPLE PORT	B	DRAIN
BALL CHECK VALVE	FLOW METER	C	MAKE–UP AIR INLET
GLOBE VALVE	MUFFLER	D	EFFLUENT DISCHARGE THROUGH ROOF VENT
GATE VALVE	VACUUM RELIEF VALVE		

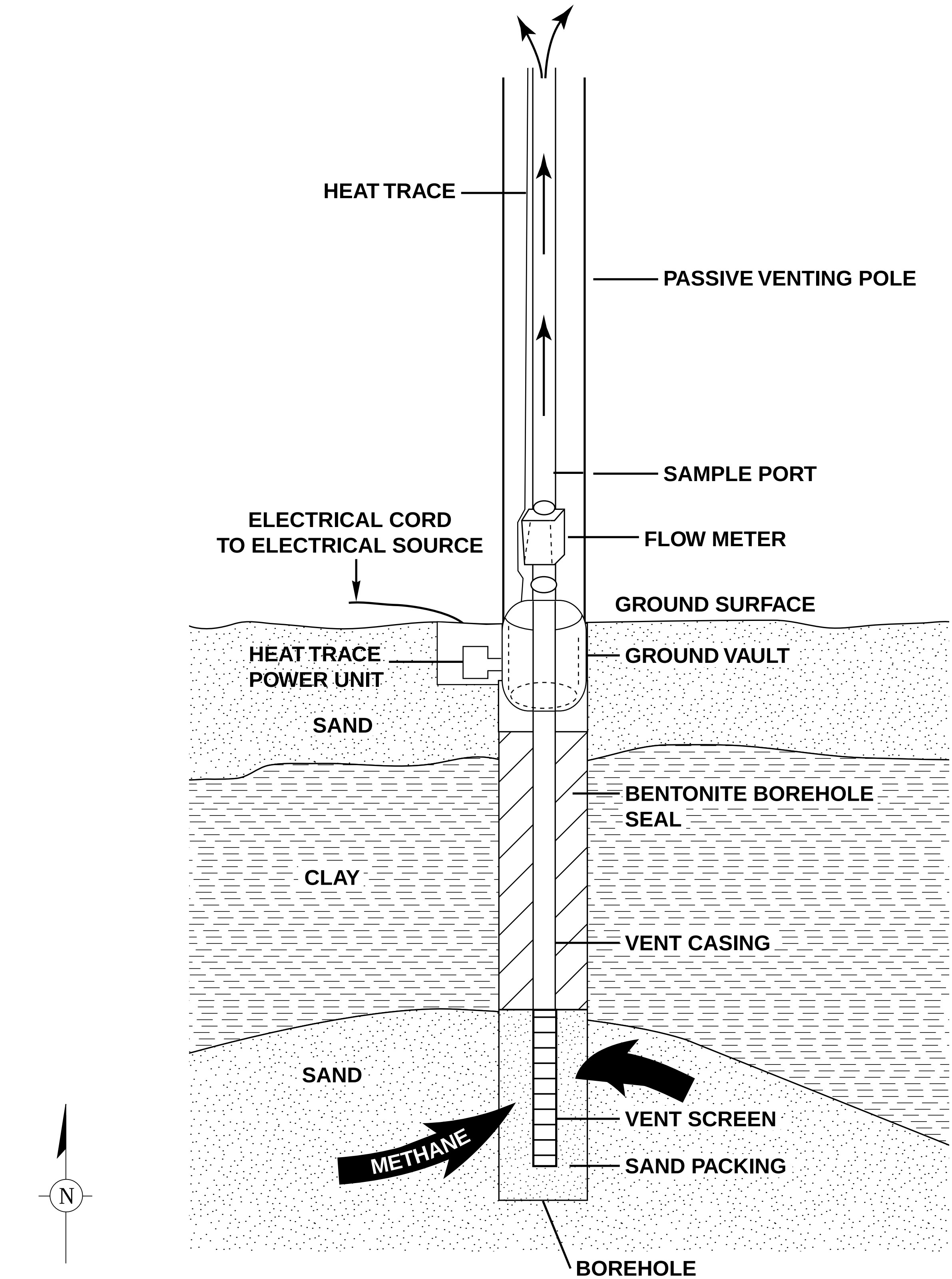
Area Manager: M. MAIERLE
Project Director: R. STUDEBAKER
Task Manager: J. COTA
Technical Review: M. HULL

ARCADIS
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

MINI SVE–02 SYSTEM LAYOUT

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number: WI001225.0015
Drawing Date: 9/29/05
Figure: 5–31



NOT TO SCALE

DRAFTER: LMB | APPROVED: | CHECKED: MS | DRAWING: PASSIVEVENT_CURRENTSETUP.AI | FILE NO.: GRAPHICS\RI REPORT | PN: FORDWI0637\CJ2009 | DWG DATE: 17MAR09

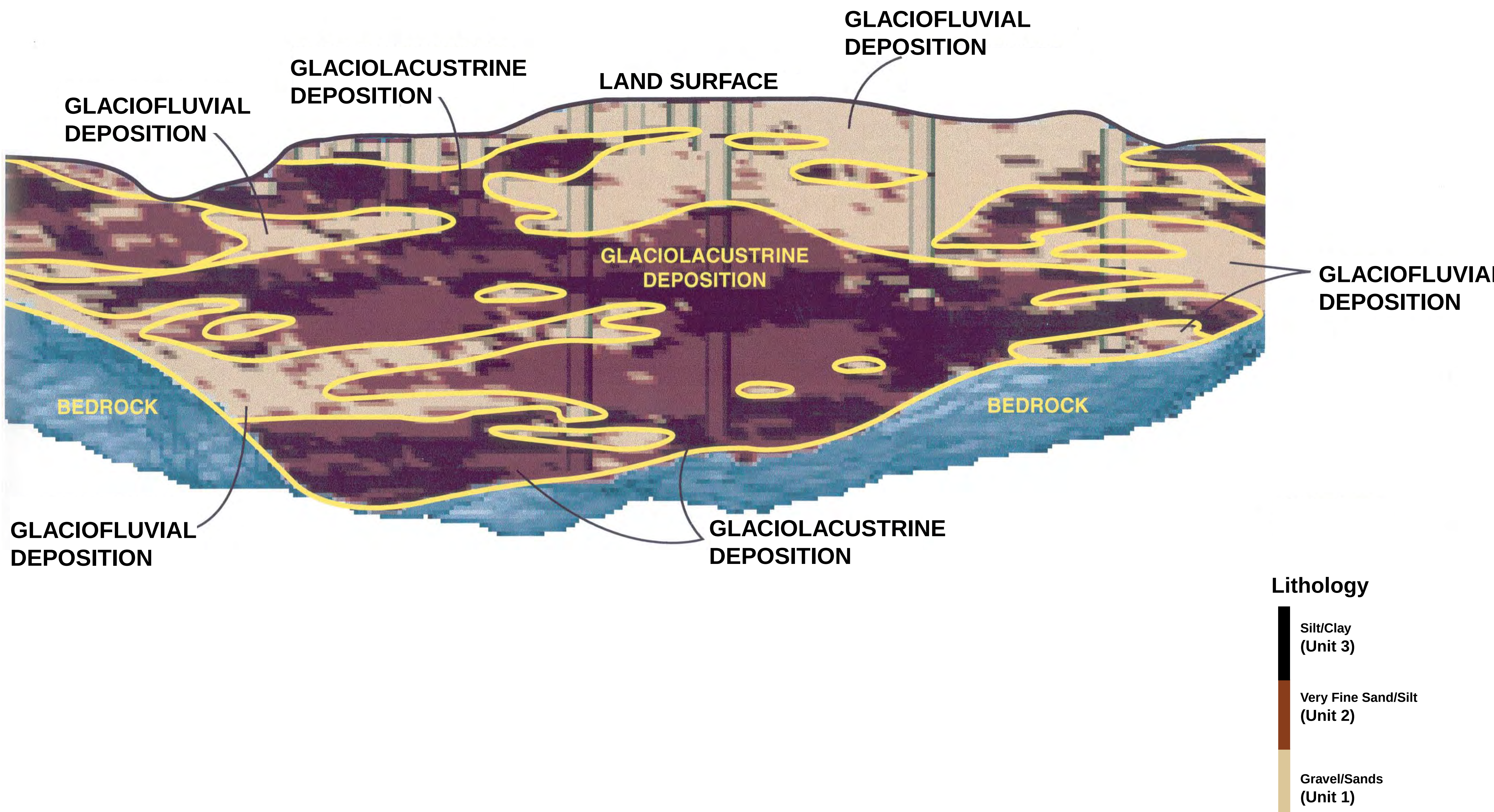
ARCADIS

TYPICAL PASSIVE VENT LAYOUT

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

5-32



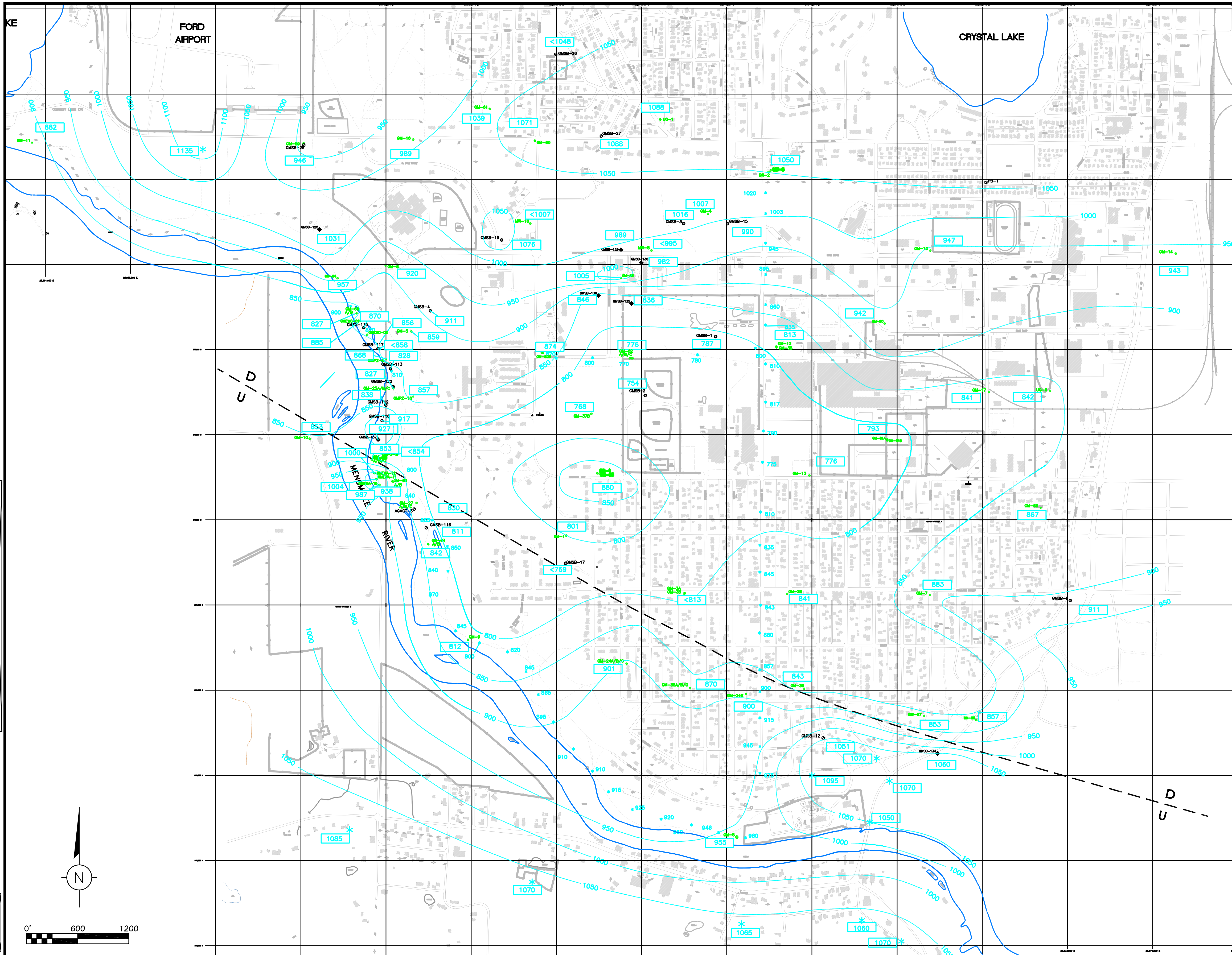
ARCADIS

ASSOCIATION OF THE DEPOSITIONAL ENVIRONMENTS TO THE GEOLOGIC MODEL

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE **6-1**

DRAFTER: LMB
APPROVED:
CHECKED: BE
DRAWING: LITHOLOGIC.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORDWI0637\CJ2009
DWG DATE: 19JAN09



LEGEND

- WELL LOCATION
- SOIL BORING LOCATION
- 946 BEDROCK ELEVATIONS ALONG SEISMIC LINES AT SELECT SHOTPOINTS (ELEVATION IN FEET MSL)
- 1050 BEDROCK ELEVATION (ELEVATION IN FEET MSL)
- 850 INFERRED BEDROCK CONTOUR LINE (ELEVATION IN FEET MSL)
- 1050 * BEDROCK ELEVATION INFERRED FROM OTHER SOURCES
- D/U BEDROCK FAULT (PER USGS PROFESSIONAL PAPER 513 AND POSITIONED BASED ON STRUCTURAL INFORMATION)

NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

NO.	DATE	REVISION DESCRIPTION	BY	CKD

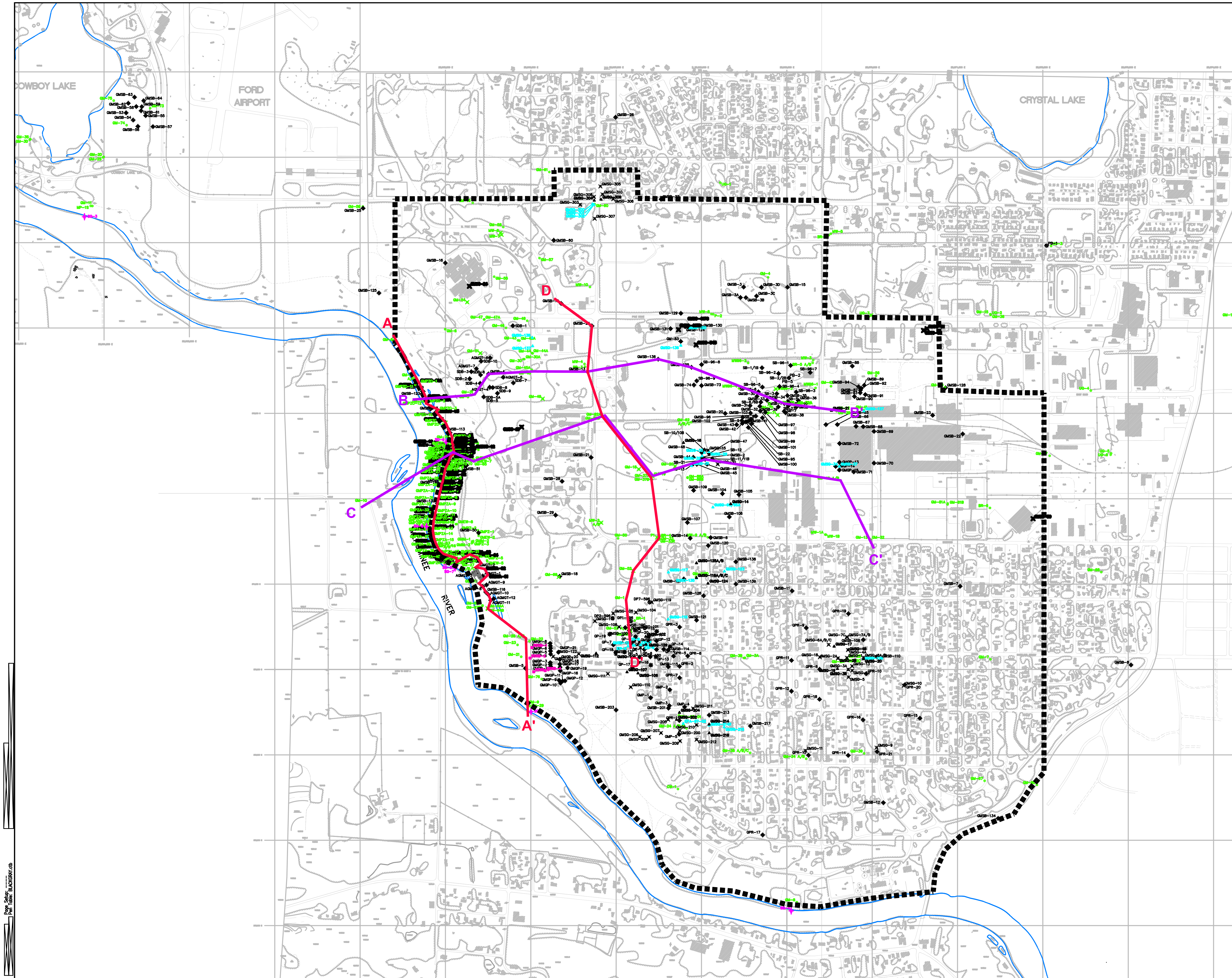
ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DRAWN: CES	DATE: 05/14/04	PROJECT MANAGER: EC	DEPARTMENT MANAGER: BE
		LEAD DESIGN PROF.: BE	CHECKED: BE
BEDROCK TOPOGRAPHY		PROJECT NUMBER: WI01075.0001	FIGURE: 6-2

Page Setup: Pen Table: BLACKGRAY.ctb



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- SOIL BORING LOCATION
- GEOPROBE LOCATION
- SOIL VAPOR PROBE LOCATION
- MONITOR WELL, PIEZOMETER AND EXTRACTION WELL LOCATION
- STAFF GAUGE LOCATION
- AREA OF CONCERN
- A—A' LOCATION OF NORTH–SOUTH GEOLOGIC CROSS–SECTION
- B—B' LOCATION OF EAST–WEST GEOLOGIC CROSS–SECTION

REV. ISSUED DATE DESCRIPTION | KEYPLAN | SEAL | SEAL

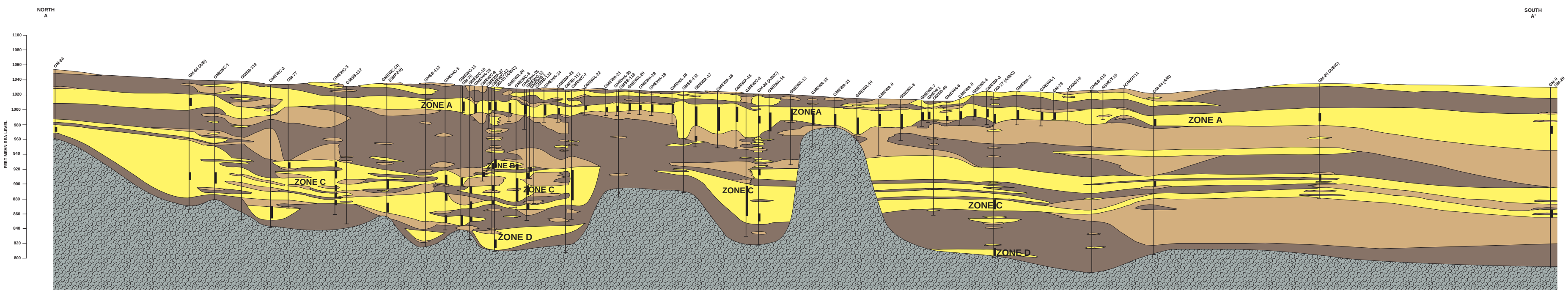
ARCADIS
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

REMEDIAL INVESTIGATION REPORT

FORD–KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

PROJECT MANAGER	DEPARTMENT MANAGER	LEAD DESIGN PROF.	CHECKED BY
R. STUDEBAKER	M. MAERLE	B. EVANS	B. EVANS
SHEET TITLE: CROSS SECTION LOCATION MAP		TASK/PHASE NUMBER: 0012.00001	DRAWN BY: C. MCKEOUGH
		PROJECT NUMBER: WI001125	DRAWING NUMBER: 6-3

DWG DATE: 29JAN09 | PN: FORDWI0637\CJ2009 | FILE NO.: GRAPHICS\RI REPORT | DRAWING: OVERSIZE XSEC_ZONES.AI | CHECKED: BE | APPROVED: | DRAFTER: LMB



LEGEND

- SAND (FINE TO COARSE) (UNIT 1)
- SILT/SAND (VERY FINE SILTY) (UNIT 2)
- SILT/CLAY (UNIT 3)
- BEDROCK

GM-84 WELL/BORING LOCATION
WELL SCREEN INTERVAL

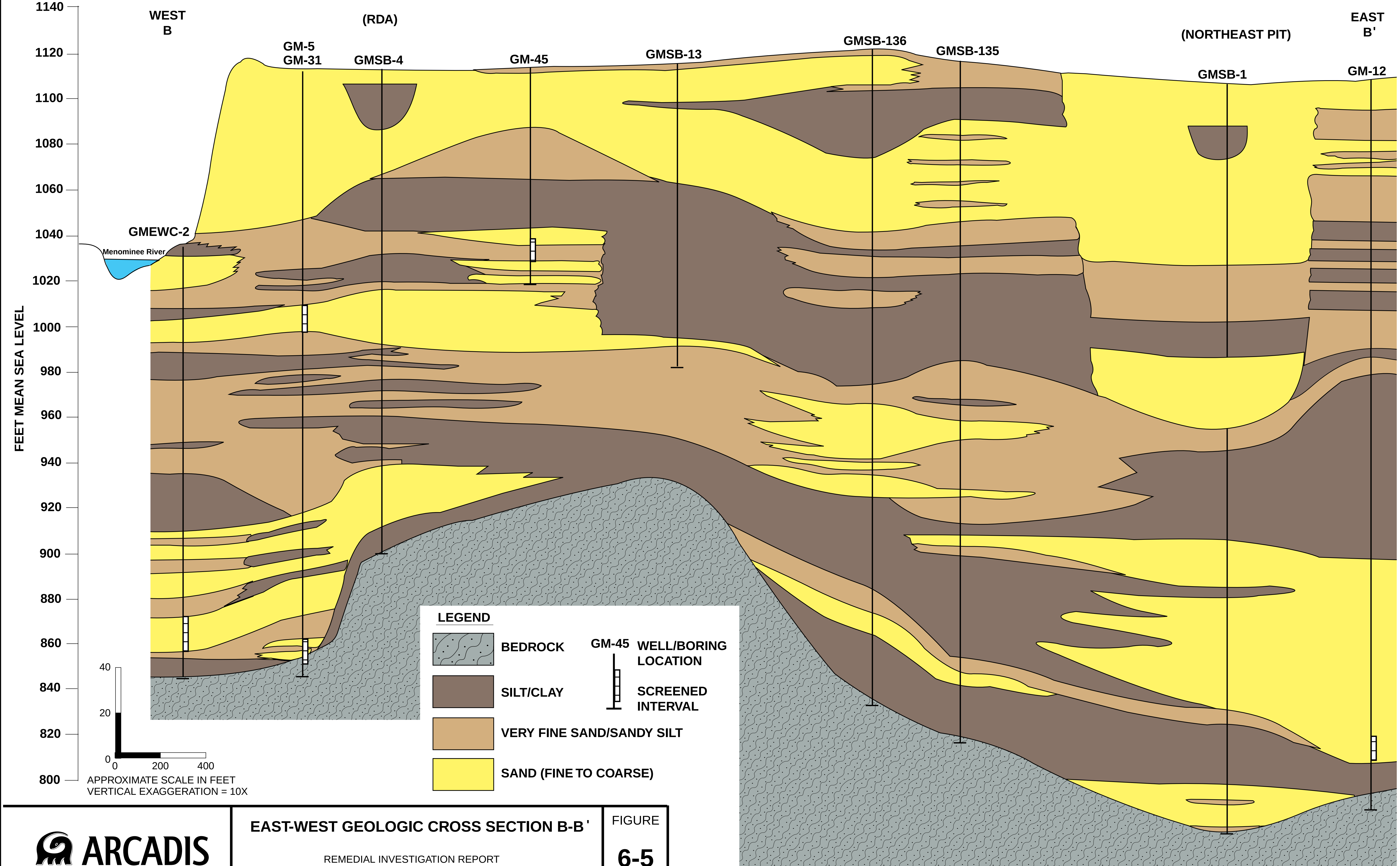
0 20 40
0 50 100
APPROXIMATE SCALE IN FEET
VERTICAL EXAGGERATION = 25X

ARCADIS

GEOLOGIC CROSS SECTION
ALONG THE MENOMINEE RIVER A-A'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-4



DRAFTER: LMB
APPROVED:
CHECKED: BE
DRAWING: EW XSEC.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORDWI0637\CJ2009
DWG DATE: 19JAN09

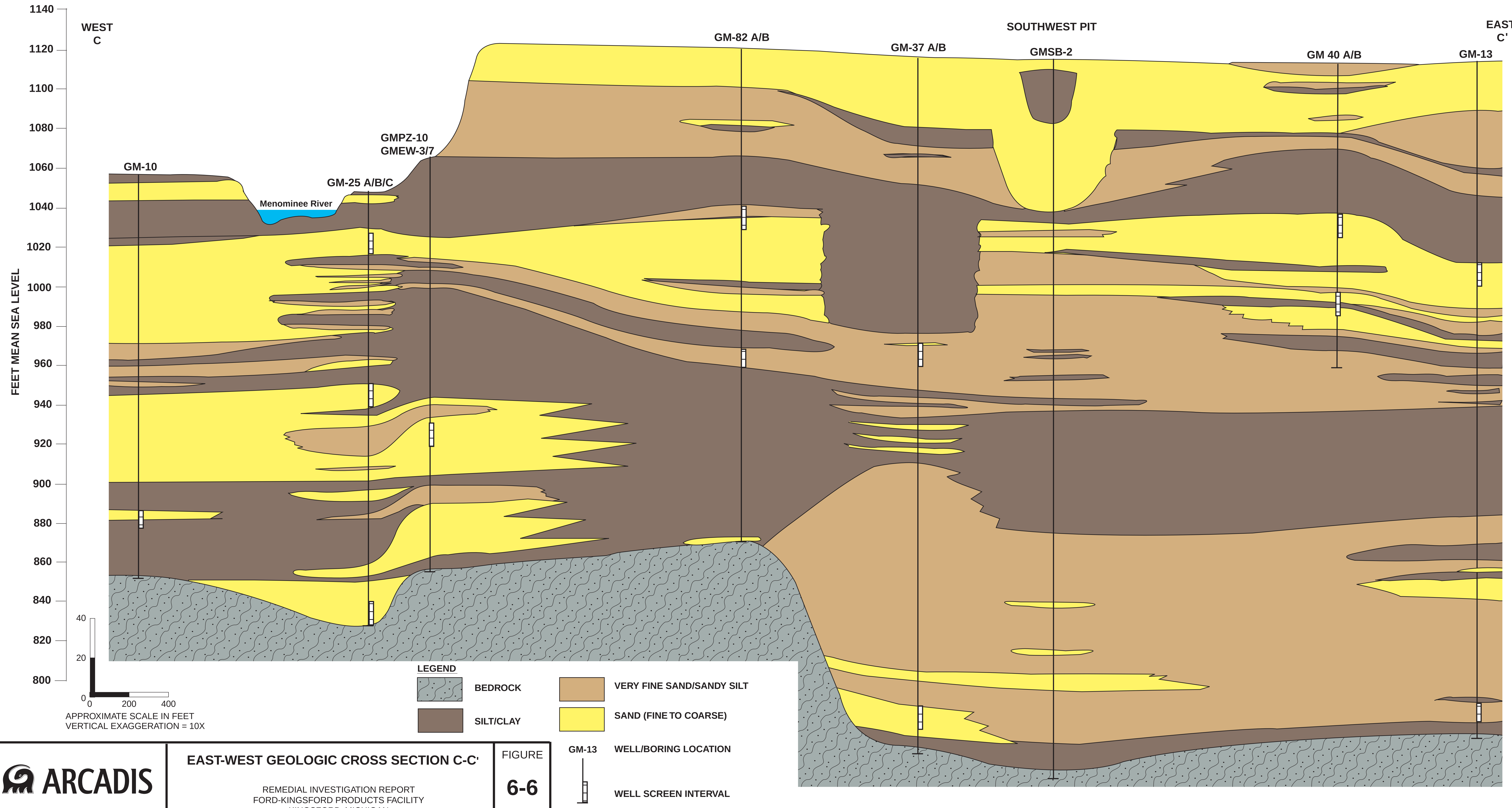
ARCADIS

EAST-WEST GEOLOGIC CROSS SECTION B-B'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-5

DRAFTER: LMB
APPROVED:
CHECKED: BWE
DRAWING: WE XSEC_C.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 05MAR10

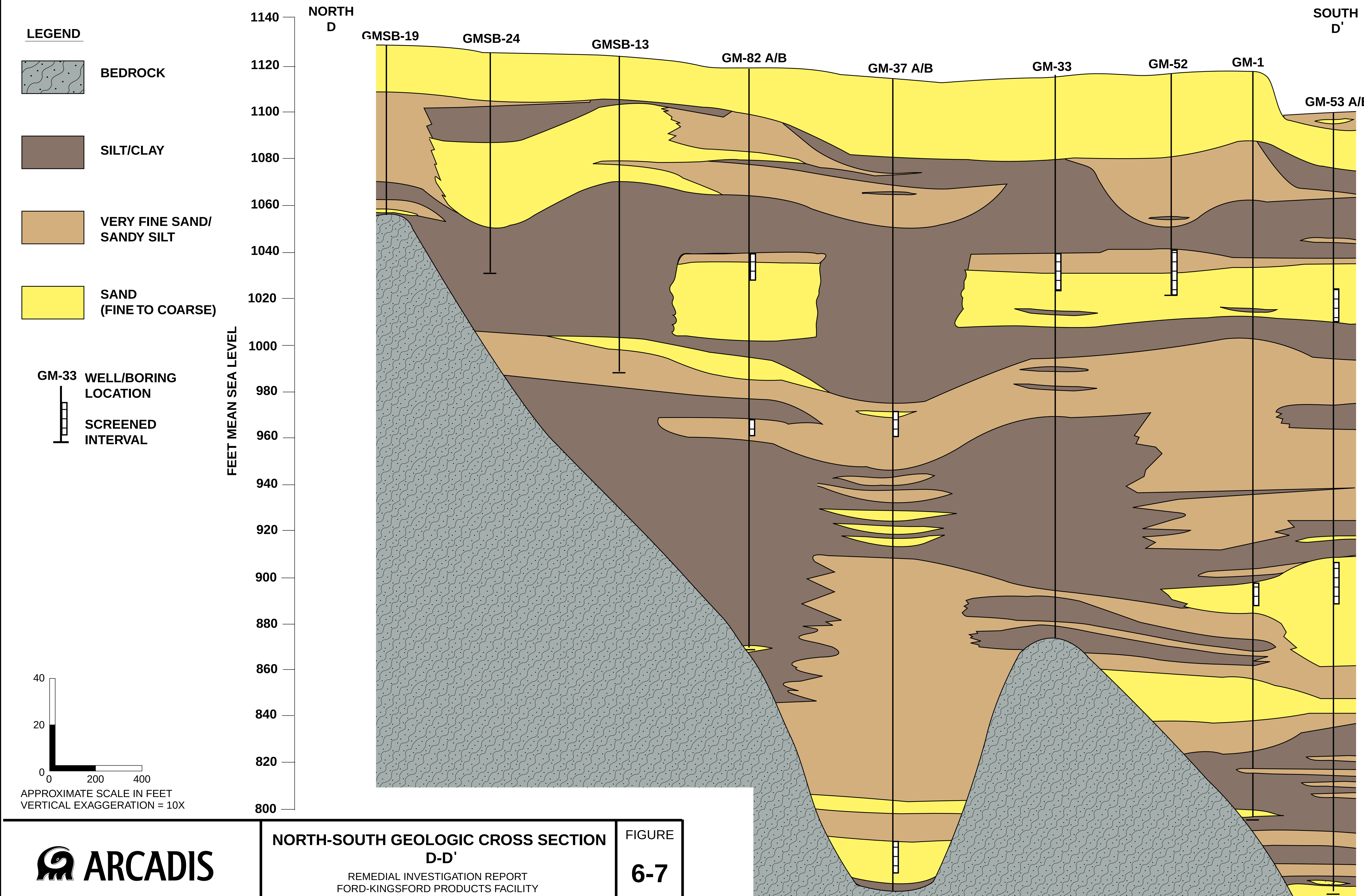


ARCADIS

EAST-WEST GEOLOGIC CROSS SECTION C-C'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-6



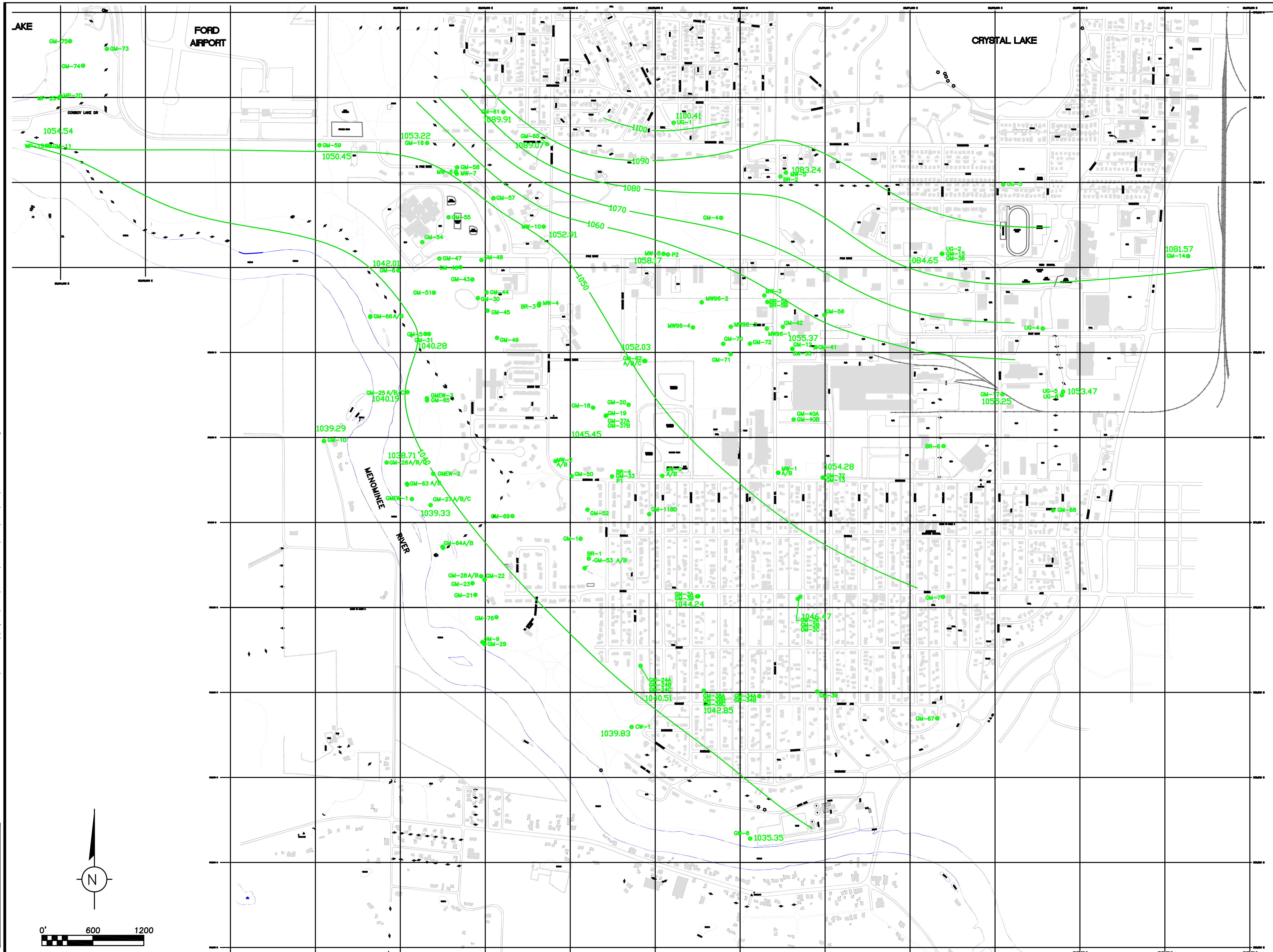
DRAFTER: LMB
APPROVED:
CHECKED: BE
DRAWING: NS XSEC.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORDWI0637\CJ2009
DWG DATE: 19JAN09

ARCADIS

NORTH-SOUTH GEOLOGIC CROSS SECTION D-D'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-7



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- MONITOR WELL LOCATION
- 1090 WATER TABLE ELEVATION CONTOUR (MSL)
- 30.35 WATER TABLE ELEVATION (MSL)

NOTE
THE DEEP GROUNDWATER SYSTEM ELEVATIONS ARE BASED ON MONITOR WELLS COMPLETED WITHIN APPROXIMATELY 25 FEET FROM THE BEDROCK.

Path\Name : G:\project\FORD\WI0637\CJ2009\cadd\RI Report\FIGWPOTM1201A.dwg

Page Setup: ----
Pen Table: ----

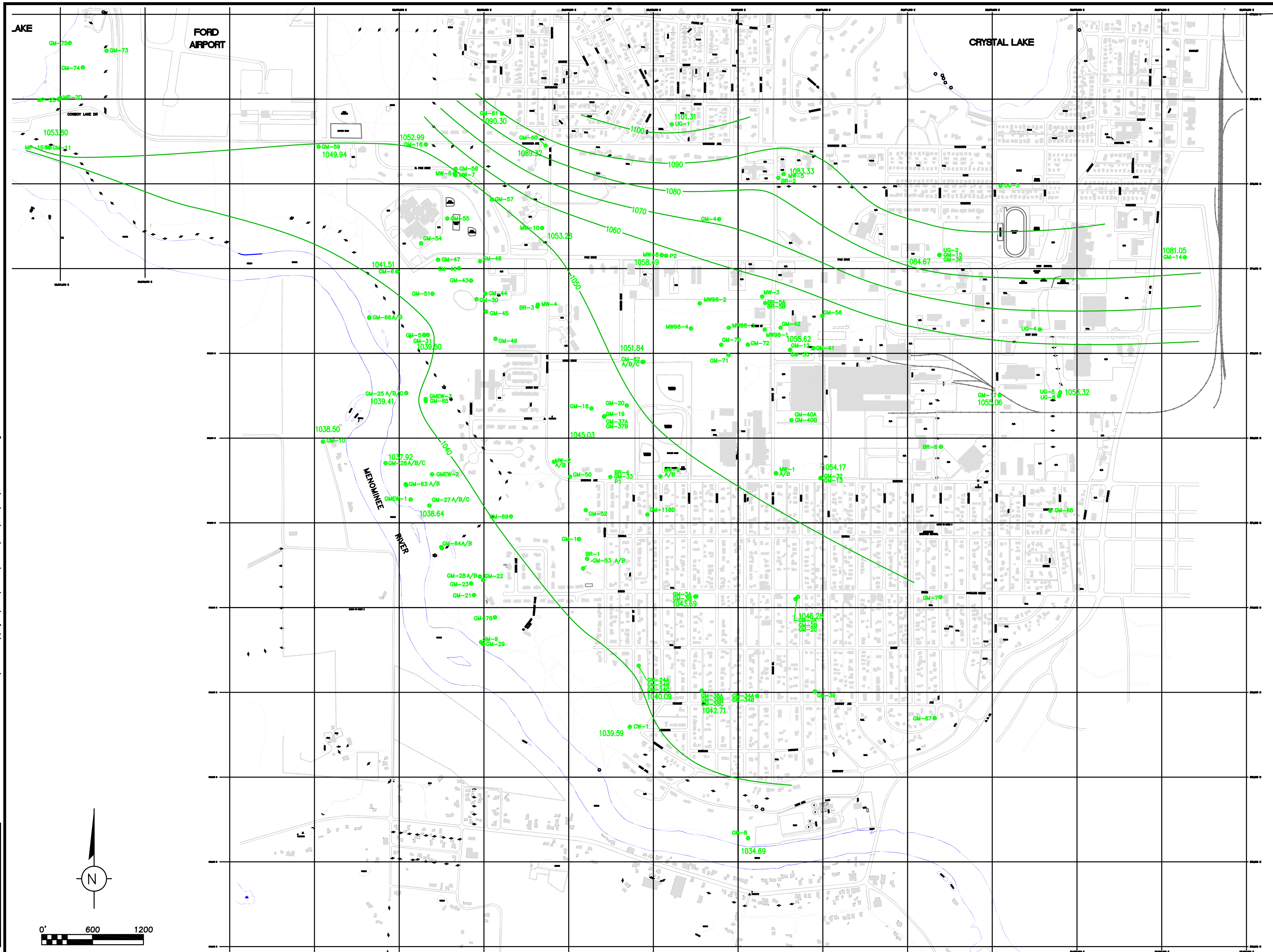
NO.	DATE	REVISION DESCRIPTION	BY / CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT
FORD–KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DEEP GROUNDWATER SYSTEM POTENTIOMETRIC SURFACE MAP (AUGUST 21, 1999)

DRAWN: CES	DATE: 06/06/02
PROJECT MANAGER: EC	DEPARTMENT MANAGER: BE
LEAD DESIGN PROF.: BE	CHECKED: BE
PROJECT NUMBER: WI00925.0001	FIGURE: 6-8



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- MONITOR WELL LOCATION
- 1090 — WATER TABLE ELEVATION CONTOUR (MSL)
- 1081.05 WATER TABLE ELEVATION (MSL)

NOTE

THE DEEP GROUNDWATER SYSTEM ELEVATIONS ARE BASED ON MONITOR WELLS COMPLETED WITHIN APPROXIMATELY 25 FEET FROM THE BEDROCK.

Path\Name : G:\project\FORD\WI0637\CJ2009\cadd\RI Report\FDGWPOTM1201.dwg

Page Setup: ----
Plot Table: ----

NO.	DATE	REVISION DESCRIPTION	BY	CKD

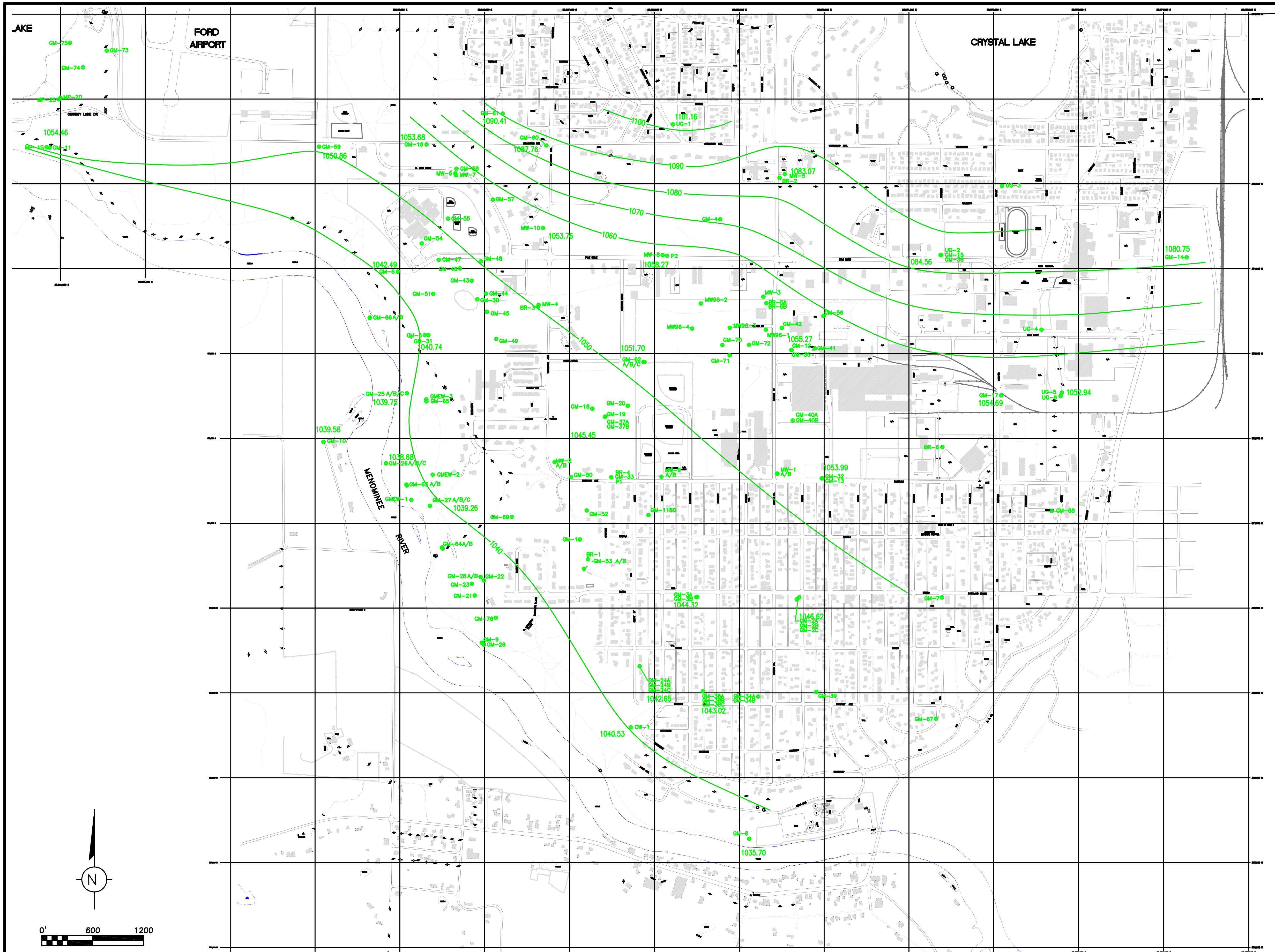
ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT

FORD–KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DEEP GROUNDWATER SYSTEM POTENTIOMETRIC SURFACE MAP (DECEMBER 31, 1999)

DRAWN CES	DATE 06/05/02	PROJECT MANAGER EC	DEPARTMENT MANAGER BE
		LEAD DESIGN PROF. BE	CHECKED BE
		PROJECT NUMBER WI00925.0001	FIGURE 6-9



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

●	MONITOR WELL LOCATION
—1090—	WATER TABLE ELEVATION CONTOUR (MSL)
30.35	WATER TABLE ELEVATION (MSL)

NOTE
THE DEEP GROUNDWATER SYSTEM ELEVATIONS ARE BASED ON MONITOR WELLS COMPLETED WITHIN APPROXIMATELY 25 FEET FROM THE BEDROCK.

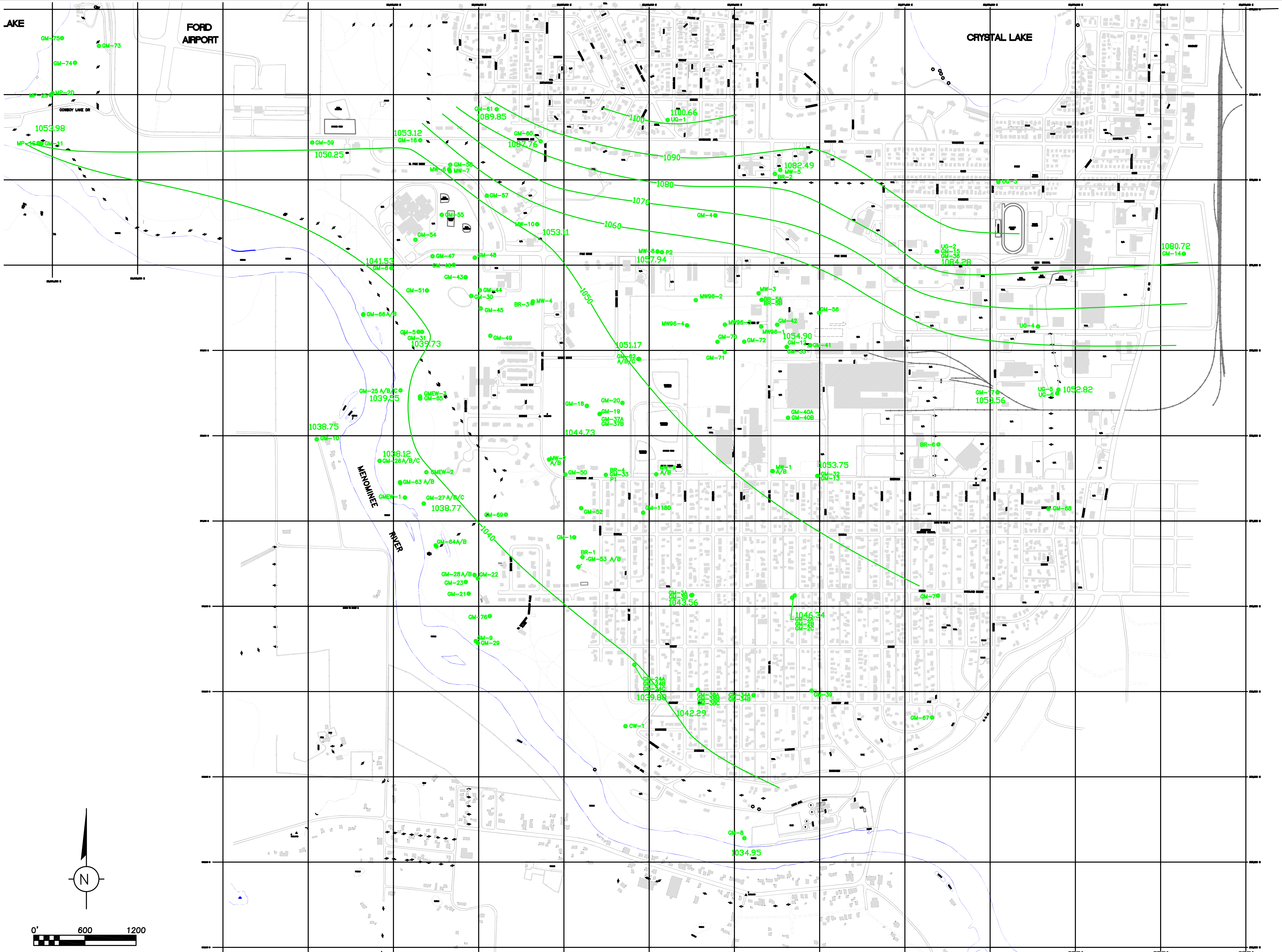
NO.	DATE	REVISION DESCRIPTION	BY / CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DEEP GROUNDWATER SYSTEM POTENTIOMETRIC SURFACE MAP
(MARCH 18, 2000)

DRAWN: CES	DATE: 06/05/02
PROJECT MANAGER: EC	DEPARTMENT MANAGER: BE
LEAD DESIGN PROF.: BE	CHECKED: BE
PROJECT NUMBER: WI00925.0001	FIGURE: 6-10



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
DATE OF PHOTOGRAPHY: 05/04/97
ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

MONITOR WELL LOCATION

—1090— WATER TABLE ELEVATION CONTOUR (MSL)

30.35 WATER TABLE ELEVATION (MSL)

NOTE

THE DEEP GROUNDWATER SYSTEM ELEVATIONS ARE BASED ON MONITOR WELLS COMPLETED WITHIN APPROXIMATELY 25 FEET FROM THE BEDROCK.

Path\Name : G:\project\FORD\WI0637\CJ2009\cadd\RI Report\FDGWPOTM1201C.dwg

Page Setup: ----
Pen Table: ----

NO.	DATE	REVISION DESCRIPTION	BY / CKD

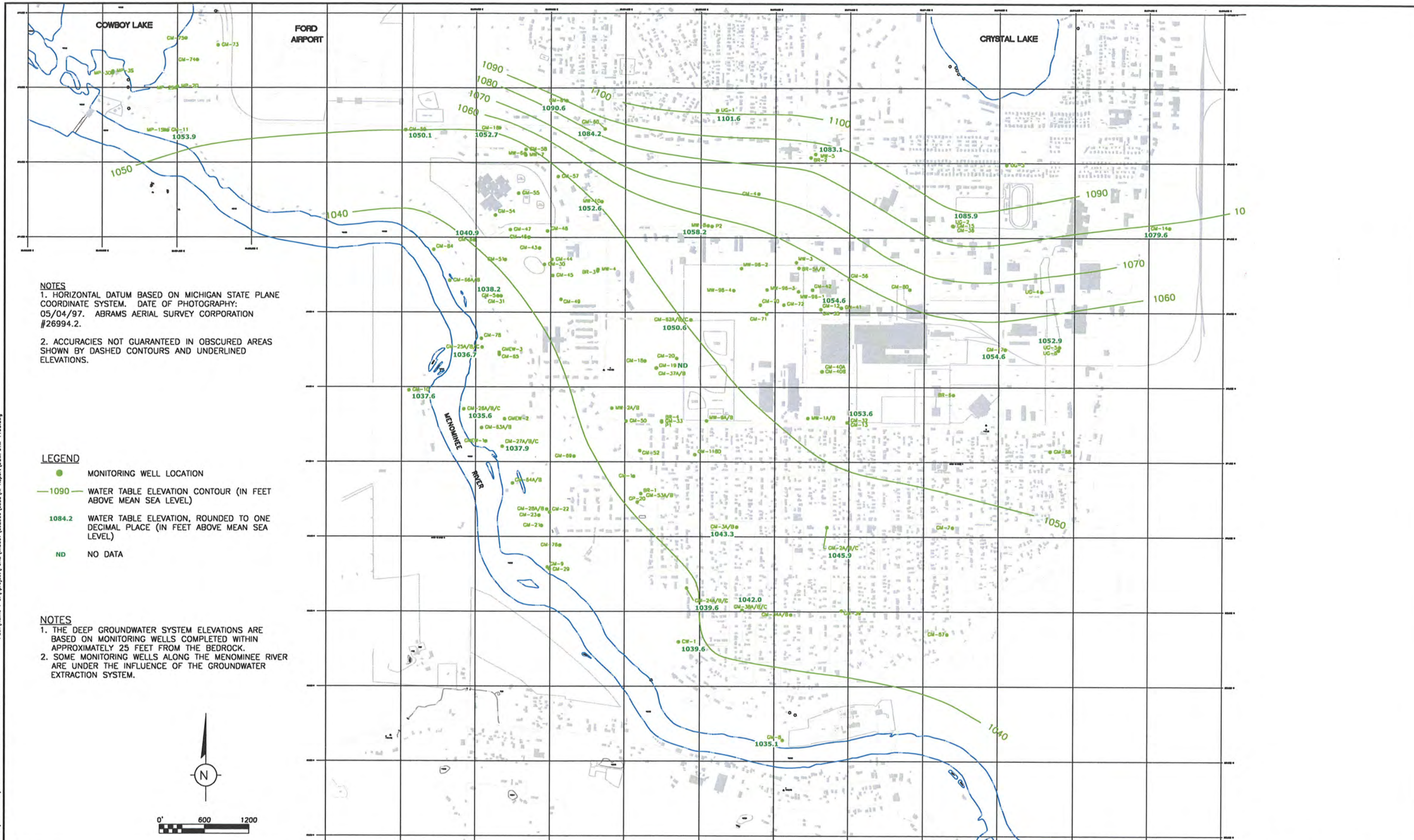
ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT

FORD–KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DEEP GROUNDWATER SYSTEM POTENTIOMETRIC SURFACE MAP (JUNE 17, 2000)

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CES	06/05/02	EC	BE
		LEAD DESIGN PROF.	CHECKED
		BE	BE
		PROJECT NUMBER	FIGURE
		WI00925.0001	6–11



NOTES
1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM. DATE OF PHOTOGRAPHY: 05/04/97. ABRAMS AERIAL SURVEY CORPORATION #26994.2.

2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS.

LEGEND

●	MONITORING WELL LOCATION
—1090—	WATER TABLE ELEVATION CONTOUR (IN FEET ABOVE MEAN SEA LEVEL)
1084.2	WATER TABLE ELEVATION, ROUNDED TO ONE DECIMAL PLACE (IN FEET ABOVE MEAN SEA LEVEL)
ND	NO DATA

NOTES
1. THE DEEP GROUNDWATER SYSTEM ELEVATIONS ARE BASED ON MONITORING WELLS COMPLETED WITHIN APPROXIMATELY 25 FEET FROM THE BEDROCK.
2. SOME MONITORING WELLS ALONG THE MENOMINEE RIVER ARE UNDER THE INFLUENCE OF THE GROUNDWATER EXTRACTION SYSTEM.

Date\Time : Fri, 23 Jan 2009 - 1:43pm
Path\Name : G:\aproject\FORD\WI0637\CJ2009\cadd\RI Report\DGWPOTM 1106.dwg
Page Setup: CANON 11X17
Pen Table: BLACKGRAY.ctb
Current Plotstyle : ByColor
Layout tab: Layout1
User Name : cmckeough
Acad Version : R17.0s (LMS Tech)

REV. ISSUED DATE DESCRIPTION

KEYPLAN

SEAL

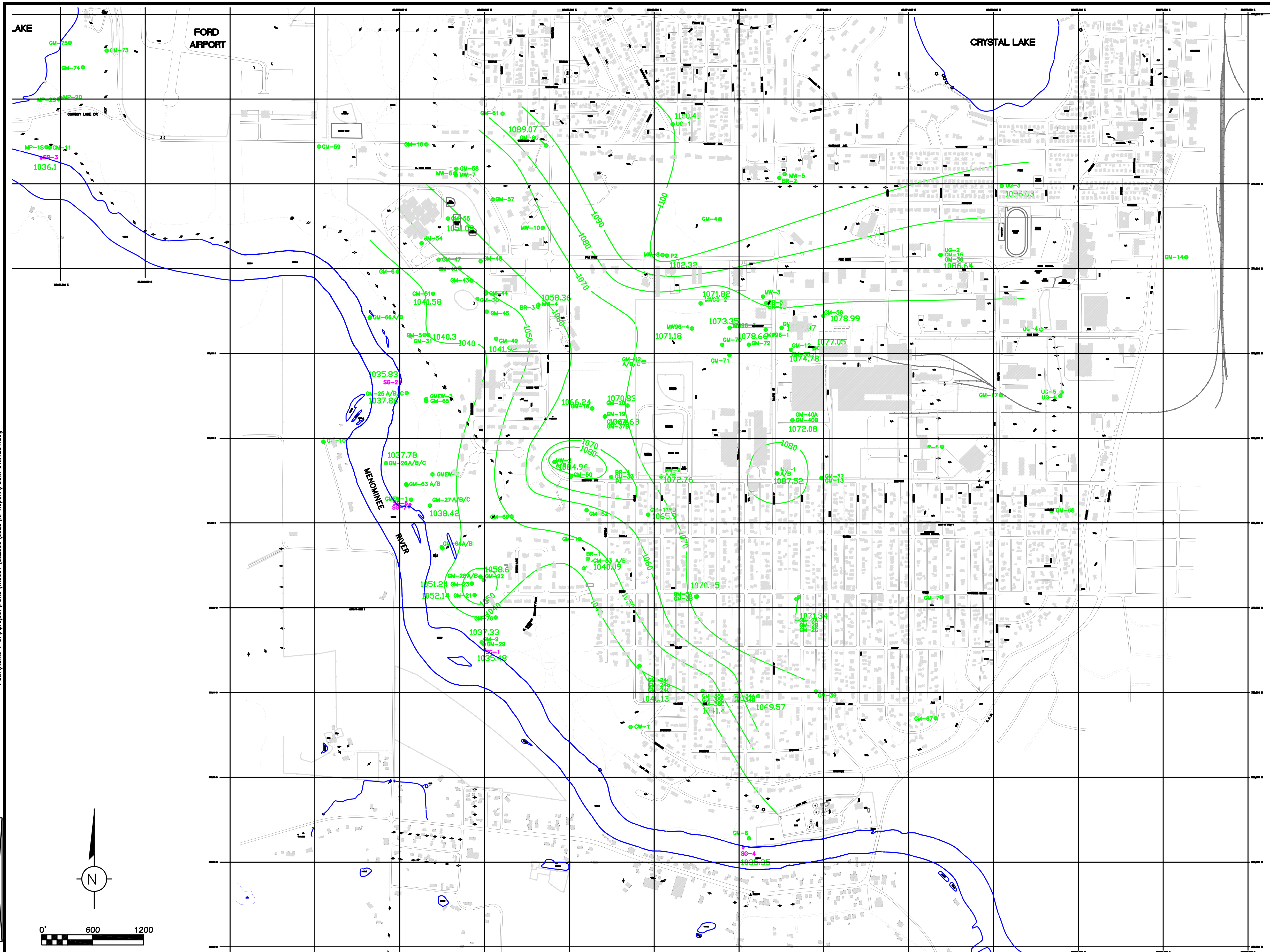
ARCADIS

126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

PROJECT MANAGER R. STUDEBAKER	DEPARTMENT MANAGER M. MAIERLE	LEAD DESIGN PROF. B. EVANS	CHECKED BY B. EVANS
SHEET TITLE DEEP GROUNDWATER SYSTEM POTENTIOMETRIC SURFACE MAP (NOVEMBER 28, 2006)		TASK/PHASE NUMBER 0012.00001	DRAWN BY C. MCKEOUGH
		PROJECT NUMBER WI001075	FIGURE NUMBER 6-12



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- MONITOR WELL LOCATION
- STAFF GAUGE LOCATION
- 1090 WATER TABLE ELEVATION CONTOUR (MSL)
- 1086.64 WATER TABLE ELEVATION (MSL)

NOTE

THE SHALLOW GROUNDWATER SYSTEM ELEVATIONS ARE BASED ON MONITOR WELLS COMPLETED ABOVE 1000 FEET MEAN SEA LEVEL.

Path\Name : G:\project\FORD\WI0637\CJ2009\cadd\RI Report\FSGWPOTM1201.dwg

Page Setup: ----
Pen Table: ----

NO.	DATE	REVISION DESCRIPTION	BY / CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT

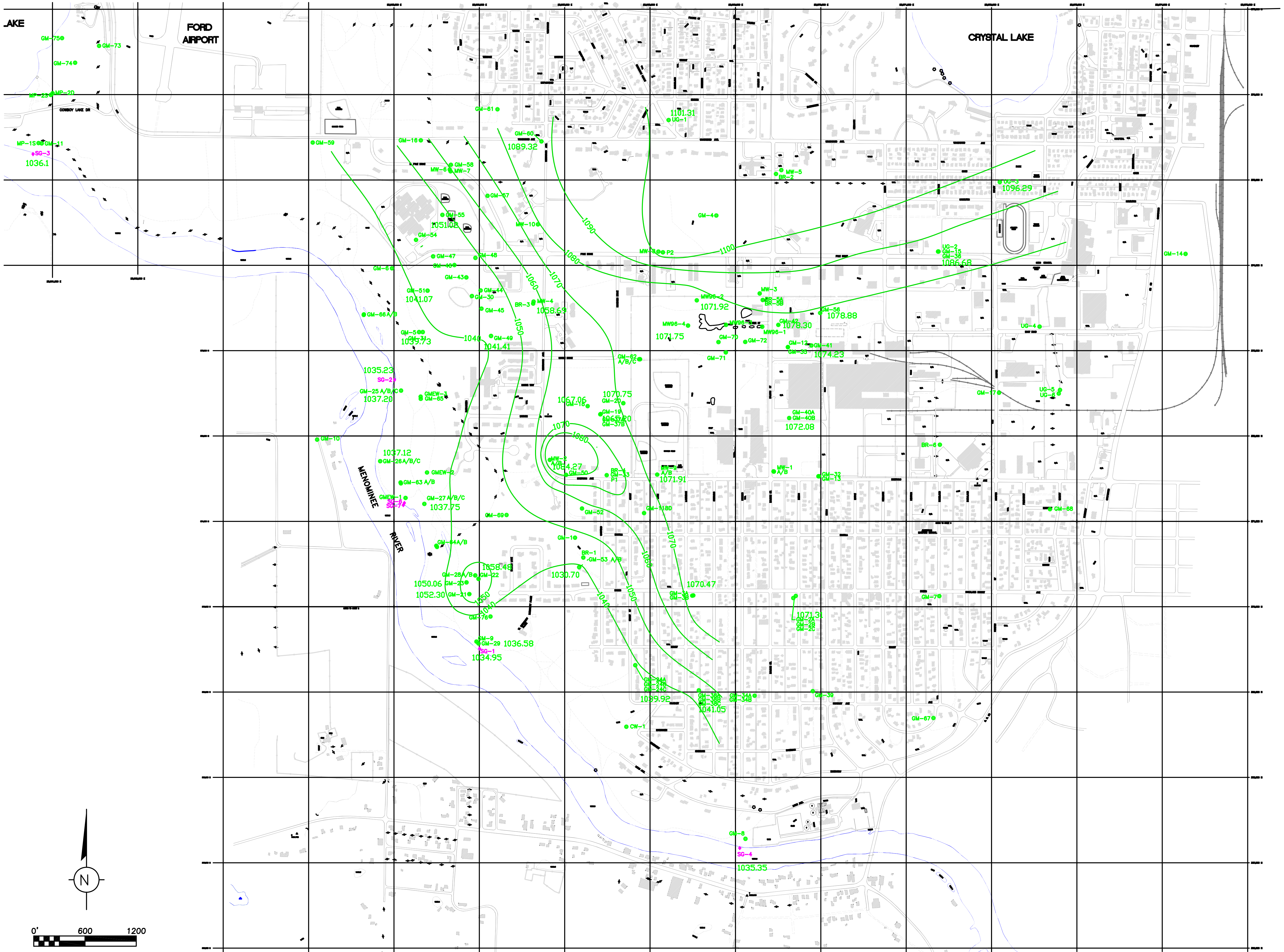
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CES	6/05/2002	EC	BE
		LEAD DESIGN PROF. BE	CHECKED BE

SHALLOW GROUNDWATER SYSTEM POTENTIOMETRIC SURFACE MAP (AUGUST 21, 1999)

PROJECT NUMBER: WI00925.0001

FIGURE: 6-13



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- MONITOR WELL LOCATION
- STAFF GAUGE LOCATION
- 1090 — WATER TABLE ELEVATION CONTOUR (MSL)
- 1086.64 WATER TABLE ELEVATION (MSL)

NOTE
THE SHALLOW GROUNDWATER SYSTEM ELEVATIONS ARE BASED ON MONITOR WELLS COMPLETED ABOVE 1000 FEET MEAN SEA LEVEL.

