Current Conditions Report

Pontiac North Campus
Volume II of IV

General Motors Corporation
Pontiac, Michigan

January 31, 2001

ENCORE

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Appendix J

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J-1

PCB Leak

Transformer # 451 (Compressor bldg.)

Leak Inspection Date	Description of leak
3-2-88	PCB leak (small, < 1 lb) shows oily spots on the wall of transformer
3-3-88	" (Leak on the wall of transformer Cleaned with solvent)
3-4-88	"
3-5 & 3-6	" (Security checked)
3-7-88	Leak stopped by contractor.

PCB Leak from Transformer.

AT Substation – West of Compressor building.

EC 450

Leak Inspection Date	Description of leak	Comments
10-29-85	Leak noticed on this date at South side of transformer from Surrounding of a voltage regulator mechanism. Small leak showing wet patch of 8" x 8"	
10-30-85	SAME AS ABOVE (floor area cleaned up)	
-31-85	" " "	
11-1-85	" " "	
11-2-85	" " "	
11-3-85	" " "	Leak stopped 11-18-85
11-4-85	" " "	
11-5-85	" " "	
11-6-85	" " "	
11-7-85	" " "	
11-8-85	" " "	
11-9-85	" " "	
11-10-85	" " "	
11-11-85		
-12-85		
11-13-85	" " "	
11-14-85	" " "	
11-15-85	" " "	
11-16-85	" " "	
11-17-85	" " "	Jimmy N. Deboo

J-2

INVESTIGATION REPORT

GENERAL MOTORS PONTIAC COMPLEX
WEST YARD
Pontiac, Michigan

SUBMITTED TO

GENERAL MOTORS

SUBMITTED BY

PARSONS
ENGINEERING SCIENCE, INC.

290 Elwood Davis Road - Suite 312
Liverpool, New York 13088
(315) 451-9560

PARSONS

MARCH 1997

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WEST YARD INVESTIGATION REPORT

EXECUTIVE SUMMARY

INVESTIGATION SCOPE

Background

The General Motors Pontiac Complex in Pontiac, Michigan contains an area of approximately 20 acres, referred to as the West Yard, in the southwest corner of the complex, which was used historically for waste management activities related to the automotive manufacturing and support activities and foundry operations at the Complex. When the Complex was reorganized into separate GM business units or Divisions in the 1970s, part of the West Yard came under the control of the foundry (Central Foundry Division) while the rest of the West Yard came under control of the automotive manufacturing and support operations (originally the Pontiac Motor Division, later the Chevrolet-Pontiac-Canada (CPC) Division). The automatic support and operations unit built and operated a RCRA hazardous waste storage pad on the western portion of the West Yard from 1982 through 1988 to support the automotive manufacturing and support services.

Use of the storage pad was discontinued in 1988, when closure activities were undertaken pursuant to the State of Michigan Hazardous Waste Management Act (formerly known as Act 64, now Part 111 of Act 451). Sampling at the storage pad surface showed that the pad met closure requirements specified in the approved closure plan. Soil and groundwater samples from beneath the pad did not meet closure criteria (background or non-detectable concentrations). Indications were that the compounds in soil and groundwater were residuals from the historical waste management activities conducted in the West Yard area. Therefore, remediating the soil and groundwater which exceeded the closure criteria beneath the pad to meet the closure criteria would not be practical. To resolve the closure issues at the storage pad and evaluate environmental conditions throughout the West Yard, GM agreed to conduct a more general investigation of the West Yard to supplement the existing information.

This report includes results of closure activities at the former hazardous waste storage pad and the investigation of the West Yard.

The impacts of historical disposal activities at the West Yard were evaluated by comparing analytical results with generic industrial land use based soil and groundwater criteria developed by the Michigan Department of Environmental Quality (MDEQ) under Part 201 of Michigan Public Act 451. The soil sample analytical results were compared to four sets of criteria: the Generic Industrial Direct Contact Criteria and Generic Soil Inhalation Criteria for the protection of onsite workers, the Soil/Water Partitioning Generic Groundwater Contact Criteria (SWP GCC) for the protection of groundwater, and the Generic Soil Saturation Screening Concentrations (C_{sat}), which correspond to a theoretical threshold above which free phase contaminant may exist. The groundwater analytical results were compared to Generic Groundwater Contact

Criteria. As part of this conservative screening process, the analytical results were compared to the screening criteria on a location-by-location basis, not a statistical basis.

CLOSURE ACTIVITIES

Closure activities at the storage pad were conducted in two phases, pursuant to the approved closure plan. The initial closure sampling activities included:

- collection of wipe samples and rinsate samples from the pad surface;
- collection of concrete core samples of pad material;
- installation of 12 soil borings beneath the pad; and
- installation of five monitoring wells beneath the pad and collection of groundwater samples.

All samples were analyzed for a suite of organics and lead, which comprised the hazardous waste constituents of the materials stored on the pad.

The analytical results from the pad itself (wipe samples, rinsate samples, and concrete core samples) indicated that the pad met the closure criteria specified in the closure plan.

One subsurface soil sample from beneath the storage pad exceeded Part 201 Generic Industrial Direct Contact Criteria for lead and one sample exceeded the Part 201 Generic Soil Saturation Screening Concentration for xylenes. No Generic Soil Water Partitioning Criteria or Generic Soil Inhalation Criteria were exceeded.

Additional closure activities from 1989 through 1991 included the installation of additional wells to sample groundwater and soil vapor in the vicinity and downgradient of the storage pad.

Additional groundwater sampling results confirmed the presence of organic compounds and lead. No groundwater samples collected during closure activities exceeded Part 201 Generic Groundwater Contact Criteria. Non-aqueous-phase liquid (NAPL) was observed in several wells at the pad.

The presence of subsurface soil exceedences and NAPL is not attributed to activities at the storage pad, but is believed to be residues of historical waste management, based on the pad sampling results and the known history of the West Yard.

WEST YARD INVESTIGATION

The West Yard investigation consisted of the following field investigation activities:

- A geologic investigation was conducted to characterize the presence and extent of low permeability zones. Four geotechnical borings were conducted around the West Yard perimeter to provide geological information from ground surface to a depth of 100 feet. Geotechnical samples were collected from low permeability materials to determine vertical hydraulic conductivity.

Seven subsurface soil samples exceeded the Generic Particulate Soil Inhalation Criteria for manganese.

- Groundwater flow is generally to the southwest, and is predominantly horizontal due to the presence of a very low permeability clay and silt layer which apparently controls flow.
- The very low permeability layer underlies the saturated sand/peat unit to a depth of 100 feet. Vertical hydraulic conductivities measured in this low permeability layer ranged from 1.21E-08 cm/sec to 1.33E-07 cm/sec.
- Limited and sporadic detections of organics in groundwater, all below the Generic Groundwater Contact Criteria except for PCBs in samples from two wells, indicate these constituents do not represent a significant environmental or health threat and, given the time period in which the releases occurred, are not migrating significantly.
- Inorganics in groundwater are present on the site, but not in exceedence of MDEQ Generic Groundwater Contact Criteria.
- Two small areas of NAPL (motor oil with diesel, gas, and fuel oil) were detected in the vicinity of MW-3/MW-13 and MW-6, respectively. NAPL was also recently observed in MW-22. No significant migration was indicated.

SECTION 1

INTRODUCTION

1.1 PROJECT BACKGROUND

1.1.1 Project Complex

The General Motors Pontiac Complex is located in Pontiac, Michigan (Figure 1.1). The complex is bordered on the north by Walton Boulevard, on the south by Montcalm Street, to the east by Joslyn Street, and to the west by Baldwin Avenue. The overall land use of the Complex is industrial and manufacturing. The Complex is surrounded by commercial, industrial and residential zoned areas.

The Pontiac Complex has performed a wide range of automotive related production processes including car assembly, plating, painting, metal stamping, machining and metal casting operations. The first plant was constructed in 1928 to produce cars for the Oakland Motor Company. By the mid-1930s, the Complex consisted of Plants 8 and 9 along with the Foundry (Plant 6). In 1945, the Plating (Plant 2), Heat Tracing (Plant 1) and Axle Plant (Plant 5) were starting construction along with expansions to the Engine Plant (Plant 9) and the Foundry. The two pressed Metal Plants (Plants 14 and 15) were added in 1951 and 1952. The Car Finishing Plant (Plant 16) was added in 1954. In 1981 the new Engine Plant (Plant 55), was constructed. The Foundry (Plant 6) ceased operation in 1987 and was demolished in 1996, and Plants 8 and 9 are to be demolished in 1997.

The onsite Wastewater Treatment Plant (WTP) was built in 1957. The WTP is designed to treat metallic-acidic, paint and powerhouse boiler blowdown wastewater in one operation, and alkali-oily wastewater in another operation. The effluent from this system, as well as sanitary, non-contact cooling waters and a portion of the storm water, is discharged to the City of Pontiac POTW. The Complex also has a storm water retention and treatment system south of Montcalm Street which discharges treated water to the city storm sewer system.

In the 1970s, the Pontiac Complex was reorganized into separate GM business units or Divisions. The southwest area of the Complex, referred to as the West Yard, came under the control of two GM Divisions. The eastern and central portion of the West Yard became part of the property controlled by foundry operations (Central Foundry Division). The western area of the West Yard became part of the property controlled by the automotive manufacturing and support operations (Pontiac Motor Division, later the Chevrolet-Pontiac-Canada (CPC) Division).

A RCRA-regulated hazardous waste storage pad was operated in the West Yard from 1982 through 1988. The pad was operated by the automotive manufacturing division at the Complex (Pontiac Motor Division and CPC). Hazardous and non-hazardous wastes from the automotive manufacturing operations were stored on the pad prior to shipment offsite for reclamation or disposal.

The Complex has a Michigan Environmental Response Act (Part 201) site that is listed as "GM CPC Pontiac 307" in Oakland County (63-03N-10E-20AA). This is a PCB-contaminated railroad track site (Track 31) which is located just north of the West Yard. The Track 31 site was separately remediated in October of 1996 by GM through excavation and offsite disposal of soils exceeding the Michigan Department of Environmental Quality (MDEQ) industrial land use criteria for PCBs.

1.1.2 West Yard

The West Yard is an area of approximately 20 acres located in the southwest corner of the Complex bounded to the south by Montcalm Street, to the west by the Grand Trunk Western Railroad line, to the east by the area of the former (now demolished) Foundry (Plant 6) and to the north by the soon-to-be demolished Plants 8 and 9 (Figure 1.2). The boundaries of the West Yard for the purpose of this evaluation were established prior to the demolition of the Foundry. Zoning to the south and west of the site is commercial, residential, and light manufacturing.

The area referred to as the West Yard includes property operated by two GM business units or Divisions. Each of these Divisions is covered by a different EPA and MDEQ ID Number. Figure 1.3 shows the property lines and ID numbers. The western area of the West Yard, including the former hazardous waste storage pad, is part of the property controlled by the automotive manufacturing and support operations (formerly the Pontiac Motor Division, later the CPC Division) covered under ID Number MID005356886. The eastern and central area of the West Yard is controlled by the former foundry operations (Central Foundry Division) covered under ID Number MID085470102.

From the 1940s until the mid-1960s, the West Yard was used for a variety of material management activities. These are described below.

Onsite placement of foundry sand occurred in the West Yard from at least the 1940s until the mid-1960s. Soil boring logs from the areas within the West Yard indicate that foundry sand is present from the surface down to approximately 18 feet below grade. Foundry sand is encountered across the site except for the area west and south of the two access roads that parallel Montcalm Street and the railroad tracks. After onsite placement of foundry sand ceased in the mid-1960s, foundry sand was stored and staged in the West Yard prior to offsite disposal. This continued until 1987, when the Foundry was closed.

Areas of the West Yard were used to dispose of refuse from the Pontiac Complex operations. The outlines of potential refuse disposal areas are shown on Figure 1.2.

The Salvage Building was constructed in the 1940s to separate reusable/salable materials from unusable wastes. General refuse such as wood, cardboard, metal glass, and potentially other wastes were taken to the Salvage Building for separation and sorting. The salvaged materials were loaded onto railroad cars or into trucks for offsite transport. Combustible materials, wood, and cardboard with no salvage value were generally burned in the incinerator at the Salvage Building. Other waste, including wood and cardboard ash, was disposed of onsite in the West Yard.

An aboveground, bermed settling basin with a plastic liner was constructed approximately 200 feet west of the Compressor Building in 1975. The basin was designed to settle suspended solids from foundry process waters prior to introduction into the public sewer system. The basin is suspected to have ceased operation and closed in either 1986 or 1987, and was filled in with foundry sand.

The onsite railroad tracks along the western side of the West Yard (an area designated the Railroad Marshalling Area) were used to marshall rail cars containing metals feedstock used in the foundry operations. A portion of the feedstock consisted of metal chips from the machining operations at the Pontiac Complex. Prior to 1972, oil dripping from the rail cars was not collected. In 1972, a drainage system was constructed in this area to collect oil dripping from the rail cars. The collected oil was pumped into the WTP for treatment. The drainage system ceased operations in 1995.

1.1.3 RCRA Hazardous Waste Storage Pad

1.1.3.1 Regulatory History

In 1982, a concrete pad was constructed on the south side of the Salvage Building to store RCRA hazardous waste for periods greater than 90 days. Prior to the construction of the concrete storage pad, the site was used to store drums of unknown material and sludge (Figure 1.2). In the mid-1980s, CPC reduced the volume of hazardous waste generated and consequently, the need to store hazardous waste for greater than 90 days was eliminated. In 1986, oversight of hazardous waste operations at the pad moved from the U.S. EPA to Michigan Department of Natural Resources when Michigan's RCRA program was authorized. CPC continued hazardous waste storage activities at the site under generator-only status until 1988. CPC submitted a closure plan for the storage pad to MDEQ in November 1987 that was approved in June 1988 following revisions. Closure activities were initiated on July 1, 1988. (Note: The Michigan Department of Natural Resources Waste Management and Environmental Remediation Division, as well as other Divisions, were reformed into the Department of Environmental Quality (DEQ) in 1995. For the purposes of this report, all permits and activities involving the former affiliation will be referred to by the current designation of DEQ.)

1.3.1.2 Pad Construction

Historically, the area which became the regulated hazardous waste storage pad had been raised by backfilling the area with foundry sands and construction debris. Furthermore, several inches of additional fill material was placed in the area for grading prior to construction of the regulated storage pad. The total depth of the fill material under the storage pad area varies from 2 to 18 feet.

The pad is approximately 300 by 90 feet with a nominal pad thickness of 8 inches of reinforced concrete. The pad is surrounded by a 4-inch thick concrete berm.

1.1.3.3 Operations

The storage pad and associated building were used for storage of hazardous and non-hazardous waste. Activities occurring at the pad consisted of waste storage, drum washing, and empty drum storage. Liquid hazardous wastes were generated in a

number of areas and were collected in 55-gallon drums. When the drums were nearly full, they were sealed and taken to the drum storage area for temporary storage prior to shipment offsite for treatment and/or disposal. Solid hazardous wastes generated in areas of the facility were collected in tub-like containers. When the tubs were full, they were transferred into a 20-cubic yard roll-off box located at the hazardous waste storage pad for accumulation prior to shipment offsite for reclamation or disposal. Sludge containing lead chips was stockpiled directly on the concrete pad (GTI, 1991).

The liquid wastes stored on the pad consisted of paint, paint thinner, gasoline, and chlorinated solvents. The solid wastes that were stored on the pad were bearing machining wastes and lead chips. The following hazardous wastes were stored at the pad prior to offsite treatment, reclamation, or disposal (GTI, 1991):

- D001 - ignitable hazardous wastes;
- F001 - spent halogenated solvents used in degreasing;
- F005 - spent non-halogenated solvents; and
- D008 - lead.

1.2 PURPOSE

This report is a summary of closure and investigation activities in the West Yard since the start of closure activities at the hazardous waste storage pad in 1988. A chronology of area storage and investigative activities is presented in Table 1.1. Closure activities, conducted according to the MDEQ-approved closure plan, started on July 1, 1988, and included removal of wastes, cleaning of the pad and storage building, and sampling of the pad and the building on the pad to confirm decontamination. These sampling activities indicated that the pad and storage building were appropriately decontaminated.

During July 1988, background soil samples and samples of soil to a depth of 20 feet beneath the pad were collected and analyzed to determine if stored materials had been released to the environment. The analytical data from soil beneath the pad indicated the presence of inorganic and organic constituents at concentrations exceeding levels stipulated in the closure plan (not-detects for organic compounds and background concentration for lead). Monitoring wells were installed in the vicinity of the pad to determine the presence and/or extent of groundwater contamination. The results of this sampling indicated that the closure criteria for both the soil and groundwater beneath the pad were exceeded.

Analysis of previous land uses indicated that the inability to meet the "clean closure" criteria in the May 1988 closure plan was due to the historical residual material. Pursuant to discussion with the MDEQ (MDEQ-WMD), GM agreed to implement an area-wide investigation within the West Yard prior to assessing the need for further closure activities at the pad. In March 1994, MDEQ-WMD approved closure of the pad surface and agreed to GM's approach of performing an initial investigation of the West Yard using procedures consistent with those commonly accepted by MDEQ-WMD.

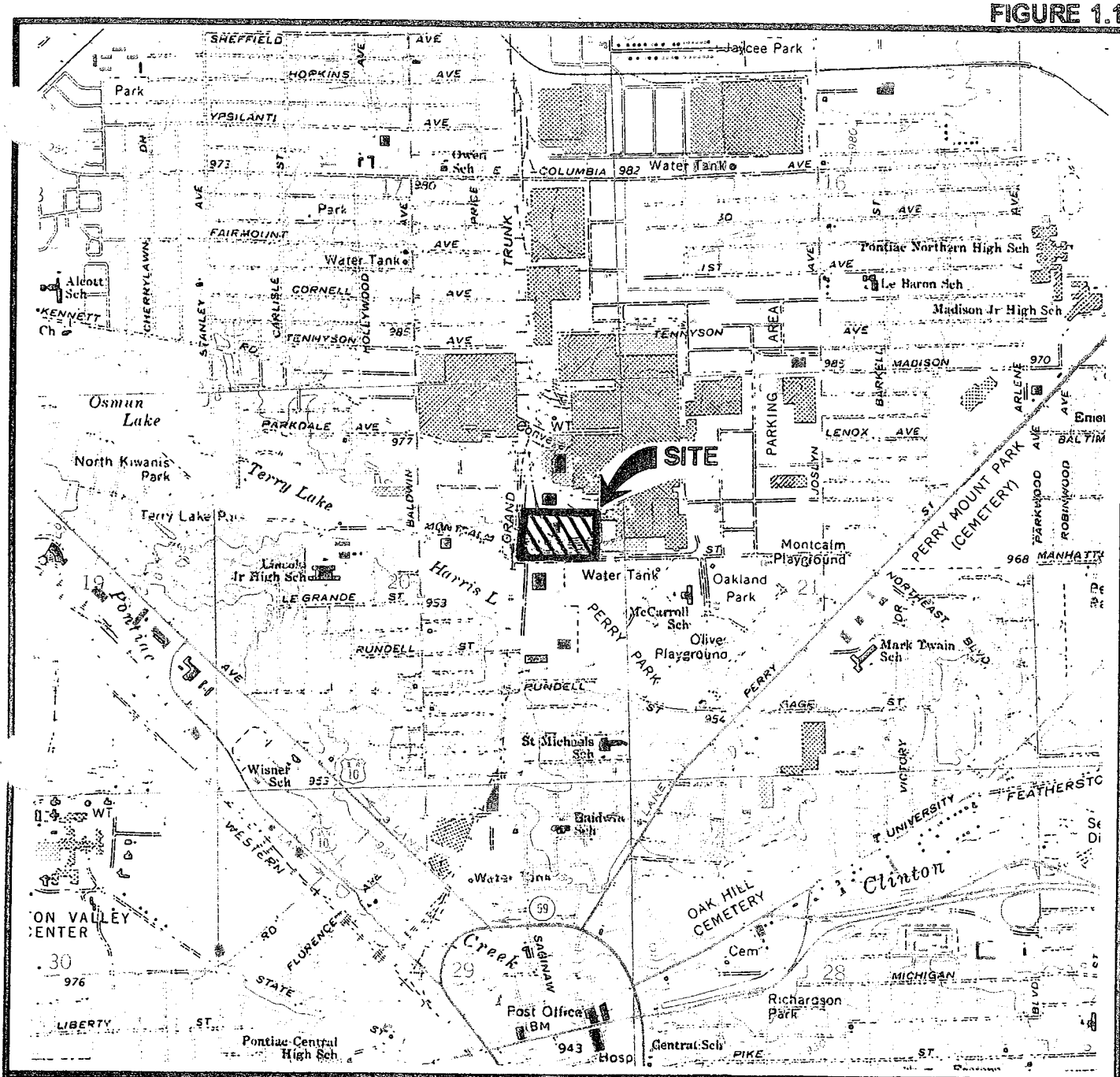
This report consolidates and summarizes data from the following reports:

- "Interim Closure Report Former Container Storage Area" (Dames & Moore, 1989); and
- "RCRA Pad Review Hazardous Waste Storage Area" (GTI, 1991).

1.3 ORGANIZATION OF THE REPORT

This report is organized in seven sections. Section 1 is this introduction. Section 2 describes the field activities conducted during pad and West Yard investigations. Section 3 is a discussion of physical characteristics of the West Yard, including surface features, geology, and groundwater hydrology and hydrogeology. Section 4 presents the results of analytical testing conducted at the pad and West Yard. Section 5 is a discussion of the migration potential of detected parameters and exposure pathways for soil and groundwater. Section 6 is a summary of the report and conclusions. Section 7 contains references cited in the report. The report contains a number of appendices that contain supplemental and back-up data and documentation.

FIGURE 1.1



SOURCE: U.S.G.S. 7.5 MINUTE SERIES TOPOGRAPHIC MAP; PONTIAC NORTH, MICHIGAN 1968 (PHOTOREVISED 1983).

QUADRANGLE LOCATION

N

SCALE

0 2400 4800 FT.

2400 FT.

ENGINEERING-SCIENCE

SITE LOCATION

GENERAL MOTORS CORP. GM-CPC PONTIAC COMPLEX PONTIAC, MI.

H:\GRAPHICS\727125\LOCATION.DS4

TABLE 1.1
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CHRONOLOGY OF STORAGE PAD AND WEST YARD INVESTIGATIVE WORK

Date	Task
May-June, 1982	Storage pad constructed.
July 1982	Operations begin at storage pad.
1986	Oversight of hazardous waste operations at pad moved from EPA to MDEQ.
November, 1987	Closure plan for pad submitted to MDEQ.
February, 1988	Revised closure plan submitted to MDEQ.
May, 1988	Revised closure plan submitted to MDEQ.
June, 1988	Closure plan approved by MDEQ, waste removed from pad.
July 1, 1988	Closure activities begin.
July 1 through 25, 1988	Pad and building decontaminated.
July 11 through 20, 1988	Wipe samples collected.
July 19 and 25, 1988	Rinsate samples collected.
July 25 through 29, 1988	Background soil borings installed.
July 25 through 28, 1988	Pad soil borings installed.
July 27 through 28, 1988	Concrete samples collected, groundwater monitoring plan developed.
Nov. 7 through 28, 1988	Monitoring wells installed (MW-1 through MW-5).
Nov. 17 through Dec. 1, 1988	Groundwater sampled (MW-1 through MW-5).
April, 1989	Interim Closure Report (Dames & Moore, 1989).

- Sampling of onsite surface and subsurface soils occurred for chemical analysis. A total of eight soil borings and five test trenches were conducted in areas of suspected historical refuse management to collect soil samples.
- A groundwater investigation was conducted, consisting of onsite sampling of groundwater and characterization of site hydrogeology. Monitoring well pairs were installed at six locations and a single deep monitoring well was also installed as the upgradient well. The new wells and three existing wells were sampled and samples analyzed for TCL/TAL or the RCRA Appendix IX list. *Insitu* hydraulic conductivity tests were conducted in the new wells and three existing wells.
- A NAPL investigation was conducted in the vicinity of three monitoring wells near the storage pad after NAPL was discovered in the wells. NAPL was collected and analyzed, and 16 Geoprobe™ soil borings were installed to visually inspect for sheen on the core samples.
- A series of Cone Penetrometer Tests were conducted around the site boundary.

Physical Characteristics

The West Yard is underlain by a variable thickness of fill (foundry sand), used to level the original topographic surface. The materials beneath the fill consist of sand with lenses of silt or peat and marl. Underlying this is low permeability clay and silt. Groundwater in the West Yard generally flows to the southwest. The top of the low permeability clay and silt layer appears to control flow direction in the sand and fill zones.

Soil

No exceedences of MDEQ Generic Industrial Direct Contact Criteria were present in surface soils. Four exceedences of two inorganic direct contact criteria and one exceedence of PCB direct contact criteria occurred in subsurface soils, mainly at depths greater than 16 feet below ground surface. One Generic Soil Saturation Screening Concentration for butyl benzyl phthalate was exceeded in one subsurface soil sample. No Generic Soil/Water Partitioning Criteria were exceeded in soils. Nine of 17 surface soil sample locations and seven of 26 subsurface soil sample locations had concentrations of manganese that exceeded the Generic Particulate Soil Inhalation Criteria.

Groundwater

Several organic compounds were detected in West Yard groundwater samples. Samples from two wells exceeded Generic Groundwater Contact Criteria for PCBs. The exceedences of PCBs are limited and sporadic.

Inorganics were detected area-wide in West Yard groundwater, but no exceedences of Generic Groundwater Contact Criteria occurred.

Migration Analysis

The direct contact soil exposure pathway does not appear to be of significant concern due to the lack of surface soil direct contact criteria exceedences, and limited

subsurface soil direct contact criteria exceedences, primarily at depths unlikely to be disturbed by future site activities.

The inhalation pathway for site workers at the West Yard may potentially be complete for site soils. Exceedences of the particulate soil inhalation criteria occurred for manganese, but these may not indicate an unacceptable risk because site workers do not spend much time in the West Yard, and the exceedences of the generic criteria were marginal (the average detected concentration was less than two times the generic criteria). Also, soil sample locations were biased toward areas of suspected historical waste management activities.

Migration of organic compounds in groundwater appears to be limited based on the limited number and sporadic pattern of Generic Groundwater Contact Criteria exceedences (the PCB criteria only were exceeded in two wells). Groundwater on and in the vicinity of the site is not used as a drinking water source, and the community receives drinking water supplied by the City of Pontiac.

Groundwater movement appears to be predominantly lateral, in a southwesterly direction in the West Yard. *Insitu* "slug tests" from eight monitoring wells measured hydraulic conductivity ranging from a high of 5.3E-02 cm/sec to a low of 1.0E-05 cm/sec. The wells were all screened in the sand layer overlying the low permeability zone. Downward mobility of groundwater through the clay and silt zone is extremely slow based on vertical hydraulic conductivities measured by triaxial tests that ranged from 1.21E-08 to 1.33E-07 cm/sec.

CONCLUSIONS

The following conclusions were reached as a result of closure activities:

- The surface of the former hazardous waste storage pad was successfully cleaned and met closure requirements.
- Soils and groundwater underlying the storage pad contain residuals of historical waste management activities at the West Yard.
- Soils samples showed only two exceedences of Part 201 soil screening criteria, one of direct contact criteria for lead and one of C_{sat} for xylenes.
- No groundwater samples exceeded Generic Groundwater Contact Criteria.

The following conclusions were reached as a result of the West Yard investigation:

- There were no exceedences of Generic Industrial Direct Contact Criteria, Soil/Water Partitioning GCC Criteria, or C_{sat} concentrations in West Yard surface soil samples. Nine surface soil samples exceeded Generic Particulate Soil Inhalation Criteria for manganese.
- In West Yard subsurface soil samples, five samples exceeded Generic Industrial Direct Contact Criteria for three compounds (one for PCBs, one for antimony, and three for lead), one sample exceeded one C_{sat} concentration (for butyl benzyl phthalate), and no samples exceeded the Soil/Water Partitioning GCC Criteria. The exceedences mostly occurred at depths greater than 16 feet.

TABLE 1.1 (CONT.)

WEST YARD AND STORAGE PAD INVESTIGATION
GM, PONTIAC, MICHIGAN
CHRONOLOGY OF INVESTIGATIVE WORK

Date	Task
June 13, 1989	Well installation and sampling (MW-6 through MW-8).
March 12 through 19, 1990	Groundwater sampled (MW-1 through MW-8).
March 14, 1990	Vapor extraction wells installed (SV-1 and SV-2).
April 30 through May 2, 1990	Monitoring wells installed (MW-9 through MW-12).
May 1, 1990	NAPL Recovery Well installed (RW-1).
October 3, 1990	Groundwater sampled (MW-1 through MW-12).
August 14, 1991	Groundwater sampled (all wells except MW-8 and MW-11).
August 23, 1991	Monitoring wells installed (MW-13 and MW-14).
August 23 through 25, 1991	Groundwater sampled (all wells except MW-11).
August 27, 1991	NAPL Recovery well replaced (RW-1A).
October, 1991	RCRA Pad Review Report (GTI, 1991).
Nov. 28 through Dec. 8, 1995	Geotechnical Borings GT1 through GT4 drilling and soil sampling.
Dec. 12 through Dec. 20, 1995	Monitoring wells MW/DW-16 through 20, DW-21, and MW/DW-22 installed.
Dec. 12 through Dec. 15, 1995	Soil borings SB1 through SB5 installed.
Dec. 18 through 19, 1995	Soil borings WD1 through WD3 installed.

TABLE 1.1 (CONT.)

WEST YARD AND STORAGE PAD INVESTIGATION
GM, PONTIAC, MICHIGAN
CHRONOLOGY OF INVESTIGATIVE WORK

Date	Task
Jan. 16 and 17, 1996	Sampled new and existing monitoring wells for groundwater sample Round 1.
Jan. 22 and 23, 1996	Test trenches TT1 through TT5 installed.
Jan. 23 and 24, 1996	Monitoring wells with non-aqueous-phase liquids (NAPL) (MW-3, MW-6, and MW-13) sampled.
Feb. 13 and 14, 1996	Sampled monitoring wells for groundwater sample Round 2.
Feb. 14 through 16, 1996	NAPL delineation in storage pad area.
March 6, 1996	Site survey of all Parsons ES investigative activities.
Sept. 23, 1996	Monitoring well MW-23 installed.
Sept. 24 and 25, 1996	Boundary monitoring wells sampled for dioxins.
Nov. 20 through 22, 1996	Cone penetrometer testing conducted.

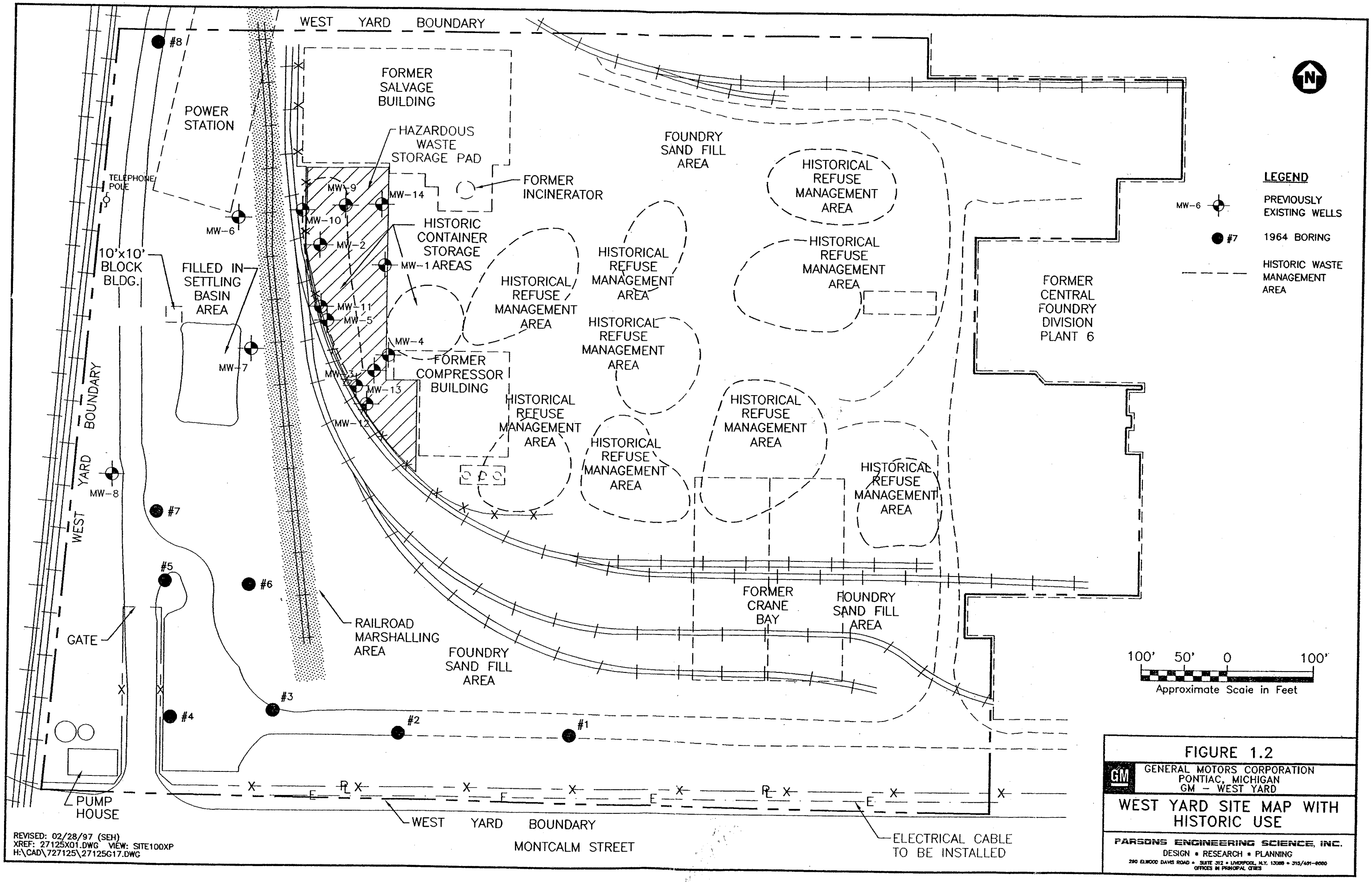


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FIGURE 1.2

GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN
GM – WEST YARD

WEST YARD SITE MAP WITH HISTORIC USE

PARSONS ENGINEERING SCIENCE, INC.
DESIGN * RESEARCH * PLANNING
290 ELWOOD DAVIS ROAD * SUITE 312 * LIVERPOOL, N.Y. 13088 * 315/451-9560
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POWER STATION

FORMER SALVAGE BUILDING

FORMER INCINERATOR

10'x10' BLOCK BLDG.

FILLED IN SETTLING BASIN AREA

FORMER COMPRESSOR BUILDING

FORMER CENTRAL FOUNDRY DIVISION PLANT 6

FORMER CRANE BAY

FOUNDRY SAND FILL AREA

GATE

8" & 12" WATER LINE

PUMP HOUSE

SS E E SS E E SS

MONTCALM STREET

N

LEGEND

PONTIAC MOTOR DIVISION, THEN CPC DIVISION MID 005356886

CENTRAL FOUNDRY DIVISION MID 0845701002

GENERAL MOTORS COMPLEX PROPERTY LINE

DIVISION BOUNDARY

100' 50' 0 100'

Approximate Scale in Feet

DATE: 02/28/97 (JHG)
Xref. or Views: GMSITE-100XP
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FIGURE 1.3

GM GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN
GM - WEST YARD

GM DIVISION PROPERTY LINES

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SECTION 2

FIELD INVESTIGATION ACTIVITIES

2.1 SCOPE OF FIELD ACTIVITIES

Field activities span closure activities at the hazardous waste pad in 1988 through West Yard investigations undertaken in 1995 and 1996. These were conducted by three different consulting firms. This section describes the type and location of field activities specifically at the storage pad and throughout the West Yard.

2.2 INITIAL CLOSURE ACTIVITIES AT THE HAZARDOUS WASTE STORAGE PAD

Initial closure activities at the hazardous waste storage pad were conducted by Dames & Moore starting July 1, 1988. Further investigation occurred in 1989. Activities included pad decontamination, subsurface soil sampling, concrete core sampling, monitoring well installation, and groundwater sampling. All activities were conducted according to the MDEQ-approved closure plan.

2.2.1 Storage Pad Decontamination

Following the removal of empty hazardous waste storage containers, the storage pad was cleaned using high-water-pressure washing equipment. During washing, 16 wipe samples were collected at the locations shown on Figure 2.1, to evaluate the effectiveness of the cleaning. After the final rinse, samples of rinsate from the pad, the floor of the hazardous waste storage building and the sewer lines underneath the pad were collected to verify that the waters could be treated in the wastewater treatment plant at the facility.

Wipe and rinsate samples were analyzed for parameters listed in the closure plan (Table 2.1).