Path\Name : G:\project\FORD\WI00637\CJ2009\cadd\RI Report\FSGWPOTMb1201.dwg

Page Setup: ----
Pen Table: ----

NO.	DATE	REVISION DESCRIPTION	BY / CKD

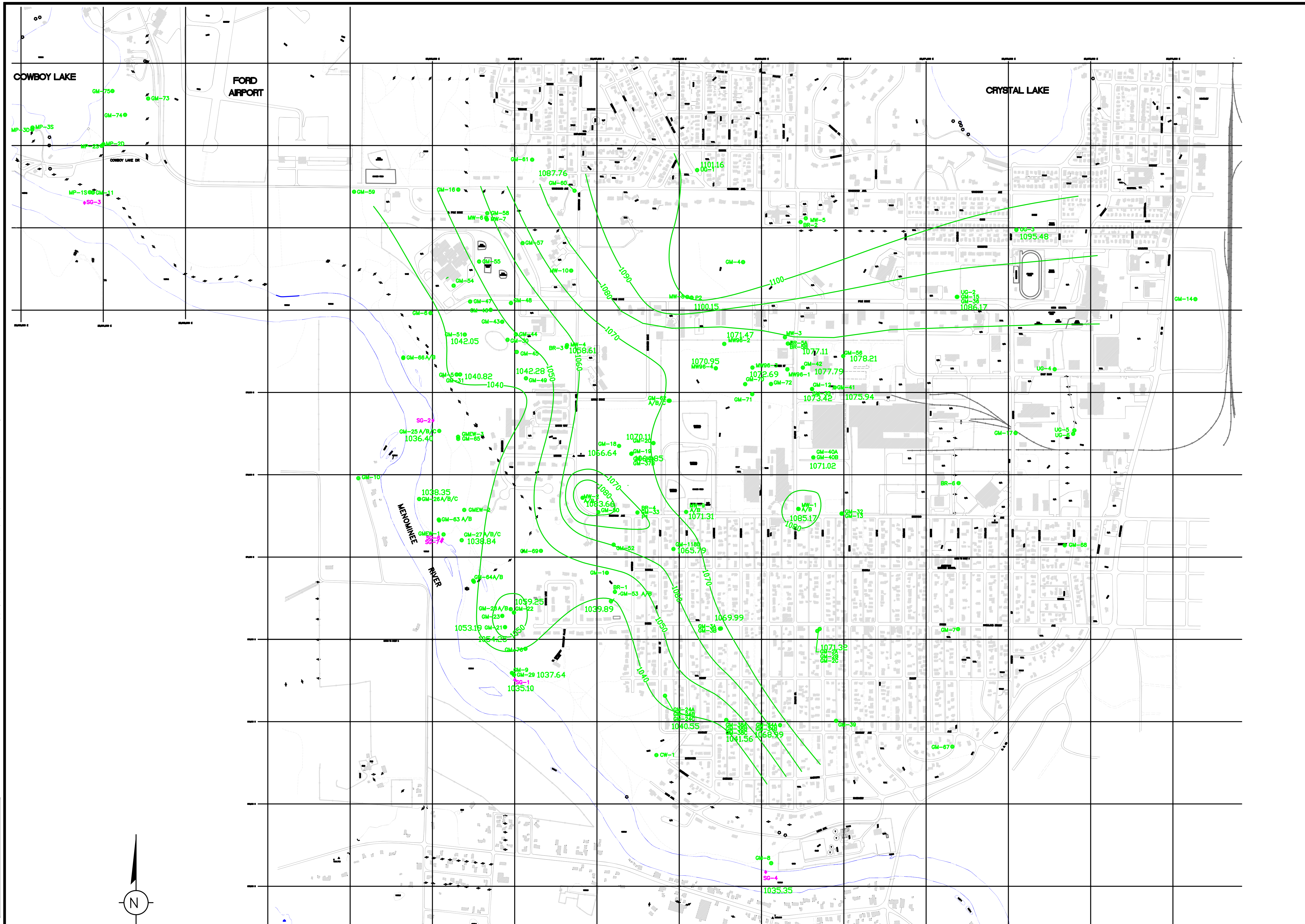
ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

SHALLOW GROUNDWATER SYSTEM POTENTIOMETRIC SURFACE MAP (DECEMBER 31, 1999)

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CES	6/05/2002	EC	BE
		LEAD DESIGN PROF. BE	CHECKED BE
		PROJECT NUMBER WI00925.0001	FIGURE 6-14



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- MONITOR WELL LOCATION
- STAFF GAUGE LOCATION
- 1090 — WATER TABLE ELEVATION CONTOUR (MSL)
- 1086.64 WATER TABLE ELEVATION (MSL)

NOTE
THE SHALLOW GROUNDWATER SYSTEM ELEVATIONS ARE BASED ON MONITOR WELLS COMPLETED ABOVE 1000 FEET MEAN SEA LEVEL.

Path\Name : G:\project\FORD\WI0637\CJ2009\cadd\RI Report\FSGWPOTMc1201.dwg

Page Setup: ----
Pen Table: ----

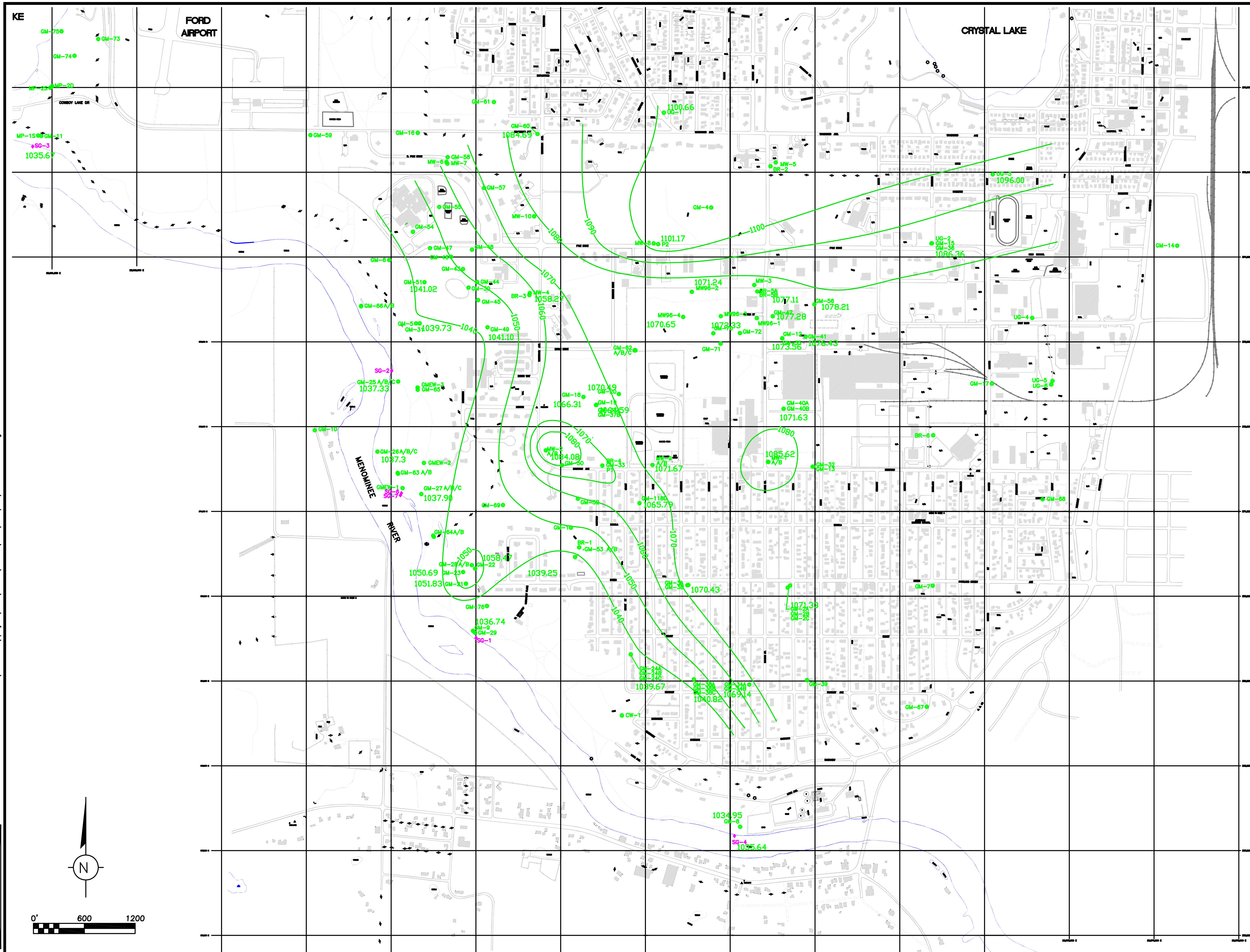
NO.	DATE	REVISION DESCRIPTION	BY / CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

SHALLOW GROUNDWATER SYSTEM POTENTIOMETRIC SURFACE MAP (MARCH 18, 2000)

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CES	6/05/2002	EC	BE
		LEAD DESIGN PROF. BE	CHECKED BE
		PROJECT NUMBER WI00925.0001	FIGURE 6-15



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- MONITOR WELL LOCATION
- STAFF GAUGE LOCATION
- —1090— WATER TABLE ELEVATION CONTOUR (MSL)
- 1086.64 WATER TABLE ELEVATION (MSL)

NOTE
THE SHALLOW GROUNDWATER SYSTEM ELEVATIONS ARE BASED ON MONITOR WELLS COMPLETED ABOVE 1000 FEET MEAN SEA LEVEL.

Path\Name : G:\project\FORD\WI00637\CJ2009\cadd\RI Report\FSGWPOTMd1201.dwg

Page Setup: ---- Pen Table: ----

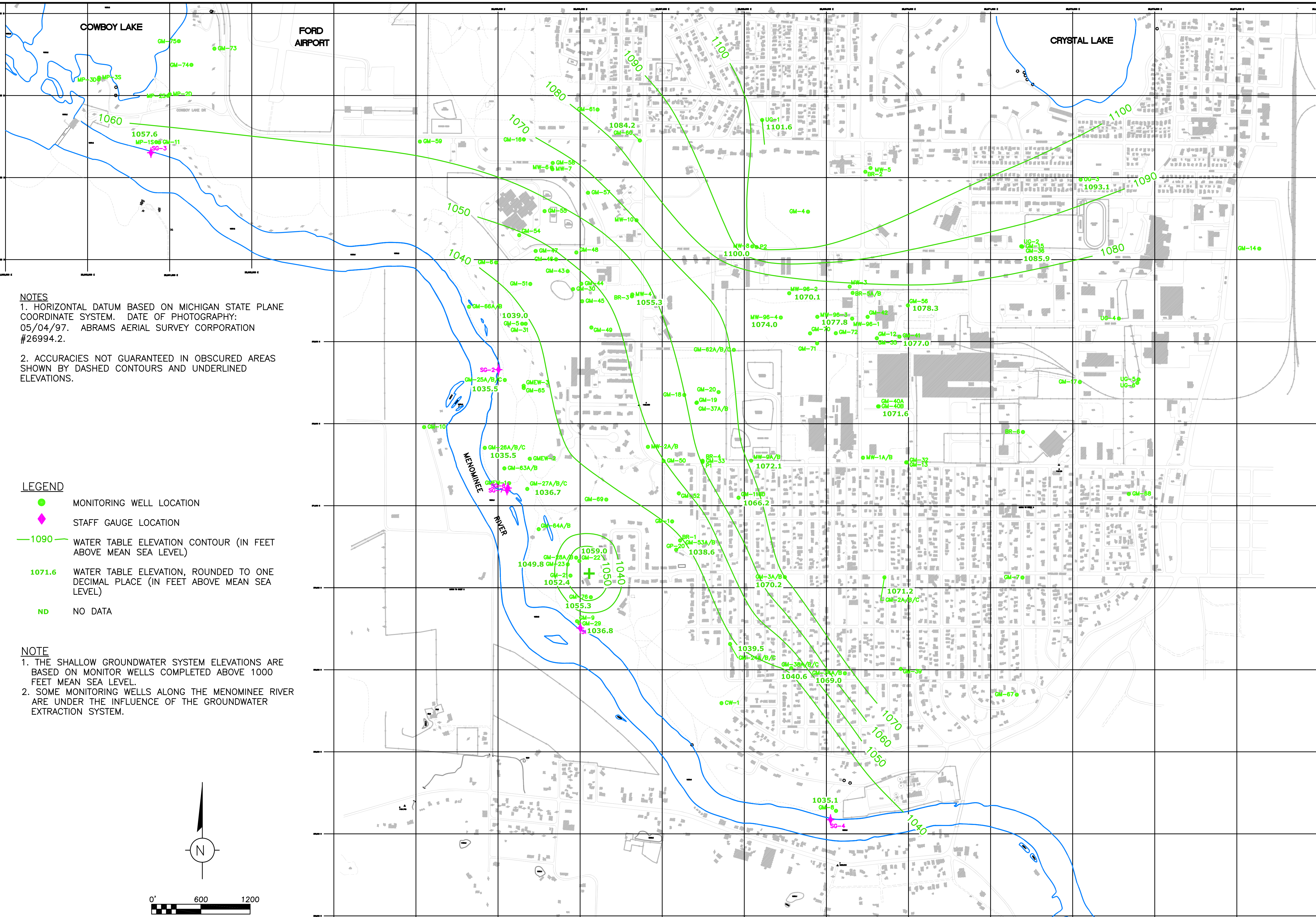
NO.	DATE	REVISION DESCRIPTION	BY CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

SHALLOW GROUNDWATER SYSTEM POTENTIOMETRIC SURFACE MAP (JUNE 17, 2000)

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CES	6/05/2002	EC	BE
		LEAD DESIGN PROF. BE	CHECKED BE
		PROJECT NUMBER WI00925.0001	FIGURE 6-16



NOTES
1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM. DATE OF PHOTOGRAPHY: 05/04/97. ABRAMS AERIAL SURVEY CORPORATION #26994.2.

2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS.

LEGEND

●	MONITORING WELL LOCATION
◆	STAFF GAUGE LOCATION
—1090—	WATER TABLE ELEVATION CONTOUR (IN FEET ABOVE MEAN SEA LEVEL)
1071.6	WATER TABLE ELEVATION, ROUNDED TO ONE DECIMAL PLACE (IN FEET ABOVE MEAN SEA LEVEL)
ND	NO DATA

NOTE
1. THE SHALLOW GROUNDWATER SYSTEM ELEVATIONS ARE BASED ON MONITOR WELLS COMPLETED ABOVE 1000 FEET MEAN SEA LEVEL.
2. SOME MONITORING WELLS ALONG THE MENOMINEE RIVER ARE UNDER THE INFLUENCE OF THE GROUNDWATER EXTRACTION SYSTEM.

Page Setup: ------
Pen Table: BLACKGRAY.ctb

REV. ISSUED DATE DESCRIPTION

KEYPLAN

SEAL

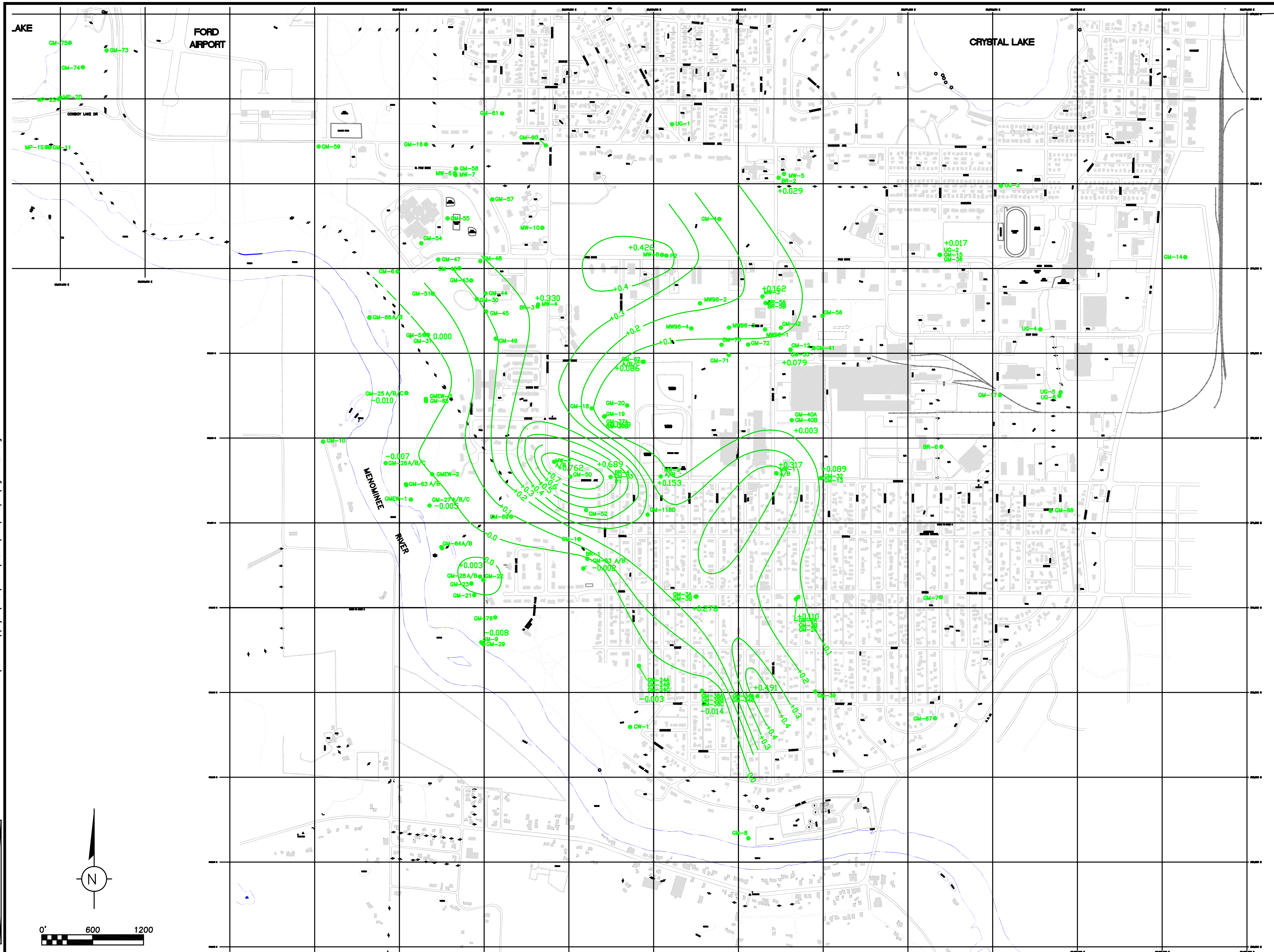
ARCADIS

126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

PROJECT MANAGER R. STUDEBAKER	DEPARTMENT MANAGER M. MAIERLE	LEAD DESIGN PROF. B. EVANS	CHECKED BY B. EVANS
SHEET TITLE SHALLOW GROUNDWATER SYSTEM POTENTIOMETRIC SURFACE MAP (NOVEMBER 28, 2006)		TASK/PHASE NUMBER 0012.00001	DRAWN BY C. MCKEOUGH
		PROJECT NUMBER WI001075	FIGURE NUMBER 6-17



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
DATE OF PHOTOGRAPHY: 05/04/97
ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

MONITOR WELL LOCATION

STAFF GAUGE LOCATION

+0.4 VERTICAL GRADIENT CONTOUR

+0.089 VERTICAL HYDRAULIC GRADIENT IN FOOT PER FOOT (FT/FT)

"+" POSITIVE GRADIENT EQUALS A DOWNWARD GRADIENT

"–" NEGATIVE GRADIENT EQUALS A UPWARD GRADIENT

Path\Name : G:\project\FORD\WI0637\C\2009\cadd\RI Report\Fvgradnt1201.dwg

Page Setup: ----
Pen Table: ----

NO.	DATE	REVISION DESCRIPTION	BY / CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT

FORD–KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

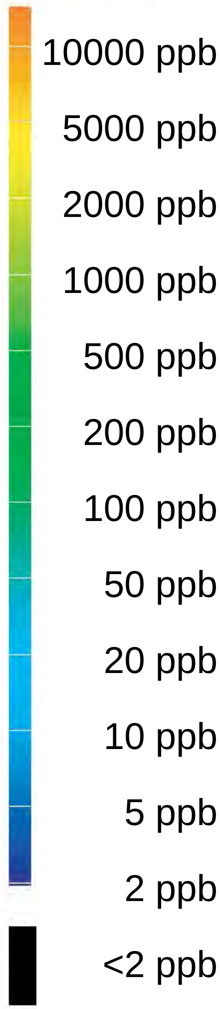
DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CES	06/06/02	EC	BE
		LEAD DESIGN PROF. BE	CHECKED BE

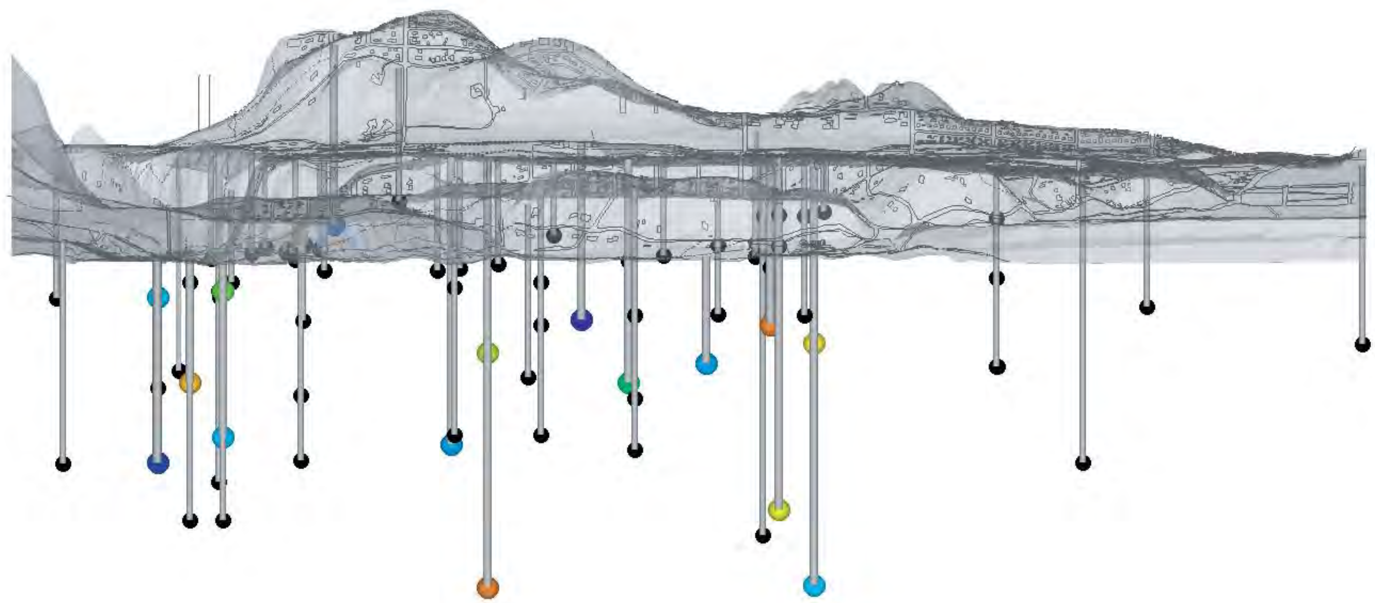
VERTICAL COMPONENT OF THE GROUNDWATER GRADIENT CONTOUR MAP (AUGUST 21, 1999)

PROJECT NUMBER
WI00925.0001

FIGURE
6-18

DWG DATE: 19JAN09	PN: FORD\WI0637\CJ2009	FILE NO.: GRAPHICS\RI REPORT	DRAWING: ACETICDATASOUTH.AI	CHECKED: BE	APPROVED:	DRAFTER: ELS





Explanation

● Control point and concentration of 2,4 Dimethylphenol by color

ppb Parts per billion of 2,4 Dimethylphenol

ARCADIS

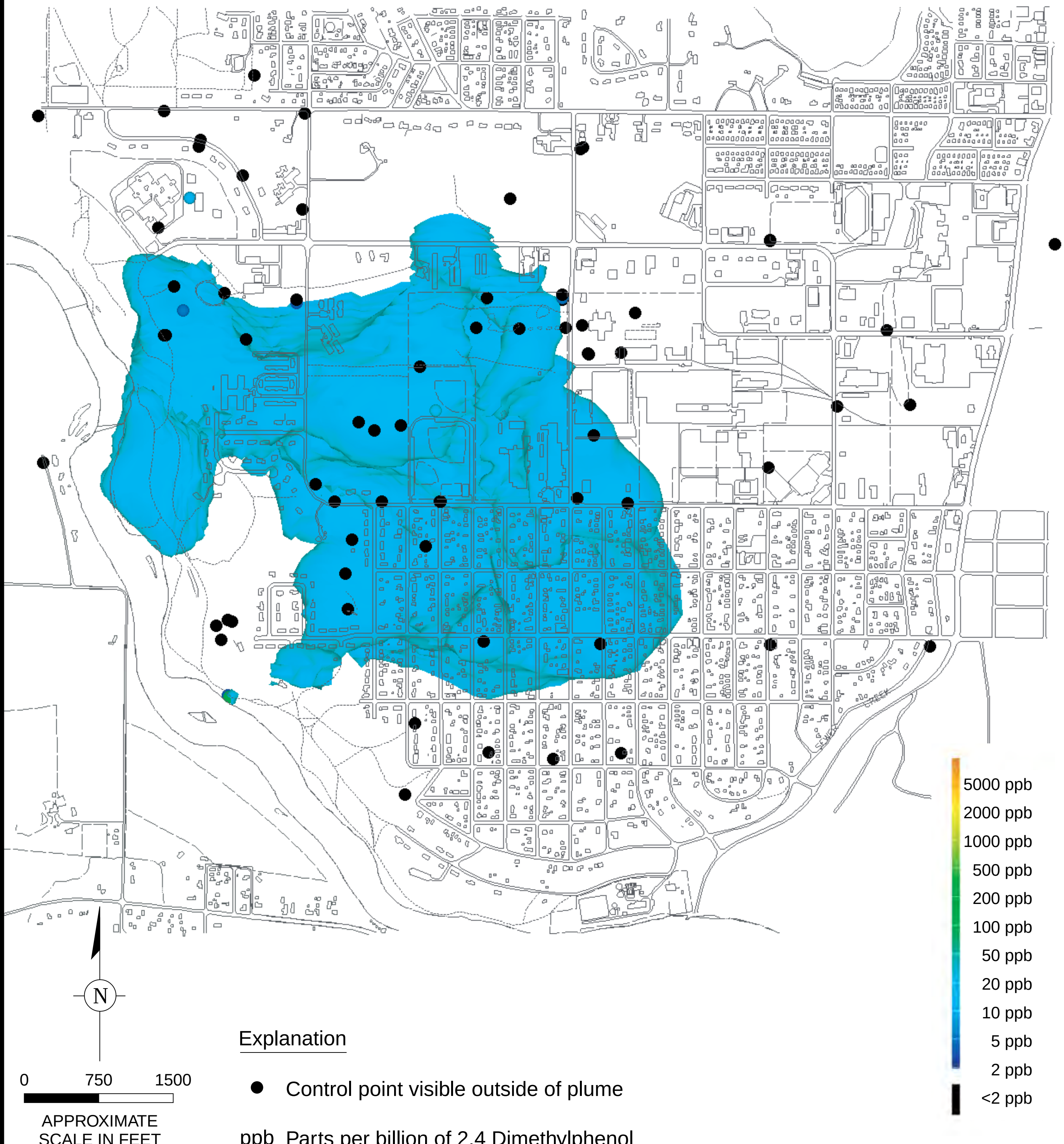
EXAMPLE OF THE CONTROL POINTS USED TO CONSTRUCT THE 3-D PLUME MODEL FOR 2,4 DIMETHYLPHENOL

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-19

DRAFTER: LMB
APPROVED:
CHECKED: BE
DRAWING: 24DITOP0300.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 19JAN09



Explanation

● Control point visible outside of plume

ppb Parts per billion of 2,4 Dimethylphenol

ARCADIS

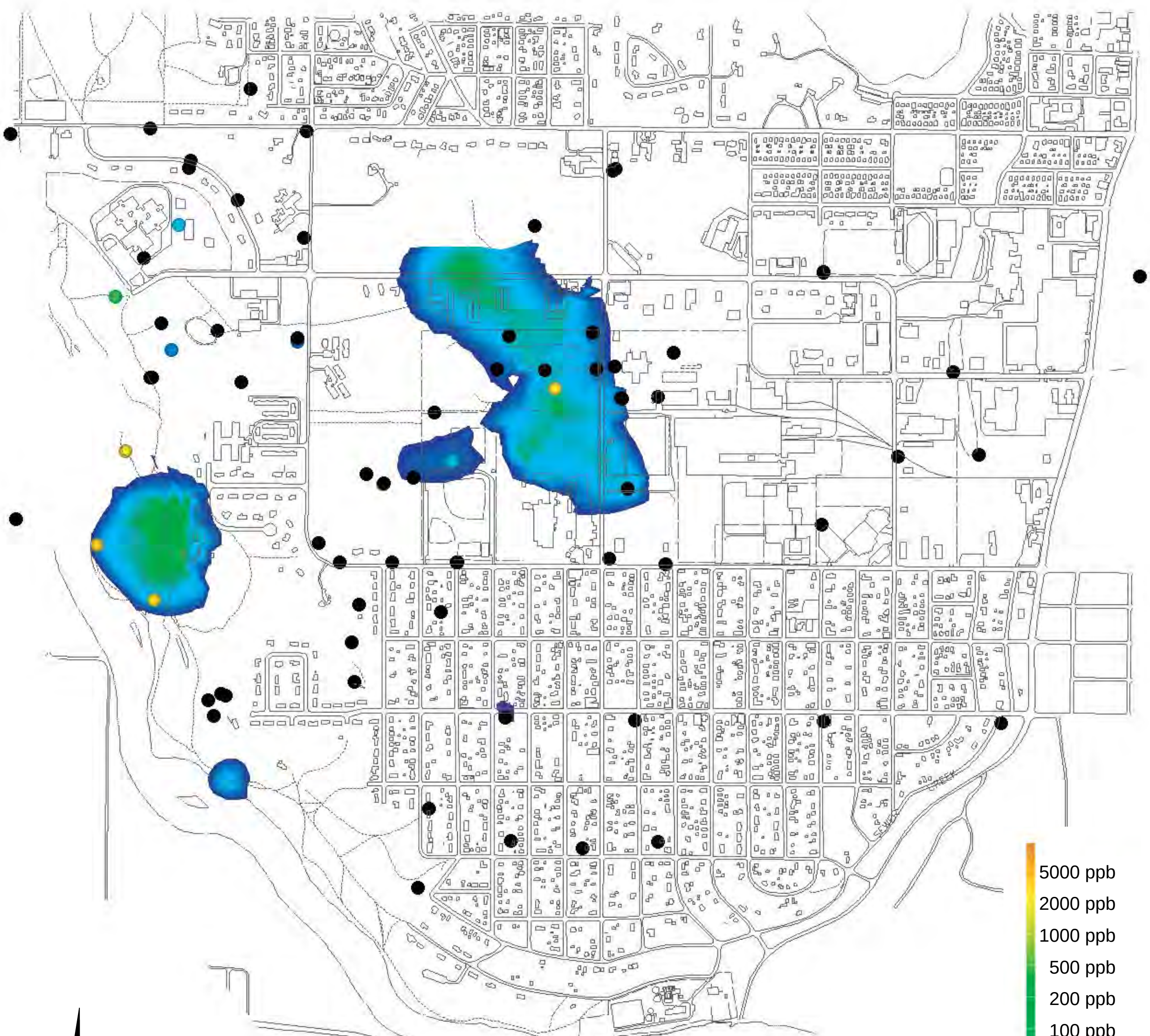
AREAL DISTRIBUTION OF 2,4 DIMETHYLPHENOL VIEWED FROM THE GROUND SURFACE DOWNWARD

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-20

DRAFTER: ELS
APPROVED:
CHECKED: BE
DRAWING: 24DI_1000.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 12JUN02



5000 ppb
2000 ppb
1000 ppb
500 ppb
200 ppb
100 ppb
50 ppb
20 ppb
10 ppb
5 ppb
2 ppb
<2 ppb

N

0 750 1500

APPROXIMATE SCALE IN FEET

Explanation

● Control point visible outside of plume at 1000 feet mean sea level

ppb Parts per billion of 2,4 Dimethylphenol

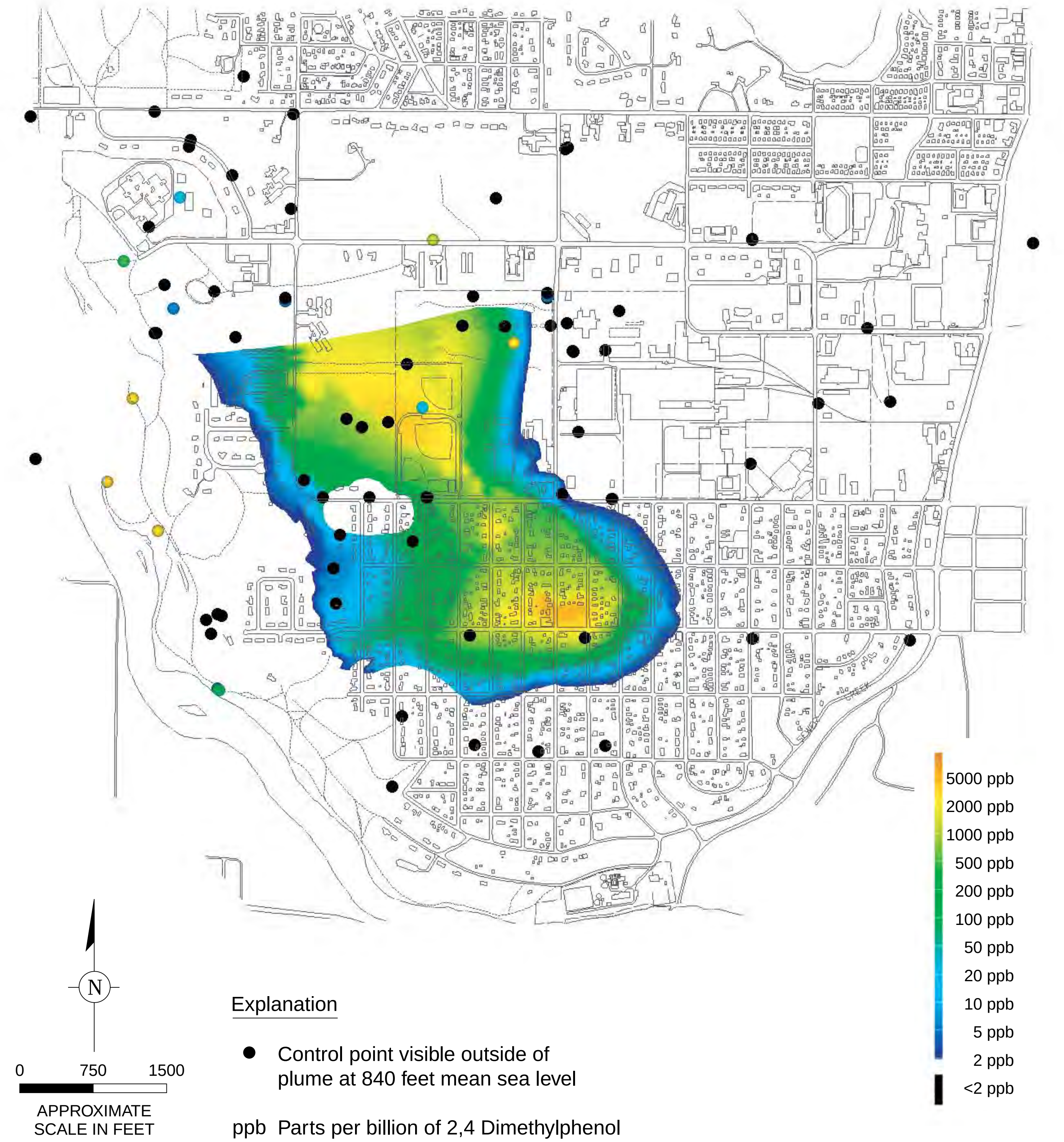
ARCADIS

AREAL DISTRIBUTION OF 2,4 DIMETHYLPHENOL AT AN ELEVATION OF 1000 FEET MEAN SEA LEVEL

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-21



DRAFTER: LMB
APPROVED:
CHECKED: BE
DRAWING: 24DI_840.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 19JAN09

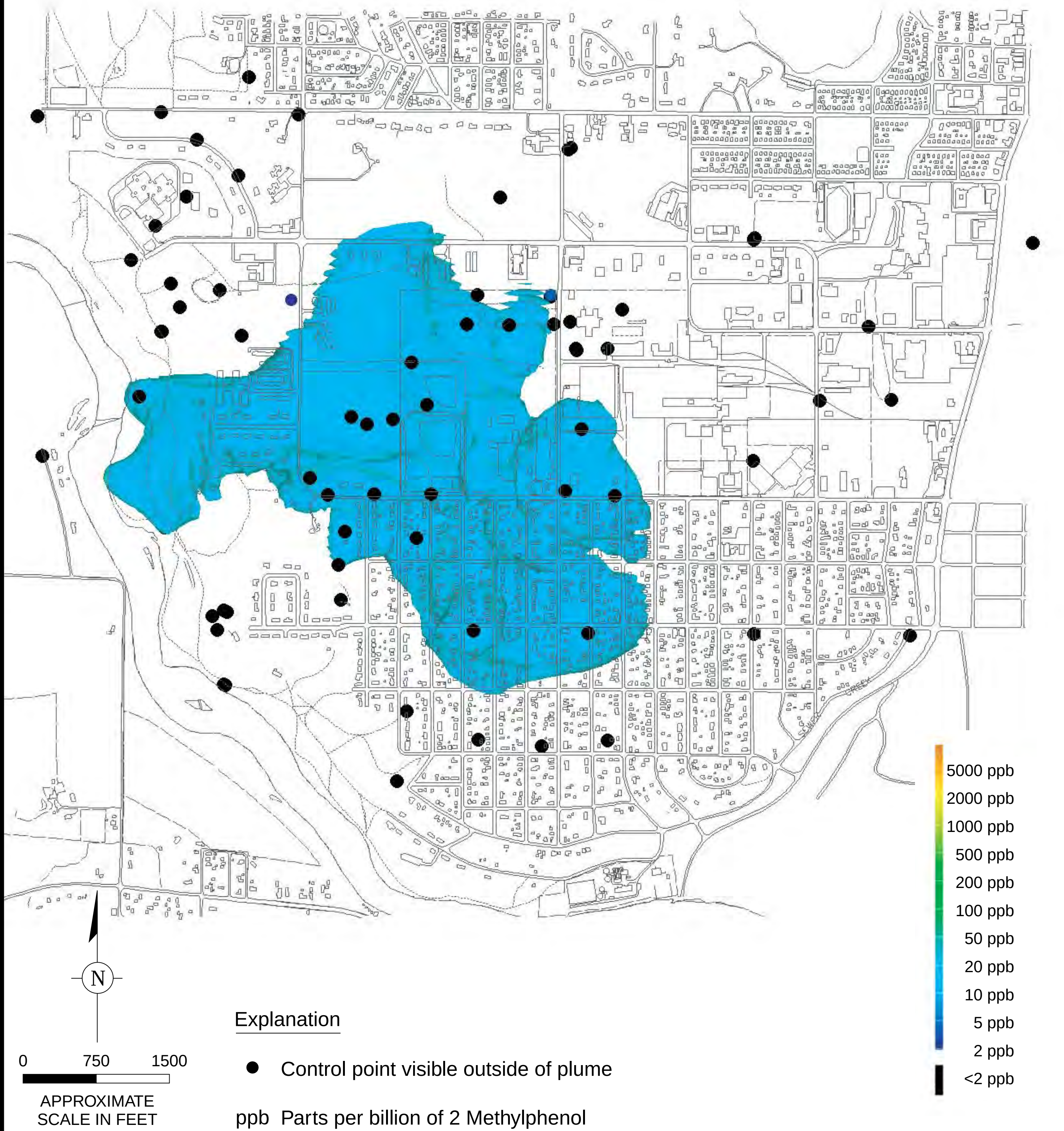
ARCADIS

AREAL DISTRIBUTION OF 2,4 DIMETHYLPHENOL AT AN ELEVATION OF 840 FEET MEAN SEA LEVEL

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-22

DRAFTER: LMB
APPROVED:
CHECKED: BE
DRAWING: 2MPTOP0300.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 19JAN09



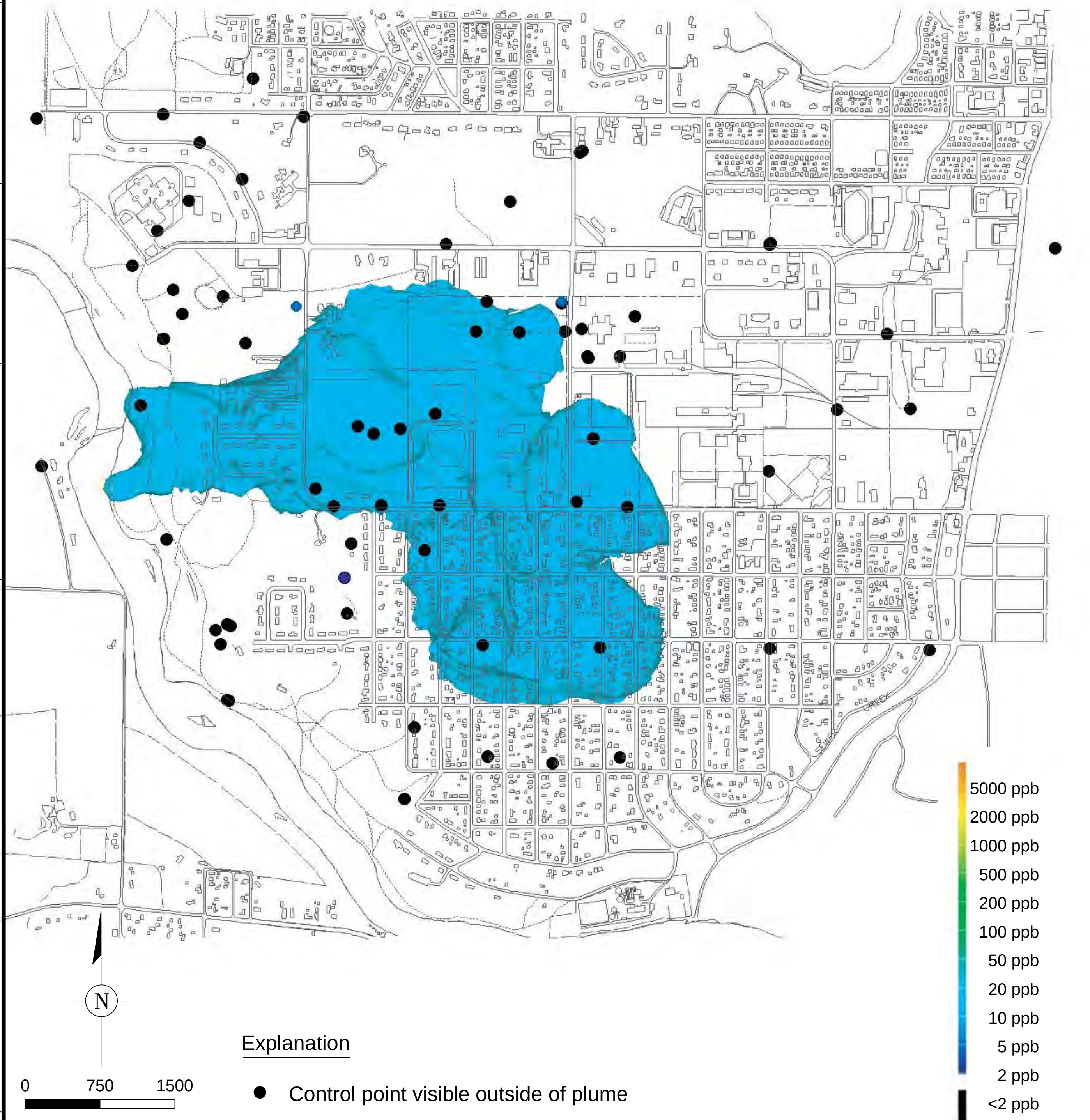
ARCADIS

AREAL DISTRIBUTION OF 2 METHYLPHENOL VIEWED FROM THE GROUND SURFACE DOWNWARD

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-23



Explanation

● Control point visible outside of plume

ppb Parts per billion of 4 Methylphenol

DRAFTER: LMB
APPROVED:
CHECKED: BE
DRAWING: 4MPTOP0300.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 20JAN09

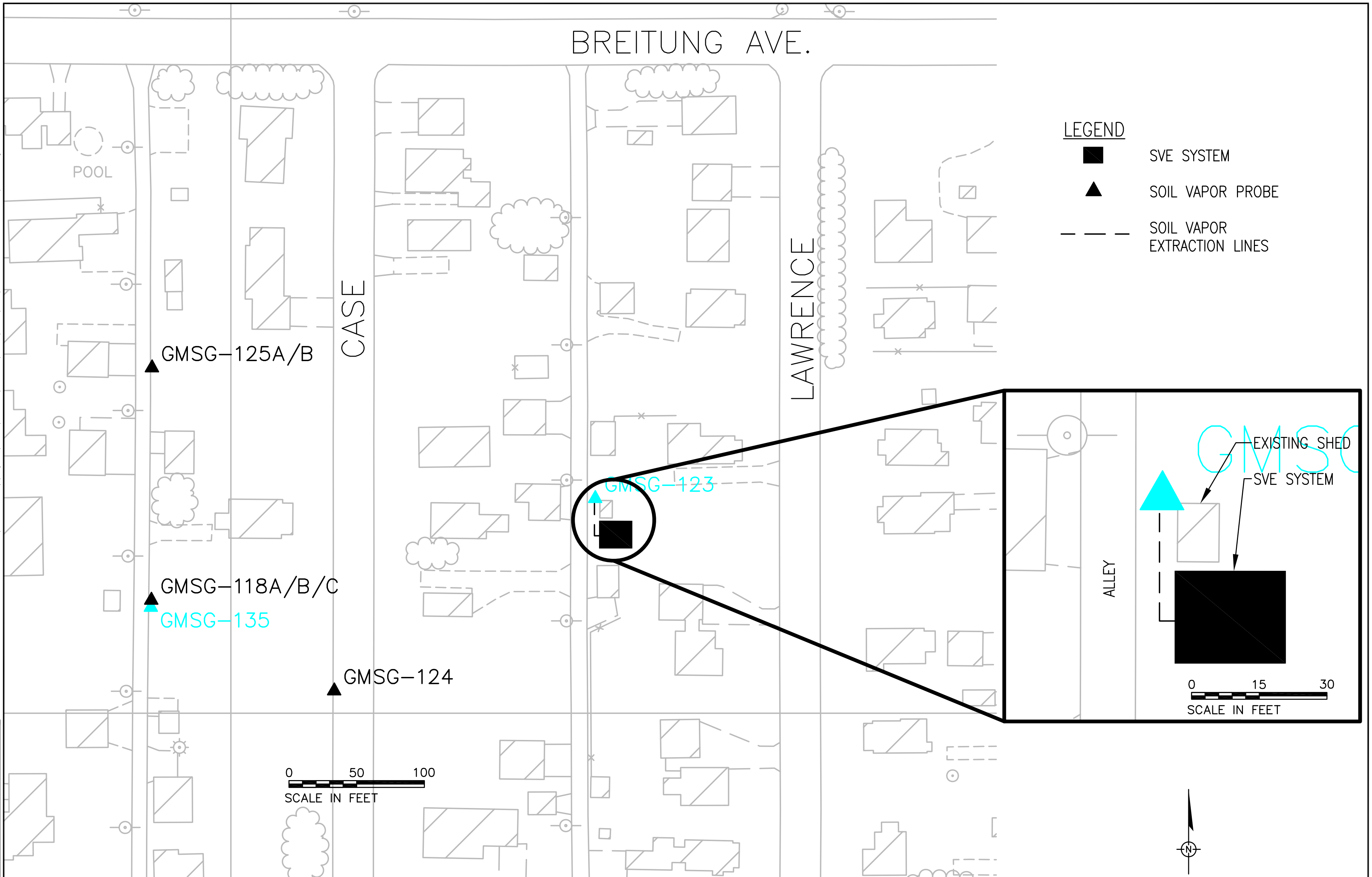
ARCADIS

AREAL DISTRIBUTION OF 4 METHYLPHENOL VIEWED FROM THE GROUND SURFACE DOWNWARD

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-24



Path\Name : G:\Aproject\FORD\WI0637\CJ2009\cadd\RI Report\SVE O&M PLAN FIGURES\5-25.dwg

Page Setup: ----
Pen Table: BLACKGRAY.ctb

Area Manager	M. MAIERLE
Project Director	R. STUDEBAKER
Task Manager	J. COTA
Technical Review	M. HULL

ARCADIS
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

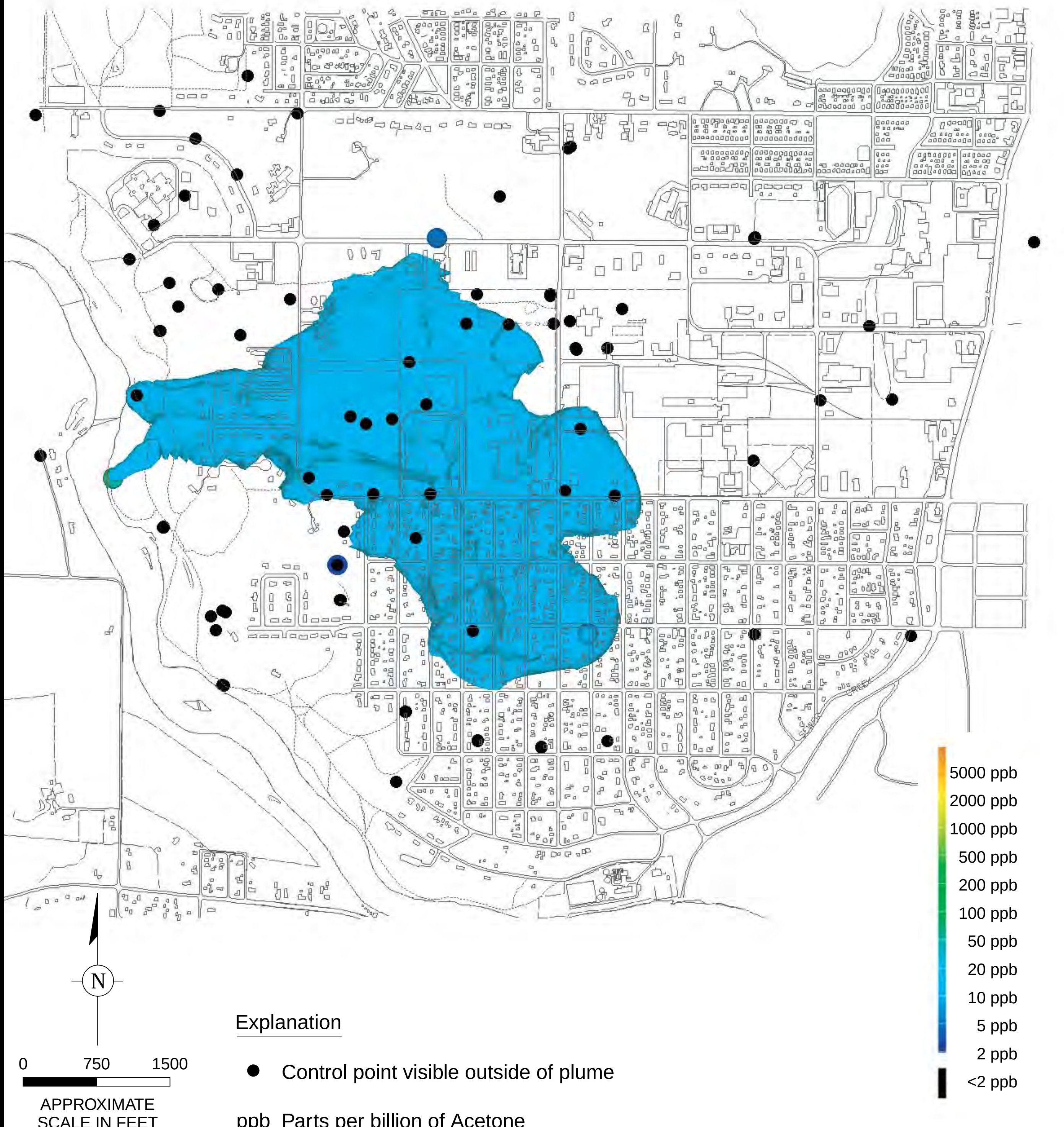
GMSG-123 SVE SYSTEM EXTRACTION WELL LOCATIONS

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number: WI001225.0015

Drawing Date: 9/06/05

Figure: 5-25



DRAFTER: LMB
APPROVED:
CHECKED: BE
DRAWING: ACETONETOP0300.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORDWI0637\CJ2009
DWG DATE: 20JAN09

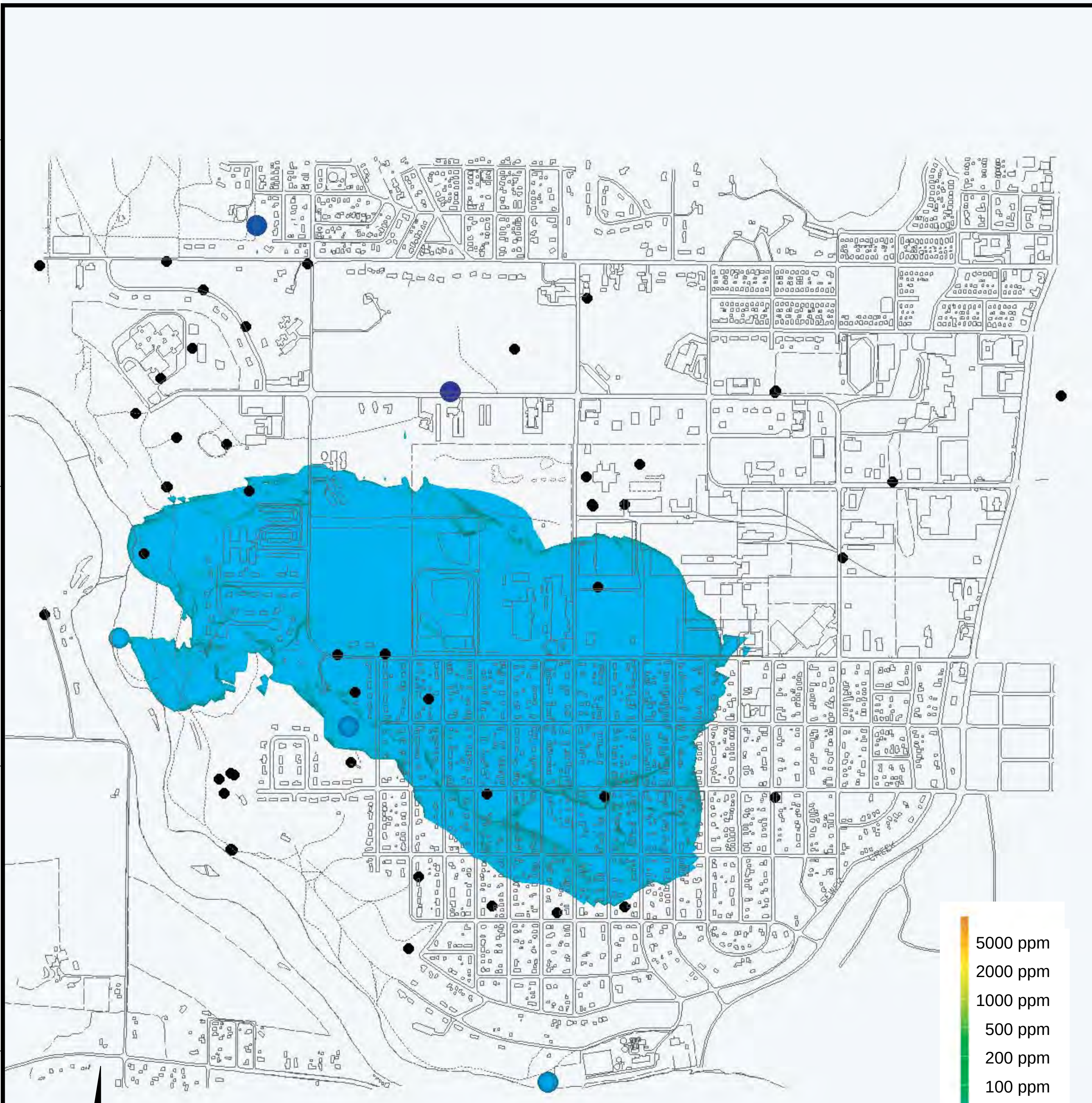
ARCADIS

AREAL DISTRIBUTION OF ACETONE VIEWED FROM THE GROUND SURFACE DOWNWARD

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-26



N

0 750 1500

APPROXIMATE SCALE IN FEET

Explanation

● Control point visible outside of plume

ppm Parts per million of Acetic Acid/Acetate

ARCADIS

AREAL DISTRIBUTION OF ACETIC ACID/ ACETATE VIEWED FROM THE GROUND SURFACE DOWNWARD

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE 6-27

DRAFTER: LMB | APPROVED: | CHECKED: BE | DRAWING: ACETICTOP_0300.AI | FILE NO.: GRAPHICS\RI REPORT | PN: FORD\WI0637\CJ2009 | DWG DATE: 20JAN09

DRAFTER: LMB
APPROVED:
CHECKED: BE
DRAWING: TOCTOP_0300.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 20JAN09

N

0 750 1500

APPROXIMATE
SCALE IN FEET

Explanation

● Control point visible outside of plume

ARCADIS

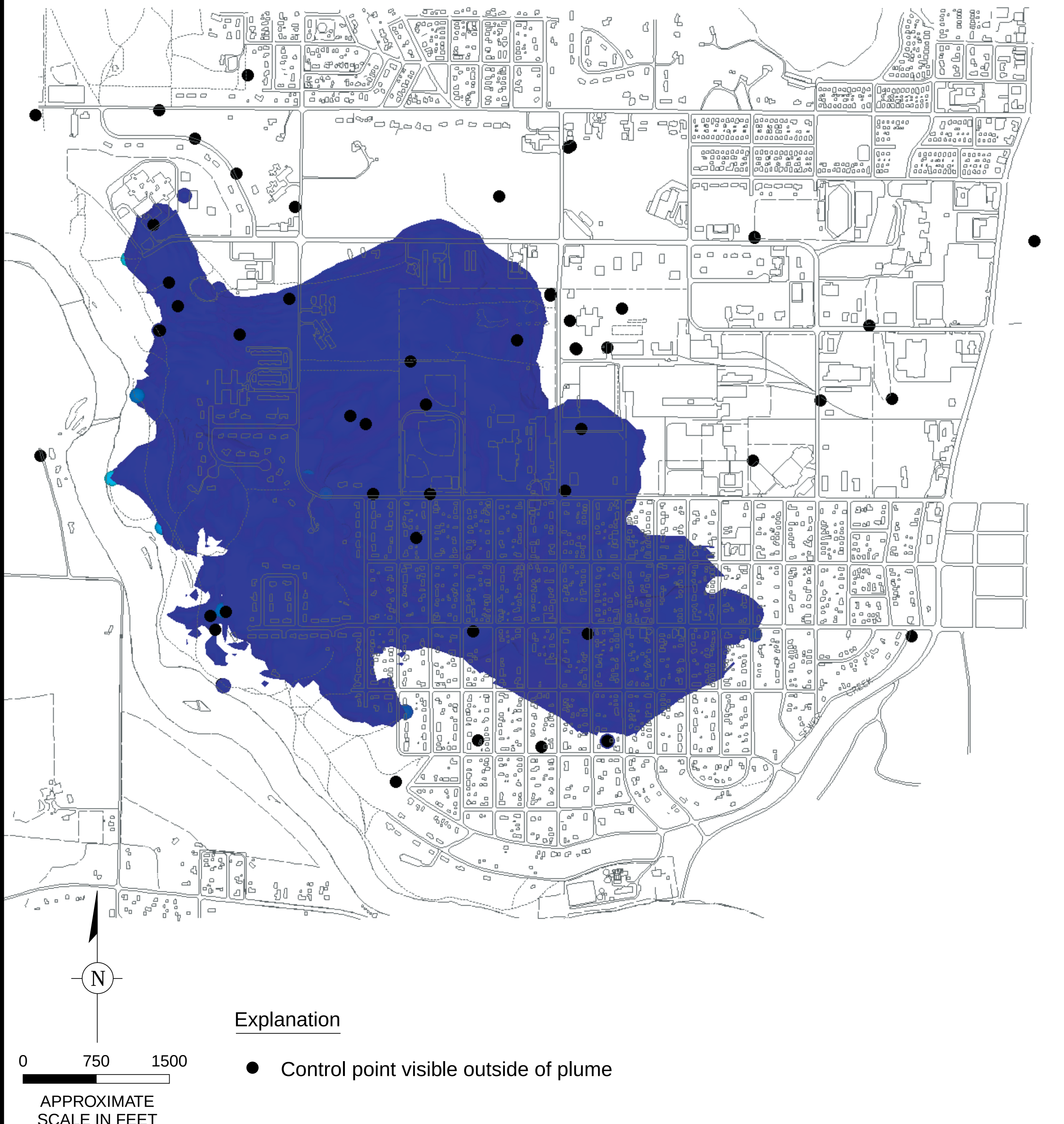
AREAL DISTRIBUTION OF TOC VIEWED FROM THE GROUND SURFACE DOWNWARD

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-28

DRAFTER: LMB
APPROVED:
CHECKED: BE
DRAWING: CH4TOP_0300.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 20JAN09

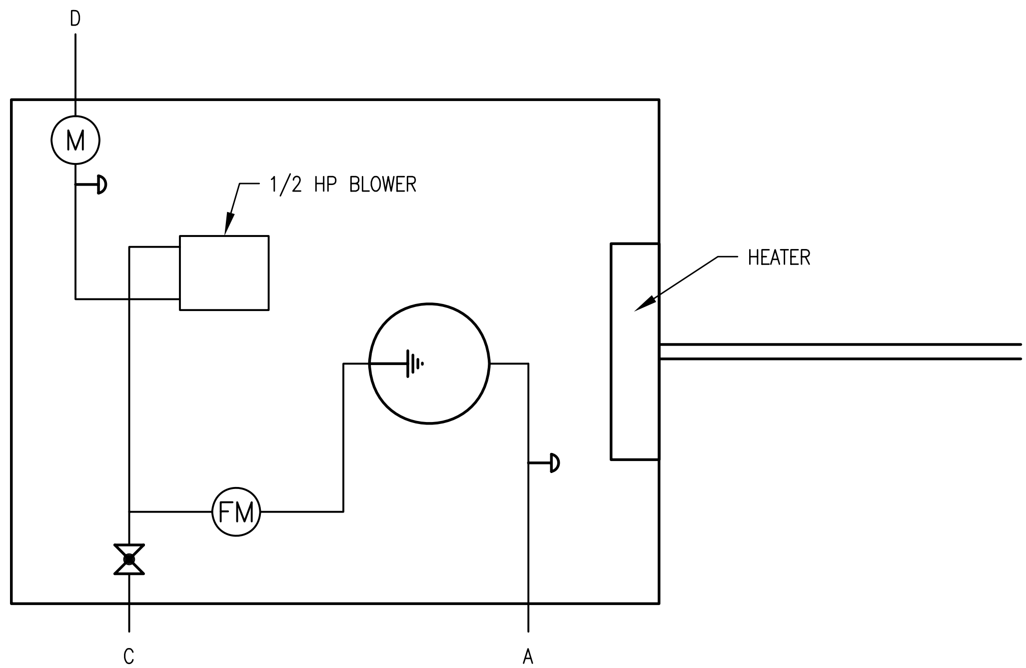


ARCADIS

AREAL DISTRIBUTION OF DISSOLVED METHANE VIEWED FROM THE GROUND SURFACE DOWNWARD

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-29



LEGEND

	BALL VALVE		GRAVITY SWING/ CHECK VALVE	A	EXTRACTION WELL INFLUENT
	BUTTERFLY VALVE		SAMPLE PORT	B	DRAIN
	BALL CHECK VALVE	FM	FLOW METER	C	MAKE-UP AIR INLET
	GLOBE VALVE	M	MUFFLER	D	EFFLUENT DISCHARGE THROUGH SIDE WALL
	GATE VALVE		VACUUM RELIEF VALVE		

Area Manager: M. MAIERLE
Project Director: R. STUDEBAKER
Task Manager: J. COTA
Technical Review: M. HULL

ARCADIS
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

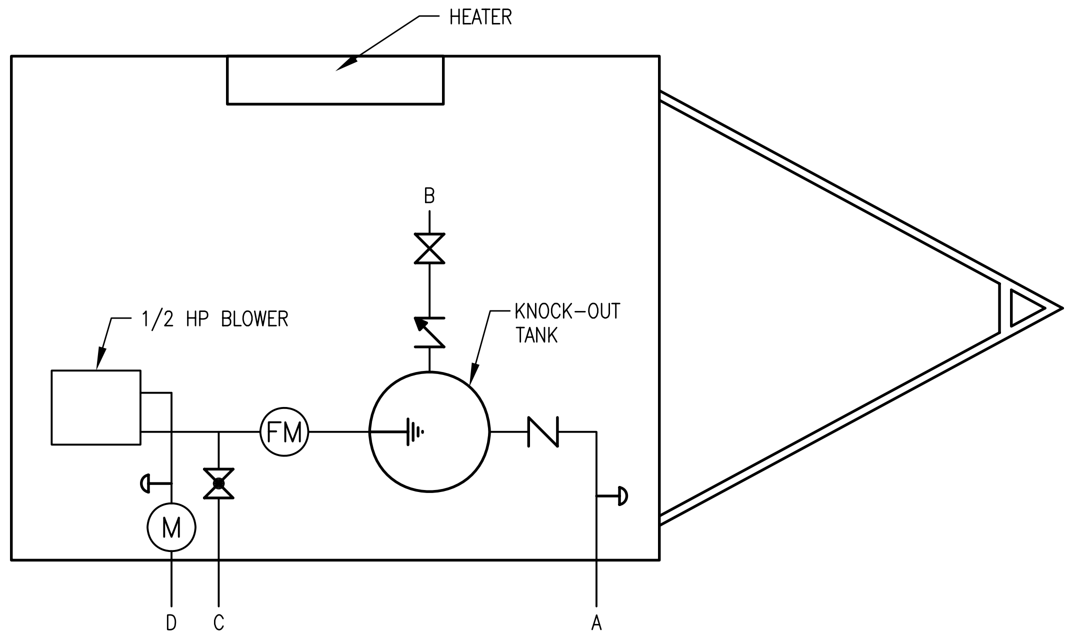
MINI SVE-01 SYSTEM LAYOUT

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number: WI001225.0015
Drawing Date: 9/29/05
Figure: 5-30

Path\Name : G:\Aproject\FORD\WI0637\CJ2009\cadd\RI Report\SVE O&M PLAN FIGURES\5-31.dwg

Page Setup: ----
Pen Table: BLACKGRAY.ctb



LEGEND

BALL VALVE

BUTTERFLY VALVE

BALL CHECK VALVE

GLOBE VALVE

GATE VALVE

GRAVITY SWING/ CHECK VALVE

SAMPLE PORT

FLOW METER

MUFFLER

VACUUM RELIEF VALVE

A	EXTRACTION WELL INFLUENT
B	DRAIN
C	MAKE–UP AIR INLET
D	EFFLUENT DISCHARGE THROUGH ROOF VENT

Area Manager	M. MAIERLE
Project Director	R. STUDEBAKER
Task Manager	J. COTA
Technical Review	M. HULL

ARCADIS

126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

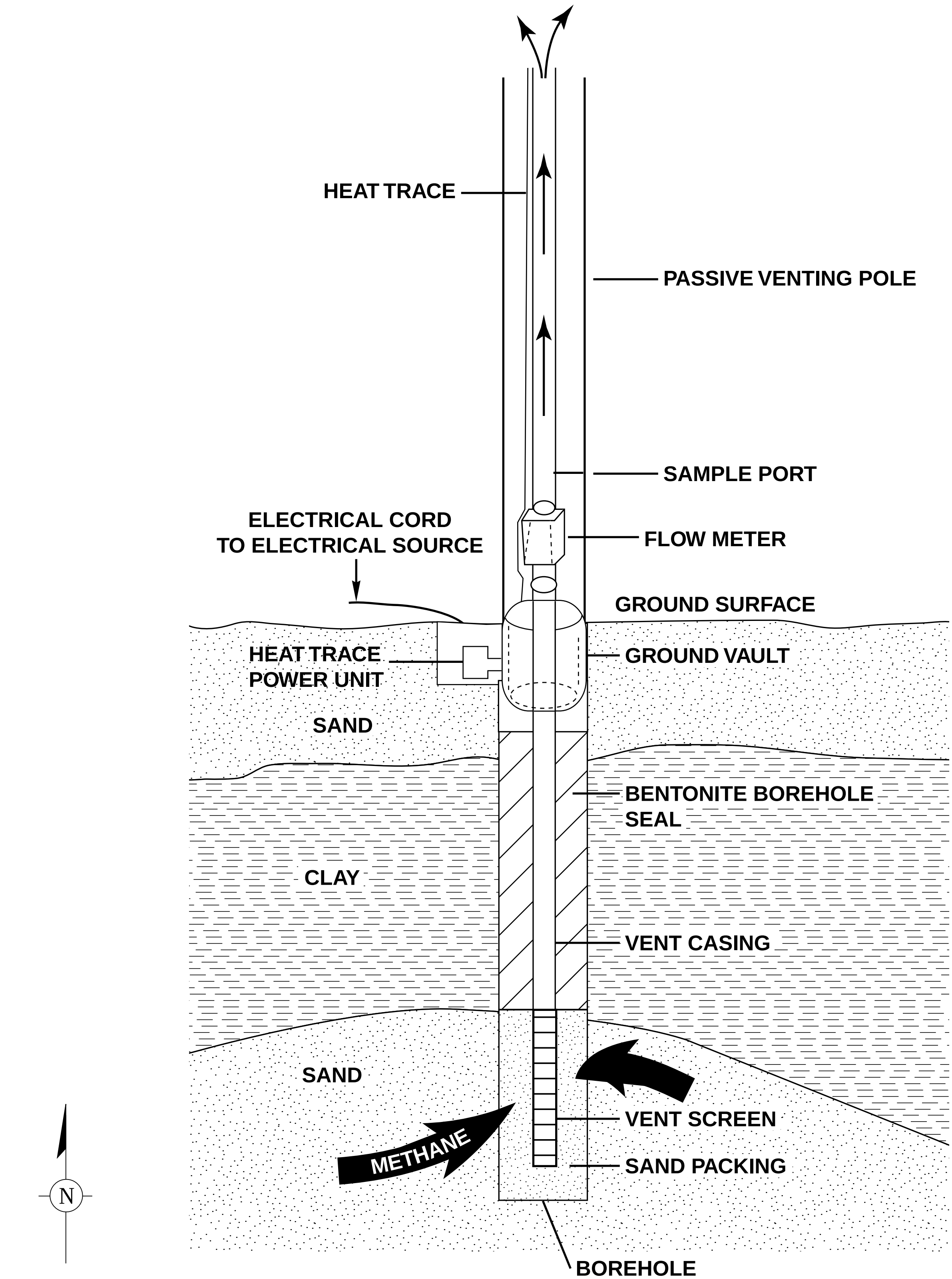
MINI SVE–02 SYSTEM LAYOUT

REMEDIAL INVESTIGATION REPORT
FORD/KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number
WI001225.0015

Drawing Date
9/29/05

Figure
5–31



NOT TO SCALE

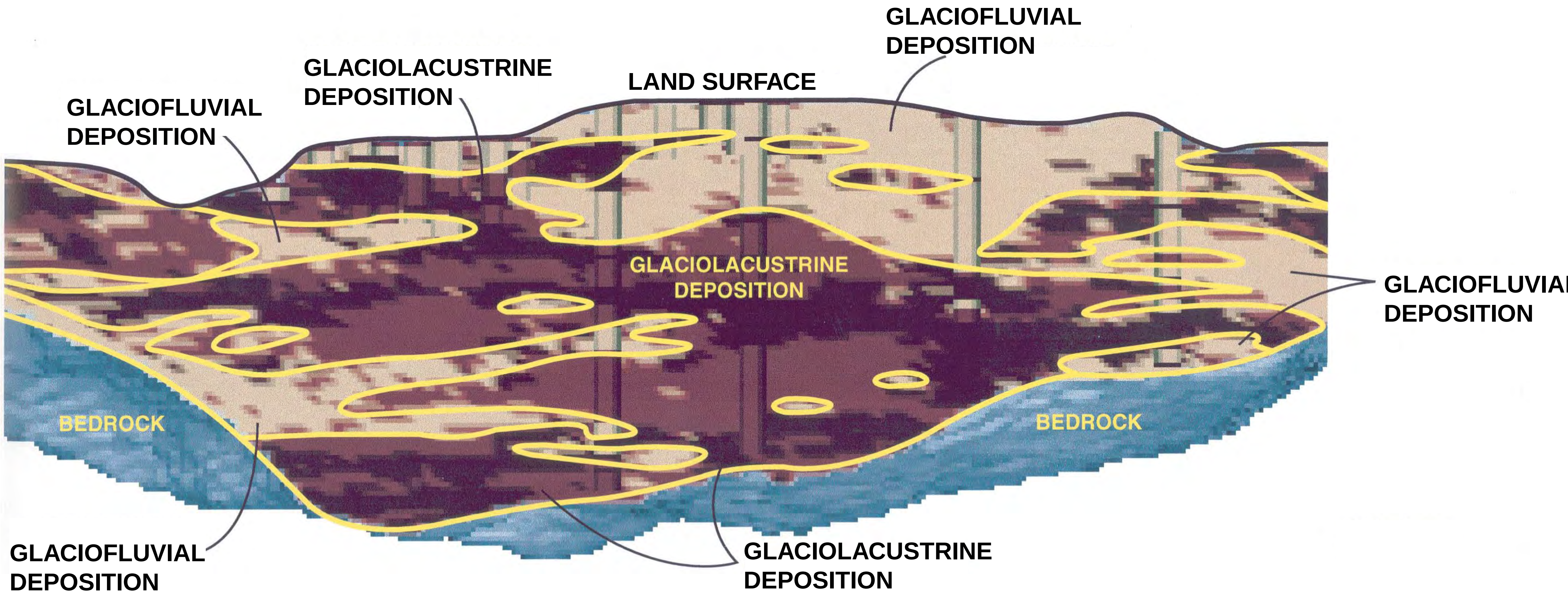
TYPICAL PASSIVE VENT LAYOUT

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
5-32

ARCADIS

DRAFTER: LMB | APPROVED: | CHECKED: MS | DRAWING: PASSIVEVENT_CURRENTSETUP.AI | FILE NO.: GRAPHICS\RI REPORT | PN: FORDWI0637\CJ2009 | DWG DATE: 17MAR09



Lithology

Silt/Clay
(Unit 3)

Very Fine Sand/Silt
(Unit 2)

Gravel/Sands
(Unit 1)

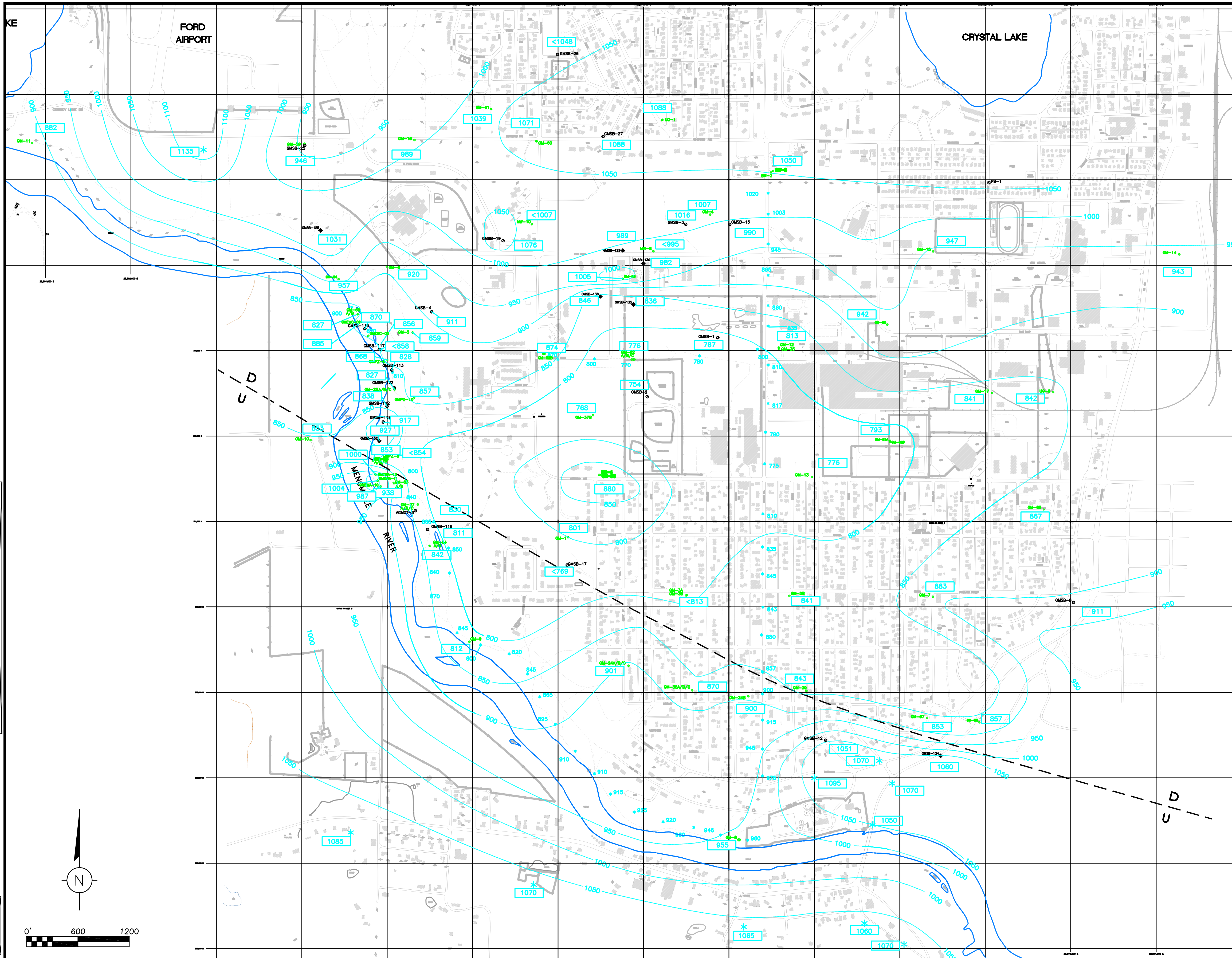
ARCADIS

ASSOCIATION OF THE DEPOSITIONAL ENVIRONMENTS TO THE GEOLOGIC MODEL

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-1

DRAFTER: LMB
APPROVED:
CHECKED: BE
DRAWING: LITHOLOGIC.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORDWI0637\CJ2009
DWG DATE: 19JAN09



LEGEND

WELL LOCATION

SOIL BORING LOCATION

946 BEDROCK ELEVATIONS ALONG SEISMIC LINES AT SELECT SHOTPOINTS (ELEVATION IN FEET MSL)

1050 BEDROCK ELEVATION (ELEVATION IN FEET MSL)

850 INFERRED BEDROCK CONTOUR LINE (ELEVATION IN FEET MSL)

1050 * BEDROCK ELEVATION INFERRED FROM OTHER SOURCES

D / U BEDROCK FAULT (PER USGS PROFESSIONAL PAPER 513 AND POSITIONED BASED ON STRUCTURAL INFORMATION)

NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

Page Setup:
Pen Table: BLACKGRAY.ctb

NO.	DATE	REVISION DESCRIPTION	BY	CKD

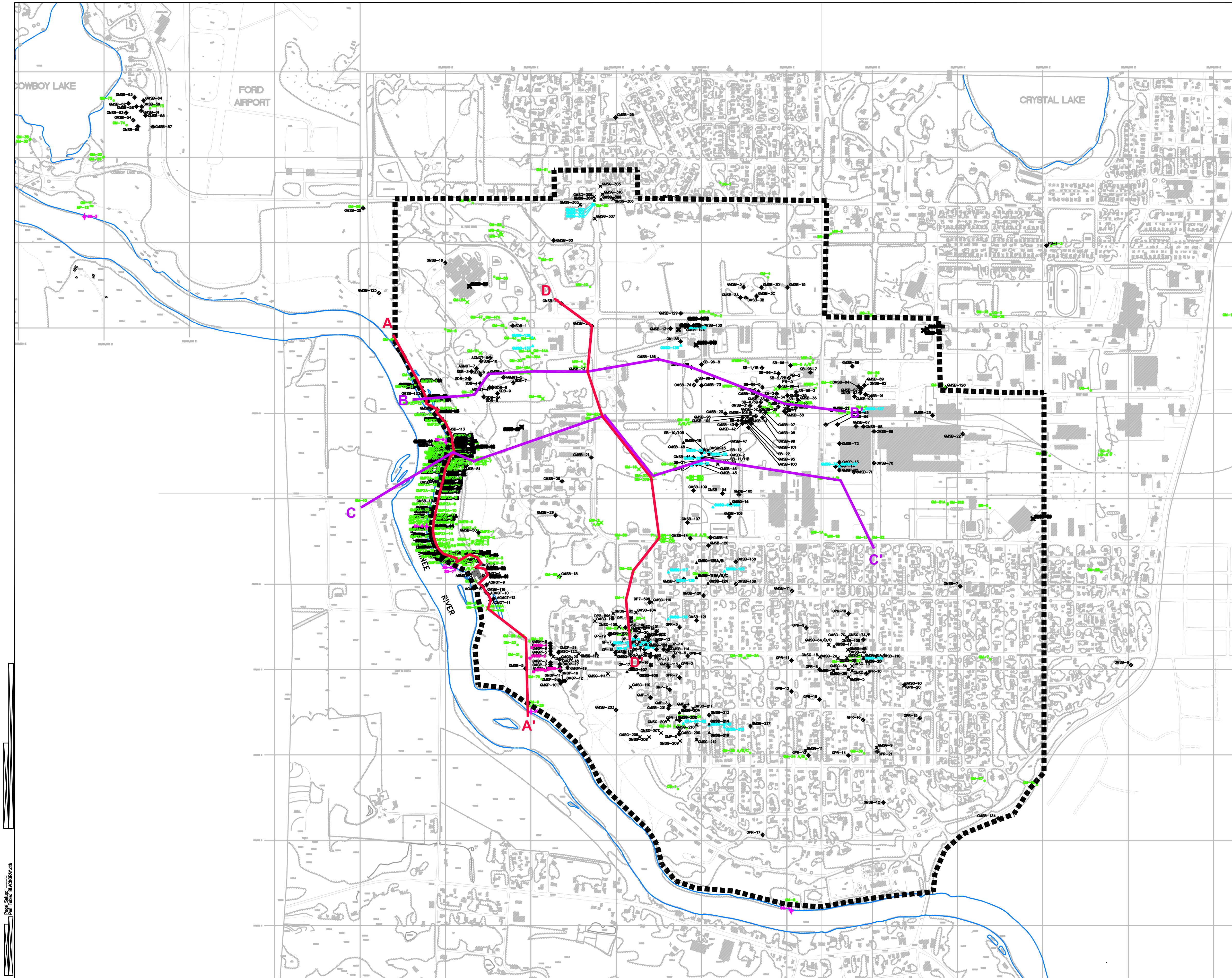
ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT

FORD–KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

BEDROCK TOPOGRAPHY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CES	05/14/04	EC	BE
		LEAD DESIGN PROF. BE	CHECKED BE
		PROJECT NUMBER WI01075.0001	FIGURE 6–2



0' 400' 800'

NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- SOIL BORING LOCATION
- GEOPROBE LOCATION
- SOIL VAPOR PROBE LOCATION
- MONITOR WELL, PIEZOMETER AND EXTRACTION WELL LOCATION
- STAFF GAUGE LOCATION
- AREA OF CONCERN
- A — A' LOCATION OF NORTH–SOUTH GEOLOGIC CROSS–SECTION
- B — B' LOCATION OF EAST–WEST GEOLOGIC CROSS–SECTION

REV. ISSUED DATE DESCRIPTION

KEYPLAN

SEAL

SEAL

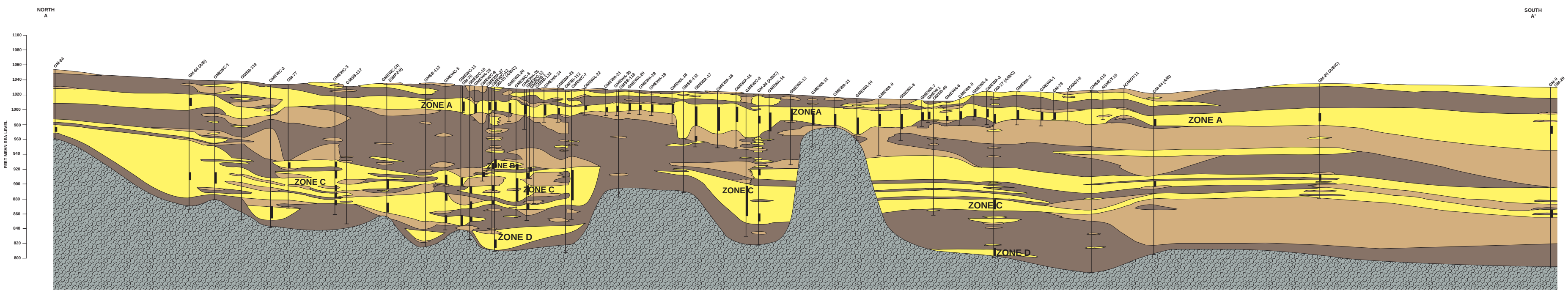
ARCADIS

126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

REMEDIAL INVESTIGATION REPORT

FORD–KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

PROJECT MANAGER R. STUDEBAKER	DEPARTMENT MANAGER M. MAIERLE	LEAD DESIGN PROF. B. EVANS	CHECKED BY B. EVANS
SHEET TITLE		TASK/PHASE NUMBER 0012.00001	DRAWN BY C. MCKEOUGH
CROSS SECTION LOCATION MAP		PROJECT NUMBER WI001125	DRAWING NUMBER 6-3



LEGEND

SAND (FINE TO COARSE) (UNIT 1)

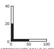
SILT/SAND (VERY FINE SILTY) (UNIT 2)

SILT/CLAY (UNIT 3)

BEDROCK

GM-84 WELL/BORING LOCATION

WELL SCREEN INTERVAL



APPROXIMATE SCALE IN FEET
VERTICAL EXAGGERATION = 25X

ARCADIS

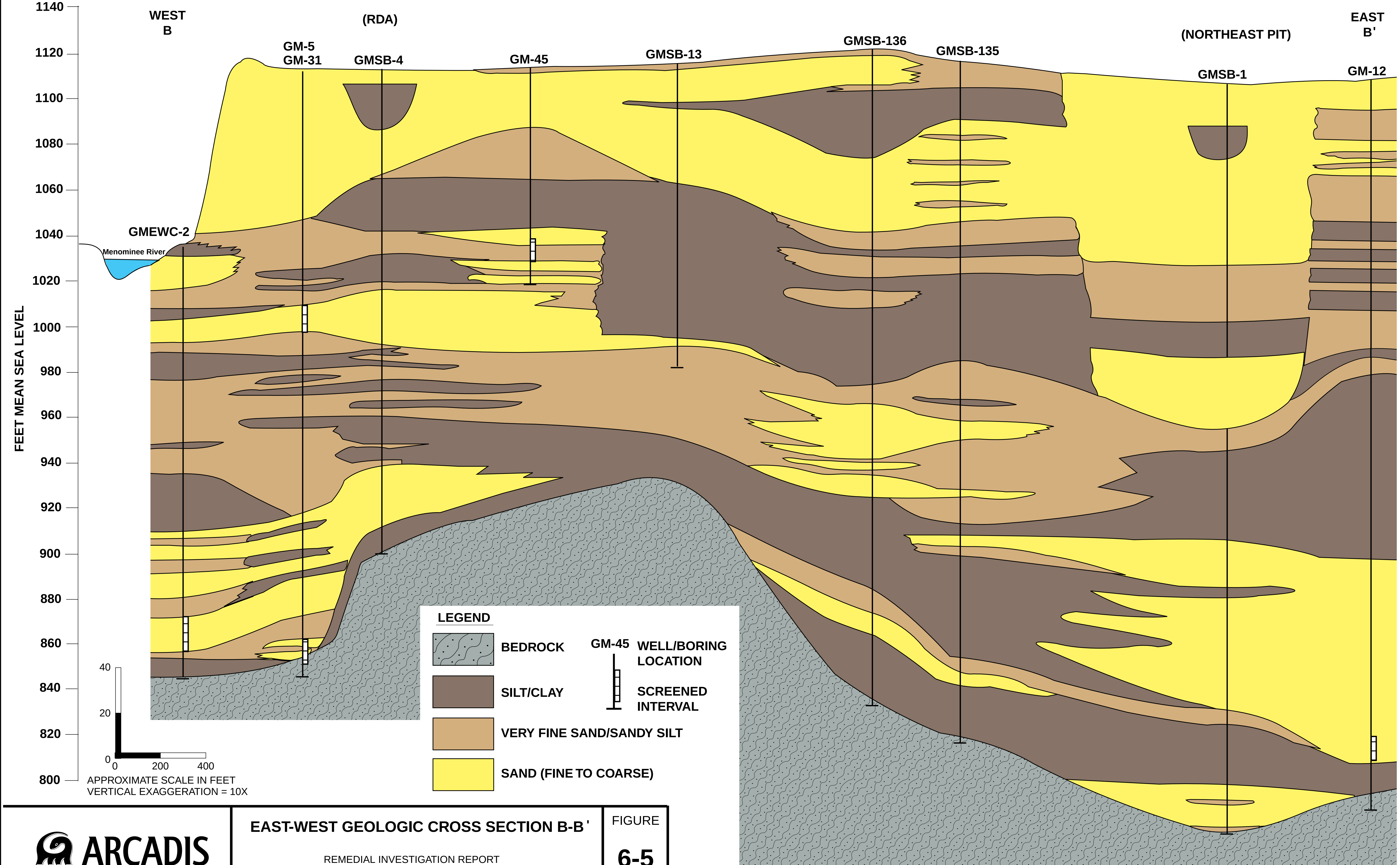
GEOLOGIC CROSS SECTION ALONG THE MENOMINEE RIVER A-A'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE 6-4

DWG DATE: 29JAN09 | PN: FORDWI0637\CJ2009 | FILE NO.: GRAPHICS\RI REPORT | DRAWING: OVERSIZE XSEC_ZONES.AI | CHECKED: BE | APPROVED: | DRAFTER: LMB

DRAFTER: LMB
APPROVED:
CHECKED: BE
DRAWING: EW XSEC.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORDWI0637\CJ2009
DWG DATE: 19JAN09

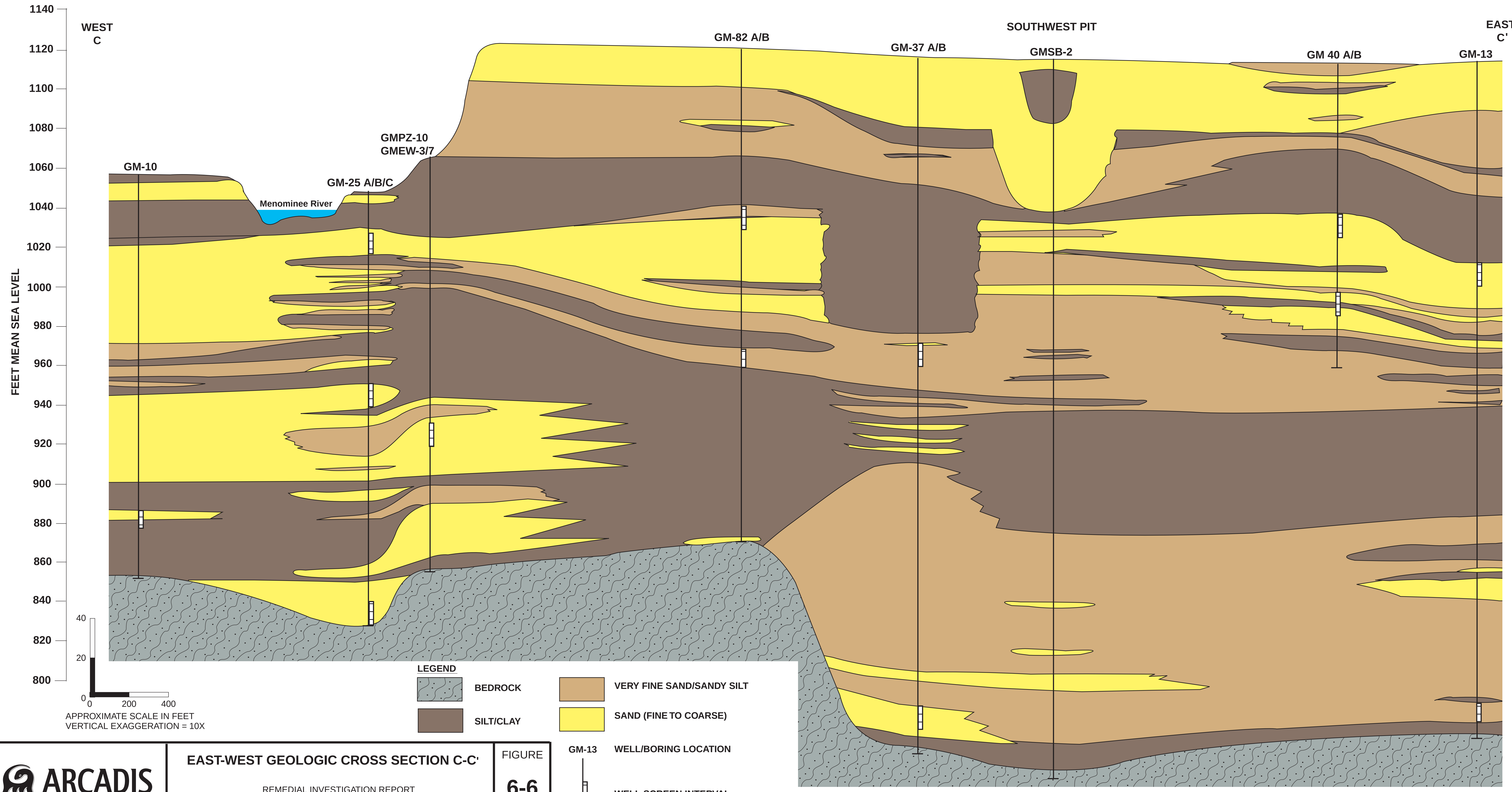


ARCADIS

EAST-WEST GEOLOGIC CROSS SECTION B-B'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-5



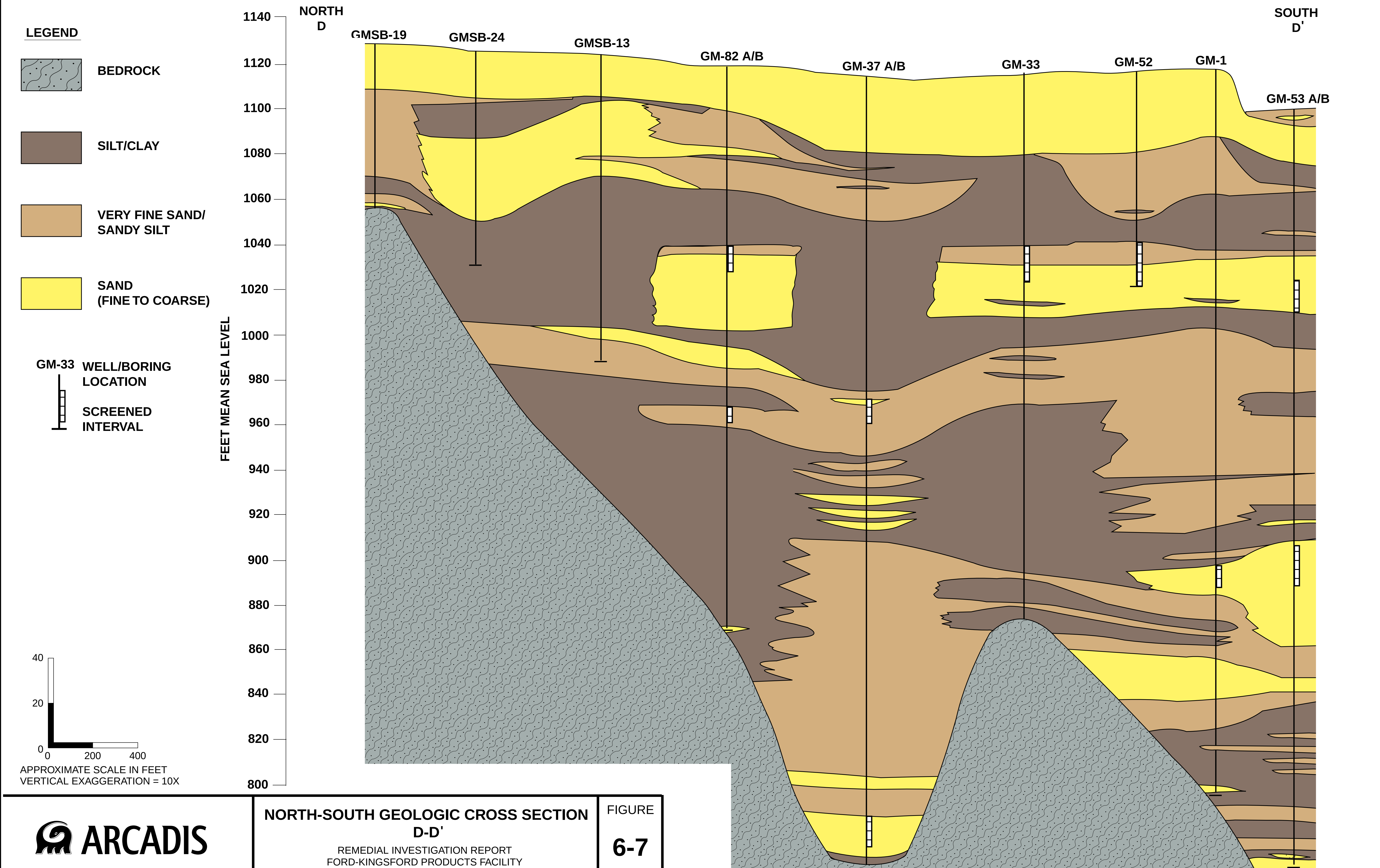
DRAFTER: LMB
APPROVED:
CHECKED: BWE
DRAWING: WE XSEC_C.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 05MAR10

ARCADIS

EAST-WEST GEOLOGIC CROSS SECTION C-C'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-6



ARCADIS

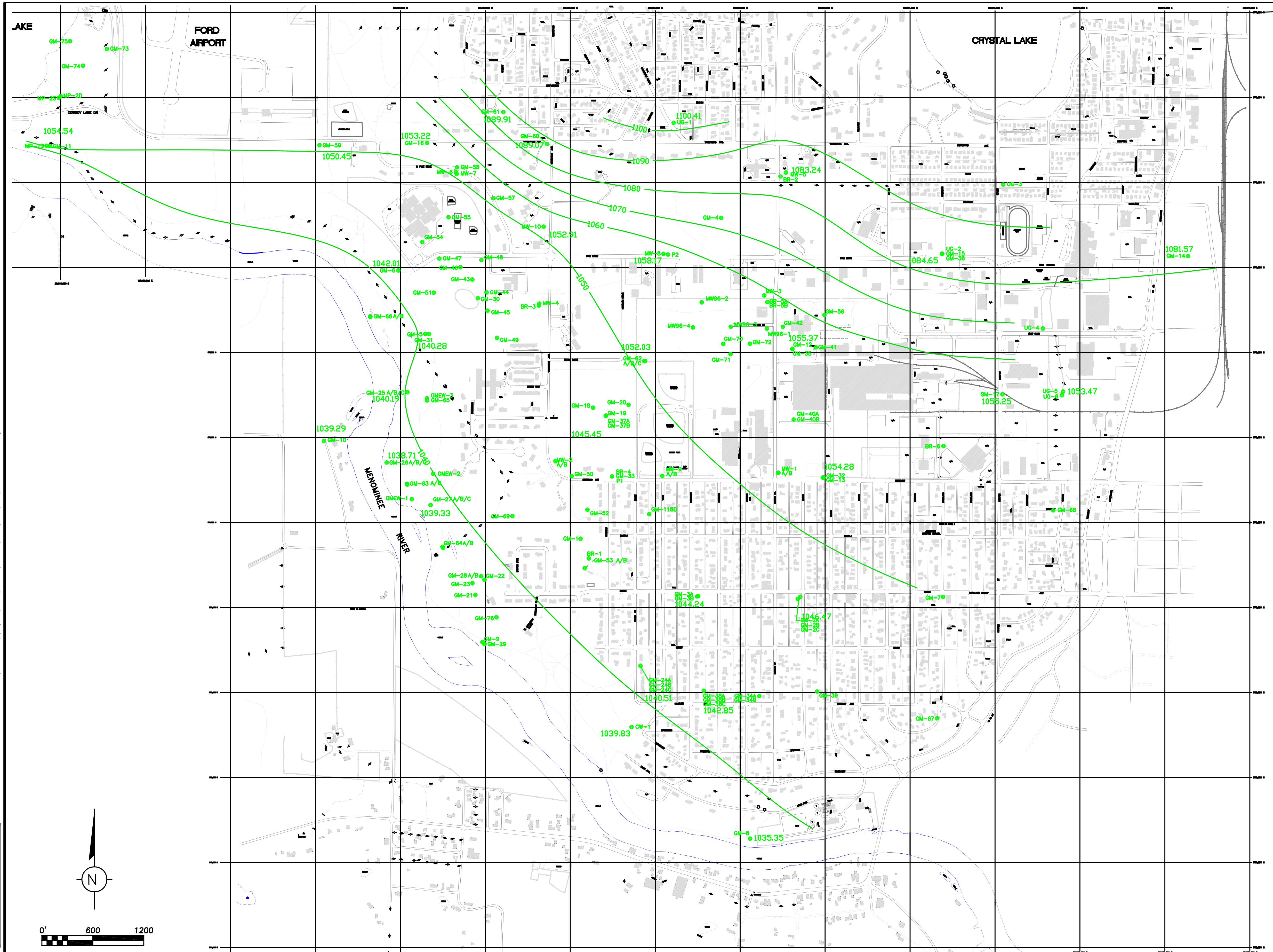
NORTH-SOUTH GEOLOGIC CROSS SECTION D-D'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-7

DRAFTER: LMB
APPROVED:
CHECKED: BE
DRAWING: NS XSEC.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 19JAN09



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM. DATE OF PHOTOGRAPHY: 05/04/97 ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- MONITOR WELL LOCATION
- 1090 WATER TABLE ELEVATION CONTOUR (MSL)
- 30.35 WATER TABLE ELEVATION (MSL)

NOTE
THE DEEP GROUNDWATER SYSTEM ELEVATIONS ARE BASED ON MONITOR WELLS COMPLETED WITHIN APPROXIMATELY 25 FEET FROM THE BEDROCK.

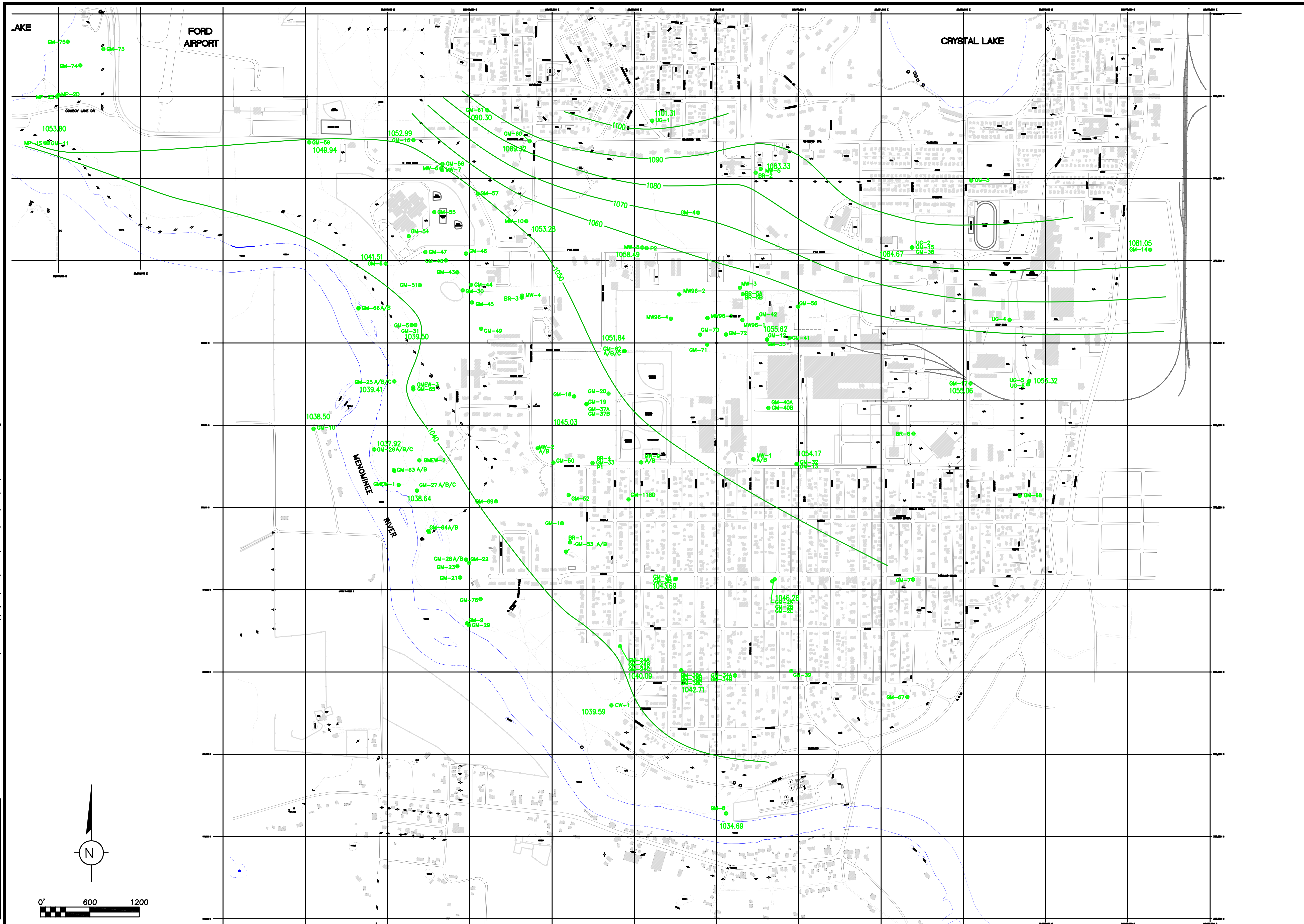
NO.	DATE	REVISION DESCRIPTION	BY	CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DEEP GROUNDWATER SYSTEM POTENTIOMETRIC SURFACE MAP (AUGUST 21, 1999)

DRAWN: CES	DATE: 06/06/02
PROJECT MANAGER: EC	DEPARTMENT MANAGER: BE
LEAD DESIGN PROF.: BE	CHECKED: BE
PROJECT NUMBER: WI000925.0001	FIGURE: 6-8



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

● MONITOR WELL LOCATION

—1090— WATER TABLE ELEVATION CONTOUR (MSL)

1081.05 WATER TABLE ELEVATION (MSL)

NOTE
THE DEEP GROUNDWATER SYSTEM ELEVATIONS ARE BASED ON MONITOR WELLS COMPLETED WITHIN APPROXIMATELY 25 FEET FROM THE BEDROCK.

Path\Name: G:\project\FORD\WI0637\CJ2009\cadd\RI Report\FIGWPOTM1201.dwg

Page Setup: ----
Plot Table: ----

NO.	DATE	REVISION DESCRIPTION	BY / CKD

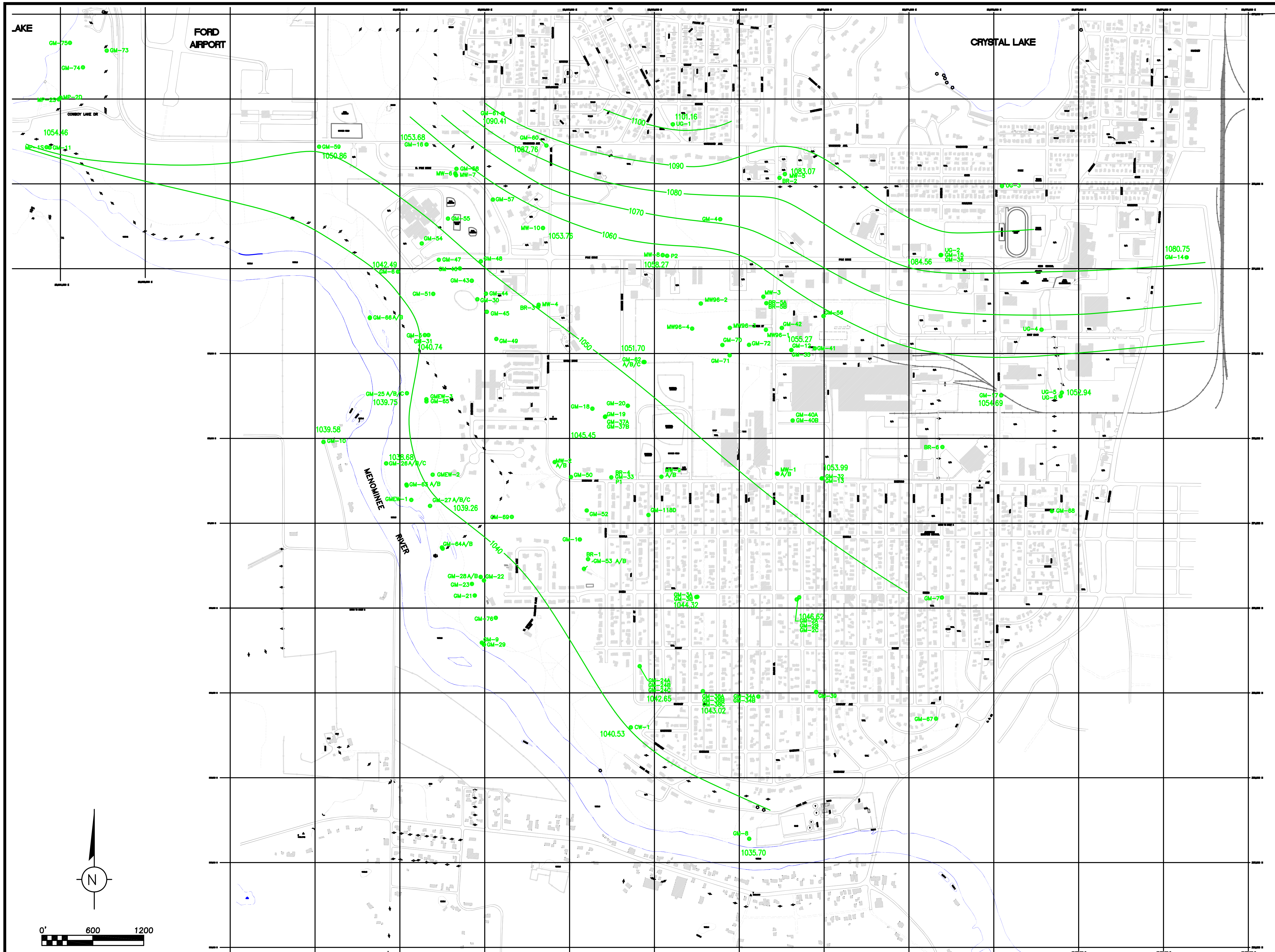
ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DEEP GROUNDWATER SYSTEM POTENTIOMETRIC SURFACE MAP (DECEMBER 31, 1999)

DRAWN: CES	DATE: 06/05/02	PROJECT MANAGER: EC	DEPARTMENT MANAGER: BE
		LEAD DESIGN PROF.: BE	CHECKED: BE
		PROJECT NUMBER: WI00925.0001	FIGURE: 6-9



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- ● MONITOR WELL LOCATION
- —1090— WATER TABLE ELEVATION CONTOUR (MSL)
- 30.35 WATER TABLE ELEVATION (MSL)

NOTE
THE DEEP GROUNDWATER SYSTEM ELEVATIONS ARE BASED ON MONITOR WELLS COMPLETED WITHIN APPROXIMATELY 25 FEET FROM THE BEDROCK.

Path\Name : G:\project\FORD\WI0637\CJ2009\cadd\RI Report\FIGWPOTM1201B.dwg

Page Setup: ----
Pen Table: ----

NO.	DATE	REVISION DESCRIPTION	BY / CKD

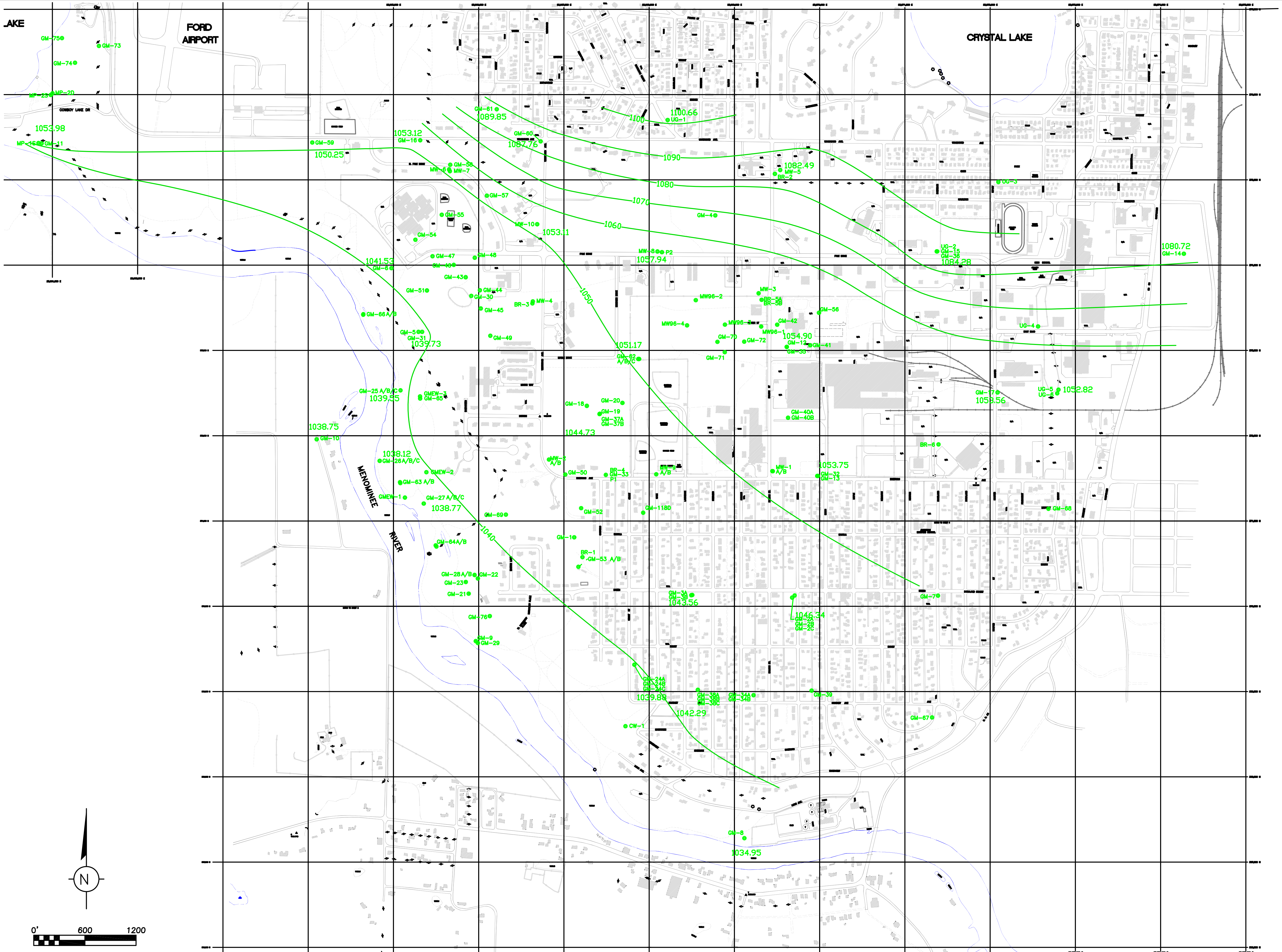
ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DEEP GROUNDWATER SYSTEM POTENTIOMETRIC SURFACE MAP (MARCH 18, 2000)

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CES	06/05/02	EC	BE
		LEAD DESIGN PROF.	CHECKED
		BE	BE
		PROJECT NUMBER	FIGURE
		WI00925.0001	6-10



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

● MONITOR WELL LOCATION

—1090— WATER TABLE ELEVATION CONTOUR (MSL)

30.35 WATER TABLE ELEVATION (MSL)

NOTE

THE DEEP GROUNDWATER SYSTEM ELEVATIONS ARE BASED ON MONITOR WELLS COMPLETED WITHIN APPROXIMATELY 25 FEET FROM THE BEDROCK.

Path\Name : G:\project\FORD\WI0637\CJ2009\cadd\RI Report\FDGWPOTM1201C.dwg

Page Setup: ----
Pen Table: ----

NO.	DATE	REVISION DESCRIPTION	BY / CKD

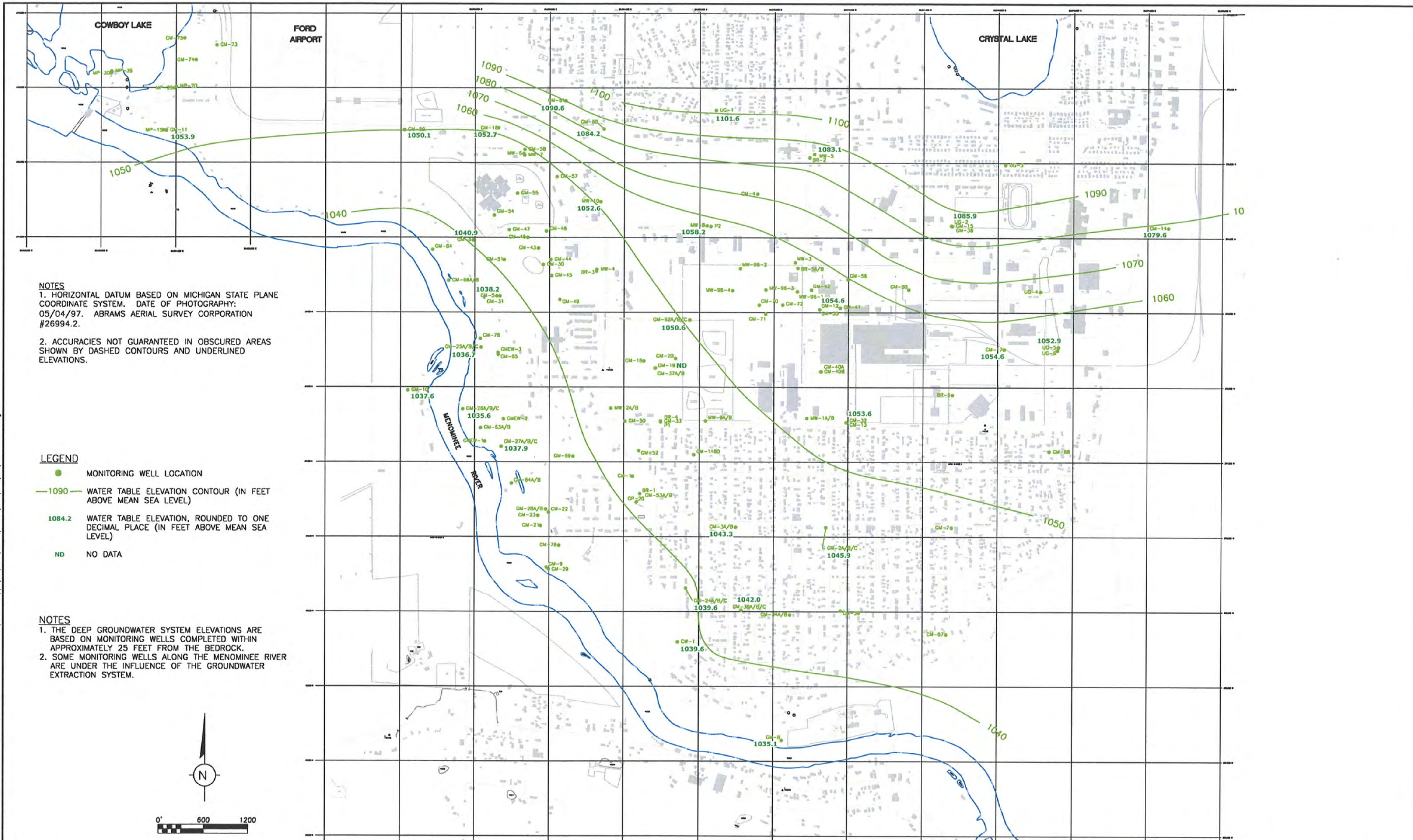
ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DEEP GROUNDWATER SYSTEM POTENTIOMETRIC SURFACE MAP
(JUNE 17, 2000)

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CES	06/05/02	EC	BE
		LEAD DESIGN PROF.	CHECKED
		BE	BE
		PROJECT NUMBER	FIGURE
		WI00925.0001	6-11



NOTES
1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM. DATE OF PHOTOGRAPHY: 05/04/97. ABRAMS AERIAL SURVEY CORPORATION #26994.2.

2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS.

LEGEND

●	MONITORING WELL LOCATION
—1090—	WATER TABLE ELEVATION CONTOUR (IN FEET ABOVE MEAN SEA LEVEL)
1084.2	WATER TABLE ELEVATION, ROUNDED TO ONE DECIMAL PLACE (IN FEET ABOVE MEAN SEA LEVEL)
ND	NO DATA

NOTES
1. THE DEEP GROUNDWATER SYSTEM ELEVATIONS ARE BASED ON MONITORING WELLS COMPLETED WITHIN APPROXIMATELY 25 FEET FROM THE BEDROCK.
2. SOME MONITORING WELLS ALONG THE MENOMINEE RIVER ARE UNDER THE INFLUENCE OF THE GROUNDWATER EXTRACTION SYSTEM.

REV. ISSUED DATE DESCRIPTION

KEYPLAN

SEAL

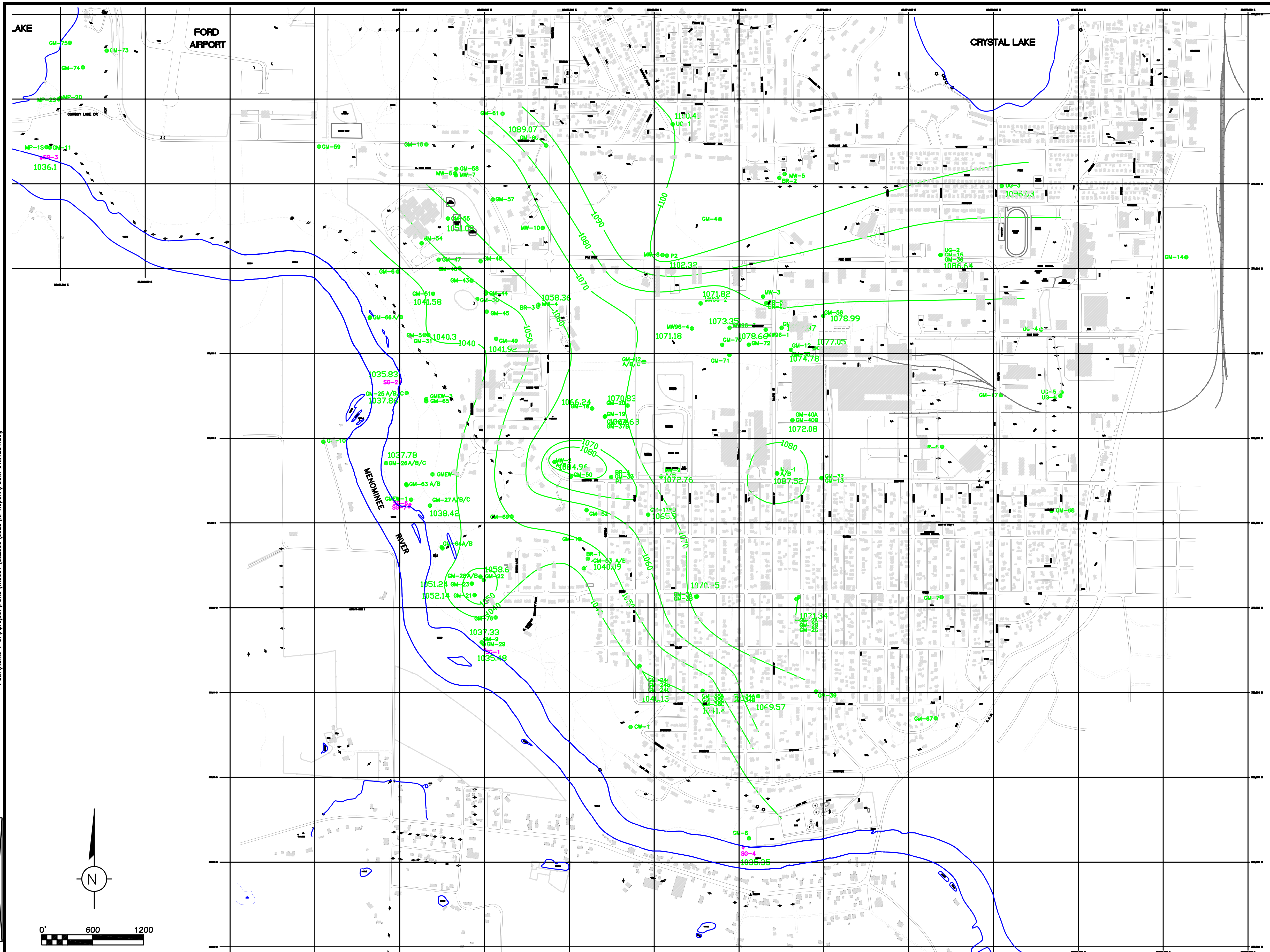
ARCADIS

126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

PROJECT MANAGER R. STUDEBAKER	DEPARTMENT MANAGER M. MAIERLE	LEAD DESIGN PROF. B. EVANS	CHECKED BY B. EVANS
SHEET TITLE DEEP GROUNDWATER SYSTEM POTENTIOMETRIC SURFACE MAP (NOVEMBER 28, 2006)		TASK/PHASE NUMBER 0012.00001	DRAWN BY C. MCKEOUGH
		PROJECT NUMBER WI001075	FIGURE NUMBER 6-12



NOTES
1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
DATE OF PHOTOGRAPHY: 05/04/97
ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- MONITOR WELL LOCATION
- STAFF GAUGE LOCATION
- 1090 WATER TABLE ELEVATION CONTOUR (MSL)
- 1086.64 WATER TABLE ELEVATION (MSL)

NOTE
THE SHALLOW GROUNDWATER SYSTEM ELEVATIONS ARE BASED ON MONITOR WELLS COMPLETED ABOVE 1000 FEET MEAN SEA LEVEL.