2.2.2 Soil Borings

Two sets of soil borings were installed from July 25 to 29, 1988 with hollow stem auger and split spoon sampling. Four background soil borings (BK-1 through BK-4) were located at the south end of the tracks in the Railroad Marshalling Area (Figure 2.2). Twelve soil borings reported as P-1 through P-12 (shown as 1 through 12 on Figure 2.1) were located on the storage pad using criteria outlined in the closure plan. Soil samples were collected at 1 foot intervals for the first 5 feet and then at 5 foot intervals to 20 feet. Background boring BK-4 and pad boring P-10 were only completed to 5 feet and pad boring P-12 to 6.5 feet due to obstruction by large steel debris near the substation.

Five soil borings were installed next to the location of each monitoring well (MW-1 through MW-5; see Figure 2.1) between November 7 and 29, 1988. Collecting soil samples during monitoring well installation was not possible due to the presence of heaving sands at depth. Soil samples were collected at 5 foot intervals to a depth of at least 25 feet, and to 30 feet where conditions permitted.

Soil sampling and analysis activities for initial closure activities are summarized in Table 2.1. Individual boring logs are located in Appendix A.

2.2.3 Concrete Sampling

Concrete cores (CC-1 through CC-12) from soil boring locations P-1 through P-12 (Figure 2.1) were crushed and analyzed for the parameters listed in Table 2.1.

2.2.4 Monitoring Well Installation

Single monitoring wells (MW-1 through MW-5) were installed at five locations (Figure 2.1) from November 7 through 29, 1988. MW-6 through 8 were installed between March 7 and 9, 1989. Details of monitoring well construction are presented in Table 2.2 and on the individual geologic boring logs and well construction logs in Appendix A.

2.2.5 Groundwater Sampling and Analysis

One round of groundwater samples was collected on November 18, 1988 (MW-1 through MW-3) and December 1, 1988 (MW-4 and 5). A second round of sampling wells MW-1 through MW-8 occurred on March 13, 1989. Table 2.3 presents a summary of groundwater sampling and analysis activities.

2.3 ADDITIONAL CLOSURE ACTIVITIES AT THE HAZARDOUS WASTE STORAGE PAD

Groundwater Technology, Inc. (GTI) conducted additional monitoring well installation and groundwater sampling in 1990 and 1991 at, and in the vicinity of, the hazardous waste storage pad.

2.3.1 Monitoring Well Installation

A total of six single monitoring wells, two soil vapor wells and two recovery wells were installed during this phase of closure activities. MW-9 through 12 were installed between April 30 and May 2, 1990. MW-13 and 14 were installed on August 23, 1991 (Figure 2.3). Monitoring well construction details are presented in Table 2.2. Soil samples were collected at 2 foot intervals during the installation of MW-13 (2 to 14 foot depth) and MW-14 (2 to 12 foot depth). Soil vapor wells SV-1 and SV-2 were installed on March 14, 1990 for soil vapor extraction tests. Recovery well RW-1 was installed on May 1, 1990 for aquifer testing. RW-1 was abandoned and replaced by RW-1A on August 24,1991 for additional pump tests.

2.3.2 Groundwater Sampling and Analysis

Four rounds of groundwater samples were collected on: March 12 through 19, 1990; October 3, 1990; August 14, 1991; and August 23 through 25, 1991. These samples were collected and analyzed in accordance with amendments to the closure plan. Not all wells were sampled in all sampling rounds. Table 2.3 presents a summary of these groundwater sampling and analysis activities.

2.3.3 Aquifer Pump Tests

GTI conducted two separate aquifer pump tests, the first in May 1990 and the second in August and September, 1991. In the May 1990 pump test, recovery well

RW-1 at the north end of the pad was pumped at the same rate for 24 hours and the drawdown in nearby wells was measured. Drawdown data was analyzed using a computer program (Dansby and Price, 1987) to determine the hydrogeologic characteristics of the water-bearing zone. Results of the test are discussed in Section 3.

The August 1991 pump tests were conducted at the north end of the pad (pumping from MW-2) and the south end of the pad (pumping from MW-3). These were also 24 hour drawdown tests. Drawdown data in pumping and nearby monitoring wells was analyzed using Dansby and Price (1987). Results are discussed in Section 3.

2.3.4 NAPL Investigation

Lighter-than-water non-aqueous-phase liquid (NAPL) was observed in monitoring wells MW-6, MW-9, MW-10, and MW-11, the recovery well RW, and the soil vapor wells SV-1 and SV-2 (Figure 2.3) during water level measurements conducted as part of aquifer testing in May 1990. A thin layer of NAPL had been observed in MW-6 in March 1989. The depth to water and NAPL during aquifer testing was measured with an interface probe, and results are shown in Table 2.4.

Samples of NAPL from wells SV-1 and SV-2 were collected in April 1990 and were analyzed by infrared (IR) scan to develop spectrographs. These spectrographs were compared to one another and to spectrographs of samples of two lubricating oils used at the site to determine the possible source of the NAPL. Results are discussed in Section 4.4.

2.4 WEST YARD INVESTIGATION

Parsons Engineering Science, Inc. (Parsons ES) conducted an investigation of the West Yard in 1996. Activities included excavation of test trenches, soil boring advancement to collect soil samples and geological information, monitoring well installation, *insitu* hydraulic conductivity testing, groundwater sampling, non-aqueous-phase liquid (NAPL) investigation, and cone penetrometer testing.

2.4.1 Test Trenches

Five test trenches were excavated at the locations shown on Figure 2.4 on January 22 and 23, 1996. These trenches were excavated and surface and subsurface soil samples collected as specified in the work plan (Parsons ES, 1995).

2.4.2 Soil Boring, Sampling, and Analysis

Three sets of soil borings (designated as SBs, WDs, and GTs as explained in the following paragraph) were conducted with hollow stem auger and split spoon sampling in accordance with the approved work plan. Augers were filled with bentonite mud at certain locations to control flowing sands. Both surface and subsurface soil samples were collected from these borings as specified in the approved work plan:

- Five borings (SB-1 through SB-5) were installed at the locations shown on Figure 2.4. These were completed between December 12 and 15, 1995. SB-1 is in the vicinity of a former settling basin west of the Railroad Marshalling Area. SB-2 is near the former Salvage Building. SB-3 and SB-4 are in the Railroad Marshalling Area. SB-5 is in the vicinity of a former refuse management area.

- Three borings (WD-1 through WD-3) were conducted in historical solid waste disposal areas (Figure 2.4) on December 18 and 19, 1995.
- Four geotechnical borings (GT-1 through GT-4) were conducted around the perimeter of the West Yard (Figure 2.4) between November 28 and December 8, 1995. These borings provided geological information from ground surface to a depth of 100 feet or auger refusal. Geotechnical samples were collected from low permeability (clay and silt) zones to determine the vertical hydraulic conductivity of these layers. Boring GT-4 was cased with 10-inch steel to a depth of 25 feet to prevent vertical migration of compounds.

Table 2.5 presents a summary of soil sampling and analysis activities.

2.4.3 Slotted Auger Sampling and Analysis

Slotted auger water sampling was conducted in MW-22 at 10 and 20 feet below the water table, to determine the location of any confining layer and to determine the best placement for tne well screen. Slotted auger sampling was not required to determine screen placement for the remaining wells because both shallow and deep wells were installed above the confining layer.

2.4.4 Monitoring Well Installation

Monitoring well pairs (nested wells) were installed at six locations (MW/DW-16 through MW/DW-20 and MW/DW-22). A single deep monitoring well (DW-21) was installed because the shallow water-bearing zone was too thin to install a shallow well. The monitoring wells were installed between December 10 and 20, 1995. An additional shallow monitoring well (MW-23) was installed at the southwest corner of the West Yard on September 23, 1996. Shallow monitoring wells were designated "MW", and deep wells designated "DW" (Figure 2.4). Details of monitoring well construction are presented in Table 2.2 and on the individual geologic boring logs and well construction logs in Appendix A. Soil samples for surface and subsurface soil characterization were collected at most monitoring well locations, as specified in the approved work plan.

Following installation, the wells were developed in accordance with procedures specified in the work plan (Parsons ES, 1995).

2.4.5 *InSitu* Hydraulic Conductivity Testing

Insitu "slug tests" were performed on January 18 and 19, 1996 to determine the hydraulic conductivity in the saturated zone surrounding each well. Hydraulic conductivity tests were performed by the rising and falling head slug test methods as specified in the approved work plan.

The slug tests were performed on eight monitoring wells (DW-17, DW-18, DW-19, DW-20, DW-22, MW-7, MW-8, and MW-12). Slug tests were performed only in the deep well of each of the well pairs because the deep wells showed complete saturation of the screened interval and had greater saturated thickness than the shallow wells. These two factors enabled a more accurate estimation of hydraulic conductivity to be made. DW-21 was the only deep well not tested because the screened interval was not fully saturated due to the shallow static water table at that location.

Insitu permeability tests were analyzed by the Bouwer and Rice (1976, 1989) method using Geraghty and Miller's AQTESOLV computer model. Results are presented in Section 3.

2.4.6 Groundwater Sampling and Analysis

Three rounds of groundwater samples were collected on: January 16 through 18, 1996 (Round 1); February 13 and 14, 1996 (Round 2); and September 24 and 25, 1996 (Round 3). These samples were collected and analyzed in accordance with the approved work plan.

Table 2.6 presents a summary of groundwater sampling and analysis activities.

2.4.7 NAPL Investigation

Non-aqueous-phase liquids (NAPL) were found and measured by interface probe in three monitoring wells, MW-3 (0.7 foot thickness), MW-6 (9.2 foot thickness), and MW-13 (1.9 foot thickness) during January 1996 groundwater sampling. Two activities were undertaken to delineate the extent of NAPL in the vicinity of these wells: (1) analyses of NAPL samples from MW-6 and MW-13, and (2) Geoprobe™ soil borings in the vicinity of the affected wells to examine for presence of NAPL.

The NAPL samples were collected on January 24, 1996 (MW-6) and February 14, 1996 (MW-13). The samples were analyzed to determine: (1) if the NAPL in both wells was the same, (2) the absence or presence of PCBs, and (3) the levels of polynuclear aromatic hydrocarbons (PAHs) and purgeable halocarbons in the product, which could be used as an indication of the source of the material.

To delineate the extent of the NAPL present, sixteen soil borings were conducted using a Geoprobe™ drilling rig (Figure 2.5). These borings were completed between February 14 and 16, 1996. The borings were located on a 50-foot grid in the vicinity of MW-3, MW-13, and MW-6. All borings were continuously sampled until water-saturated soil was encountered. Findings as to whether oil was present were noted in field log books. No soil or water samples were collected.

NAPL was observed in MW-22 (0.33 foot thickness) during groundwater sampling in September 1996. MW-22 is located near a suspected historical refuse management area.

2.4.8 Site Survey

Following completion of the field investigation, a Michigan-licensed land surveyor, Air-Land Surveys, Inc., measured vertical elevations and horizontal locations of each of the monitoring wells, borings, and trenches in accordance with the approved work plan.

2.4.9 Cone Penetrometer Testing

A series of 27 cone penetrometer tests (CPTs) were completed in the West Yard on November 20 through November 22, 1996. The purpose of the penetrometer testing was to further delineate West Yard geology encountered in previous soil borings.

The CPTs were conducted by Stratigraphics, Glen Ellyn, Michigan. Stratigraphs provided a truck mounted CPT rig and a crew of two people to perform the tests. The

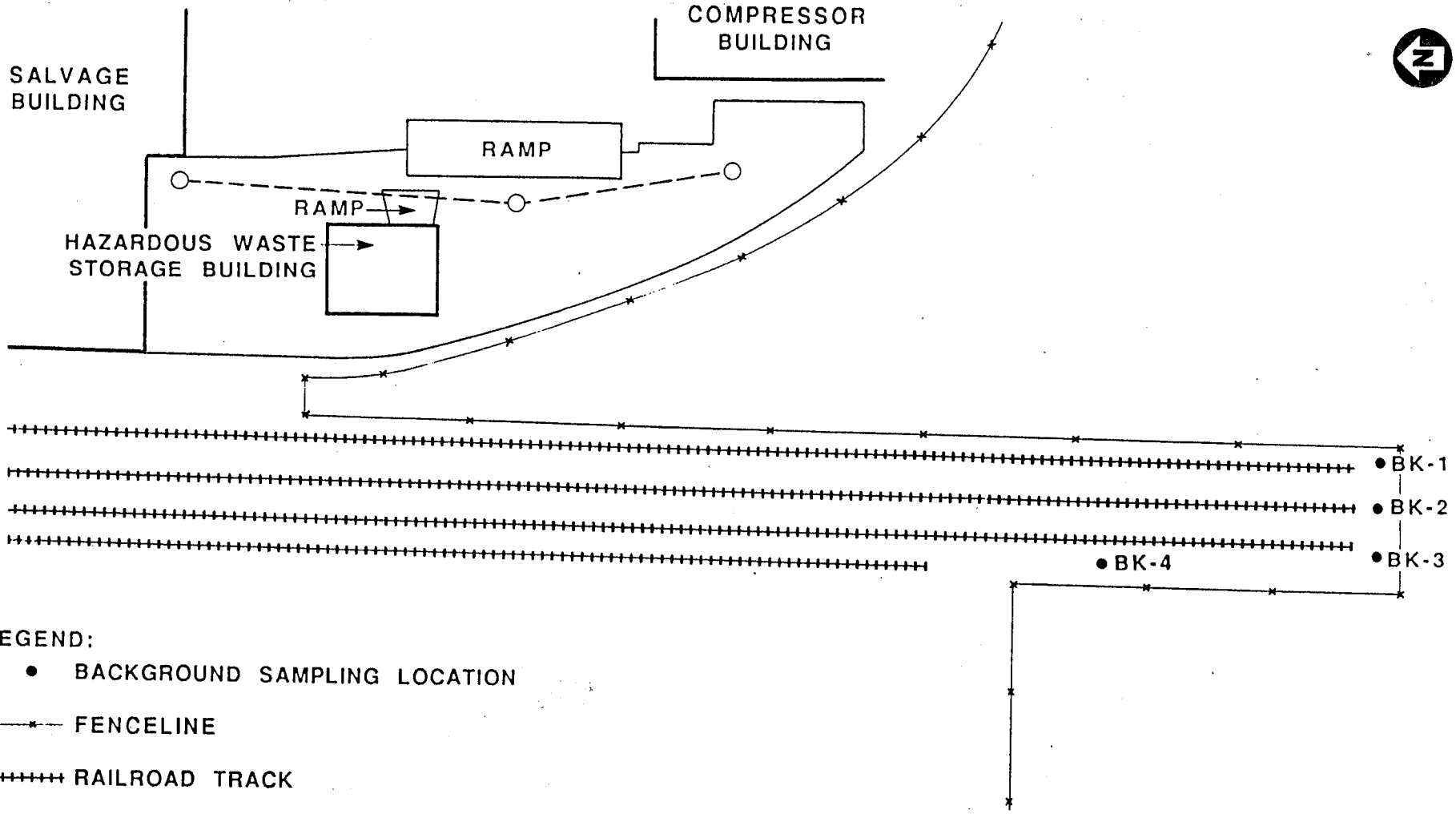
CPT tool is a 2 inch diameter steel rod with a cone shaped CPT transducer at the tip. The tool is advanced by adding extra rods and standing the weight of the truck on the rods, exerting up to 2 million pounds per square foot of vertical pressure. The transducer measures the "cone end-bearing resistance" or vertical pressure encountered as the tool is advanced through the soils. The transducer also measures the "friction ratio", a ratio between end-bearing pressure and friction alongside the tool (lateral friction). A third parameter, the electrical conductivity is also measured. The tool sampling interval is .008 feet.

The combination of the responses of the end-bearing load and friction ratio are diagnostic of different soil types. Coarser grained soils such as sands and gravels tend to require greater vertical loads to penetrate, yielding high end-bearing readings but low friction ratios. Larger grain sizes present less surface area against the side of the tool, hence less lateral friction. In contrast, finer grained soils such as silts and clays exhibit high friction ratios due to high cohesiveness, yet penetrate easily with lower vertical loads. The output is in the form of logs of the end-bearing load, friction ratio and conductivity, vs. depth. CPT results are discussed in Section 3.

Three lines of CPT test points were set up for the West Yard (Figure 2.6). Line 1, CPT points 1-7, was oriented north-south through the center of the site from existing buildings to the railroad tracks. The topography along this line has a gentle dip to the north of approximately six feet. The seven CPT points on this line were originally set at 100 foot spacings.

Line 2 was oriented east-west on a roadway along the southern margin of the site, parallel to Montcalm Street. CPT points 8-15 were originally planned along the north side of the roadway at the base of an embankment at 100 foot spacings. The roadway dips to the west and CP-15 is approximately 15 feet below the grade of CP-8. Also along this line were CP-16 in the flat concrete area near the south site gate off of Montcalm Street, and CP-17, drilled near MW-17.

Line 3 was oriented south-north beginning on the roadway near the demolished pump house (CP-18) and running north towards the power substation. A 100 foot spacing was planned for CPT points 18-27. The road along line 3 rises gently to the north and CP-27 is almost at the same elevation as CP-1.



LEGEND:

- BACKGROUND SAMPLING LOCATION
- FENCELINE
- RAILROAD TRACK
- MANHOLE
- SEWER

FIGURE 2.2

GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN
GM – WEST YARD

INITIAL CLOSURE BACKGROUND SOIL SAMPLE LOCATIONS

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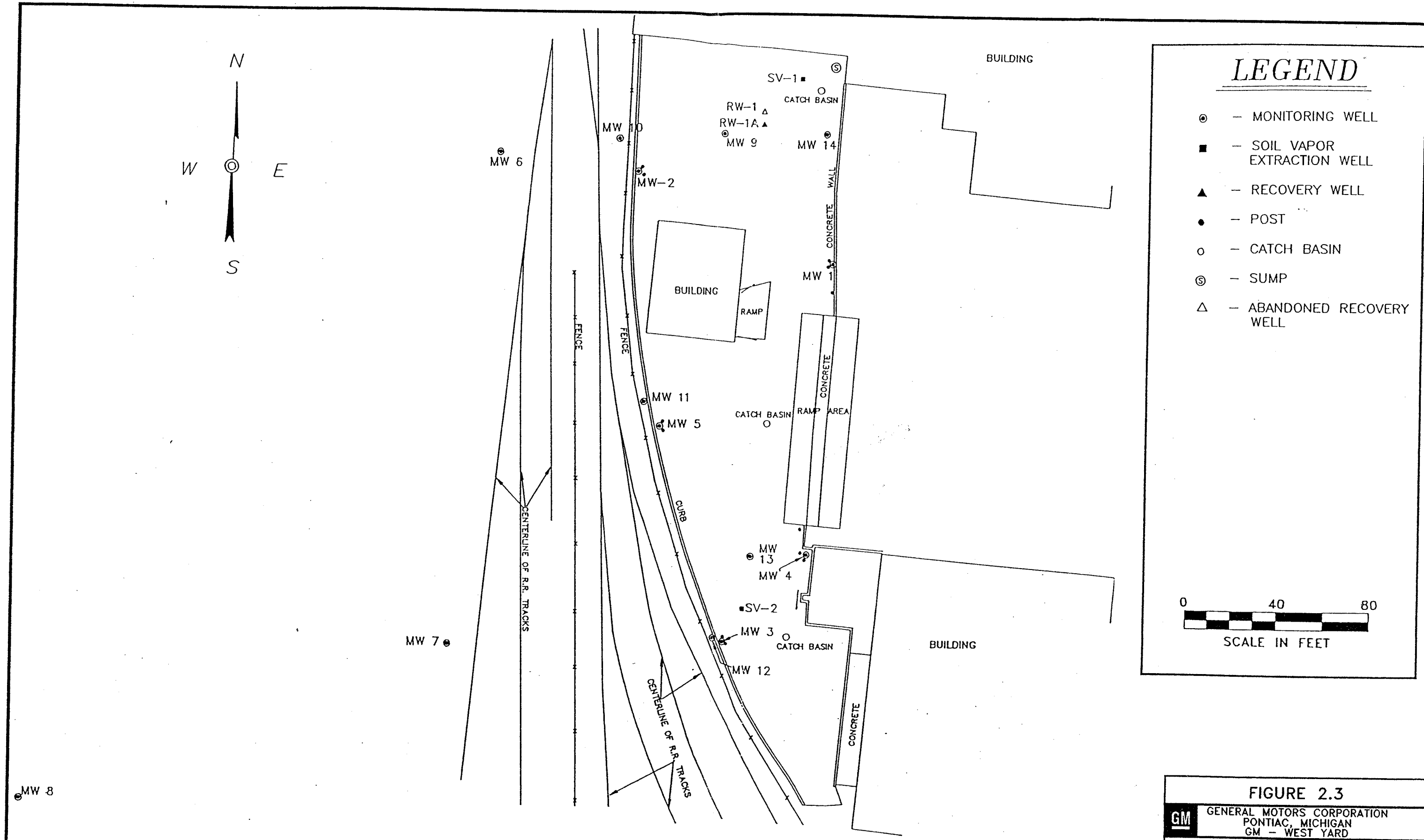
SOURCE: DAMES & MOORE, 1989.



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SOURCE: GROUNDWATER TECHNOLOGY, INC., 1991.

FIGURE 2.3

GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN
GM – WEST YARD

STORAGE PAD ADDITIONAL CLOSURE SAMPLE LOCATIONS

PARSONS ENGINEERING SCIENCE, INC.
DESIGN • RESEARCH • PLANNING

WEST YARD BOUNDARY

FORMER SALVAGE BUILDING

SB2

POWER STATION

GT-4

FOUNDRY SAND FILL AREA

DW-21

TELEPHONE POLE

GT-1

MW-6

FORMER INCINERATOR

TT 1

TT 2

10'x10' BLOCK BLDG.

FILLED IN SETTLING BASIN AREA

SB5

WD-1

HAZARDOUS WASTE STORAGE PAD AREA

MW-5

MW-16/ DW-16

MW-7

FORMER CENTRAL FOUNDRY DIVISION PLANT 6

TT 5

MW-22/DW-22

SB1

MW-13

FORMER COMPRESSOR BUILDING

SEWER

WEST YARD BOUNDARY

SB3

TT 3

WD-2

MW-8

TT 4

MW-20/DW-20

SB4

WD-3

FORMER CRANE BAY

FOUNDRY SAND FILL AREA

RAILROAD MARSHALLING AREA

GATE

MW-17/DW-17

GT-2

FOUNDRY SAND FILL AREA

8" &12" WATER LINE

MW-19/DW-19

GT-3

MW-18/DW-18

MW-23

PUMP HOUSE

WEST YARD BOUNDARY

STORM SEWER

ELECTRICAL CABLE TO BE INSTALLED

MONTCALM STREET

LEGEND

WD	BORING IN WASTE DISPOSAL AREAS
MW/DW	NESTED WELLS OR SINGLE WELL
TT	TEST TRENCHES
GT	GEOTECH BORING (PERMEABILITY)
SB	BORINGS
MW-5	PREVIOUSLY INSTALLED MONITORING WELLS

100' 50' 0 100'

Approximate Scale in Feet

REVISED: 12/06/96 (GTC)
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FIGURE 2.4

GM GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN
GM – WEST YARD

WEST YARD SAMPLING LOCATION MAP

PARSONS ENGINEERING SCIENCE, INC.
DESIGN • RESEARCH • PLANNING

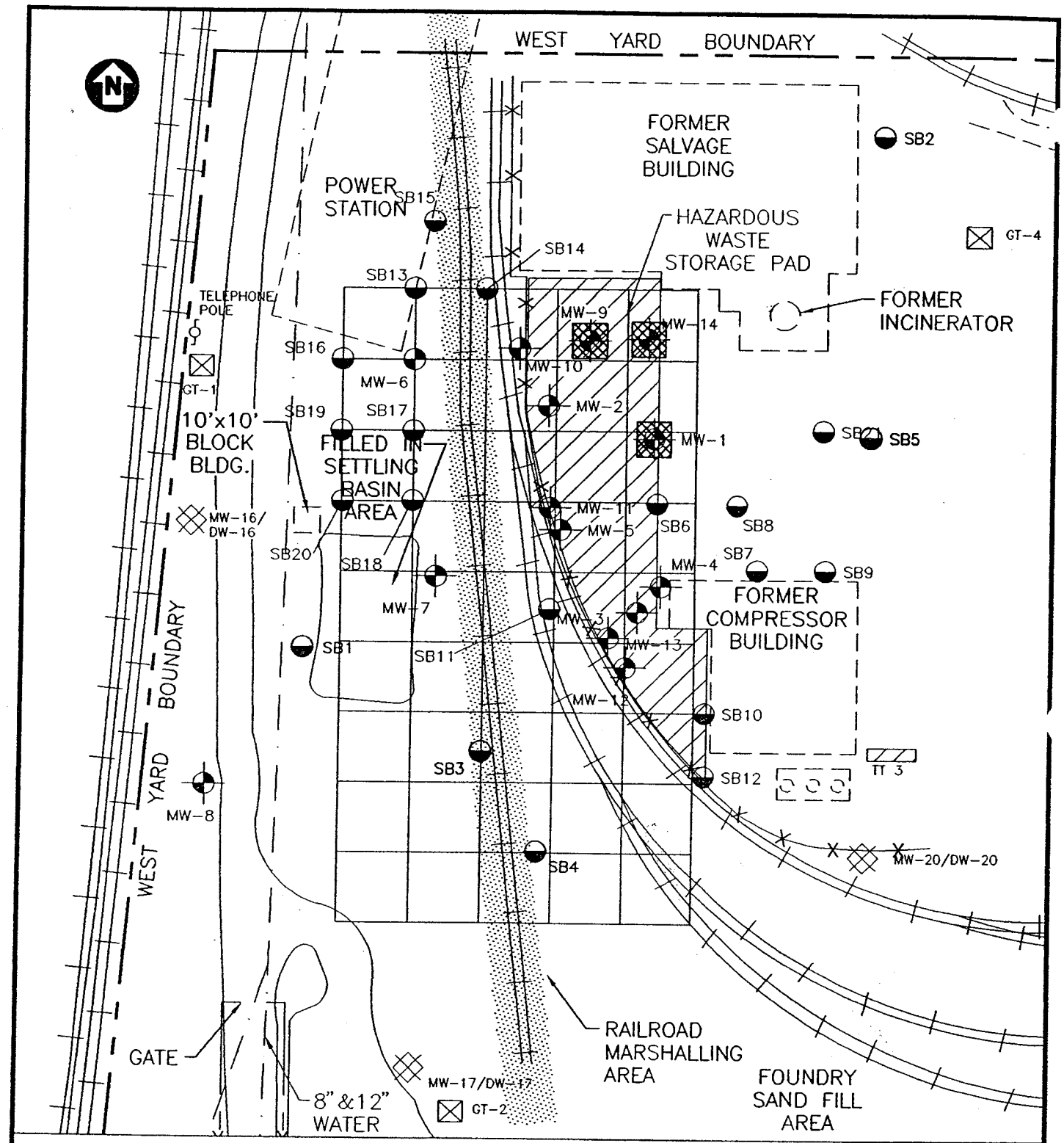

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FIGURE 2.5

GM GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN
GM – WEST YARD

LOCATIONS FOR NAPL SOIL INVESTIGATION

PARSONS ENGINEERING SCIENCE, INC.
DESIGN • RESEARCH • PLANNING

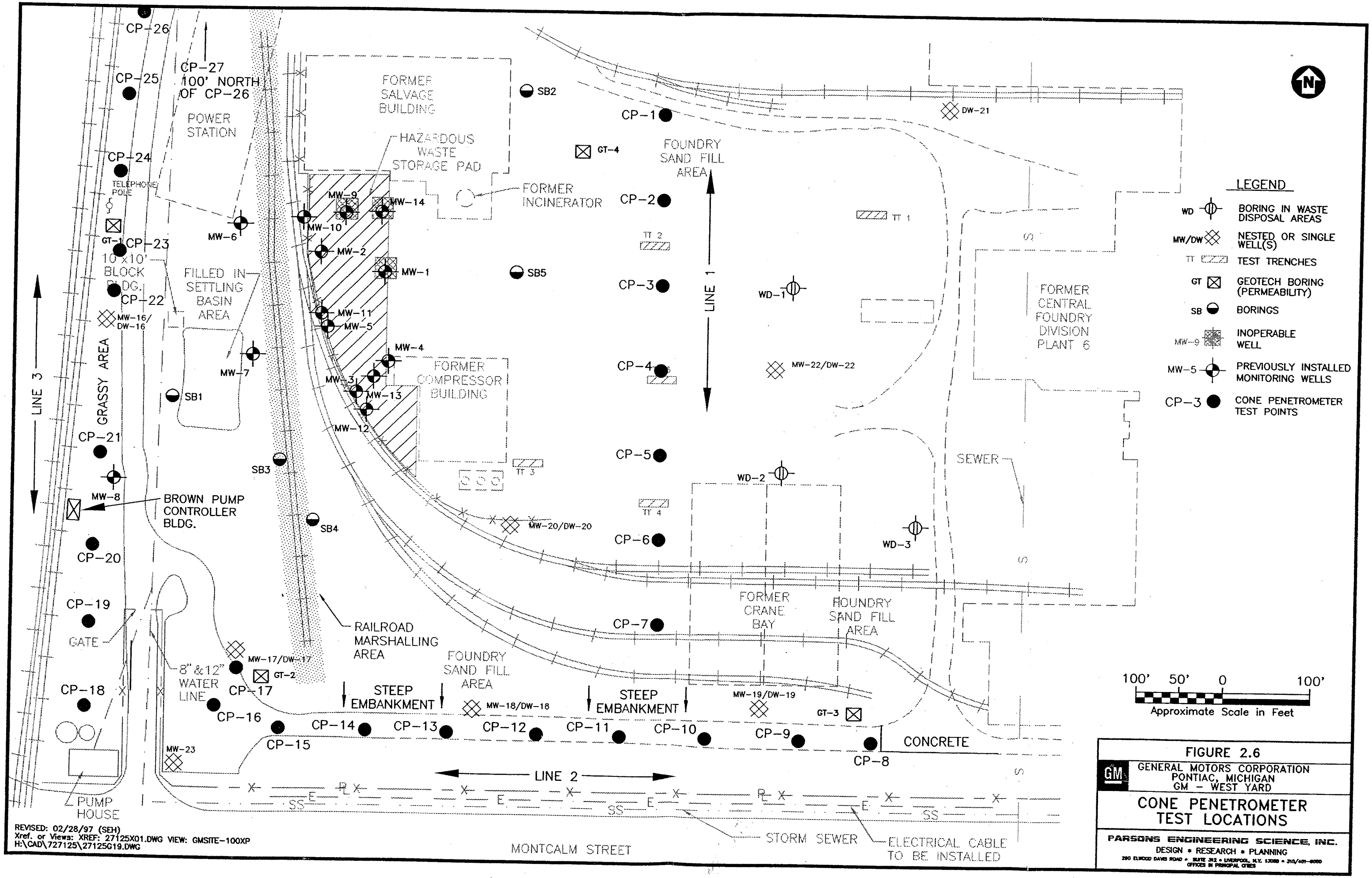

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FIGURE 2.6

GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN
GM - WEST YARD

CONE PENETROMETER TEST LOCATIONS

PARSONS ENGINEERING SCIENCE, INC.
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290 ELWOOD DAVIS ROAD * SUITE 312 * LIVERPOOL, N.Y. 13088 * 315/451-9560
OFFICES IN PRINCIPAL CITIES

TABLE 2.1
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE INVESTIGATIONS ANALYTE SUMMARY TABLE

Analytes	Sample Type (1)						
	Wipe (W-1 to W-6B)	Rinsate (R-1, R-2, Bldg. Sewer, Pad)	Background Soil [2] (BK-1 to BK-4)	Storage Pad Soil [3] (P-1 to P-12)	MW Soil [4][5] (MW-1 to MW-5)	Concrete Core (CC-1 to CC-12)	MW Soil (MW-13SS to MW-14SS[6])
Benzene	X	X	X	X	X	X	X
Toluene	X	X	X	X	X	X	X
Xylenes	X	X	X	X	X	X	X
1,1,1-Trichloroethane	X	X	X	X	X	X	X
Methylene Chloride	X	X	X	X	X	X	X
Methyl Ethyl Ketone	X	X	X	X	X	X	X
1-Butanol	X	X	X	X	X	X	X
Arsenic			X				
Barium			X				
Cadmium			X				
Copper			X				
Lead	X	X	X	X	X	X	X
Mercury			X				
Selenium			X				
Zinc			X				

(1) See Figure 2.1 for sample locations.
(2) Background soil samples analyzed at 1 foot intervals from 1 to 5 foot depths.
(3) Borings P-1 through P-9 analyzed at depths 1, 2, 5, 10, 15, and 20 feet. P-10 analyzed at 1 and 2 foot depth. P-12 analyzed at 1 foot depth only.
(4) Boring MW-1 analyzed at 5, 10, 15, 20, 25, and 30 foot depth. MW-2 through MW-5 analyzed at 5, 10, 15, 20, and 25 feet.
(5) Boring MW-2-15 and MW-3-15 samples analyzed for listed analytes via TCLP.
(6) Boring MW-13SS analyzed at 2, 4, 6, 8, 10, and 12 foot depth.

TABLE 2.2
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
MONITORING WELL CONSTRUCTION

WELL ID	DATE OF INSTALLATION	DRILLING METHOD USED	TOP OF CASING (3) ELEVATION (feet)	GROUND SURFACE (3) ELEVATION (feet)	WELL SCREEN INTERVAL ELEVATION (feet)	CONSTRUCTION MATERIALS (feet)						
						2" ID 0.010 SLOT STAINLESS STEEL SCREEN	2" RISER (1)	SAND PACK (2)	BENTONITE SEAL	GROUT	2" PVC SUMP	FINE SAND
MW-1	11/7/89	6.25" ID HSA	962.06	959.84	929.84-939.84	10	20	12	6	16	5	0
MW-2	11/9/88	6.25" ID HSA	965.67	963.68	933.68-943.68	10	20	12	6	16	0	0
MW-3	11/10/88	6.25" ID HSA	966.97	964.99	934.99-949.99	10	20	12	6	16	0	0
MW-4	11/28/88	6.25" ID HSA	964.98	963.25	933.25-943.25	10	20	17	6	16	0	0
MW-5	11/29/88	6.25" ID HSA	966.42	964.44	934.44-944.44	10	20	12	6	16	0	0
MW-6	3/7/89	6.25" ID HSA	966.30	964.06	936.06-946.06	10	18	12	2	14	0	0
MW-7	3/8/89	6.25" ID HSA	966.12	963.82	935.82-945.82	10	18	12	2	14	0	0
MW-8	3/8/89	6.25" ID HSA	952.44	949.83	931.83-941.83	10	18	12	2	14	0	0
MW-9	4/30/90	6.25" ID HSA	961.46	959.72	939.72-954.72	15	5	18	1	1	0	0
MW-10	5/2/90	6.25" ID HSA	966.62	964.67	944.67-959.67	15	5	18	1	2	0	0
MW-11	5/1/90	6.25" ID HSA	965.94	964.33	944.33-959.33	15	5	17	1	2	0	0
MW-12	5/1/90	6.25" ID HSA	966.23	964.19	944.19-959.19	15	5	17	1	2	0	0
MW-13	8/23/91	6.25" ID HSA	965.18	963.31	949.31-959.31	10	4	12	1	1	0	0
MW-14	8/23/91	6.25" ID HSA	961.33	958.33	945.33-955.33	10	4	12	1	1	0	0
MW-16	12/20/95	4.25" ID HSA	952.59	950.05	941.55-946.55	5	3.5	7.5	1	1.5	2	0.5
DW-16	12/15/95	4.25" ID HSA	952.38	950.1	933.38-938.38	5	14	11	3	5	0	0
MW-17	12/12,20/95	4.25" ID HSA	948.55	946.16	967.66-942.66	5	3.5	5.5	2	1	0	0
DW-17	12/14/95	4.25" ID HSA	948.64	946.16	931.16-936.16	5	10	6	2	5	0	2
MW-18	12/13,14/95	4.25" ID HSA	957.78	955.27	938.27-943.57	5	12	6	2	7	0	2
DW-18	12/10,20/95	4.25" ID HSA	957.69	955.27	918.27-923.27	5	32	6	2	27	0	2
MW-19	12/18/95	4.25" ID HSA	971.01	968.42	939.42-944.42	5	19	6	2	19	0	2
DW-19	12/15/95	4.25" ID HSA	970.77	968.42	929.42-934.42	5	34	6	2	29	0	2
MW-20	12/20/95	4.25" ID HSA	971.2	968.73	942.73-947.73	5	21	8	2	16	2	2
DW-20	12/18,19/95	4.25" ID HSA	971.03	968.73	926.73-931.73	5	37	8	2	32	2	2
DW-21	12/19/95	4.25" ID HSA	968.21	966.02	947.02-952.02	5	14	6	2	26	0	2
MS-22	12/12/95	4.25" ID HSA	970.37	967.98	943.98-948.98	5	19	10	2	13	2	2
MW-22	12/19/95	4.25" ID HSA	970.31	967.98	931.98-936.98	5	31	6	2	26	0	2
MW-23	09/23/96	4.25" ID HSA	948.05	945.77	936.77-941.77	5	4	7	1	1	0	0

Notes

HSA - Hollow Stem Auger

(1) Indicates length of material below ground surface. MW-1 through MW-8 and MW-23 riser material is stainless steel. All other wells have PVC riser.