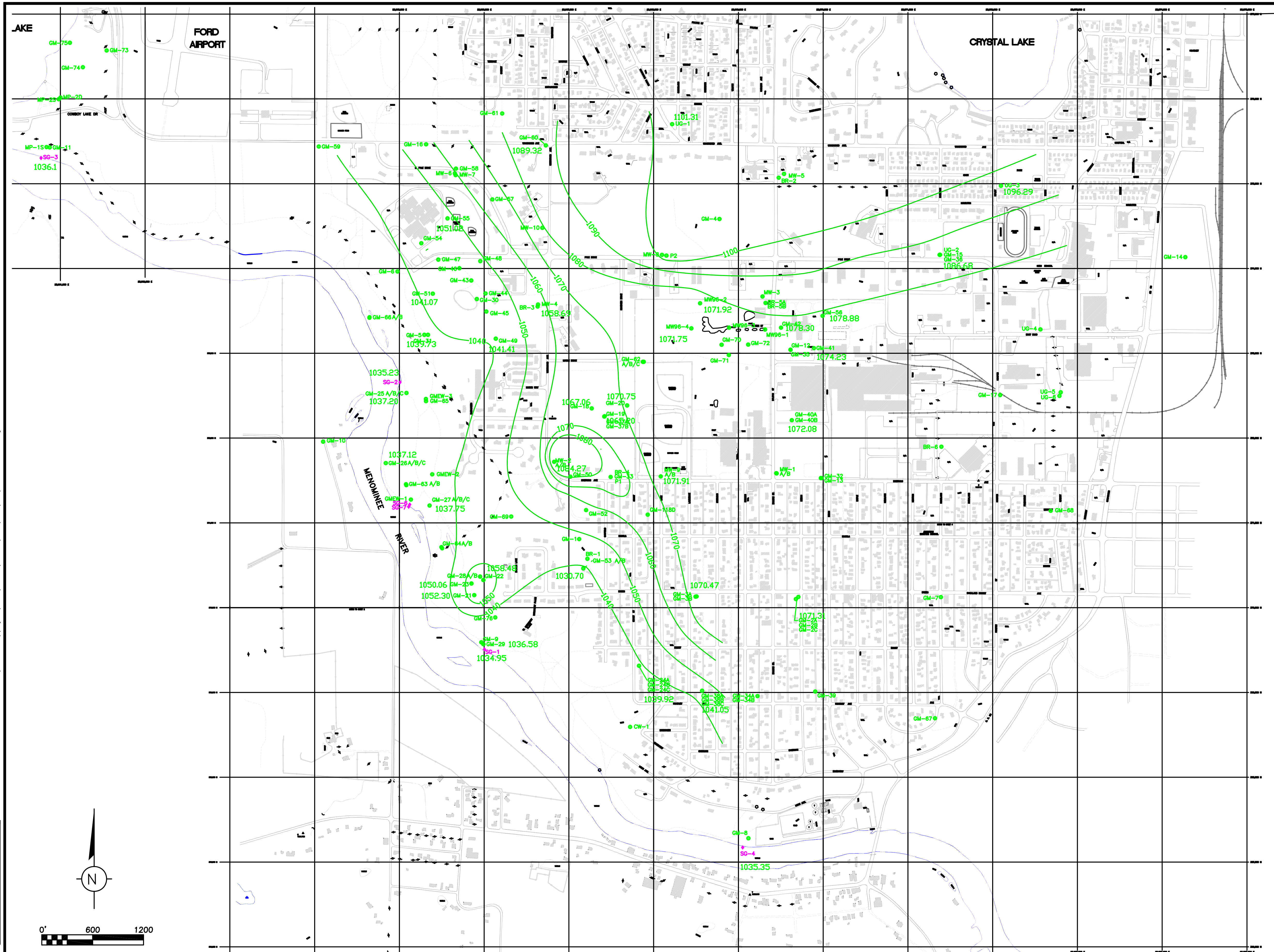
NO.	DATE	REVISION DESCRIPTION	BY / CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CES	6/05/2002	EC	BE
		LEAD DESIGN PROF. BE	CHECKED BE
		PROJECT NUMBER WI00925.0001	FIGURE 6-13

SHALLOW GROUNDWATER SYSTEM POTENTIOMETRIC SURFACE MAP
(AUGUST 21, 1999)



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- MONITOR WELL LOCATION
- STAFF GAUGE LOCATION
- 1090 WATER TABLE ELEVATION CONTOUR (MSL)
- 1086.64 WATER TABLE ELEVATION (MSL)

NOTE

THE SHALLOW GROUNDWATER SYSTEM ELEVATIONS ARE BASED ON MONITOR WELLS COMPLETED ABOVE 1000 FEET MEAN SEA LEVEL.

Path\Name : G:\project\FORD\WI0637\CI2009\cadd\RI Report\FSGWPOTMb1201.dwg

Page Setup: ----
Pen Table: ----

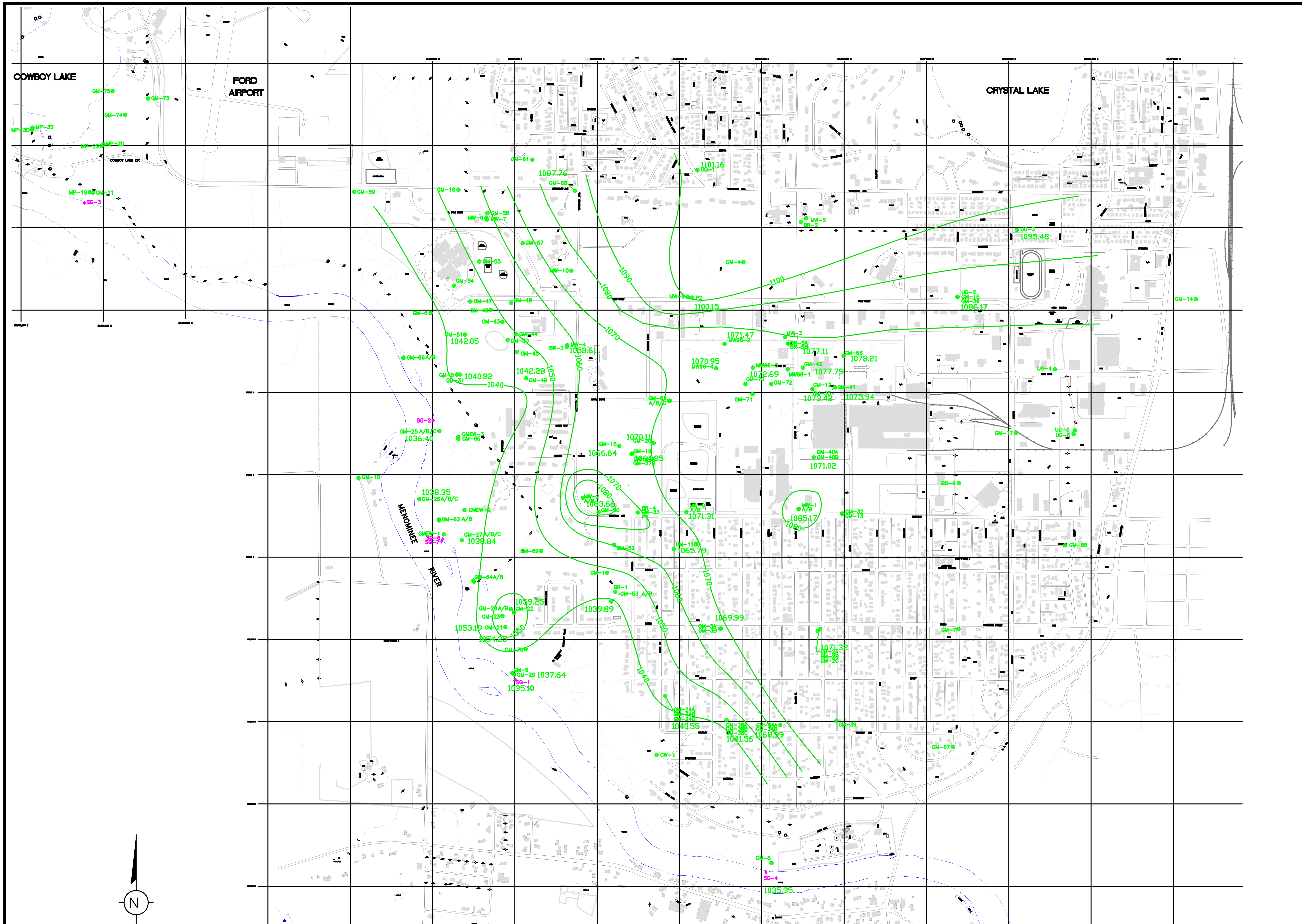
NO.	DATE	REVISION DESCRIPTION	BY / CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

SHALLOW GROUNDWATER SYSTEM POTENTIOMETRIC SURFACE MAP (DECEMBER 31, 1999)

DRAWN: CES	DATE: 6/05/2002	PROJECT MANAGER: EC	DEPARTMENT MANAGER: BE
		LEAD DESIGN PROF.: BE	CHECKED: BE
		PROJECT NUMBER: WI00925.0001	FIGURE: 6-14



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- MONITOR WELL LOCATION
- STAFF GAUGE LOCATION
- 1090 WATER TABLE ELEVATION CONTOUR (MSL)
- 1086.64 WATER TABLE ELEVATION (MSL)

NOTE
THE SHALLOW GROUNDWATER SYSTEM ELEVATIONS ARE BASED ON MONITOR WELLS COMPLETED ABOVE 1000 FEET MEAN SEA LEVEL.

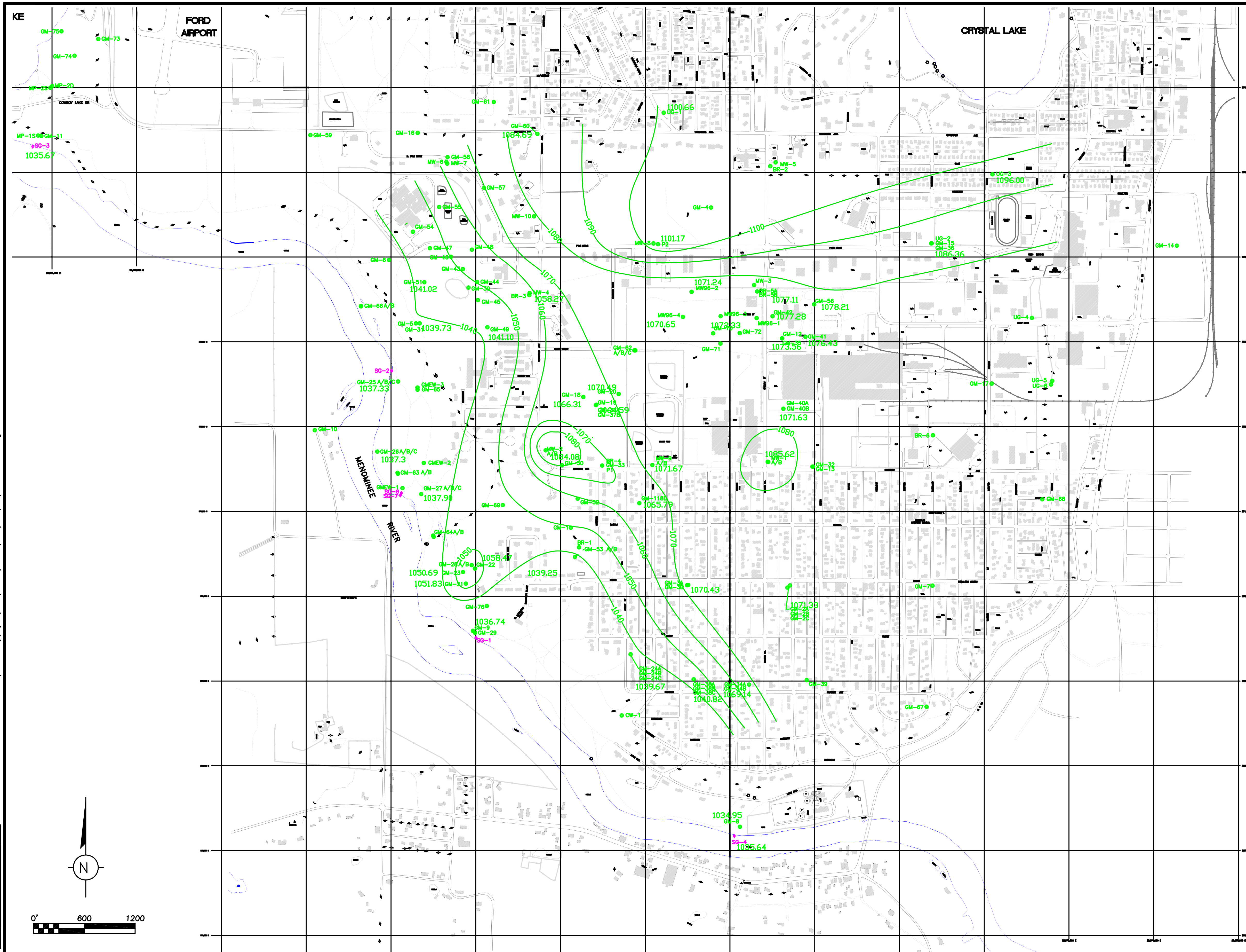
NO.	DATE	REVISION DESCRIPTION	BY / CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

SHALLOW GROUNDWATER SYSTEM
POTENTIOMETRIC SURFACE MAP
(MARCH 18, 2000)

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CES	6/05/2002	EC	BE
		LEAD DESIGN PROF. BE	CHECKED BE
		PROJECT NUMBER WI00925.0001	FIGURE 6-15



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- MONITOR WELL LOCATION
- STAFF GAUGE LOCATION
- —1090— WATER TABLE ELEVATION CONTOUR (MSL)
- 1086.64 WATER TABLE ELEVATION (MSL)

NOTE

THE SHALLOW GROUNDWATER SYSTEM ELEVATIONS ARE BASED ON MONITOR WELLS COMPLETED ABOVE 1000 FEET MEAN SEA LEVEL.

Path\Name : G:\project\FORD\WI0637\CJ2009\cadd\RI Report\FSGWPOTMd1201.dwg

Page Setup: ----
Pen Table: ----

NO.	DATE	REVISION DESCRIPTION	BY / CKD

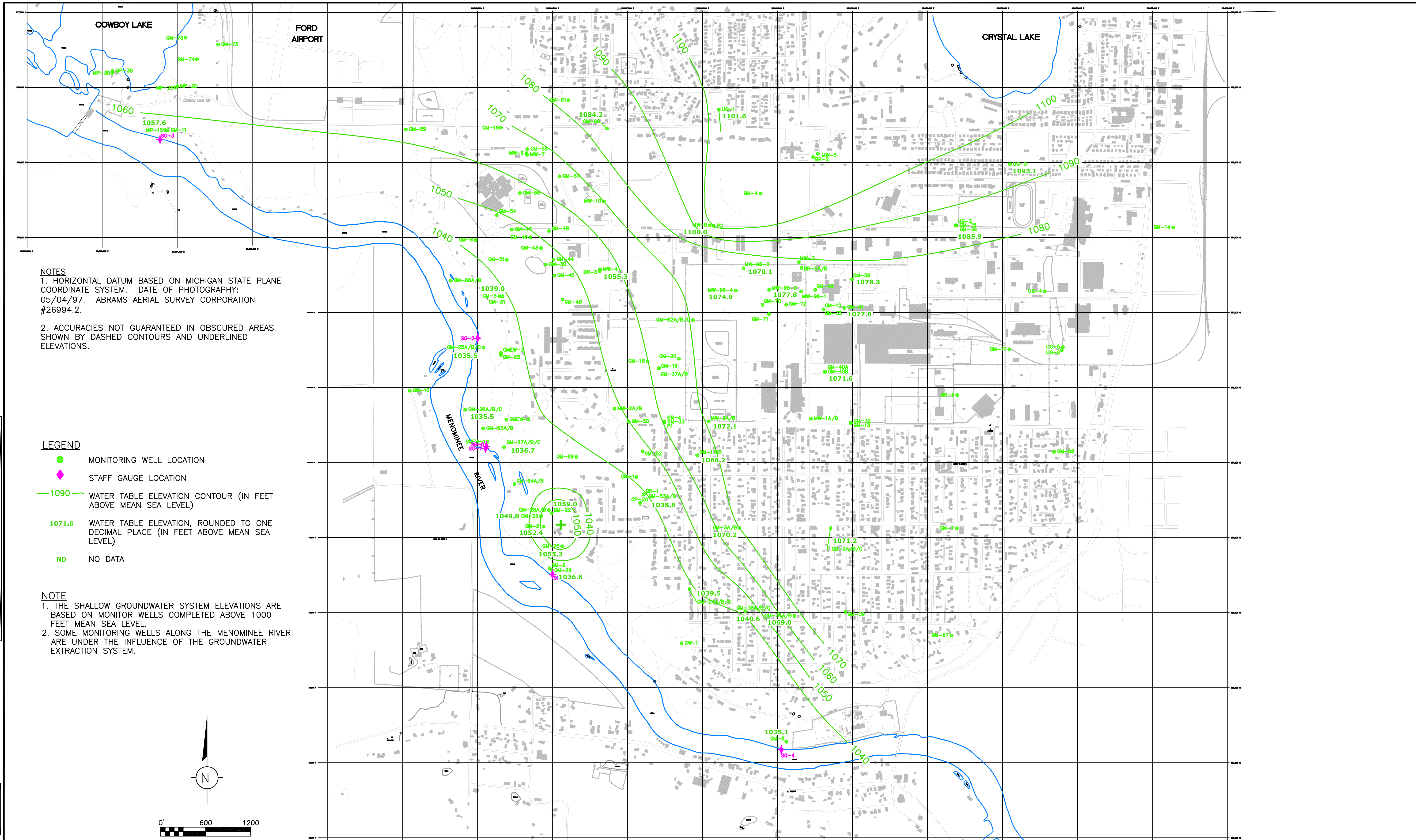
ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

SHALLOW GROUNDWATER SYSTEM POTENTIOMETRIC SURFACE MAP (JUNE 17, 2000)

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CES	6/05/2002	EC	BE
		LEAD DESIGN PROF. BE	CHECKED BE
		PROJECT NUMBER WI00925.0001	FIGURE 6-16



NOTES
1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM. DATE OF PHOTOGRAPHY: 05/04/97. ABRAMS AERIAL SURVEY CORPORATION #26994.2.

2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS.

LEGEND

●	MONITORING WELL LOCATION
◆	STAFF GAUGE LOCATION
—1090—	WATER TABLE ELEVATION CONTOUR (IN FEET ABOVE MEAN SEA LEVEL)
1071.6	WATER TABLE ELEVATION, ROUNDED TO ONE DECIMAL PLACE (IN FEET ABOVE MEAN SEA LEVEL)
ND	NO DATA

NOTE
1. THE SHALLOW GROUNDWATER SYSTEM ELEVATIONS ARE BASED ON MONITOR WELLS COMPLETED ABOVE 1000 FEET MEAN SEA LEVEL.
2. SOME MONITORING WELLS ALONG THE MENOMINEE RIVER ARE UNDER THE INFLUENCE OF THE GROUNDWATER EXTRACTION SYSTEM.

Page Setup: ------
Pen Table: BLACKGRAY.ctb

REV. ISSUED DATE DESCRIPTION

KEYPLAN

SEAL

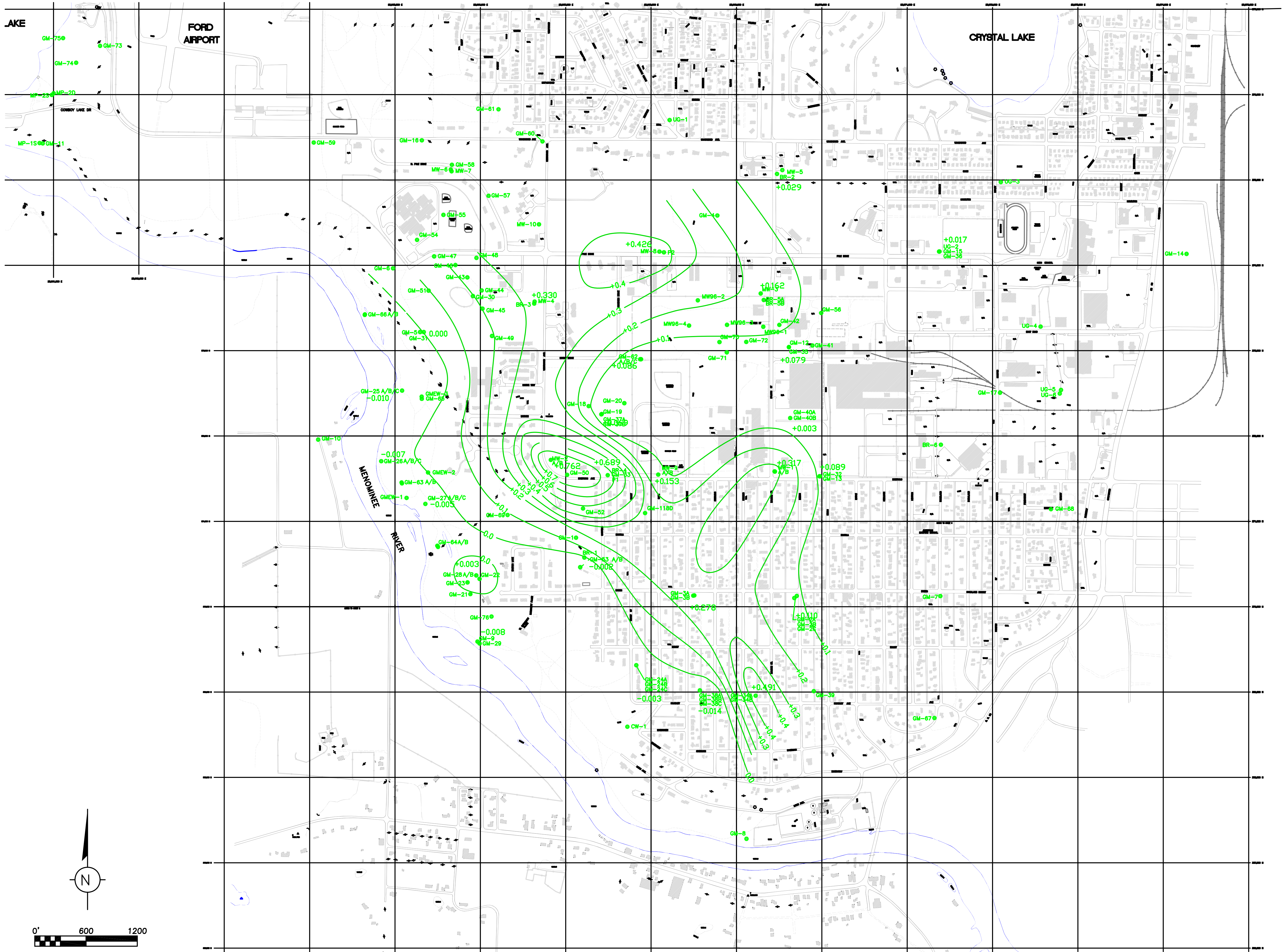
ARCADIS

126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

PROJECT MANAGER R. STUDEBAKER	DEPARTMENT MANAGER M. MAIERLE	LEAD DESIGN PROF. B. EVANS	CHECKED BY B. EVANS
SHEET TITLE SHALLOW GROUNDWATER SYSTEM POTENTIOMETRIC SURFACE MAP (NOVEMBER 28, 2006)		TASK/PHASE NUMBER 0012.00001	DRAWN BY C. MCKEOUGH
		PROJECT NUMBER WI001075	FIGURE NUMBER 6-17



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- MONITOR WELL LOCATION
- STAFF GAUGE LOCATION
- +0.4 VERTICAL GRADIENT CONTOUR
- +0.089 VERTICAL HYDRAULIC GRADIENT IN FOOT PER FOOT (FT/FT)

"+" POSITIVE GRADIENT EQUALS A DOWNWARD GRADIENT

"–" NEGATIVE GRADIENT EQUALS A UPWARD GRADIENT

Path\Name : G:\project\FORD\WI0637\CJ2009\cadd\RI Report\Fygradnt1201.dwg

Page Setup: ----
Pen Table: ----

NO.	DATE	REVISION DESCRIPTION	BY / CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT

FORD–KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

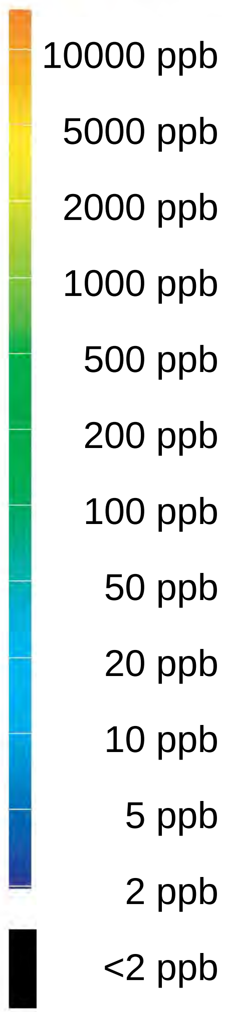
DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CES	06/06/02	EC	BE
		LEAD DESIGN PROF. BE	CHECKED BE

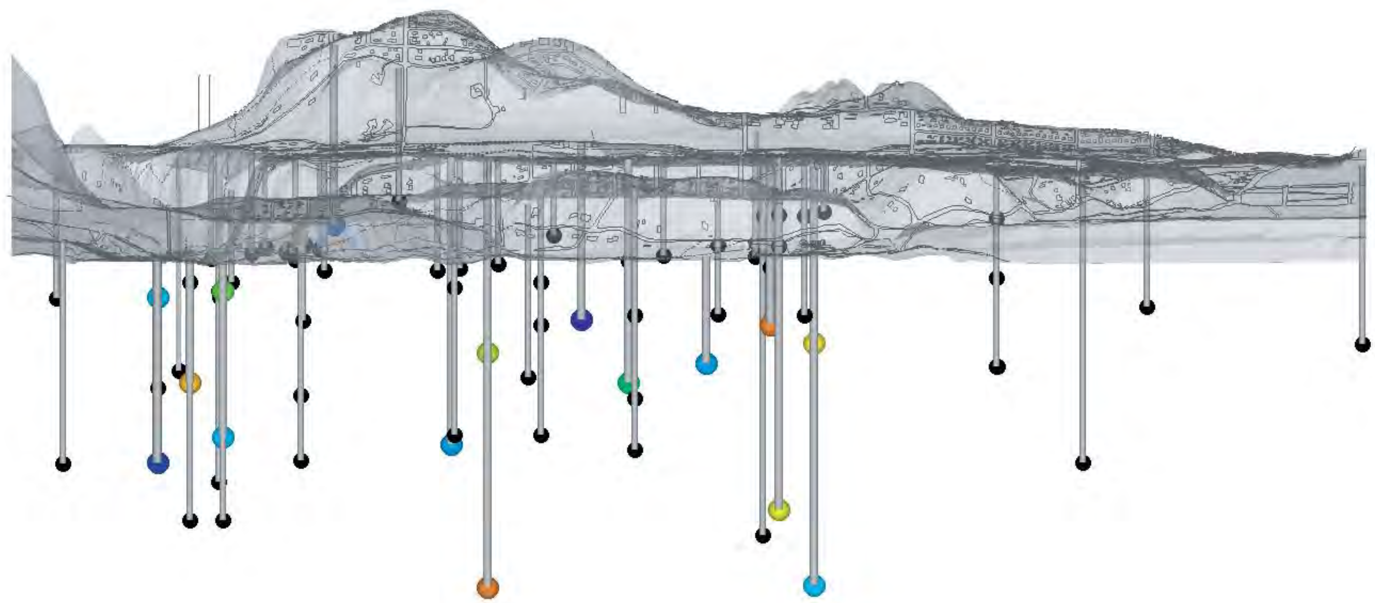
VERTICAL COMPONENT OF THE GROUNDWATER GRADIENT CONTOUR MAP (AUGUST 21, 1999)

PROJECT NUMBER: WI00925.0001

FIGURE 6-18

DWG DATE: 19JAN09 | PN: FORD\WI0637\CJ2009 | FILE NO.: GRAPHICS\RI REPORT | DRAWING: ACETICDATASOUTH.AI | CHECKED: BE | APPROVED: | DRAFTER: ELS





Explanation

● Control point and concentration of 2,4 Dimethylphenol by color

ppb Parts per billion of 2,4 Dimethylphenol

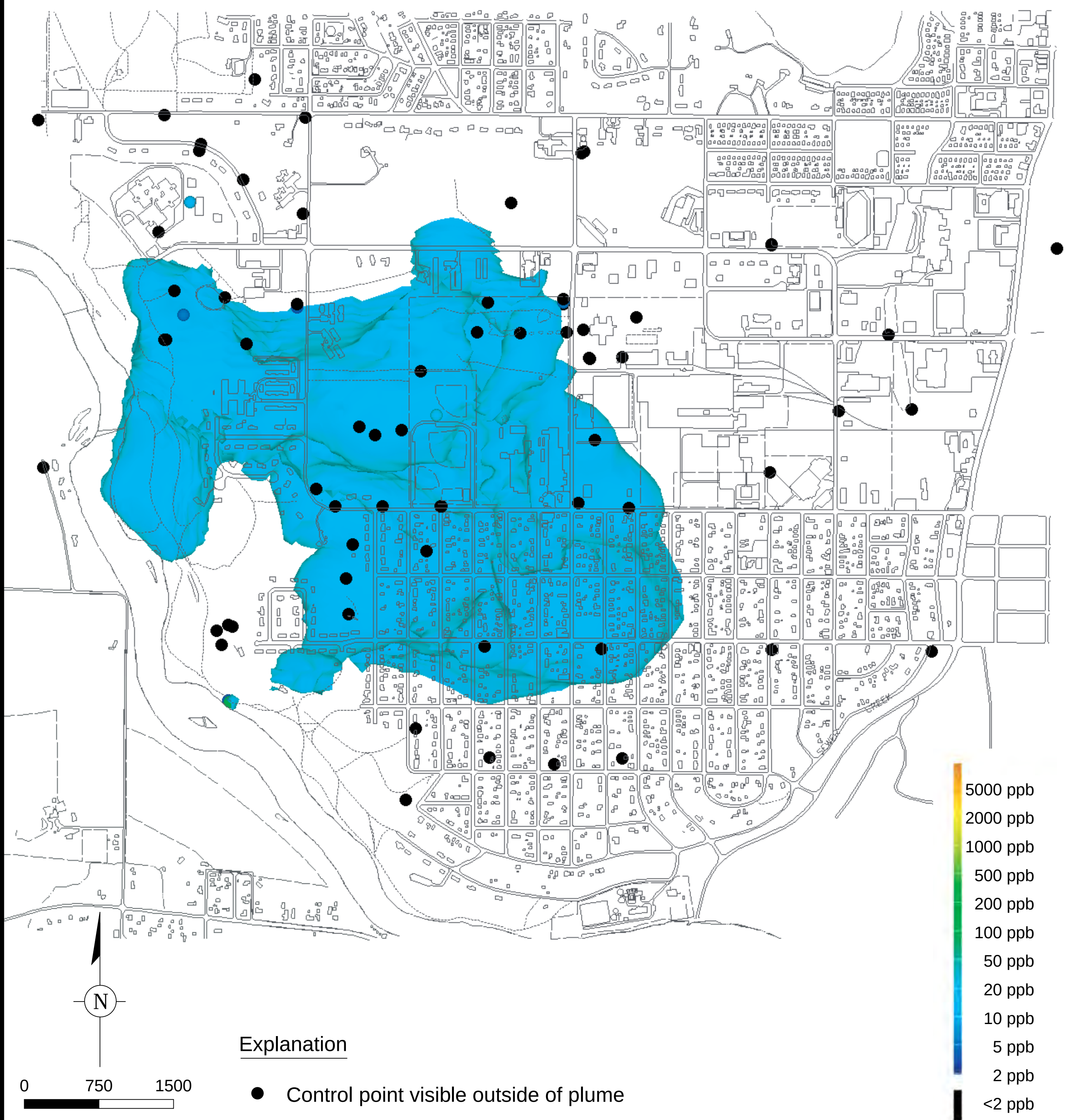
ARCADIS

EXAMPLE OF THE CONTROL POINTS USED TO CONSTRUCT THE 3-D PLUME MODEL FOR 2,4 DIMETHYLPHENOL

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-19



Explanation

● Control point visible outside of plume

ppb Parts per billion of 2,4 Dimethylphenol

DRAFTER: LMB
APPROVED:
CHECKED: BE
DRAWING: 24DITOP0300.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 19JAN09

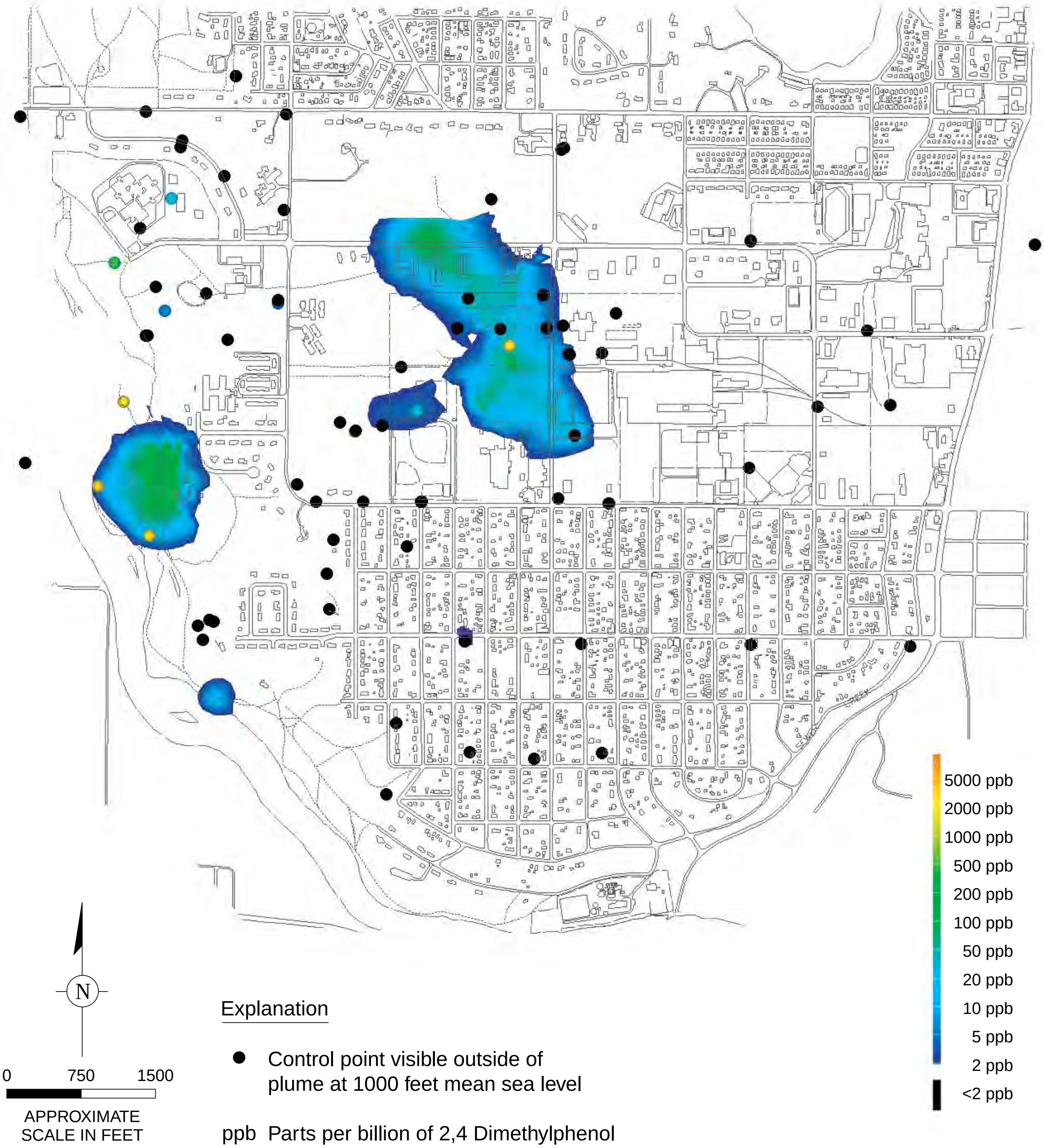
ARCADIS

AREAL DISTRIBUTION OF 2,4 DIMETHYLPHENOL VIEWED FROM THE GROUND SURFACE DOWNWARD

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-20



Explanation

● Control point visible outside of plume at 1000 feet mean sea level

ppb Parts per billion of 2,4 Dimethylphenol

DRAFTER: ELS | APPROVED: | CHECKED: BE | DRAWING: 24DI_1000.AI | FILE NO.: GRAPHICS\RI REPORT | PN: FORD\WI0637\CJ2009 | DWG DATE: 12JUN02

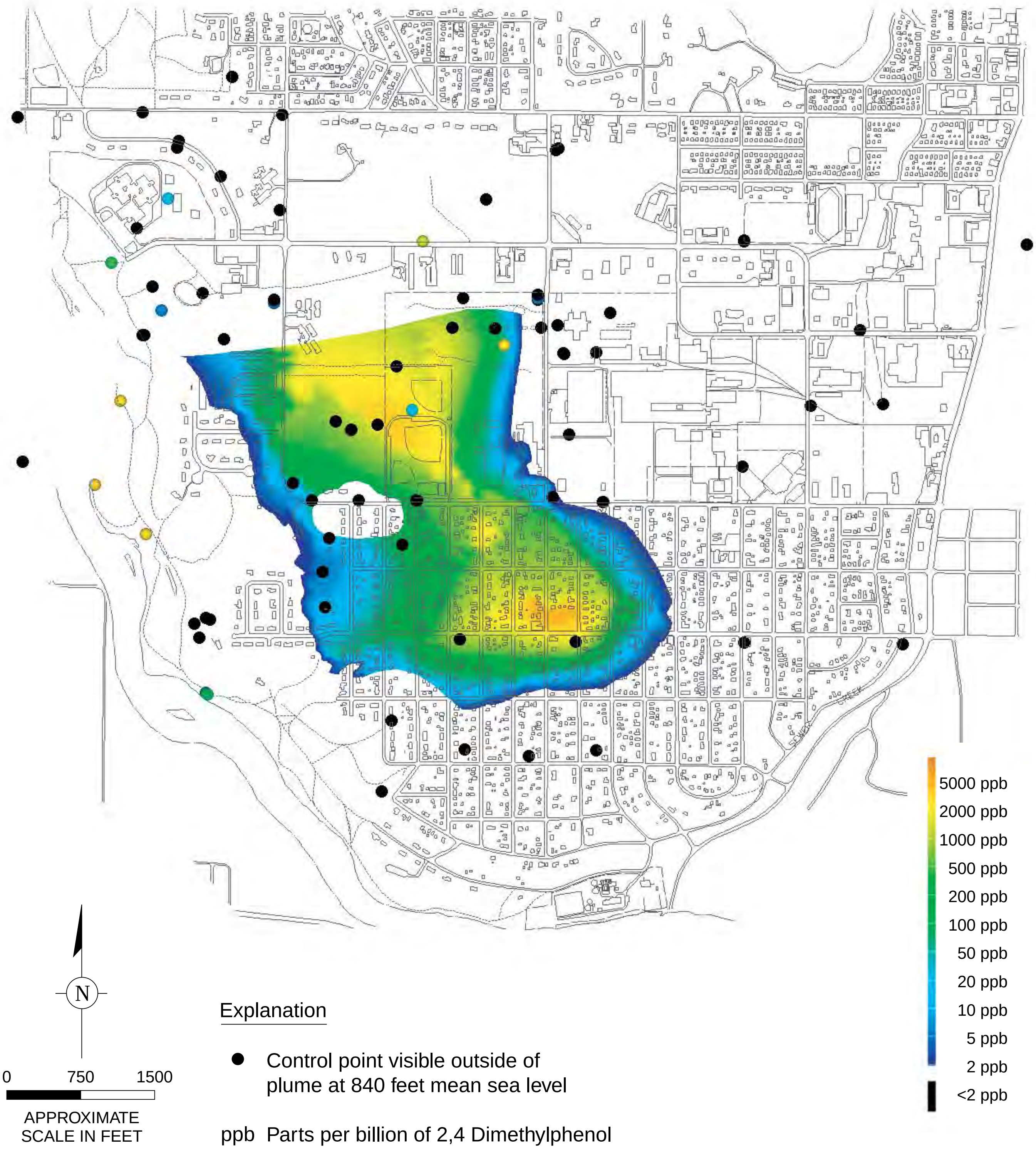
ARCADIS

AREAL DISTRIBUTION OF 2,4 DIMETHYLPHENOL AT AN ELEVATION OF 1000 FEET MEAN SEA LEVEL

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-21



ARCADIS

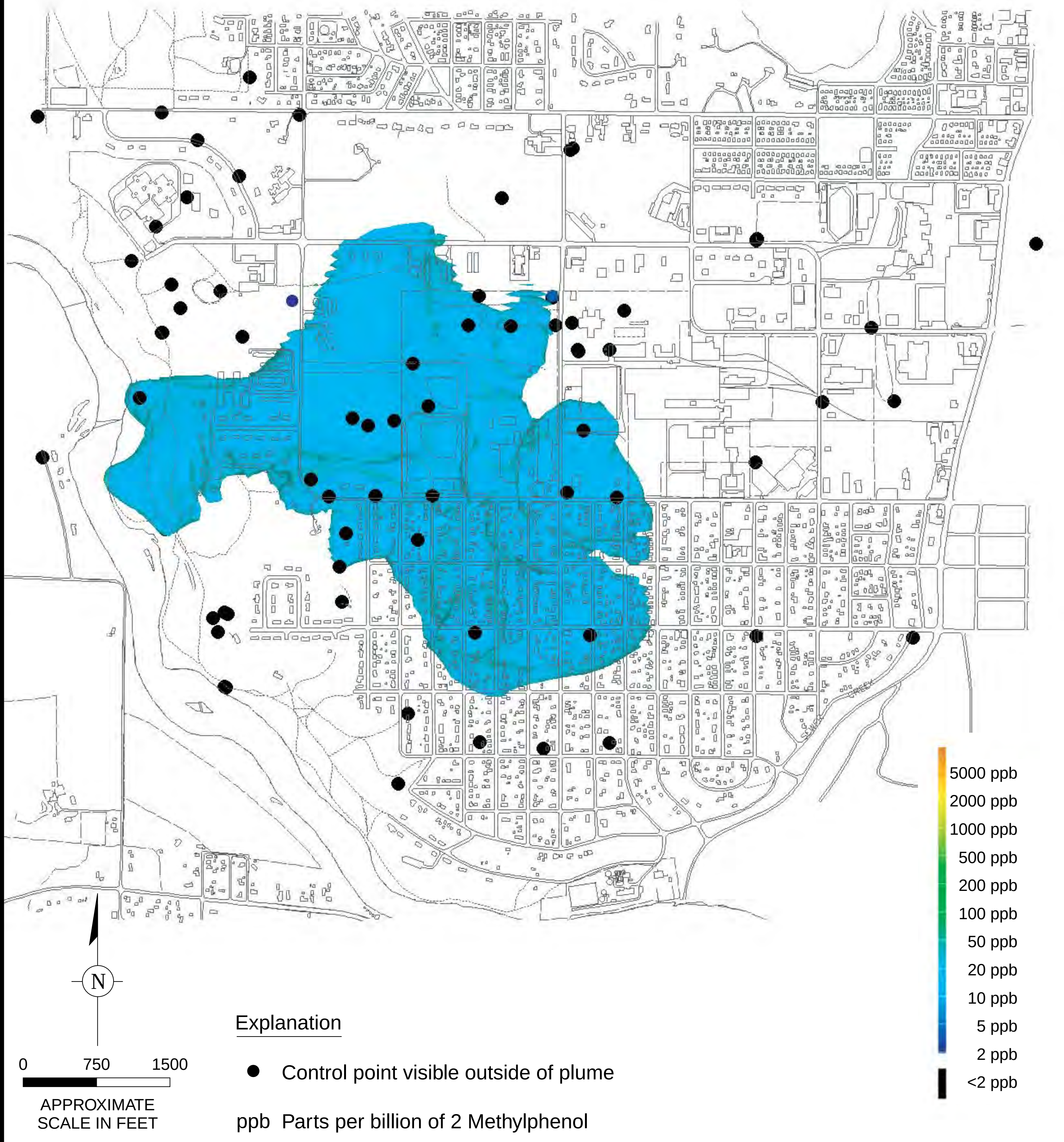
AREAL DISTRIBUTION OF 2,4 DIMETHYLPHENOL AT AN ELEVATION OF 840 FEET MEAN SEA LEVEL

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-22

DRAFTER: LMB
APPROVED:
CHECKED: BE
DRAWING: 2MPTOP0300.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 19JAN09



ARCADIS

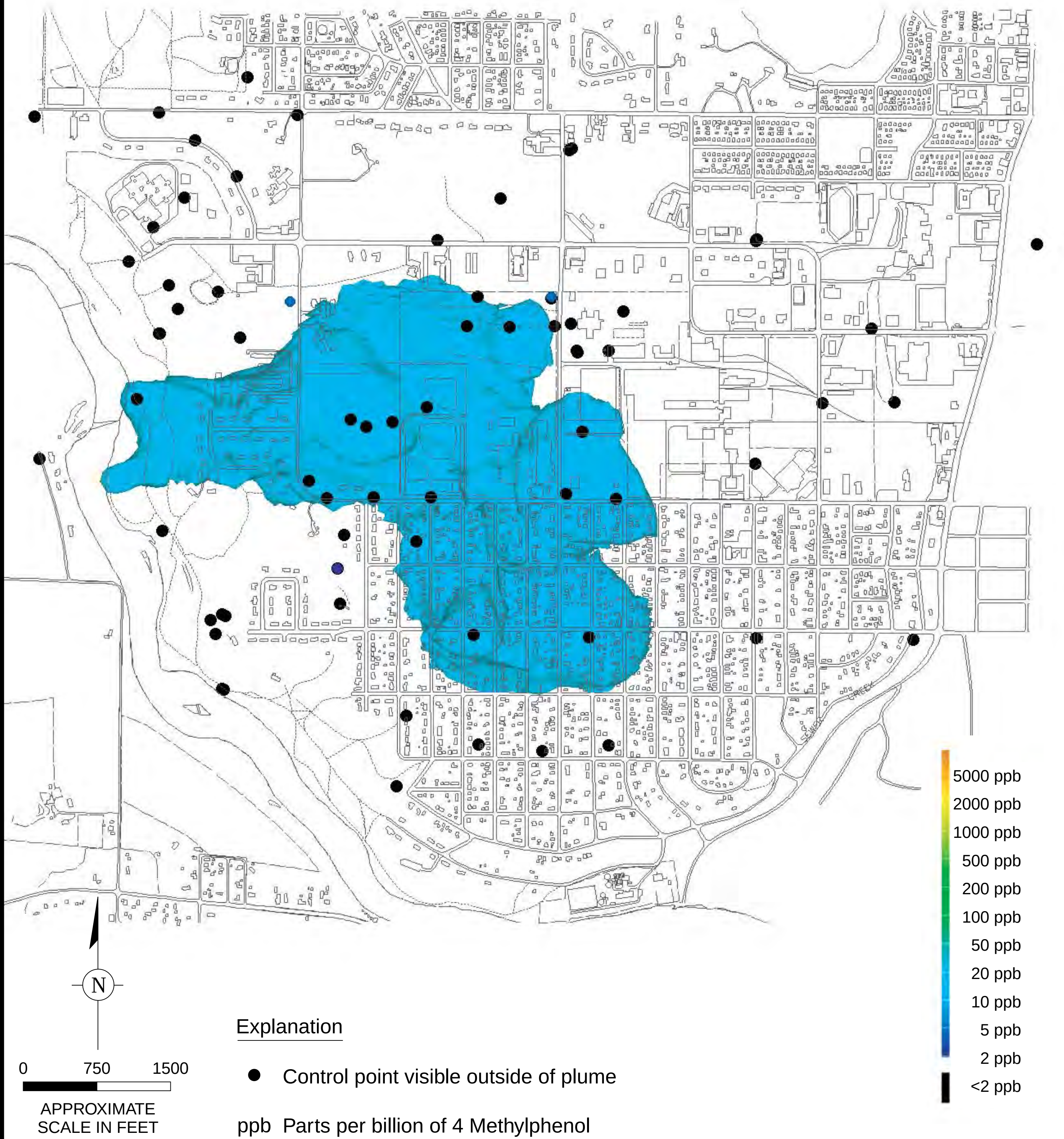
AREAL DISTRIBUTION OF 2 METHYLPHENOL VIEWED FROM THE GROUND SURFACE DOWNWARD

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-23

DRAFTER: LMB
APPROVED:
CHECKED: BE
DRAWING: 4MPTOP0300.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 20JAN09



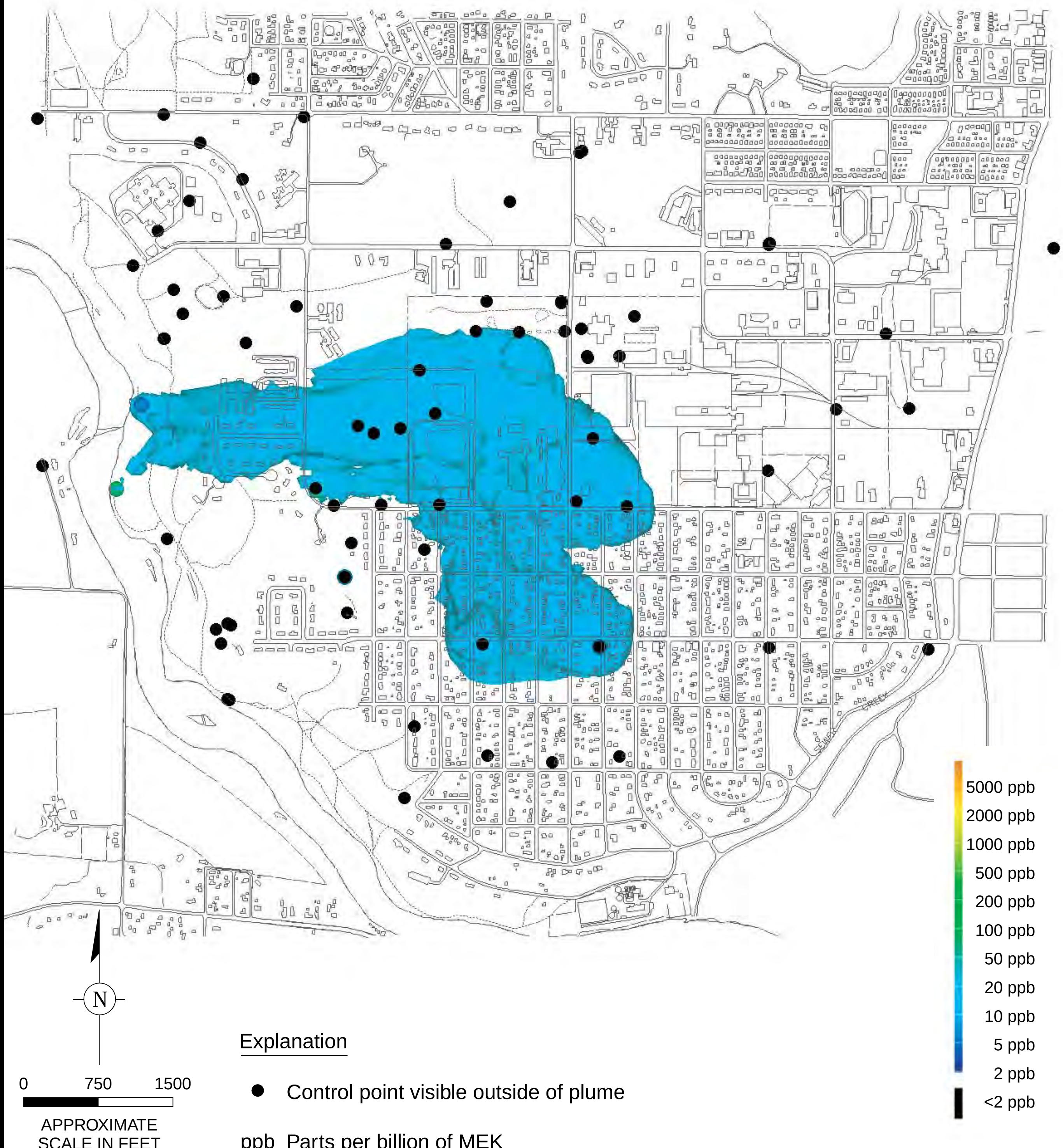
ARCADIS

AREAL DISTRIBUTION OF 4 METHYLPHENOL VIEWED FROM THE GROUND SURFACE DOWNWARD

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-24



Explanation

● Control point visible outside of plume

ppb Parts per billion of MEK

ARCADIS

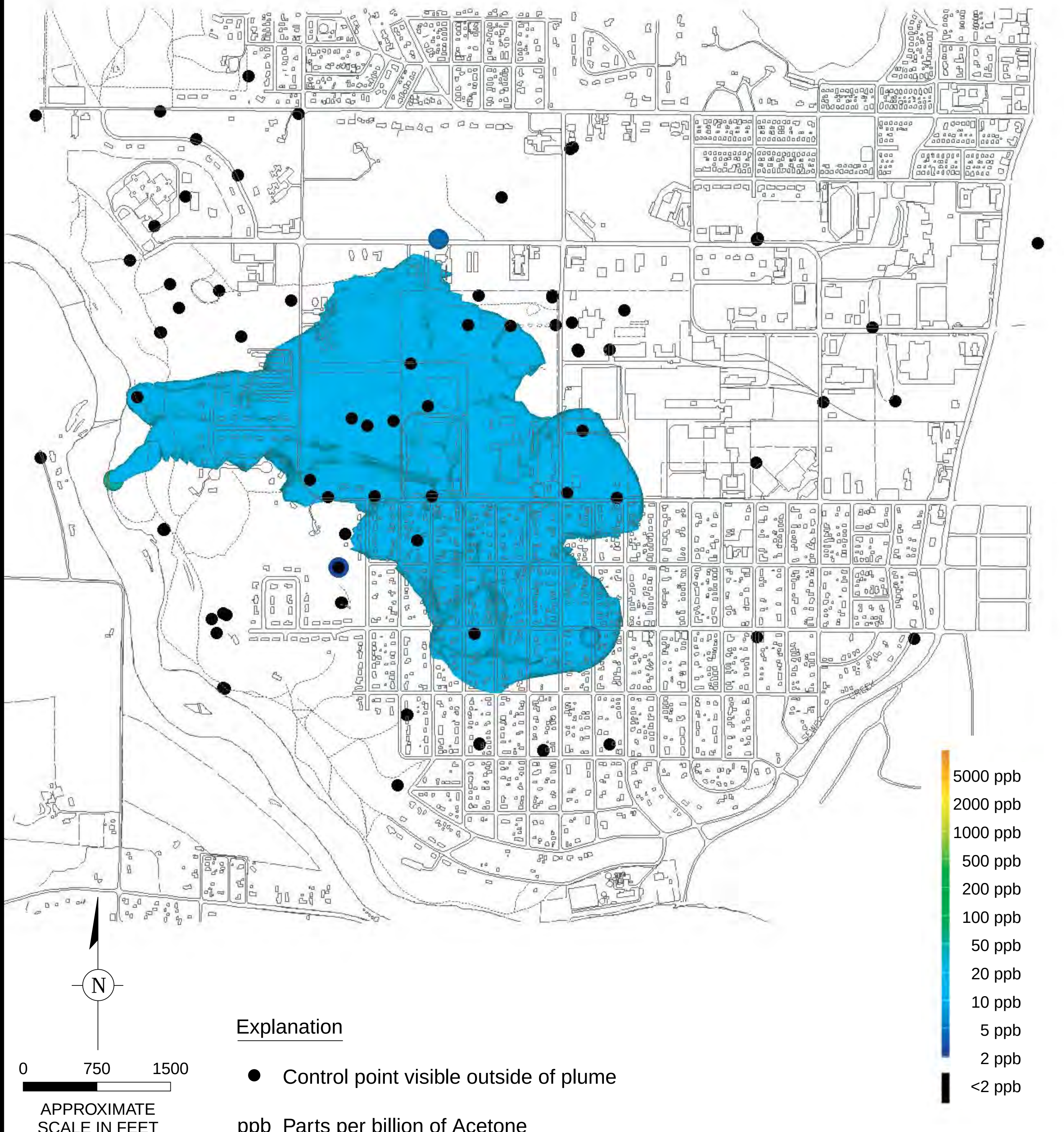
AREAL DISTRIBUTION OF MEK VIEWED FROM THE GROUND SURFACE DOWNWARD

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-25

DRAFTER: LMB
APPROVED:
CHECKED: BE
DRAWING: 2BUTOP0300.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 20JAN09



ARCADIS

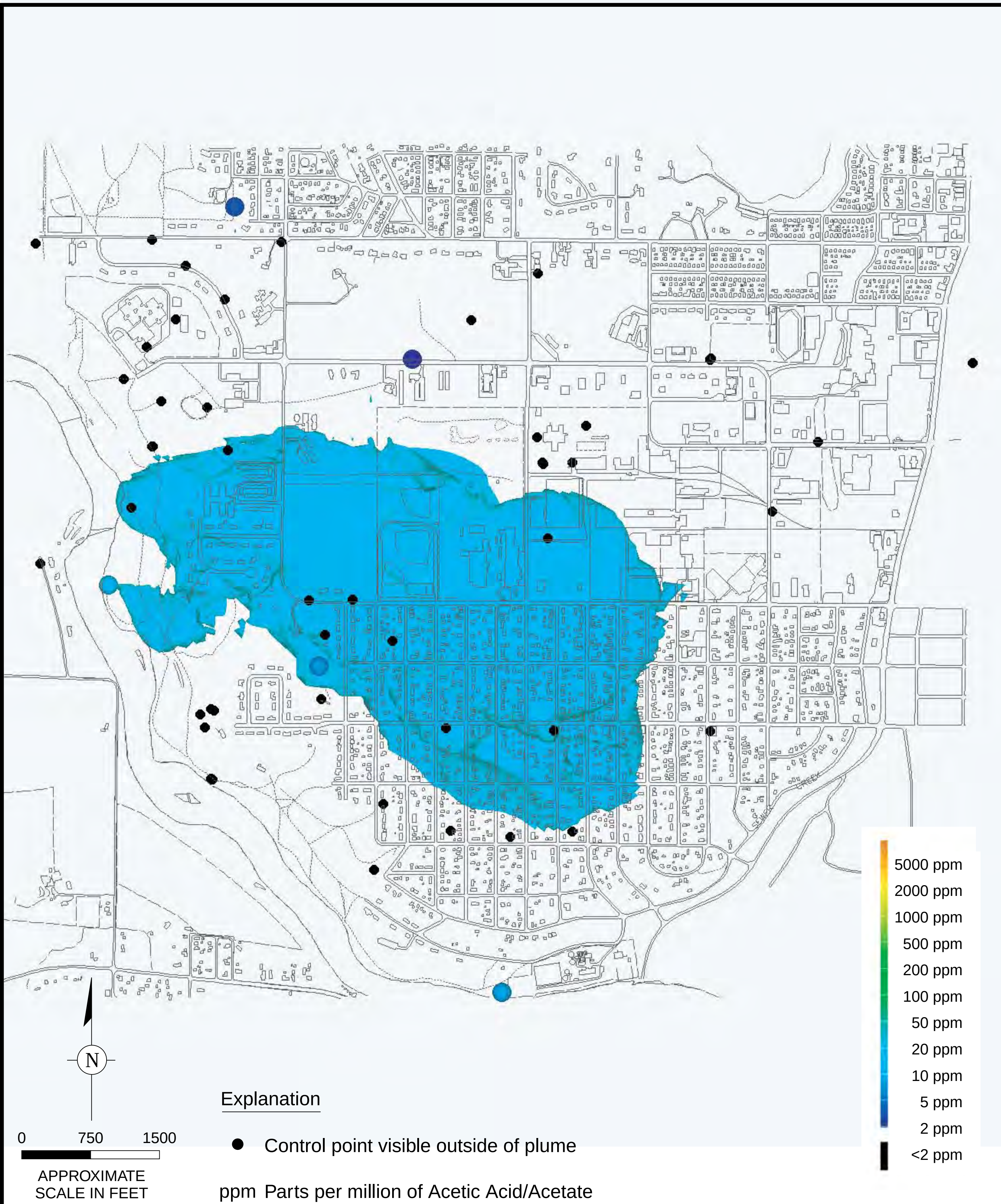
AREAL DISTRIBUTION OF ACETONE VIEWED FROM THE GROUND SURFACE DOWNWARD

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-26

DWG DATE: 20JAN09
PN: FORDWI0637\CJ2009
FILE NO.: GRAPHICS\RI REPORT
DRAWING: ACETONETOP0300.AI
CHECKED: BE
APPROVED:
DRAFTER: LMB



Explanation

● Control point visible outside of plume

ppm Parts per million of Acetic Acid/Acetate

DRAFTER: LMB | APPROVED: | CHECKED: BE | DRAWING: ACETICTOP_0300.AI | FILE NO.: GRAPHICS\RI REPORT | PN: FORD\WI0637\CJ2009 | DWG DATE: 20JAN09

ARCADIS

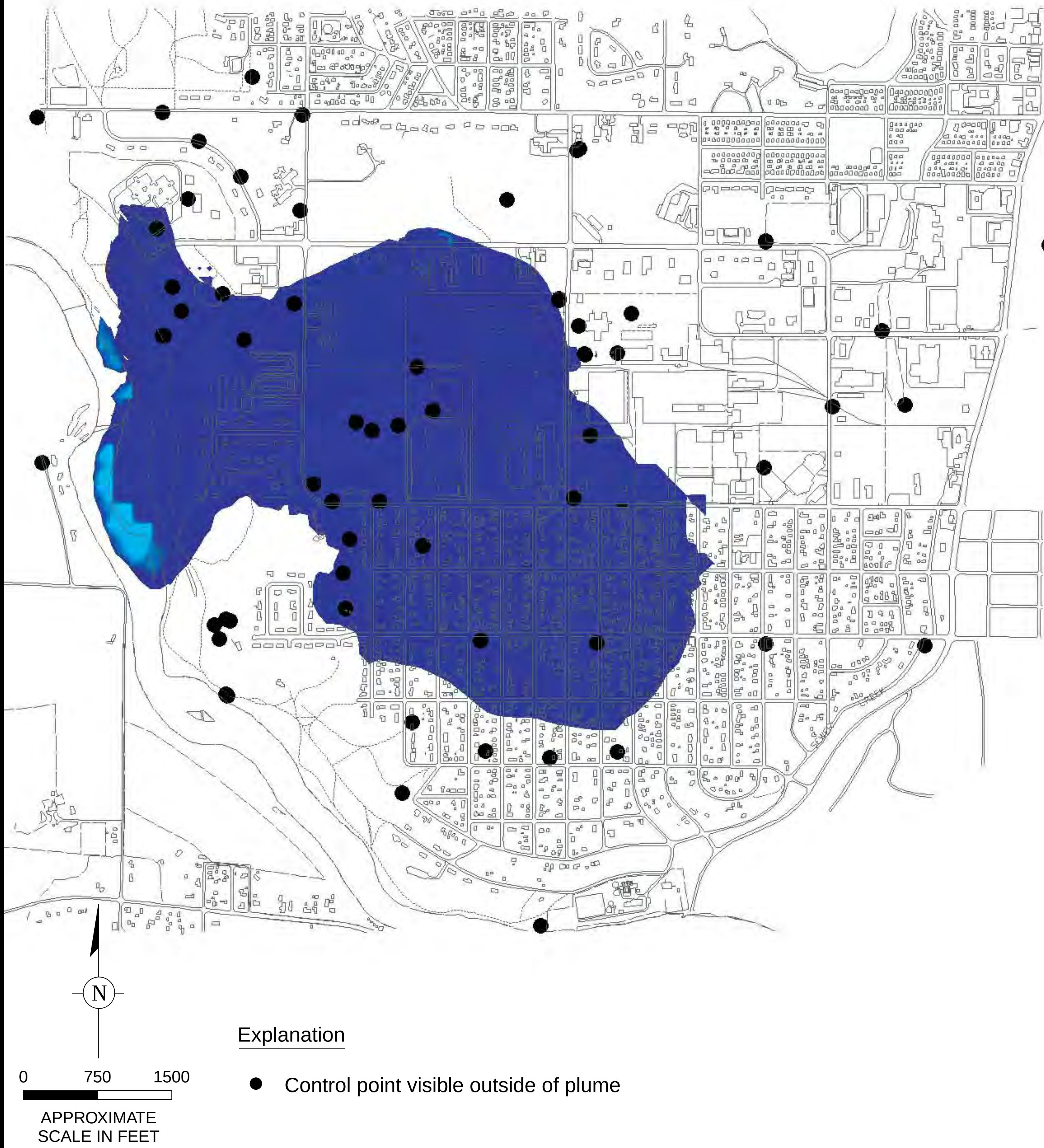
AREAL DISTRIBUTION OF ACETIC ACID/ ACETATE VIEWED FROM THE GROUND SURFACE DOWNWARD

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-27

DRAFTER: LMB
APPROVED:
CHECKED: BE
DRAWING: TOCTOP_0300.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 20JAN09

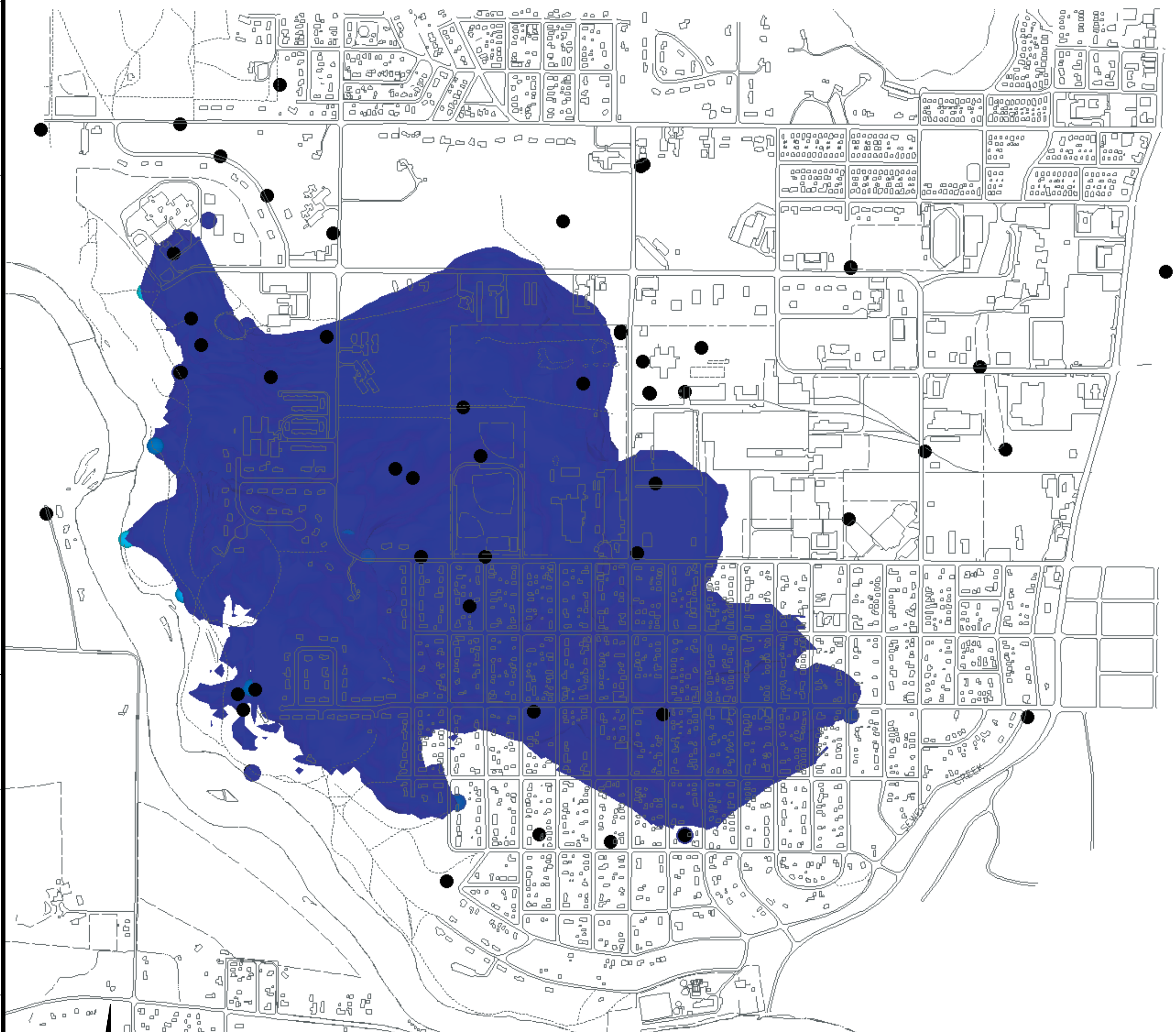


ARCADIS

AREAL DISTRIBUTION OF TOC VIEWED FROM THE GROUND SURFACE DOWNWARD

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-28



N

0 750 1500

APPROXIMATE
SCALE IN FEET

Explanation

● Control point visible outside of plume

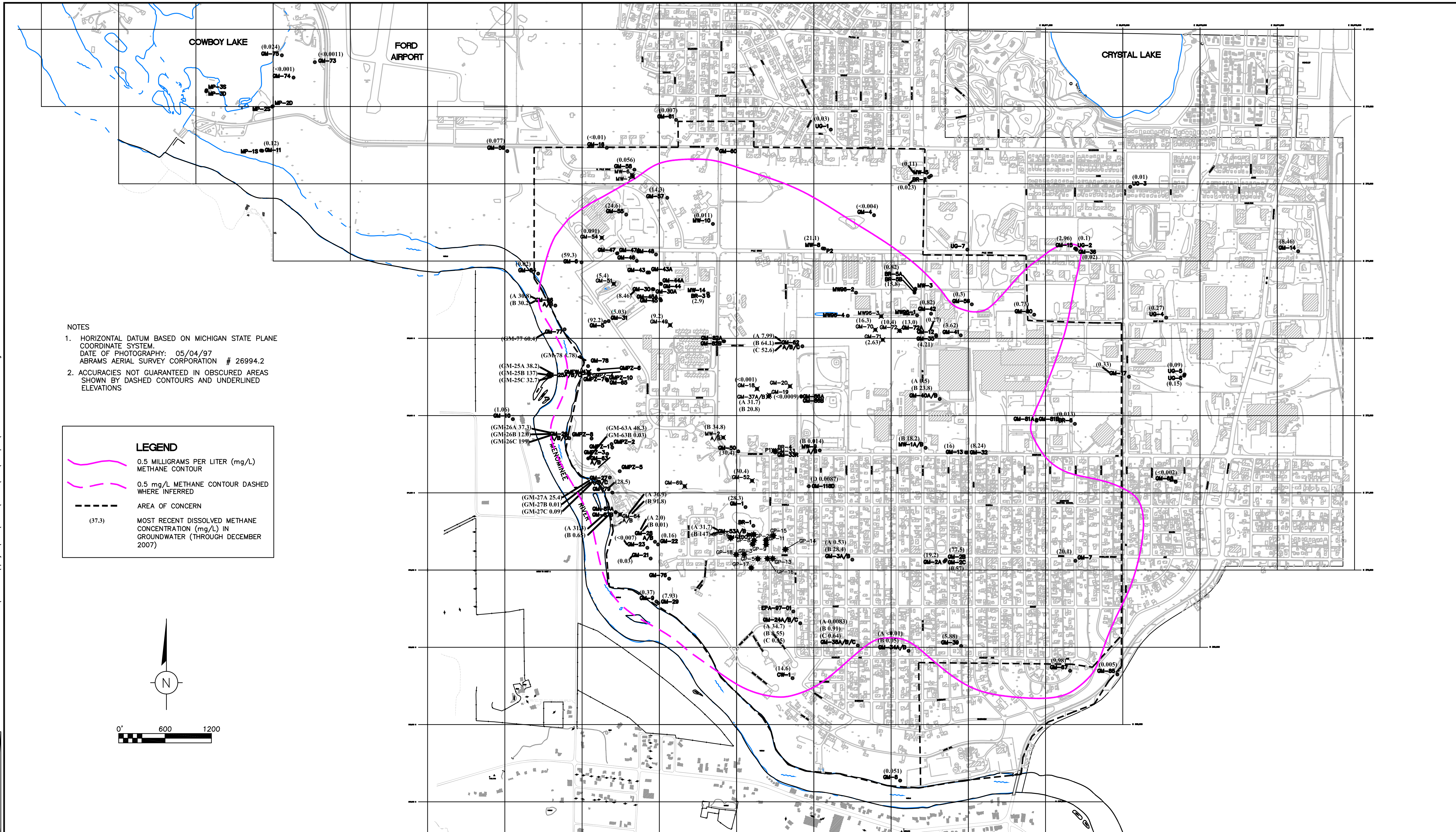
ARCADIS

AREAL DISTRIBUTION OF DISSOLVED METHANE VIEWED FROM THE GROUND SURFACE DOWNWARD

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-29

DWG DATE: 20JAN09 | PN: FORD\WI0637\CJ2009 | FILE NO.: GRAPHICS\RI REPORT | DRAWING: CH4TOP_0300.AI | CHECKED: BE | APPROVED: | DRAFTER: LMB



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

(solid magenta line)	0.5 MILLIGRAMS PER LITER (mg/L) METHANE CONTOUR
(dashed magenta line)	0.5 mg/L METHANE CONTOUR DASHED WHERE INFERRED
(dashed black line)	AREA OF CONCERN
(37.3)	MOST RECENT DISSOLVED METHANE CONCENTRATION (mg/L) IN GROUNDWATER (THROUGH DECEMBER 2007)

Path\Name : G:\project\FORD\WI0637\CJ2009\cadd\RI Report\Methane Contours 06-05.dwg

Page Setup: -----
Pen Table: BLACKGRAY.ctb

Area Manager	M. MAIERLE
Project Director	R. STUDEBAKER
Task Manager	J. TRASK
Technical Review	J. TRASK

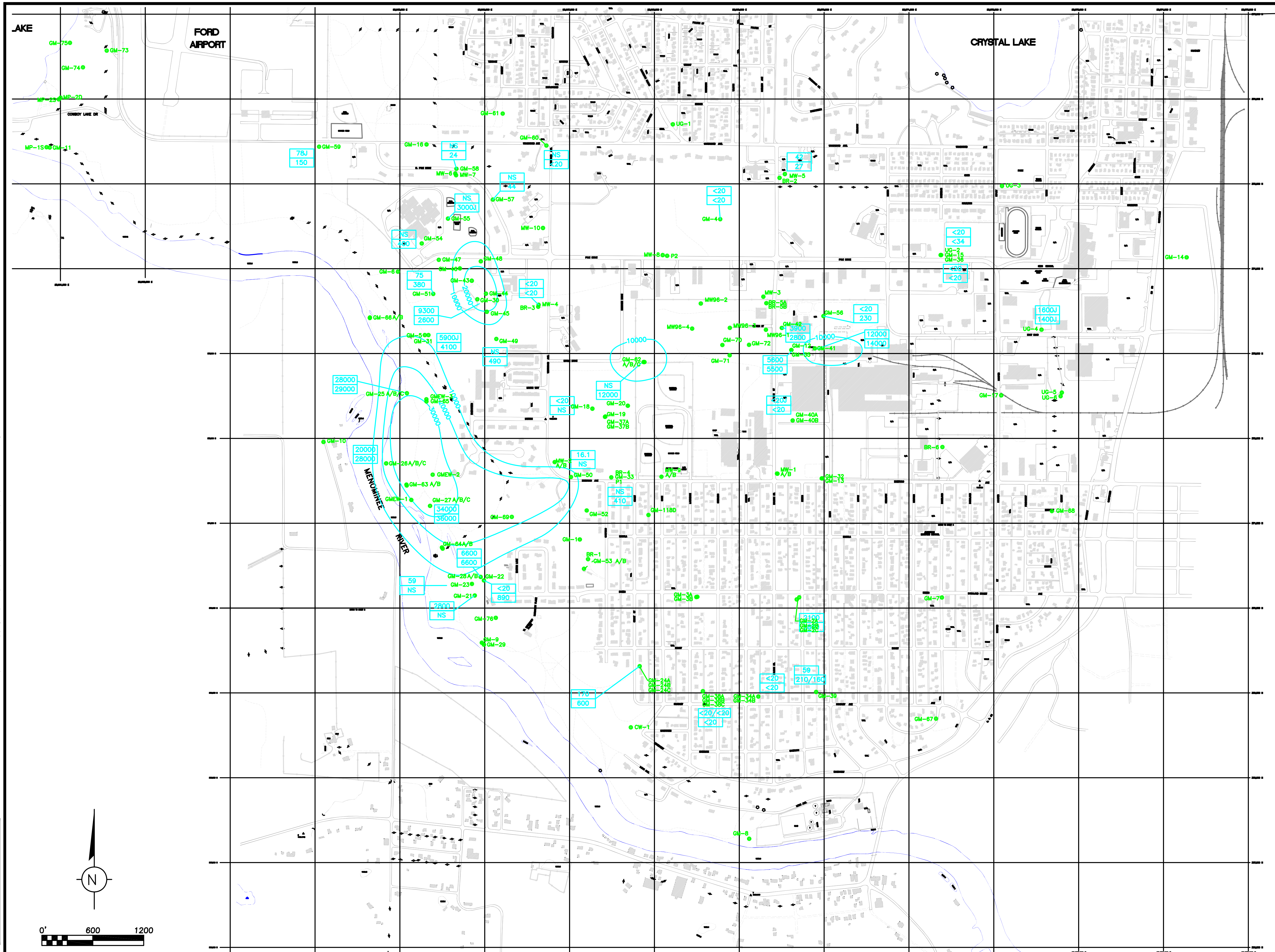
ARCADIS

126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

EXTENT OF DISSOLVED METHANE IN GROUNDWATER ABOVE 0.5 mg/L

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

Project Number	WI001095
Drawing Date	12/12/06
Figure	6-30



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

MONITOR WELL LOCATION

MONITOR WELL DATA

16.1	1998
230	1999
210/160	DUPLICATE SAMPLE
<20	IRON NOT DETECTED AT OR ABOVE THE VALUE
78J	ESTIMATED VALUE
NS	NOT SAMPLED

CONCENTRATIONS ARE IN ug/L

30000 INFERRED IRON CONTOUR LINE

Path\Name : G:\project\FORD\WI0637\CJ2009\cadd\RI Report\FIRONUPP1201.dwg

Page Setup: ----
Pen Table: ----

NO.	DATE	REVISION DESCRIPTION	BY / CKD

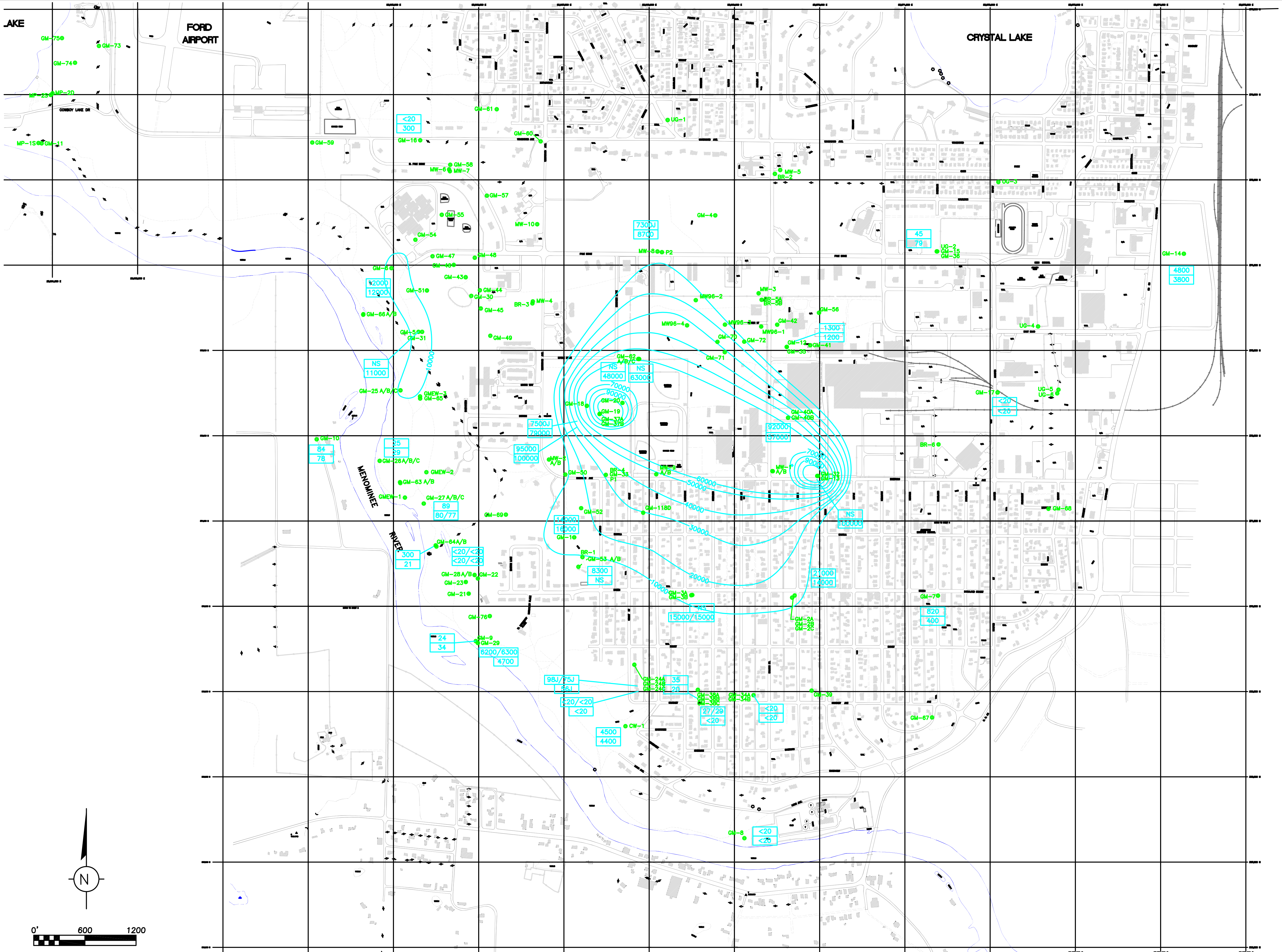
ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

TOTAL IRON CONCENTRATIONS DETECTED IN THE SHALLOW GROUNDWATER SYSTEM

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CES	06/05/02	EC	LH
		LEAD DESIGN PROF.	CHECKED
		LH	LH
		PROJECT NUMBER	FIGURE
		WI00925.0001	6-31



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

MONITOR WELL LOCATION

MONITOR WELL DATA

7300J	1998
8700	1999
80 / 77	DUPLICATE SAMPLE
<20	IRON CONCENTRATION NOT DETECTED AT OR ABOVE THE VALUE
20J	ESTIMATED VALUE
NS	NOT SAMPLED

CONCENTRATIONS ARE IN ug/L

40000 INFERRED IRON CONTOUR LINE

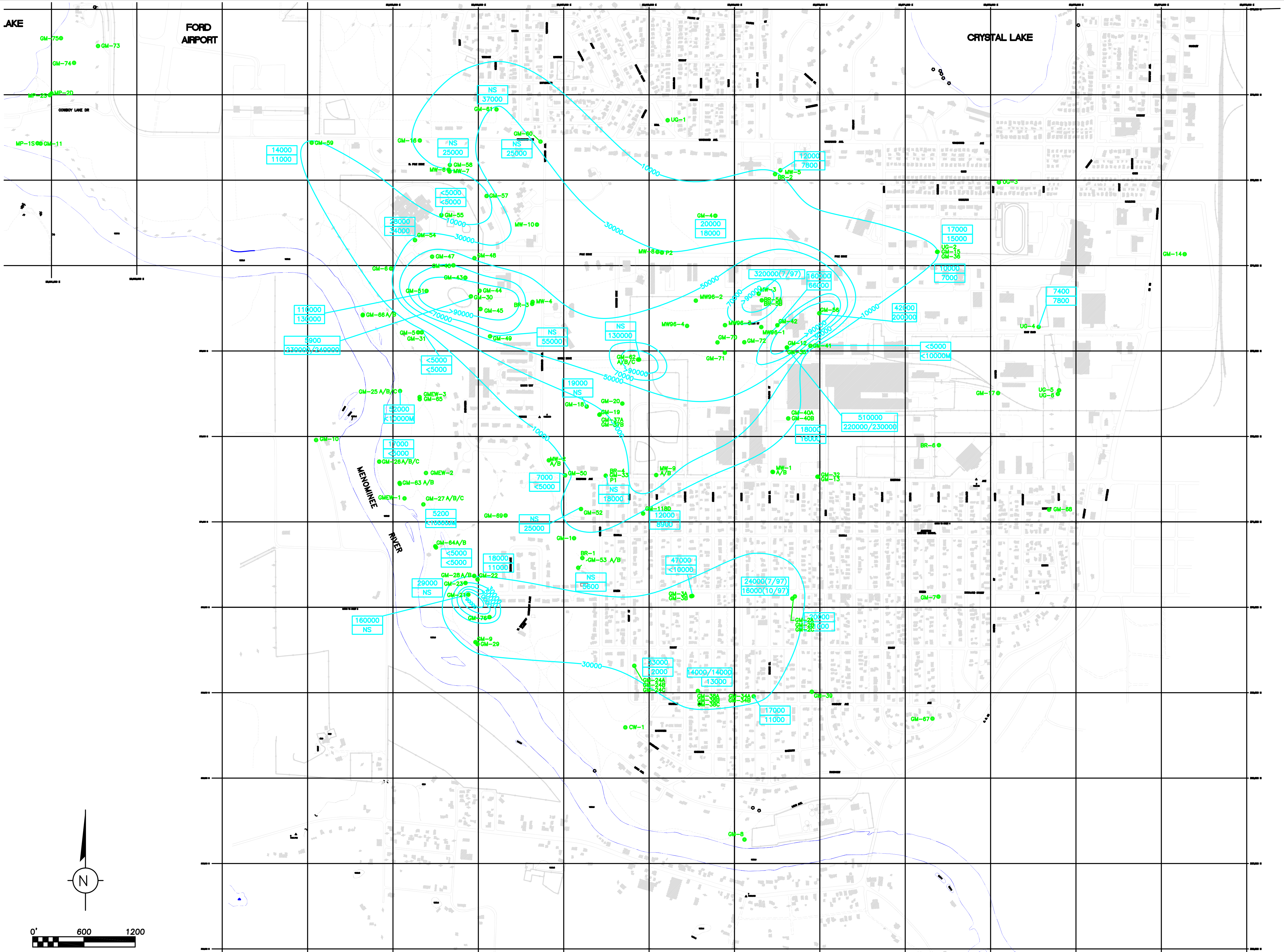
NO.	DATE	REVISION DESCRIPTION	BY	CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DRAWN: CES	DATE: 06/05/02	PROJECT MANAGER: EC	DEPARTMENT MANAGER: LH
		LEAD DESIGN PROF.: LH	CHECKED: LH
		PROJECT NUMBER: WI00925.0001	FIGURE: 6-32

TOTAL IRON CONCENTRATIONS DETECTED IN THE DEEP GROUNDWATER SYSTEM



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

● MONITOR WELL LOCATION

MONITOR WELL DATA

20000	1998
18000	1999
14000/14000	DUPLICATE SAMPLE
320000(7/97)	EECA
20J	SULFATE NOT DETECTED AT OR ABOVE THE VALUE
<20	ESTIMATED VALUE
NS	NOT SAMPLED

CONCENTRATIONS ARE IN ug/L

30000 INFERRED SULFATE CONTOUR LINE

Path\Name : G:\project\FORD\WI0637\CJ2009\cadd\RI Report\FaultUPP1201.dwg

Page Setup: -----
Pen Table: -----

NO.	DATE	REVISION DESCRIPTION	BY / CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

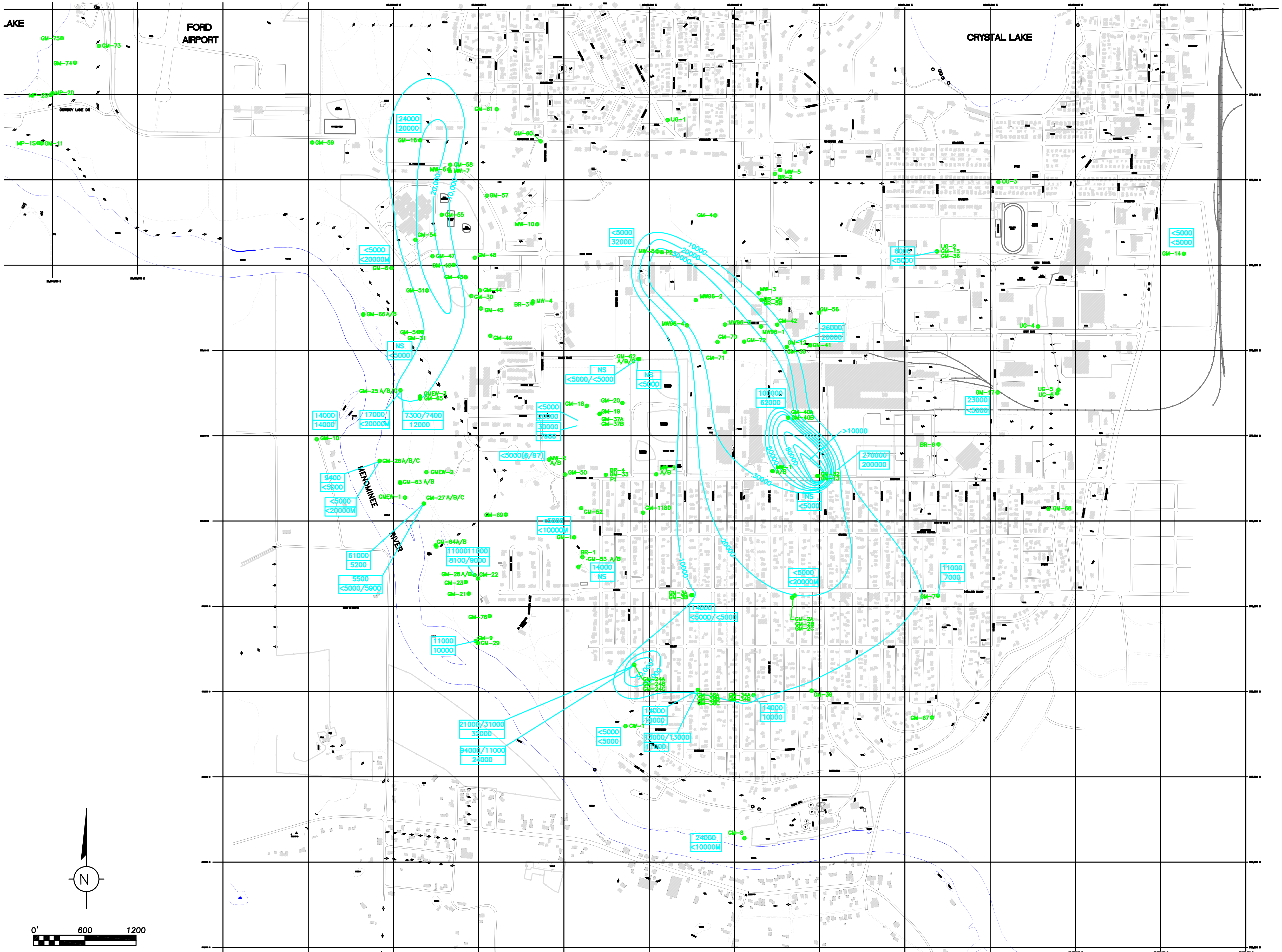
REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DRAWN	DATE
CES	06/05/02

SULFATE CONCENTRATIONS DETECTED IN THE SHALLOW GROUNDWATER SYSTEM

PROJECT MANAGER	DEPARTMENT MANAGER
EC	LH
LEAD DESIGN PROF.	CHECKED
LH	LH
PROJECT NUMBER	FIGURE
WI00925.0001	6-33



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

● MONITOR WELL LOCATION

MONITOR WELL DATA

23000	1998
<5000	1999
13000/13000	DUPLICATE SAMPLE
20J	ESTIMATED VALUE
<20	SULFATE NOT DETECTED AT OR ABOVE THE VALUE
NS	NOT SAMPLED

CONCENTRATIONS ARE IN ug/L

—10000— INFERRED SULFATE CONTOUR LINE

NO.	DATE	REVISION DESCRIPTION	BY CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

SULFATE CONCENTRATIONS DETECTED IN THE DEEP GROUNDWATER SYSTEM

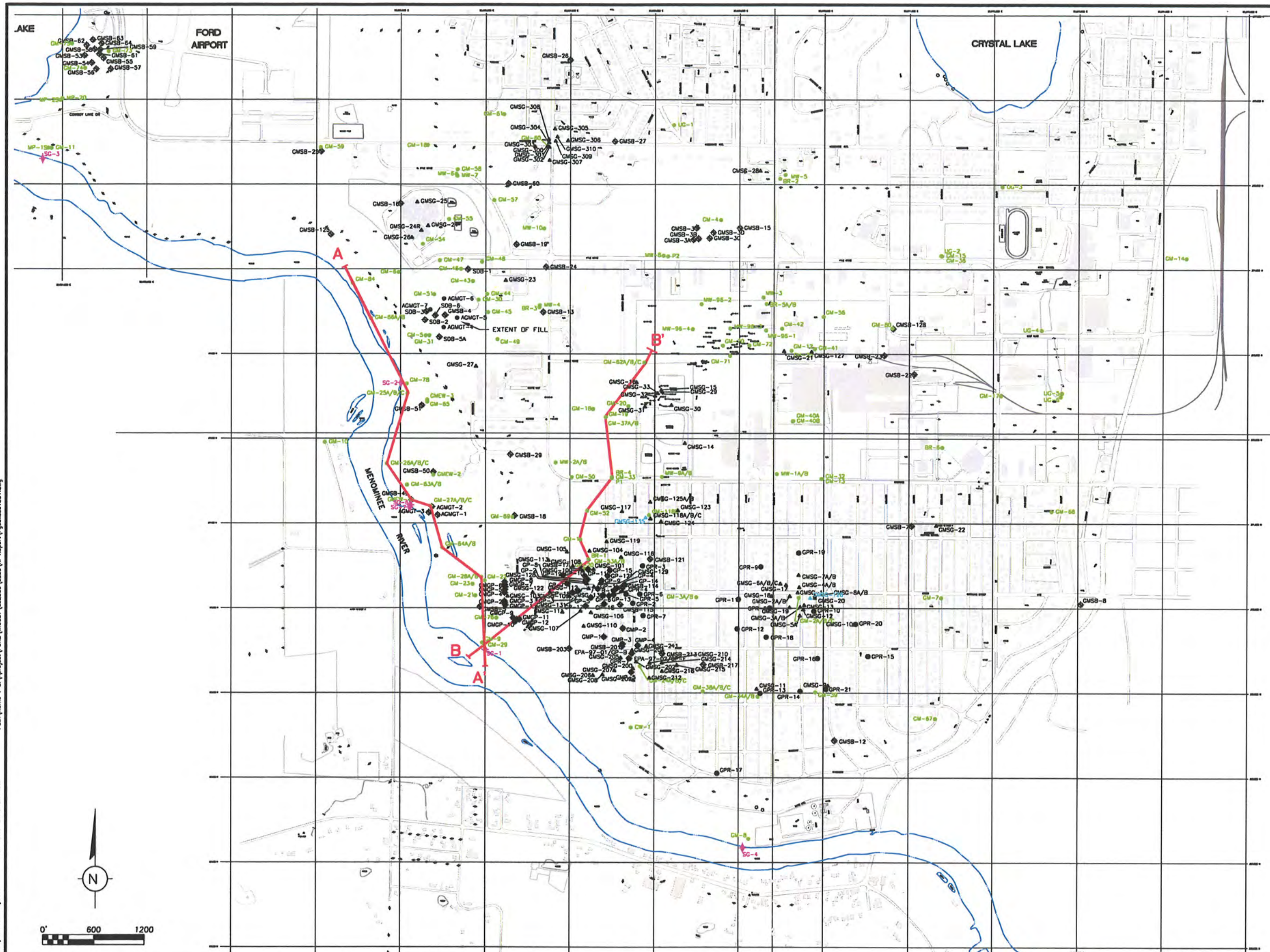
DRAWN: CES	DATE: 06/05/02	PROJECT MANAGER: EC	DEPARTMENT MANAGER: LH
		LEAD DESIGN PROF.: LH	CHECKED: LH
		PROJECT NUMBER: WI00925.0001	FIGURE: 6-34

ARCADIS

126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

MENOMINEE RIVER BASEMAP

DRAWN CCM	DATE 12/13/05	PROJECT MANAGER RS	DEPARTMENT MANAGER RS
REMEDIAL INVESTIGATION REPORT		LEAD DESIGN PROF. BE	CHECKED BE
FORD-KINGSFORD PRODUCTS FACILITY KINGSFORD, MICHIGAN		PROJECT NUMBER WI01095	FIGURE 6-35



NOTES
1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
DATE OF PHOTOGRAPHY: 05/04/97
ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- MONITOR WELL LOCATION
- SOIL BORING LOCATION
- FORMER TEMPORARY MONITOR WELL LOCATION
- SOIL VAPOR PROBE LOCATION
- STAFF GAUGE LOCATION
- GPR SOIL BORING LOCATION
- GEOPROBE BORING LOCATION
- A A' APPROXIMATE CROSS SECTION LINE

NO.	DATE	REVISION DESCRIPTION	BY / CKD

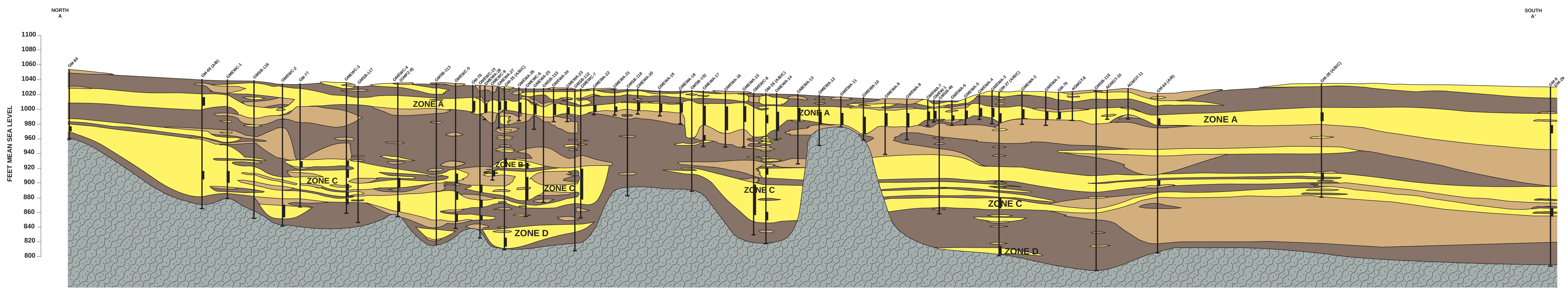
ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

LOCATION OF GEOLOGIC CROSS SECTIONS

DRAWN CES	DATE 06/05/02	PROJECT MANAGER EC	DEPARTMENT MANAGER BE
		LEAD DESIGN PROF. BE	CHECKED BE
		PROJECT NUMBER WI00925.0001	FIGURE 6-36



LEGEND

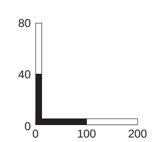
SAND (FINE TO COARSE)

VERY FINE SAND/SANDY SILT

SILT/CLAY

BEDROCK

GM-84 WELL/BORING LOCATION
WELL SCREEN INTERVAL



APPROXIMATE SCALE IN FEET
VERTICAL EXAGGERATION = 2.5X

ARCADIS

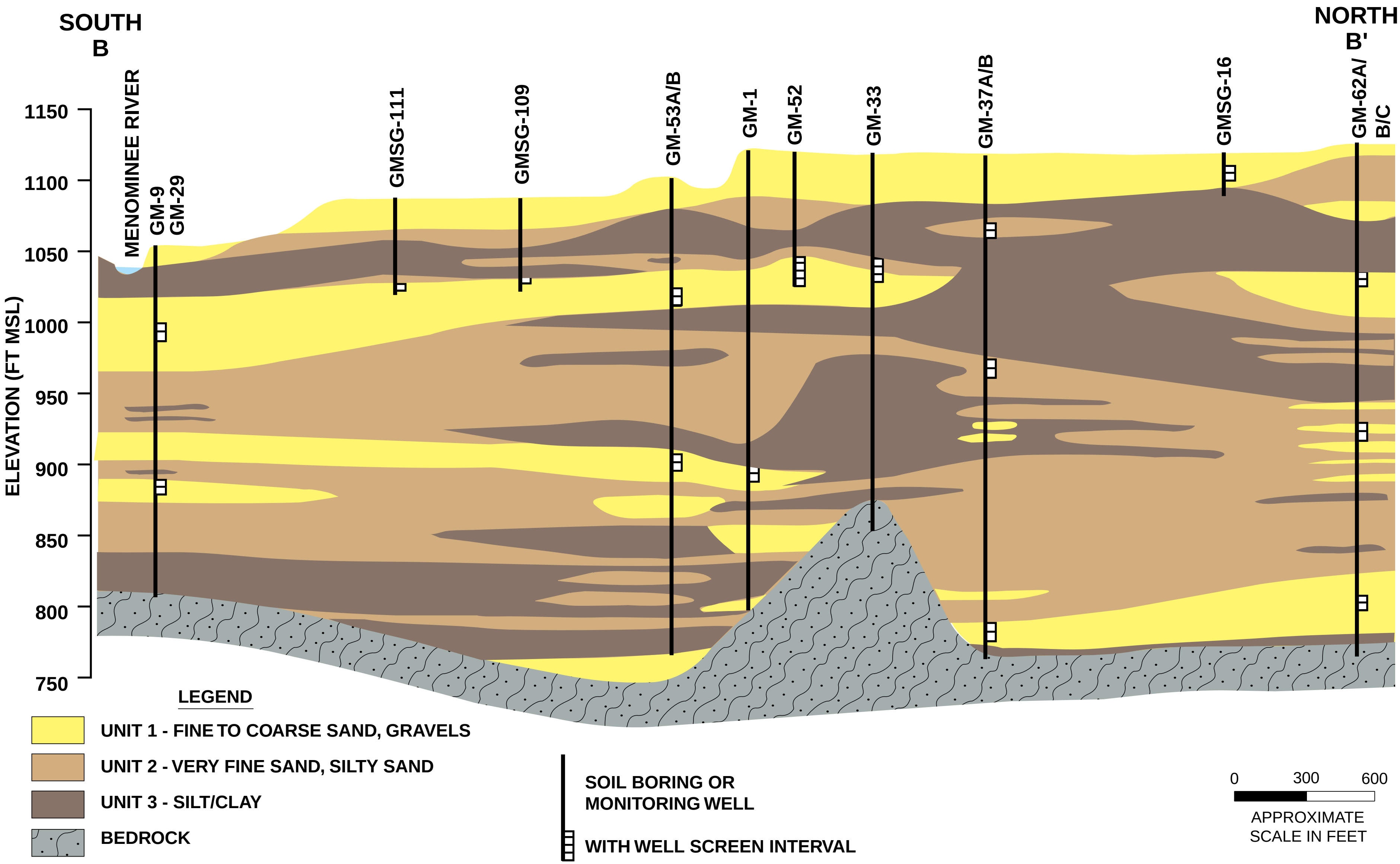
NORTH-SOUTH GEOLOGIC CROSS SECTION A-A'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-37

DRAFTER: LMB | APPROVED: | CHECKED: BWE | DRAWING: OVERSIZE XSEC_50%.AI | FILE NO.: GRAPHICS\RI REPORT | PN: FORD\WI0637\CJ2009 | DWG DATE: 20JAN09

DWG DATE: 20JAN09 | PN: FORD\WI0637\CJ2009 | FILE NO.: GRAPHICS\RI REPORT | DRAWING: X_SEC_BB.AI | CHECKED: BE | APPROVED: | DRAFTER: ELS\LMB



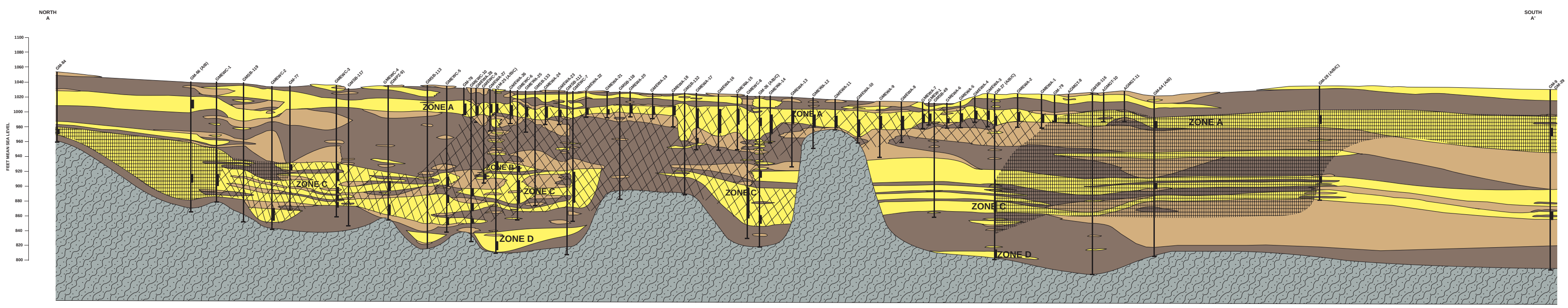
ARCADIS

GEOLOGIC CROSS SECTION B-B'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-38



LEGEND

(UNIT 1) - SAND (FINE TO COARSE)

(UNIT 2) - VERY FINE SAND/SANDY SILT

(UNIT 3) - SILT/CLAY

BEDROCK

EXTRAPOLATED AREAS OF GENERIC CHRONIC AND ACUTE GSI CRITERIA EXCEEDANCE I WITHOUT MIXING ZONE ADJUSTMENT

EXTRAPOLATED AREAS OF GENERIC CHRONIC GSI CRITERIA EXCEEDANCE WITHOUT MIXING ZONE ADJUSTMENT

GM-84

WELL/BORING LOCATION

WELL SCREEN INTERVAL

80

40

0

0 100 200

APPROXIMATE SCALE IN FEET

VERTICAL EXAGGERATION = 2.5X

ARCADIS

NORTH-SOUTH HYDROGEOLOGIC CROSS SECTION SHOWING AREAS OF EXTRAPOLATED GENERIC CHRONIC AND ACUTE GSI CRITERIA EXCEEDENCE WITHOUT MIXING ZONE ADJUSTMENT

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-39

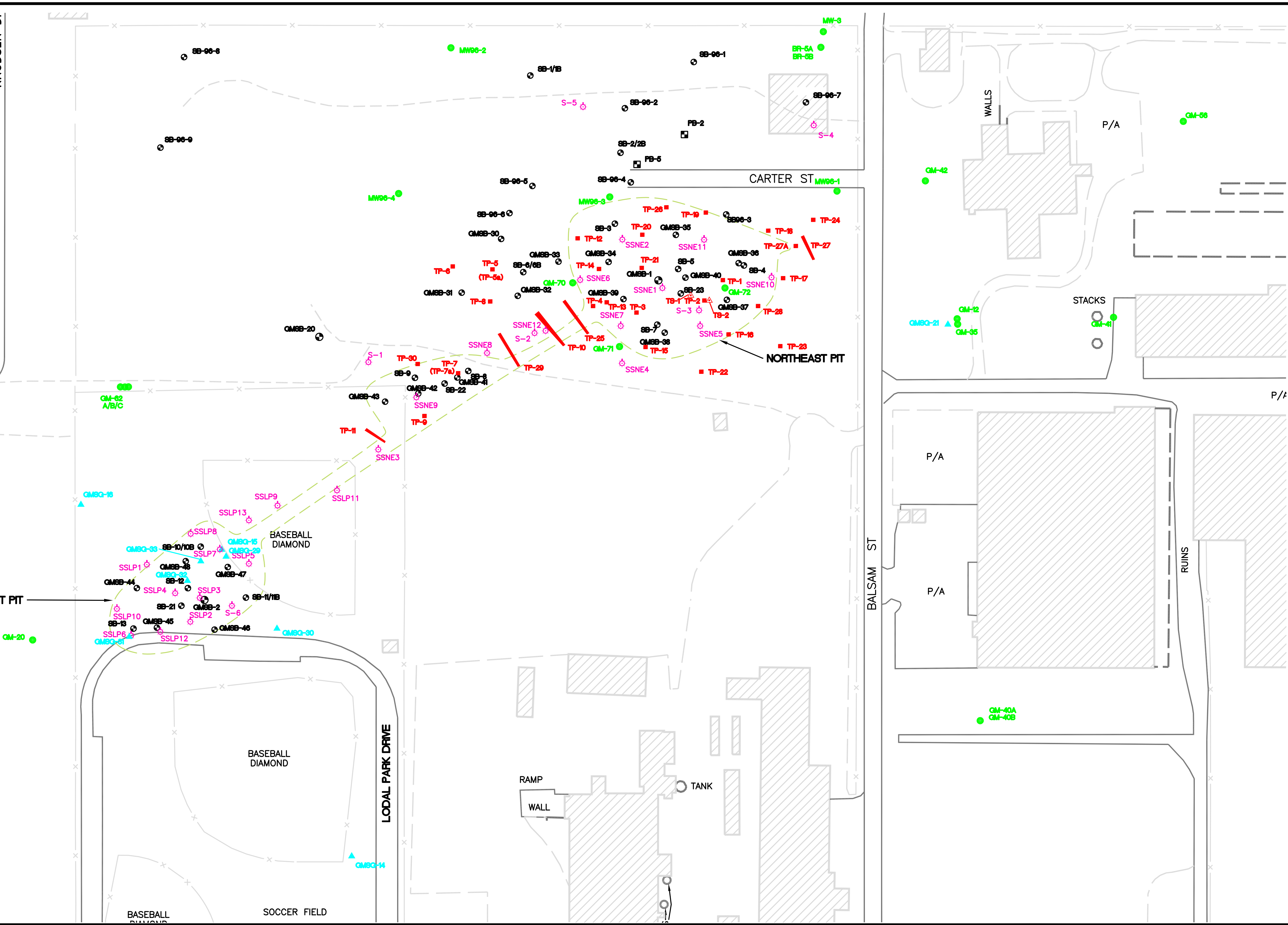
DWG DATE: 20JAN09 | PN: FORD\WI0637\CJ2009 | FILE NO.: GRAPHICS\RI REPORT | DRAWING: EXTRA OVERSIZE XSEC_50%.AI | CHECKED: BWE | APPROVED: | DRAFTER: LMB

NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- MONITOR WELL LOCATION
- SOIL BORING LOCATION
- FORMER TEMPORARY MONITOR WELL LOCATION
- SOIL VAPOR PROBE LOCATION
- TEST PIT LOCATION
- SURFACE SOIL SAMPLE LOCATION
- FORMER DISPOSAL PIT BOUNDARIES BASED ON HISTORICAL PHOTOS AERIAL
- FENCE
- ROADWAYS
- BUILDING
- TRAIL OR PATH
- P/A PARKING AREA
- PROPERTY BOUNDARY
- SURFICIAL TAR SEEP



copyright © 2002

NO.	DATE	REVISION DESCRIPTION	BY	CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

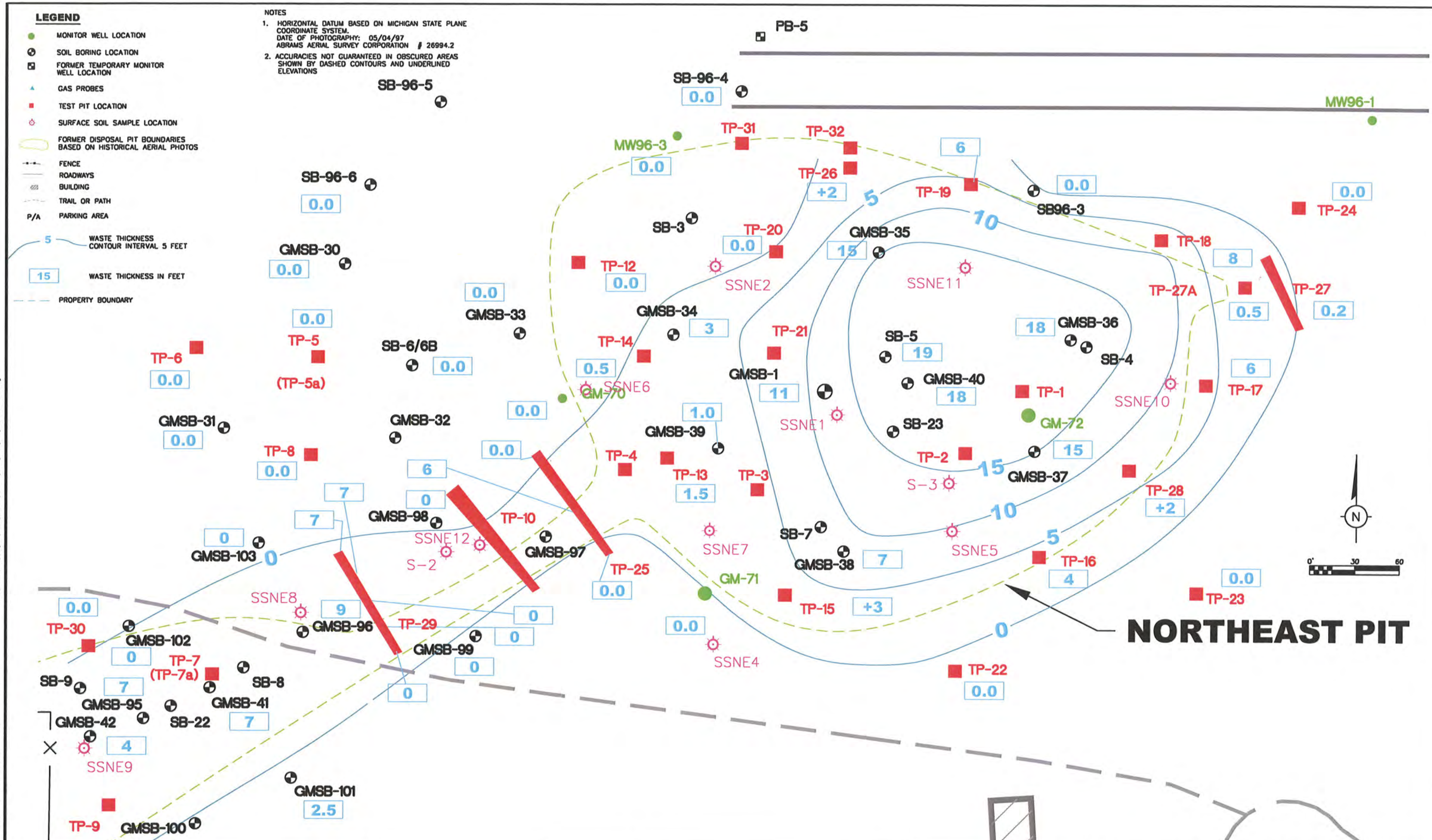
REMEDIAL INVESTIGATION REPORT

FORD–KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DRAWN: CES
DATE: 06/05/02
PROJECT MANAGER: EC
DEPARTMENT MANAGER: BE
LEAD DESIGN PROF.: BE
CHECKED: BE

FORMER NORTHEAST/SOUTHWEST PIT AREAS

PROJECT NUMBER: WI00925.0001
FIGURE: 6-40



NO.	DATE	REVISION DESCRIPTION	BY / CKD

copyright © 2002

ARCADIS

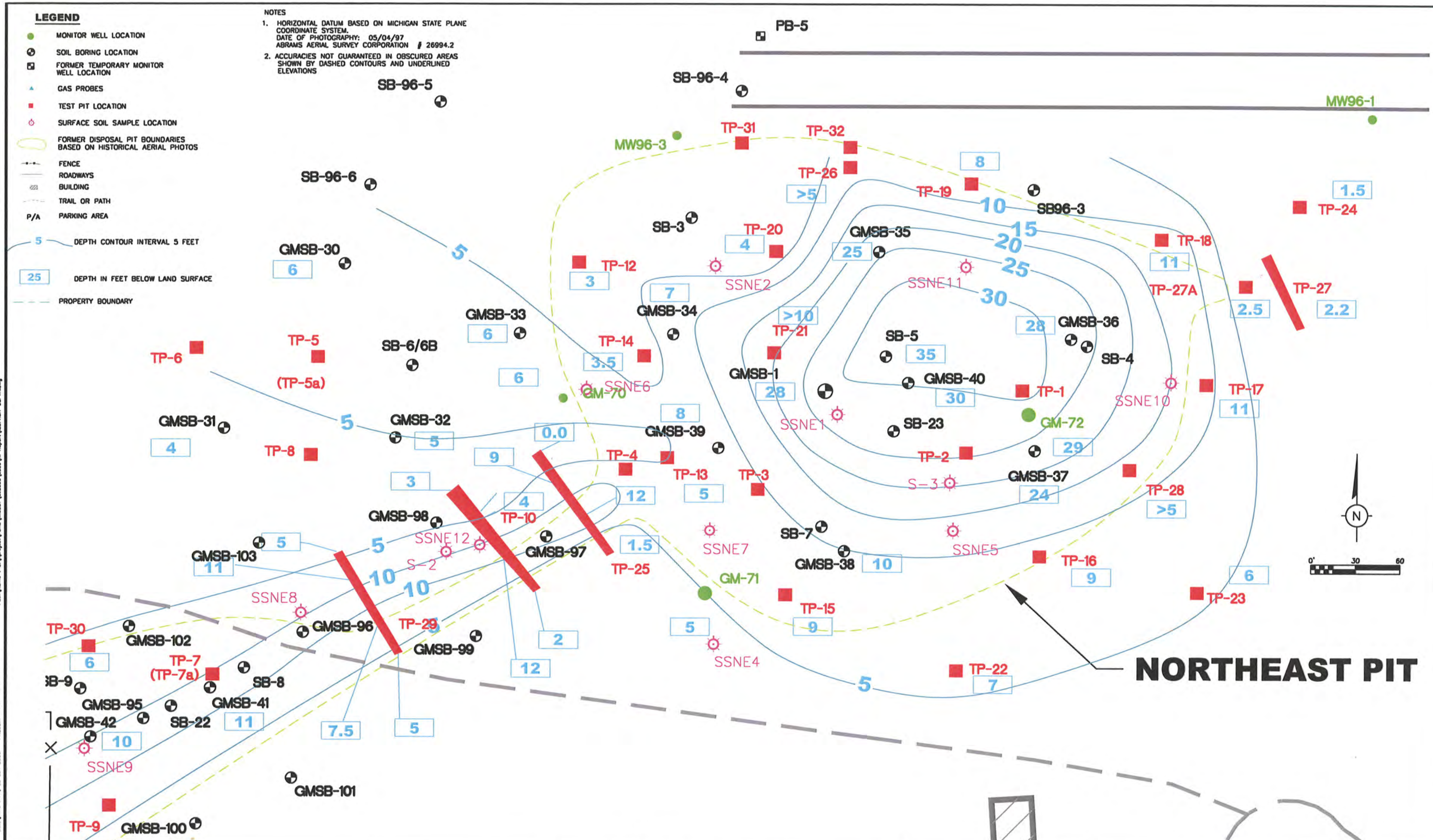
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

ISOPACH MAP OF THE
WASTE THICKNESS
FORMER NORTHEAST PIT

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
JMG	09/27/02	EC	BE
		LEAD DESIGN PROF. BE	CHECKED BE
		PROJECT NUMBER WI00975.0012	FIGURE 6-41



copyright © 2002	NO.	DATE	REVISION DESCRIPTION	BY CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

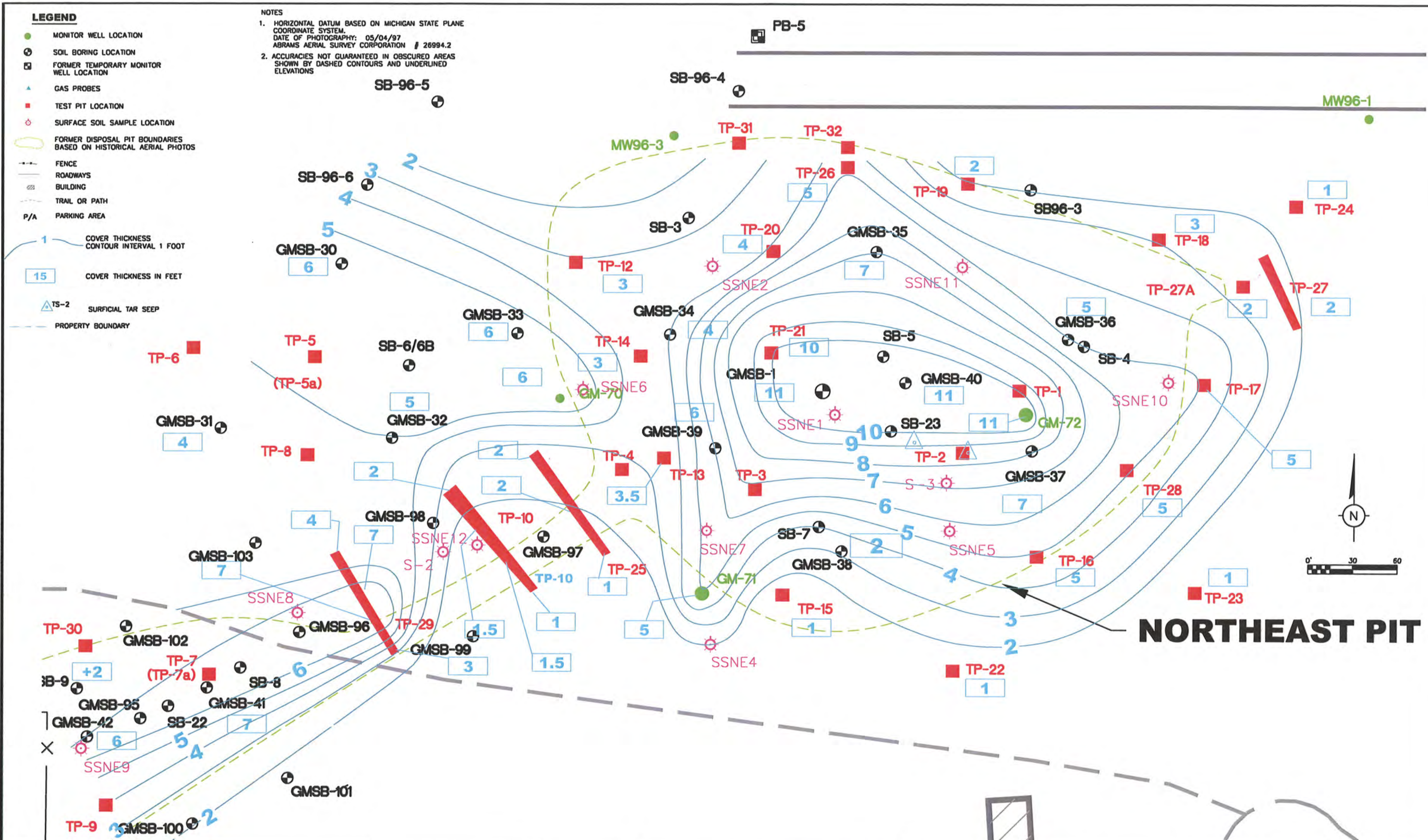
REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
JMG	09/27/02	EC	BE
		LEAD DESIGN PROF.	CHECKED
		BE	BE

DEPTH TO THE BASE OF THE FILL OR WASTE
FORMER NORTHEAST PIT

PROJECT NUMBER	FIGURE
WI000975.0012	6-42



NO.	DATE	REVISION DESCRIPTION	BY / CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

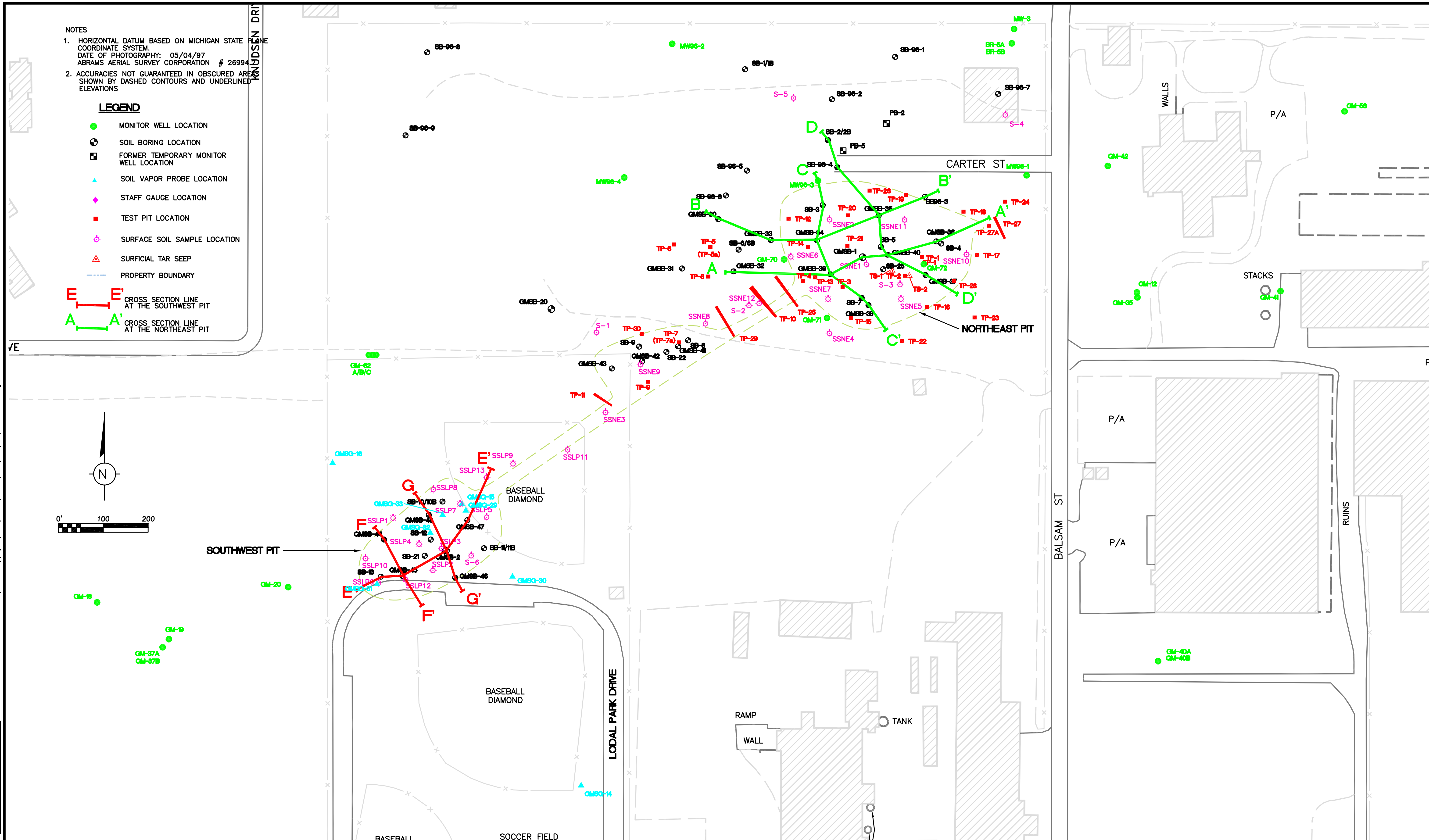
REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DRAWN: JMG	DATE: 09/27/02

ISOPACH MAP OF THE COVER THICKNESS FORMER NORTHEAST PIT

PROJECT MANAGER: EC	DEPARTMENT MANAGER: BE
LEAD DESIGN PROF.: BE	CHECKED: BE
PROJECT NUMBER: WI00975.0012	FIGURE: 6-43



NO.	DATE	REVISION DESCRIPTION	BY CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

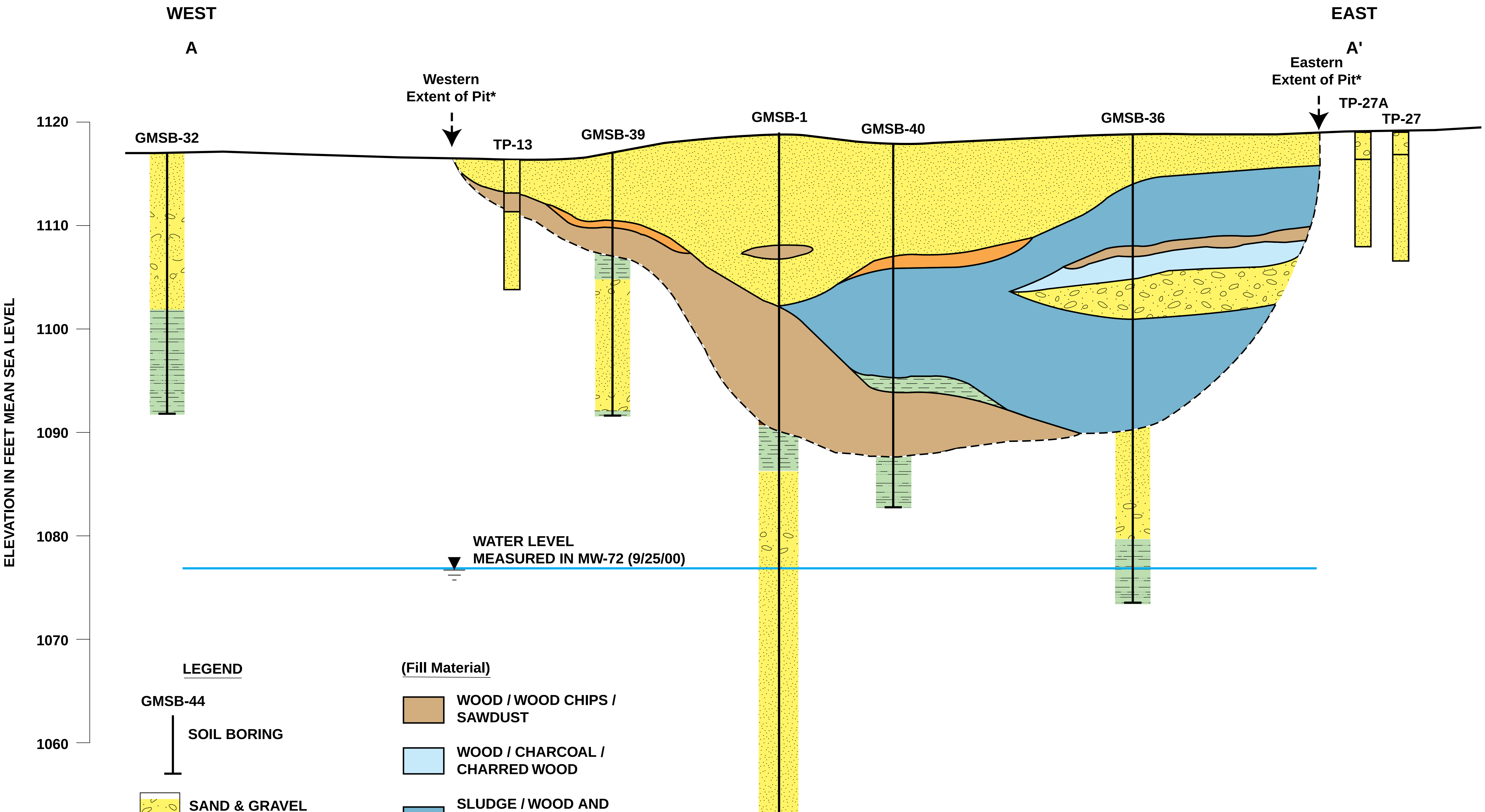
REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

LOCATIONS OF GEOLOGIC CROSS SECTIONS FORMER NE/SW PIT AREAS

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CES	06/05/02	EC	BE
		LEAD DESIGN PROF. BE	CHECKED BE
		PROJECT NUMBER WI00925.0001	FIGURE 6-44

DRAFTER: LMB
APPROVED: BE
CHECKED: BE
DRAWING: REV_EWL3.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORDWI0637\CJ2009
DWG DATE: 20JAN09



LEGEND

GMSB-44

SOIL BORING

SAND & GRAVEL

COARSE TO FINE SAND

VERY FINE / SILTY SAND

CLAY / SILT

(Fill Material)

WOOD / WOOD CHIPS / SAWDUST

WOOD / CHARCOAL / CHARRED WOOD

SLUDGE / WOOD AND SLUDGE / CRYSTALLIZED WOOD TAR OR CARBON

WOOD TAR

SAND & GRAVEL

SAND

0 25 50 100

HORIZONTAL SCALE IN FEET
VERTICAL EXAGGERATION = 5X

*NOTE: Surface extent of the former pit interpreted from historic aerial photos.