(2) Measured from bottom of well screen or sump.

(3) All top of casing and top of round elevations from 1996 survey except for MW-1, MW-9, and MW-14. These three wells were destroyed prior to 1996. Survey data fro these three wells are from GTI (1991).

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TABLE 2.3
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE INVESTIGATIONS GROUNDWATER ANALYTE SUMMARY TABLE

	GROUNDWATER SAMPLING DATES/ANALYTES[1]					
MW	November 17-18, December 1, 1988	March 13, 1989	March 13-14, 1990	October 3, 1990	August 14, 1991	August 23-25, 1991
1,2	CP VOCs, Lead	CP VOCs, Lead	CP VOCs, Ethylbenzene, Lead	CP VOCs, Lead	CP VOCs, Total and Filtered Lead	CP VOCs, Filtered Lead
3	CP VOCs, Lead, Metals	CP VOCs, Lead	CP VOCs, Lead	CP VOCs, Lead	CP VOCs, Total and Filtered Lead	CP VOCs, Filtered Lead
4,5	CP VOCs, Lead	CP VOCs, Lead	CP VOCs, Lead	CP VOCs, Lead	CP VOCs, Total and Filtered Lead	CP VOCs, Filtered Lead
6,7		CP VOCs, Lead	CP VOCs, Lead	CP VOCs, Lead	CP VOCs, Total and Filtered Lead	CP VOCs, Filtered Lead
8		CP VOCs, Lead	CP VOCs, Ethylbenzene, Lead	CP VOCs, Lead		CP VOCs, Filtered Lead
9,10,12				CP VOCs, Lead	CP VOCs, Total and Filtered Lead	CP VOCs, Filtered Lead
11				CP VOCs, Lead		CP VOCs, Filtered Lead
13						CP VOCs, Filtered Lead

(1) Analytes include: CP VOCs (Benzene, Toluene, Xylenes, 1,1,1-Trichloroethane, Methylene Chloride, Methyl Ethyl Ketone, 1-Butanol)
Lead - Total Lead,
Metals - Aluminum, Arsenic, Barium, Cadmium, Calcium, Chromium, Copper, Iron, Magnesium, Mercury, Nickel, Silver, Zinc.

TABLE 2.4
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
NAPL OBSERVED DURING CLOSURE AQUIFER TESTS

WELL NUMBER	DATE	DEPTH TO WATER (FEET)	DEPTH TO PRODUCT (FEET)	PRODUCT THICKNESS (FEET)
MW-6	5/2/90	22.45	21.35	1.10
	5/8/90	21.51	20.30	1.21
	5/9/90	21.57	20.34	1.23
	6/12/90	22.94	21.92	1.02
MW-9	5/2/90	17.26	17.24	0.02
	5/8/90	15.97	NO PRODUCT	NONE
	5/9/90	16.02	NO PRODUCT	NONE
	6/12/90	16.86	NO PRODUCT	NONE
MW-11	5/2/90	18.97	18.95	0.02
	5/8/90	17.84	NO PRODUCT	NONE
	5/9/90	17.83	NO PRODUCT	NONE
	6/12/90	19.14	NO PRODUCT	NONE
MW-12	5/2/90	15.86	15.85	0.01
	5/8/90	14.86	NO PRODUCT	NONE
	5/9/90	14.84	NO PRODUCT	NONE
	6/12/90	16.13	15.99	0.14
RW-1	5/2/90	19.05	19.04	0.01
	5/8/90	17.17	17.00	0.17
	5/9/90	22.91	22.38	0.53
SV-1	6/12/90	18.95	18.55	0.40
SV-2	6/12/90	14.80	14.14	0.66

TABLE 2.5

WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
WEST YARD INVESTIGATION SOIL ANALYTE SUMMARY TABLE

Soil Boring ID	Location	Surface Sample Analytes (1)	Subsurface Samples	
			Depth (ft.)	Analytes (1)
SB1	Settling Basin	TCL/TAL	16-18	TCL/TAL
SB2	Salvage Building	TCL/TAL	4-6	TCL/TAL
SB3	Railroad Marshalling Area	TCL/TAL	16-18	TCL/TAL
SB4	Refuse Disposal Area	TCL/TAL	6-8	TCL/TAL
SB5	Salvage Building	TCL/TAL	4-6	TCL/TAL
TT1	Refuse Disposal Area	APP. IX	10-15	TCL/TAL
TT2	Refuse Disposal Area	TCL/TAL	15-15	TCL/TAL
TT3	Refuse Disposal Area	APP. IX(2)	5-9	TCL/TAL
TT4	Refuse Disposal Area	APP. IX	3-10	TCL/TAL
TT5	Refuse Disposal Area	TCL/TAL(2)	3-5	TCL/TAL
WD1	Solid Waste Area	NA	4-6	TCL VOC
WD1	Solid Waste Area		10-12	TCL VOC
WD1	Solid Waste Area		14-16	APP. IX
WD1	Solid Waste Area		20-22	TCL VOC
WD1	Solid Waste Area		24-26	TCL VOC
WD1	Solid Waste Area		30-32	TCL VOC
WD1	Solid Waste Area		34-36	TCL VOC
WD2	Solid Waste Area	NA	4-6	TCL VOC
WD2	Solid Waste Area		10-12	TCL VOC
WD2	Solid Waste Area		14-16	TCL VOC
WD2	Solid Waste Area		20-22	TCL VOC
WD2	Solid Waste Area		24-26	APP. IX*
WD2	Solid Waste Area		30-32	TCL VOC
WD2	Solid Waste Area		34-36	TCL VOC

TABLE 2.5 (CONT.)

WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
WEST YARD INVESTIGATION SOIL ANALYTE SUMMARY TABLE

Soil Boring ID	Location	Surface Sample Analytes (1)	Subsurface Samples	
			Depth (ft.)	Analytes (1)
WD3	Solid Waste Area	NA	4-6	TCL VOC
WD3	Solid Waste Area		10-12	TCL VOC
WD3	Solid Waste Area		14-16	TCL VOC
WD3	Solid Waste Area		20-22	TCL VOC
WD3	Solid Waste Area		24-26	APP. IX
WD3	Solid Waste Area		30-32	TCL VOC
WD3	Solid Waste Area		34-36	TCL VOC
GT1	West Site	NA	28-36	Triaxial
GT2	Southwestern Site	NA	20-22	Triaxial
GT2	Southwestern Site		38-40	Triaxial
GT2	Southwestern Site		64-66	Triaxial
GT3	Southeastern Site	NA	40-42	Triaxial
GT3	Southeastern Site		56-58	Triaxial
GT3	Southeastern Site		78-80	Triaxial
GT4	Northern Site	NA	22-24	Triaxial
			40-42	Triaxial

Notes:

(1) Analytes include:

TCL/TAL - Target Compound List Organics/Target Analyte List Metals
APP. IX - 40 CFR Part 264 Appendix IX
Triaxial - Triaxial Permeability Test

(2) Duplicate sample collected and analyzed.

NA Not Analyzed

TABLE 2.6

WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
WEST YARD INVESTIGATION GROUNDWATER ANALYTE SUMMARY TABLE

Well ID	Location	Analytes		
		Round 1[1]	Round 2[2]	Other[1]
MW-5	Western Edge of Storage Pad	TCL/TAL	TAL	
MW-6	Downgradient of Railroad Marshalling Area	NAPL Analyses	NA	
MW-7	Downgradient of Railroad Marshalling Area	TCL/TAL[3]	TCL/TAL	
MW-8	Downgradient at Western Site Boundary	NA	NA	VOCs, PCBs, TAL, 8280[3]
MW-13	Middle of Storage Pad	NA	TAL	NAPL Analyses
MW-16	Downgradient at Western Site Boundary	TCL/TAL	TAL	8280
DW-16	Downgradient at Western Site Boundary	TCL/TAL	TAL	8280
MW-17	Downgradient of Railroad Marshalling Area	APP. IX	TAL	8280
DW-17	Downgradient of Railroad Marshalling Area	APP. IX	TAL	8280
MW-18	Downgradient of Foundry Sand Fill Area	TCL/TAL	TAL	8280
DW-18	Downgradient of Foundry Sand Fill Area	TCL/TAL	NA	8280
MW-19	Downgradient of Former Crane Bay	TCL/TAL	NA	8280
DW-19	Downgradient of Former Crane Bay	TCL/TAL	NA	8280
MW-20	Downgradient of Refuse Disposal Areas	APP. IX	TCL/TAL[3], SO_2	8280

TABLE 2.6 (CONT.)

WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
WEST YARD INVESTIGATION GROUNDWATER ANALYTE SUMMARY TABLE

Well ID	Location	Analytes		
		Round 1[1]	Round 2[2]	Other[1]
DW-20	Downgradient of Refuse Disposal Areas	APP. IX[3]	TCL/TAL[3]	8280
DW-21	Upgradient	TCL/TAL	TCL/TAL	8280
MW-22	Downgradient of Refuse Disposal Areas	APP. IX	TAL	8280
DW-22	Downgradient of Refuse Disposal Areas	APP. IX	TAL[3]	8280
MW-23	SW Corner	NA	NA	8280

Notes:

(1) Analytes include:

TCL/TAL - Target Compound List Organics/Target Analyte List Metals
APP IX - 40 CFR Part 264 Appendix IX parameters
NAPL analyses - PCBs, purgeable halocarbons, polynuclear aromatics, and fingerprint analysis.
VOCs, SVOCs, PCBs - TCL parameters
8280 - SW-846 Method 8280 for polychlorinated dibenzo-p-dioxins and dibenzofurans.

(2) Detections from Round 1 only analyzed.

(3) Duplicate sample collected and analyzed.

NA Not Analyzed

SECTION 3

PHYSICAL CHARACTERISTICS OF THE STUDY AREA

3.1 SURFACE FEATURES

The West Yard is located in the southwest portion of the 402-acre General Motors Pontiac Complex. The area has been filled to a relatively flat grade with foundry sand generated by former plant processes. Steep grades are present on the southern and western margins of the area which are bounded by Montcalm Street and the railroad tracks, respectively. The area is bounded on the north and east by Plants 9 and 6, respectively. Several structures (the Salvage Building, the Compressor Building, the crane bay and Plant 6, the Foundry) have been demolished, as indicated on Figure 3.1.

The former hazardous waste storage pad is located in the western portion of the West Yard. This pad is approximately 300 by 90 feet and was originally constructed of 8-inch reinforced concrete and surrounded by a 4-inch dike (GTI, 1991).

3.2 GEOLOGY

3.2.1 West Yard

The West Yard is underlain by a variable thickness of fill composed primarily of foundry sand. Figure 3.1 shows the locations of two geological cross sections, AA' and BB', displayed on Figures 3.2 and 3.3, respectively. The depth of the fill is thickest in the central and southeastern portions of the site. As noted above, the top surface of the fill is approximately level, indicating that the fill was used to grade the original topographic surface.

The geological material beneath the fill consists of sand with lenses of silt or organic-rich peat and marl. This sand unit is highly variable in thickness. The peat and marl predominate at the southern edge of the site.

Low permeability materials, consisting of clay and silt with lenses of sand or sand and gravel, underlie the sand or peat/marl unit to a depth of 100 feet (maximum boring depths of the geotechnical borings). Figure 3.4 shows the elevation of the top of this low permeability zone measured in each well or boring installed during this investigation. There were not enough elevations to draw contour lines, but the surface of the low permeability zone appears to be at a higher elevation toward the north and central portions of the West Yard. As discussed below, the elevation of the top of this zone appears to control the direction of groundwater flow in the overlying sand and fill. Elevations of the top of this zone and geotechnical data are shown in Table 3.1.

The series of cone penetrometer tests (CPT) along the boundary of the West Yard showed a good correlation with the interpretation of West Yard geology from geotechnical and well borings. Figure 3.5 depicts the site geology as defined by the CPT survey. The area has a variable thickness of fill ranging from over 30 feet in the southeast corner to less than 8 feet along the western edge of the West Yard. The peat

and marl layer was evident in all CPT soundings along the southern edge of the West Yard and for a short distance along the western edge. The peat and marl layer ranged in thickness from 3 feet at CP-12 to 10 feet at CP-16. The western CPT soundings showed a sand layer of variable thickness below the fill.

The clay layer was encountered at a depth of 27-43 feet, below thick fill in the center of the West Yard. Along the southern edge, clay was found at depths ranging from 56.6 feet (CP-8) to 15.8 feet (CP-14). These measurements suggest a relatively flat clay surface west of CP-8. The clay layer seen in CPT tests along the western boundary is correlative with the clay layer seen in the middle of the area and boring logs for GT-4, GT-3, MW-19, and MW-18 which note a "pink-grey clay with some silt" at approximately 40 feet. The clay can be seen clearly on CP-18 at a depth of 19.1 feet, at 19.3 feet on CP-23, and 22 feet on CP-24, and 31.3 feet on CP-27 which is upgradient of CP-24. At CPT points 21 and 22, the clay layer occurs approximately 10 feet deeper than in adjacent tests. The clay was encountered in these two tests below a thick dense sand to silty sand. This sand is anomalously thick at these two locations compared to the rest of the western boundary. The CPT results are included in Appendix H.

3.2.2 Hazardous Waste Storage Pad

Data from 12 soil borings were used to determine the hydrogeologic characteristics at the former hazardous waste storage pad. Figure 3.6 shows the location of three geological cross sections, shown on Figure 3.7 and 3.8, respectively.

The hazardous waste storage pad is also underlain by fill. The pad was constructed directly on top of a thin layer of graded fill placed on the foundry sand fill. The thickness of total fill ranges from about 2 feet beneath the northern end of the pad to 18 feet beneath the southern end of the pad. The fill extends beyond the pad in all directions.

Unconsolidated clay, silt, and sand underlay the fill to the maximum depth of investigation at the pad (35 feet). Clay and silt are dominant to a depth of about 21 feet below grade, except beneath the northern portion of the pad where sand predominates. A continuous layer of light brown to gray, fine-to coarse-grained sand is identified in all deep borings at the pad. This sand is located at a depth of about 10 feet below grade at the northern end of the pad and about 22 feet below grade beneath the southern end of the pad. At most locations beneath the pad, this sand layer is separated from the fill by at least 2 feet of silty clay.

3.3 GROUNDWATER HYDROLOGY AND HYDROGEOLOGY

Groundwater in the vicinity of the West Yard generally flows toward the southwest (Figure 3.9). The elevation of the top of the low permeability zone discussed in Section 3.2.1 appears to control the flow direction in the sand and fill zones. Deviations in the groundwater flow direction occur to the west and to the south along a groundwater divide, shown on Figure 3.9, corresponding to the ridge in the low permeability zone. These deviations in flow generally correlate to the elevation of the top of the low permeability zone.

The groundwater contour map was constructed from water levels measured in February 1996 in monitoring wells which were screened in the sand layer overlying the low permeability zone, below any low permeability layer (silt, clay, peat or marl) which underlies the fill. Table 3.2 shows water level data.

A perched zone of saturation is located in the fill material beneath the southern three-quarters of the pad (cross section B-B' on Figure 3.8). The perched zone is the result of a localized clay lens that separates the fill from the deeper unconsolidated sand. This sand is underlain by an area-wide clay layer, shown on Figures 3.2 and 3.3.

Aquifer Tests

Aquifer pump and baildown tests were conducted in 1990 and 1991 on MW-1 through MW-5 and MW-10. Hydraulic conductivities ranged from 1.9E-02 centimeters per second (cm/sec)(high at MW-4) to 1.0E-04 cm/sec (low at MW-1)(Table 3.3). The wells are screened across the silt/clay and sand layers. Aquifer test data is presented in Appendix B.

Insitu hydraulic conductivity test (slug test) results from testing conducted in 1996 on eight monitoring wells ranged from 5.32E-02 cm/sec (high at DW-22) to 1.05E-05 cm/sec (low at DW-16) (Table 3.4). The wells are all screened in the sand layer overlying the low permeability zone. Data and calculations are presented in Appendix B.

Slug test results for MW-7 and MW-12 were incomplete because the static water levels were within the screened intervals during testing. When this occurs, the injection test data is generally not used, but the withdrawal test data is considered valid. Withdrawal test data for MW-7 was irregular, so no hydraulic conductivity could be reliably calculated for MW-7.

Groundwater Elevations in Monitoring Well Pairs

The water levels measured in pairs of monitoring wells show a consistent downward gradient in the saturated zone (Table 3.2). Monitoring well pairs MW/DW-16, 17, 18, and 19, located at the western and southern boundary of the site had a downward gradient which increased to the southeast. For water levels measured in February 1996, the difference in water levels measured in monitoring well pairs varied from 0.1 foot at the western and southwestern boundary (wells MW/DW-16 and 17) to 2.03 feet at the southeastern boundary (MW/DW-19). The difference in water levels measured for pair MW/DW-18 was 1.17 feet.

Hydraulic Conductivity of Low Permeability Zone

Shelby tube samples were collected from clay layers within the low permeability silt and clay zone encountered in geotechnical borings GT-1 through GT-4. Hydraulic conductivities of the samples were measured using triaxial permeability tests (Table 3.1).

Permeabilities ranged from 1.33E-07 cm/sec (high at GT-2, 29 feet below ground surface) to 1.21E-08 cm/sec (low at GT-4, 41 feet below ground surface). Sample

depths ranged from 21 to 79.5 feet below ground surface. The triaxial permeability test report is located in Appendix C. The very low hydraulic conductivities indicate that groundwater flow in the overlying sand of the saturated zone is preferentially horizontal and that downward mobility of groundwater through the low permeability zone, if occurring, is extremely slow.

WEST YARD BOUNDARY

FORMER SALVAGE BUILDING

HAZARDOUS WASTE STORAGE PAD

FORMER INCINERATOR

POWER STATION

FOUNDRY SAND FILL AREA

FORMER CENTRAL FOUNDRY DIVISION PLANT 6

TELEPHONE POLE

10'x10' BLOCK BLDG.

FILLED IN SETTLING BASIN AREA

WEST YARD BOUNDARY

SEWER

FORMER COMPRESSOR BUILDING

FORMER CRANE BAY

FOUNDRY SAND FILL AREA

RAILROAD MARSHALLING AREA

FOUNDRY SAND FILL AREA

GATE

8" &12" WATER LINE

PUMP HOUSE

WEST YARD BOUNDARY

MONTCALM STREET

STORM SEWER

ELECTRICAL CABLE TO BE INSTALLED

A

A'

B

B'

SB1 SB2 SB3 SB4 SB5

GT-1 GT-2 GT-3 GT-4

TT 1 TT 2 TT 3 TT 4 TT 5

MW-1 MW-2 MW-3 MW-4 MW-5 MW-6 MW-7 MW-8 MW-9 MW-10 MW-11 MW-12 MW-13 MW-14

MW-16/DW-16 MW-17/DW-17 MW-18/DW-18 MW-19/DW-19 MW-20/DW-20 MW-22/DW-22 MW-23

WD-1 WD-2 WD-3 DW-21

LEGEND

- WD — BORING IN WASTE DISPOSAL AREAS
- MW/DW — NESTED OR SINGLE WELL(S)
- TT — TEST TRENCHES
- GT — GEOTECH BORING (PERMEABILITY)
- SB — BORINGS
- MW-9 — INOPERABLE WELL
- MW-5 — PREVIOUSLY INSTALLED MONITORING WELLS
- B' — CROSS SECTION LINE
- * DESIGNATES LOCATIONS PROJECTED PERPENDICULARLY INTO THE LINE OF SECTION

100' 50' 0 100'

Approximate Scale in Feet

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FIGURE 3.1

GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN
GM - WEST YARD

WEST YARD CROSS SECTION LOCATION MAP

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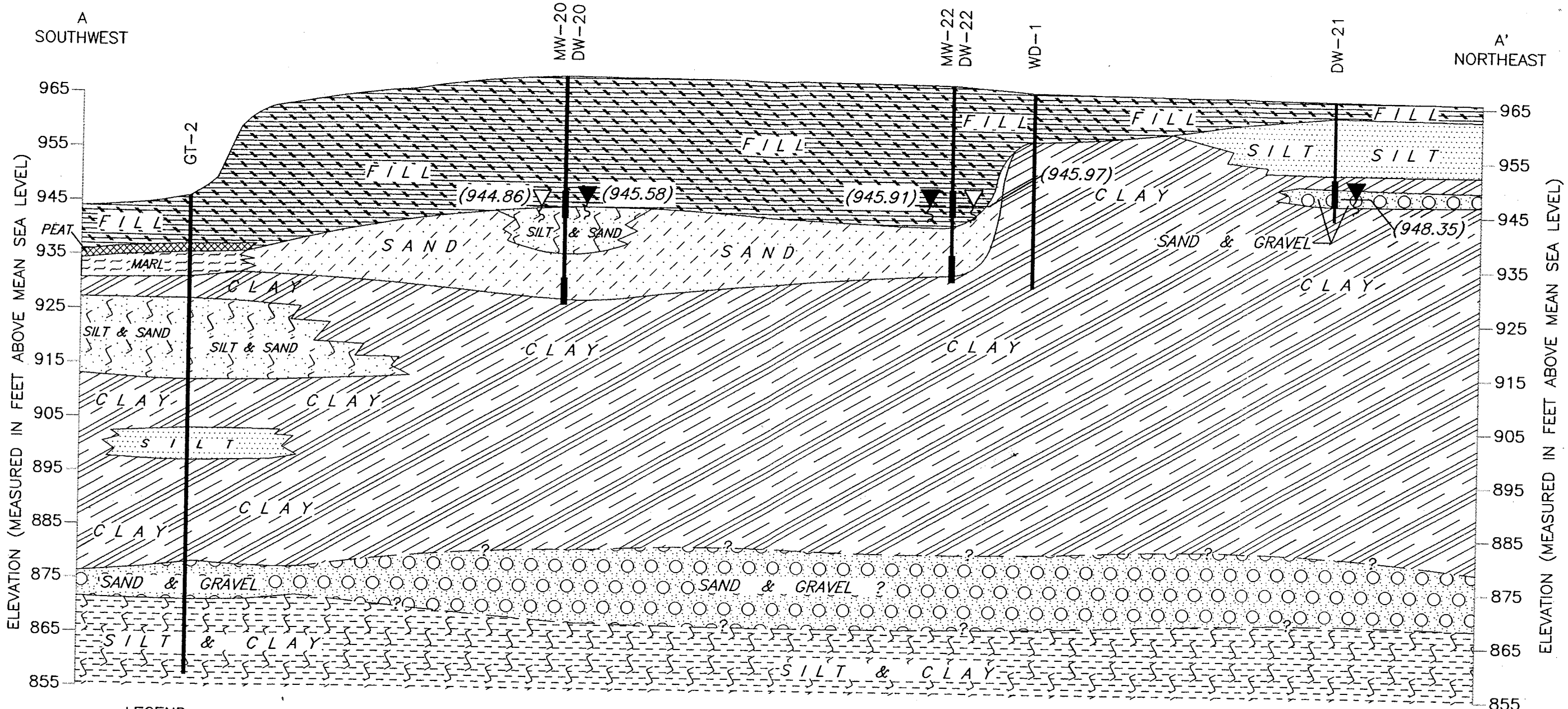

LEGEND

- GT GEOTECHNICAL SOIL BORING
- SB SOIL BORING
- DW/MW MONITORING WELLS
- STATIC WATER LEVEL IN DEEP WELLS
- STATIC WATER LEVEL IN SHALLOW WELLS
- (945.58) WATER LEVEL ELEVATION
- INFERRED BOUNDARY OF STRATUM DUE TO LACK OF DATA
- WELL OR BORING
- MONITORING WELL SCREEN INTERVAL

20' 10' 0 20'
Approximate Scale in Feet
VERTICAL SCALE

100' 50' 0 100'
Approximate Scale in Feet
HORIZONTAL SCALE

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FIGURE 3.2
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN
GM - WEST YARD
CROSS SECTION
A-A'

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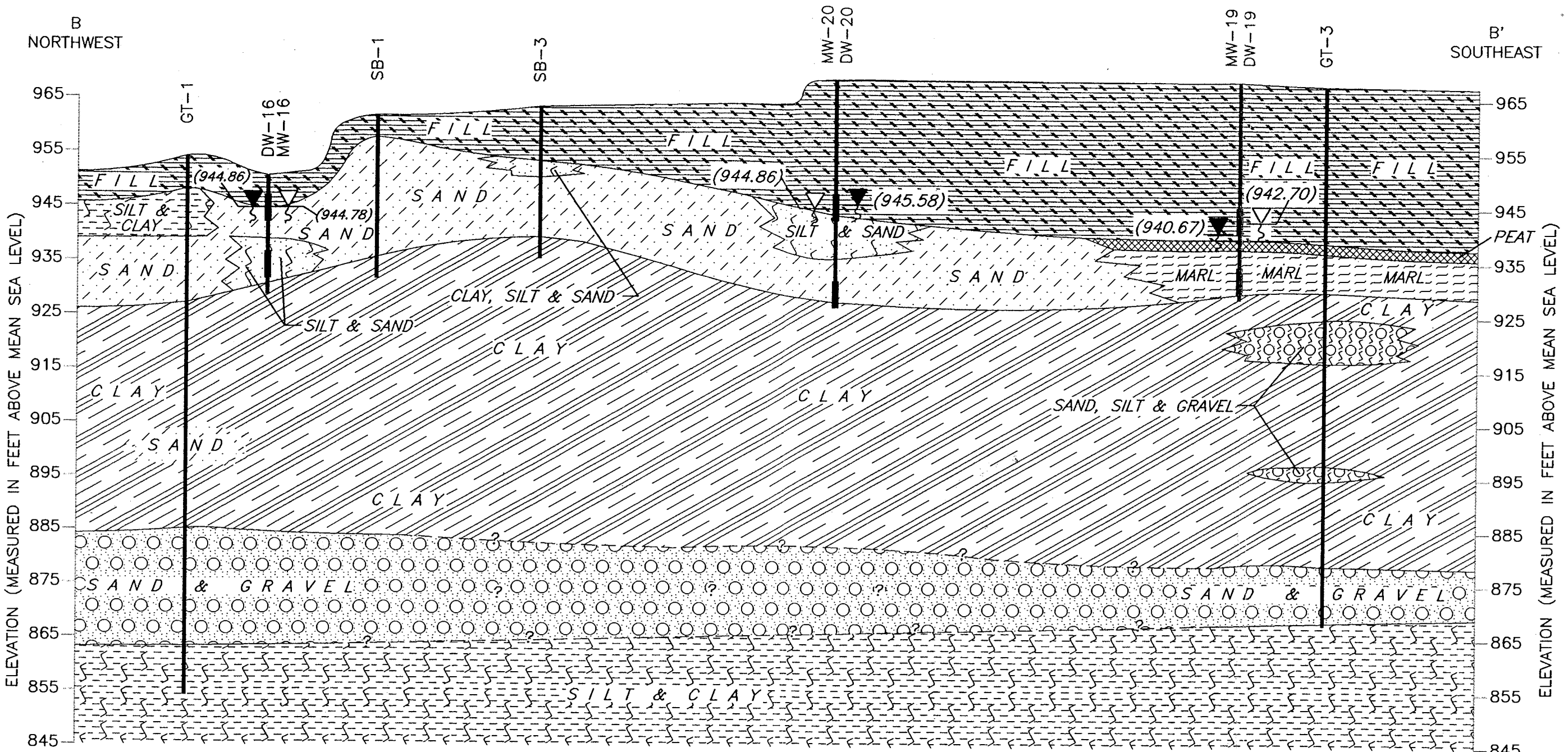

LEGEND

GT GEOTECHNICAL SOIL BORING

SB SOIL BORING

DW/MW MONITORING WELLS

STATIC WATER LEVEL IN DEEP WELLS

STATIC WATER LEVEL IN SHALLOW WELLS

(944.78) WATER LEVEL ELEVATION

WELL OR BORING

MONITORING WELL SCREEN INTERVAL

INFERRED BOUNDARY OF STRATUM DUE TO LACK OF DATA

20' 10' 0 20'
Approximate Scale in Feet
VERTICAL SCALE

100' 50' 0 100'
Approximate Scale in Feet
HORIZONTAL SCALE

FIGURE 3.3
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN
GM – WEST YARD
CROSS SECTION
B – B"

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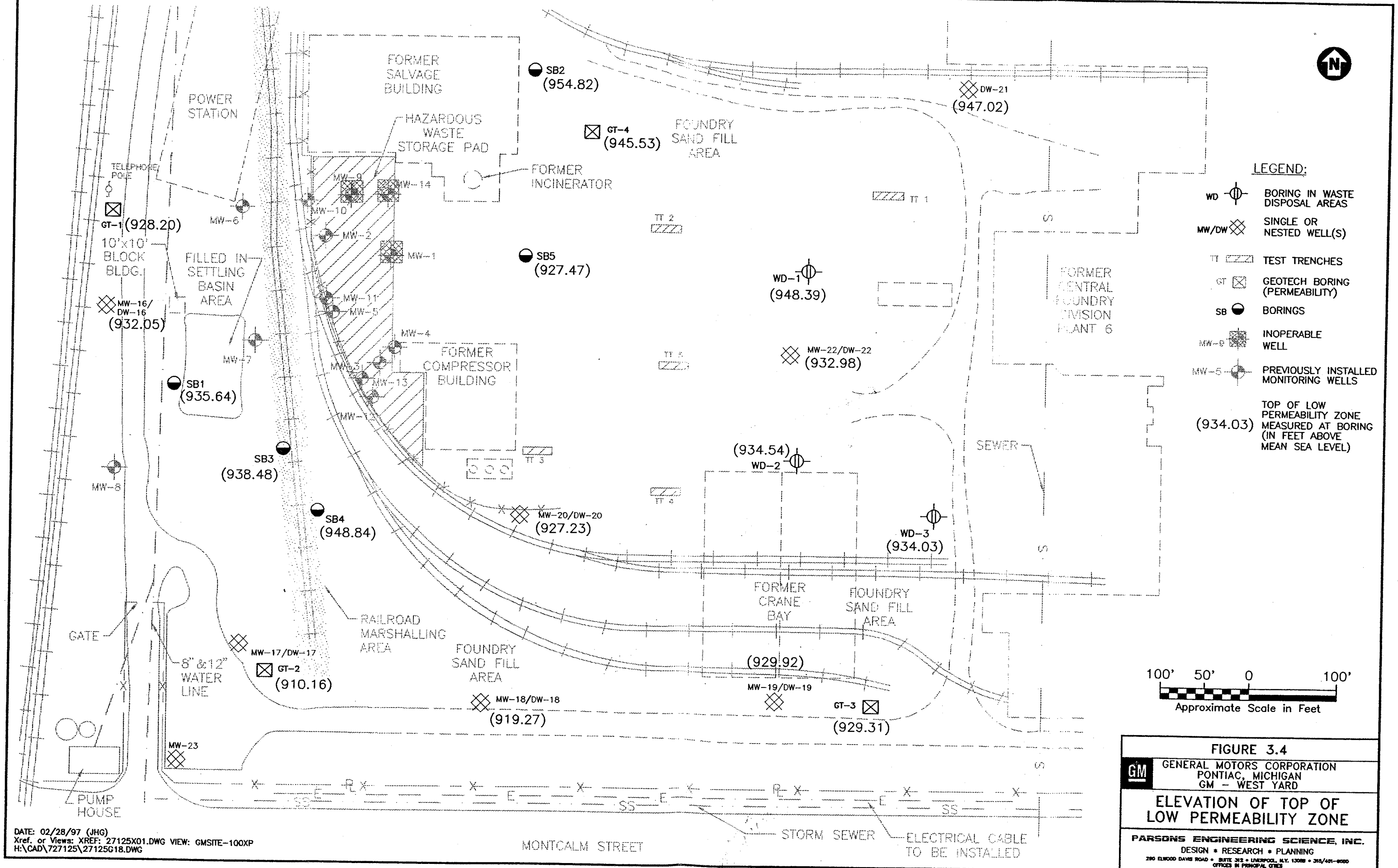

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FIGURE 3.4

GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN
GM - WEST YARD

ELEVATION OF TOP OF LOW PERMEABILITY ZONE

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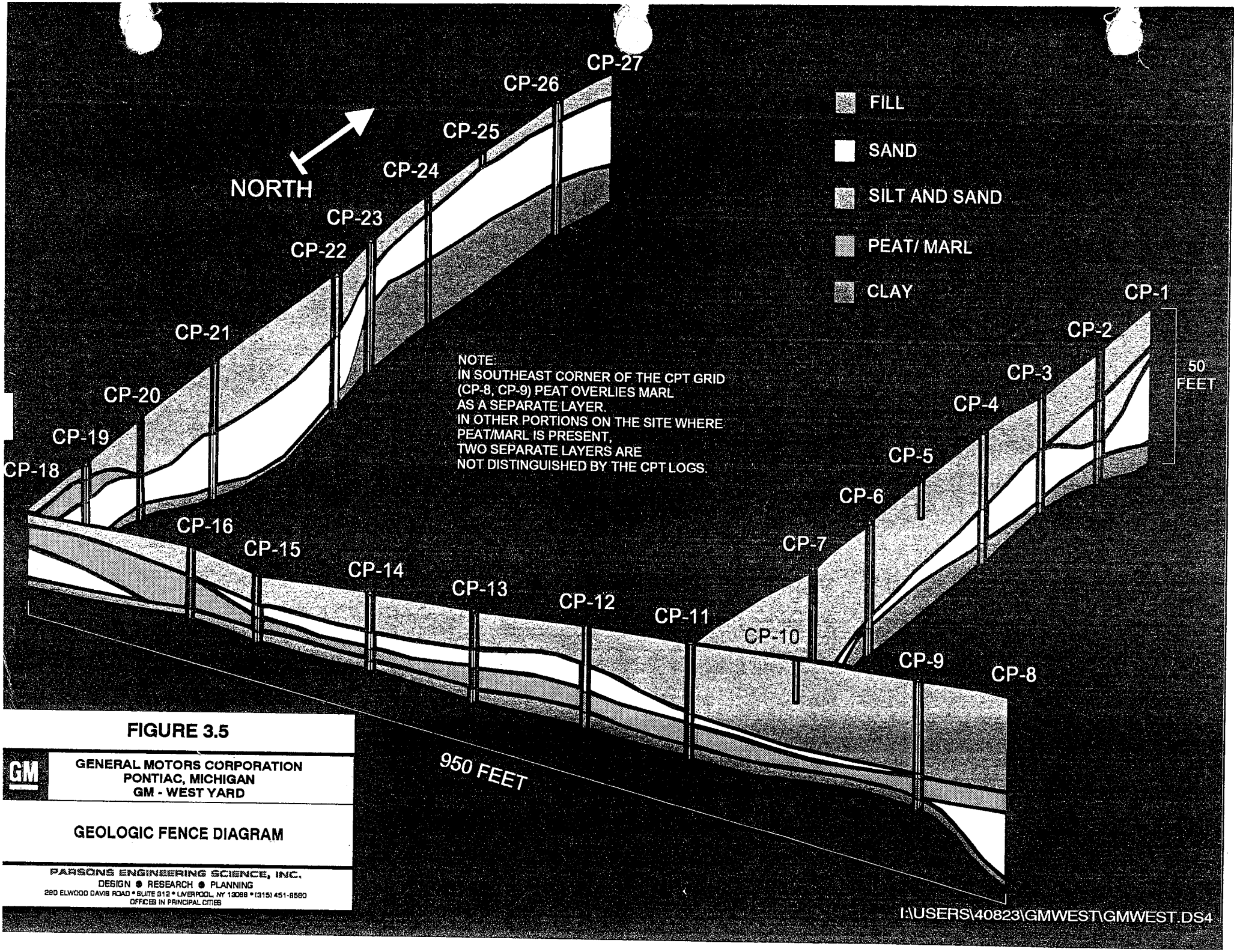

FIGURE 3.5

GM

GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN
GM - WEST YARD

GEOLOGIC FENCE DIAGRAM

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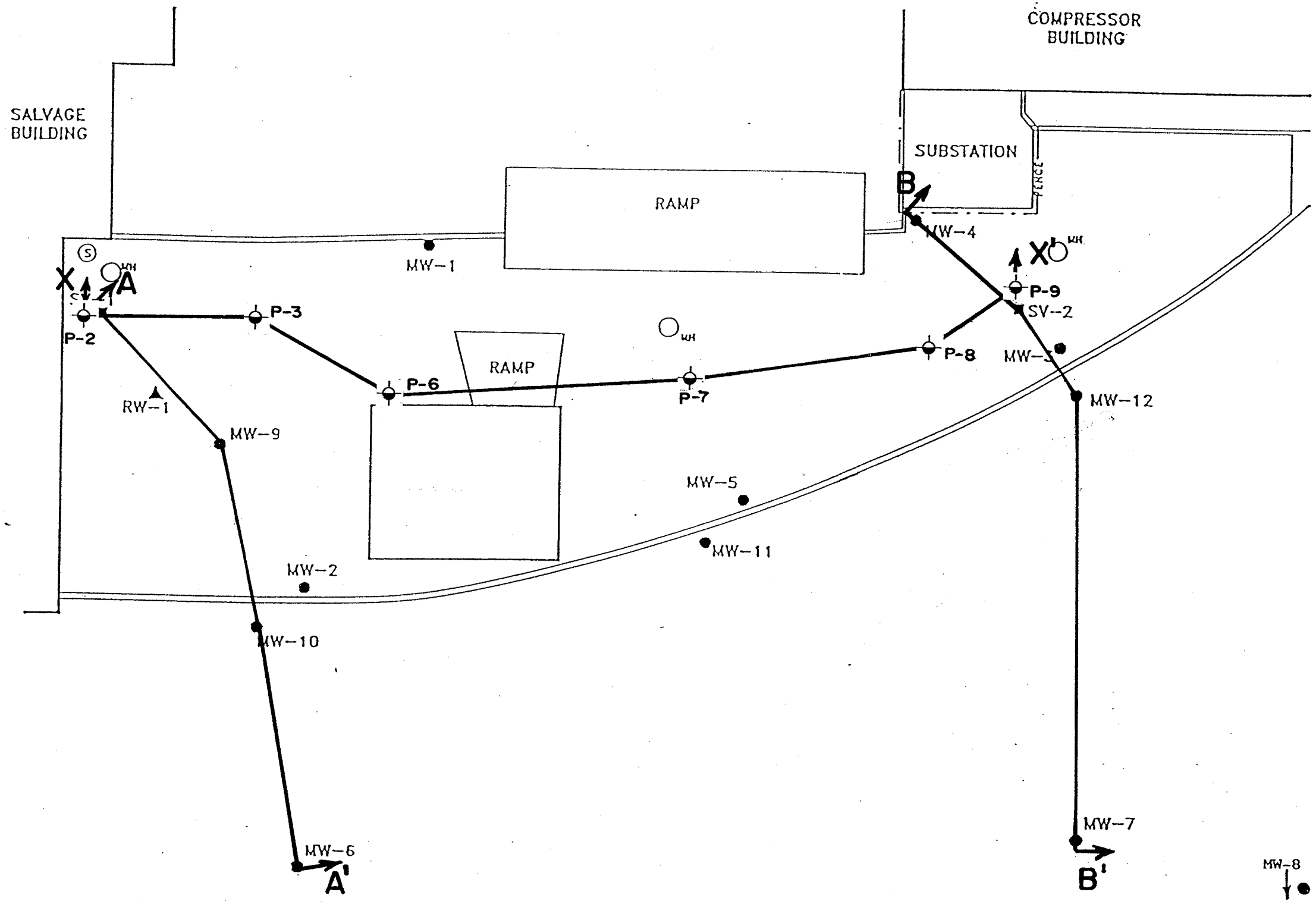

LEGEND

- ● – MONITORING WELL
- ■ – SOIL VAPOR EXTRACTION WELL
- ▲ – RECOVERY WELL
- Ⓢ – SUMP
- ○MH – SEWER MANHOLE
- B — B' – CROSS SECTION LINE
- P2 – SOIL BORINGS

0 30 60

SCALE IN FEET (approximate)

SOURCE: DAMES & MOORE, 1989.

GROUNDWATER TECHNOLOGY, INC., 1991.

REVISED: 11/22/96 (GTC)
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FIGURE 3.6

GM GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN
GM – WEST YARD

STORAGE PAD CROSS SECTION LOCATION MAP

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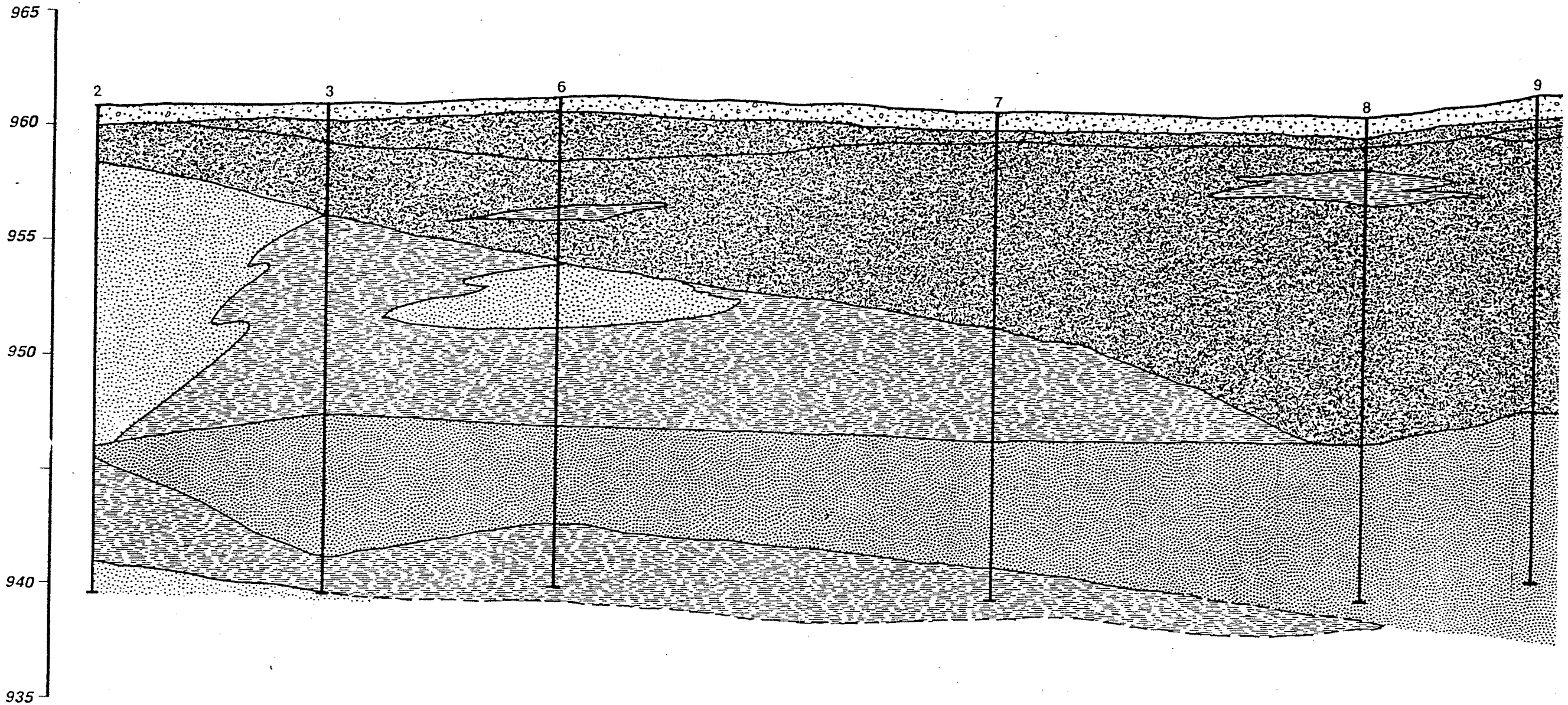
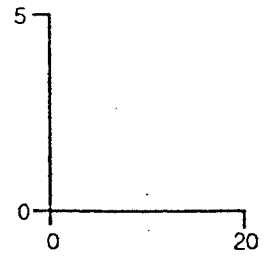
OFFICES IN PRINCIPAL CITIES

X
NORTH

X'
SOUTH





SCALE IN FEET
Vertical Exaggeration = 4x

LEGEND:

10 BOREHOLE NUMBER

CONCRETE

FILL

FINE SAND

CLAY

SILT

SOURCE: DAMES & MOORE, 1989.

FIGURE 3.7

GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN
GM – WEST YARD

PAD CROSS SECTION
X–X'

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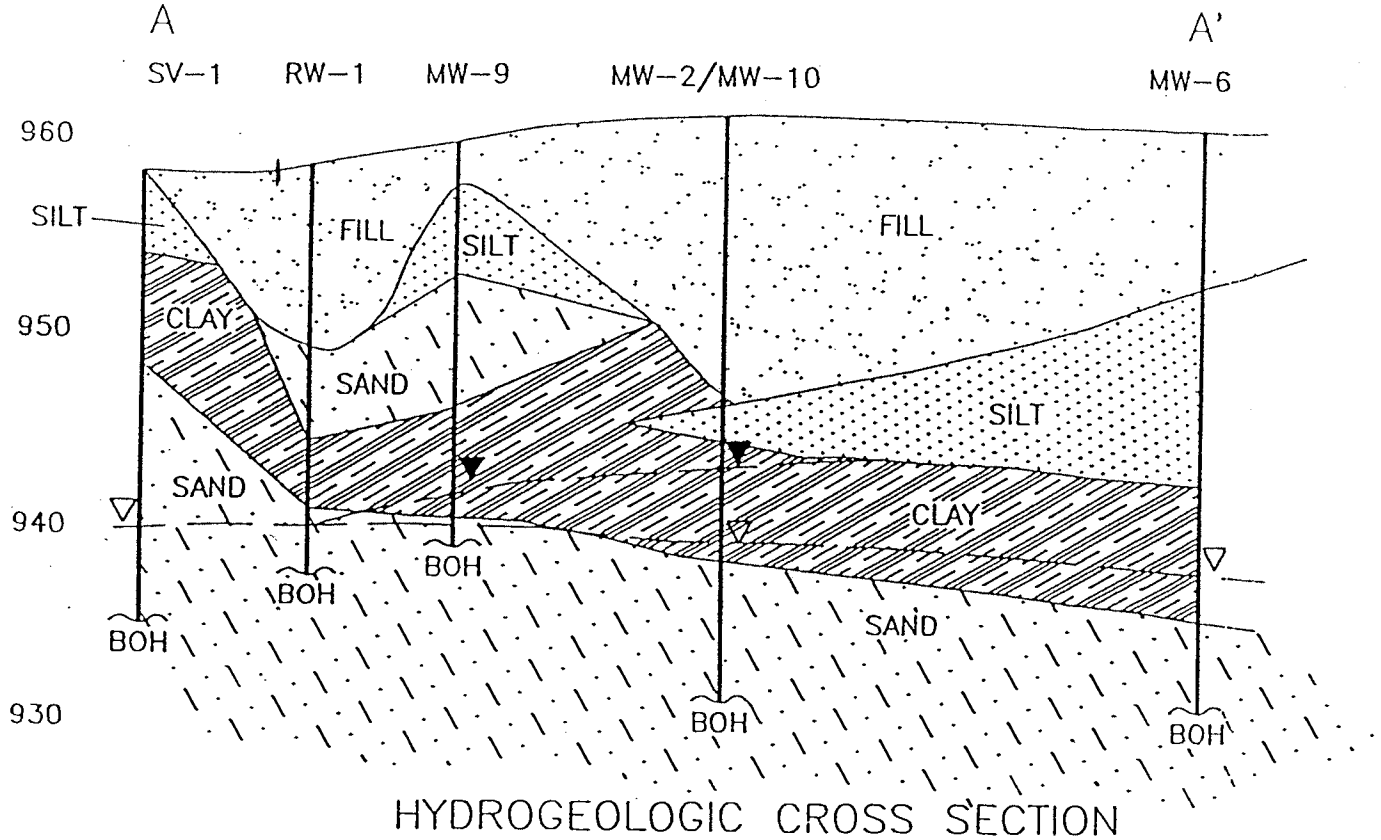
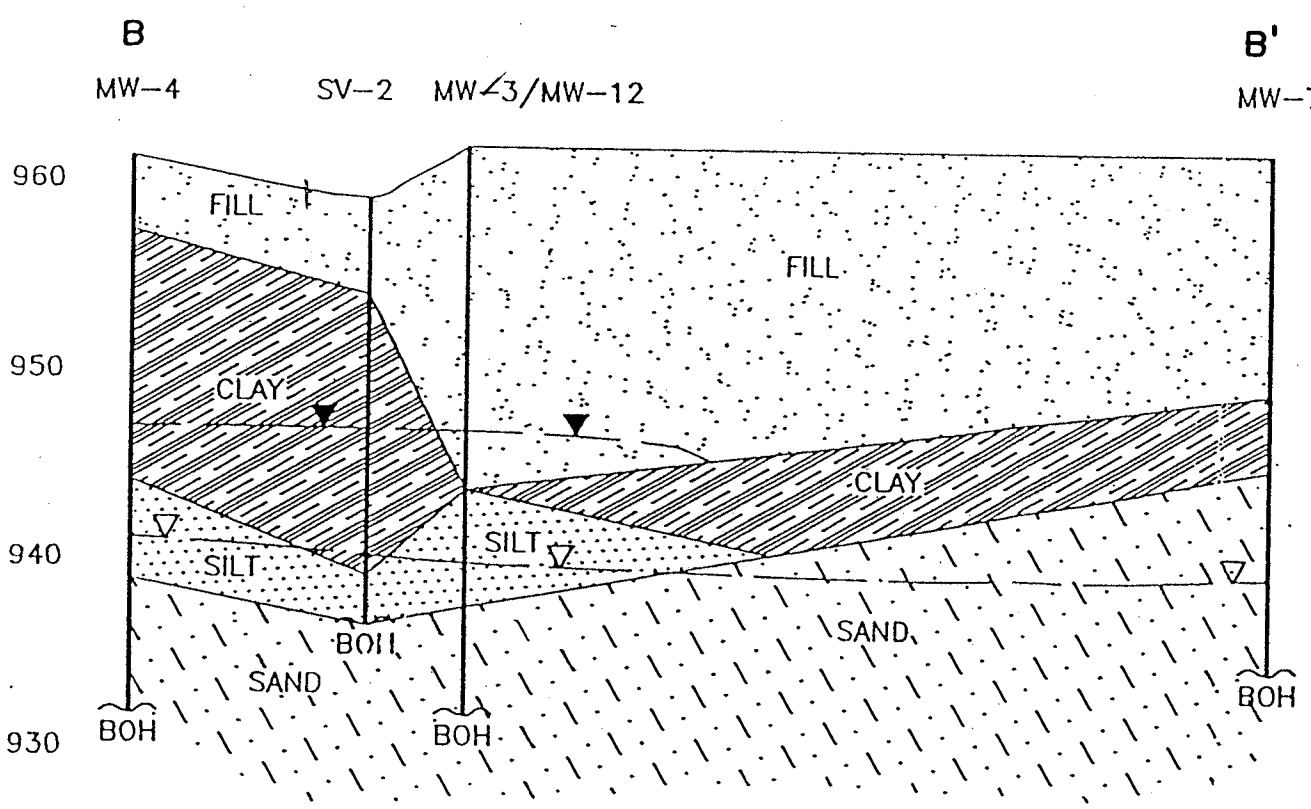


HYDROGEOLOGIC CROSS SECTION
SECTION A – A'



HYDROGEOLOGIC CROSS SECTION
SECTION B – B'

LEGEND

- ▽ – WATER TABLE
- ▼ – PERCHED ZONE
- — — — LINE OF POTENTIOMETRIC SURFACE
- BOH – BOTTOM OF HOLE

- – CLAY
- – SILT
- – SAND
- – FILL

VERTICAL
0 10 20
0 30 60
HORIZONTAL
SCALE IN FEET

SOURCE: GROUNDWATER TECHNOLOGY, INC., 1991.

FIGURE 3.8

GM GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN
GM – WEST YARD

PAD CROSS SECTIONS
A – A' AND B – B'

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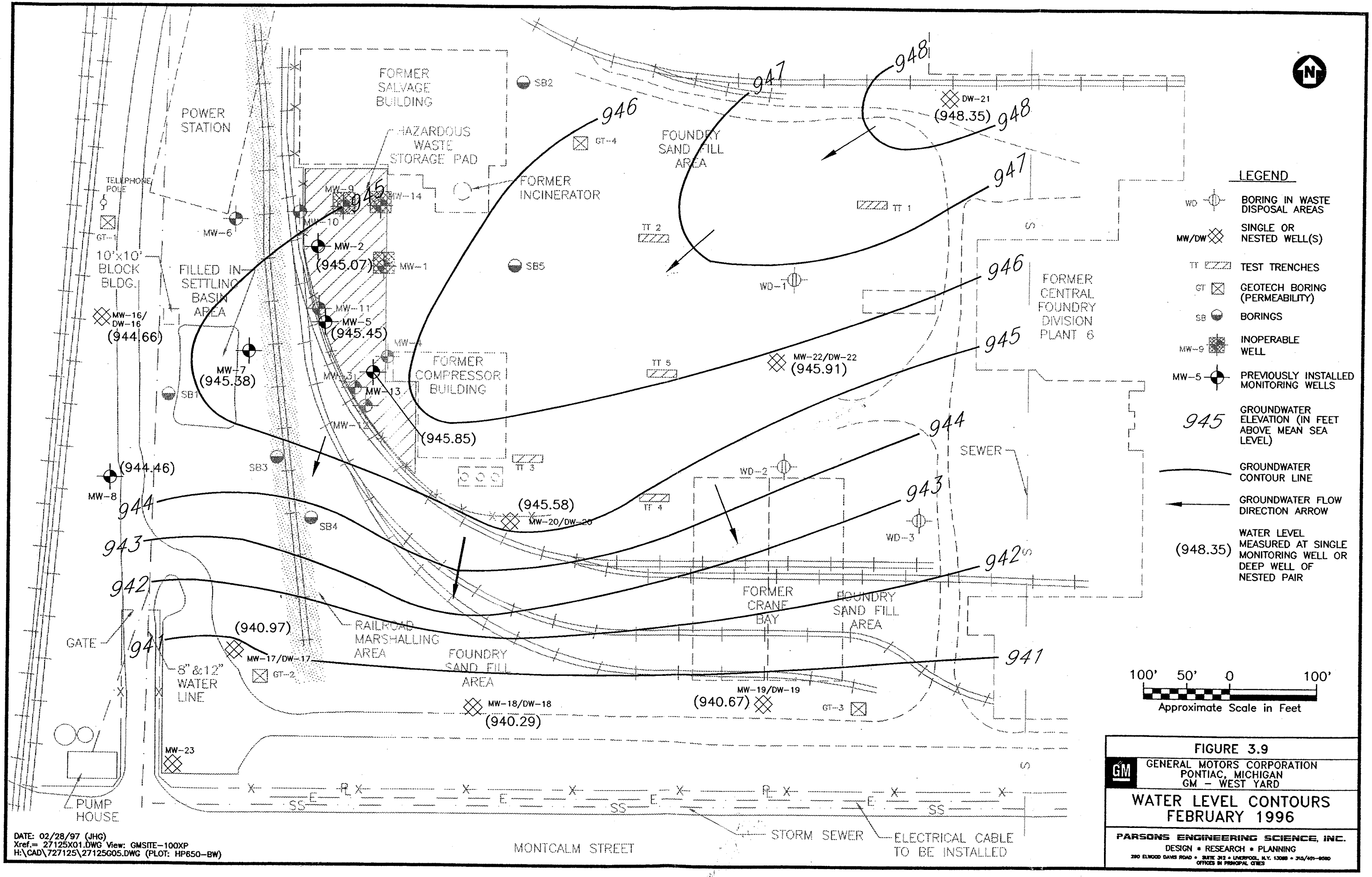

DATE: 02/28/97 (JHG)
Xref.= 27125X01.DWG View: GMSITE-100XP
H:\CAD\727125\27125G05.DWG (PLOT: HP650-BW)

FIGURE 3.9

GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN
GM - WEST YARD

WATER LEVEL CONTOURS FEBRUARY 1996

PARSONS ENGINEERING SCIENCE, INC.
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TABLE 3.1
WEST YARD INVESTIGATIONS
GM, PONTIAC, MICHIGAN

LOW PERMEABILITY ZONE ELEVATIONS AND GEOTECHNICAL RESULTS

BORING OR WELL ID	BORING OR WELL DEPTH *	GROUND SURFACE **	DEPTH TO LOW PERM ZONE	ELEV LOW PERM ZONE	GEOTECHNICAL TESTING (TRIAXIAL PERMEABILITY)					
					DEPTH *	PERM ***	DEPTH *	PERM ***	DEPTH *	PERM ***
MW-2	30.00	963.68								
MW-3	30.00	964.99								
MW-4	35.00	963.25								
MW-5	30.00	964.44								
MW-6	28.00	964.06								
MW-7	28.00	963.82								
MW-8	18.00	949.83								
MW-10	22.00	964.67								
MW-11	22.00	964.33								
MW-12	22.00	964.19								
MW-13	15.00	963.31								
MW-16	12.65	950.05								
DW-16	22.32	950.05	18.00	932.05						
MW-17	11.10	946.16								
DW-17	17.20	946.16								
MW-18	19.70	955.27								
DW-18	39.60	955.27	36.00	919.27						
MW-19	31.00	968.42								
DW-19	41.00	968.42	38.50	929.92						
MW-20	28.85	968.73								
DW-20	45.63	968.73	41.50	927.23						
DW-21	21.85	966.02	19.00	947.02						
MW-22	28.20	967.98								
DW-22	38.20	967.98	35.00	932.98						
WD-1	36.00	966.89	18.50	948.39						
WD-2	38.00	968.54	34.00	934.54						
WD-3	38.00	969.03	35.00	934.03						
SB-1	30.00	961.64	26.00	935.64						
SB-2	18.00	963.82	9.00	954.82						
SB-3	28.00	963.48	25.00	938.48						
SB-4	24.00	966.34	17.50	948.84						
SB-5	40.00	963.47	36.00	927.47						
GT-1	100.00	954.20	26.00	928.20	29.00	2.55E-08				
GT-2	89.00	946.16	36.00	910.16	21.00	1.33E-07	38.00	3.90E-08	65.00	2.78E-08
GT-3	100.00	967.81	38.50	929.31	41.00	1.67E-08	57.00	1.32E-08	79.50	1.46E-08
GT-4	94.00	963.03	17.50	945.53	23.50	2.62E-08	41.00	1.21E-08		

* FEET BELOW GROUND SURFACE
** FEET ABOVE MEAN SEA LEVEL
*** PERMEABILITY IN CENTIMETERS PER SECOND

TABLE 3.2
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
GROUNDWATER LEVELS

WELL ID	WELL DEPTH *	TOP OF CASING **	WATER ELEVATION (MSL)											
			1-Dec-88	13-Mar-89	2-May-90	8-May-30	5-Jun-90	12-Jun-90	13-Jun-90	25-Jun-90	16-Jan-96	21-Dec-96	19-Jan-96	13-Feb-96
MW-2	30.00	965.67	939.88	939.43	939.07	940.07	939.69	938.46	939.51	939.41	NA	NA	945.22	945.07
MW-3	30.00	966.97	938.57	938.18	937.84	NR	NR	937.29	NR	NR	NA	NA	950.37	
MW-4	35.00	964.98	939.64	939.14	938.78	NR	NR	938.23	NR	NR	NA	NA	951.35	951.24
MW-5	30.00	966.42	939.26	938.79	938.57	939.46	NR	937.85	NR	NR	NA	NA	945.62	945.45
MW-6	28.00	966.30	NA	938.64	938.44	939.48	936.87	937.88	937.67	937.98	NA	NA	937.37	
MW-7	28.00	966.12	NA	938.61	937.32	NR	NR	NR	NR	NR	NA	NA	945.53	945.38
MW-8	18.00	952.44	NA	937.78	937.34	NR	NR	NR	NR	NR	NA	NA	944.91	944.46
MW-10	22.00	966.62	NA	NA	942.18	943.47	943.59	942.18	943.38	943.13	NA	NA	947.92	949.22
MW-11	22.00	965.94	NA	NA	941.94	943.05	NR	941.75	NR	NR	NA	NA	947.24	947.11
MW-12	22.00	966.23	NA	NA	945.45	946.42	NR	944.8	NR	NR	NA	NA	945.86	945.85
MW-13	15.00	965.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	949.37	
MW-16	12.65	952.59	NA	NA	NA	NA	NA	NA	NA	NA	944.91	944.96	945.1	944.76
DW-16	22.32	952.38	NA	NA	NA	NA	NA	NA	NA	NA	944.46	944.75	943.7	944.66
MW-17	11.10	948.55	NA	NA	NA	NA	NA	NA	NA	NA	941.03	941.24	941.24	941.1
DW-17	17.20	948.64	NA	NA	NA	NA	NA	NA	NA	NA	940.72	941.33	941.29	940.97
MW-18	19.70	957.78	NA	NA	NA	NA	NA	NA	NA	NA	941.32	941.55	941.64	941.38
DW-18	39.60	957.69	NA	NA	NA	NA	NA	NA	NA	NA	940.45	938.73	940.55	940.29
MW-19	31.00	971.01	NA	NA	NA	NA	NA	NA	NA	NA	942.8	943.56	942.93	942.7
DW-19	41.00	970.77	NA	NA	NA	NA	NA	NA	NA	NA	951.04	941.49	941.13	940.67
MW-20	28.85	971.20	NA	NA	NA	NA	NA	NA	NA	NA	945.22	945.52	945.15	944.86
DW-20	45.63	971.03	NA	NA	NA	NA	NA	NA	NA	NA	945.63	945.62	945.56	945.58
DW-21	21.85	968.21	NA	NA	NA	NA	NA	NA	NA	NA	949.23	949.53	949.21	948.35
MW-22	28.20	970.37	NA	NA	NA	NA	NA	NA	NA	NA	946.35	946.44	946.11	945.97
DW-22	38.20	970.31	NA	NA	NA	NA	NA	NA	NA	NA	946.15	946.27	946.01	945.91

* FEET BELOW GROUND SURFACE
** FEET ABOVE MEAN SEA LEVEL
NA - Not Applicable
NR - Not Recorded

TABLE 3.3
WEST YARD INVESTIGATIONS
GM, PONTIAC, MICHIGAN
CLOSURE INVESTIGATIONS AQUIFER TEST RESULTS

Well	Test Method	Hydraulic Condutivity	
		ft/day	cm/sec
MW-1	Baildown	0.3	$1.0^{6} \times 10^{-4}$
MW-2	Pump	12.6	4.4×10^{-3}
MW-3	Baildown	0.8	2.8×10^{-4}
MW-4	Pump	5.47	1.9×10^{-2}
MW-5	Baildown	0.4	1.4×10^{-4}
MW-1	Pump	2.7	9.5×10^{-4}
MW-2	Pump	2.7	9.5×10^{-4}
MW-10	Pump	16.8	5.9×10^{-3}
SV-1	Pump	2.8	9.9×10^{-4}

TABLE 3.4
WEST YARD AND STORAGE INVESTIGATIONS
GM, PONTIAC, MICHIGAN
WEST YARD INVESTIGATION SLUG TEST SUMMARY SHEET

WELL NUMBER	TEST TYPE	ANALYSIS	INITIAL DRAWDOWN (ft)	RADIUS OF WELL CASING (ft)	WELL RADIUS (ft)	SCREEN LENGTH (ft)	SATURATED THICKNESS (ft)	K (ft/min)	y0 (ft)	K (cm/Sec)
MW-7	Injection	Bouwer-Rice	0.25	0.080	0.33	10.0	9.41	1.89E-02	119.7000	3.75E-02
MW-7	Withdrawal	Bouwer-Rice	0.25	0.080	0.33	10.0	10.41	(1)	(1)	(1)
MW-8	Injection	Bouwer-Rice	0.94	0.080	0.33	10.0	13.47	3.78E-03	1.2830	7.51E-03
MW-8	Withdrawal	Bouwer-Rice	1.00	0.080	0.33	10.0	13.47	3.84E-03	1.4580	7.64E-03
MW-12	Injection	Bouwer-Rice	0.85	0.080	0.33	15.0	4.43	9.79E-04	0.6788	1.95E-03
MW-12	Withdrawal	Bouwer-Rice	0.69	0.080	0.33	15.0	4.43	2.09E-03 (2)	0.7220 (2)	4.15E-03 (2)
DW-17	Injection	Bouwer-Rice	1.13	0.080	0.33	5.0	10.29	1.51E-03	0.9956	3.00E-03
DW-17	Withdrawal	Bouwer-Rice	1.20	0.080	0.33	5.0	9.80	1.48E-03	0.9499	2.93E-03
DW-16	Injection	Bouwer-Rice	1.80	0.080	0.33	5.0	13.67	5.26E-06	1.6590	1.05E-05
DW-16	Withdrawl	Bouwer-Rice	2.53	0.080	0.33	5.0	15.09	1.01E-05	1.4030	2.00E-05
DW-18	Injection	Bouwer-Rice	1.13	0.080	0.33	5.0	21.20	1.24E-02	0.9315	2.46E-02
DW-18	Withdrawal	Bouwer-Rice	0.79	0.080	0.33	5.0	21.20	1.32E-02	1.4190	2.62E-02
DW-19	Injection	Bouwer-Rice	1.22	0.080	0.33	5.0	9.49	1.23E-04	0.9658	2.44E-04
DW-19	Withdrawal	Bouwer-Rice	1.27	0.080	0.33	5.0	9.49	4.58E-05	0.8399	9.09E-05
DW-20	Injection	Bouwer-Rice	0.98	0.080	0.33	5.0	18.70	1.96E-02	3.8110	3.89E-02
DW-20	Withdrawal	Bouwer-Rice	0.98	0.080	0.33	5.0	18.70	2.68E-02	2.2640	5.32E-02
DW-22	Injection	Bouwer-Rice	0.21	0.080	0.33	5.0	12.01	6.29E-03	3.2350	1.25E-02
DW-22	Withdrawal	Bouwer-Rice	0.21	0.080	0.33	5.0	12.01	2.88E-03	0.2134	5.72E-03

(1) Due to erratic data, a line of best fit could not be established for this test. Therefore, the results have been declared invalid.
(2) Withdrawal test data questionable because static water level in screened interval.

SECTION 4

DISCUSSION OF RESULTS

4.1 INTRODUCTION

This section presents and discusses the analytical results from previous activities associated with the hazardous waste storage pad and the current West Yard investigation activities. The storage pad closure analytical results for the pad surface and pad materials are presented and discussed relative to the specified criteria in the MDEQ-approved closure plan. The analytical results from soil and groundwater sampling conducted during the closure activities and the West Yard investigation are presented and discussed relative to the generic industrial land use-based criteria and soil saturation screening concentrations for soil and groundwater established under Part 201 of the Natural Resources and Environmental Protection Act (P.A. 451). As part of this conservative screening process, the analytical results were compared to the soil criteria on a location-by-location basis, not a statistical basis.

Comparison to the Part 201 criteria for industrial sites was considered most appropriate for several reasons. The West Yard is part of a large manufacturing site that has been operating since the 1920s. Given the history and nature of the site, the anticipated future use is industrial/commercial. Therefore, industrial criteria are most applicable and useful for assessing the potential impact of existing contamination.

Furthermore, a single set of criteria was needed for screening purposes for this phase of work. Part 201 is the one common program that potentially applies to all portions of the West Yard. As shown on Figure 4.1, the eastern and central parts of the West Yard are controlled by the former foundry facility (Central Foundry Division, MID085470102). The former foundry facility is potentially subject to Part 201 but not the corrective action requirements under Part 111. The west end of the West Yard is part of the automotive manufacturing and support facility (Pontiac Motor Division, then CPC Division, MID005356886). That facility had a RCRA storage pad at the west end of the West Yard which has been unable to achieve final closure due to contamination from sources other than the pad. Thus the west end of the West Yard is potentially subject to both Part 201 and Part 111.

Essentially, Part 201 criteria are being used for screening soil and groundwater analytical data because the purpose of the investigations is to identify potential sources and the extent of contamination, to a level appropriate for an industrial land use setting, and where a significant portion of the site is not subject to Part 111.

Following submittal of the report, appropriate response activities will be evaluated to address environmental conditions in the West Yard. Response activities necessary to address the storage pad area will incorporate criteria that may also be acceptable pursuant to Part 111.

MDEQ has promulgated several sets of soil and groundwater criteria applicable to industrial sites under Part 201 for the protection of human health and the environment. The West Yard sample results are compared to the criteria for the exposure pathways that are potentially completed. A brief description of these pathways for the West Yard and the criteria used for comparison with data obtained during the investigation is discussed below. Additional details on the potential exposure pathways is presented in the discussion of migration analysis in Section 5.

Soil Pathways and Criteria

The potential pathways by which onsite workers might be exposed to hazardous compounds in site soils include dermal contact, ingestion, and inhalation. All of these are pathways that may potentially be completed at the West Yard because surface soils are exposed, and subsurface soils could be disturbed during typical excavation/construction.

Part 201 generic soil criteria, based on risk and protective of the long-term health of industrial site workers, have been developed for the potential exposure pathways of dermal contact, ingestion, and inhalation. There is one set of criteria for dermal contact and ingestion, termed direct contact, contained in Environmental Response Division (ERD) Operational Memorandum, #14, Revision 2, first issued on June 6, 1994 and last revised on January 25, 1996 (MDEQ, 1996a) and the Addendum to Operational Memoranda #8, Revision 4 and #14, Revision 2 (MDEQ, 1996b). The inhalation criteria, covering both volatile compounds and particulates, are presented in the ERD Generic Soil Inhalation Criteria for Ambient Air: Technical Support Document, (MDEQ, 1997d).

Generic soil criteria have also been developed by ERD that are protective of groundwater. The migration of contaminants from soil to groundwater is dependent on contaminant release from soil into soil pore water and pore air, which is based on a linear equilibrium soil/water partition (SWP) equation. These criteria are designated soil/water partitioning (SWP) criteria. Three sets of SWP criteria have been developed (ERD Generic Soil/Water Partitioning Criteria: Technical Support Document, January 17, 1997) for application at residential sites, at groundwater/surface water interface (GSI) areas, and at sites where contact with groundwater is the primary exposure pathway (MDEQ, 1997c). Only the third set of criteria for groundwater contact (GCC SWP criteria) are appropriate for the West Yard, since the former, current, and anticipated future land use at the West Yard is industrial/commercial, and there is no surface water on or immediately adjacent to the West Yard.

EDR has also developed generic soil saturation (C_{sat}) screening concentrations to indicate when free phase contaminants may be present in soils. These concentrations are intended to serve as an upper limit to the applicability of generic risk-based soil criteria, because certain default assumptions and models within the generic algorithm are not applicable when free phase contaminant is present in soil. C_{sat} concentrations have been developed to trigger a more in-depth evaluation of health and environmental risks when C_{sat} criteria are exceeded. Concentrations greater than C_{sat} criteria may not require a remedial response if saturated conditions are demonstrated not to exist. West Yard soil sample concentrations are compared to C_{sat} concentrations, as

presented in ERD Generic Soil Saturation Screening Concentrations: Technical Support Document, November 19, 1996 (MDEQ, 1997b).

The Generic Industrial Direct Contact Criteria, the Generic GCC SWP criteria, the Generic C_{sat} concentrations, and the Generic Soil Inhalation Criteria are referred to collectively in this report as the soil screening criteria. The soil screening criteria for all compounds detected during closure and West Yard investigation soil sampling are listed in Table 4.1.

Groundwater Pathways and Criteria

Part 201 generic groundwater criteria have been developed by ERD to be protective of human health and the environment at industrial sites. The potential human health exposure pathways are ingestion, dermal contact, and inhalation. Of these, dermal contact and inhalation by site workers are potential exposure pathways at the West Yard. Ingestion is not a completed pathway because groundwater is not used as a drinking water source at the West Yard or downgradient. The City of Pontiac supplies water to the community from sources other than locally-obtained groundwater. Generic Groundwater Contact Criteria (GCC) have been developed (ERD Generic Groundwater Contact Criteria: Technical Support Document, January 17, 1997) to address dermal contact with groundwater contaminants where groundwater ingestion is not relevant, as in the West Yard (MDEQ, 1997a). These criteria address exposures that result from subsurface excavations, such as may result from subsurface utility repair, maintenance and operation. No criteria have been developed by MDEQ for the inhalation pathway from groundwater. Potential exposure pathways are discussed in more detail in Section 5.

Another potential pathway for groundwater constituents is through migration to surface water. Although generic criteria have been developed for the groundwater/surface water interface (GSI), these are not applicable to West Yard groundwater because no surface water exists in or immediately adjacent to the West Yard.

4.2 HAZARDOUS WASTE STORAGE PAD CLOSURE ANALYTICAL RESULTS

Closure activities include initial closure activities conducted by Dames & Moore in 1988 and 1989 and additional closure activities conducted by GTI from 1989 through 1991.