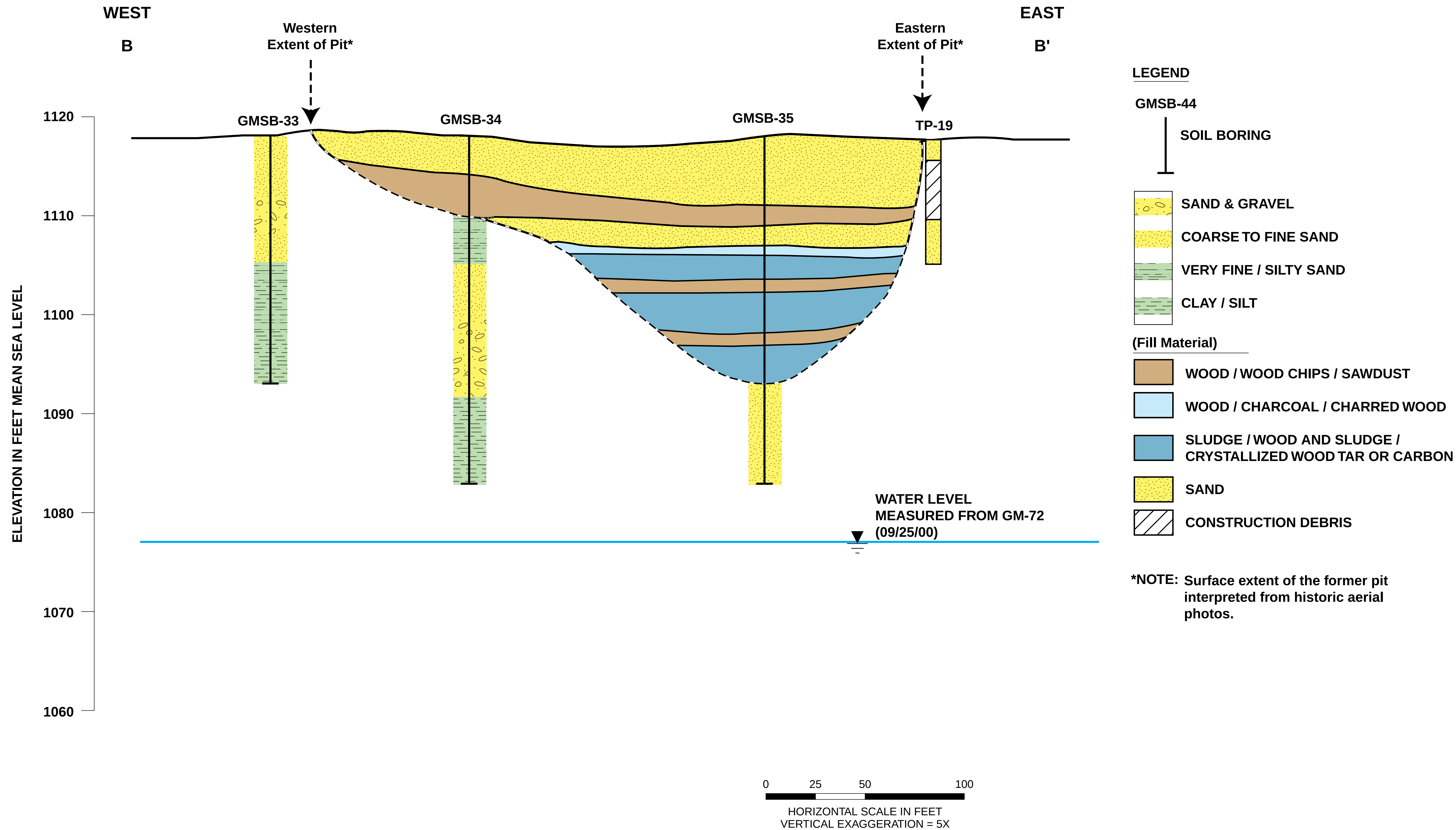
ARCADIS

FORMER NORTHEAST PIT
CROSS SECTION A-A'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-45



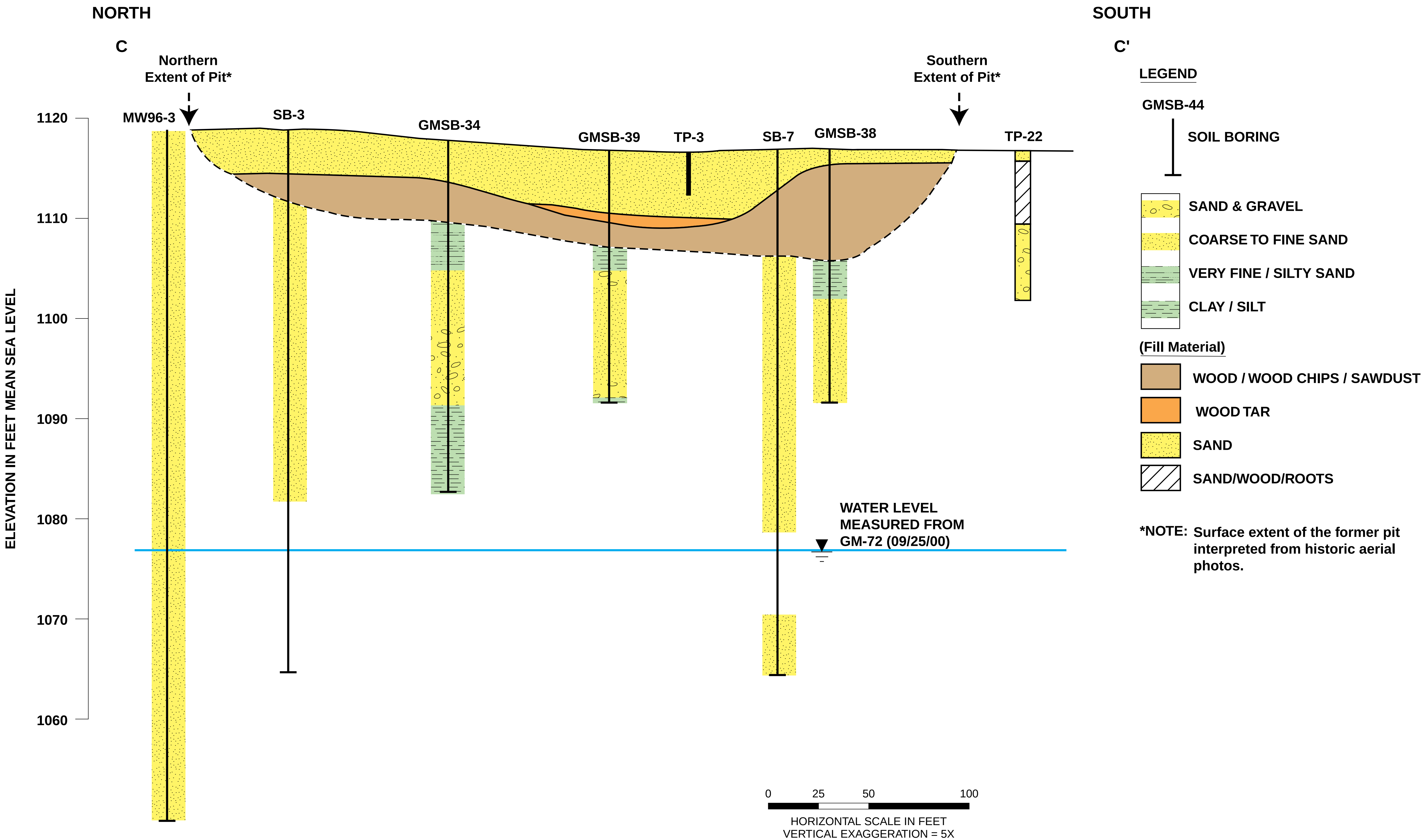
DRAFTER: ELS:LMB
APPROVED: BE
CHECKED: JK
DRAWING: REV_EWL2.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORDWI0637\CJ2009
DWG DATE: 20JAN09

ARCADIS

FORMER NORTHEAST PIT
CROSS SECTION B-B'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-46



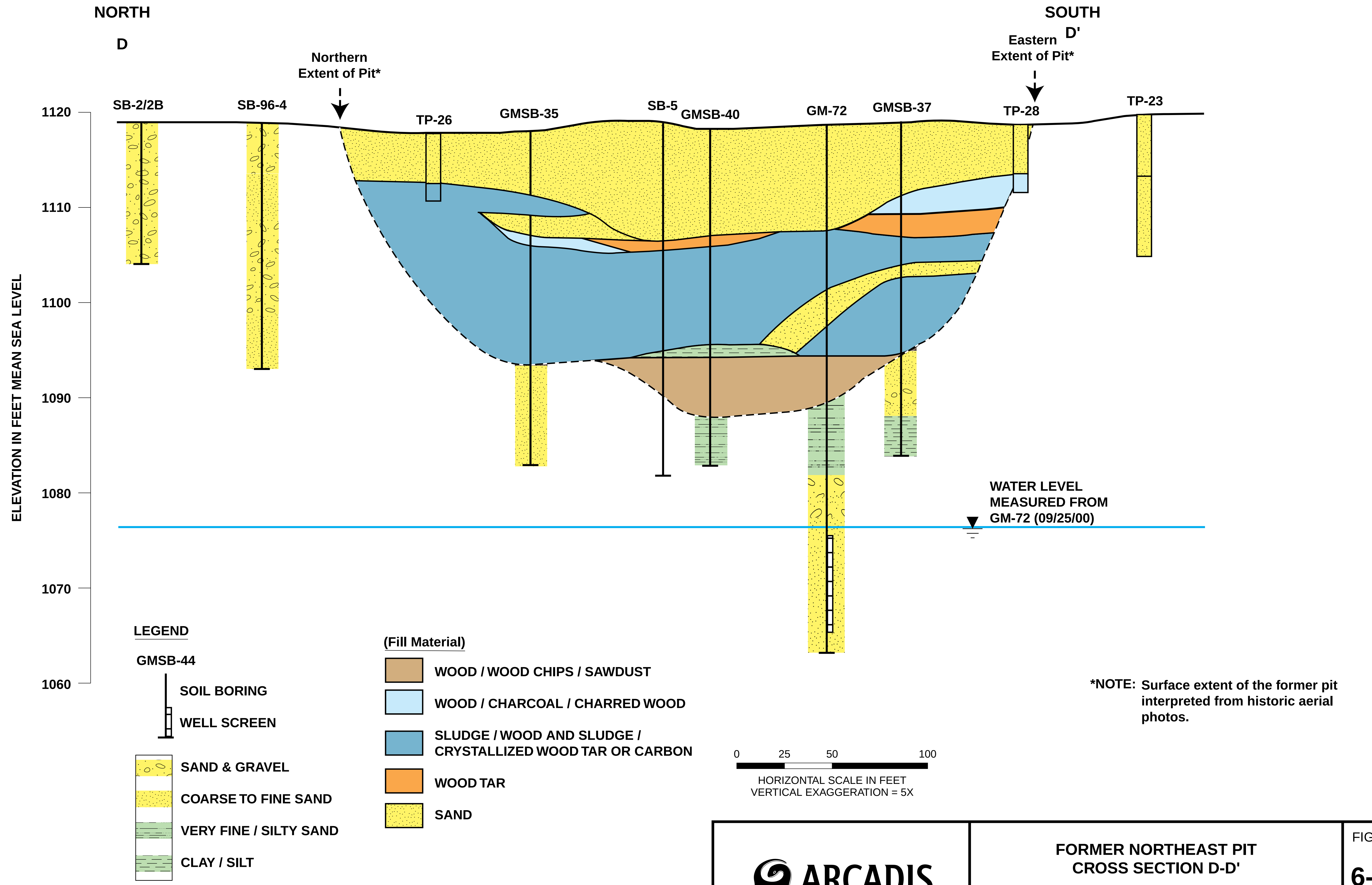
ARCADIS

FORMER NORTHEAST PIT
CROSS SECTION C-C'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-47

DRAFTER: LMB
APPROVED: BE
CHECKED: JK
DRAWING: REV_NSL4.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 20JAN09



*NOTE: Surface extent of the former pit interpreted from historic aerial photos.

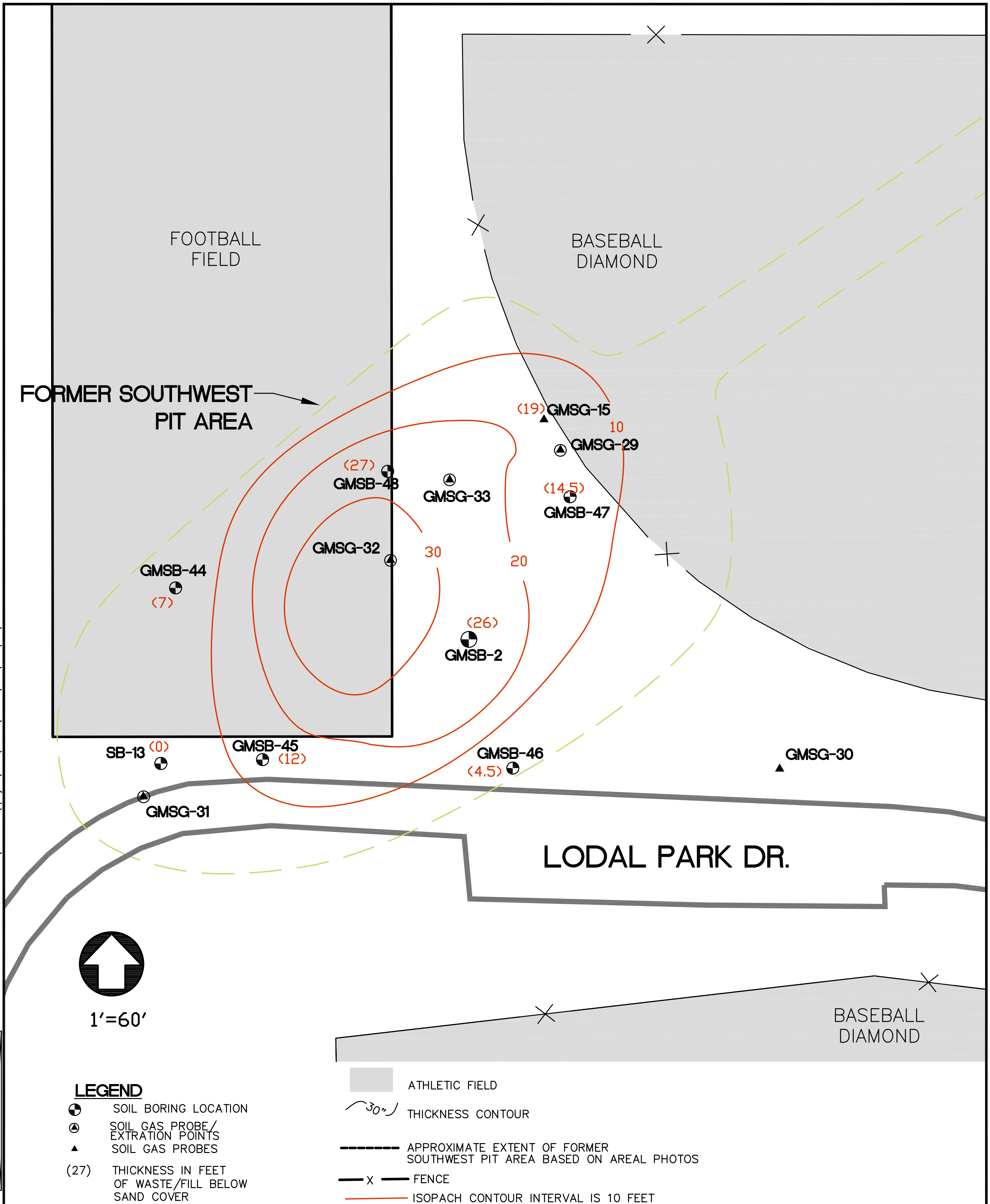
DRAFTER: ELS:LMB | APPROVED: BE | CHECKED: JK | DRAWING: REV_NSL3.AI | FILE NO.: GRAPHICS\RI REPORT | PN: FORD\WI0637\CJ2009 | DWG DATE: 20JAN09

ARCADIS

FORMER NORTHEAST PIT CROSS SECTION D-D'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-48



ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

ISOPACH MAP OF THE WASTE/FILL THICKNESS - FORMER SOUTHWEST PIT

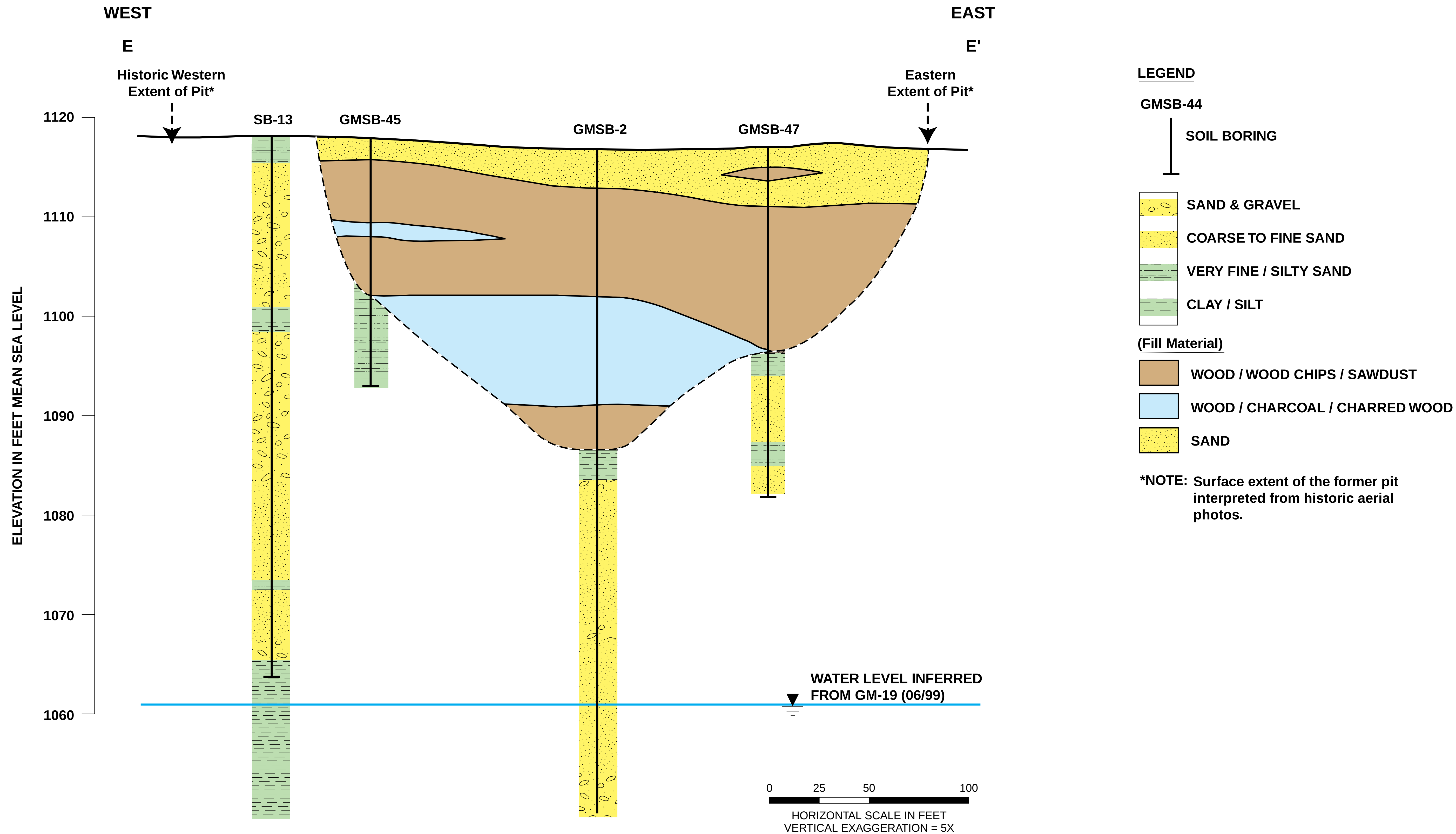
REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-49

Path\Name : G:\Aproject\FORD\WI0637\CJ2009\cadd\RI Report\FIG3-1-2.DWG
Page Setup: ----
Pen Table: BLACKGRAY.ctb



DRAFTER: LMB | APPROVED: BE | CHECKED: JK | DRAWING: EWL1.AI | FILE NO.: GRAPHICS\RI REPORT | PN: FORD\WI0637\CJ2009 | DWG DATE: 20JAN09

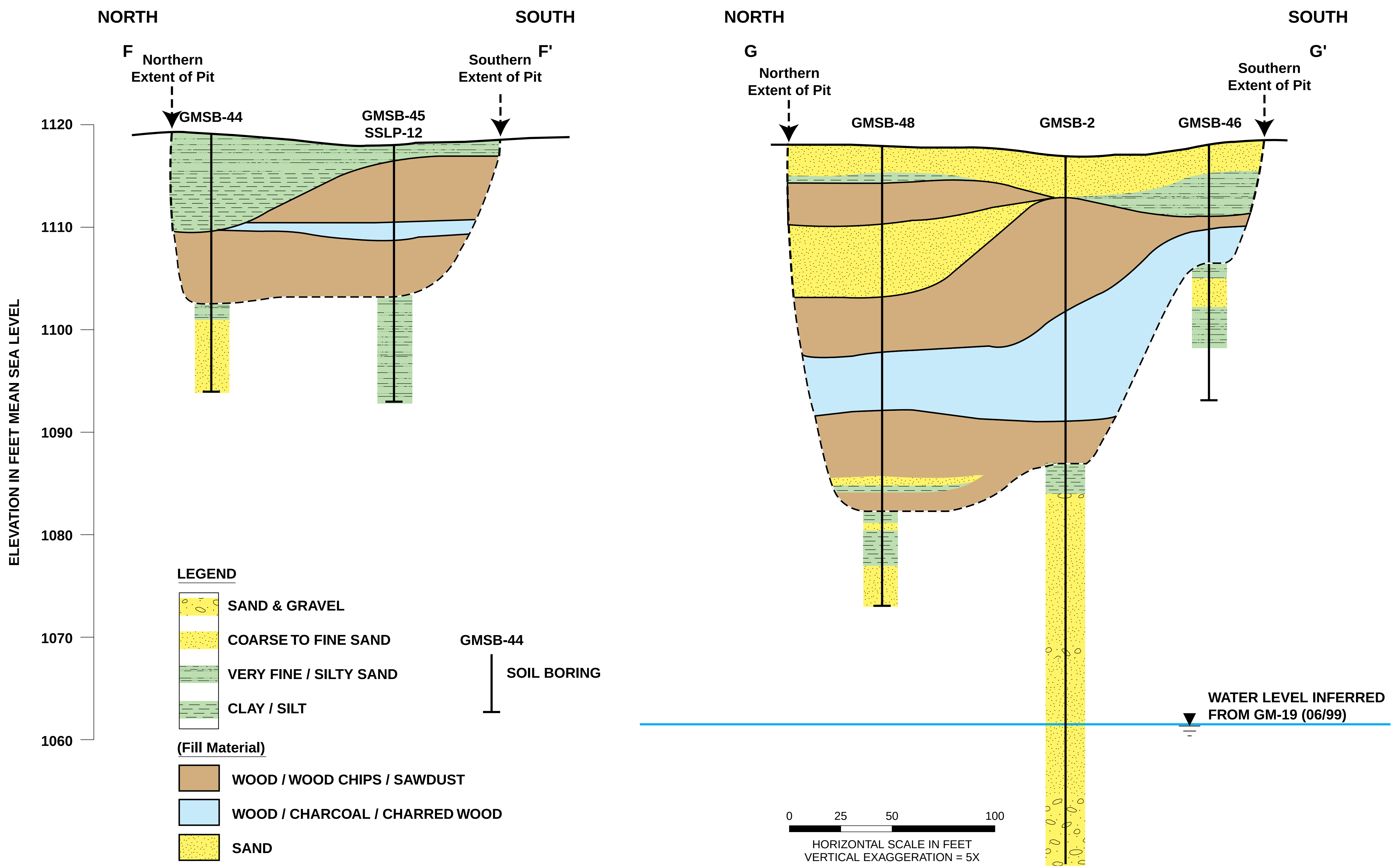
ARCADIS

FORMER SOUTHWEST PIT
GEOLOGIC CROSS SECTION A-A'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-50

DRAFTER: ELS
APPROVED: BE
CHECKED: JK
DRAWING: NSL1_NSL2.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 20JAN09

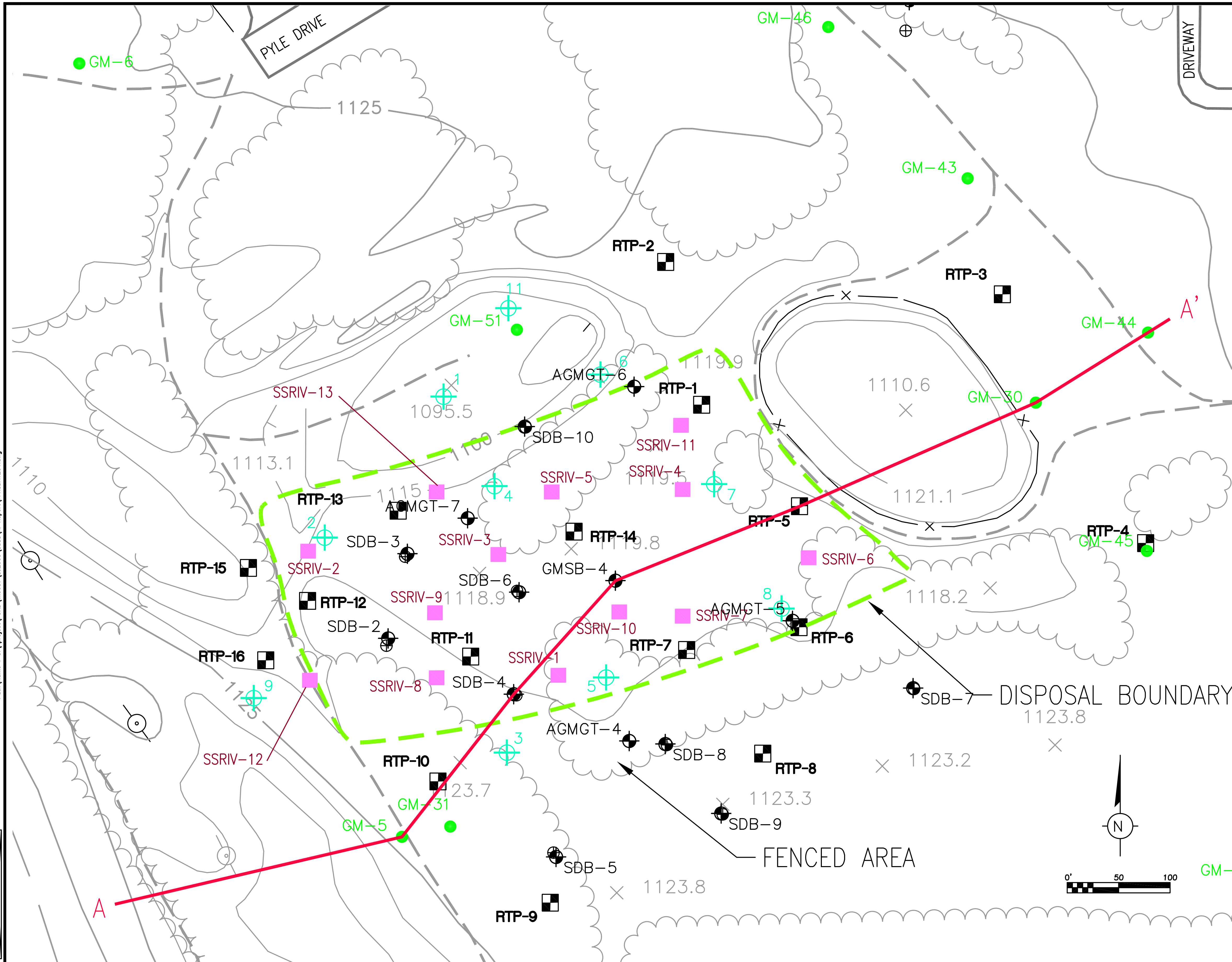


ARCADIS

FORMER SOUTHWEST PIT
GEOLOGIC CROSS SECTIONS F-F' AND G-G'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-51



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
   DATE OF PHOTOGRAPHY: 05/04/97
   ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- MONITOR WELL LOCATION
- SOIL BORING LOCATION
- TEST PIT LOCATTION
- STAFF GAUGE LOCATION
- GPR SOIL BORING LOCATION
- SURFACE SOIL SAMPLE LOCATION
- 1−9, 11 (SURFACE SAMPLE), COLLECTED BY EDI FOR MDNR, 1988
- SDB−1 THRU 10, MDEQ 1996
- DISPOSAL BOUNDARY
- FENCE LINE
- UTILITY POLE
- TRAIL OR PATH
- 1125 TOPOGRAPHIC CONTOUR IN FEET MEAN SEA LEVEL
- TREE OR BUSH
- A' LOCATION OF GEOLOGIC CROSS−SECTION

NO.	DATE	REVISION DESCRIPTION	BY CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961−1921 Fax: 813/961−2599

REMEDIAL INVESTIGATION REPORT

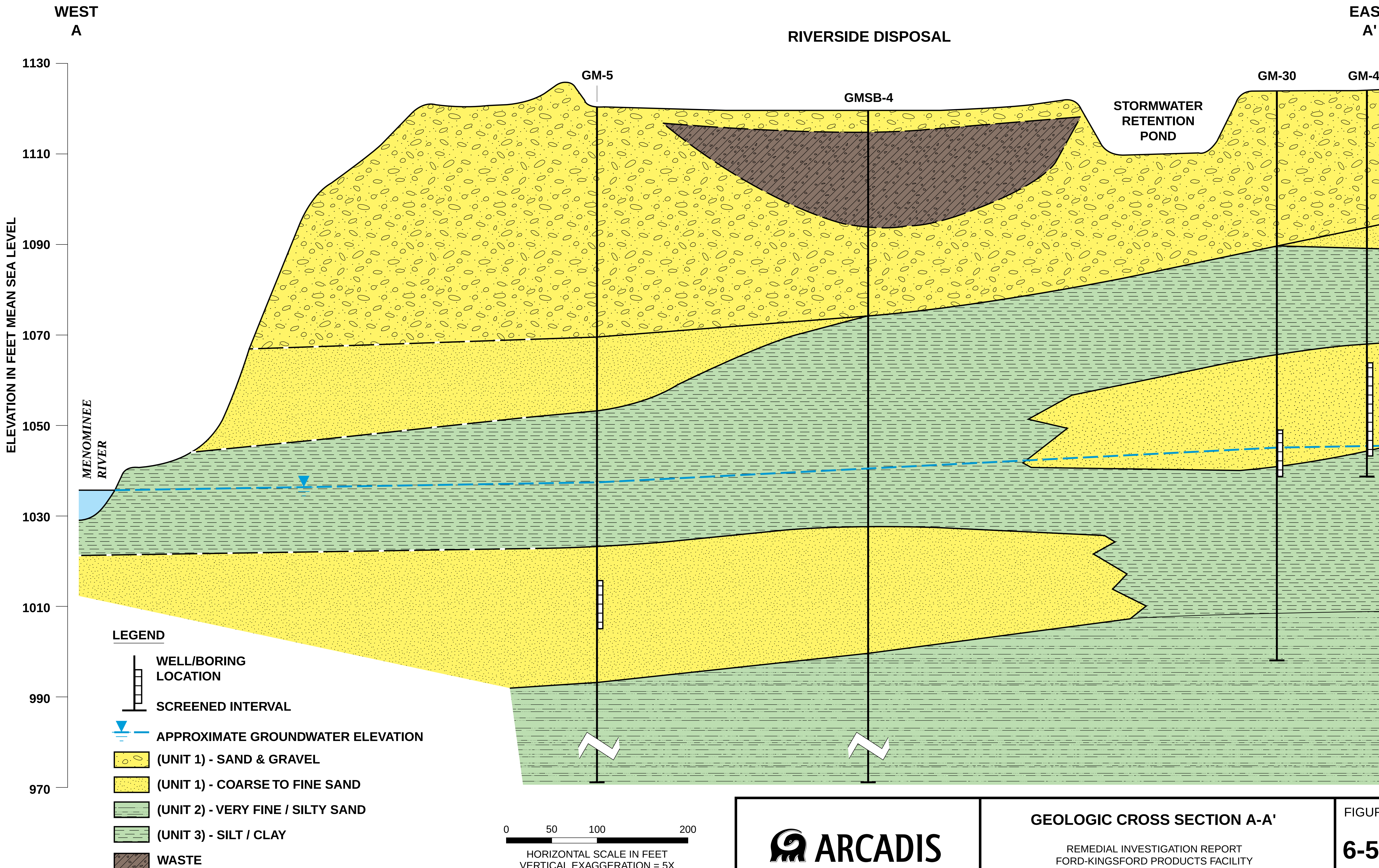
FORD−KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CES	06/05/02	EC	BE
		LEAD DESIGN PROF.	CHECKED
		BE	BE

FORMER RIVERSIDE DISPOSAL AREA

PROJECT NUMBER WI00925.0001

FIGURE 6−52



ARCADIS

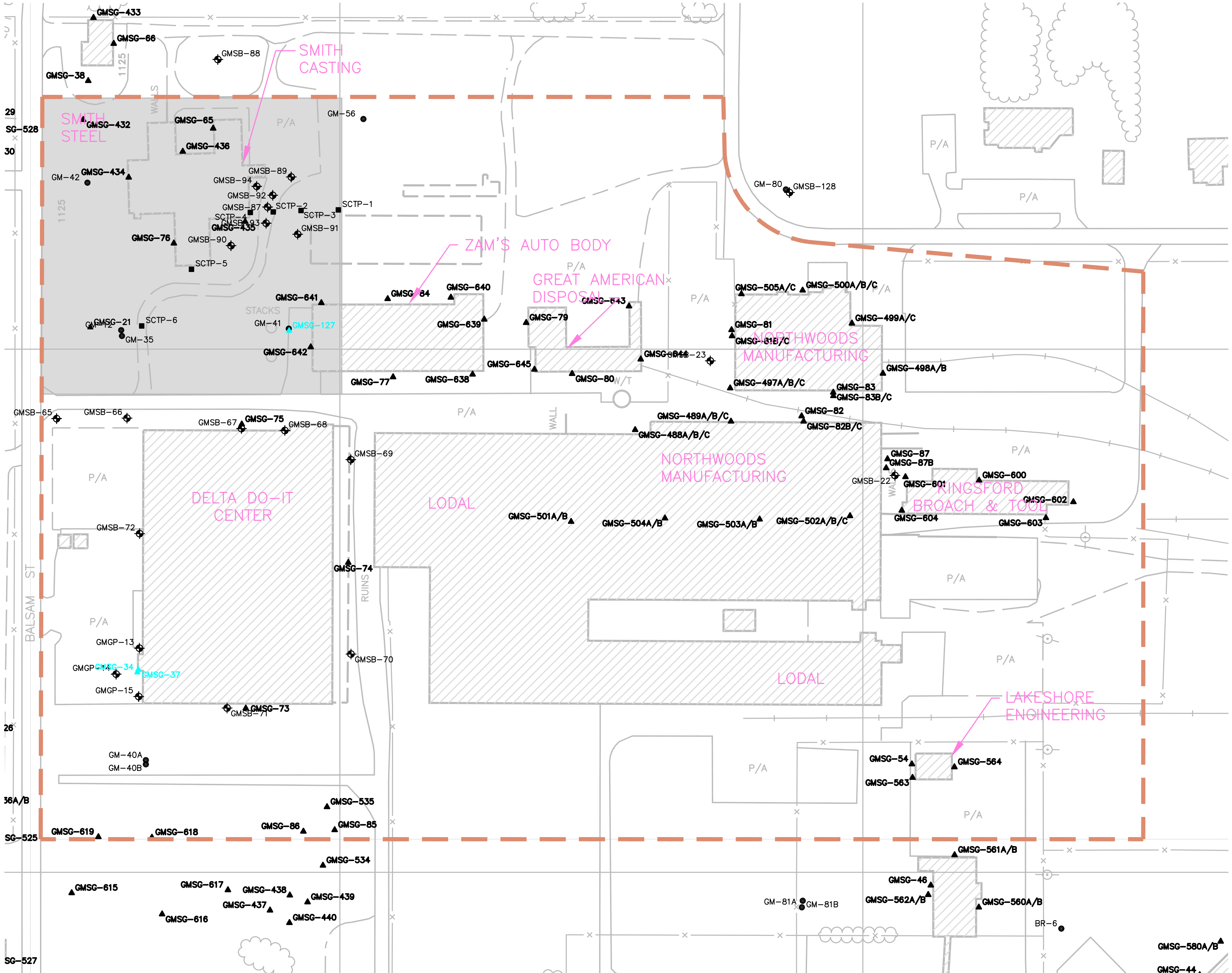
GEOLOGIC CROSS SECTION A-A'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-53

DRAFTER: ELS
APPROVED:
CHECKED: JK
DRAWING: RDA_XSECAA.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 20JAN09

NOTES
1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
DATE OF PHOTOGRAPHY: 05/04/97
ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS



0' 200 400
SCALE: 1" = 200'

LEGEND
- SOIL BORING LOCATION
- GEOPROBE LOCATION
- SOIL VAPOR PROBE LOCATION
- MONITOR WELL, PIEZOMETER LOCATION
- STAFF GUAGE LOCATION
- TEST PITS
- BUILDING
- BOUNDARY OF FORMER PLANT AREA

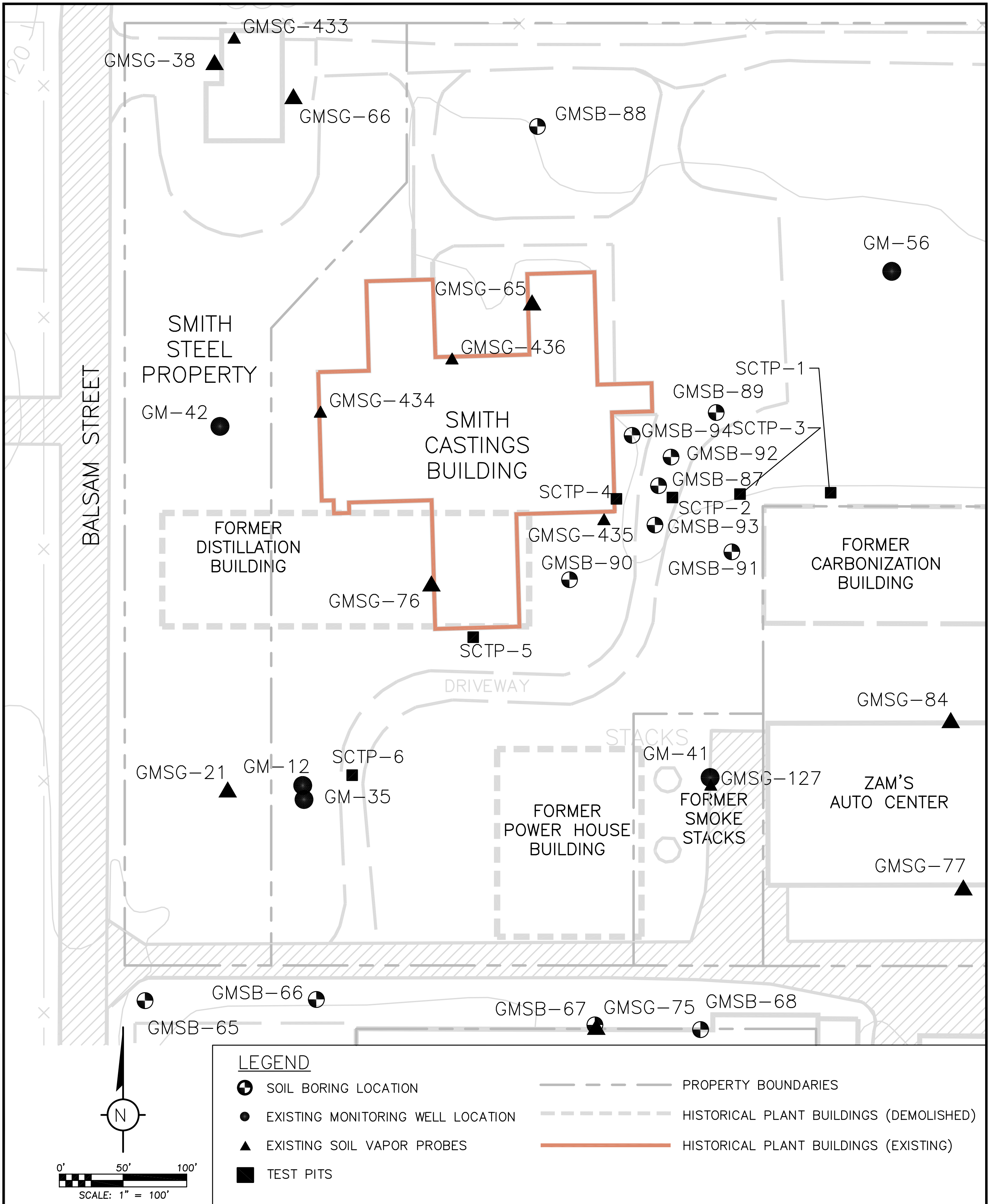
NO.	DATE	REVISION DESCRIPTION	BY	CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FORMER PLANT SITE

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CES	9/08/04	RS	WM
		LEAD DESIGN PROF. BZ	CHECKED AV
		PROJECT NUMBER WI01075.0008	FIGURE 6-54



ARCADIS
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: (414) 276-7742 Fax: (414) 276-7603

LOCATION OF MONITORING POINTS

REMEDIAL INVESTIGATION REPORT

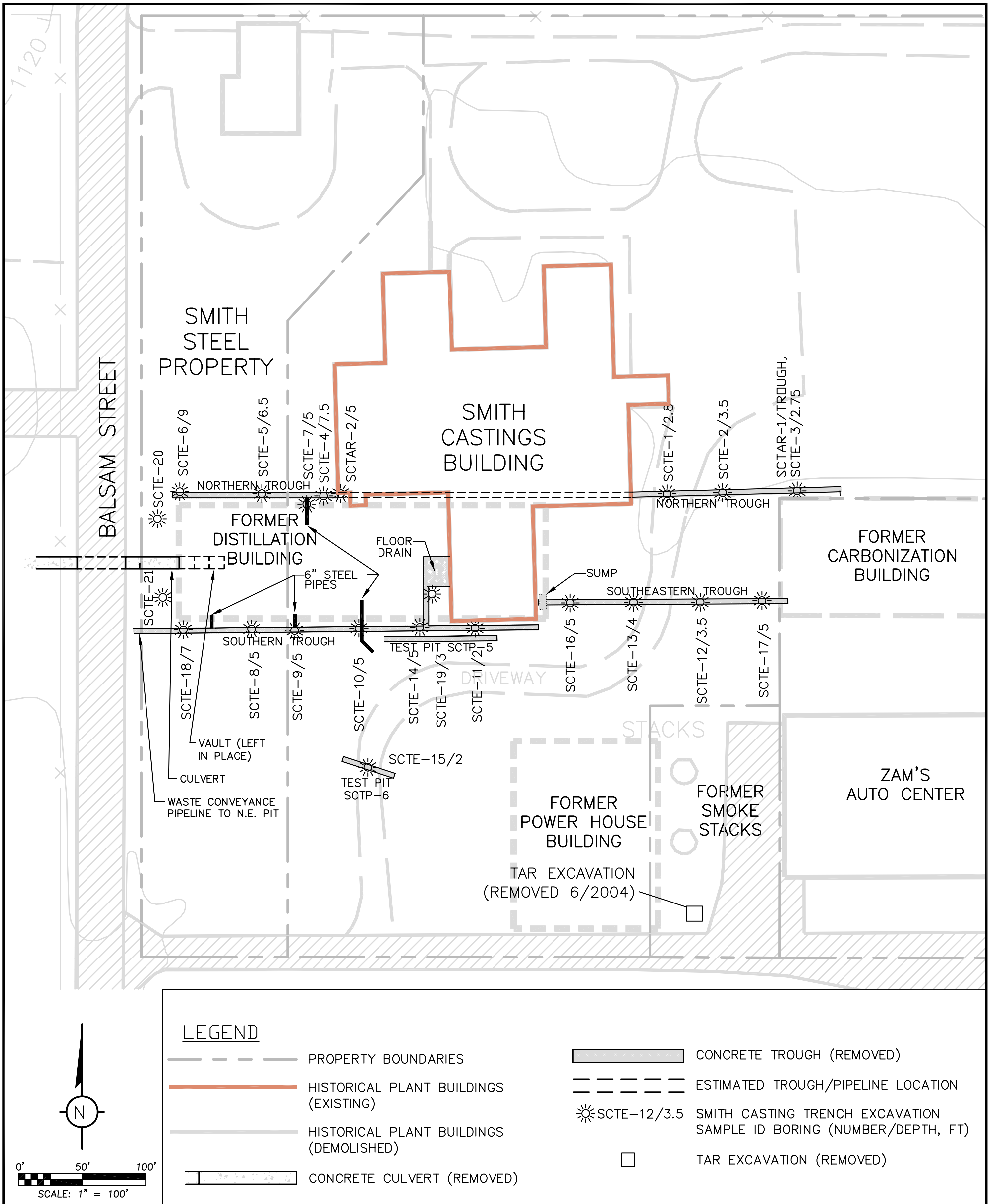
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-55

Path\Name : G:\Aproject\FORD\WI0637\CJ2009\cadd\RI Report\FIGS 2-4.dwg

Page Setup: ----
Pen Table: BLACKGRAY.ctb



ARCADIS
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: (414) 276-7742 Fax: (414) 276-7603

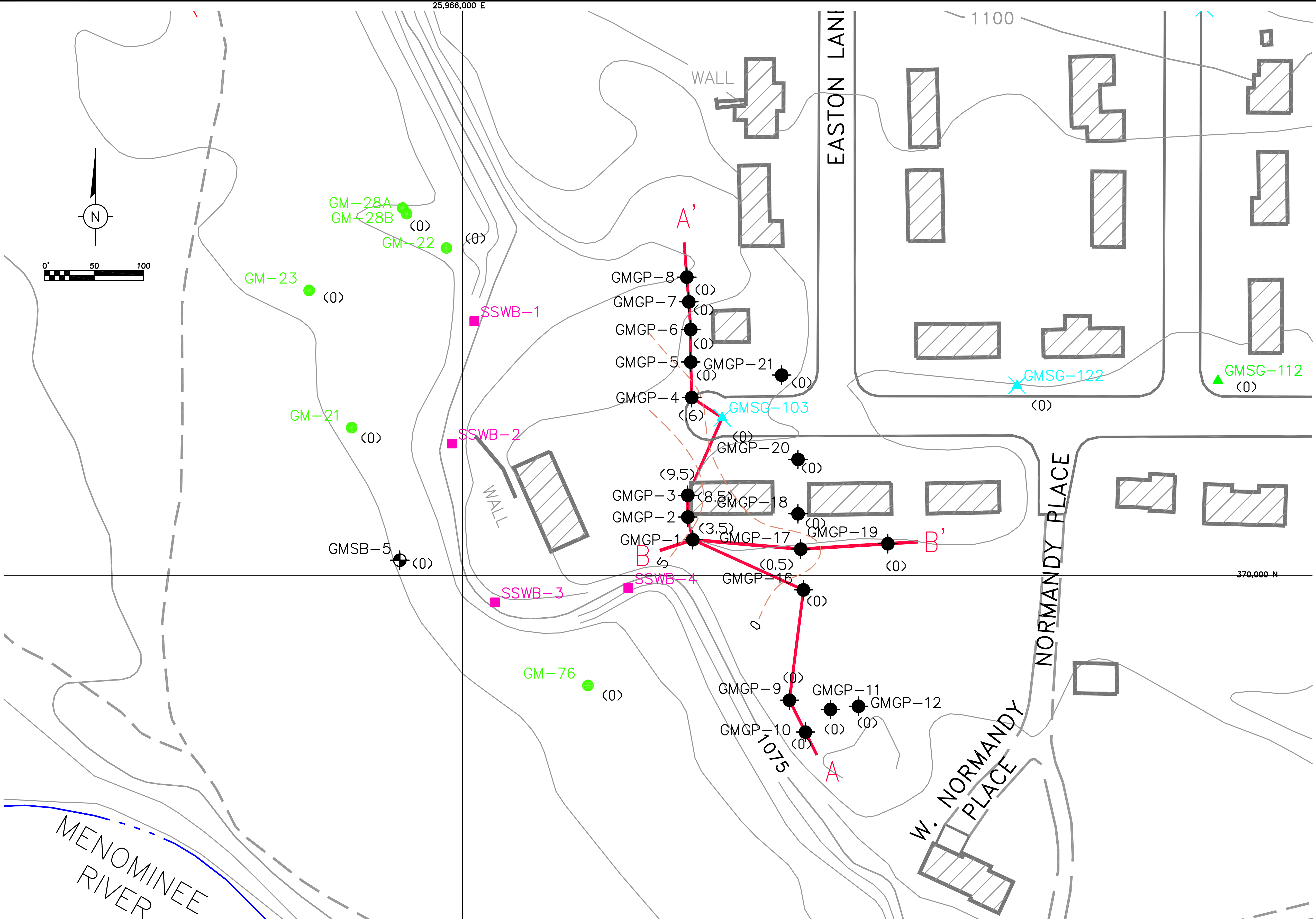
LOCATIONS OF TROUGHS AND SAMPLE POINTS

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-56



NOTES

1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
DATE OF PHOTOGRAPHY: 05/04/97
ABRAMS AERIAL SURVEY CORPORATION # 26994.2

2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- MONITOR WELL LOCATION
- SOIL BORING LOCATION
- FORMER TEMPORARY MONITOR WELL LOCATION
- SOIL VAPOR PROBES
- GEOPROBE SOIL BORING
- STAFF GAUGE LOCATION
- GPR SOIL BORING LOCATION
- GBSL SEEP SAMPLE
- 1075 TOPOGRAPHIC CONTOUR LINE (5 FOOT CONTOUR INTERVAL)
- 5 CONTOUR LINE OF NON-NATIVE FILL
- (0) NON-NATIVE FILL THICKNESS IN FEET
- A' LOCATION OF GEOLOGIC CROSS-SECTION

NO.	DATE	REVISION DESCRIPTION	BY	CKD

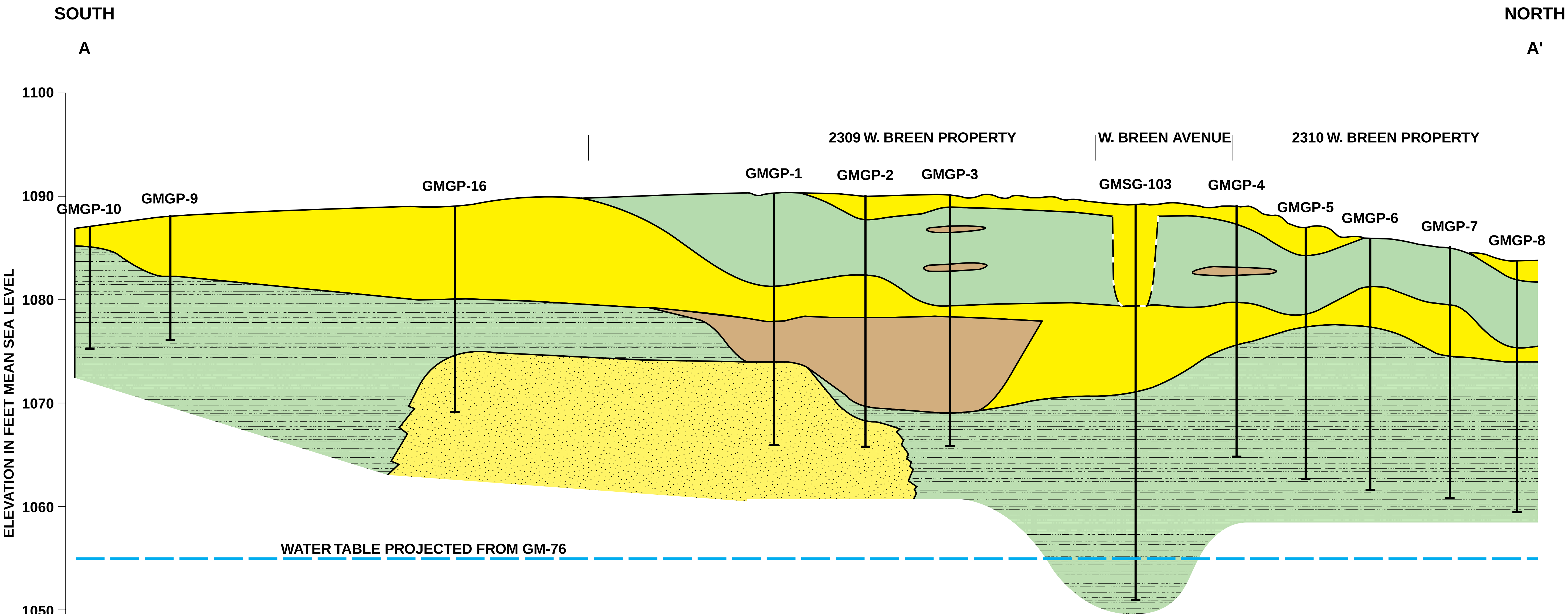
ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FORMER WEST BREEN AVENUE DISPOSAL AREA

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
CES	10/03/02	EC	BE
		LEAD DESIGN PROF. BE	CHECKED BE
		PROJECT NUMBER WI00950.0001	FIGURE 6-57



LEGEND

GMGP-1

SOIL BORING

FILL: Non-native: Sand or silt with cinders / metal / ceramics / glass / wood / charcoal

SAND: Disturbed-native fill: dark yellowish brown, generally fine to very fine grain, some very fine to coarse grain

SILT: Disturbed-native fill: yellowish brown, disturbed, sandy, silty, rootlets

SAND: Native: strong brown, variable very fiine to fine grain and very coarse to fine grain

SILT: Native: dark brown to dark reddish brown, sometimes interrbedded with clay

0 15 30 60

APPROXIMATE HORIZONTAL SCALE IN FEET
VERTICAL EXAGGERATION = 3X

ARCADIS

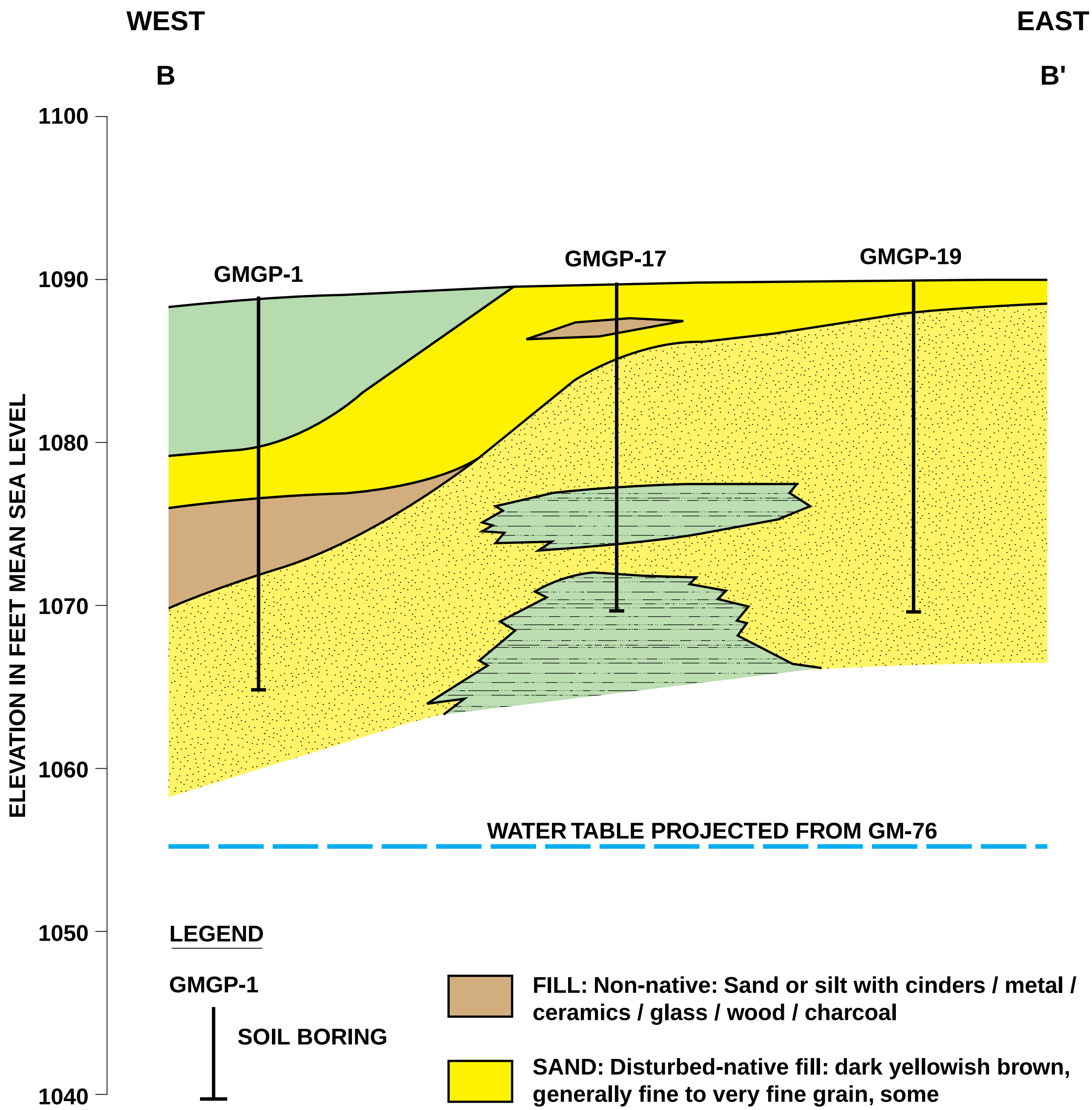
FORMER WEST BREEN AVENUE DISPOSAL GEOLOGIC CROSS SECTION A-A'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-58

DRAFTER: LMB
APPROVED: BE
CHECKED: BE
DRAWING: W_BREEN_802.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORDWI0637\CJ2009
DWG DATE: 20JAN09



LEGEND

GMGP-1

SOIL BORING

FILL: Non-native: Sand or silt with cinders / metal / ceramics / glass / wood / charcoal

SAND: Disturbed-native fill: dark yellowish brown, generally fine to very fine grain, some very fine to coarse grain

SILT: Disturbed-native fill: yellowish brown, disturbed, sandy, silty, rootlets

SAND: Native: strong brown, variable very fiine to fine grain and very coarse to fine grain

SILT: Native: dark brown to dark reddish brown, sometimes interrbedded with clay

0 25 50 100

HORIZONTAL SCALE IN FEET
VERTICAL EXAGGERATION = 5X

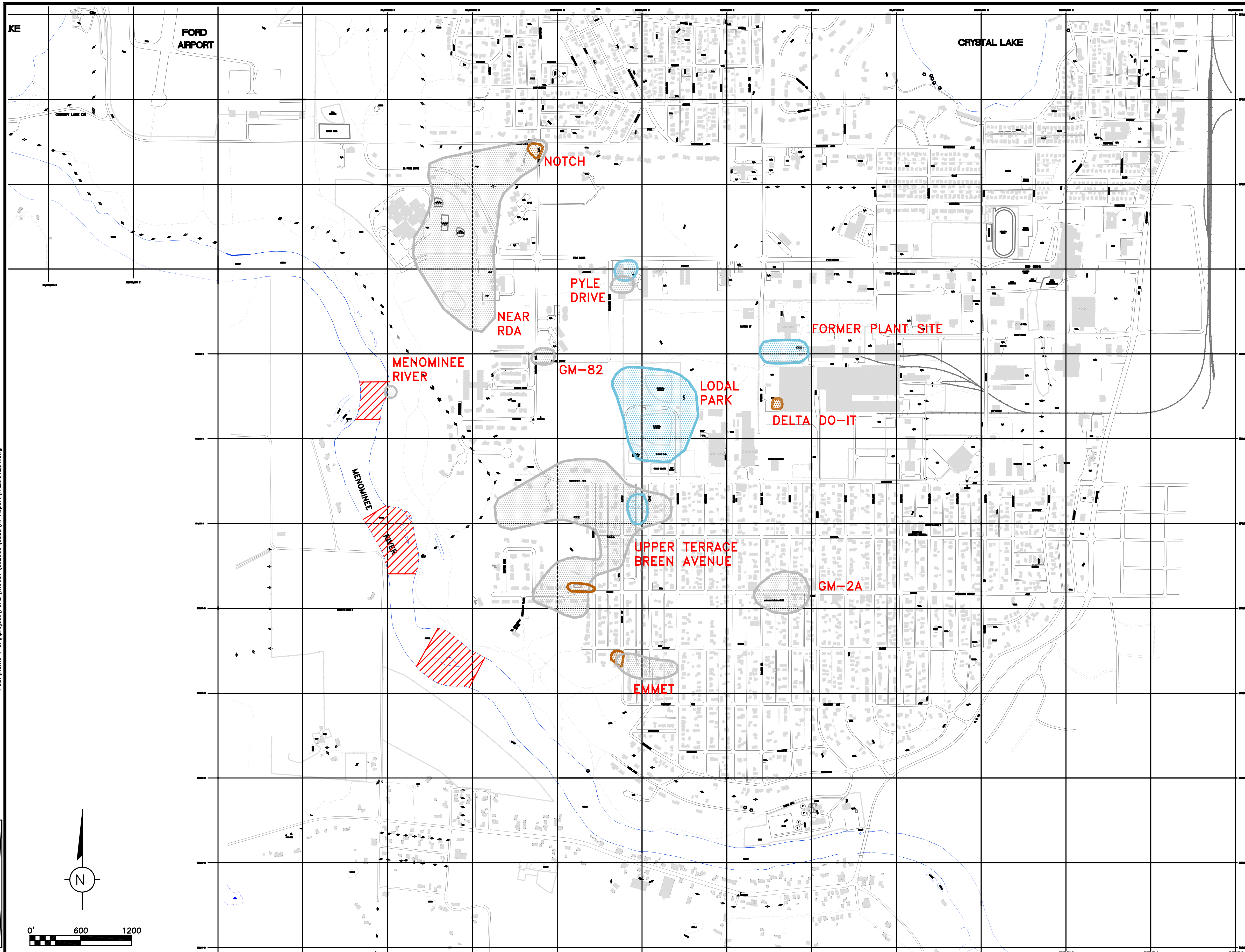
DRAFTER: LMB | APPROVED: | CHECKED: BE | DRAWING: W_BREEN_BB802..AI | FILE NO.: GRAPHCIS\RI REPORT | PN: FORD\WI0637\CJ2009 | DWG DATE: 20JAN09

ARCADIS

FORMER WEST BREEN AVENUE DISPOSAL
GEOLOGIC CROSS SECTION B-B'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-59



NOTES
1. HORIZONTAL DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM.
DATE OF PHOTOGRAPHY: 05/04/97
ABRAMS AERIAL SURVEY CORPORATION # 26994.2
2. ACCURACIES NOT GUARANTEED IN OBSCURED AREAS SHOWN BY DASHED CONTOURS AND UNDERLINED ELEVATIONS

LEGEND

- METHANE GAS TRAPPED UNDER SILT
- METHANE GAS BUT NOT AT SURFACE
- METHANE GAS AT SURFACE
- AREAS WHERE BUBBLES MAY BE OBSERVED IN THE MENOMINEE RIVER

Path Name : G:\project\FORD\WI0637\CJ2009\cadd\RI Report\FAEMG1201.dwg

Page Setup: ----
Pen Table: ----

NO.	DATE	REVISION DESCRIPTION	BY	CKD

ARCADIS
3903 Northdale Boulevard, Suite 120
Tampa, Florida 33624
Tel: 813/961-1921 Fax: 813/961-2599

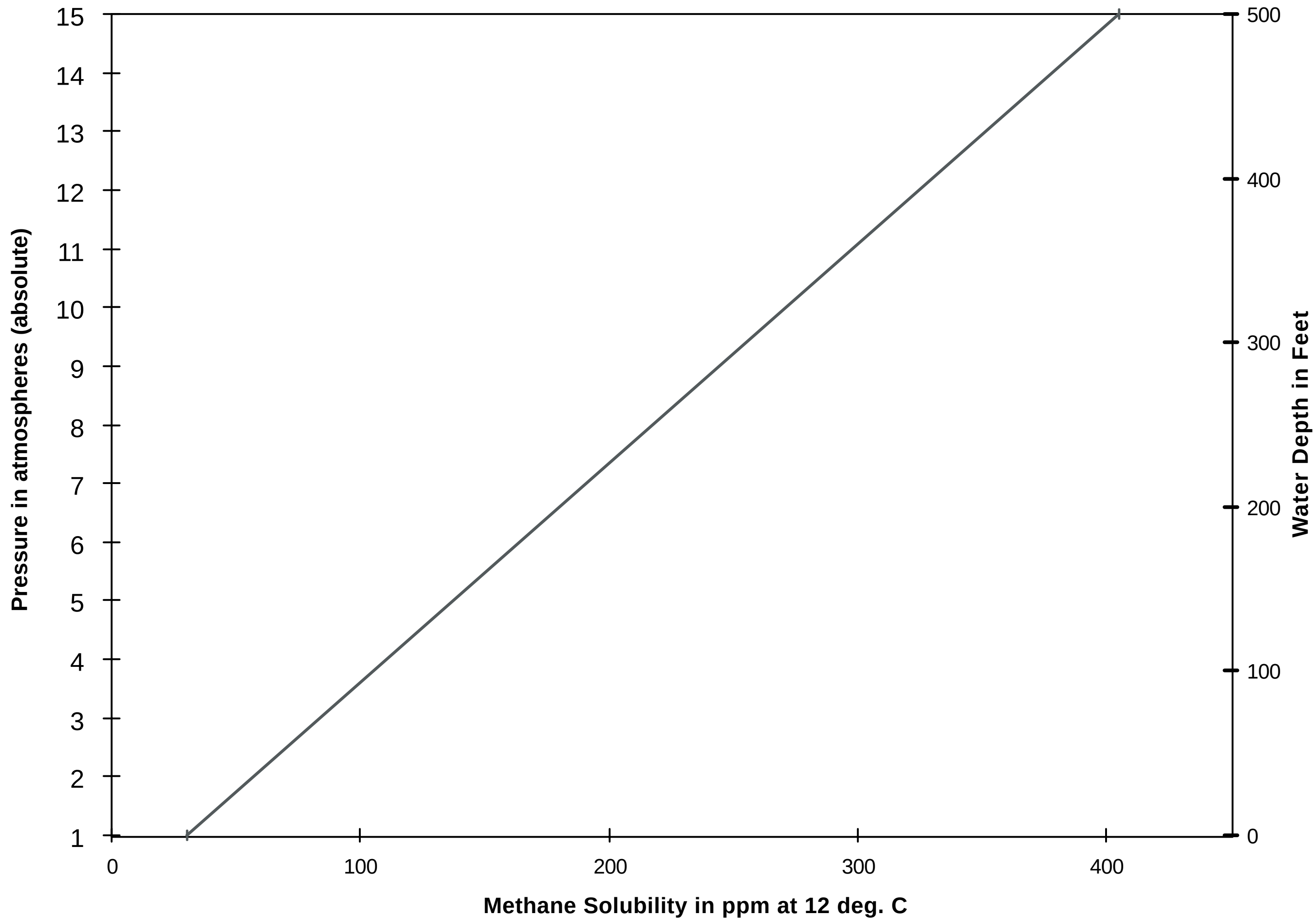
REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

DRAWN JMG	DATE 6/05/02	PROJECT MANAGER EC	DEPARTMENT MANAGER BE
		LEAD DESIGN PROF. BE	CHECKED BE
		PROJECT NUMBER WI00925.0001	FIGURE 6-60

APPROXIMATE LOCATION AND EXTENT OF HISTORIC METHANE GAS PRIOR TO VENTING ACTIVITIES

DWG DATE: 20JAN09 | PN: FORD\WI0637\CJ2009 | FILE NO.: GRAPHICS\RI REPORT | DRAWING: 6_33.AI | CHECKED: BE | APPROVED: | DRAFTER: LMB



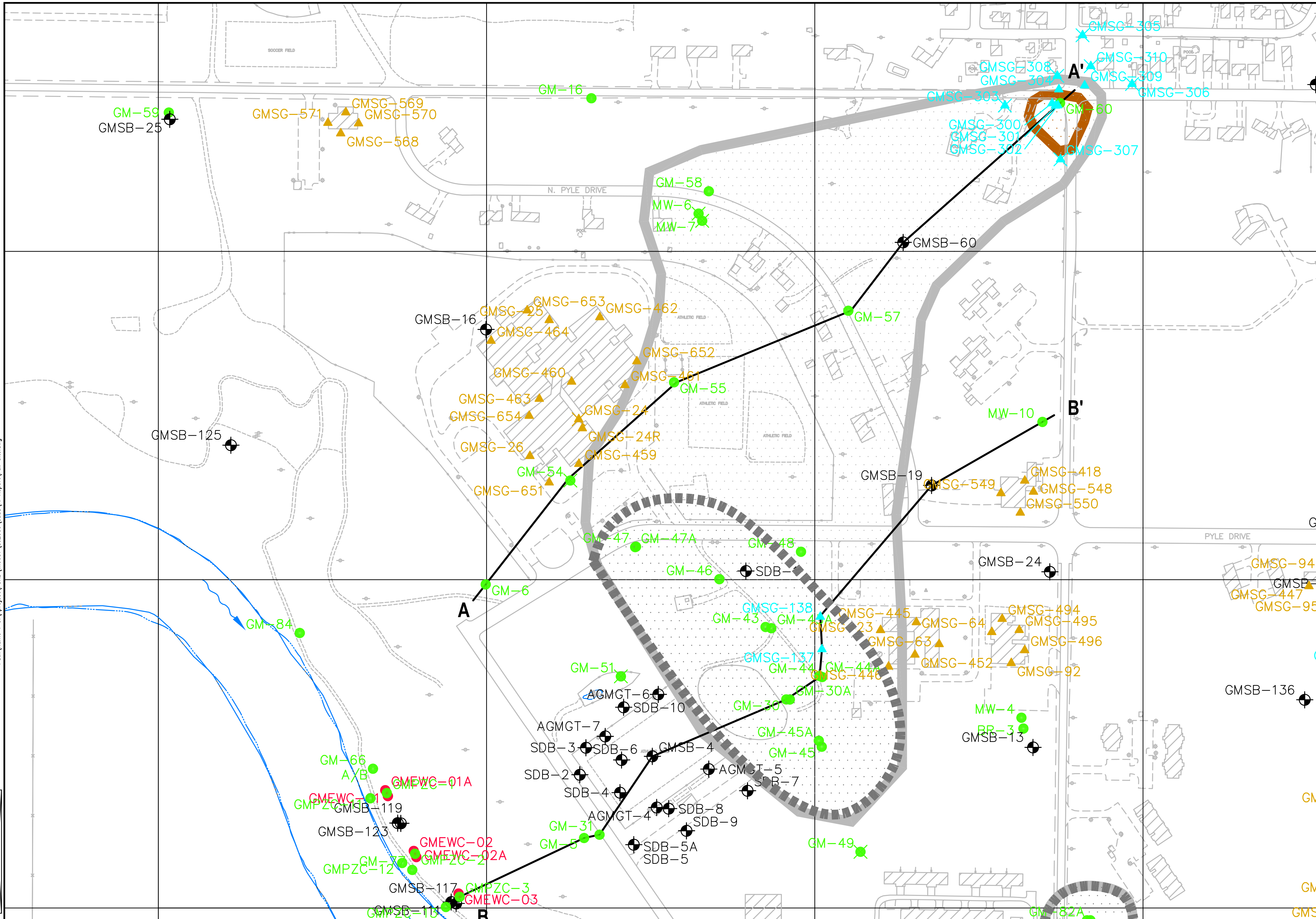
SOURCE: ISOTECH LABORATORIES

ARCADIS

METHANE SOLUBILITY GRAPH

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-61



LEGEND

- SOIL BORING LOCATION
- GEOPROBE LOCATION
- SOIL VAPOR PROBE LOCATION
- COMMERCIAL SOIL VAPOR PROBE LOCATION
- MONITOR WELL, PIEZOMETER AND EXTRACTION WELL LOCATION
- STAFF GAUGE LOCATION
- ABANDONED SOIL VAPOR PROBE LOCATION
- ABANDONED COMMERCIAL SOIL VAPOR PROBE LOCATION
- ABANDONED MONITOR WELL, PIEZOMETER, AND EXTRACTION WELL LOCATION
- ABANDONED GEOPROBE LOCATION
- METHANE GAS TRAPPED UNDER SILT–ORIGINAL EXTENT
- METHANE GAS AT SURFACE–ORIGINAL EXTENT
- METHANE GAS TRAPPED UNDER SILT–AS OF DECEMBER 2007
- A' CROSS–SECTION LOCATION

NOTE

THE LINES ENCIRCLING AREAS DO NOT NECESSARILY INDICATE, AND IT SHOULD NOT BE CONCLUDED, THAT METHANE OCCURS AT ALL LOCATIONS WITHIN THE CIRCLED AREA.