Analytical results from closure samples from the pad surface and the pad materials (see Figure 2.1) were compared to the closure criteria in the MDEQ-approved closure plan, listed in Table 4.2. The closure criteria would be met if samples did not contain any detectable organics, or lead concentrations equal or less than a concentration derived from a statistical analysis of background samples.

4.2.1 Hazardous Waste Storage Pad Analytical Results

Following cleaning of the storage pad, wipe samples were collected at seven locations and analyzed for the closure plan analytes to evaluate the effectiveness of the

cleaning. After the final rinse of the pad, samples of rinsate from the pad, the floor of the hazardous waste storage building, and the sewer lines underneath the pad were collected and analyzed for the closure plan analytes. Wipe and rinsate sample results are shown in Tables 4.3 and 4.4, respectively. The wipe sample results indicate that the pad was cleaned to acceptable levels as defined by the closure plan.

Twelve cores of concrete pad material were crushed and analyzed for the closure analytes. Results of concrete analyses are presented in Table 4.5. The concentrations of organics and lead in all concrete core samples were within acceptable ranges as defined for closure.

In summary, wipe, pad rinsate, and concrete core samples were within the acceptable limits as defined in the closure plan.

4.2.2 Surface Soil Analytical Results

A total of 17 surface soil samples (16 from 0 to 1 foot depth and one from 0 to 2 foot depth) were collected during closure activities. These included background samples (BK shown on Figure 2.2), and samples from below the concrete of the storage pad (P samples labeled as numbers only on Figure 2.1 and RW samples (shown on Figure 2.3). Analytical results are presented in Table 4.6. A summary of exceedences of the Part 201 soil screening criteria is shown in Table 4.7.

Five of the seven organic compounds analyzed for were detected in one or more surface soil samples: benzene, toluene, xylenes, 1,1,1-trichloroethane, and methylene chloride. The surface sample from soil boring P-2 (labeled as 2 on Figure 2.1) contained the most detects of organic compounds, five of the seven analyzed.

Concentrations of lead in surface soil samples ranged from 1000 ug/kg in P-6 to 251,000 ug/kg in RW-1A.

None of the compounds detected in surface soil samples exceeded any of the soil screening criteria: Generic Industrial Direct Contact Criteria, Generic SWP GCC Criteria, Generic Soil Saturation Screening Concentrations, or Generic Industrial Soil Inhalation Criteria.

4.2.3 Subsurface Soil Analytical Results

A total of 121 subsurface soil samples were collected and analyzed during initial and additional closure activities from background soil borings (BK), borings from beneath the storage pad (P), and borings from monitoring, soil vapor and recovery well installation (MW, SV, and RW). Analytical results are presented in Table 4.8 (sample locations shown on Figures 2.1, 2.2, and 2.3). A summary of exceedences of the Part 201 soil screening criteria is shown in Table 4.9.

The volatile organic compound (VOC) that was detected most often was methylene chloride, which was detected in approximately one-third of the subsurface soil samples. Toluene, xylenes, and 2-butanone (MEK) were detected in approximately one-quarter of the samples. 1,1,1-Trichloroethane and benzene were detected less frequently. Toluene, xylenes, and methylene chloride were also detected in background samples. The soil borings that had the most detects of organics were P-2, MW-14, and SV-1 at

the north end of the pad and P-9, MW-3, MW-13, and SV-2 at the south end of the pad.

Lead was detected in almost all subsurface soil samples. Lead concentrations ranged from non-detectable to 590,000 ug/kg.

Two subsurface soil samples of the 121 collected had one exceedence of a soil screening criteria. Soil boring P-9-5 (4.5 to 5 foot depth interval) at the south end of the pad (Figure 4.2) had a xylene concentration above the Generic Soil Saturation Concentration (C_{sat}). Soil boring P-3-5 (4.5 to 5 foot depth interval) at the north end of the pad (Figure 4.3) contained a lead concentration above the Generic Industrial Direct Contact Criteria. No exceedences of other C_{sat} or direct contact criteria or of Generic SWP GCC Criteria or Generic Industrial Soil Inhalation Criteria occurred.

Two subsurface samples (MW-2-7 and MW-3-7, both at 15 foot depth) were analyzed by the TCLP procedure for the closure analytes. The analytical results are shown in Table 4.10. The results indicate that these soils are not hazardous by the toxicity characteristic.

4.2.4 Groundwater Analytical Results

Six rounds of groundwater sampling were conducted from 1988 to 1991 as part of initial and additional closure activities. Analytical results for groundwater sampling are shown in Table 4.11. Well locations are shown on Figure 2.3. A summary of analytical results that exceeded the Part 201 Generic Groundwater Contact criteria is presented in Table 4.12.

The organic compound most commonly detected (about one-half the time) was benzene; benzene was also detected at least once in 12 of the 14 wells sampled. Toluene and xylenes were also detected at least once in a majority of monitoring wells. The wells that most consistently had detections of benzene, toluene, and xylenes were MW-3, MW-9, and MW-12, and the soil vapor extraction wells SV-1 and SV-2. These wells are in locations or are close to soil boring locations that had detections of multiple organics, as discussed previously in the subsurface soils section. The other organic compounds were detected less frequently.

Total lead was detected in six of the 12 wells sampled, but was detected consistently only in MW-12 and SV-2. Dissolved lead was not detected in any wells sampled.

None of the groundwater concentrations exceeded the Generic Groundwater Contact Criteria.

Non-aqueous-phase liquid (NAPL) was identified in wells MW-6, MW-9, MW-11, MW-12, RW-1, SV-1, and SV-2 during some sampling events. This is described in detail in Section 4.4.

4.2.5 Summary of Closure Investigations

Closure activities at the hazardous waste storage pad included cleaning and sampling of the pad, and soil and groundwater sampling beneath and in the vicinity of the pad. Analytical results were compared to the closure criteria in the MDEQ-

approved closure plan. Wipe samples, rinsate samples of the pad, and concrete core samples from the pad itself met closure criteria.

A number of soil and groundwater samples at various depths below the hazardous waste storage pad had concentrations of several organics and lead that exceeded the closure criteria. These compounds may not be related to hazardous waste storage activities at the storage pad. First, concrete pad samples were clean, indicating that at the locations tested, no hazardous wastes seeped through and entered the soil. Second, detected constituents were present at lower concentrations close to the pad than in deeper samples. Given the negligible chance of rainwater infiltration through the pad, any leak of contamination through the pad would be expected to remain near the surface. For example, Tables 4.13 and 4.14 show the concentrations of 2-butanone (MEK) and lead, respectively, over depth in soil borings. 2-butanone was generally present throughout these soil borings except at the 0 to 2 foot depth interval, closest to the pad. The highest concentration per boring occurred at the 10 foot, 15 foot, or 20 foot interval. Lead concentrations that exceeded the background concentration occurred at the 5 foot or 8 foot depth in five of the seven borings. Finally, the pad was built on top of the fill in an area that was historically used for containerized waste management activities. These residual concentrations are likely due to historic waste management activities which were conducted in the West Yard area.

Based on the sampling results collected at and around the storage pad, it appears infeasible to remediate the underlying soil and groundwater at the pad to the pad closure criteria. To develop a comprehensive program for both the pad and the immediately surrounding industrial area underlying it, GM agreed with the MDEQ to investigate the West Yard area to evaluate environmental conditions and assess the need to undertake appropriate response activities.

4.3 WEST YARD INVESTIGATION ANALYTICAL RESULTS

The West Yard investigation was conducted by Parsons Engineering Science in 1995 and 1996. This section presents and discusses the analytical results from soil, groundwater, waste samples, and NAPL from locations spanning the West Yard.

4.3.1 Surface Soil Analytical Results

A total of 20 surface soil samples (0- to 6-inch depth) were collected from test trenches, soil borings, and monitoring wells installed during this investigation. Test trenches were excavated and soil borings (SB) were advanced to investigate known and suspected disposal areas and residue of past waste handling, treatment, and salvage activities. Select soil borings were converted to monitoring wells (MW and DW) to determine groundwater quality, and soil samples were collected as an additional investigation of possible contamination sources. Analytical results are presented in Table 4.15, and a summary of exceedences of Part 201 Soil Screening Criteria is given in Table 4.16.

4.3.1.1 Organic Compounds

Surface soil samples generally showed some evidence of several volatile organic compounds (VOCs), but at very low estimated concentrations (generally less than 100

ppb). None of the VOC concentrations exceeded the soil screening criteria. The surface soil sample from SB5, located in a suspected refuse disposal area, contained the most VOCs (8), although at concentrations of 36 ppb or less. Surface soil samples from test trenches TT4 and TT5 contained six and seven VOCs, respectively, with acetone being present at the highest concentration. Test trenches were located in suspected disposal areas. The surface soil sample from MW-22, which was located next to a historic refuse disposal area, contained seven VOCs, but at higher concentrations (360 ppb or less) than in SB5. No VOCs were detected in the surface soil samples from SB3 and DW-16.

A variety of semivolatile organic compounds (SVOCs) were detected in most surface soil samples. No SVOCs were detected in SB5 and MW-20 surface soil samples. Concentrations were generally low (less than 0.5 ppm).

PCBs (Aroclors 1248 and 1254) were detected in six of the 20 surface soil samples: TT2 and TT4 in former disposal areas, SB3 located in a former refuse pit, MW-17 west of the Railroad Marshalling Area, and MW-22, located near the center of the site. A pesticide, methoxychlor, was detected in MW-18, located south of the foundry sand fill area.

Five surface soil samples (TT1, TT2, TT4, TT80 (duplicate of TT3), SB5) were analyzed for dioxins and found to contain trace levels.

No concentration of any organic compound in any surface soil sample exceeded any Part 201 soil screening criteria: Generic Industrial Direct Contact Criteria, Generic Soil Water Partitioning (SWP) Criteria, Generic Soil Saturation Screening Concentrations, or Generic Soil Inhalation Criteria.

4.3.1.2 Inorganic Analytes

A range of inorganics were detected in surface soil samples. The only exceedences of Part 201 soil screening criteria that were found were for the Generic Particulate Soil Inhalation Criteria (PSIC) for the compound manganese in nine surface soil samples. Locations for the exceedences are shown on Figure 4.4. No other Part 201 soil screening criteria (Generic Industrial Direct Contact Criteria, Generic Soil Water Partitioning Criteria, Generic Soil Saturation Screening Concentrations, or Generic Soil Inhalation Criteria (except for manganese)) were exceeded.

4.3.2 Subsurface Soil Analytical Results

A total of 48 (including three duplicate) subsurface soil samples were collected from test trenches (TT), soil borings (SB and WD), and monitoring wells (MW and DW). Samples were collected from the fill and the underlying native soil. As discussed in the work plan, not all samples were analyzed for all analytes. Analytical results from subsurface soil samples are presented in Table 4.17, and a summary of Part 201 soil screening criteria exceedences is shown in Table 4.18.

4.3.2.1 Organic Compounds

Subsurface soil samples in fill and native soils generally contained very low levels of a few VOCs, with concentrations generally below 30 ug/kg. No VOC

concentrations exceeded the screening criteria. Samples from four locations had relatively higher concentrations of VOCs: the 5 to 9 foot depth interval at TT3, the 4 to 6 foot depth interval at SB5, the 23 to 25 foot depth interval at MW-20, and the 16 to 18 foot depth interval at MW-22. VOCs in these samples included ethylbenzene, methylene, chloride, toluene, and xylenes.

Subsurface soil samples contained a range of SVOCs. Concentrations of SVOCs were highest (range 11,000 to 1,100,000 ug/kg) in the TT3 subsurface sample. All of the SVOCs detected in the subsurface soil samples from soil borings and monitoring wells were present at lower concentrations (generally less than 300 ppb).

PCBs (Aroclors 1248 and 1254) were detected in five subsurface samples (TT3 5 to 9 feet, TT4 3 to 10 feet, WD2 24 to 26 feet, MW-20 23 to 25 feet and duplicate sample, and MW-22 16 to 18 feet).

Eight subsurface soil samples (including one duplicate) were sampled for dioxins. Trace levels of dioxins were detected in five of the samples.

Exceedences of Part 201 soil screening criteria were limited. Test trench sample SBTT3 (3 to 9 foot depth) exceeded the Generic Soil Saturation Screening Concentration for butyl benzyl phthalate (Figure 4.2). The sample from MW-20 at a depth of 23 to 25 exceeded the Generic Industrial Direct Contact Criteria for PCBs (Figure 4.3). This sample interval was in the fill layer. Exposure to site workers via direct contact is highly unlikely due to the depth of the sample location. No other organic compound concentrations exceeded any other Part 201 soil screening criteria.

4.3.2.2 Inorganic Analytes

Three subsurface soil samples had concentrations of one or more inorganics that exceeded Generic Direct Contact Industrial Criteria (Figure 4.3). Samples collected at the 4 to 6 foot interval at SB5, located in fill, barely exceeded the criteria for antimony and lead. The 24 to 28 foot interval at WD2, located in clay, and the 16 to 18 foot internal at MW-22, located in fill, contained approximately three times the criteria for lead. Due to the depth of these exceedences, there is very limited potential for exposure via direct contact.

Seven subsurface samples (locations shown on Figure 4.4) exceeded the Generic Particulate Soil Inhalation Criteria for manganese.

No other inorganic concentrations exceeded other Generic Industrial Direct Contact Criteria or other Generic Soil Inhalation Criteria. Generic Soil Water Partitioning Criteria and Generic Soil Saturation Screening Concentrations are not applicable to inorganic constituents.

4.3.3 Groundwater Analytical Results

Two rounds of groundwater sampling were conducted during January and February, 1996. All the new monitoring wells (MW/DW-16 through 20, DW-21, and MW/DW-22) were sampled during Rounds 1 and 2 (except DW-18 and MW/DW-19 which were not sampled in Round 2). Existing monitoring wells MW-5, and MW-7 were also sampled during Rounds 1 and 2. Existing MW-8 was sampled once in

March, 1996. A third round of sampling for dioxins only was conducted on monitoring wells near the property boundary in September, 1996. In accordance with the work plan, not all groundwater samples were analyzed for the same parameters (see Table 2.3). Analytical results for groundwater are summarized in Table 4.19. A summary of exceedences of Generic Groundwater Contact (GCC) criteria is presented in Table 4.20.

4.3.3.1 Organic Compounds

One or more VOCs were detected in all but two of the monitoring wells (MW-18, MW-19) sampled in 1996. Concentrations of the VOC constituents detected were generally less than 10 ug/L. MW-20 and DW-20 had relatively higher concentrations (less than 310 ug/L) for three VOCs (chloroethane, 1,1-dichloroethane, and vinyl chloride).

SVOCs were detected sporadically in nine monitoring wells. Concentrations were generally low (less than 15 ppb).

PCBs (Aroclors 1221, 1248 or 1254) were detected in five wells (MW/DW-20, DW-21, DW-22, MW-8). The occurrence of PCBs was limited and sporadic, and PCBs do not appear to have migrated to the West Yard boundary.

Low levels of dioxins were detected in one nested well pair (MW/DW-20), shallow wells (MW-22 and MW-23) and the West Yard upgradient well DW-21). Trace levels of dioxins were detected in one other nested pair (MW/DW-17).

The only exceedences of the Part 201 Generic Groundwater Contact Criteria were for PCBs in two monitoring wells. One exceedence was in the site upgradient well DW-21, and the other exceedences were in shallow monitoring well MW-20 near the railroad tracks south of the Former Compressor Building (Figure 4.5). No other organic compound concentrations exceeded the GCC.

4.3.3.2 Inorganic Analytes

A range of inorganics was detected in West Yard monitoring wells. No patterns of occurrence was recognizable based on location or screen depth. None of the detections exceeded the Part 201 GCC.

4.4 NAPL INVESTIGATION

NAPL was discovered in seven wells during 1990 closure activities at the storage pad: MW-6, MW-9, MW-11, MW-12, SV-1, SV-2, and RW-1 (see Table 2.4 for NAPL thickness). Samples of NAPL from wells SV-1 (north end of pad) and SV-2 (south end of pad) and samples of lubricating oils used at the site were analyzed by Infrared (IR) scan and compared. The IR scans indicated that the NAPL in the wells was not similar in composition to the lubricating oils or to each other. It could not be concluded, however, whether the observed differences were the result of different sources or natural weathering of the material by the environment. The presence of NAPL at the northern end of the pad (SV-1, RW) may be related to waste management activities at and in the vicinity of the Salvage Building.

NAPL was present in three wells in January 1996. The thickness of NAPL in MW-6 was 9.2 feet, MW-13 was 1.9 feet, and MW-3 was 0.7 feet. The NAPL investigation associated with the West Yard activities included analysis of material collected from MW-6 and MW-13, and installation of 16 soil borings in the vicinity of those wells to visually inspect for the presence of NAPL. No wells were available to check for NAPL in the northern end of the pad in 1996, where it had been present in 1990.

Analytical results from product sampling are presented in Table 4.21. The product sample from MW-13 contained several volatile organics. No volatile organics were detected in the product sample from MW-6. No polynuclear aromatic hydrocarbons were detected in either sample. PCBs were detected in the product from both wells, but the aroclor and concentrations were different. The MW-6 product contained 244,000 ug/L of Aroclor 1248 while the MW-13 product had 28,200 ug/L Aroclor 1254. The fingerprint analyses indicate that the product in both wells is made up of motor oil mixed with a small amount of diesel fuel (MW-6), and gasoline and fuel oil components (MW-13).

The visual inspection of Geoprobe™ soil borings resulted in a delineation of a very limited area around MW-6 and MW-13 in which a sheen was observed (Figure 4.6). The soil borings nearest the northern end of the pad, where NAPL had been present in 1990, did not show any presence of NAPL. Based on the delineation of two separate, small areas and the differences in VOCs and PCBs detected in the two product samples, it appears that there are two separate areas of product. The NAPL occurs in limited areas, and does not appear to be migrating to any extent.

NAPL (0.3 foot thickness) was present in MW-22 during groundwater sampling conducted in September 1996; it was not present in January and February 1996 sampling. MW-22 is located next to a former waste disposal area in the West Yard.

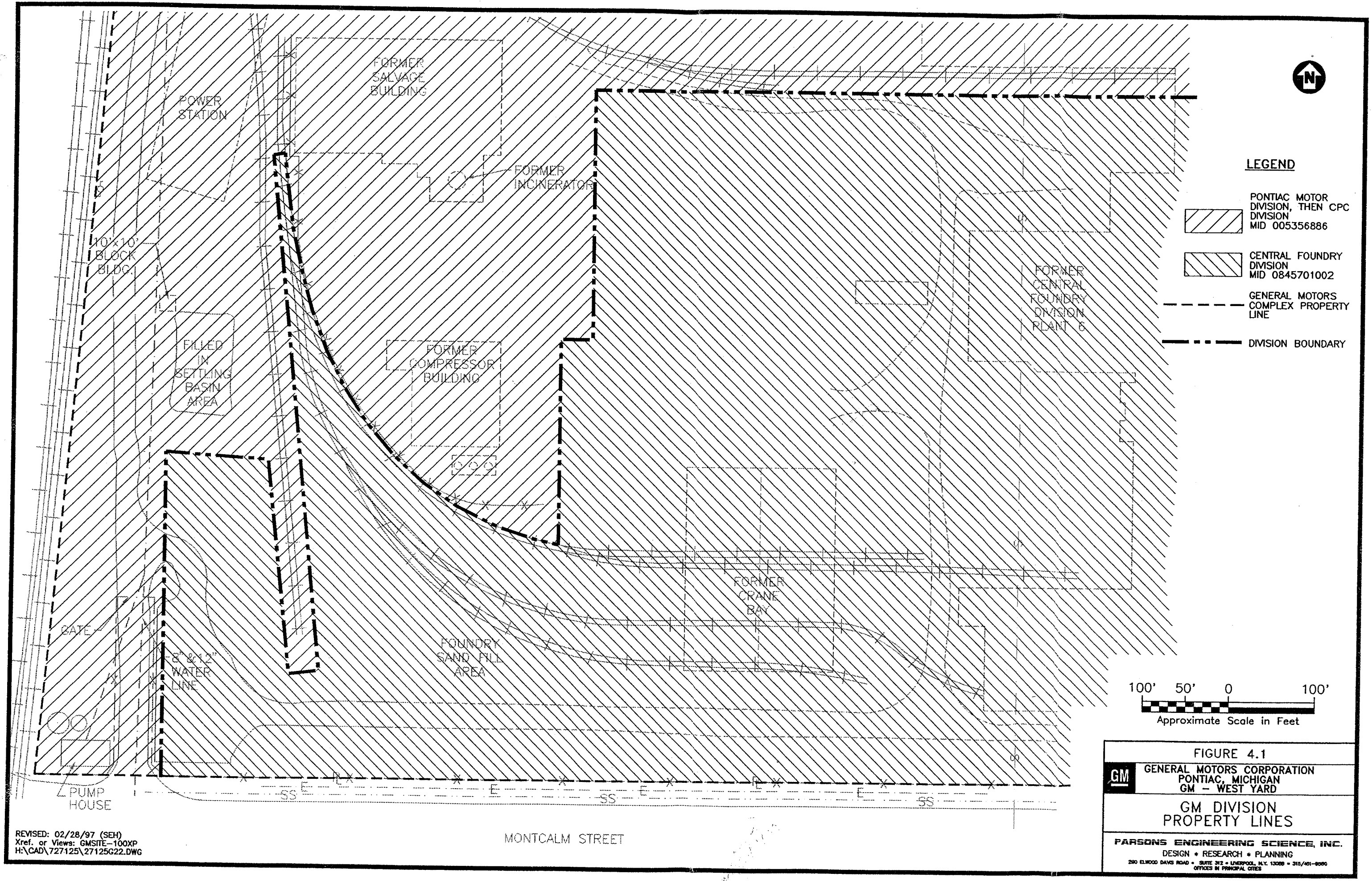

FIGURE 4.1

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GM DIVISION PROPERTY LINES

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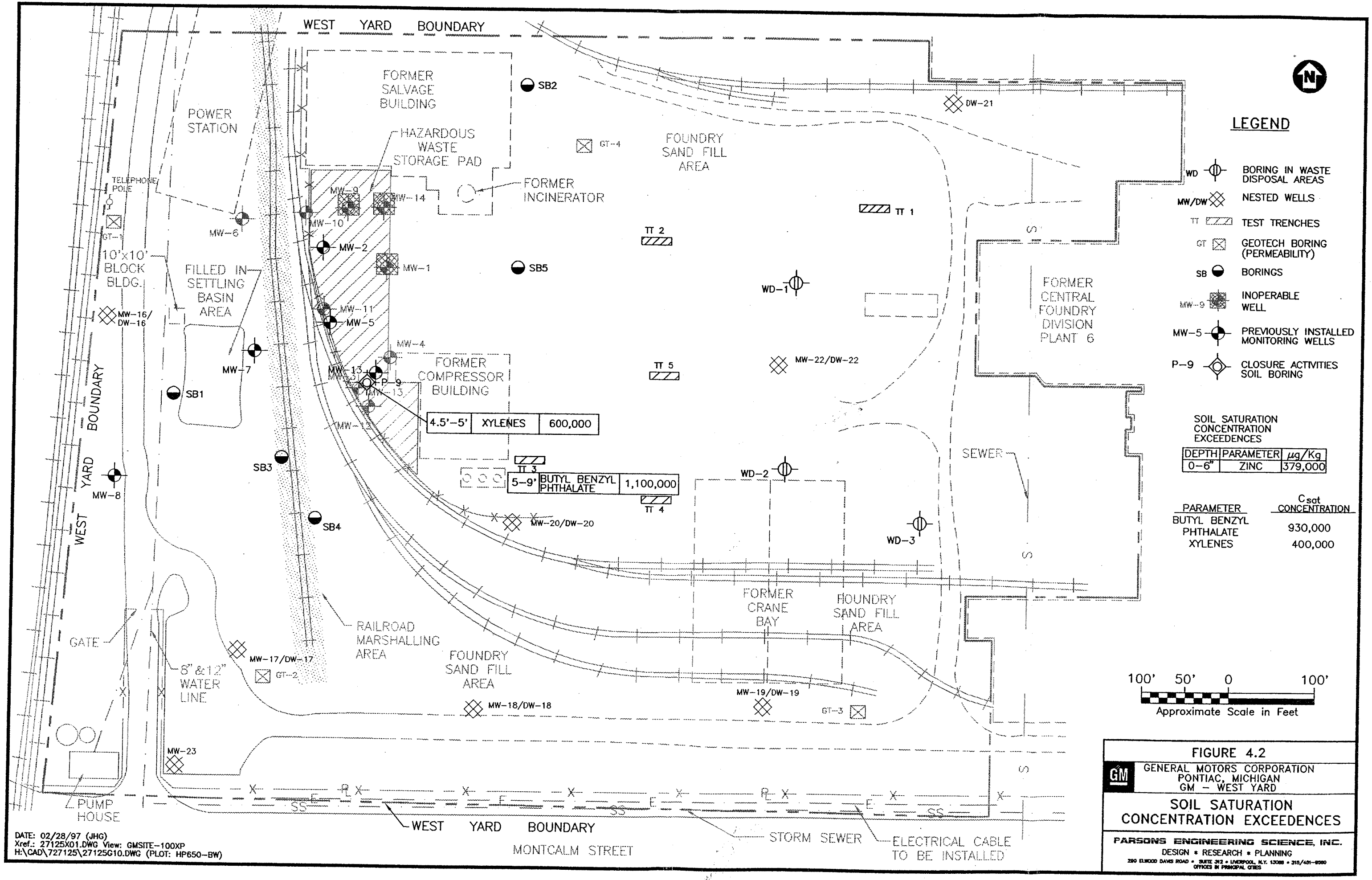

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FIGURE 4.2

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SOIL SATURATION CONCENTRATION EXCEEDENCES

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WEST YARD BOUNDARY

FORMER SALVAGE BUILDING

POWER STATION

HAZARDOUS WASTE STORAGE PAD

FORMER INCINERATOR

FOUNDRY SAND FILL AREA

TELEPHONE POLE

GT-1

10'x10' BLOCK BLDG.

FILLED IN SETTLING BASIN AREA

FORMER COMPRESSOR BUILDING

FORMER CENTRAL FOUNDRY DIVISION PLANT 6

WEST YARD BOUNDARY

SEWER

RAILROAD MARSHALLING AREA

FOUNDRY SAND FILL AREA

FORMER CRANE BAY

FOUNDRY SAND FILL AREA

GATE

8" &12" WATER LINE

PUMP HOUSE

WEST YARD BOUNDARY

STORM SEWER

ELECTRICAL CABLE TO BE INSTALLED

MONTCALM STREET

SB1 SB2 SB3 SB4 SB5

GT-1 GT-2 GT-3 GT-4

TT 1 TT 2 TT 3 TT 4 TT 5

WD-1 WD-2 WD-3

DW-21

MW-1 MW-2 MW-3 MW-4 MW-5 MW-6 MW-7 MW-8 MW-9 MW-10 MW-11 MW-13 MW-14 MW-16/DW-16 MW-17/DW-17 MW-18/DW-18 MW-19/DW-19 MW-20/DW-20 MW-22/DW-22 MW-23

P-9

4.5'-5'	LEAD	590,000

SB5 4-6'	ANTIMONY	1,740,000
4-6'	LEAD	573,000

MW-22/DW-22 16-18'	LEAD	1,350,000

24'-26'	LEAD	1,300,000

MW-20/DW-20 23-25'	PCBs	38,000 43,000 (DUP)

LEGEND

- WD — BORING IN WASTE DISPOSAL AREAS
- MW/DW — NESTED WELLS
- TT — TEST TRENCHES
- GT — GEOTECH BORING (PERMEABILITY)
- SB — BORINGS
- MW-9 — INOPERABLE WELL
- MW-5 — PREVIOUSLY INSTALLED MONITORING WELLS
- P-9 — CLOSURE ACTIVITIES SOIL BORING

SOIL DIRECT CONTACT CRITERIA EXCEEDENCES

DEPTH	PARAMETER	µg/Kg
0-6"	LEAD	379,000

PARAMETER	GENERIC INDUSTRIAL DIRECT CONTACT CRITERIA µg/Kg
ANTIMONY	1,600,000
LEAD	400,000
PCBs	21,000

100' 50' 0 100'

Approximate Scale in Feet

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FIGURE 4.3

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SOIL DIRECT CONTACT CRITERIA EXCEEDENCES

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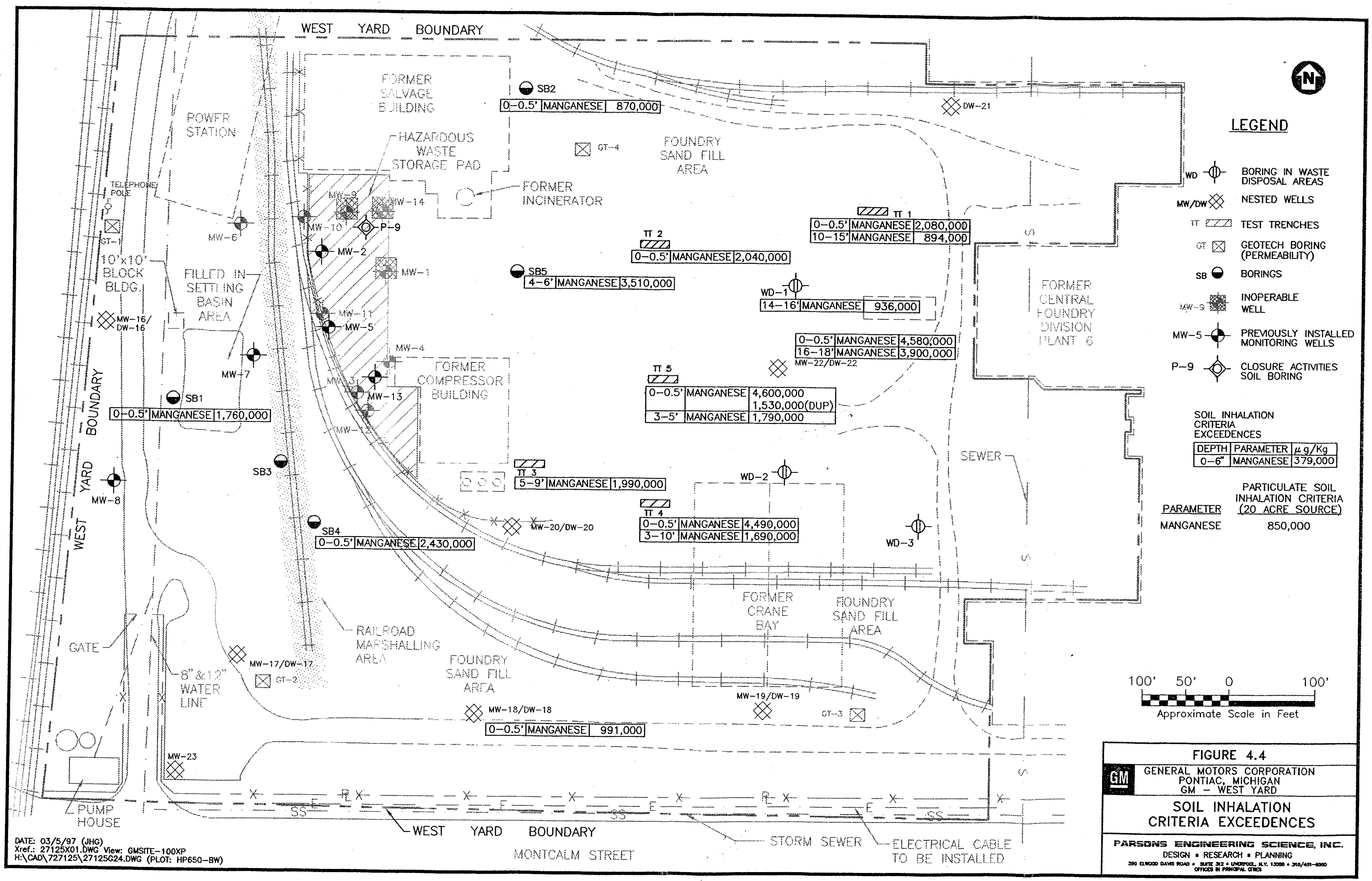

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FIGURE 4.4

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SOIL INHALATION CRITERIA EXCEEDENCES

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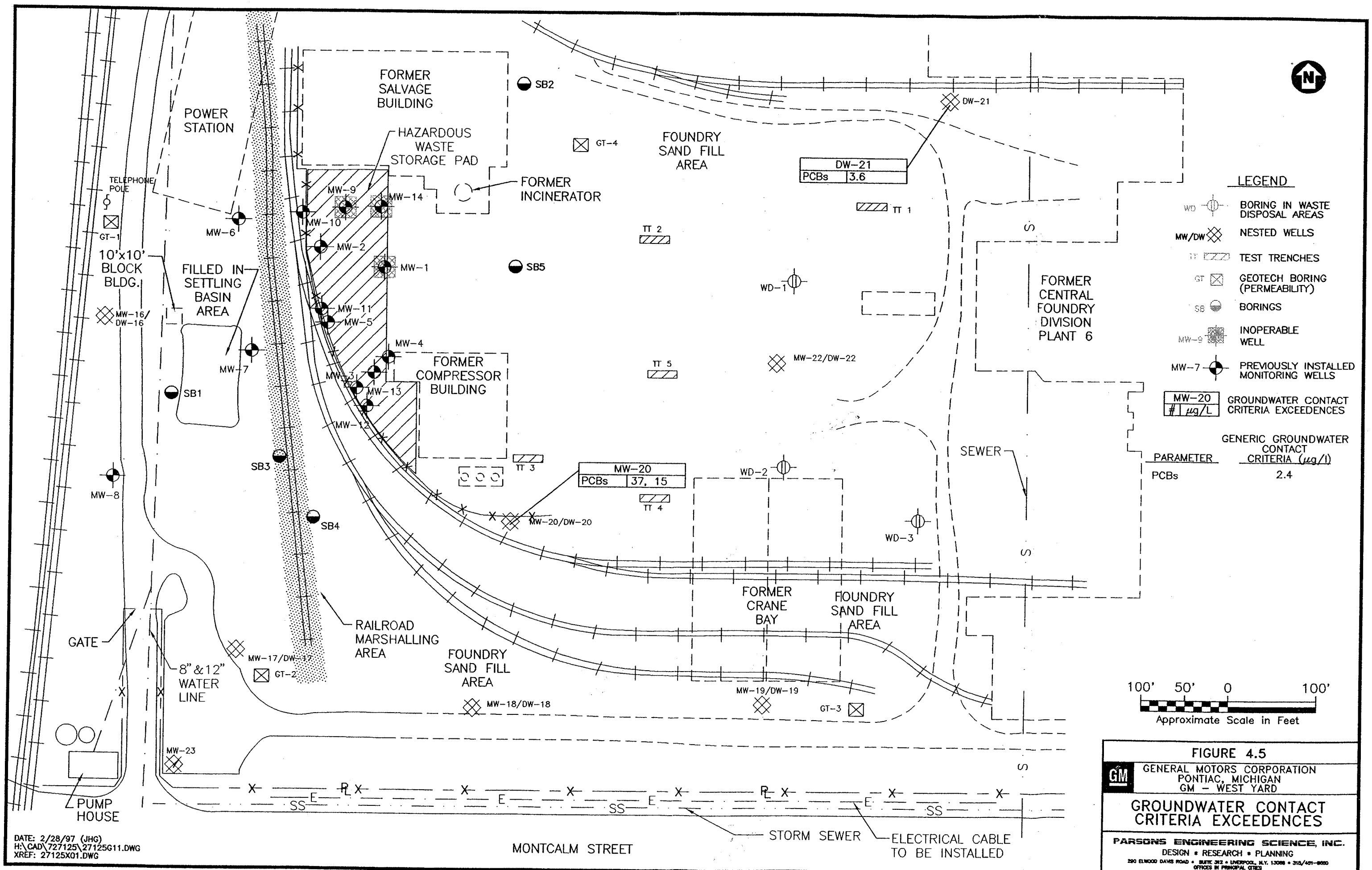

FIGURE 4.5

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GROUNDWATER CONTACT CRITERIA EXCEEDENCES

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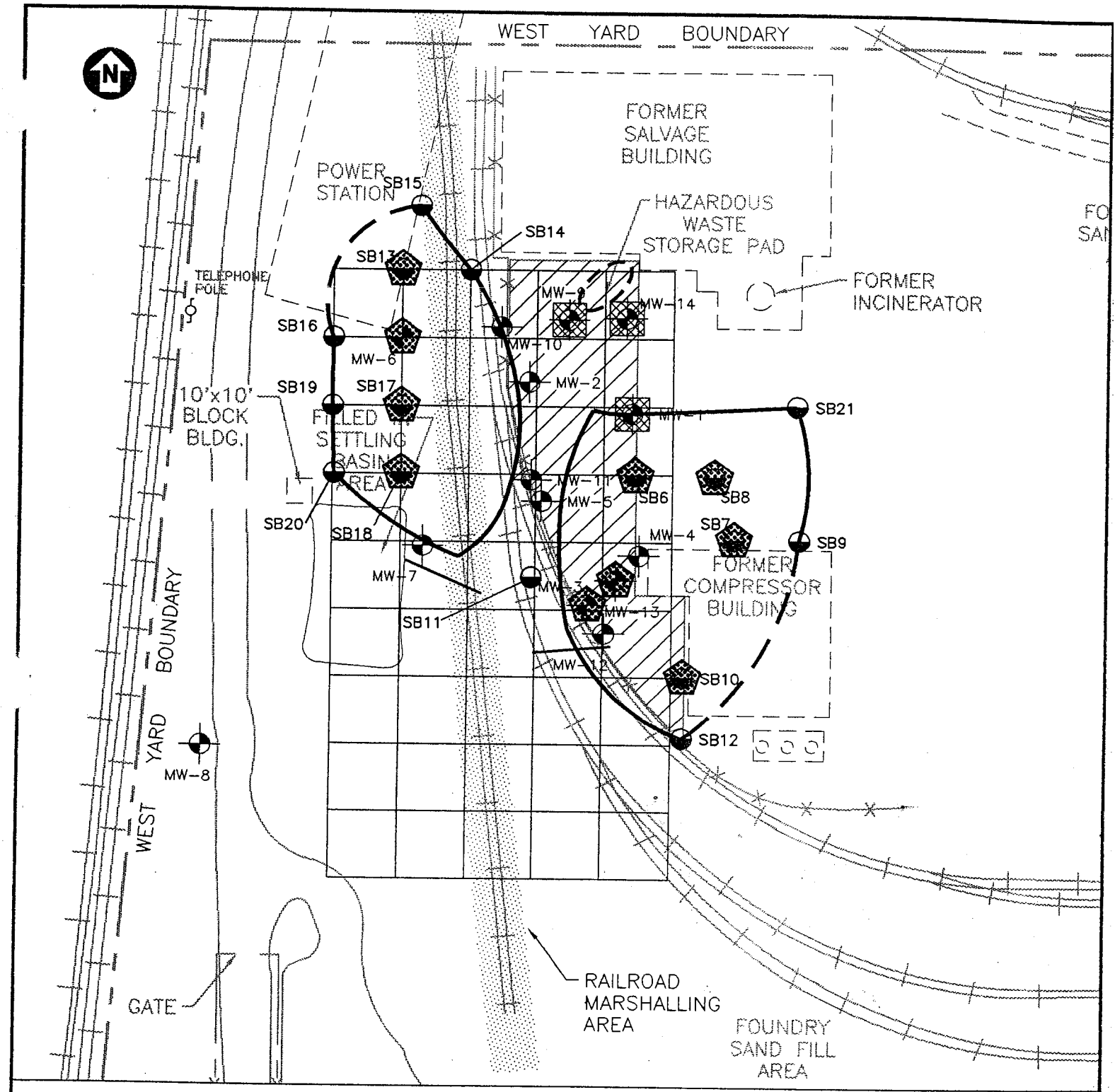

FIGURE 4.6

GENERAL MOTORS CORPORATION
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NAPL INVESTIGATION SOIL INSPECTION RESULTS

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TABLE 4.1
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
PART 201 GENERIC SOIL SCREENING CRITERIA

CAS NO.	COMPOUND	UNITS	GENERIC INDUSTRIAL DIRECT CONTACT CRITERIA (1997a)	GENERIC SWP GCC CRITERIA (1997c)	GENERIC SOIL SATURATION SCREENING CONCENTRATIONS (Csat) (1997b)	GENERIC INDUSTRIAL SOIL INHALATION CRITERIA (1997d) 20 ACRE SITE SOURCE	
						VOLATILE	PARTICULATE
	VOLATILES						
67-64-1	Acetone	UG/KG	74,000,000	52,000,000	64,000,000	110,000,000	100,000,000,000
71-43-2	Benzene	UG/KG	850,000	35,000	770,000	16,500	140,000,000
78-93-3	2-Butanone (MEK)	UG/KG	1,000,000,000	420,000,000	17,000,000	250,000	17,500,000,000
75-15-0	Carbon disulfide	UG/KG	82,000,000	4,800,000	560,000	1,250,000	12,000,000,000
106-46-7	1,4-Dichlorobenzene	UG/KG	1,000,000	60,000	NC	95,000	1,650,000,000
75-34-3	1,1-Dichloroethane	UG/KG	89,000,000	5,500,000	1,100,000	26,500,000	140,000,000,000
100-41-4	Ethylbenzene	UG/KG	72,000,000	2,300,000	380,000	8,000,000	17,500,000,000
591-78-6	2-Hexanone	UG/KG	100,000,000	NC	10,000,000	NC	850,000,000
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/KG	37,000,000	5,200,000	3,000,000	38,000,000	35,500,000,000
75-09-2	Methylene chloride	UG/KG	3,300,000	240,000	2,400,000	255,000	2,450,000,000
127-18-4	Tetrachloroethene	UG/KG	490,000	37,000	210,000	220,000	2,000,000,000
108-88-3	Toluene	UG/KG	160,000,000	4,100,000	620,000	2,350,000	7,000,000,000
79-01-6	Trichloroethene	UG/KG	1,600,000	82,000	1,200,000	95,000	700,000,000
75-01-4	Vinyl chloride	UG/KG	11,000	980	800,000	19,500	435,000,000
1330-20-7	Xylenes (total)	UG/KG	1,000,000,000	2,400,000	400,000	38,500,000	75,000,000,000
156-59-2	cis-1,2-Dichloroethene	UG/KG	8,200,000	510,000	1,000,000	34,500,000	135,000,000,000
	SEMIVOLATILES						
83-32-9	Acenaphthene	UG/KG	810,000,000	970,000	NC	70,000,000	3,650,000,000
208-96-8	Acenaphthylene	UG/KG	16,000,000	NC	NC	NC	600,000,000
120-12-7	Anthracene	UG/KG	1,000,000,000	41,000	NC	1,150,000,000	17,500,000,000
56-55-3	Benzo(a)anthracene	UG/KG	210,000	NC	NC	NC	NC
50-32-8	Benzo(a)pyrene	UG/KG	21,000	NC	NC	600,000	550,000
205-99-2	Benzo(b)fluoranthene	UG/KG	2,100,000	NC	NC	NC	NC
191-24-2	Benzo(ghi)perylene	UG/KG	16,000,000	NC	NC	NC	205,000,000
207-08-9	Benzo(k)fluoranthene	UG/KG	2,100,000	NC	NC	NC	NC
85-68-7	Butyl benzyl phthalate	UG/KG	720,000,000	5,000,000	930,000	8,500,000,000	12,000,000,000
86-74-8	Carbazole	UG/KG	NC	21,000	NC	NC	NC
218-01-9	Chrysene	UG/KG	21,000,000	NC	NC	NC	NC
84-74-2	Di-n-butyl phthalate	UG/KG	540,000,000	12,000,000	2,300,000	600,000,000	1,700,000,000
117-84-0	Di-n-octyl phthalate	UG/KG	81,000,000	190,000,000	430,000,000	NC	NC
53-70-3	Dibenz(a,h)anthracene	UG/KG	21,000	NC	NC	NC	NC
132-64-9	Dibenzofuran	UG/KG	NC	NC	NC	NC	NC
105-67-9	2,4-Dimethylphenol	UG/KG	230,000,000	3,700,000	NC	28,000,000	1,200,000,000
206-44-0	Fluoranthene	UG/KG	540,000,000	710,000	NC	650,000,000	2,400,000,000
86-73-7	Fluorene	UG/KG	540,000,000	880,000	NC	105,000,000	2,400,000,000
193-39-5	Indeno(1,2,3-cd)pyrene	UG/KG	210,000	NC	NC	NC	NC
91-57-6	2-Methylnaphthalene	UG/KG	NC	1,600,000	NC	NC	NC
95-48-7	2-Methylphenol	UG/KG	37,000,000	2,200,000	NC	20,500,000	1,750,000,000
108-39-4	3-Methylphenol	UG/KG	230,000,000	2,400,000	7,400,000	NC	NC
106-44-5	4-Methylphenol	UG/KG	23,000,000	2,300,000	NC	NC	NC
91-20-3	Naphthalene	UG/KG	160,000,000	2,000,000	NC	11,500,000	2,400,000,000
76-01-7	Pentachloroethane	UG/KG	NC	NC	NC	NC	NC
85-01-8	Phenanthrene	UG/KG	16,000,000	950,000	NC	NC	34,500,000
108-95-2	Phenol	UG/KG	450,000,000	64,000,000	140,000,000	140,000,000	10,500,000,000
129-00-0	Pyrene	UG/KG	340,000,000	450,000	NC	550,000,000	1,750,000,000
117-81-7	bis(2-Ethylhexyl) phthalate	UG/KG	11,000,000	NC	31,000,000	2,400,000,000	260,000,000

TABLE 4.1
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
PART 201 GENERIC SOIL SCREENING CRITERIA

CAS NO.	COMPOUND	UNITS	GENERIC INDUSTRIAL DIRECT CONTACT CRITERIA (1997a)	GENERIC SWP GCC CRITERIA (1997c)	GENERIC SOIL SATURATION SCREENING CONCENTRATIONS (Csat) (1997b)	GENERIC INDUSTRIAL SOIL INHALATION CRITERIA (1997d) 20 ACRE SITE SOURCE	
						VOLATILE	PARTICULATE
	PESTICIDES/PCBs						
72-43-5	Methoxychlor	UG/KG	23,000,000	140,000	NC	NC	NC
TPCBS	Total PCBs	UG/KG	21,000	NC	NC	NC	1,150,000
	DIOXINS						
TDIOXINS	Total TEFs	UG/KG	0.99	NC	NC	32	26
	INORGANICS						
7429-90-5	Aluminum	UG/KG	NC	NC	NC	NC	NC
7440-36-0	Antimony	UG/KG	1,600,000	54,000,000	NC	NC	24,000,000
7440-38-2	Arsenic	UG/KG	83,000	2,200,000	NC	NC	270,000
7440-39-3	Barium	UG/KG	320,000,000	NC	NC	NC	85,000,000
7440-41-7	Beryllium	UG/KG	35,000	21,000,000	NC	NC	480,000
7440-43-9	Cadmium	UG/KG	2,300,000	130,000,000	NC	NC	650,000
7440-70-2	Calcium	UG/KG	NC	NC	NC	NC	NC
7440-47-3	Chromium (III)	UG/KG	22,000,000	310,000,000	NC	NC	34,500,000
7440-48-4	Cobalt	UG/KG	23,000,000	NC	NC	NC	3,540,000
7440-50-8	Copper	UG/KG	170,000,000	NC	NC	NC	34,500,000
7439-89-6	Iron	UG/KG	NC	NC	NC	NC	NC
7439-92-1	Lead	UG/KG	400,000	NC	NC	NC	26,000,000
7439-95-4	Magnesium	UG/KG	1,000,000,000	NC	NC	NC	1,750,000,000
7439-96-5	Manganese	UG/KG	22,000,000	NC	NC	NC	850,000
7439-97-6	Mercury	UG/KG	1,400,000	47,000	NC	NC	5,000,000
7440-02-0	Nickel	UG/KG	340,000,000	NC	NC	NC	4,800,000
7440-09-7	Potassium	UG/KG	NC	NC	NC	NC	NC
7782-49-2	Selenium	UG/KG	23,000,000	90,000,000	NC	NC	34,500,000
7440-22-4	Silver	UG/KG	21,000,000	230,000,000	NC	NC	1,750,000
7440-23-5	Sodium	UG/KG	1,000,000,000	NC	NC	NC	NC
7440-31-5	Tin	UG/KG	NC	NC	NC	NC	NC
7440-62-2	Vanadium	UG/KG	39,000,000	NC	NC	NC	NC
7440-66-6	Zinc	UG/KG	1,030,000,000	NC	NC	NC	NC
57-12-5	Cyanide	UG/KG	99,000,000	NC	NC	NC	850,000,000
	OTHER						
18496-25-8	Sulfide	UG/KG	NC	NC	NC	NC	NC
10-31-1	Total Solids	%	NC	NC	NC	NC	NC

NC - No Criteria

TABLE 4.2
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
STORAGE PAD CLOSURE CRITERIA

Compounds	Criteria to be Met to Achieve Closure	
	Soil ug/Kg	Water ug/L
ORGANICS		
Benzene	< 2,000	< 2.0
Toluene	< 2,000	< 2.0
Xylenes	< 2,000	< 2.0
1,1,1-Trichloroethane	< 300	< 2.0
Methylene Chloride	< 2,000	< 2.0
2-Butanone (MEK)	< 50,000	< 50.0
1-Butanol	< 500,000	< 500.0
INORGANICS		
Lead	67,000	50.0

(1) Based on statistical analysis of lead analytical results in soil background samples.

TABLE 4.3
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE WIPE SAMPLE ANALYTICAL RESULTS

Compound	Units	Sample ID											
		BKGD	W-1	W-2	W-2A	W-3	W-3A	W-4	W-4A	W-5A	W-5B	W-6A	W-6B
ORGANICS													
Benzene	ug/wipe	---	---	---	---	---	---	---	---	---	---	---	---
Toluene	ug/wipe	---	---	---	---	---	---	---	---	---	---	---	---
Xylenes	ug/wipe	---	---	---	---	---	---	---	---	---	---	---	---
1,1,1-Trichloroethane	ug/wipe	---	---	---	---	---	---	---	---	---	---	---	---
Methylene Chloride	ug/wipe	---	---	---	---	---	---	---	---	---	---	---	---
2-Butanone (MEK)	ug/wipe	---	---	---	---	---	---	---	---	---	---	---	---
1-Butanol	ug/wipe	---	---	---	---	---	---	---	---	---	---	---	---
INORGANICS													
Lead	ug/wipe	<50	200	---	---	---	---	---	---	100		---	

See Figure 2.1 for sample locations.
--- Not Detected

TABLE 4.4
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE RINSATE SAMPLE ANALYTICAL RESULTS

Compounds	Units	Sample ID				
		R-1(1)	R-2(2)	H.W. Bldg.	Sewer	Pad
ORGANICS						
Benzene	ug/L	---	---	---	14	---
Toluene	ug/L	12	---	2	1400	22
Xylenes	ug/L	39	---	---	160	14
1,1,1-Trichloroethane	ug/L	---	---	---	210	1
Methylene Chloride	ug/L	---	---	4	70	4
2-Butanone (MEK)	ug/L	---	---	---	---	---
1-Butanol	ug/L	---	---	---	---	---
INORGANICS						
Lead	ug/L	---	---	<50	70	<50

See Figure 2.1 for sample locations.

--- Not Detected

(1) Rinsate sample from hazardous waste storage building.

(2) Sample of water used for washing pad.

TABLE 4.5
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE CONCRETE CORE SAMPLE ANALYTICAL RESULTS

Compound	Units	Sample ID											
		CC-1	CC-2	CC-3	CC-4	CC-5	CC-6	CC-7	CC-8	CC-9	CC-10	CC-11	CC-12
ORGANICS													
Benzene	ug/Kg	---	---	---	---	---	---	---	---	---	---	---	---
Toluene	ug/Kg	---	---	---	---	---	---	---	---	---	---	---	---
Xylenes	ug/Kg	---	---	---	---	---	---	---	---	---	---	---	---
1,1,1-Trichloroethane	ug/Kg	---	---	---	---	---	---	---	---	---	---	---	---
Methylene Chloride	ug/Kg	---	---	---	---	---	---	---	---	---	---	---	---
2-Butanone (MEK)	ug/Kg	---	---	---	---	---	---	---	---	---	---	---	---
1-Butanol	ug/Kg	---	---	---	---	---	---	---	---	---	---	---	---
INORGANICS													
Lead	ug/Kg	2500	---	3500	4700	4500	3000	2400	---	---	4900	3900	4300

See Figure 2.1 for sample locations.
--- Not Detected

TABLE 4.6
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE SURFACE SOIL ANALYTICAL RESULTS

Compound	Sample ID [1]: Depth (Ft.): Units	BK-1 0-1	BK-2 0-1	BK-3 0-1	BK-4 0-1	P-1 0-1	P-2 0-1	P-3 0-1	P-4 0-1	P-5 0-1	P-6 0-1	P-7 0-1	P-8 0-1	P-9 0-1	P-10 0-1	P-11 0-1	P-12 0-1	RW-1A 0-2
ORGANICS																		
Benzene	ug/Kg		-	-	-	-	3,000	-	-	-	-	-	-	-	-	-	-	40
Toluene	ug/Kg		-	-	-	-	100,000	-	-	-	-	8,000	-	5,000	19,000	-	5,000	850
Xylenes	ug/Kg		-	-	-	-	140,000	-	-	-	-	32,000	-	-	63,000	-	36,000	50
1,1,1-Trichloroethane	ug/Kg		-	-	-	-	240,000	-	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	ug/Kg		9,000	3,000	-	-	16,000	-	44,000	-	3,000	-	4,000	5,000	8,000	-	16,000	-
2-Butanone (MEK)	ug/Kg		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,300
1-Butanol	ug/Kg		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
INORGANICS																		
Lead	ug/Kg	71,000	19,000	14,000	23,000	5,700	93,000	3,100	67,000	100,000	2,000	29,000	5,500	18,000	50,000	12,000	5,600	251,000
Arsenic	ug/Kg	5,500	3,200	3,200	4,600													
Barium	ug/Kg	4,200	40,000	88,000	100,000													
Cadmium	ug/Kg	800	-	-	4,100													
Chromium	ug/Kg	19,000	22,000	35,000	48,000													
Copper	ug/Kg	28,000	25,000	27,000	84,000													
Mercury	ug/Kg	60	-	40	40													
Selenium	ug/Kg	-	-	-	-													
Silver	ug/Kg	-	-	-	-													
Zinc	ug/Kg	320,000	38,000	19,000	94,000													

- Not Detected
(1) Sample Identifiers: BK - background
P - pad
RW - recovery well

BK sample locations shown on Figure 2.2.
P sample locations (indicated by number only) shown on Figure 2.1.
RW sample locations shown on Figure 2.3.

TABLE 4.7
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
PART 201 SOIL SCREENING CRITERIA EXCEEDENCES - CLOSURE SURFACE SOIL SAMPLES

Compounds	Units	Maximum Concentration	Average Detected Concentration[1]	No. Exceedences[2] / No. Locations	Location of Exceedences
ORGANICS					
Benzene	ug/Kg	3,000	1,500	0/17	None
Toluene	ug/Kg	100,000	23,000	0/17	None
Xylenes	ug/Kg	140,000	54,000	0/17	None
1,1,1-Trichloroethane	ug/Kg	240,000	240,000	0/17	None
Methylene Chloride	ug/Kg	44,000	12,000	0/17	None
2-Butanone (MEK)	ug/Kg	2,300	2,300	0/17	None
1-Butanol	ug/Kg	---	---	0/17	None
INORGANICS					
Lead	ug/Kg	251,000	45,000	0/17	None
Arsenic	ug/Kg	5,500	4,100	0/4	None
Barium	ug/Kg	100,000	68,000	0/4	None
Cadmium	ug/Kg	4,100	1,900	0/4	None
Chromium	ug/Kg	48,000	31,000	0/4	None
Copper	ug/Kg	84,000	41,000	0/4	None
Mercury	ug/Kg	60	47	0/4	None
Selenium	ug/Kg	400	400	0/4	None
Silver	ug/Kg	900	900	0/4	None
Zinc	ug/Kg	320,000	120,000	0/4	None

--- Not Detected

Sample locations shown on Figures 2.1, 2.2, and 2.3.

[1] Average concentration calculated using detected values only.

[2] See Table 4.5 for Part 201 soil screening criteria values.

TABLE 4.8
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE SUBSURFACE SOIL SAMPLE ANALYTICAL RESULTS

Compounds	Sample ID: / Depth (ft.):	BK-1-2 2-3	BK-1-3 3-4	BK-1-4 4-5	BK-1-5 5-6	BK-2-2 2-3	BK-2-3 3-4	BK-2-4 4-5	BK-2-5 5-6	BK-3-2 2-3	BK-3-3 3-4
	Units										
ORGANICS											
Benzene	ug/Kg	-	-	-	-	-	-	-	-	-	-
Toluene	ug/Kg	-	4,000	-	-	-	-	-	-	-	-
Xylenes	ug/Kg	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	ug/Kg	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	ug/Kg	-	-	-	-	6,000	-	3,000	-	-	-
2-Butanone (MEK)	ug/Kg	-	-	-	-	-	-	-	-	-	-
1-Butanol	ug/Kg	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	ug/Kg										
INORGANICS											
Lead	ug/Kg	22,000	26,000	28,000	7,400	9,400	3,900	4,700	18,000	8,800	2,500
Arsenic	ug/Kg	4,800	4,500	6,000	3,500	3,500	4,300	1,800	3,600	9,800	1,400
Barium	ug/Kg	89,000	73,000	37,000	22,000	22,000	27,000	14,000	32,000	18,000	8,900
Cadmium	ug/Kg	600	600	-	-	500	-	-	-	800	800
Chromium	ug/Kg	33,000	39,000	13,000	18,000	36,000	32,000	7,700	30,000	13,000	4,500
Copper	ug/Kg	28,000	38,000	15,000	21,000	18,000	33,000	9,800	35,000	9,100	3,900
Mercury	ug/Kg	110	30	30	-	20	110	-	-	20	20
Selenium	ug/Kg	900	-	300	-	-	-	-	-	400	400
Silver	ug/Kg	-	-	-	-	-	-	-	-	900	900
Zinc	ug/Kg	77,000	74,000	23,000	17,000	20,000	10,000	8,300	16,000	8,300	6,600

- Not Detected
See Figure 2.2 for sample locations.

TABLE 4.8 (CONTINUED)
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE SUBSURFACE SOIL SAMPLE ANALYTICAL RESULTS

Compounds	Sample ID: / Depth (ft.):	BK-3-4 3.5-4	BK-3-5 4.5-5	BK-4-2 1.5-2	BK-4-3 2.5-3	BK-4-4 3.5-4	BK-4-5 4.5-5	P-1-2 1.5-2	P-1-5 4.5-5	P-1-6 9.5-10	P-1-7 14.5-15	P-1-8 19.5-20
	Units											
ORGANICS												
Benzene	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
Toluene	ug/Kg	-	-	3,000	-	-	-	-	-	-	-	-
Xylenes	ug/Kg	-	-	10,000	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
2-Butanone (MEK)	ug/Kg	-	-	-	-	-	-	5,000	-	5,000	-	-
1-Butanol	ug/Kg	-	-	-	-	-	-	-	88,000	97,000	68,000	70,000
Ethylbenzene	ug/Kg											
INORGANICS												
Lead	ug/Kg	3,200	2,000	40,000	28,000	19,000	24,000	57,000	5,500	3,200	2,900	42,000
Arsenic	ug/Kg	3,200	1,900	11,000	3,300	4,400	3,600					
Barium	ug/Kg	18,000	17,000	270,000	140,000	200,000	150,000					
Cadmium	ug/Kg	800	800	800	800	800	800					
Chromium	ug/Kg	13,000	14,000	210,000	52,000	100,000	47,000					
Copper	ug/Kg	29,000	27,000	100,000	58,000	94,000	44,000					
Mercury	ug/Kg	220	90	20	50	20	20					
Selenium	ug/Kg	400	400	400	400	400	400					
Silver	ug/Kg	900	900	1,200	1,500	1,600	900					
Zinc	ug/Kg	20,000	11,000	51,000	35,000	17,000	16,000					

- Not Detected
See Figure 2.2 for sample locations.

TABLE 4.8 (CONTINUED)
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE SUBSURFACE SOIL SAMPLE ANALYTICAL RESULTS

Compounds	Sample ID: / Depth (ft.):	P-2-2 1.5-2	P-2-5 4.5-5	P-2-6 9.5-10	P-2-7 14.5-15	P-2-8 19.5-20	P-3-2 1.5-2	P-3-5 4.5-5	P-3-6 9.5-10	P-3-7 14.5-15	P-3-8 19.5-20	P-4-2 1.5-2
	Units											
ORGANICS												
Benzene	ug/Kg	5,000	4,000	7,000	2,000	2,000	-	-	-	-	-	-
Toluene	ug/Kg	140,000	110,000	290,000	-	-	-	-	-	-	-	-
Xylenes	ug/Kg	120,000	75,000	130,000	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	ug/Kg	300,000	33,000	410,000	-	-	-	-	-	-	-	-
Methylene Chloride	ug/Kg	18,000	3,000	14,000	3,000	2,000	-	4,000	-	3,000	2,000	34,000
2-Butanone (MEK)	ug/Kg	-	66,000	530,000	100,000	110,000	-	110,000	62,000	80,000	110,000	-
1-Butanol	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	ug/Kg											
INORGANICS												
Lead	ug/Kg	72,000	350,000	-	10,000	-	61,000	590,000	7,900	2,400	3,200	9,400
Arsenic	ug/Kg											
Barium	ug/Kg											
Cadmium	ug/Kg											
Chromium	ug/Kg											
Copper	ug/Kg											
Mercury	ug/Kg											
Selenium	ug/Kg											
Silver	ug/Kg											
Zinc	ug/Kg											

- Not Detected
See Figure 2.2 for sample locations.

TABLE 4.8 (CONTINUED)
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE SUBSURFACE SOIL SAMPLE ANALYTICAL RESULTS

Compounds	Sample ID: / Depth (ft.):	P-4-5 4.5-5	P-4-6 9.5-10	P-4-7 14.5-15	P-4-8 19.5-20	P-5-2 1.5-2	P-5-5 4.5-5	P-5-6 9.5-10	P-5-7 14.5-15	P-5-8 19.5-20	P-6-2 1.5-2	P-6-5 4.5-5
	Units											
ORGANICS												
Benzene	ug/Kg	-	-	-	2,000	-	-	-	-	-	-	-
Toluene	ug/Kg	-	-	-	2,000	-	-	-	-	-	-	-
Xylenes	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	ug/Kg	-	-	-	300	-	-	-	-	-	-	-
Methylene Chloride	ug/Kg	-	-	-	3,000	13,000	4,000	8,000	10,000	4,000	4,000	3,000
2-Butanone (MEK)	ug/Kg	65,000	95,000	65,000	120,000	-	110,000	190,000	120,000	67,000	-	75,000
1-Butanol	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	ug/Kg											
INORGANICS												
Lead	ug/Kg	18,000	7,700	7,000	-	170,000	4,700	3,000	5,800	4,700	22,000	5,900
Arsenic	ug/Kg											
Barium	ug/Kg											
Cadmium	ug/Kg											
Chromium	ug/Kg											
Copper	ug/Kg											
Mercury	ug/Kg											
Selenium	ug/Kg											
Silver	ug/Kg											
Zinc	ug/Kg											

- Not Detected
See Figure 2.2 for sample locations.

TABLE 4.8 (CONTINUED)
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE SUBSURFACE SOIL SAMPLE ANALYTICAL RESULTS

Compounds	Sample ID: / Depth (ft.):	P-6-6 9.5-10	P-6-7 14.5-15	P-6-8 19.5-20	P-7-2 1.5-2	P-7-5 4.5-5	P-7-6 9.5-10	P-7-7 14.5-15	P-7-8 19.5-20	P-8-2 1.5-2	P-8-5 4.5-5	P-8-6 9.5-10
	Units											
ORGANICS												
Benzene	ug/Kg	2,000	2,000	-	-	-	-	-	-	-	2,000	2,000
Toluene	ug/Kg	-	-	-	3,000	-	-	-	-	-	-	-
Xylenes	ug/Kg	-	-	-	16,000	-	-	-	-	-	-	-
1,1,1-Trichloroethane	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	ug/Kg	-	6,000	6,000	-	-	-	18,000	-	3,000	-	-
2-Butanone (MEK)	ug/Kg	65,000	90,000	60,000	-	76,000	90,000	55,000	-	-	150,000	70,000
1-Butanol	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	ug/Kg											
INORGANICS												
Lead	ug/Kg	19,000	3,100	2,700	5,700	2,900	38,000	-	4,600	4,400	96,000	-
Arsenic	ug/Kg											
Barium	ug/Kg											
Cadmium	ug/Kg											
Chromium	ug/Kg											
Copper	ug/Kg											
Mercury	ug/Kg											
Selenium	ug/Kg											
Silver	ug/Kg											
Zinc	ug/Kg											

- Not Detected
See Figure 2.2 for sample locations.

TABLE 4.8 (CONTINUED)
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE SUBSURFACE SOIL SAMPLE ANALYTICAL RESULTS

Compounds	Sample ID: / Depth (ft.):	P-8-7 14.5-15	P-8-8 19.5-20	P-9-2 1.5-2	P-9-5 4.5-5	P-9-6 9.5-10	P-9-7 14.5-15	P-9-8 19.5-20	P-10-2 1.5-2	P-11-2 1.5-2	P-11-5 4.5-5	P-11-6 1.5-13
	Units											
ORGANICS												
Benzene	ug/Kg	-	-	-	18,000	5,000	4,000	3,000	-	-	-	-
Toluene	ug/Kg	-	-	28,000	220,000	230,000	2,000	-	-	-	-	-
Xylenes	ug/Kg	-	-	13,000	600,000	360,000	24,000	-	-	-	-	-
1,1,1-Trichloroethane	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	ug/Kg	-	9,000	-	78,000	-	4,000	-	68,000	-	4,000	3,000
2-Butanone (MEK)	ug/Kg	67,000	-	-	770,000	150,000	180,000	97,000	-	-	83,000	-
1-Butanol	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	ug/Kg											
INORGANICS												
Lead	ug/Kg	-	3,800	42,000	180,000	26,000	3,100	3,900	34,000	60,000	7,100	6,500
Arsenic	ug/Kg											
Barium	ug/Kg											
Cadmium	ug/Kg											
Chromium	ug/Kg											
Copper	ug/Kg											
Mercury	ug/Kg											
Selenium	ug/Kg											
Silver	ug/Kg											
Zinc	ug/Kg											

- Not Detected
See Figure 2.2 for sample locations.

TABLE 4.8 (CONTINUED)
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE SUBSURFACE SOIL SAMPLE ANALYTICAL RESULTS

Compounds	Sample ID: / Depth (ft.):	P-11-7 14.5-15	P-11-8 19.5-20	MW-1-1 4-5	MW-1-2 9-10	MW-1-3 14-15	MW-1-4 19-20	MW-1-5 24-25	MW-1-6 29-30	MW-2-1 4-5	MW-2-2 9-10	MW-2-3 14-15
	Units											
ORGANICS												
Benzene	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
Toluene	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
Xylenes	ug/Kg	-	-	-	-	-	-	-	5,000	-	-	-
1,1,1-Trichloroethane	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	ug/Kg	5,000	4,000	35,000	3,000	3,000	7,000	3,000	30,000	-	-	4,000
2-Butanone (MEK)	ug/Kg	120,000	-	-	-	-	-	-	-	-	-	-
1-Butanol	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	ug/Kg											
INORGANICS												
Lead	ug/Kg	-	6,500	7,400	5,000	4,800	4,000	64,000	-	3,800	4,300	-
Arsenic	ug/Kg											
Barium	ug/Kg											
Cadmium	ug/Kg											
Chromium	ug/Kg											
Copper	ug/Kg											
Mercury	ug/Kg											
Selenium	ug/Kg											
Silver	ug/Kg											
Zinc	ug/Kg											

- Not Detected
See Figure 2.2 for sample locations.

TABLE 4.8 (CONTINUED)
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE SUBSURFACE SOIL SAMPLE ANALYTICAL RESULTS

Compounds	Sample ID: Depth (ft.):	MW-2-4 19-20	MW-2-5 24-25	MW-3-1 4-5	MW-3-2 9-10	MW-3-3 14-15	MW-3-4 19-20	MW-3-5 24-25	MW-4-1 4-5	MW-4-2 9-10	MW-4-3 14-15	MW-4-4 19-20
	Units											
ORGANICS												
Benzene	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
Toluene	ug/Kg	-	-	-	15,000	10,000	-	-	8,000	-	-	-
Xylenes	ug/Kg	-	-	-	35,000	4,000	-	-	40,000	-	-	-
1,1,1-Trichloroethane	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	ug/Kg	-	3,000	10,000	5,000	4,000	-	-	-	-	-	-
2-Butanone (MEK)	ug/Kg	-	-	-	-	50,000	-	-	-	-	-	-
1-Butanol	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	ug/Kg											
INORGANICS												
Lead	ug/Kg	2,200	-	4,400	3,300	-	3,000	-	28,000	10,000	4,800	4,700
Arsenic	ug/Kg											
Barium	ug/Kg											
Cadmium	ug/Kg											
Chromium	ug/Kg											
Copper	ug/Kg											
Mercury	ug/Kg											
Selenium	ug/Kg											
Silver	ug/Kg											
Zinc	ug/Kg											

- Not Detected
See Figure 2.2 for sample locations.

TABLE 4.8 (CONTINUED)
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE SUBSURFACE SOIL SAMPLE ANALYTICAL RESULTS

Compounds	Sample ID: / Depth (ft.):	MW-4-5 24-25	MW-5-1 4-5	MW-5-2 9-10	MW-5-3 14-15	MW-5-4 19-20	MW-5-5 24-25	MW-13-SS1 0-2	MW-13-SS2 2-4	MW-13-SS3 4-6	MW-13-SS4 6-8	MW-13-SS5 8-10
	Units											
ORGANICS												
Benzene	ug/Kg	-	-	-	20,000	-	-	430	300	90	190	50
Toluene	ug/Kg	-	-	-	10,000	-	-	33,000	13,000	3,300	4,100	70
Xylenes	ug/Kg	-	5,000	-	6,000	4,000	-	41,000	26,000	9,800	15,000	1,200
1,1,1-Trichloroethane	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
2-Butanone (MEK)	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
1-Butanol	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	ug/Kg											
INORGANICS												
Lead	ug/Kg	10,000	-	5,800	27,000	4,000	-	51,000	232,000	98,000	254,000	3,800
Arsenic	ug/Kg											
Barium	ug/Kg											
Cadmium	ug/Kg											
Chromium	ug/Kg											
Copper	ug/Kg											
Mercury	ug/Kg											
Selenium	ug/Kg											
Silver	ug/Kg											
Zinc	ug/Kg											

- Not Detected
See Figure 2.2 for sample locations.

TABLE 4.8 (CONTINUED)
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE SUBSURFACE SOIL SAMPLE ANALYTICAL RESULTS

Compounds	Sample ID: Depth (ft.):	MW-13-SS6 10-12	MW-13-SS7 12-14	MW-14-SS1 0-2	MW-14-SS2 2-4	MW-14-SS3 4-6	MW-14-SS4 6-8	MW-14-SS5 8-10	MW-14-SS6 10-12	SV-1-1 5-6.5	SV-1-2 10-11.5	SV-1-3 15-16.5
	Units											
ORGANICS												
Benzene	ug/Kg	100	70	200	200	200	-	-	-	-	-	-
Toluene	ug/Kg	60	60	11,000	16,000	30,000	20,000	6,500	20,000	230,000	80,000	55,000
Xylenes	ug/Kg	3,000	1,400	18,000	22,000	42,000	20,000	9,800	30,000	200,000	100,000	45,000
1,1,1-Trichloroethane	ug/Kg	-	-	9,400	3,800	3,800	-	-	-	25,000	15,000	35,000
Methylene Chloride	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
2-Butanone (MEK)	ug/Kg	-	-	-	1,700	-	-	4,400	-	-	-	-
1-Butanol	ug/Kg	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	ug/Kg									38,000	15,000	10,000
INORGANICS												
Lead	ug/Kg	9,700	12,000	26,000	33,000	23,000	9,000	8,600	6,400			
Arsenic	ug/Kg											
Barium	ug/Kg											
Cadmium	ug/Kg											
Chromium	ug/Kg											
Copper	ug/Kg											
Mercury	ug/Kg											
Selenium	ug/Kg											
Silver	ug/Kg											
Zinc	ug/Kg											

- Not Detected
See Figure 2.2 for sample locations.