0 150 300
SCALE IN FEET

REV. ISSUED DATE DESCRIPTION

KEYPLAN

SEAL

ARCADIS

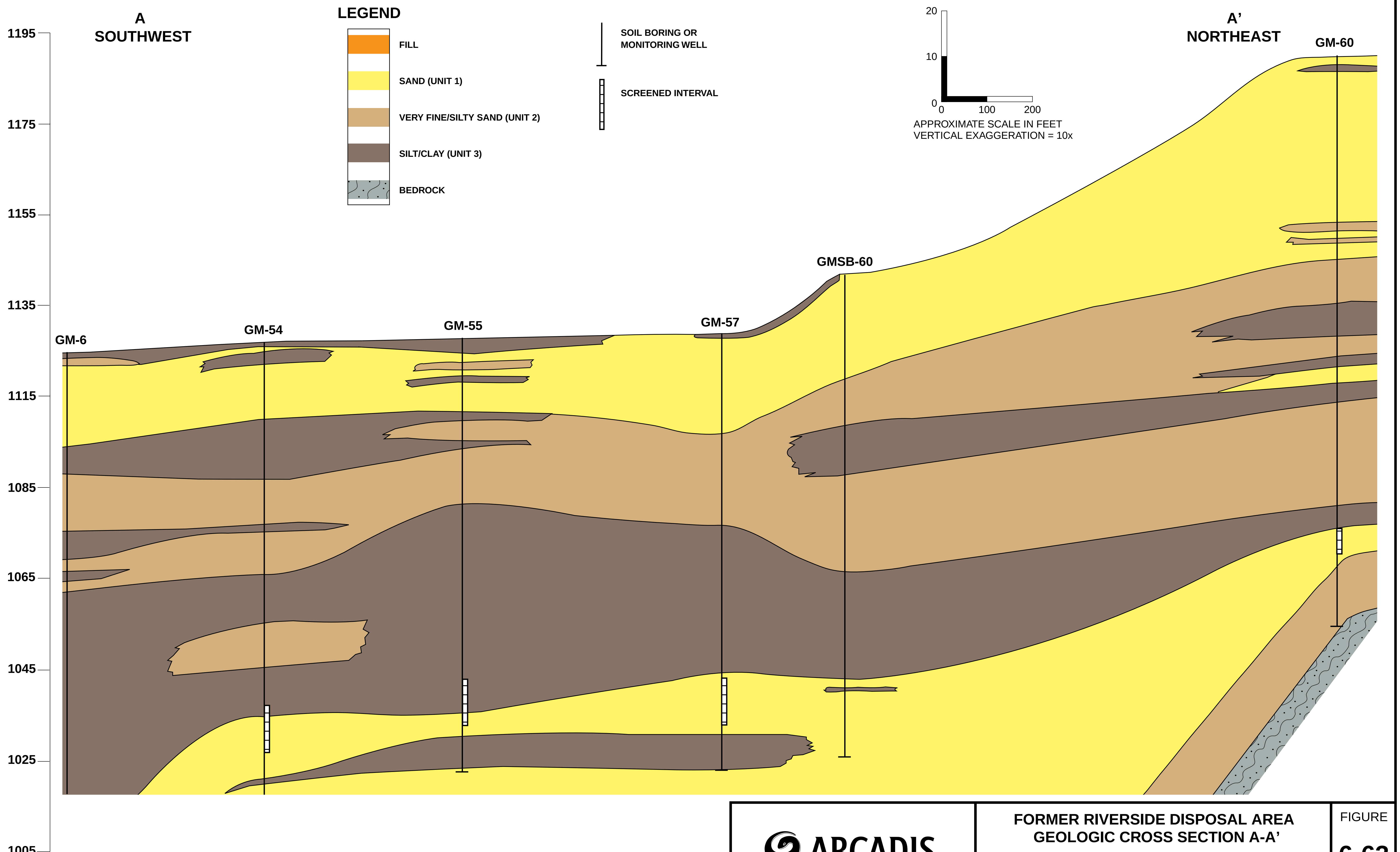
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

PROJECT MANAGER	DEPARTMENT MANAGER	LEAD DESIGN PROF.	CHECKED BY
R. STUDEBAKER	M. MAIERLE	B. EVANS	B. EVANS
SHEET TITLE		TASK/PHASE NUMBER	DRAWN BY
EXTENT OF METHANE GAS RDA AND NOTCH AREA		0009.00001	C. MCKEOUGH
		PROJECT NUMBER	DRAWING NUMBER
		WI001095	6-62

DRAFTER: LMB
APPROVED:
CHECKED: MS
DRAWING: XSEC RDA.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORDWI0637\CJ2009
DWG DATE: 29JAN09

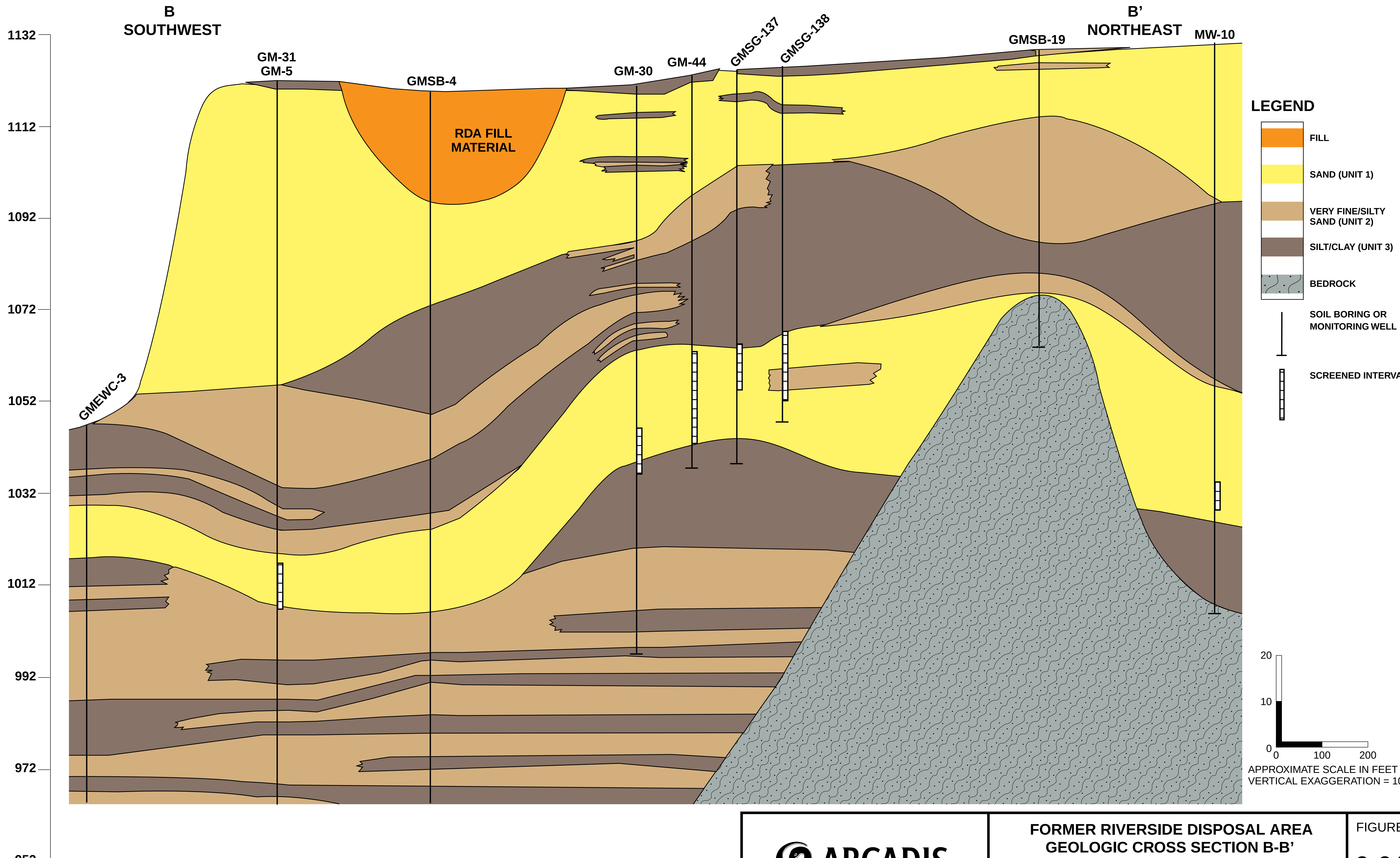


ARCADIS

FORMER RIVERSIDE DISPOSAL AREA
GEOLOGIC CROSS SECTION A-A'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-63



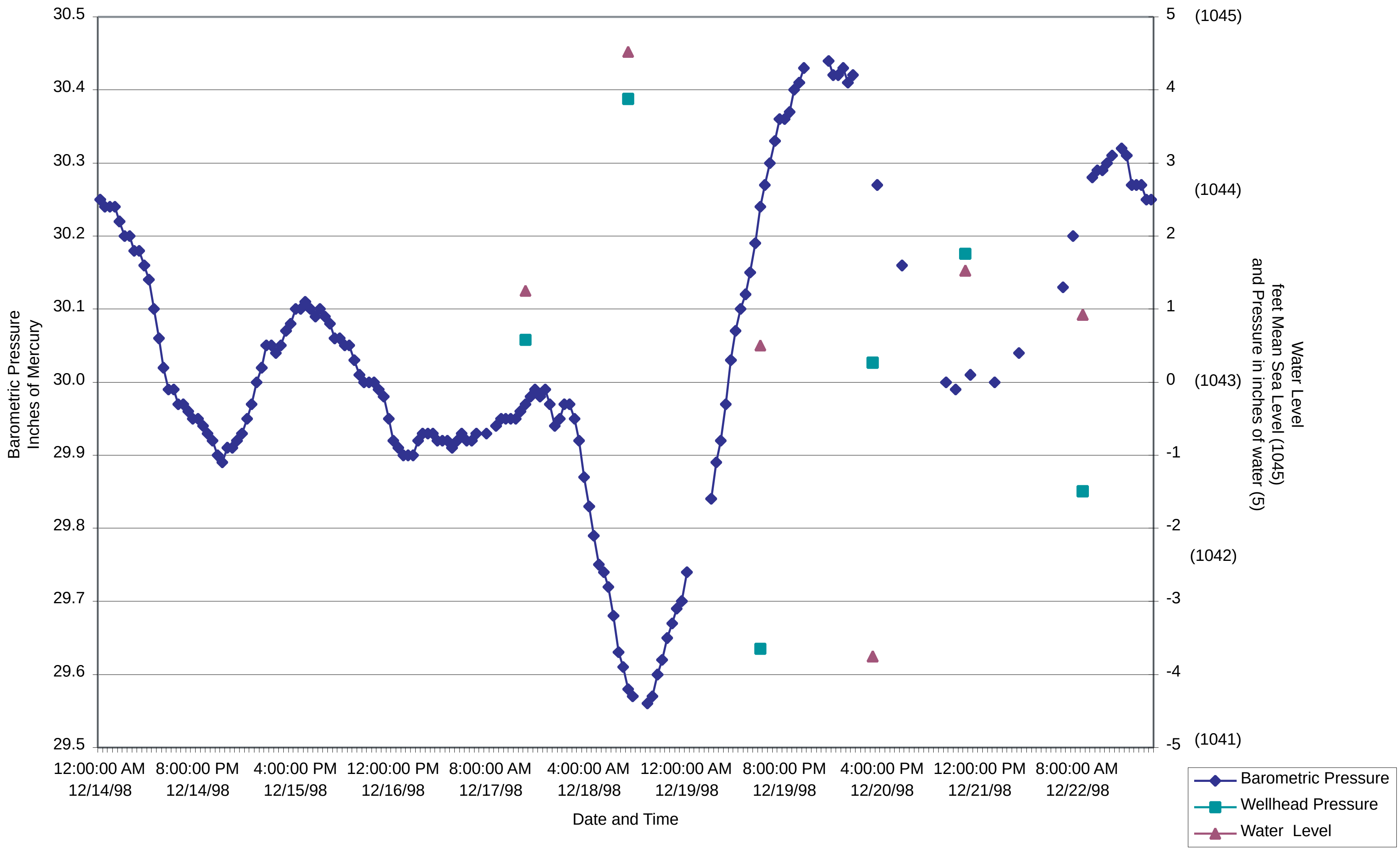
DRAFTER: LMB
APPROVED:
CHECKED: MS
DRAWING: XSEC RDA 2.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 29JAN09

ARCADIS

FORMER RIVERSIDE DISPOSAL AREA
GEOLOGIC CROSS SECTION B-B'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-64



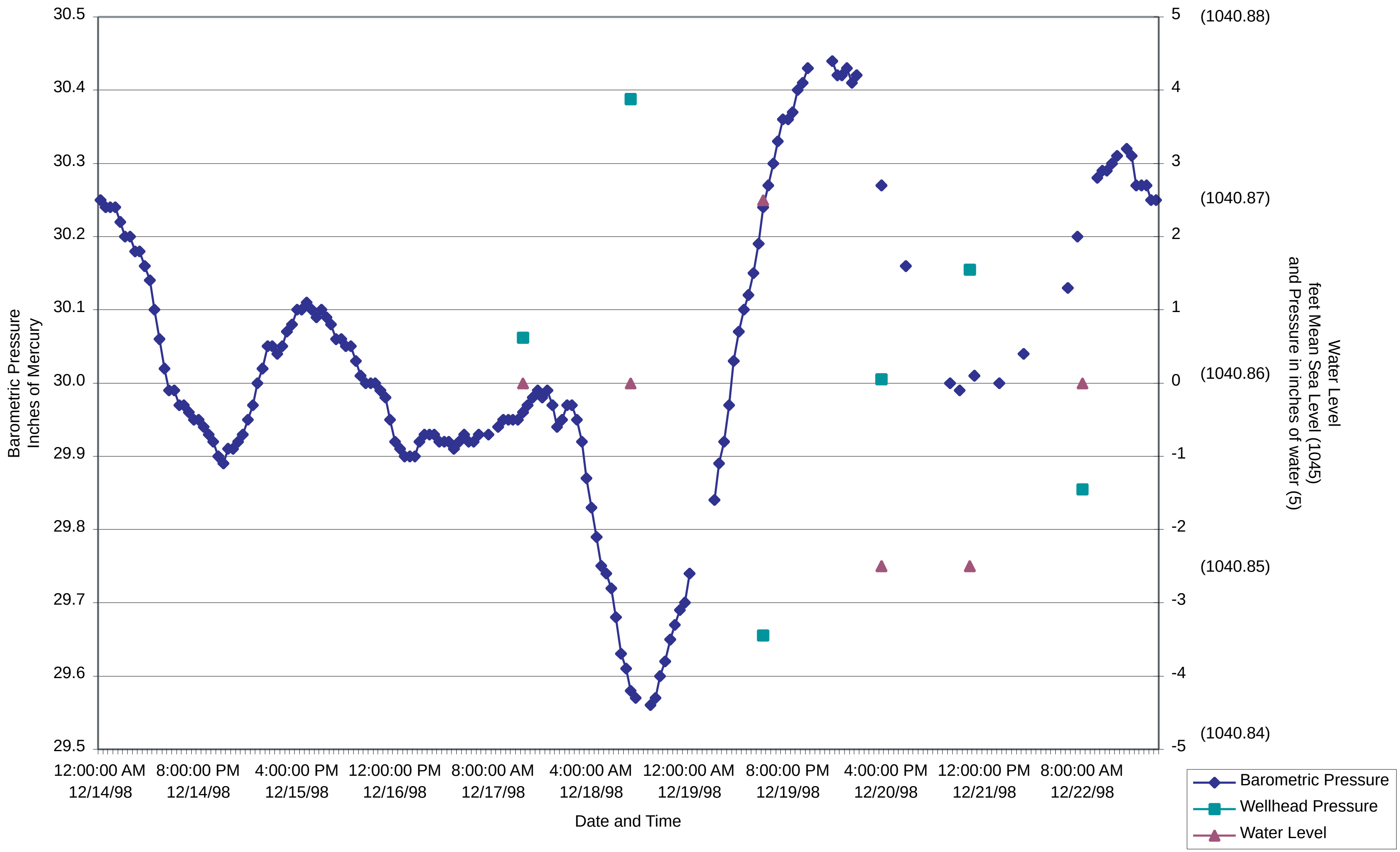
ARCADIS

BAROMETRIC PRESSURE VERSUS WELLHEAD PRESSURE AT GM-30

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-65

DWG DATE: 20JAN09	PN: FORD\WI0637\CJ2009	FILE NO.: GRAPHICS\RI REPORT	DRAWING: 6_35.AI	CHECKED: BE	APPROVED:	DRAFTER: LMB



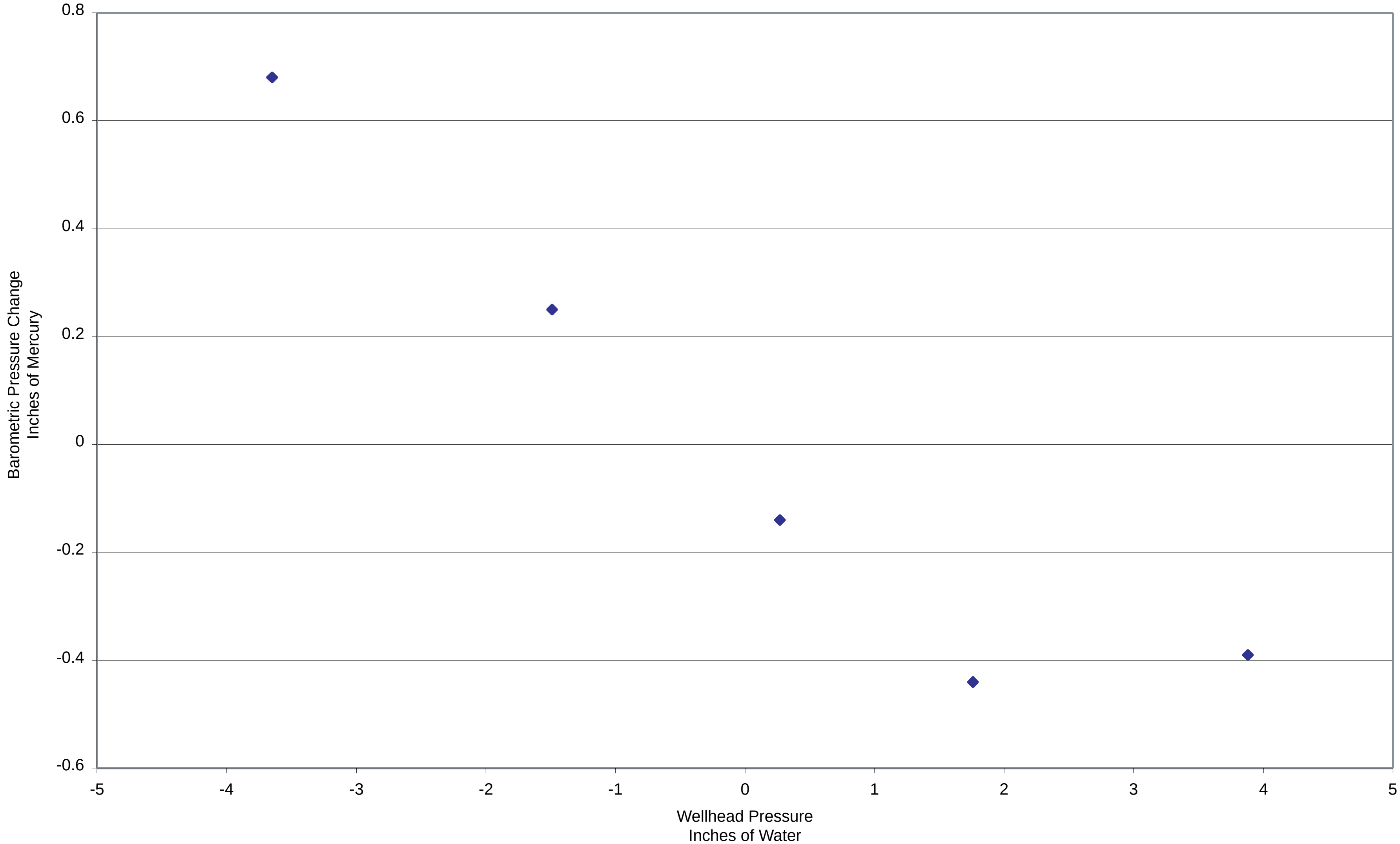
ARCADIS

BAROMETRIC PRESSURE VERSUS WELLHEAD PRESSURE AT GM-43

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-66



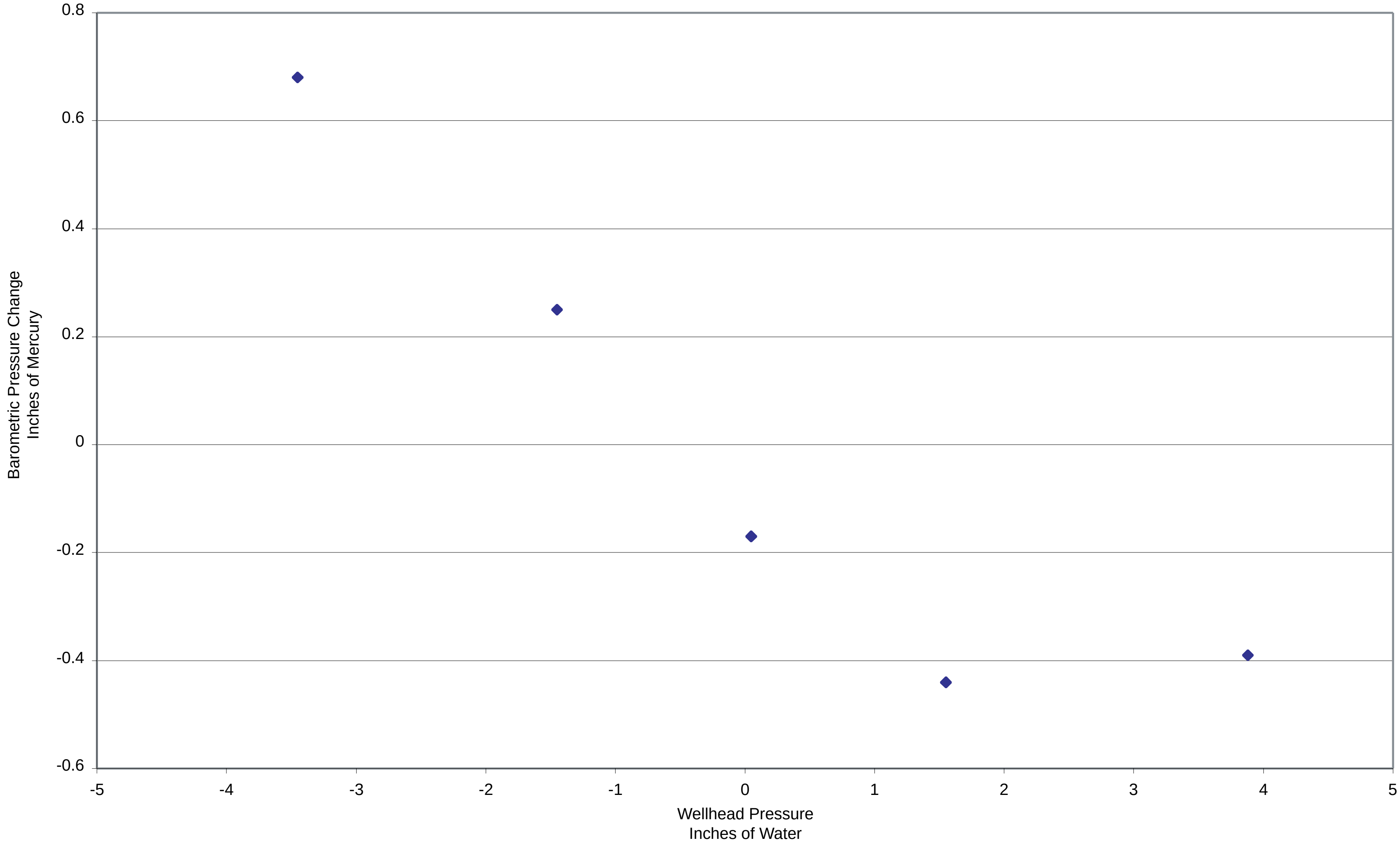
ARCADIS

CHANGE IN BAROMETRIC PRESSURE VERSUS WELLHEAD PRESSURE
GM-30

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-67

DWG DATE: 20JAN09	PN: FORD\WI0637\CJ2009	FILE NO.: GRAPHICS\RI REPORT	DRAWING: 6_37.AI	CHECKED: BE	APPROVED:	DRAFTER: LMB

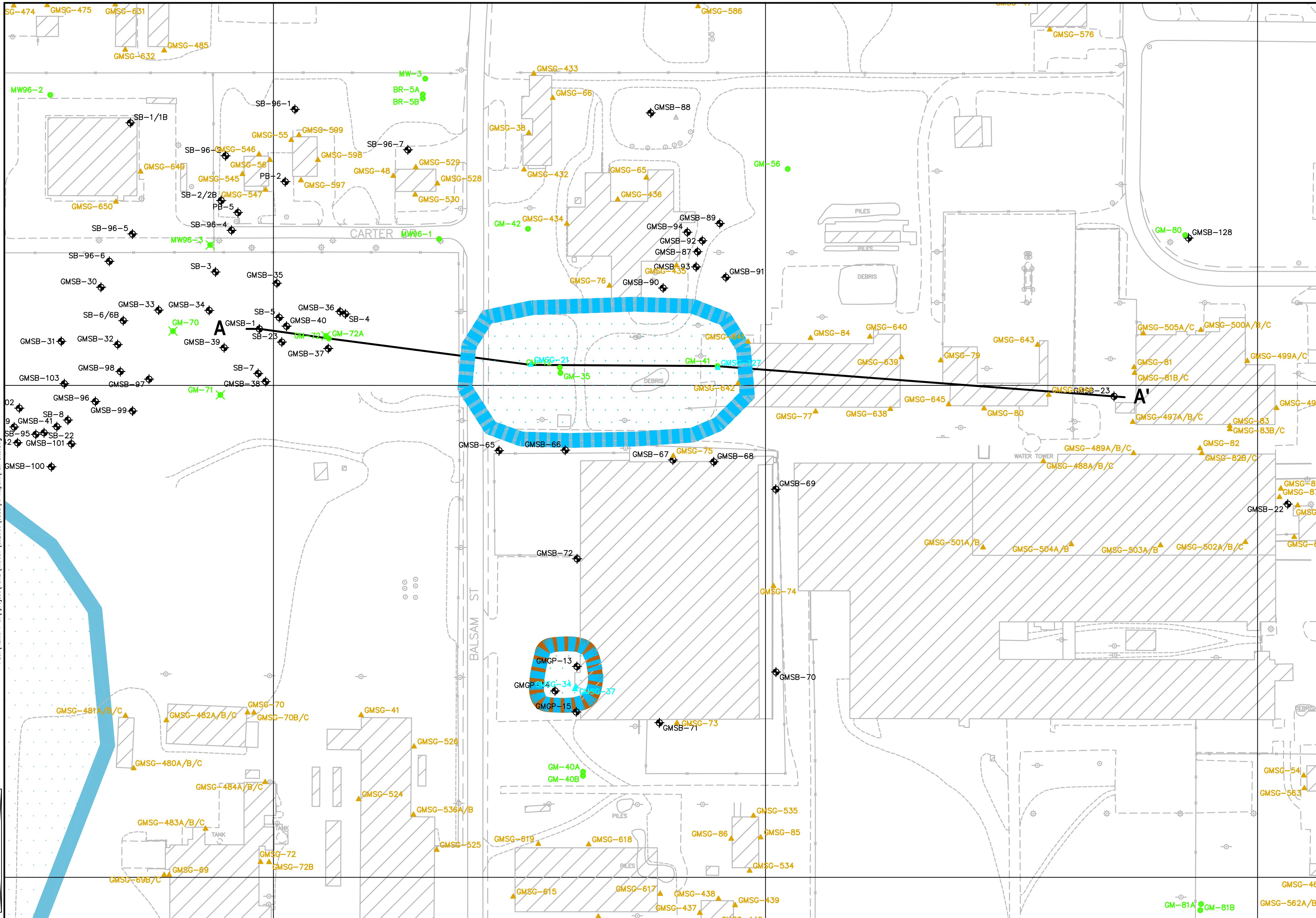


ARCADIS

CHANGE IN BAROMETRIC PRESSURE VERSUS WELLHEAD PRESSURE
GM-43

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-68



LEGEND

- SOIL BORING LOCATION
- GEOPROBE LOCATION
- SOIL VAPOR PROBE LOCATION
- COMMERCIAL SOIL VAPOR PROBE LOCATION
- MONITOR WELL, PIEZOMETER AND EXTRACTION WELL LOCATION
- STAFF GAUGE LOCATION
- ABANDONED SOIL VAPOR PROBE LOCATION
- ABANDONED COMMERCIAL SOIL VAPOR PROBE LOCATION
- ABANDONED MONITOR WELL, PIEZOMETER, AND EXTRACTION WELL LOCATION
- ABANDONED GEOPROBE LOCATION
- METHANE GAS BUT NOT AT SURFACE–ORIGINAL EXTENT
- METHANE GAS AT SURFACE–ORIGINAL EXTENT
- METHANE GAS BUT NOT AT SURFACE–AS OF DECEMBER 2007
- A — CROSS–SECTION LOCATION

NOTE

THE LINES ENCIRCLING AREAS DO NOT NECESSARILY INDICATE, AND IT SHOULD NOT BE CONCLUDED, THAT METHANE OCCURS AT ALL LOCATIONS WITHIN THE CIRCLED AREA.

Path\Name : G:\project\FORD\WI0637\CJ2009\cadd\RI Report\Full Site.dwg
Page Setup: ---- Pen Table: BLACKGRAY.ctb

REV. ISSUED DATE DESCRIPTION

KEYPLAN

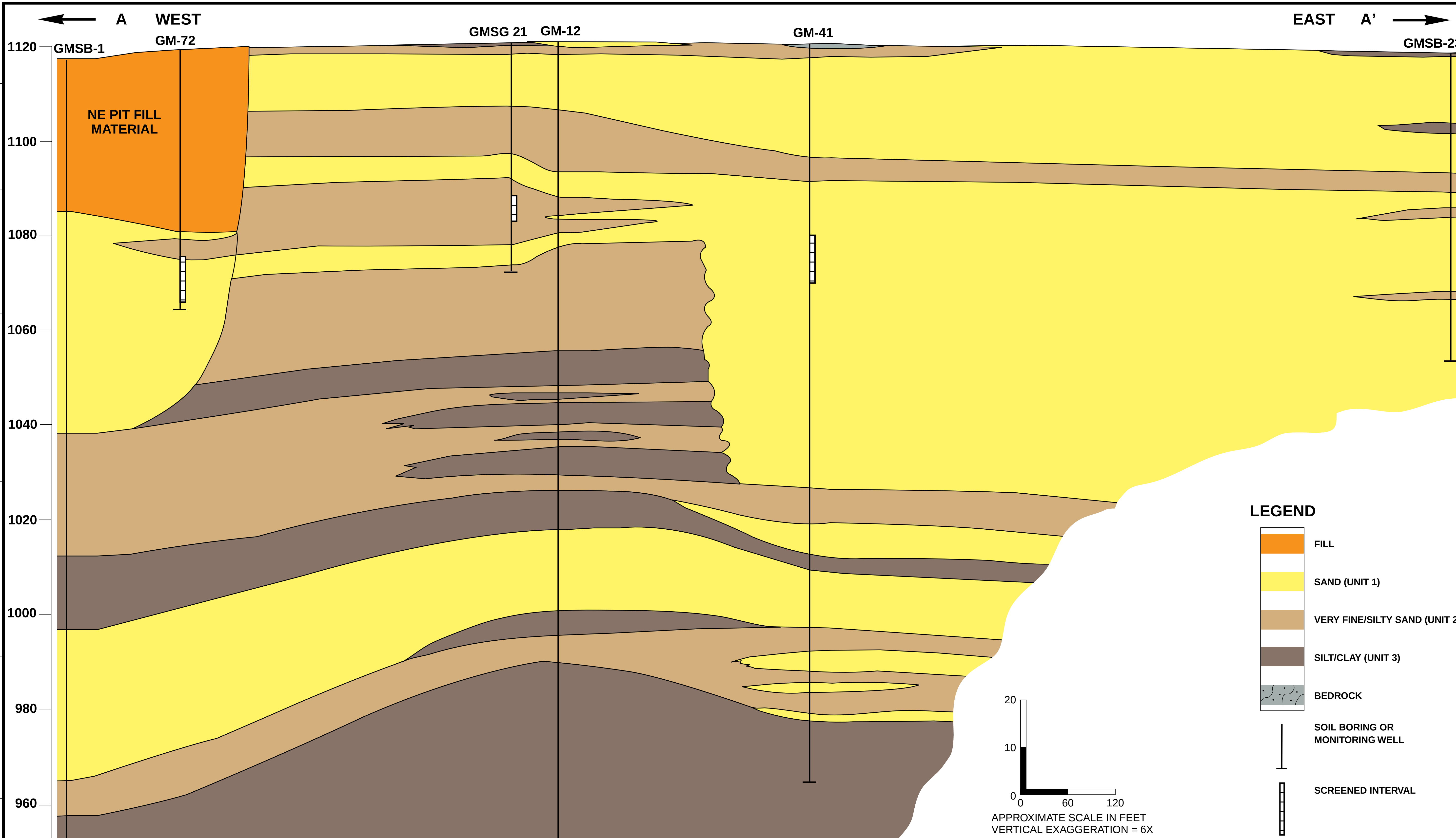
SEAL

ARCADIS
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

PROJECT MANAGER	DEPARTMENT MANAGER	LEAD DESIGN PROF.	CHECKED BY
R. STUDEBAKER	M. MAIERLE	B. EVANS	B. EVANS
SHEET TITLE		TASK/PHASE NUMBER	DRAWN BY
EXTENT OF METHANE GAS FORMER PLANT SITE AREA		0009.00001	C. MCKEOUGH
		PROJECT NUMBER	DRAWING NUMBER
		WI001095	6-69



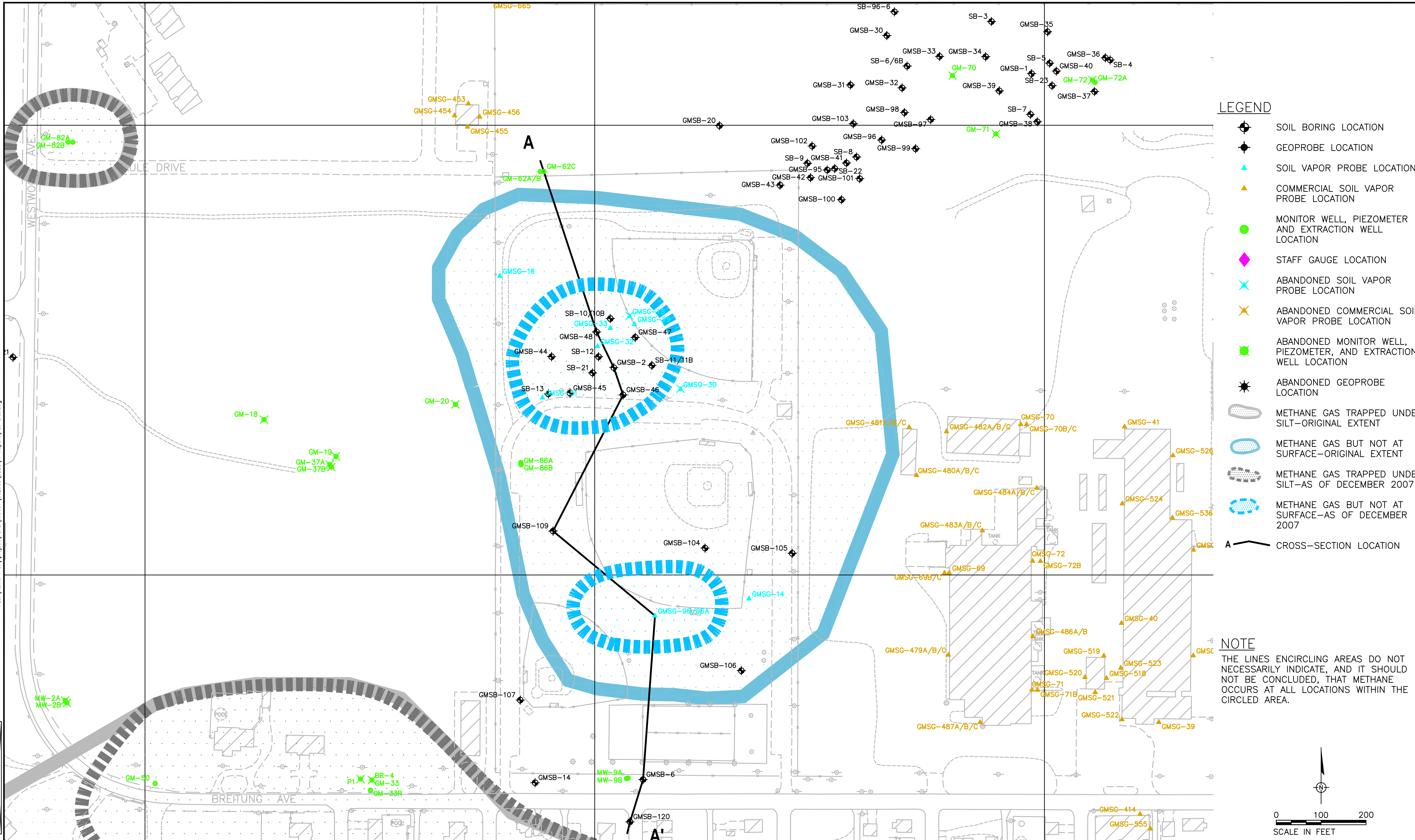
DRAFTER: LMB
APPROVED:
CHECKED: MS
DRAWING: XSEC FPS.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 29JAN09

ARCADIS

FORMER PLANT SITE AREA
GEOLOGIC CROSS SECTION A-A'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-70



ARCADIS

126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414–276–7742 Fax: 414–276–7603
www.arcadis-us.com

REMEDIAL INVESTIGATION REPORT

FORD–KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

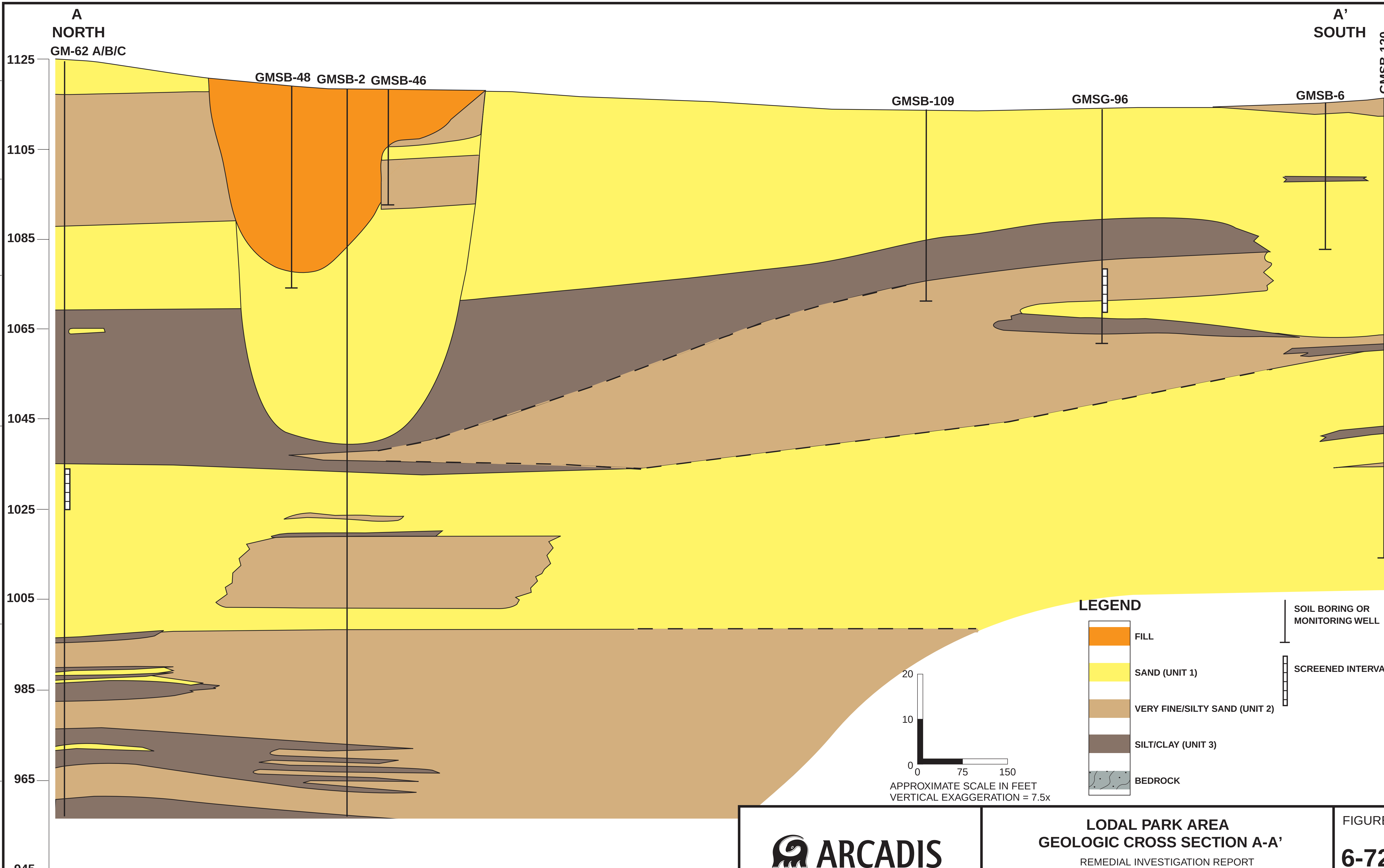
PROJECT MANAGER: R. STUDEBAKER	DEPARTMENT MANAGER: M. MAIERLE	LEAD DESIGN PROF.: B. EVANS	CHECKED BY: B. EVANS
SHEET TITLE: EXTENT OF METHANE GAS LODAL PARK AREA		TASK/PHASE NUMBER: 0009.00001	DRAWN BY: C. MCKEOUGH
		PROJECT NUMBER: WI001095	DRAWING NUMBER: 6-71

KEYPLAN

SEAL

REV. ISSUED DATE DESCRIPTION

DRAFTER: LMB
APPROVED:
CHECKED: MS
DRAWING: XSEC LODAL.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORDWI0637\CJ2009
DWG DATE: 29JAN09

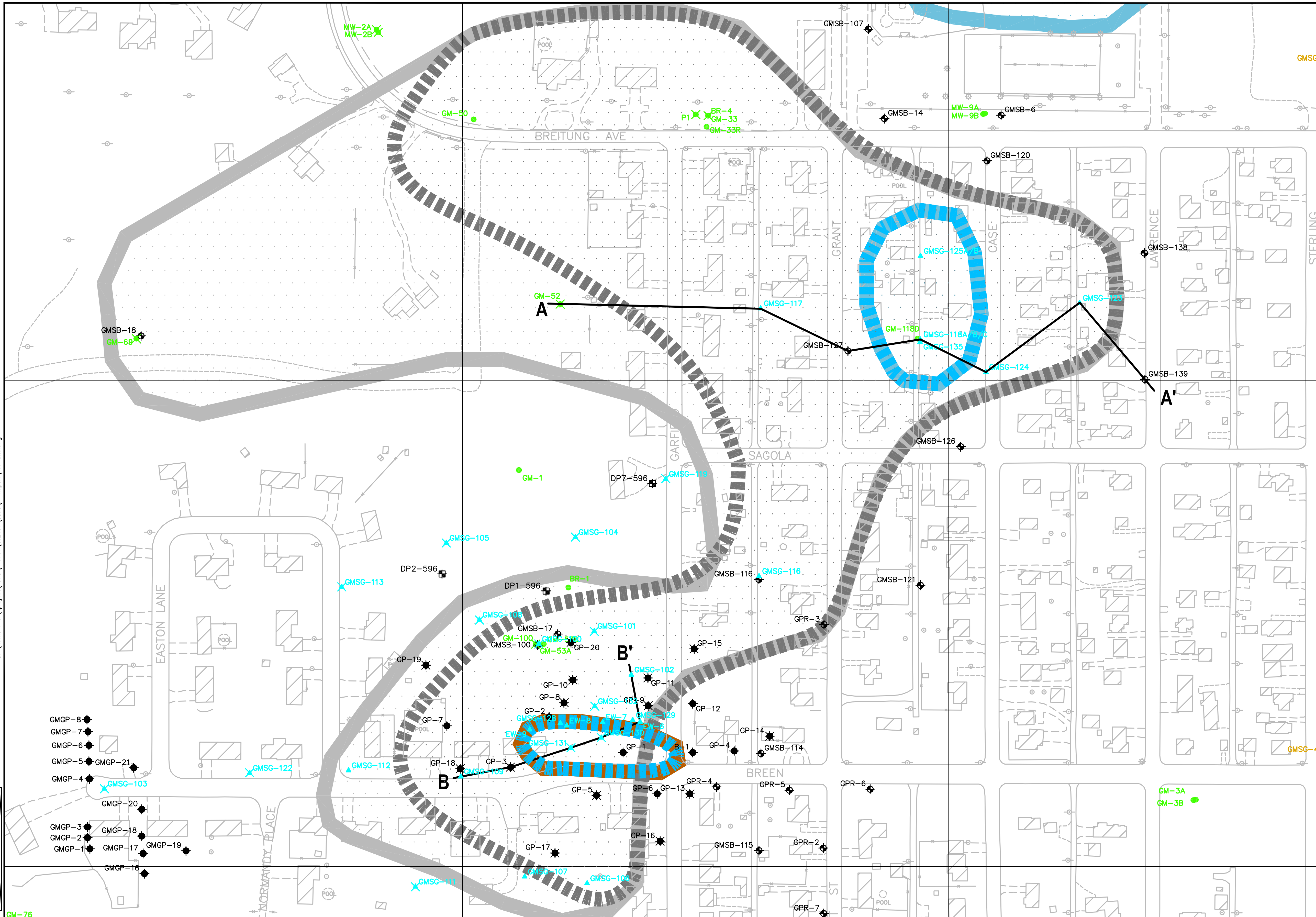


ARCADIS

LODAL PARK AREA
GEOLOGIC CROSS SECTION A-A'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-72



LEGEND

- SOIL BORING LOCATION
- GEOPROBE LOCATION
- SOIL VAPOR PROBE LOCATION
- COMMERCIAL SOIL VAPOR PROBE LOCATION
- MONITOR WELL, PIEZOMETER AND EXTRACTION WELL LOCATION
- STAFF GAUGE LOCATION
- ABANDONED SOIL VAPOR PROBE LOCATION
- ABANDONED COMMERCIAL SOIL VAPOR PROBE LOCATION
- ABANDONED MONITOR WELL, PIEZOMETER, AND EXTRACTION WELL LOCATION
- ABANDONED GEOPROBE LOCATION
- METHANE GAS TRAPPED UNDER SILT—ORIGINAL EXTENT
- METHANE GAS BUT NOT AT SURFACE—ORIGINAL EXTENT
- METHANE GAS AT SURFACE—ORIGINAL EXTENT
- METHANE GAS TRAPPED UNDER SILT—AS OF DECEMBER 2007
- METHANE GAS BUT NOT AT SURFACE—AS OF DECEMBER 2007
- A — CROSS—SECTION LOCATION

NOTE

THE LINES ENCIRCLING AREAS DO NOT NECESSARILY INDICATE, AND IT SHOULD NOT BE CONCLUDED, THAT METHANE OCCURS AT ALL LOCATIONS WITHIN THE CIRCLED AREA.

REV. ISSUED DATE DESCRIPTION

KEYPLAN

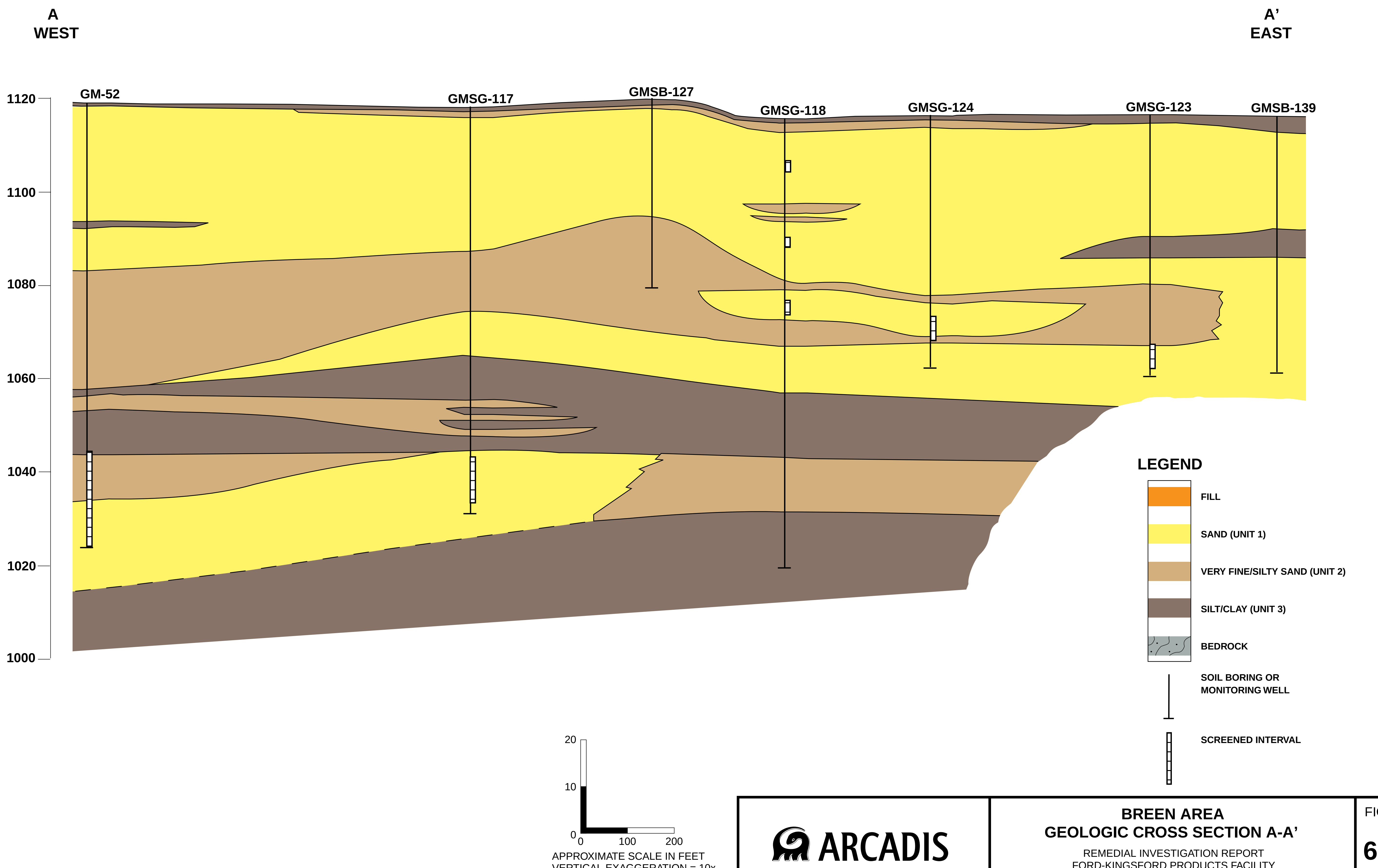
SEAL

ARCADIS
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

PROJECT MANAGER: R. STUDEBAKER	DEPARTMENT MANAGER: M. MAIERLE	LEAD DESIGN PROF.: B. EVANS	CHECKED BY: B. EVANS
SHEET TITLE: EXTENT OF METHANE GAS BREEN/UPPER TERRACE AREA		TASK/PHASE NUMBER: 0009.00001	DRAWN BY: C. MCKEOUGH
		PROJECT NUMBER: WI001095	DRAWING NUMBER: 6-73



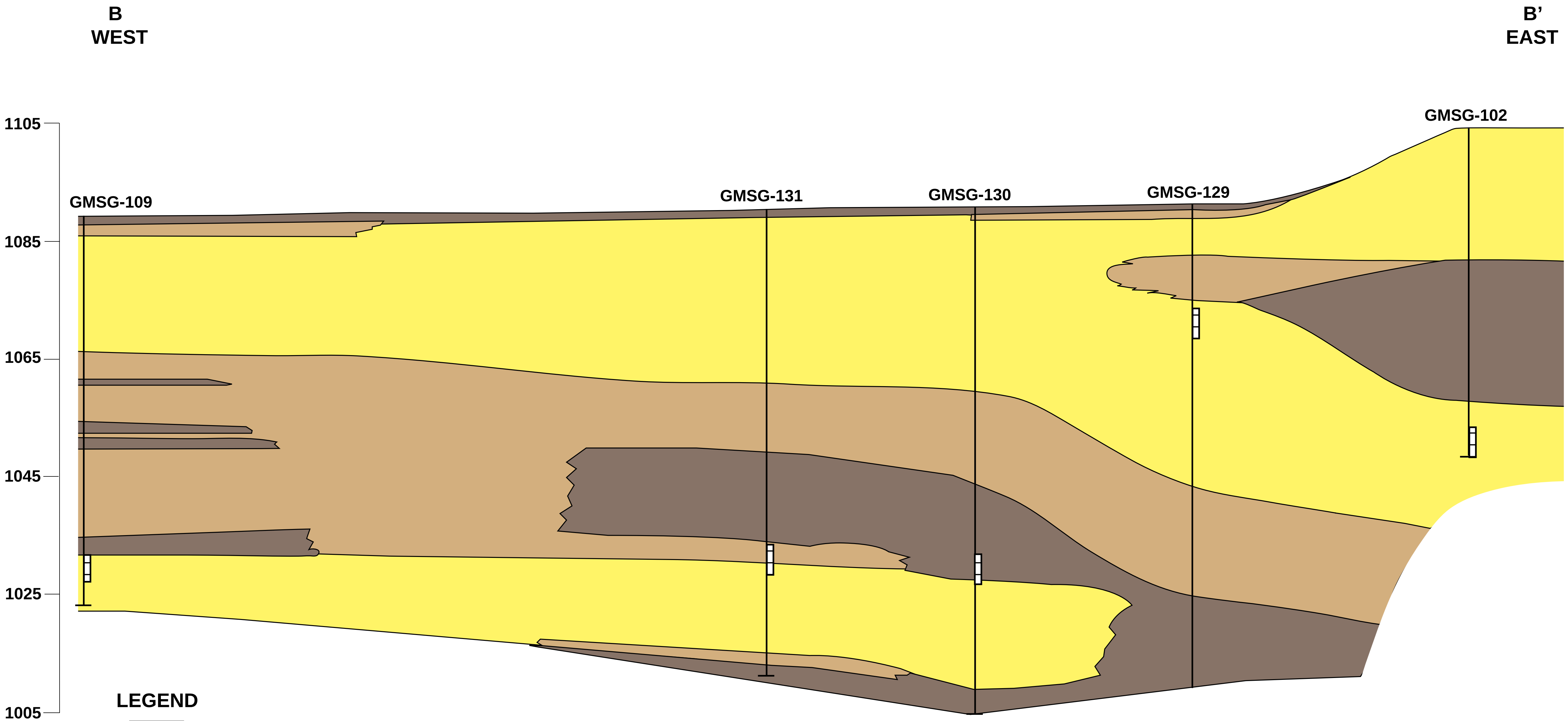
ARCADIS

BREEN AREA
GEOLOGIC CROSS SECTION A-A'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-74

DRAFTER: LMB
APPROVED:
CHECKED: MS
DRAWING: XSEC BREEN 2.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 29JAN09



LEGEND

FILL

SAND (UNIT 1)

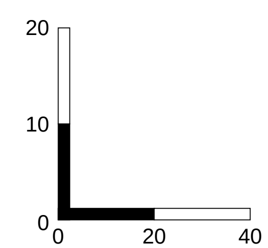
VERY FINE/SILTY SAND (UNIT 2)

SILT/CLAY (UNIT 3)

BEDROCK

SOIL BORING OR MONITORING WELL

SCREENED INTERVAL



APPROXIMATE SCALE IN FEET
VERTICAL EXAGGERATION = 2x

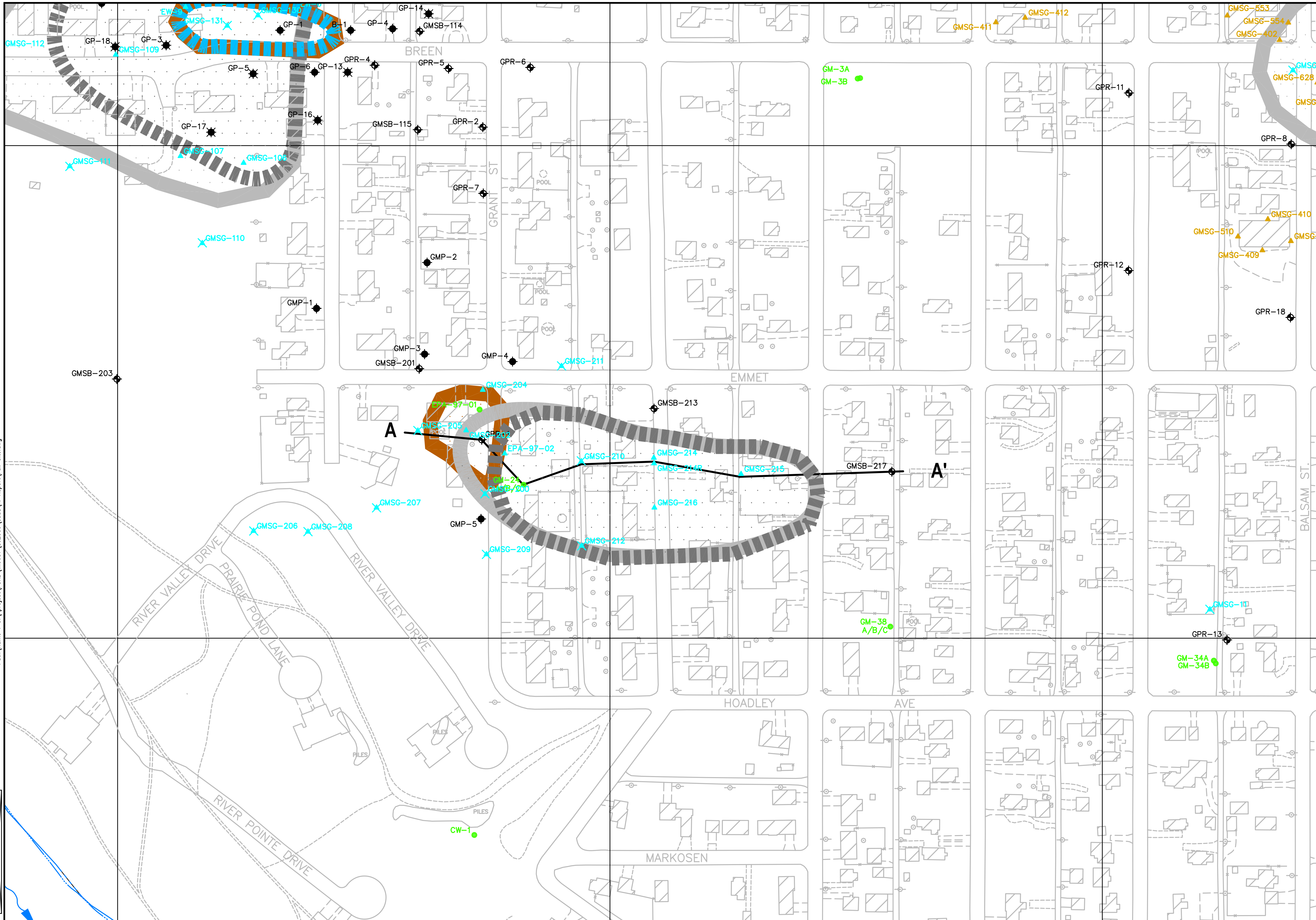
ARCADIS

BREEN AREA
GEOLOGIC CROSS SECTION B-B’

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-75

DRAFTER: LMB
APPROVED:
CHECKED: MS
DRAWING: XSEC BREEN.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 29JAN09



LEGEND

- SOIL BORING LOCATION
- GEOPROBE LOCATION
- SOIL VAPOR PROBE LOCATION
- COMMERCIAL SOIL VAPOR PROBE LOCATION
- MONITOR WELL, PIEZOMETER AND EXTRACTION WELL LOCATION
- STAFF GAUGE LOCATION
- ABANDONED SOIL VAPOR PROBE LOCATION
- ABANDONED COMMERCIAL SOIL VAPOR PROBE LOCATION
- ABANDONED MONITOR WELL, PIEZOMETER, AND EXTRACTION WELL LOCATION
- ABANDONED GEOPROBE LOCATION
- METHANE GAS TRAPPED UNDER SILT–ORIGINAL EXTENT
- METHANE GAS AT SURFACE–ORIGINAL EXTENT
- METHANE GAS TRAPPED UNDER SILT–AS OF DECEMBER 2007
- METHANE GAS BUT NOT AT SURFACE–AS OF DECEMBER 2007
- A — CROSS–SECTION LOCATION

NOTE

THE LINES ENCIRCLING AREAS DO NOT NECESSARILY INDICATE, AND IT SHOULD NOT BE CONCLUDED, THAT METHANE OCCURS AT ALL LOCATIONS WITHIN THE CIRCLED AREA.