TABLE 4.8 (CONTINUED)
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE SUBSURFACE SOIL SAMPLE ANALYTICAL RESULTS

Compounds	Sample ID: Depth (ft.):	SV-1-4 20-21.5	SV-2-1 5-6.5	SV-2-2 10-11.5	SV-2-3 15-16.5	SV-2-4 20-21.5	RW-1A-SS1 0-2	RW-1A-SS2 2-4	RW-1A-SS3 4-6	RW-1A-SS4 6-8	RW-1A-SS5 8-10	RW-1A-SS6 10-12	RW-1A-SS7 12-14
	Units												
ORGANICS													
Benzene	ug/Kg	-	-	-	-	-	40	-	-	-	30	290	280
Toluene	ug/Kg	6,000	40,000	15,000	-	150,000	850	30	70	10	1,500	6,100	3,600
Xylenes	ug/Kg	6,000	120,000	60,000	9,000	300,000	50	30	80	-	3,000	11,000	3,300
1,1,1-Trichloroethane	ug/Kg	2,000	-	-	-	-	-	10	60	-	1,500	6,200	3,800
Methylene Chloride	ug/Kg	-	-	-	-	-	-	-	-	-	-	-	-
2-Butanone (MEK)	ug/Kg	-	-	-	-	-	2,300	-	-	-	1,200	18,000	29,000
1-Butanol	ug/Kg	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	ug/Kg	-	25,000	17,000	3,000	85,000							
INORGANICS													
Lead	ug/Kg						251,000	33,000	58,000	5,500	8,200	7,400	7,700
Arsenic	ug/Kg												
Barium	ug/Kg												
Cadmium	ug/Kg												
Chromium	ug/Kg												
Copper	ug/Kg												
Mercury	ug/Kg												
Selenium	ug/Kg												
Silver	ug/Kg												
Zinc	ug/Kg												

- Not Detected
See Figure 2.2 for sample locations.

TABLE 4.9
WEST YARD INVESTIGATION
GM, PONTIAC MICHIGAN
PART 201 SOIL SCREENING CRITERIA EXCEEDENCES - CLOSURE SUBSURFACE SOIL SAMPLES

Compounds	Units	Maximum Concentration	Average Detected Concentration[1]	No. Exceedences[2] No. Locations	Criteria Exceeded	Location of Exceedances
ORGANICS						
Benzene	ug/Kg	20,000	2,800	0/121	None	None
Toluene	ug/Kg	290,000	43,000	0/121	None	None
Xylenes	ug/Kg	600,000	59,000	1/121	C_{sat}	P-9-5
1,1,1-Trichloroethane	ug/Kg	410,000	53,000	0/121	None	None
Methylene Chloride	ug/Kg	78,000	11,000	0/121	None	None
2-Butanone (MEK)	ug/Kg	770,000	110,000	0/121	None	None
1-Butanol	ug/Kg	-	81,000	0/121	None	None
Ethylbenzene	ug/Kg	85,000	28,000	0/8	None	None
INORGANICS						
Lead	ug/Kg	590,000	36,000	1/113	Direct Contact	P-3-5
Arsenic	ug/Kg	11,000	4,400	0/16	None	None
Barium	ug/Kg	270,000	71,000	0/16	None	None
Cadmium	ug/Kg	800	740	0/16	None	None
Chromium	ug/Kg	210,000	41,000	0/16	None	None
Copper	ug/Kg	100,000	35,000	0/16	None	None
Mercury	ug/Kg	220	59	0/16	None	None
Selenium	ug/Kg	900	440	0/16	None	None
Silver	ug/Kg	1,600	1,100	0/16	None	None
Zinc	ug/Kg	77,000	26,000	0/16	None	None

- Not Detected
Sample locations shown on Figures 2.1, 2.2, and 2.3.
[1] Average concentration calculated using detected values only.
[2] See Table 4.5 for Part 201 soil screening criteria values.

TABLE 4.10
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
SUBSURFACE SOIL TCLP RESULTS

Compounds	Units	TCLP Regulatory Level	MW-2-3 (15 feet)	MW-3-3 (15 feet)
ORGANICS				
Benzene	ug/L	500	-	-
Toluene	ug/L	NS	-	10
Xylenes	ug/L	NS	-	4
1,1,1-Trichloroethane	ug/L	NS	-	-
Methylene Chloride	ug/L	NS	4	4
2-Butanone (MEK)	ug/L	200,000	-	50
1-Butanol	ug/L	NS	-	-
INORGANICS				
Lead	ug/L	5	-	-

- Not Detected
NS - No Standard

TABLE 4.11
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE GROUNDWATER SAMPLE ANALYTICAL RESULTS

Compounds	Sample ID: / Date:	MW-1 11/18/88	MW-1 3/13/89	MW-1 3/13/90	MW-1 10/3/90	MW-1 8/14/91	MW-1 8/23, 25/91	MW-2 11/17/88	MW-2 3/13/89	MW-2 3/13/90	MW-2 10/3/90	MW-2 8/14/91	MW-2 8/23, 25/91
	Units												
ORGANICS													
Benzene	ug/L	-	25	-	-	-	-	4	-	-	-	-	-
Toluene	ug/L	-	-	3	-	-	-	-	-	-	-	-	-
Xylenes	ug/L	-	-	-	-	-	-	3	-	8	-	-	-
1,1,1-Trichloroethane	ug/L	-	-	-	-	5	-	-	-	-	-	-	-
Methylene Chloride	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
2-Butanone (MEK)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
1-Butanol	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	ug/L			-						-			
INORGANICS													
Lead, total	ug/L	-	-	-	-	-		-	-	-	-	-	
Lead, filtered	ug/L					-	-					-	-

- Not Detected
See Figure 2.3 for sample locations.

TABLE 4.11 (CONTINUED)
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE GROUNDWATER SAMPLE ANALYTICAL RESULTS

Compounds	Sample ID: / Date:	MW-3 11/17/88	MW-3 3/13/89	MW-3 3/13/90	MW-3 10/3/90	MW-3 8/14/91	MW-3 8/23, 25/91	MW-4 12/1/88	MW-4 3/13/89	MW-4 3/14/90	MW-4 10/3/90	MW-4 8/14/91	MW-4 8/23, 25/91
	Units												
ORGANICS													
Benzene	ug/L	9	65	110	110	140	76	-	15	50	35	42	11
Toluene	ug/L	20	140	375	600	670	1200	-	-	-	1	1	-
Xylenes	ug/L	-	15	40	31	60	4300	-	-	2	-	-	-
1,1,1-Trichloroethane	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
2-Butanone (MEK)	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
1-Butanol	ug/L	-	-	-	3900	-	-	-	-	-	-	-	-
Ethylbenzene	ug/L												
INORGANICS													
Lead, total	ug/L	110	-	50	-	-		-	-	-	-	-	
Lead, Filtered	ug/L					-	-					-	-

- Not Detected

TABLE 4.11 (CONTINUED)
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE GROUNDWATER SAMPLE ANALYTICAL RESULTS

Compounds	Sample ID: / Date:	MW-5 12/1/88	MW-5 3/13/89	MW-5 3/14/90	MW-5 10/3/90	MW-5 8/14/91	MW-6 8/23, 25/91	MW-6 3/13/89	MW-6 3/13/90	MW-6 10/3/90	MW-6 8/14/91	MW-6 8/23, 25/91
	Units											
ORGANICS												
Benzene	ug/L	-	-	-	3	3	-	-	4	-	-	-
Toluene	ug/L	-	-	5	-	-	-	-	27	2	-	-
Xylenes	ug/L	3	-	-	-	-	-	-	14	-	-	-
1,1,1-Trichloroethane	ug/L	-	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	ug/L	-	-	-	-	-	-	-	-	-	-	-
2-Butanone (MEK)	ug/L	-	-	-	-	-	-	-	-	-	-	-
1-Butanol	ug/L	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	ug/L											
INORGANICS												
Lead, total	ug/L	-	-	-	-	-		-	-	-	-	
Lead, Filtered	ug/L					-	-				-	-

- Not Detected

TABLE 4.11 (CONTINUED)
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE GROUNDWATER SAMPLE ANALYTICAL RESULTS

Compounds	Sample ID: / Date:	MW-7 3/13/89	MW-7 3/13/90	MW-7 10/3/90	MW-7 8/14/91	MW-7 8/23, 25/91	MW-8 3/13/89	MW-8 3/13/90	MW-8 10/3/90	MW-8 8/23, 25/91	MW-9 10/3/90	MW-9 8/14/91	MW-9 8/23, 25/91
	Units												
ORGANICS													
Benzene	ug/L	-	-	3	7	11	-	2	4	3	-	40	22
Toluene	ug/L	-	3	-	-	-	-	3	1	-	240	120	66
Xylenes	ug/L	-	-	-	-	-	-	10	-	-	-	-	1
1,1,1-Trichloroethane	ug/L	-	-	-	-	-	3	-	-	-	-	-	-
Methylene Chloride	ug/L	-	-	-	-	-	-	-	-	-	-	-	4
2-Butanone (MEK)	ug/L	-	-	-	-	-	-	-	-	-	12,000	310	820
1-Butanol	ug/L	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	ug/L							-					
INORGANICS													
Lead, total	ug/L	60	-	-	-		-	-	-		70	-	
Lead, Filtered	ug/L				-	-				-		-	-

- Not Detected

TABLE 4.11 (CONTINUED)
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CLOSURE GROUNDWATER SAMPLE ANALYTICAL RESULTS

Compounds	Sample ID: / Date:	MW-10 10/3/90	MW-10 8/14/91	MW-10 8/23, 25/91	MW-11 10/3/90	MW-12 10/3/90	MW-12 8/14/91	MW-12 8/23, 25/91	SV-1 10/3/90	SV-1 8/14/91	SV-1 8/23, 25/91	SV-2 10/3/90	SV-2 8/14/91	SV-2 8/23, 25/91
	Units													
ORGANICS														
Benzene	ug/L	-	-	-	-	70	80	140	-	13	220	220	300	440
Toluene	ug/L	-	-	-	10	770	790	640	600	360	3400	51,000	3400	5000
Xylenes	ug/L	-	-	-	94	1100	2500	74	-	240	750	12,000	4900	6900
1,1,1-Trichloroethane	ug/L	-	-	-	-	-	-	-	4200	2700	42,000	400	-	-
Methylene Chloride	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Butanone (MEK)	ug/L	-	-	-	-	-	-	73	-	-	-	-	-	-
1-Butanol	ug/L	-	-	-	-	-	-	-	-	-	-	250,000	-	-
Ethylbenzene	ug/L													
INORGANICS														
Lead, total	ug/L	50	-		90	120	400		-	-		140	410	-
Lead, Filtered	ug/L		-	-			-	-		-	-		-	

- Not Detected

TABLE 4.12
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
PART 201 GROUNDWATER CRITERIA EXCEEDENCES - CLOSURE GROUNDWATER SAMPLES

Compounds	Units	Generic Groundwater Contact Criteria (1997a)	Maximum Concentration	No. Exceedences / No. Locations	Location of Exceedences
ORGANICS					
Benzene	ug/L	9,200	440	0/14	None
Toluene	ug/L	530,000	51,000	0/14	None
Xylenes	ug/L	190,000	12,000	0/14	None
1,1,1-Trichloroethane	ug/L	380,000	42,000	0/14	None
Methylene Chloride	ug/L	110,000	4	0/14	None
2-Butanone (MEK)	ug/L	240,000,000	12,000	0/14	None
1-Butanol	ug/L	8,300,000	250,000	0/14	None
Ethylbenzene	ug/L	170,000	-	0/3	None
INORGANICS					
Lead, total	ug/L	NC	410	0/14	None
Lead, filtered	ug/L	NC	-	0/13	None

Sample locations shown on Figure 2.3.
- Not Detected
NC - No Criteria

TABLE 4.13
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CONCENTRATIONS OF 2-BUTANONE IN SOIL BORINGS

Depth (Feet)	2-Butanone (ug/Kg)										
	Soil Boring P-1	Soil Boring P-2	Soil Boring P-3	Soil Boring P-4	Soil Boring P-5	Soil Boring P-6	Soil Boring P-7	Soil Boring P-8	Soil Boring P-9	Soil Boring P-11	Soil Boring MW-14-SS
1	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	
3											1,700
4											
5	88,000	66,000	110,000	65,000	110,000	75,000	76,000	150,000	770,000	83,000	-
6											
7											-
8											
9											4,400
10	97,000	530,000	62,000	95,000	190,000	65,000	90,000	70,000	150,000	-	
11											-
12											
13											
14											
15	68,000	100,000	80,000	65,000	120,000	90,000	55,000	67,000	180,000	120,000	
16											
17											
18											
19											
20	70,000	110,000	110,000	120,000	67,000	60,000	-	-	97,000	-	

- Not Detected
See Figures 2.1 and 2.3 for sample locations.

TABLE 4.14
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
CONCENTRATIONS OF LEAD IN SOIL BORINGS

Depth (Feet)	Lead (ug/Kg)						
	Soil Boring P-2	Soil Boring P-3	Soil Boring P-5	Soil Boring P-8	Soil Boring P-9	Soil Boring MW-13	Soil Boring RW-1A
1	93,000	3,100	100,000	5,500	18,000		
2	72,000	61,000	170,000	4,400	42,000	51,000	251,000
3							
4						232,000	33,000
5	350,000	590,000	4,700	96,000	180,000		
6						98,000	58,000
7							
8						254,000	5,500
9							
10	-	7,900	3,000	-	26,000	3,800	8,200
11							
12						9,700	7,400
13							
14						12,000	7,700
15	10,000	2,400	5,800	-	3,100		
16							
17							
18							
19							
20	-	3,200	4,700	3,800	3,900		

- Not Detected
See Figures 2.1 and 2.3 for sample locations.

R:\WP\730627.01\30627S02.WW6 (Sheet 1)

TABLE 4.15
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SURFACE SOIL

CAS NO.	COMPOUND	SAMPLE ID: [1] / DEPTH: / LAB ID: / SOURCE: / SDG: / MATRIX: / SAMPLED: / UNITS:	SSTT1 0.0-0.5' A6A250126-001 QUANTERRA A6A250126 SOLID 1/22/96	SSTT2 0.0-0.5' A6A250126-003 QUANTERRA A6A250126 SOLID 1/22/96	SSTT3 0.0-0.5' A6A250126-005 QUANTERRA A6A250126 SOLID 1/22/96	SSTT80 (DUP OF SSTT3) 0.0-0.5' A6A250126-006 QUANTERRA A6A250126 SOLID 1/22/96	SSTT4 0.0-0.5' A6A250126-008 QUANTERRA A6A250126 SOLID 1/23/96
	VOLATILES						
67-64-1	Acetone	UG/KG	6.8 J	96 J	2.3 J	-	270
71-43-2	Benzene	UG/KG	-	-	-	-	-
78-93-3	2-Butanone (MEK)	UG/KG	-	-	-	-	46 J
106-46-7	1,4-Dichlorobenzene	UG/KG	-	-	-	2.4 J	-
100-41-4	Ethylbenzene	UG/KG	-	-	-	-	10 J
591-78-6	2-Hexanone	UG/KG	4.1 J	-	-	-	-
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/KG	-	-	-	-	16 J
75-09-2	Methylene chloride	UG/KG	2.8 J	-	-	-	-
127-18-4	Tetrachloroethene	UG/KG	-	-	-	-	-
108-88-3	Toluene	UG/KG	-	-	-	-	27
79-01-6	Trichloroethene	UG/KG	-	-	-	-	-
1330-20-7	Xylenes (total)	UG/KG	-	28 J	-	-	36 J
	SEMIVOLATILES						
83-32-9	Acenaphthene	UG/KG	120 J	36000	-	-	1800 J
208-96-8	Acenaphthylene	UG/KG	-	2000 J	-	-	-
120-12-7	Anthracene	UG/KG	290 J	21000	20 J	-	830 J
56-55-3	Benzo(a)anthracene	UG/KG	180 J	15000	58 J	35 J	-
50-32-8	Benzo(a)pyrene	UG/KG	94 J	8600 J	69 J	31 J	-
205-99-2	Benzo(b)fluoranthene	UG/KG	140 J	11000	120 J	49 J	-
191-24-2	Benzo(ghi)perylene	UG/KG	110 J	4500 J	45 J	21 J	-
207-08-9	Benzo(k)fluoranthene	UG/KG	-	5300 J	48 J	25 J	-
85-68-7	Butyl benzyl phthalate	UG/KG	240 J	2300 J	-	-	32000
86-74-8	Carbazole	UG/KG	81 J	11000	-	-	-
218-01-9	Chrysene	UG/KG	230 J	16000	73 J	44 J	-
84-74-2	Di-n-butyl phthalate	UG/KG	-	-	-	-	-
117-84-0	Di-n-octyl phthalate	UG/KG	-	-	-	-	-
53-70-3	Dibenz(a,h)anthracene	UG/KG	-	-	-	-	-
132-64-9	Dibenzofuran	UG/KG	330 J	27000	-	-	-
105-67-9	2,4-Dimethylphenol	UG/KG	250 J	-	-	-	-
206-44-0	Fluoranthene	UG/KG	390	82000	150 J	86 J	-
86-73-7	Fluorene	UG/KG	210 J	36000	-	-	9900
193-39-5	Indeno(1,2,3-cd)pyrene	UG/KG	57 J	3700 J	40 J	21 J	-
91-57-6	2-Methylnaphthalene	UG/KG	5500	23000	46 J	-	2300 J
95-48-7	2-Methylphenol	UG/KG	930	-	-	-	-
108-39-4	3-Methylphenol	UG/KG	400		-	-	-
106-44-5	4-Methylphenol	UG/KG	450	-	-	-	-
91-20-3	Naphthalene	UG/KG	2900	97000	34 J	-	-
85-01-8	Phenanthrene	UG/KG	1300	110000	74 J	65 J	11000
108-95-2	Phenol	UG/KG	2100	-	23 J	-	-
129-00-0	Pyrene	UG/KG	360 J	50000	140 J	73 J	830 J
117-81-7	bis(2-Ethylhexyl) phthalate	UG/KG	240 J	-	150 J	110 J	-

TABLE 4.15
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SURFACE SOIL

CAS NO.	COMPOUND	SAMPLE ID: [1] / DEPTH: / LAB ID: / SOURCE: / SDG: / MATRIX: / SAMPLED: / UNITS:	SSTT1 0.0-0.5' A6A250126-001 QUANTERRA A6A250126 SOLID 1/22/96	SSTT2 0.0-0.5' A6A250126-003 QUANTERRA A6A250126 SOLID 1/22/96	SSTT3 0.0-0.5' A6A250126-005 QUANTERRA A6A250126 SOLID 1/22/96	SSTT80 (DUP OF SSTT3) 0.0-0.5' A6A250126-006 QUANTERRA A6A250126 SOLID 1/22/96	SSTT4 0.0-0.5' A6A250126-008 QUANTERRA A6A250126 SOLID 1/23/96
	PCBs						
72-43-5	Methoxychlor	UG/KG	-	-	-	-	-
12672-29-6	Aroclor 1248	UG/KG	-	710	-	-	470
11097-69-1	Aroclor 1254	UG/KG	-	-	-	-	520
TPCBS	Total PCBs	UG/KG	-	710	-	-	990
	DIOXINS						
TDIOXINS	Total TEFs	UG/KG	0.00000391	2.60E-08		6.44E-07	5.66E-04
	INORGANICS						
7429-90-5	Aluminum	UG/KG	3450000	4250000	1790000 J	3270000 J	438000
7440-36-0	Antimony	UG/KG	2200 J	4180 J	-	-	22500
7440-38-2	Arsenic	UG/KG	7770 J	7270 J	3710	3650	44300
7440-39-3	Barium	UG/KG	45200	79100 J	12800 J	34400 J	9740
7440-41-7	Beryllium	UG/KG	416	753	-	-	-
7440-43-9	Cadmium	UG/KG	2110	2320	132	121	129
7440-70-2	Calcium	UG/KG	5550000 J	31900000	66900000	89700000	5920000
7440-47-3	Chromium	UG/KG	81900	251000	4480 J	11700 J	1660000
7440-48-4	Cobalt	UG/KG	6660	11800	5110	4070	64400
7440-50-8	Copper	UG/KG	57900 J	221000	6690 J	12700 J	1590000
57-12-5	Cyanide	UG/KG	590	360	-	390	-
7439-89-6	Iron	UG/KG	69000000	10700000	10500000	7800000	64800000
7439-92-1	Lead	UG/KG	151000	117000	3320 J	5810 J	16400
7439-95-4	Magnesium	UG/KG	1230000	3490000 J	8160000 J	12000000 J	2700000
7439-96-5	Manganese	UG/KG	2080000	2040000	543000 J	270000 J	4490000
7439-97-6	Mercury	UG/KG	-	92.1	-	-	-
7440-02-0	Nickel	UG/KG	25000 J	84700 J	5140 J	11100 J	601000
7440-09-7	Potassium	UG/KG	616000	579000	777000	645000	-
7782-49-2	Selenium	UG/KG	-	-	-	-	-
7440-22-4	Silver	UG/KG	357	487	-	-	382
7440-23-5	Sodium	UG/KG	382000	675000	210000	201000	109000
7440-31-5	Tin	UG/KG	27000		-	-	84000
7440-62-2	Vanadium	UG/KG	5460	15000	6460 J	10700 J	46400
7440-66-6	Zinc	UG/KG	3640000	379000	16900 J	31300 J	99800
	OTHER						
18496-25-8	Sulfide	UG/KG	-		-	-	100000
10-31-1	Total Solids	%	84.1	86.3	89.1	87.2	94.3

J = Estimated Value

- = Not Detected

* = Elevated detection limit due to matrix interference.

[1] Duplicate samples are designated by adding 50 to the test trench number.

TABLE 4.15
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SURFACE SOIL

CAS NO.	COMPOUND	SAMPLE ID: [1] / DEPTH: / LAB ID: / SOURCE: / SDG: / MATRIX: / SAMPLED: / UNITS:	SSTT5 0.0-0.5' A6A250126-011 QUANTERRA A6A250126 SOLID 1/23/96	SSTT55 (DUP OF SSTT5) 0.0-0.5' A6A250126-010 QUANTERRA A6A250126 SOLID 1/23/96	SSSB1 0.0-0.5' A5L150192-001 QUANTERRA L15192 SOIL 12/12/95	SSSB2 0.0-0.5' A5L150193-002 QUANTERRA L15193 SOIL 12/14/95	SSSB3 0.0-0.5' A5L150193-004 QUANTERRA L15193 SOIL 12/14/95
	VOLATILES						
67-64-1	Acetone	UG/KG	110	8.4 J	22 J	16 J	-
71-43-2	Benzene	UG/KG	-	-	-	-	-
78-93-3	2-Butanone (MEK)	UG/KG	20 J	-	6 J	3.9 J	-
106-46-7	1,4-Dichlorobenzene	UG/KG	-	-	-	-	-
100-41-4	Ethylbenzene	UG/KG	3.3 J	-	-	-	-
591-78-6	2-Hexanone	UG/KG	4 J	-	-	-	-
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/KG	4.2 J	-	-	-	-
75-09-2	Methylene chloride	UG/KG	-	-	-	-	-
127-18-4	Tetrachloroethene	UG/KG	-	-	18 J	-	-
108-88-3	Toluene	UG/KG	8.3	-	-	4 J	-
79-01-6	Trichloroethene	UG/KG	-	-	27 J	-	-
1330-20-7	Xylenes (total)	UG/KG	12 J	-	-	-	-
	SEMIVOLATILES						
83-32-9	Acenaphthene	UG/KG	-	51 J	-	-	-
208-96-8	Acenaphthylene	UG/KG	-	-	-	-	-
120-12-7	Anthracene	UG/KG	-	100 J	-	45 J	-
56-55-3	Benzo(a)anthracene	UG/KG	-	120 J	79 J	210	-
50-32-8	Benzo(a)pyrene	UG/KG	-	73 J	72 J	190	-
205-99-2	Benzo(b)fluoranthene	UG/KG	-	130 J	110 J	300	-
191-24-2	Benzo(ghi)perylene	UG/KG	-	43 J	60 J	120 J	-
207-08-9	Benzo(k)fluoranthene	UG/KG	-	41 J	42 J	140 J	-
85-68-7	Butyl benzyl phthalate	UG/KG	-	120 J	800	-	-
86-74-8	Carbazole	UG/KG	-	40 J	-	23 J	-
218-01-9	Chrysene	UG/KG	-	160 J	94 J	220	-
84-74-2	Di-n-butyl phthalate	UG/KG	-	-	-	39 J	-
117-84-0	Di-n-octyl phthalate	UG/KG	-	-	-	-	-
53-70-3	Dibenz(a,h)anthracene	UG/KG	-	-	-	34 J	-
132-64-9	Dibenzofuran	UG/KG	-	140 J	18 J	-	-
105-67-9	2,4-Dimethylphenol	UG/KG	-	120 J	-	-	-
206-44-0	Fluoranthene	UG/KG	-	200	140 J	340	-
86-73-7	Fluorene	UG/KG	3500 J	78 J	-	-	-
193-39-5	Indeno(1,2,3-cd)pyrene	UG/KG	-	26 J	53 J	19 J	-
91-57-6	2-Methylnaphthalene	UG/KG	2400 J	2900	50 J	33 J	-
95-48-7	2-Methylphenol	UG/KG	-	260	-	-	-
108-39-4	3-Methylphenol	UG/KG			-	-	-
106-44-5	4-Methylphenol	UG/KG	-	140 J	-	-	-
91-20-3	Naphthalene	UG/KG	-	1500	-	25 J	-
85-01-8	Phenanthrene	UG/KG	3700 J	500	96 J	200	-
108-95-2	Phenol	UG/KG	-	930	-	-	-
129-00-0	Pyrene	UG/KG	-	200	96 J	180 J	-
117-81-7	bis(2-Ethylhexyl) phthalate	UG/KG	1300 J	56 J	23 J	-	-

TABLE 4.15
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SURFACE SOIL

		SAMPLE ID: [1]	SSTT5	SSTT55 (DUP OF SSTT5)	SSSB1	SSSB2	SSSB3
		DEPTH:	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'
		LAB ID:	A6A250126-011	A6A250126-010	A5L150192-001	A5L150193-002	A5L150193-004
		SOURCE:	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA
		SDG:	A6A250126	A6A250126	L15192	L15193	L15193
		MATRIX:	SOLID	SOLID	SOIL	SOIL	SOIL
		SAMPLED:	1/23/96	1/23/96	12/12/95	12/14/95	12/14/95
CAS NO.	COMPOUND	UNITS:					
	PCBs						
72-43-5	Methoxychlor	UG/KG	-	-	-	-	-
12672-29-6	Aroclor 1248	UG/KG	2000	-	-	-	-
11097-69-1	Aroclor 1254	UG/KG	1100	-	-	-	-
TPCBS	Total PCBs	UG/KG	3100	-	-	-	-
	DIOXINS						
TDIOXINS	Total TEFs	UG/KG					
	INORGANICS						
7429-90-5	Aluminum	UG/KG	799000 J	3960000 J	7000000	4660000	1890000 J
7440-36-0	Antimony	UG/KG	16600 J	2940 J	1420	8490	-
7440-38-2	Arsenic	UG/KG	67100 J	3350 J	4110	4030	1050
7440-39-3	Barium	UG/KG	41600 J	83200 J	65400	353000	14700 J
7440-41-7	Beryllium	UG/KG	-	720 J	745	338	163
7440-43-9	Cadmium	UG/KG	206	573	255	6090	76.3
7440-70-2	Calcium	UG/KG	-	19300000 J	30600000	35200000	2710000
7440-47-3	Chromium	UG/KG	940000 J	163000 J	42000	50400	4750 J
7440-48-4	Cobalt	UG/KG	69500 J	4820 J	4410	13400	-
7440-50-8	Copper	UG/KG	987000 J	82700 J	52100	221000	7740 J
57-12-5	Cyanide	UG/KG	370	520	-	450	-
7439-89-6	Iron	UG/KG	70000000 J	52300000 J	20600000	26300000	3390000 J
7439-92-1	Lead	UG/KG	18800 J	51500 J	46400	221000	14500 J
7439-95-4	Magnesium	UG/KG	492000 J	1530000 J	4370000	6190000	817000
7439-96-5	Manganese	UG/KG	4600000 J	1530000 J	1760000	870000	78500 J
7439-97-6	Mercury	UG/KG	-	-	106	1140	-
7440-02-0	Nickel	UG/KG	557000 J	44700 J	36500	139000	5180 J
7440-09-7	Potassium	UG/KG	-	-	575000	-	-
7782-49-2	Selenium	UG/KG	-	-	-	-	-
7440-22-4	Silver	UG/KG	447	-	-	-	-
7440-23-5	Sodium	UG/KG	-	440000	258000	231000	126000
7440-31-5	Tin	UG/KG					
7440-62-2	Vanadium	UG/KG	52700 J	7400 J	13600	14000	4740 J
7440-66-6	Zinc	UG/KG	66000 J	1370000 J	44900	343000	16600
	OTHER						
18496-25-8	Sulfide	UG/KG					
10-31-1	Total Solids	%	90.7	90.3	94	88.81	91.76

J = Estimated Value

- = Not Detected

* = Elevated detection limit due to matrix interference.

[1] Duplicate samples are designated by adding 50 to the test trench numl

TABLE 4.15
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SURFACE SOIL

CAS NO.	COMPOUND	SAMPLE ID: [1] DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED: UNITS:	SSSB53 (DUP OF SSSB3) 0.0-0.5' A5L150193-006 QUANTERRA L15193 SOIL 12/14/95	SSSB4 0.0-0.5' A5L160125-001 QUANTERRA L16125 SOIL 12/15/95	SSSB5 0.0-0.5' A5L160125-003 QUANTERRA L15192 SOIL 12/12/95	SSDW16 0.0-0.5' A5L160125-003 QUANTERRA L16125 SOIL 12/15/95	SSMW17 0.0-0.5' A5L150193-008 QUANTERRA L15193 SOIL 12/14/95
	VOLATILES						
67-64-1	Acetone	UG/KG	-	7.3 J	36 J	-	11 J
71-43-2	Benzene	UG/KG	-	-	3.1 J	-	-
78-93-3	2-Butanone (MEK)	UG/KG	-	-	9.5 J	-	-
106-46-7	1,4-Dichlorobenzene	UG/KG	-	-	5.6 J	-	-
100-41-4	Ethylbenzene	UG/KG	-	-	2.5 J	-	-
591-78-6	2-Hexanone	UG/KG	-	-	-	-	-
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/KG	-	-	-	-	-
75-09-2	Methylene chloride	UG/KG	-	-	6.7 J	-	-
127-18-4	Tetrachloroethene	UG/KG	-	2.8 J	-	-	-
108-88-3	Toluene	UG/KG	-	-	3.9 J	-	3.7 J
79-01-6	Trichloroethene	UG/KG	-	-	-	-	-
1330-20-7	Xylenes (total)	UG/KG	-	-	7.8 J	-	-
	SEMIVOLATILES						
83-32-9	Acenaphthene	UG/KG	-	-	-	-	-
208-96-8	Acenaphthylene	UG/KG	-	27 J	-	-	-
120-12-7	Anthracene	UG/KG	-	48 J	-	-	-
56-55-3	Benzo(a)anthracene	UG/KG	-	120 J	150 J	24 J	110 J
50-32-8	Benzo(a)pyrene	UG/KG	-	140 J	-	24 J	86 J
205-99-2	Benzo(b)fluoranthene	UG/KG	-	260	-	46 J	170
191-24-2	Benzo(ghi)perylene	UG/KG	-	120 J	-	20 J	77 J
207-08-9	Benzo(k)fluoranthene	UG/KG	-	100 J	-	-	57 J
85-68-7	Butyl benzyl phthalate	UG/KG	-	390	270 J	-	1100
86-74-8	Carbazole	UG/KG	-	-	-	-	-
218-01-9	Chrysene	UG/KG	-	180 J	150 J	38 J	130 J
84-74-2	Di-n-butyl phthalate	UG/KG	-	-	240 J	-	-
117-84-0	Di-n-octyl phthalate	UG/KG	-	-	-	-	-
53-70-3	Dibenz(a,h)anthracene	UG/KG	-	28 J	-	-	23 J
132-64-9	Dibenzofuran	UG/KG	-	43 J	-	-	40 J
105-67-9	2,4-Dimethylphenol	UG/KG	-	-	-	-	-
206-44-0	Fluoranthene	UG/KG	-	220	-	54 J	200
86-73-7	Fluorene	UG/KG	-	-	-	-	-
193-39-5	Indeno(1,2,3-cd)pyrene	UG/KG	-	98 J	-	22 J	78 J
91-57-6	2-Methylnaphthalene	UG/KG	-	170 J	150 J	28 J	130 J
95-48-7	2-Methylphenol	UG/KG	-	-	-	-	-
108-39-4	3-Methylphenol	UG/KG	-	-	-	-	-
106-44-5	4-Methylphenol	UG/KG	-	-	-	-	-
91-20-3	Naphthalene	UG/KG	-	110 J	120 J	21 J	100 J
85-01-8	Phenanthrene	UG/KG	-	180 J	210 J	41 J	150 J
108-95-2	Phenol	UG/KG	-	-	-	-	-
129-00-0	Pyrene	UG/KG	-	140 J	230 J	35 J	120 J
117-81-7	bis(2-Ethylhexyl) phthalate	UG/KG	-	-	200 J	-	-

TABLE 4.15
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SURFACE SOIL

CAS NO.	COMPOUND	SAMPLE ID: [1] / DEPTH: / LAB ID: / SOURCE: / SDG: / MATRIX: / SAMPLED: / UNITS:	SSSB53 (DUP OF SSSB3) 0.0-0.5' A5L150193-006 QUANTERRA L15193 SOIL 12/14/95	SSSB4 0.0-0.5' A5L160125-001 QUANTERRA L16125 SOIL 12/15/95	SSSB5 0.0-0.5' A5L160125-003 QUANTERRA L15192 SOIL 12/12/95	SSDW16 0.0-0.5' A5L160125-003 QUANTERRA L16125 SOIL 12/15/95	SSMW17 0.0-0.5' A5L150193-008 QUANTERRA L15193 SOIL 12/14/95
	PCBs						
72-43-5	Methoxychlor	UG/KG	-	-	-	-	-
12672-29-6	Aroclor 1248	UG/KG	-	-	730	-	-
11097-69-1	Aroclor 1254	UG/KG	-	-	-	-	480
TPCBS	Total PCBs	UG/KG	-	-	730	-	480
	DIOXINS						
TDIOXINS	Total TEFs	UG/KG			0.00000568		
	INORGANICS						
7429-90-5	Aluminum	UG/KG	3590000 J	7340000	4090000	2830000	5940000
7440-36-0	Antimony	UG/KG	-	2920	494 J	-	1450
7440-38-2	Arsenic	UG/KG	1350	9400	2230 J	3600	2300
7440-39-3	Barium	UG/KG	26200 J	83000	82700	17900	43300
7440-41-7	Beryllium	UG/KG	270	805	321	169	423
7440-43-9	Cadmium	UG/KG	46.8	817	868 J	183	1160
7440-70-2	Calcium	UG/KG	2900000	24200000	10200000 J	48800000	13400000
7440-47-3	Chromium	UG/KG	7080 J	171000	19700 J	7450	44700
7440-48-4	Cobalt	UG/KG	-	7180	2670	2820	5600
7440-50-8	Copper	UG/KG	11500 J	125000	57600	16400	82500
57-12-5	Cyanide	UG/KG	-	330	-	-	-
7439-89-6	Iron	UG/KG	5750000 J	55100000	12900000	6720000	32600000
7439-92-1	Lead	UG/KG	8360 J	82300	13000 J	10900	67100
7439-95-4	Magnesium	UG/KG	604000	2490000	2120000 J	10900000	3170000
7439-96-5	Manganese	UG/KG	142000 J	2430000	463000	218000	721000
7439-97-6	Mercury	UG/KG	-	71	78.9	-	59.7
7440-02-0	Nickel	UG/KG	11400 J	63300	28200 J	9570	51000
7440-09-7	Potassium	UG/KG	-	575000	-	-	558000
7782-49-2	Selenium	UG/KG	-	1090	515	-	628
7440-22-4	Silver	UG/KG	-	-	-	-	-
7440-23-5	Sodium	UG/KG	168000	249000	426000	402000	273000
7440-31-5	Tin	UG/KG			13100		
7440-62-2	Vanadium	UG/KG	7400 J	17600	7600	10600	19300
7440-66-6	Zinc	UG/KG	12300	212000	30200	45000	95000
	OTHER						
18496-25-8	Sulfide	UG/KG					
10-31-1	Total Solids	%	92.61	86.99	93.5	88.8	94.61

J = Estimated Value

- = Not Detected

* = Elevated detection limit due to matrix interference.