0 100 200
SCALE IN FEET

Path\Name : G:\project\FORD\WI0637\C(2009\cadd\RI Report\Full Site.dwg

Page Setup: Pen Table: BLACKGRAY.ctb

REV. ISSUED DATE DESCRIPTION

KEYPLAN

SEAL

ARCADIS

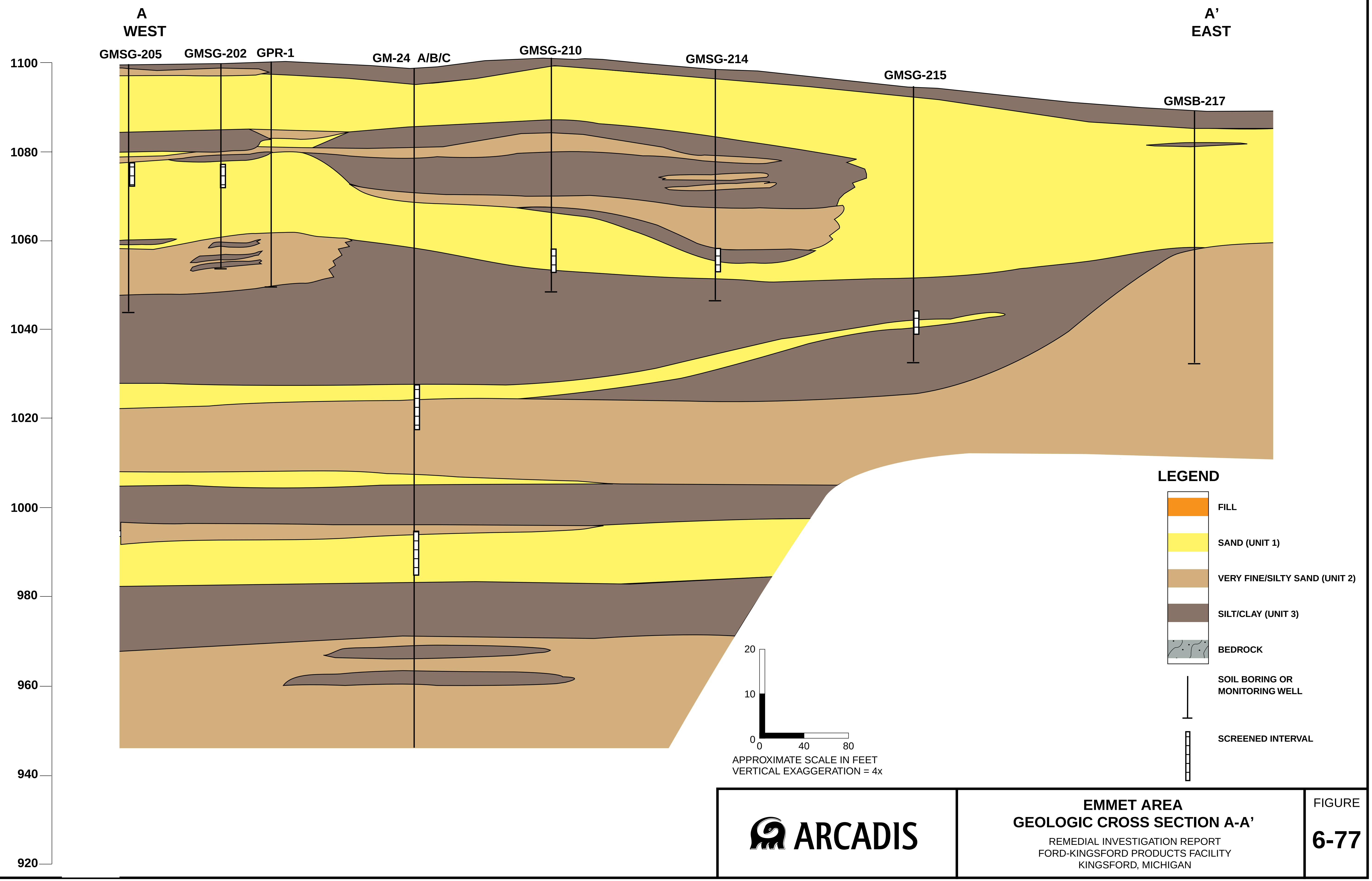
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

REMEDIAL INVESTIGATION REPORT

FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

PROJECT MANAGER	DEPARTMENT MANAGER	LEAD DESIGN PROF.	CHECKED BY
R. STUDEBAKER	M. MAIERLE	B. EVANS	B. EVANS
SHEET TITLE		TASK/PHASE NUMBER	DRAWN BY
EXTENT OF METHANE GAS EMMET AREA		0009.00001	C. MCKEOUGH
		PROJECT NUMBER	DRAWING NUMBER
		WI001095	6-76

DRAFTER: LMB
APPROVED:
CHECKED: MS
DRAWING: XSEC EMMETT.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORDWI0637\CJ2009
DWG DATE: 29JAN09

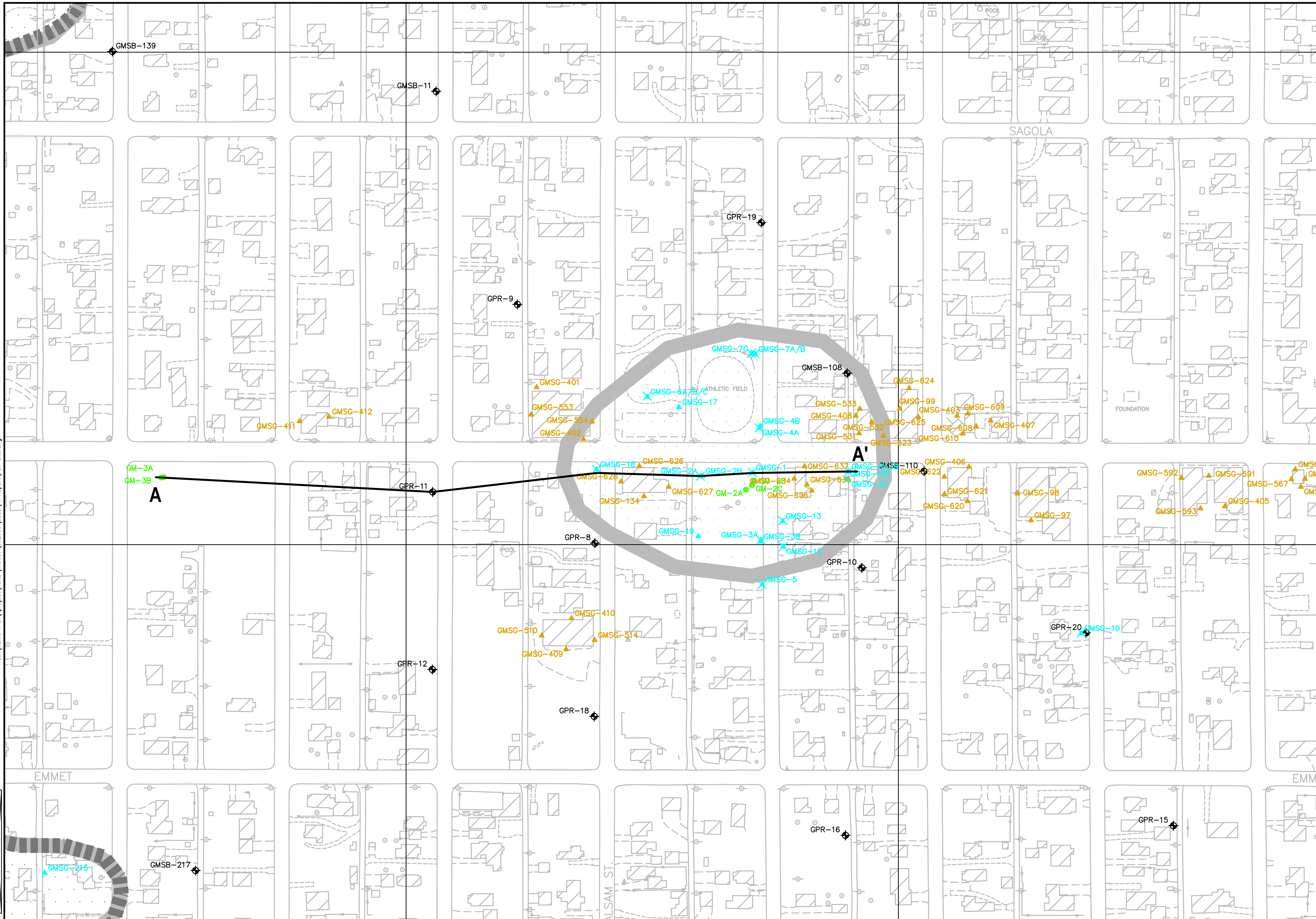


ARCADIS

EMMET AREA
GEOLOGIC CROSS SECTION A-A'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-77



LEGEND

- SOIL BORING LOCATION
- GEOPROBE LOCATION
- SOIL VAPOR PROBE LOCATION
- COMMERCIAL SOIL VAPOR PROBE LOCATION
- MONITOR WELL, PIEZOMETER AND EXTRACTION WELL LOCATION
- STAFF GAUGE LOCATION
- ABANDONED SOIL VAPOR PROBE LOCATION
- ABANDONED COMMERCIAL SOIL VAPOR PROBE LOCATION
- ABANDONED MONITOR WELL, PIEZOMETER, AND EXTRACTION WELL LOCATION
- ABANDONED GEOPROBE LOCATION
- METHANE GAS TRAPPED UNDER SILT–ORIGINAL EXTENT
- METHANE GAS TRAPPED UNDER SILT–AS OF DECEMBER 2007
- A — CROSS–SECTION LOCATION

NOTE

THE LINES ENCIRCLING AREAS DO NOT NECESSARILY INDICATE, AND IT SHOULD NOT BE CONCLUDED, THAT METHANE OCCURS AT ALL LOCATIONS WITHIN THE CIRCLED AREA.

N

0 100 200
SCALE IN FEET

Path\Name : G:\project\FORD\WI0637\C2009\cadd\RI Report\Full Site.dwg
Page Setup: —
Pen Table: BLACKGRAY.ctb

REV. ISSUED DATE DESCRIPTION

KEYPLAN

SEAL

ARCADIS

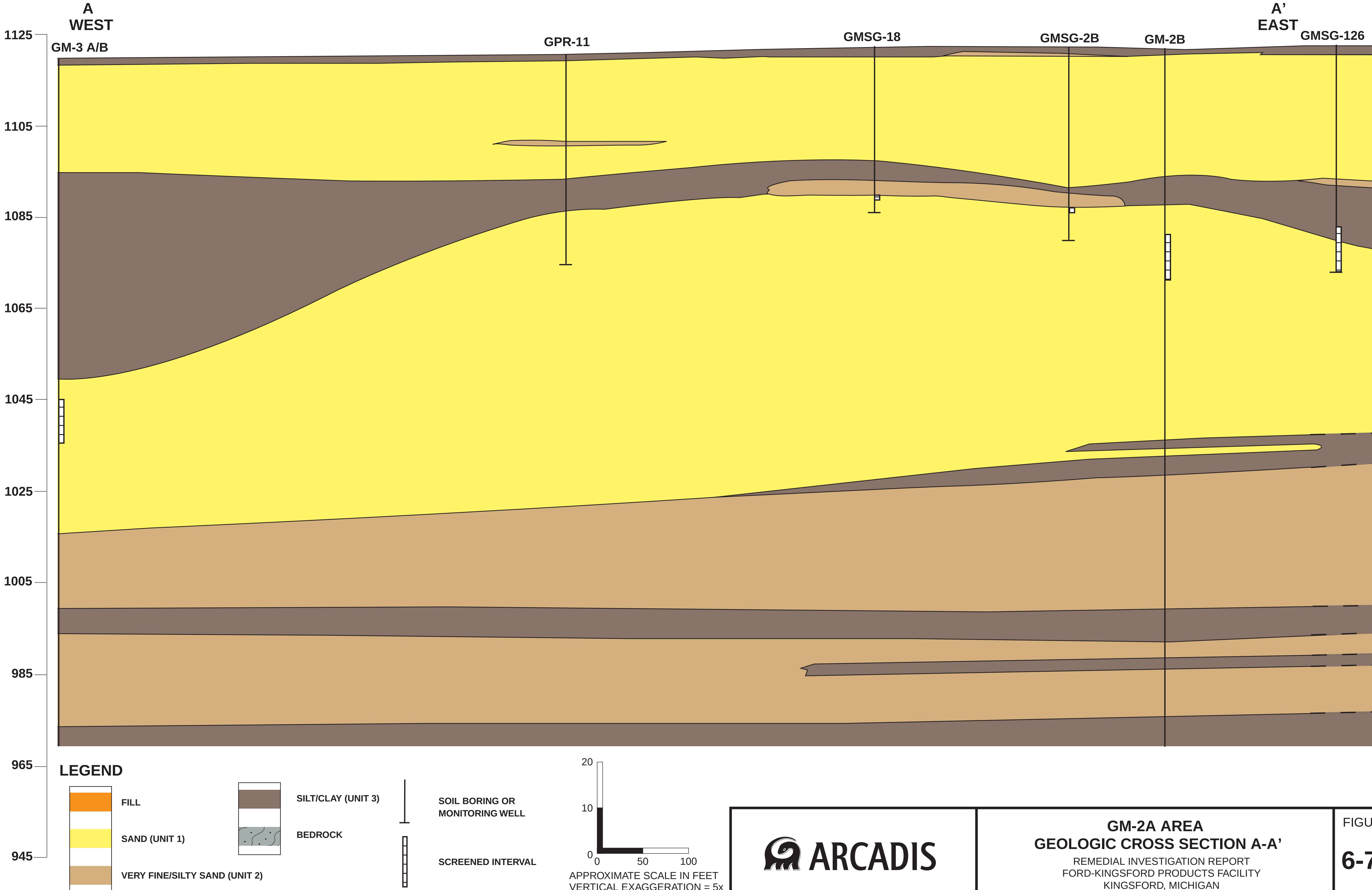
126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414-276-7742 Fax: 414-276-7603
www.arcadis-us.com

REMEDIAL INVESTIGATION REPORT

FORD–KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

PROJECT MANAGER R. STUDEBAKER	DEPARTMENT MANAGER M. MAIERLE	LEAD DESIGN PROF. B. EVANS	CHECKED BY B. EVANS
SHEET TITLE		TASK/PHASE NUMBER 0009.00001	DRAWN BY C. MCKEOUGH
EXTENT OF METHANE GAS GM–2A AREA		PROJECT NUMBER WI001095	DRAWING NUMBER 6-78

DRAFTER: LMB
APPROVED:
CHECKED: MS
DRAWING: XSEC GM2A.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 29JAN09

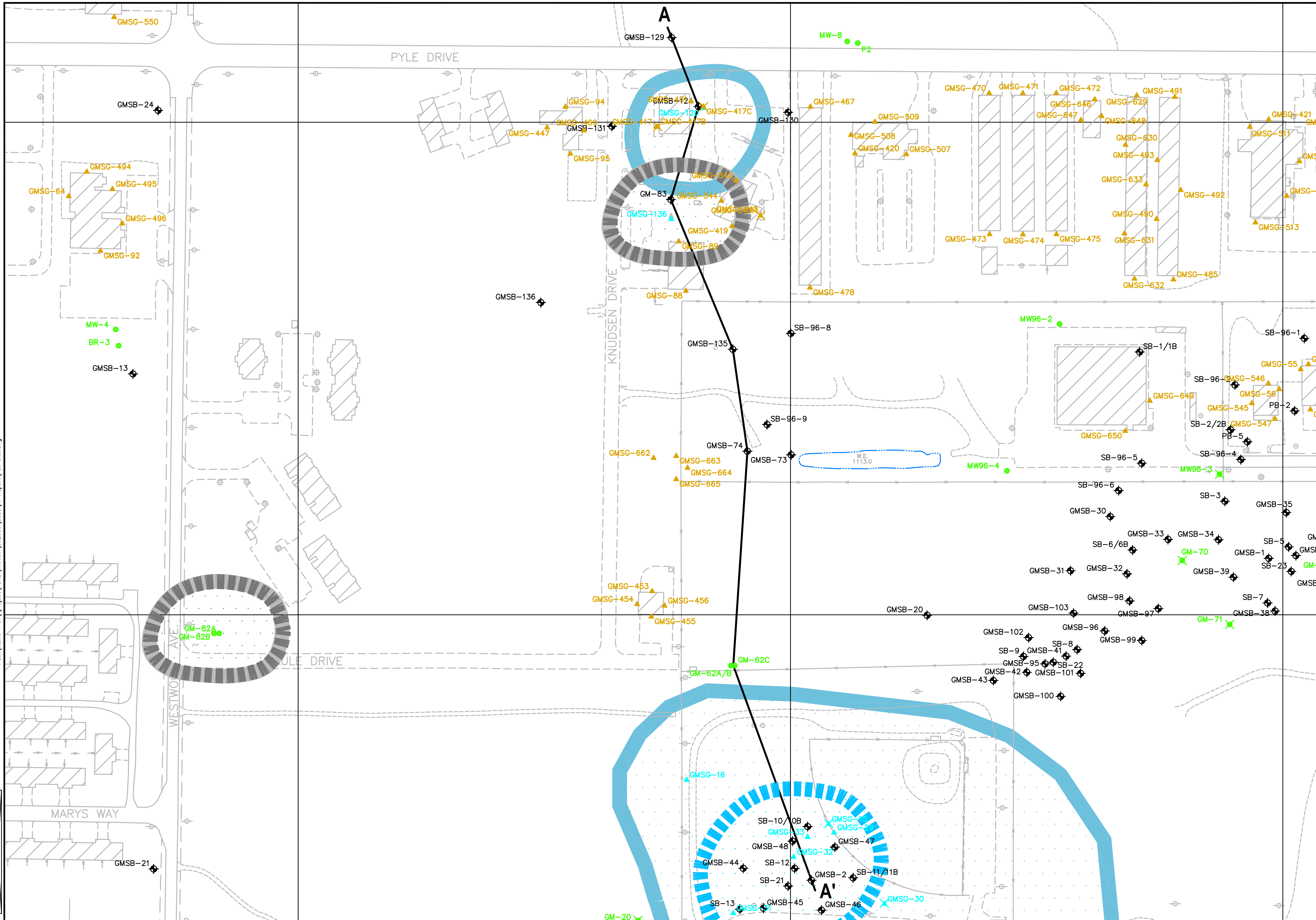


ARCADIS

GM-2A AREA
GEOLOGIC CROSS SECTION A-A'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-79



LEGEND

- SOIL BORING LOCATION
- GEOPROBE LOCATION
- SOIL VAPOR PROBE LOCATION
- COMMERCIAL SOIL VAPOR PROBE LOCATION
- MONITOR WELL, PIEZOMETER AND EXTRACTION WELL LOCATION
- STAFF GAUGE LOCATION
- ABANDONED SOIL VAPOR PROBE LOCATION
- ABANDONED COMMERCIAL SOIL VAPOR PROBE LOCATION
- ABANDONED MONITOR WELL, PIEZOMETER, AND EXTRACTION WELL LOCATION
- ABANDONED GEOPROBE LOCATION
- METHANE GAS TRAPPED UNDER SILT–ORIGINAL EXTENT
- METHANE GAS BUT NOT AT SURFACE–ORIGINAL EXTENT
- METHANE GAS TRAPPED UNDER SILT–AS OF DECEMBER 2007
- METHANE GAS BUT NOT AT SURFACE–AS OF DECEMBER 2007
- A CROSS–SECTION LOCATION

NOTE

THE LINES ENCIRCLING AREAS DO NOT NECESSARILY INDICATE, AND IT SHOULD NOT BE CONCLUDED, THAT METHANE OCCURS AT ALL LOCATIONS WITHIN THE CIRCLED AREA.

0 100 200
SCALE IN FEET

REV. ISSUED DATE DESCRIPTION

KEYPLAN

SEAL

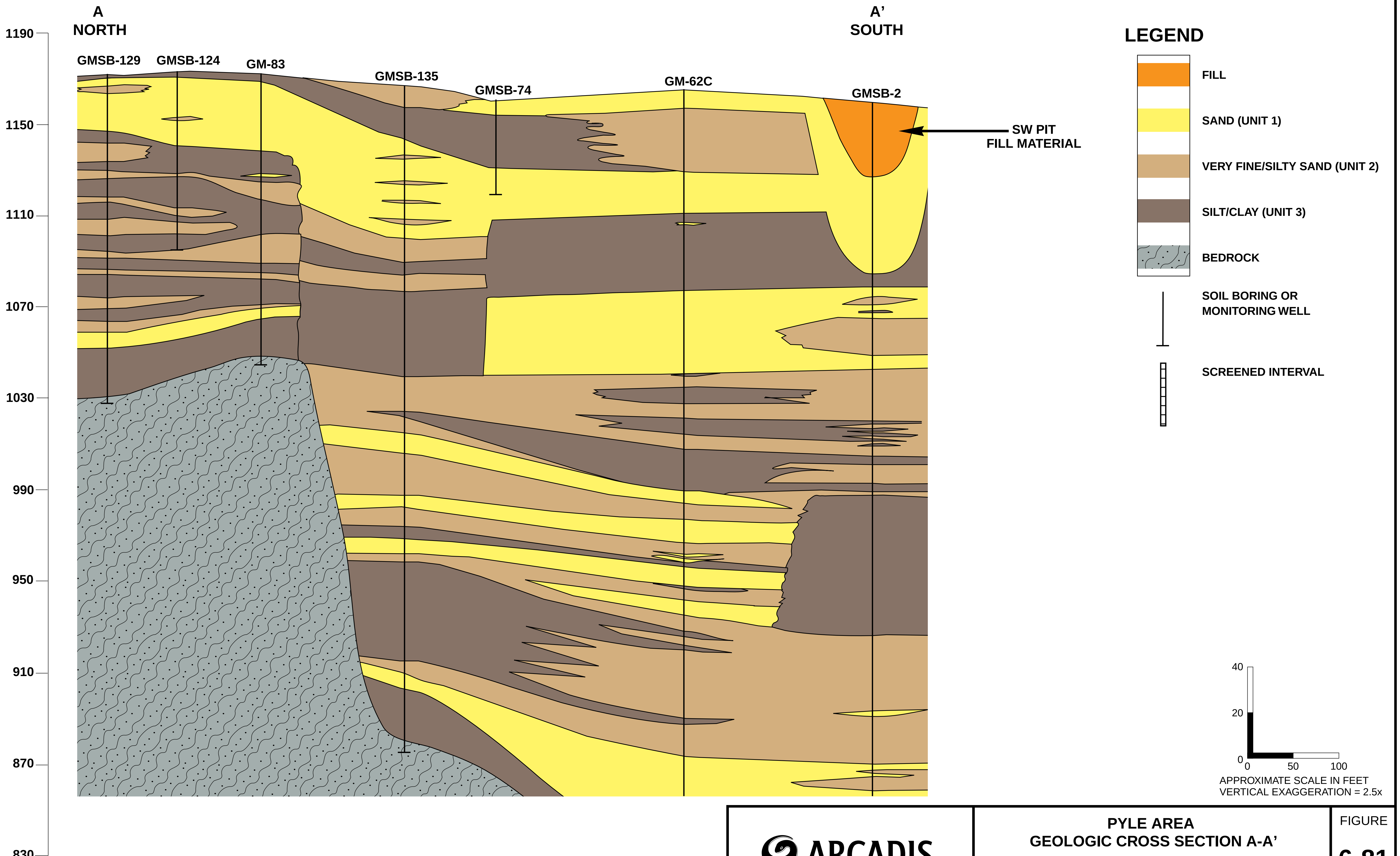
ARCADIS

126 North Jefferson Street, Suite 400
Milwaukee, Wisconsin 53202
Tel: 414–276–7742 Fax: 414–276–7603
www.arcadis–us.com

REMEDIAL INVESTIGATION REPORT

FORD–KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

PROJECT MANAGER: R. STUDEBAKER	DEPARTMENT MANAGER: M. MAIERLE	LEAD DESIGN PROF.: B. EVANS	CHECKED BY: B. EVANS
SHEET TITLE: EXTENT OF METHANE GAS PYLE AREA		TASK/PHASE NUMBER: 0009.00001	DRAWN BY: C. MCKEOUGH
		PROJECT NUMBER: WI001095	DRAWING NUMBER: 6-80



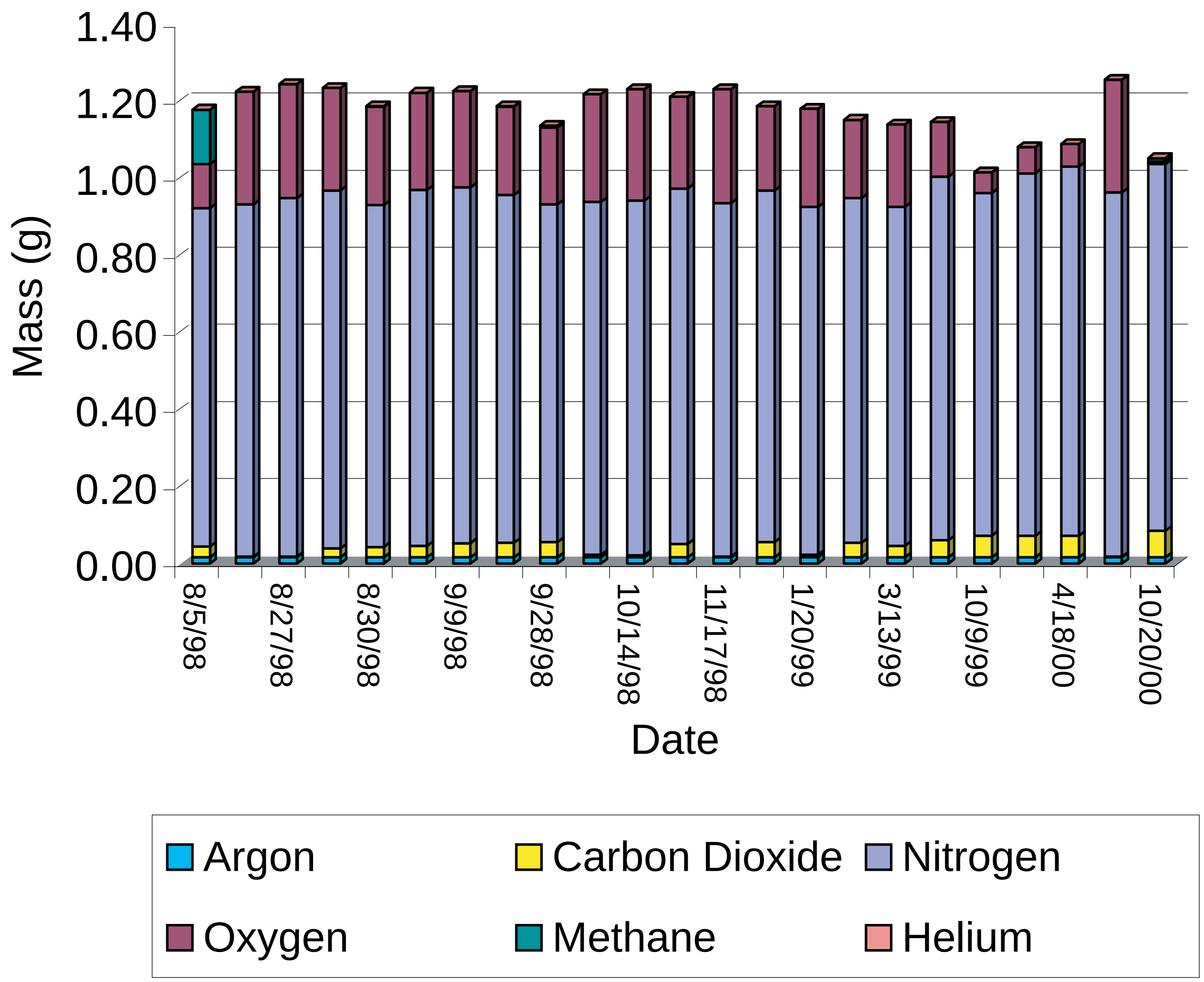
DRAFTER: LMB
APPROVED:
CHECKED: MS
DRAWING: XSEC NS.AI
FILE NO.: GRAPHICS\RI REPORT
PN: FORD\WI0637\CJ2009
DWG DATE: 29JAN09

ARCADIS

PYLE AREA
GEOLOGIC CROSS SECTION A-A'

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-81



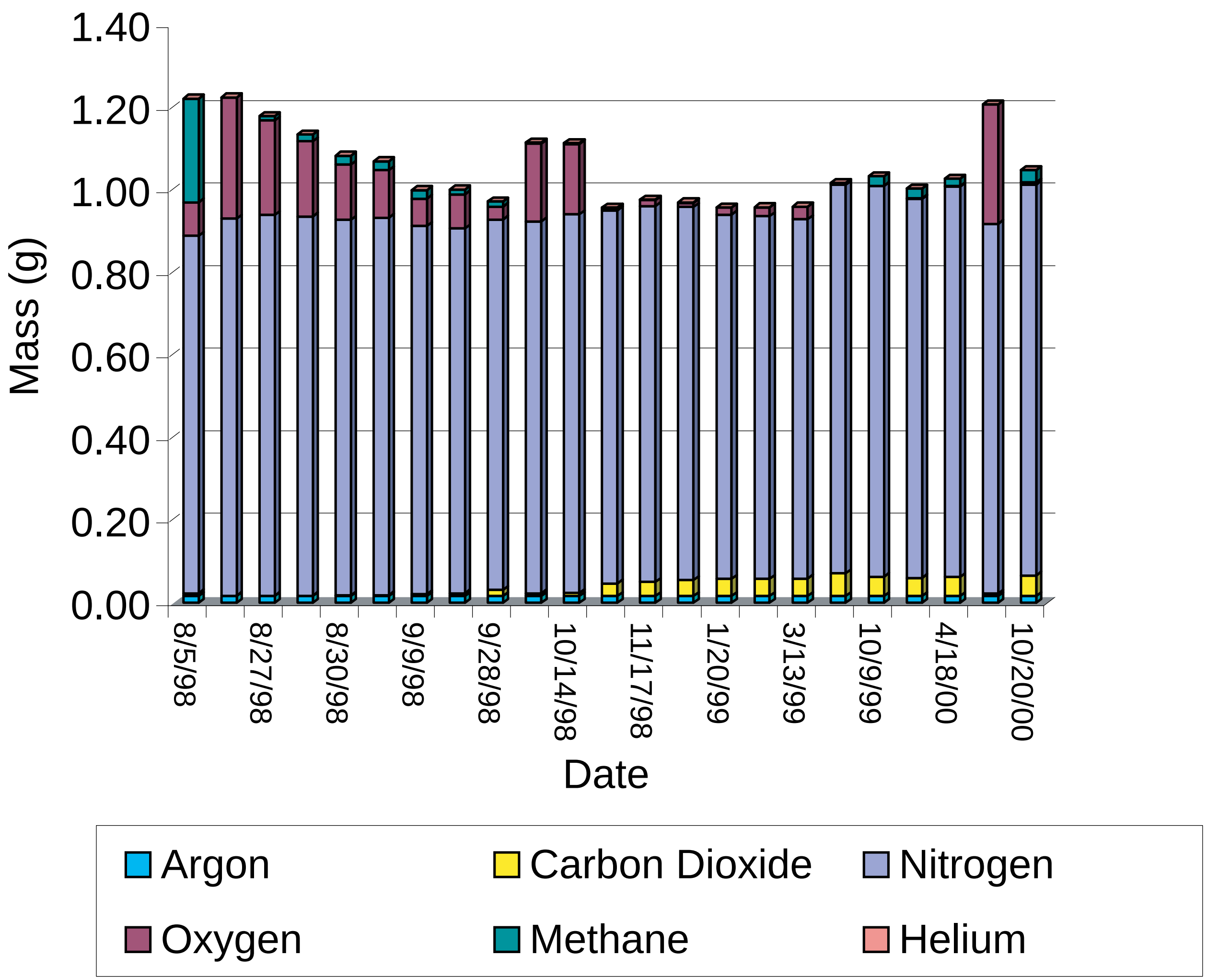
ARCADIS

GAS COMPOSITION AT GM-2A

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-82

DWG DATE: 20JAN09	PN: FORD\WI0637\CJ2009	FILE NO.: GRAPHICS\RI REPORT	DRAWING: GMSG_4B_1201.AI	CHECKED: BE	APPROVED:	DRAFTER: LMB



ARCADIS

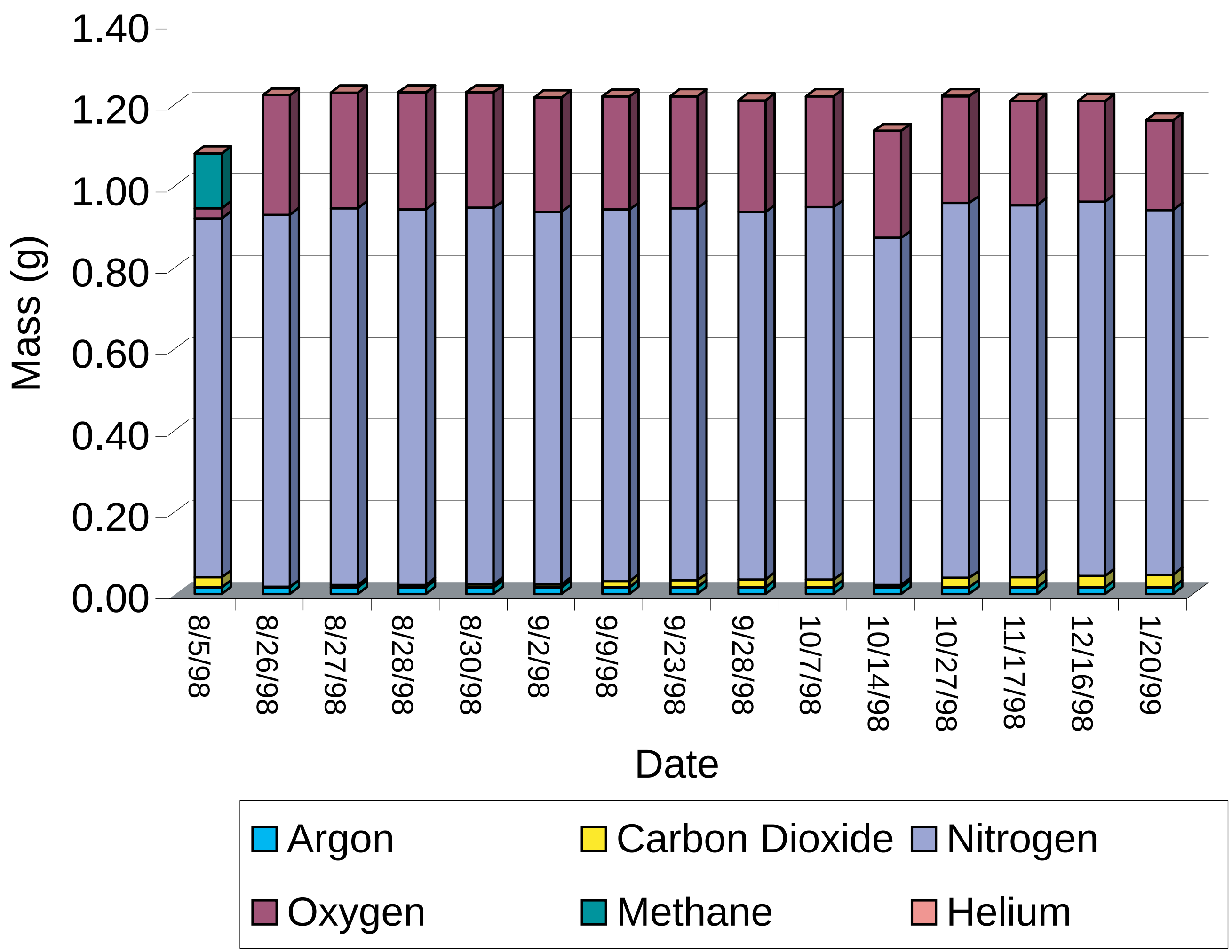
GAS COMPOSITION AT GMSG-4B

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-83

DWG DATE: 20JAN09 | PN: FORD\WI0637\KINGSFORD | FILE NO.: GRAPHICS\RI REPORT | DRAWING: GMSG_19_1201.AI | CHECKED: BE | APPROVED: | DRAFTER: LMB



ARCADIS

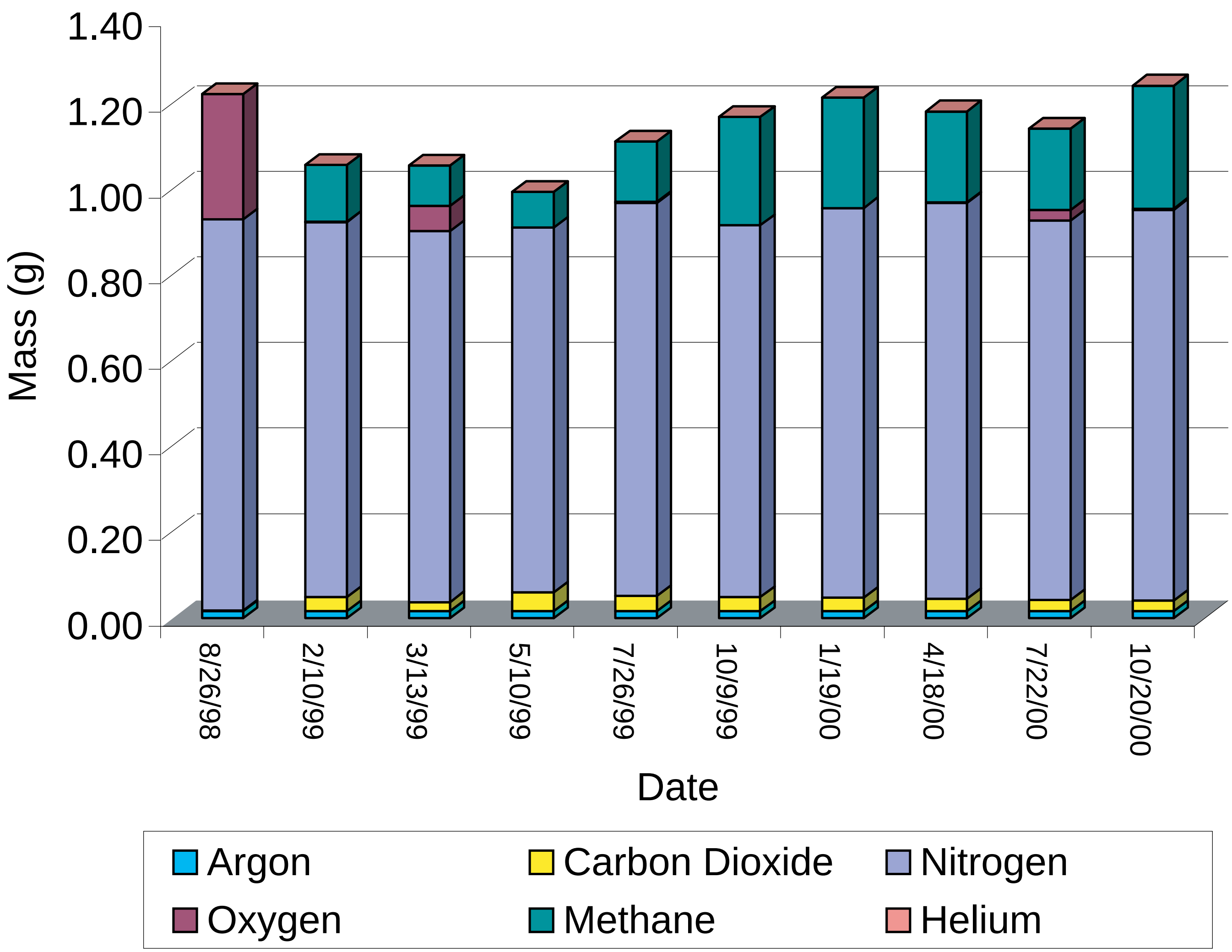
GAS COMPOSITION AT GMSG-19

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-84

DWG DATE: 20JAN09 | PN: FORD\WI0637\CJ2009 | FILE NO.: GRAPHICS\RI REPORT | DRAWING: GMSG_20_1201.AI | CHECKED: BE | APPROVED: | DRAFTER: LMB



ARCADIS

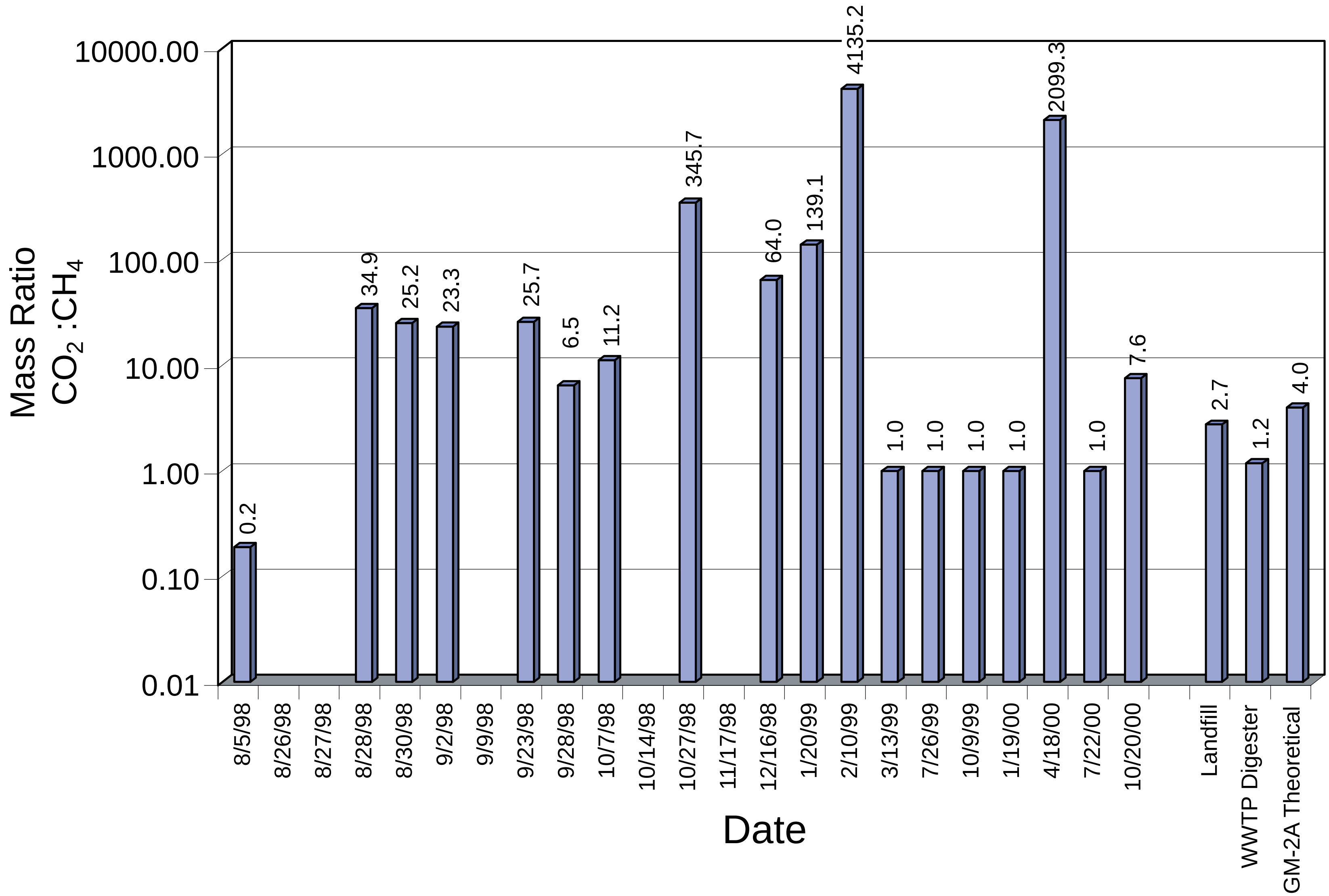
GAS COMPOSITION AT GMSG-20

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-85

DWG DATE: 20JAN09	PN: FORD\WI0637\CJ2009	FILE NO.: GRAPHICS\RI REPORT	DRAWING: GMSG_2A_MASS_1201.AI	CHECKED: BE	APPROVED:	DRAFTER: LMB



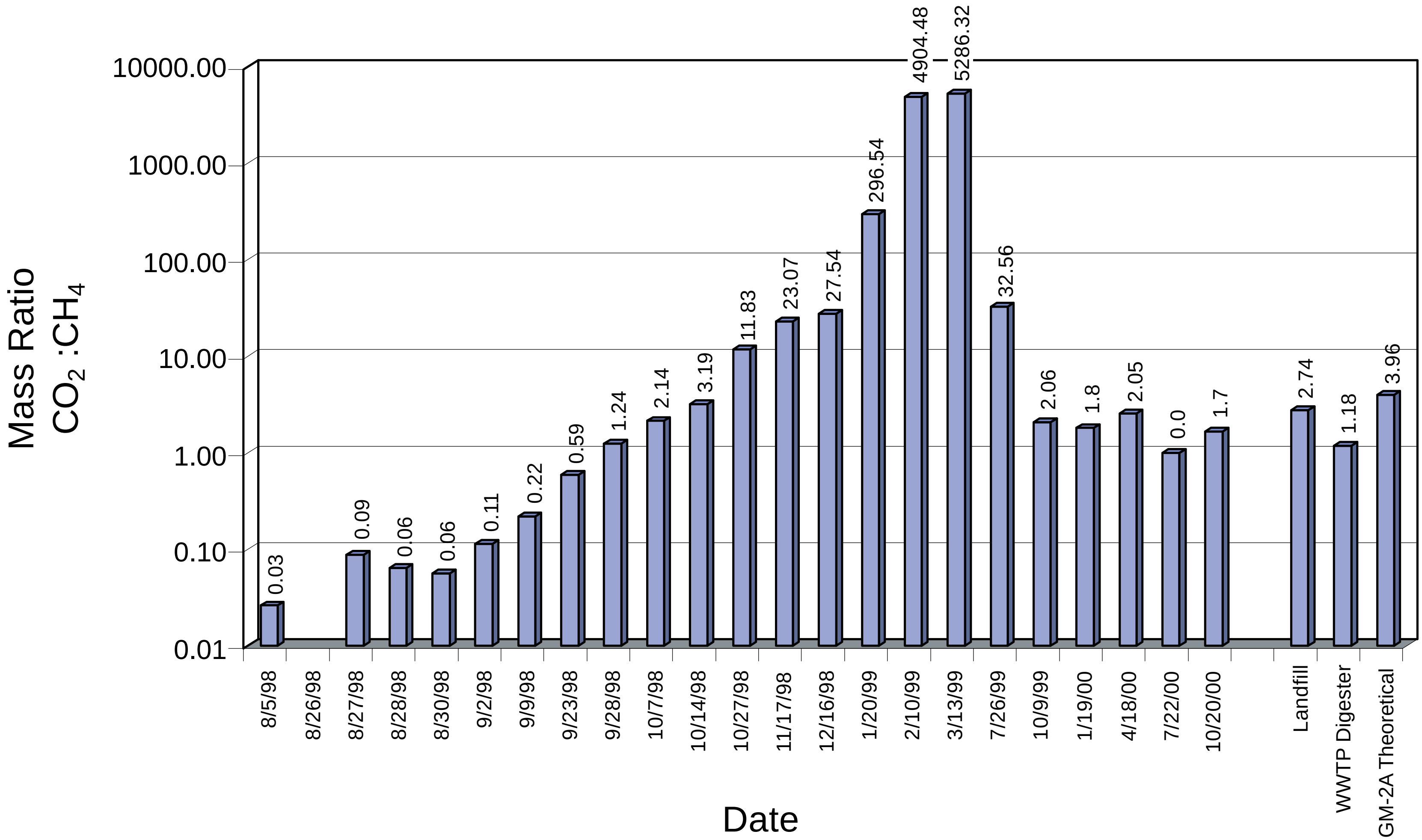
ARCADIS

MASS RATIO OF CARBON DIOXIDE TO METHANE AT GM-2A

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-86

DWG DATE: 20JAN09 | PN: FORD\WI0637\CJ2009 | FILE NO.: GRAPHICS\RI REPORT | DRAWING: GMSG4BRATIO_1201.AI | CHECKED: BE | APPROVED: | DRAFTER: LMB



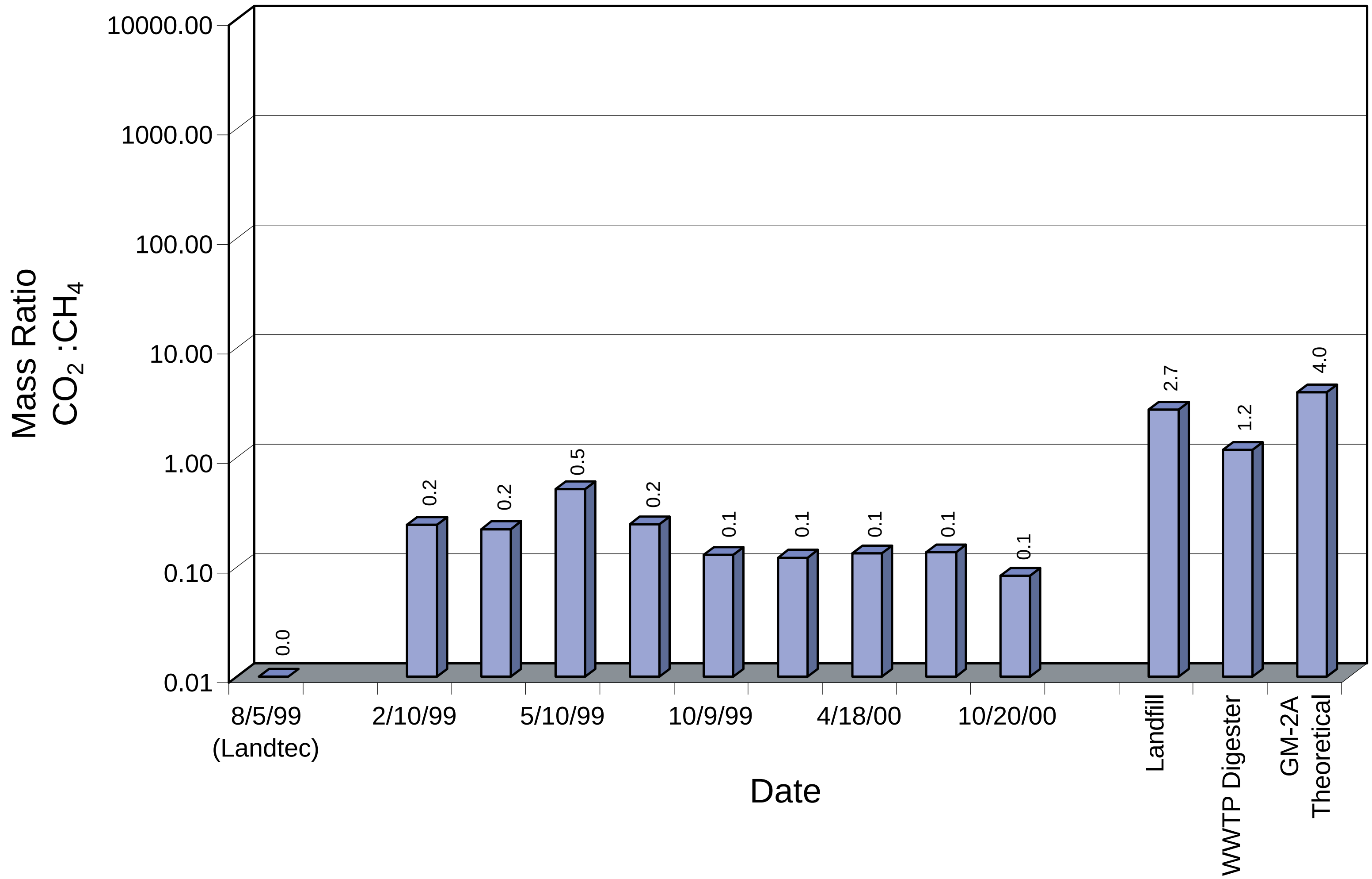
ARCADIS

MASS RATIO OF CARBON DIOXIDE TO METHANE AT GMSG-4B

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-87

DWG DATE: 20JAN09 | PN: FORD\WI0637\CJ2009 | FILE NO.: GRAPHICS\RI REPORT | DRAWING: GMSG20RATIO_1201.AI | CHECKED: BE | APPROVED: | DRAFTER: LMB



*Values from a field measurement using a Landtec monitor.

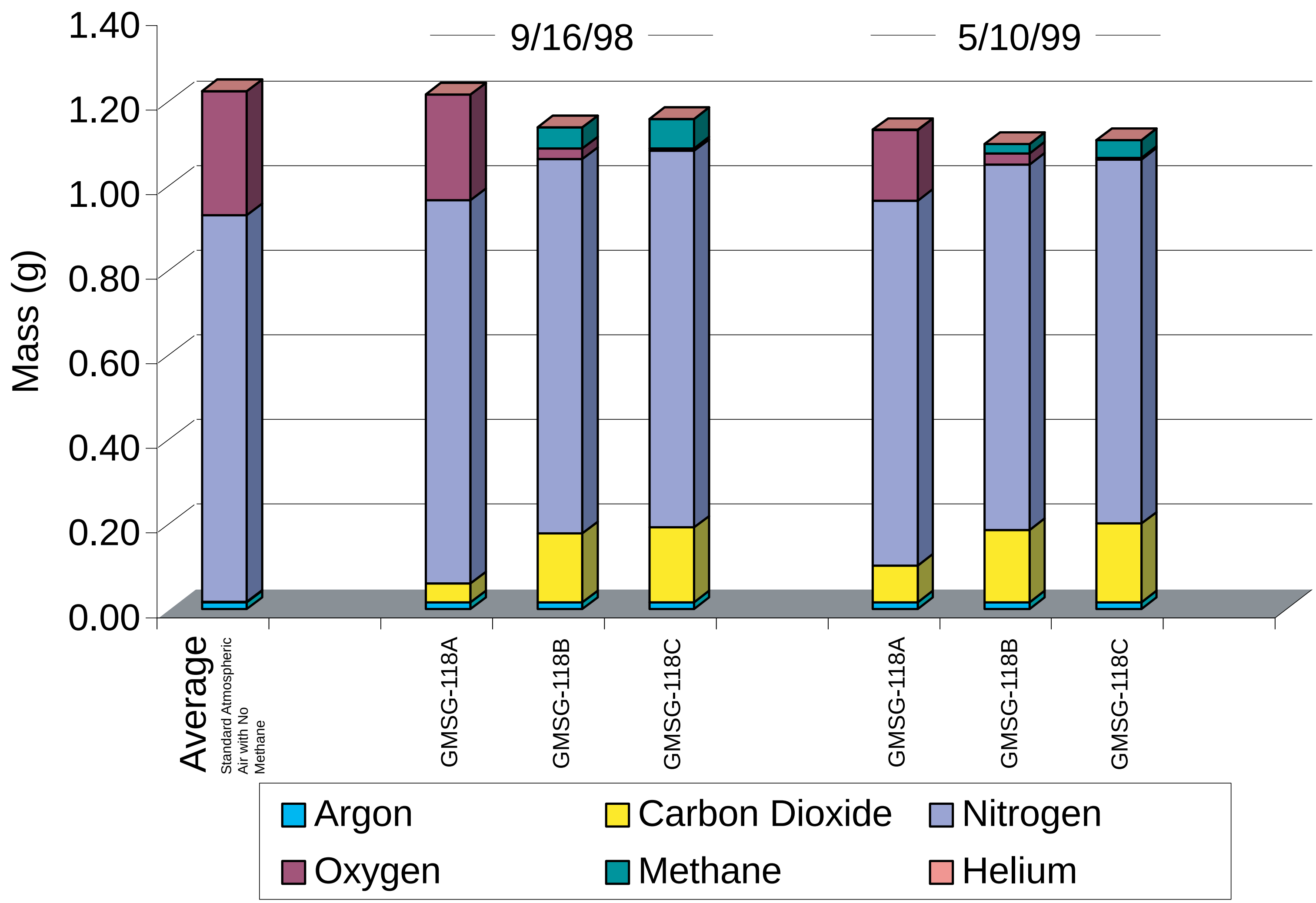
ARCADIS

MASS RATIO OF CARBON DIOXIDE TO METHANE AT GMSG-20

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE
6-88

DWG DATE: 20JAN09	PN: FORD\WI0637\CJ2009	FILE NO.: GRAPHICS\RI REPORT	DRAWING: GMSG_118.AI	CHECKED: BE	APPROVED:	DRAFTER: LMB



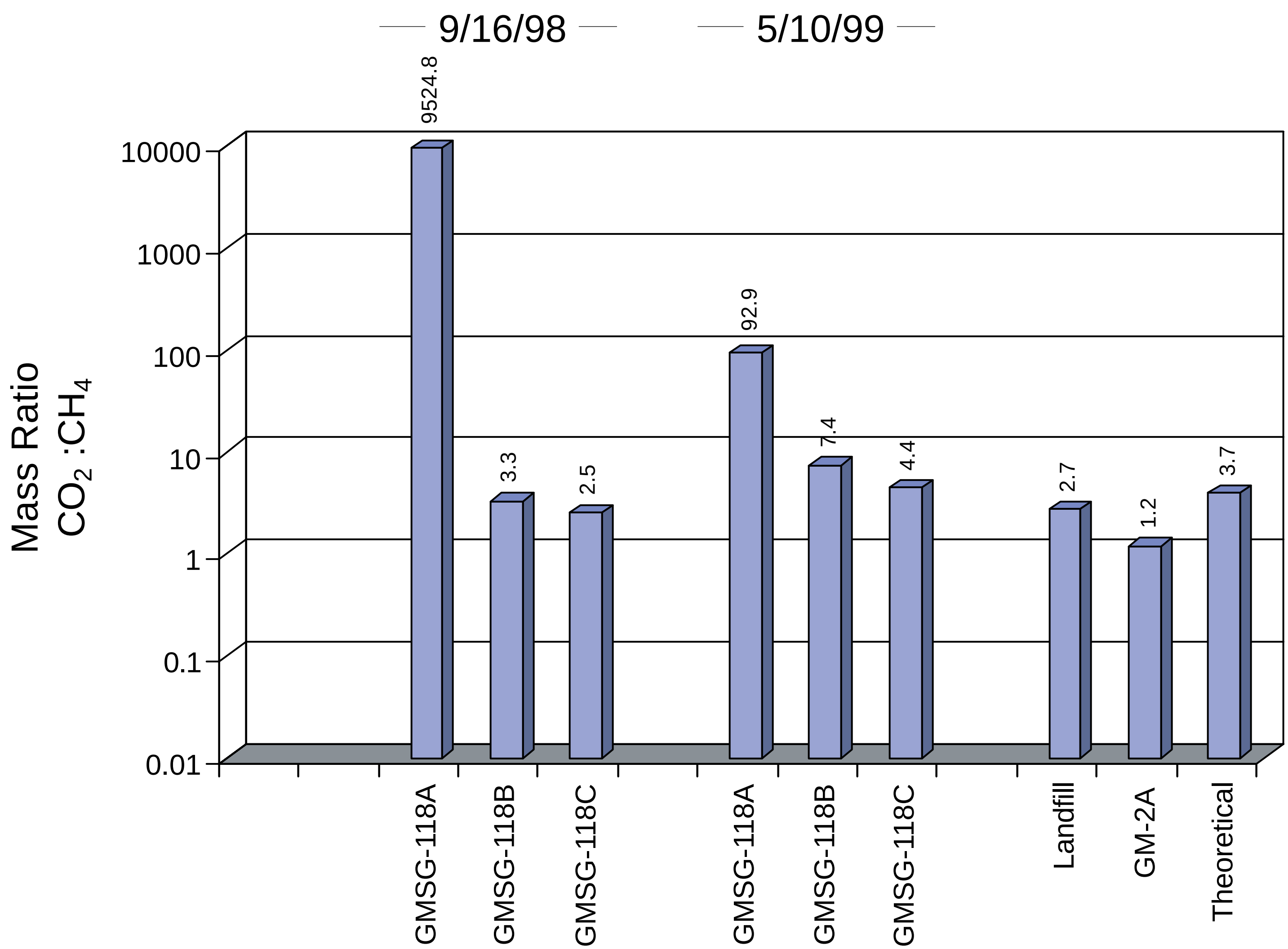
ARCADIS

GAS COMPOSITION AT GMSG-118A/B/C

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-89



ARCADIS

MASS RATIO OF CARBON DIOXIDE TO METHANE AT GMSG-118A/B/C

REMEDIAL INVESTIGATION REPORT
FORD-KINGSFORD PRODUCTS FACILITY
KINGSFORD, MICHIGAN

FIGURE

6-90