[1] Duplicate samples are designated by adding 50 to the test trench numl

TABLE 4.15
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SURFACE SOIL

CAS NO.	COMPOUND	SAMPLE ID: [1] / DEPTH: / LAB ID: / SOURCE: / SDG: / MATRIX: / SAMPLED: / UNITS:	SSMW18 0.0-0.5' A5L150193-007 QUANTERRA L15193 SOIL 12/14/95	SSMW19 0.0-0.5' A5L190138-014 QUANTERRA L16128 SOIL 12/18/95	SSMW20 0.0-0.5' A5L190138-015 QUANTERRA L16128 SOIL 12/18/95	SSDW21 0.0-0.5' A5L200142-013 QUANTERRA L20142 SOIL 12/19/95	SSMW22 0.0-0.5' A5L150192-004 QUANTERRA L15192 SOIL 12/12/95
	VOLATILES						
67-64-1	Acetone	UG/KG	-	-	-	2.8 J	360 J
71-43-2	Benzene	UG/KG	-	-	-	-	6.4 J
78-93-3	2-Butanone (MEK)	UG/KG	3.5 J	-	-	-	67 J
106-46-7	1,4-Dichlorobenzene	UG/KG	-	-	-	-	-
100-41-4	Ethylbenzene	UG/KG	-	-	-	-	24 J
591-78-6	2-Hexanone	UG/KG	-	-	-	-	-
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/KG	-	-	-	-	-
75-09-2	Methylene chloride	UG/KG	3.1 J	-	-	-	5.3 J
127-18-4	Tetrachloroethene	UG/KG	-	4.9 J	3.5 J	-	-
108-88-3	Toluene	UG/KG	2.7 J	-	-	-	26 J
79-01-6	Trichloroethene	UG/KG	-	-	-	-	-
1330-20-7	Xylenes (total)	UG/KG	-	2.8 J	-	-	79 J
	SEMIVOLATILES						
83-32-9	Acenaphthene	UG/KG	-	-	-	-	-
208-96-8	Acenaphthylene	UG/KG	-	38 J	-	-	-
120-12-7	Anthracene	UG/KG	-	72 J	-	-	-
56-55-3	Benzo(a)anthracene	UG/KG	-	990	-	68 J	-
50-32-8	Benzo(a)pyrene	UG/KG	-	930	-	75 J	-
205-99-2	Benzo(b)fluoranthene	UG/KG	-	1500	-	93 J	-
191-24-2	Benzo(ghi)perylene	UG/KG	-	480	-	47 J	-
207-08-9	Benzo(k)fluoranthene	UG/KG	-	440	-	49 J	-
85-68-7	Butyl benzyl phthalate	UG/KG	-	270	-	-	-
86-74-8	Carbazole	UG/KG	-	19 J	-	-	-
218-01-9	Chrysene	UG/KG	30 J	890	-	84 J	-
84-74-2	Di-n-butyl phthalate	UG/KG	-	-	-	-	-
117-84-0	Di-n-octyl phthalate	UG/KG	-	-	-	-	-
53-70-3	Dibenz(a,h)anthracene	UG/KG	-	180	-	-	-
132-64-9	Dibenzofuran	UG/KG	23 J			-	-
105-67-9	2,4-Dimethylphenol	UG/KG	-	-	-	-	-
206-44-0	Fluoranthene	UG/KG	30 J	1600	-	170 J	-
86-73-7	Fluorene	UG/KG	-	-	-	-	710 J
193-39-5	Indeno(1,2,3-cd)pyrene	UG/KG	-	530	-	43 J	-
91-57-6	2-Methylnaphthalene	UG/KG	60 J	47 J	-	-	660 J
95-48-7	2-Methylphenol	UG/KG	-	-	-	-	-
108-39-4	3-Methylphenol	UG/KG	-	-	-	-	-
106-44-5	4-Methylphenol	UG/KG	-	-	-	-	-
91-20-3	Naphthalene	UG/KG	43 J	-	-	-	-
85-01-8	Phenanthrene	UG/KG	67 J	170 J	-	60 J	1100 J
108-95-2	Phenol	UG/KG	-	-	-	-	-
129-00-0	Pyrene	UG/KG	20 J	1000	-	98 J	-
117-81-7	bis(2-Ethylhexyl) phthalate	UG/KG	-	-	-	-	-

TABLE 4.15
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SURFACE SOIL

CAS NO.	COMPOUND	SAMPLE ID: [1]	SSMW18	SSMW19	SSMW20	SSDW21	SSMW22
		DEPTH:	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'
		LAB ID:	A5L150193-007	A5L190138-014	A5L190138-015	A5L200142-013	A5L150192-004
		SOURCE:	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA
		SDG:	L15193	L16128	L16128	L20142	L15192
		MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL
		SAMPLED:	12/14/95	12/18/95	12/18/95	12/19/95	12/12/95
		UNITS:					
	PCBs						
72-43-5	Methoxychlor	UG/KG	90	-	-	-	-
12672-29-6	Aroclor 1248	UG/KG	-	-	-	-	500
11097-69-1	Aroclor 1254	UG/KG	-	-	-	-	340
TPCBS	Total PCBs	UG/KG	-	-	-	-	840
	DIOXINS						
TDIOXINS	Total TEFs	UG/KG					
	INORGANICS						
7429-90-5	Aluminum	UG/KG	5690000	5630000	2280000	8500000	1850000
7440-36-0	Antimony	UG/KG	824	1720	1530	-	26500
7440-38-2	Arsenic	UG/KG	2870	5780	3070	5790	59600
7440-39-3	Barium	UG/KG	41000	183000	14600	43300	45600
7440-41-7	Beryllium	UG/KG	537	-	-	337	-
7440-43-9	Cadmium	UG/KG	50.9	1080	120	146	258
7440-70-2	Calcium	UG/KG	19000000	37300000	4070000	40100000	6980000
7440-47-3	Chromium	UG/KG	21000	49400	64500	12100	1270000
7440-48-4	Cobalt	UG/KG	5750	6100	3580	6340	46900
7440-50-8	Copper	UG/KG	61500	124000	64000	13500	1170000
57-12-5	Cyanide	UG/KG	-	-	-	-	310
7439-89-6	Iron	UG/KG	38100000	28400000	36600000	14200000	567000000
7439-92-1	Lead	UG/KG	21000	61900	11600	14700	123000
7439-95-4	Magnesium	UG/KG	2870000	6530000	698000	8170000	892000
7439-96-5	Manganese	UG/KG	991000	820000	504000	377000	4580000
7439-97-6	Mercury	UG/KG	-	237	-	-	71.7
7440-02-0	Nickel	UG/KG	52100	40000	28400	15800	468000
7440-09-7	Potassium	UG/KG	-	741000	-	1270000	-
7782-49-2	Selenium	UG/KG	-	-	-	-	-
7440-22-4	Silver	UG/KG	-	-	380	-	1640
7440-23-5	Sodium	UG/KG	548000	276000	164000	197000	177000
7440-31-5	Tin	UG/KG					
7440-62-2	Vanadium	UG/KG	14900	13400	6070	17500	53700
7440-66-6	Zinc	UG/KG	11100	129000	26400	57600	1680000
	OTHER						
18496-25-8	Sulfide	UG/KG					
10-31-1	Total Solids	%	93.04	91.8	89.5	89.1	

J = Estimated Value

- = Not Detected

* = Elevated detection limit due to matrix interference.

[1] Duplicate samples are designated by adding 50 to the test trench numl

TABLE 4.16
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
PART 201 SOIL SCREENING CRITERIA EXCEEDENCE SUMMARY - WEST YARD SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	UNITS:	Maximum Concentration	Average [1] Detected Concentration	No. of Exceedences [2] No. of Locations	Criteria Exceeded	Location of Exceedences
	VOLATILES						
67-64-1	Acetone	UG/KG	360 J	73	0/17	NONE	NONE
71-43-2	Benzene	UG/KG	6.4 J	4.8	0/17	NONE	NONE
78-93-3	2-Butanone (MEK)	UG/KG	67 J	22	0/17	NONE	NONE
106-46-7	1,4-Dichlorobenzene	UG/KG	5.6 J	4	0/17	NONE	NONE
100-41-4	Ethylbenzene	UG/KG	24 J	10	0/17	NONE	NONE
591-78-6	2-Hexanone	UG/KG	4.1 J	4.1	0/17	NONE	NONE
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/KG	16 J	10	0/17	NONE	NONE
75-09-2	Methylene chloride	UG/KG	6.7 J	4.5	0/17	NONE	NONE
127-18-4	Tetrachloroethene	UG/KG	18 J	7	0/17	NONE	NONE
108-88-3	Toluene	UG/KG	27 J	11	0/17	NONE	NONE
79-01-6	Trichloroethene	UG/KG	27 J	27	0/17	NONE	NONE
1330-20-7	Xylenes (total)	UG/KG	79 J	28	0/17	NONE	NONE
	SEMIVOLATILES						
83-32-9	Acenaphthene	UG/KG	36000	9500	0/17	NONE	NONE
208-96-8	Acenaphthylene	UG/KG	2000 J	690	0/17	NONE	NONE
120-12-7	Anthracene	UG/KG	21000	2800	0/17	NONE	NONE
56-55-3	Benzo(a)anthracene	UG/KG	15000	1300	0/17	NONE	NONE
50-32-8	Benzo(a)pyrene	UG/KG	8600 J	900	0/17	NONE	NONE
205-99-2	Benzo(b)fluoranthene	UG/KG	11000	1200	0/17	NONE	NONE
191-24-2	Benzo(ghi)perylene	UG/KG	4500 J	470	0/17	NONE	NONE
207-08-9	Benzo(k)fluoranthene	UG/KG	5300 J	620	0/17	NONE	NONE
85-68-7	Butyl benzyl phthalate	UG/KG	32000	4200	0/17	NONE	NONE
86-74-8	Carbazole	UG/KG	11000	2200	0/17	NONE	NONE
218-01-9	Chrysene	UG/KG	16000	1300	0/17	NONE	NONE
84-74-2	Di-n-butyl phthalate	UG/KG	240 J	140	0/17	NONE	NONE
53-70-3	Dibenz(a,h)anthracene	UG/KG	180	70	0/17	NONE	NONE
132-64-9	Dibenzofuran	UG/KG	27000	4000	0/17	NONE	NONE
105-67-9	2,4-Dimethylphenol	UG/KG	250 J	190	0/17	NONE	NONE
206-44-0	Fluoranthene	UG/KG	82000	6600	0/17	NONE	NONE
86-73-7	Fluorene	UG/KG	36000	8400	0/17	NONE	NONE
193-39-5	Indeno(1,2,3-cd)pyrene	UG/KG	3700 J	390	0/17	NONE	NONE
91-57-6	2-Methylnaphthalene	UG/KG	23000	2500	0/17	NONE	NONE
95-48-7	2-Methylphenol	UG/KG	930	600	0/17	NONE	NONE
108-39-4	3-Methylphenol	UG/KG	400	400	0/15	NONE	NONE
106-44-5	4-Methylphenol	UG/KG	450	300	0/17	NONE	NONE
91-20-3	Naphthalene	UG/KG	97000	10000	0/17	NONE	NONE
85-01-8	Phenanthrene	UG/KG	110000	7600	0/17	NONE	NONE
108-95-2	Phenol	UG/KG	2100	1000	0/17	NONE	NONE
129-00-0	Pyrene	UG/KG	50000	3600	0/17	NONE	NONE
117-81-7	bis(2-Ethylhexyl) phthalate	UG/KG	1300 J	300	0/17	NONE	NONE

TABLE 4.16
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
PART 201 SOIL SCREENING CRITERIA EXCEEDENCE SUMMARY - WEST YARD SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	UNITS:	Maximum Concentration	Average [1] Detected Concentration	No. of Exceedences [2] No. of Locations	Criteria Exceeded	Location of Exceedences
	PCBs						
72-43-5	Methoxychlor	UG/KG	90	90	0/17	NONE	NONE
TPCBS	Total PCBs	UG/KG	3100	1100	0/17	NONE	NONE
	DIOXIN						
TDIOXINS	TOTAL TEFs	UG/KG	0.000566	0.000115	0/5	NONE	NONE
	INORGANICS						
7429-90-5	Aluminum	UG/KG	8,500,000	3960000	0/17	NONE	NONE
7440-36-0	Antimony	UG/KG	26,500	6700	0/17	NONE	NONE
7440-38-2	Arsenic	UG/KG	67100 J	12100	0/17	NONE	NONE
7440-39-3	Barium	UG/KG	353,000	66000	0/17	NONE	NONE
7440-41-7	Beryllium	UG/KG	805	461	0/17	NONE	NONE
7440-43-9	Cadmium	UG/KG	6,090	837	0/17	NONE	NONE
7440-70-2	Calcium	UG/KG	89700000	26000000	0/17	NONE	NONE
7440-47-3	Chromium	UG/KG	1660000	244000	0/17	NONE	NONE
7440-48-4	Cobalt	UG/KG	69500 J	15100	0/17	NONE	NONE
7440-50-8	Copper	UG/KG	1590000	248000	0/17	NONE	NONE
57-12-5	Cyanide	UG/KG	590	415	0/17	NONE	NONE
7439-89-6	Iron	UG/KG	567,000,000	56600000	0/17	NONE	NONE
7439-92-1	Lead	UG/KG	221,000	53000	0/17	NONE	NONE
7439-95-4	Magnesium	UG/KG	12000000 J	3970000	0/17	NONE	NONE
7439-96-5	Manganese	UG/KG	4600000 J	1480000	9/17	PSIC[3]	SSTT1, SSTT2, SSTT4, SSTT5, SSSB1, SSSB2, SSSB4, SSMW18, SSMW22
7439-97-6	Mercury	UG/KG	1,140	232	0/17	NONE	NONE
7440-02-0	Nickel	UG/KG	601000	114000	0/17	NONE	NONE
7440-09-7	Potassium	UG/KG	1,270,000	704000	0/17	NONE	NONE
7782-49-2	Selenium	UG/KG	1,090	744	0/17	NONE	NONE
7440-22-4	Silver	UG/KG	1,640	616	0/17	NONE	NONE
7440-23-5	Sodium	UG/KG	675000	290000	0/17	NONE	NONE
7440-31-5	Tin	UG/KG	84000	41400	0/4	NONE	NONE
7440-62-2	Vanadium	UG/KG	53,700	17200	0/17	NONE	NONE
7440-66-6	Zinc	UG/KG	3640000	415000	0/17	NONE	NONE
	OTHER						
18496-25-8	Sulfide	UG/KG	100000	446	0/3	NONE	NONE
10-31-1	Total Solids	%	94.6	90.3	0/16	NONE	NONE

J = Estimated Value.
(1) Average concentration calculated using detected values only.
(2) See Table 4.5 for Part 201 soil screening criteria values.
(3) Particulate Soil Inhalation Criteria.

TABLE 4.17
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SUBSURFACE SOIL DATA

CAS NO.	COMPOUND	SAMPLE ID: [1] / DEPTH: / LAB ID: / SOURCE: / SDG: / MATRIX: / SAMPLED: / UNITS:	SBTT1 10-15' A6A250126-002 QUANTERRA A6A250126 SOLID 1/22/96	SBTT2 15-15' A6A250126-004 QUANTERRA A6A250126 SOLID 1/22/96	SBTT3 05-09' A6A250126-007 QUANTERRA A6A250126 SOLID 1/23/96	SBTT4 03-10' A6A250126-009 QUANTERRA A6A250126 SOLID 1/23/96	SBTT5 03-05' A6A250126-012 QUANTERRA A6A250126 SOLID 1/23/96
	VOLATILES						
67-64-1	Acetone	UG/KG	4.2 J	42 J	-	32 J	2.7 J
71-43-2	Benzene	UG/KG	-	-	-	-	-
78-93-3	2-Butanone (MEK)	UG/KG	-	17 J	-	6.6 J	-
75-15-0	Carbon disulfide	UG/KG	-	-	-	-	-
106-46-7	1,4-Dichlorobenzene	UG/KG	-	-	-	2.7 J	-
75-34-3	1,1-Dichloroethane	UG/KG	-	-	-	-	-
100-41-4	Ethylbenzene	UG/KG	-	22 J	15000	-	-
591-78-6	2-Hexanone	UG/KG	-	-	-	-	-
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/KG	-	-	-	3.9 J	-
75-09-2	Methylene chloride	UG/KG	-	-	25000	-	-
127-18-4	Tetrachloroethene	UG/KG	-	-	-	-	-
108-88-3	Toluene	UG/KG	-	36	42000	5.1 J	-
79-01-6	Trichloroethene	UG/KG	-	-	-	-	-
75-01-4	Vinyl chloride	UG/KG	-	-	-	-	-
1330-20-7	Xylenes (total)	UG/KG	-	160	75000	7.3 J	-
156-59-2	cis-1,2-Dichloroethene	UG/KG	-	-	-	-	-
	SEMIVOLATILES						
83-32-9	Acenaphthene	UG/KG	24 J	-	14000 J	-	57 J
208-96-8	Acenaphthylene	UG/KG	-	-	-	-	-
120-12-7	Anthracene	UG/KG	47 J	-	11000 J	-	300
56-55-3	Benzo(a)anthracene	UG/KG	480	-	-	-	190
50-32-8	Benzo(a)pyrene	UG/KG	690	-	-	-	140 J
205-99-2	Benzo(b)fluoranthene	UG/KG	1200	-	-	-	240
191-24-2	Benzo(ghi)perylene	UG/KG	580	-	-	-	82 J
207-08-9	Benzo(k)fluoranthene	UG/KG	460	-	-	-	77 J
85-68-7	Butyl benzyl phthalate	UG/KG	-	-	1100000	3000 J	130 J
86-74-8	Carbazole	UG/KG	21 J	-	-	-	110 J
218-01-9	Chrysene	UG/KG	730	-	-	-	230
84-74-2	Di-n-butyl phthalate	UG/KG	-	-	-	-	-
117-84-0	Di-n-octyl phthalate	UG/KG	-	-	37000 J	-	-
53-70-3	Dibenz(a,h)anthracene	UG/KG	250	-	-	-	23 J
132-64-9	Dibenzofuran	UG/KG	48 J	-	13000 J	-	170 J
105-67-9	2,4-Dimethylphenol	UG/KG	24 J	-	72000 J	-	150 J
206-44-0	Fluoranthene	UG/KG	320	-	22000 J	-	340
86-73-7	Fluorene	UG/KG	40 J	-	26000 J	-	91 J
193-39-5	Indeno(1,2,3-cd)pyrene	UG/KG	510	-	-	-	53 J
91-57-6	2-Methylnaphthalene	UG/KG	350	7200 J	34000 J	-	2700
95-48-7	2-Methylphenol	UG/KG	41 J	-	-	-	320
108-39-4	3-Methylphenol	UG/KG					
106-44-5	4-Methylphenol	UG/KG	45 J	-	70000 J	-	180
91-20-3	Naphthalene	UG/KG	190	3700 J	70000 J	-	1400
76-01-7	Pentachloroethane	UG/KG	-				
85-01-8	Phenanthrene	UG/KG	300	4900 J	52000 J	3100 J	600
108-95-2	Phenol	UG/KG	110 J	-	140000	-	900
129-00-0	Pyrene	UG/KG	310	-	17000 J	-	300
117-81-7	bis(2-Ethylhexyl) phthalate	UG/KG	-	-	32000 J	-	83 J

TABLE 4.17
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SUBSURFACE SOIL DATA

CAS NO.	COMPOUND	SAMPLE ID: (1) DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED: UNITS:	SBTT1 10-15' A6A250126-002 QUANTERRA A6A250126 SOLID 1/22/96	SBTT2 15-15' A6A250126-004 QUANTERRA A6A250126 SOLID 1/22/96	SBTT3 05-09' A6A250126-007 QUANTERRA A6A250126 SOLID 1/23/96	SBTT4 03-10' A6A250126-009 QUANTERRA A6A250126 SOLID 1/23/96	SBTT5 03-05' A6A250126-012 QUANTERRA A6A250126 SOLID 1/23/96
	PESTICIDE/PCBs						
72-43-5	Methoxychlor	UG/KG	-	-	-	-	-
12672-29-6	Aroclor 1248	UG/KG	-	-	13000	830	-
11097-69-1	Aroclor 1254	UG/KG	-	-	7400	840	-
TPCBS	Total PCBs	UG/KG	-	-	20400	1670	-
	DIOXINS						
TDIOXINS	Total TEFs	UG/KG					
	INORGANICS						
7429-90-5	Aluminum	UG/KG	2740000	1890000	6200000	2750000	3950000
7440-36-0	Antimony	UG/KG	416	638	2760	5440	2330
7440-38-2	Arsenic	UG/KG	797	872	7120	9460	4050
7440-39-3	Barium	UG/KG	26200 J	18000	306000	32000	78400
7440-41-7	Beryllium	UG/KG	425	-	614	-	655
7440-43-9	Cadmium	UG/KG	122	121	10700	425	546
7440-70-2	Calcium	UG/KG	7210000	2420000	15600000	8370000	16600000
7440-47-3	Chromium	UG/KG	12400 J	9820	161000	340000	143000
7440-48-4	Cobalt	UG/KG	-	-	11300	14000	6170
7440-50-8	Copper	UG/KG	8500	26900	2370000	350000	93800
57-12-5	Cyanide	UG/KG	480	490	3600	380	930
7439-89-6	Iron	UG/KG	6660000	6090000	69400000	14200000	68800000
7439-92-1	Lead	UG/KG	16400 J	6950	180000	48300	202000
7439-95-4	Magnesium	UG/KG	622000 J	730000	3460000	623000	1380000
7439-96-5	Manganese	UG/KG	894000	107000	1990000	1690000	1790000
7439-97-6	Mercury	UG/KG	-	82.1	156	-	-
7440-02-0	Nickel	UG/KG	5950 J	5950	195000	145000	33500
7440-09-7	Potassium	UG/KG	-	-	744000	-	-
7782-49-2	Selenium	UG/KG	370	-	836	-	-
7440-22-4	Silver	UG/KG	-	-	886	-	-
7440-23-5	Sodium	UG/KG	252000 J	624000	616000	209000	468000
7440-31-5	Tin	UG/KG					
7440-62-2	Vanadium	UG/KG	6730 J	8750	10300	13300	6720
7440-66-6	Zinc	UG/KG	43700 J	9920	602000	69900	1120000
	OTHER						
10-31-1	Solids, Percent	%	94.2	94	73.3	95.7	91.5

J = Estimated Value
- = Not Detected
R = Rejected Value
(1) Duplicate samples are designated by adding 50 to the soil boring number.

TABLE 4.17
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SUBSURFACE SOIL DATA

		SAMPLE ID: (1)	SBSB1	SBSB2	SBSB3	SBSB4	SBSB5
		DEPTH:	16-18'	04-06'	16-18'	06-08'	04-06'
		LAB ID:	A5L150192-002	A5L150193-003	A5L150193-005	A5L160125-002	A5L150193-001
		SOURCE:	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA
		SDG:	L15192	L15193	L15193	L16125	L15193
		MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL
		SAMPLED:	12/12/95	12/14/95	12/14/95	12/15/95	12/12/95
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	UG/KG	-	-	16 J	-	2200 J
71-43-2	Benzene	UG/KG	-	-	-	-	720 J
78-93-3	2-Butanone (MEK)	UG/KG	-	-	2.9 J	-	1600 J
75-15-0	Carbon disulfide	UG/KG	-	-	-	-	-
106-46-7	1,4-Dichlorobenzene	UG/KG	-	-	-	-	-
75-34-3	1,1-Dichloroethane	UG/KG	-	-	-	-	-
100-41-4	Ethylbenzene	UG/KG	-	-	-	-	25000
591-78-6	2-Hexanone	UG/KG	-	-	-	-	-
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/KG	-	-	-	-	-
75-09-2	Methylene chloride	UG/KG	-	-	-	-	-
127-18-4	Tetrachloroethene	UG/KG	-	-	-	-	-
108-88-3	Toluene	UG/KG	-	-	2.4 J	-	34000
79-01-6	Trichloroethene	UG/KG	-	-	-	-	-
75-01-4	Vinyl chloride	UG/KG	-	-	-	-	-
1330-20-7	Xylenes (total)	UG/KG	-	-	6.8 J	-	150000
156-59-2	cis-1,2-Dichloroethene	UG/KG	-	-	-	-	-
	SEMIVOLATILES						
83-32-9	Acenaphthene	UG/KG	-	-	-	-	-
208-96-8	Acenaphthylene	UG/KG	-	-	-	-	-
120-12-7	Anthracene	UG/KG	-	-	-	20 J	-
56-55-3	Benzo(a)anthracene	UG/KG	-	-	-	54 J	-
50-32-8	Benzo(a)pyrene	UG/KG	-	-	-	41 J	-
205-99-2	Benzo(b)fluoranthene	UG/KG	-	-	-	71 J	-
191-24-2	Benzo(ghi)perylene	UG/KG	-	-	-	28 J	-
207-08-9	Benzo(k)fluoranthene	UG/KG	-	-	-	36 J	-
85-68-7	Butyl benzyl phthalate	UG/KG	-	-	-	-	-
86-74-8	Carbazole	UG/KG	-	-	-	-	-
218-01-9	Chrysene	UG/KG	-	-	-	67 J	-
84-74-2	Di-n-butyl phthalate	UG/KG	-	-	-	-	480000
117-84-0	Di-n-octyl phthalate	UG/KG	-	-	-	-	-
53-70-3	Dibenz(a,h)anthracene	UG/KG	-	-	-	-	-
132-64-9	Dibenzofuran	UG/KG	-	-	-	-	-
105-67-9	2,4-Dimethylphenol	UG/KG	-	-	-	-	-
206-44-0	Fluoranthene	UG/KG	-	-	-	130 J	-
86-73-7	Fluorene	UG/KG	-	-	-	-	-
193-39-5	Indeno(1,2,3-cd)pyrene	UG/KG	-	-	-	27 J	-
91-57-6	2-Methylnaphthalene	UG/KG	-	-	-	27 J	55000
95-48-7	2-Methylphenol	UG/KG	-	-	-	-	-
108-39-4	3-Methylphenol	UG/KG	-				-
106-44-5	4-Methylphenol	UG/KG	-	-	-	-	-
91-20-3	Naphthalene	UG/KG	-	-	-	22 J	19000 J
76-01-7	Pentachloroethane	UG/KG	-				-
85-01-8	Phenanthrene	UG/KG	-	-	1200 J	120 J	11000 J
108-95-2	Phenol	UG/KG	-	-	-	-	-
129-00-0	Pyrene	UG/KG	-	-	-	72 J	-
117-81-7	bis(2-Ethylhexyl) phthalate	UG/KG	24 J	-	-	-	-

TABLE 4.17
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SUBSURFACE SOIL DATA

CAS NO.	COMPOUND	SAMPLE ID: (1) / DEPTH: / LAB ID: / SOURCE: / SDG: / MATRIX: / SAMPLED: / UNITS:	SBSB1 16-18' A5L150192-002 QUANTERRA L15192 SOIL 12/12/95	SBSB2 04-06' A5L150193-003 QUANTERRA L15193 SOIL 12/14/95	SBSB3 16-18' A5L150193-005 QUANTERRA L15193 SOIL 12/14/95	SBSB4 06-08' A5L160125-002 QUANTERRA L16125 SOIL 12/15/95	SBSB5 04-06' A5L150193-001 QUANTERRA L15193 SOIL 12/12/95
	PESTICIDE/PCBs						
72-43-5	Methoxychlor	UG/KG	-	-	-	-	-
12672-29-6	Aroclor 1248	UG/KG	-	-	-	-	-
11097-69-1	Aroclor 1254	UG/KG	-	-	-	-	-
TPCBS	Total PCBs	UG/KG	-	-	-	-	-
	DIOXINS						
TDIOXINS	Total TEFs	UG/KG					1.36E-04
	INORGANICS						
7429-90-5	Aluminum	UG/KG	1660000	10800000	2070000	6580000	3910000
7440-36-0	Antimony	UG/KG	-	-	-	341	1740000
7440-38-2	Arsenic	UG/KG	862	5390	878	1350	35700
7440-39-3	Barium	UG/KG	5310	61300	5090	34800	1200000
7440-41-7	Beryllium	UG/KG	-	580	163	439	-
7440-43-9	Cadmium	UG/KG	57.9	62.2	49	36.8	5180
7440-70-2	Calcium	UG/KG	39700000	88600000	58400000	12100000	13200000
7440-47-3	Chromium	UG/KG	3850	78200	3800	10300	1020000
7440-48-4	Cobalt	UG/KG	-	6730	-	3070	34600
7440-50-8	Copper	UG/KG	4190	14000	3300	15500	729000
57-12-5	Cyanide	UG/KG	-	-	-	-	4100
7439-89-6	Iron	UG/KG	3360000	14800000	4400000	14200000	376000000
7439-92-1	Lead	UG/KG	2100	30100	2220	711	573000
7439-95-4	Magnesium	UG/KG	7890000	16500000	13200000	2130000	975000
7439-96-5	Manganese	UG/KG	87600	335000	117000	563000	3510000
7439-97-6	Mercury	UG/KG	-	-	-	-	2230
7440-02-0	Nickel	UG/KG	4250	19500	4330	13100	354000
7440-09-7	Potassium	UG/KG	-	2690000	-	551000	-
7782-49-2	Selenium	UG/KG	-	-	-	-	7670
7440-22-4	Silver	UG/KG	-	-	-	-	-
7440-23-5	Sodium	UG/KG	244000	277000	173000	221000	434000
7440-31-5	Tin	UG/KG	-				51300
7440-62-2	Vanadium	UG/KG	6910	24700	9150	14600	61400
7440-66-6	Zinc	UG/KG	11500	45000	13100	5370	932000
	OTHER						
10-31-1	Solids, Percent	%	84.7	86.2	92.3	91.17	87.16

J = Estimated Value
- = Not Detected
R = Rejected Value
(1) Duplicate samples are designated by adding 50 to the soil boring numbe

TABLE 4.17
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SUBSURFACE SOIL DATA

CAS NO.	COMPOUND	SAMPLE ID: [1] / DEPTH: / LAB ID: / SOURCE: / SDG: / MATRIX: / SAMPLED: / UNITS:	SBWD1 04-06' A5L190138-001 QUANTERRA L16128 SOIL 12/18/95	SBWD1 10-12' A5L190138-002 QUANTERRA L16128 SOIL 12/18/95	SBWD1 14-16' A5L190138-003 QUANTERRA L16128 SOIL 12/18/95	SBWD1 20-22' A5L190138-004 QUANTERRA L16128 SOIL 12/18/95	SBWD1 24-26' A5L190138-005 QUANTERRA L16128 SOIL 12/18/95
	VOLATILES						
67-64-1	Acetone	UG/KG	-	14 J	30 J	51 J	14 J
71-43-2	Benzene	UG/KG	-	-	-	-	-
78-93-3	2-Butanone (MEK)	UG/KG	-	2.5 J	5.5 J	10 J	-
75-15-0	Carbon disulfide	UG/KG	-	-	-	-	-
106-46-7	1,4-Dichlorobenzene	UG/KG	-	-	-	-	-
75-34-3	1,1-Dichloroethane	UG/KG	-	-	-	-	-
100-41-4	Ethylbenzene	UG/KG	-	-	-	-	-
591-78-6	2-Hexanone	UG/KG	-	-	-	-	-
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/KG	-	-	-	-	-
75-09-2	Methylene chloride	UG/KG	-	-	2.4 J	-	-
127-18-4	Tetrachloroethene	UG/KG	2.5 J	2.3 J	3 J	-	-
108-88-3	Toluene	UG/KG	-	-	-	-	-
79-01-6	Trichloroethene	UG/KG	-	-	-	-	-
75-01-4	Vinyl chloride	UG/KG	-	-	-	-	-
1330-20-7	Xylenes (total)	UG/KG	-	-	-	-	-
156-59-2	cis-1,2-Dichloroethene	UG/KG	-	-	-	-	-
	SEMIVOLATILES						
83-32-9	Acenaphthene	UG/KG			-		
208-96-8	Acenaphthylene	UG/KG	-	-	-	-	-
120-12-7	Anthracene	UG/KG			-		
56-55-3	Benzo(a)anthracene	UG/KG			120 J		
50-32-8	Benzo(a)pyrene	UG/KG			120 J		
205-99-2	Benzo(b)fluoranthene	UG/KG			210		
191-24-2	Benzo(ghi)perylene	UG/KG			42 J		
207-08-9	Benzo(k)fluoranthene	UG/KG			-		
85-68-7	Butyl benzyl phthalate	UG/KG			-		
86-74-8	Carbazole	UG/KG			-		
218-01-9	Chrysene	UG/KG			110 J		
84-74-2	Di-n-butyl phthalate	UG/KG			-		
117-84-0	Di-n-octyl phthalate	UG/KG	-	-	-	-	-
53-70-3	Dibenz(a,h)anthracene	UG/KG			18 J		
132-64-9	Dibenzofuran	UG/KG			-		
105-67-9	2,4-Dimethylphenol	UG/KG			-		
206-44-0	Fluoranthene	UG/KG			-		
86-73-7	Fluorene	UG/KG			-		
193-39-5	Indeno(1,2,3-cd)pyrene	UG/KG			43 J		
91-57-6	2-Methylnaphthalene	UG/KG			320		
95-48-7	2-Methylphenol	UG/KG			34 J		
108-39-4	3-Methylphenol	UG/KG			54 J		
106-44-5	4-Methylphenol	UG/KG			54 J		
91-20-3	Naphthalene	UG/KG			-		
76-01-7	Pentachloroethane	UG/KG			-		
85-01-8	Phenanthrene	UG/KG			-		
108-95-2	Phenol	UG/KG	-	-	-	-	-
129-00-0	Pyrene	UG/KG			-		
117-81-7	bis(2-Ethylhexyl) phthalate	UG/KG			-		

TABLE 4.17
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SUBSURFACE SOIL DATA

CAS NO.	COMPOUND	SAMPLE ID: [1] / DEPTH: / LAB ID: / SOURCE: / SDG: / MATRIX: / SAMPLED: / UNITS:	SBWD1 04-06' A5L190138-001 QUANTERRA L16128 SOIL 12/18/95	SBWD1 10-12' A5L190138-002 QUANTERRA L16128 SOIL 12/18/95	SBWD1 14-16' A5L190138-003 QUANTERRA L16128 SOIL 12/18/95	SBWD1 20-22' A5L190138-004 QUANTERRA L16128 SOIL 12/18/95	SBWD1 24-26' A5L190138-005 QUANTERRA L16128 SOIL 12/18/95
	PESTICIDE/PCBs						
72-43-5	Methoxychlor	UG/KG			-		
12672-29-6	Aroclor 1248	UG/KG			-		
11097-69-1	Aroclor 1254	UG/KG			-		
TPCBS	Total PCBs	UG/KG			-		
	DIOXINS						
TDIOXINS	Total TEFs	UG/KG			1.35E-05		
	INORGANICS						
7429-90-5	Aluminum	UG/KG			3600000		
7440-36-0	Antimony	UG/KG			444 J		
7440-38-2	Arsenic	UG/KG			1890		
7440-39-3	Barium	UG/KG			26100		
7440-41-7	Beryllium	UG/KG			-		
7440-43-9	Cadmium	UG/KG			69.4		
7440-70-2	Calcium	UG/KG			9980000 J		
7440-47-3	Chromium	UG/KG			20300 J		
7440-48-4	Cobalt	UG/KG			-		
7440-50-8	Copper	UG/KG			9220		
57-12-5	Cyanide	UG/KG			-		
7439-89-6	Iron	UG/KG			6280000		
7439-92-1	Lead	UG/KG			8190		
7439-95-4	Magnesium	UG/KG			749000		
7439-96-5	Manganese	UG/KG			936000		
7439-97-6	Mercury	UG/KG			-		
7440-02-0	Nickel	UG/KG			7050		
7440-09-7	Potassium	UG/KG			-		
7782-49-2	Selenium	UG/KG			316 J		
7440-22-4	Silver	UG/KG			-		
7440-23-5	Sodium	UG/KG			546000		
7440-31-5	Tin	UG/KG					
7440-62-2	Vanadium	UG/KG			5100		
7440-66-6	Zinc	UG/KG			17300 J		
	OTHER						
10-31-1	Solids, Percent	%	93.1	89.8	94.3	81.8	90.5

J = Estimated Value
- = Not Detected
R = Rejected Value
(1) Duplicate samples are designated by adding 50 to the soil boring numbe

TABLE 4.17
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SUBSURFACE SOIL DATA

CAS NO.	COMPOUND	SAMPLE ID: [1] / DEPTH: / LAB ID: / SOURCE: / SDG: / MATRIX: / SAMPLED: / UNITS:	SBWD1 30-32' A5L190138-006 QUANTERRA L16128 SOIL 12/18/95	SBWD1 34-36' A5L190138-007 QUANTERRA L16128 SOIL 12/18/95	SBWD2 04-06' A5L190138-008 QUANTERRA L16128 SOIL 12/18/95	SBWD2 10-12' A5L190138-009 QUANTERRA L16128 SOIL 12/18/95	SBWD2 14-16' A5L190138-010 QUANTERRA L16128 SOIL 12/18/95
	VOLATILES						
67-64-1	Acetone	UG/KG	8.9 J	9.1 J	11 J	99	25 J
71-43-2	Benzene	UG/KG	-	-	-	-	-
78-93-3	2-Butanone (MEK)	UG/KG	-	-	2.2 J	20 J	4 J
75-15-0	Carbon disulfide	UG/KG	-	-	-	3.9 J	-
106-46-7	1,4-Dichlorobenzene	UG/KG	-	-	-	-	-
75-34-3	1,1-Dichloroethane	UG/KG	-	-	-	-	-
100-41-4	Ethylbenzene	UG/KG	-	-	-	-	-
591-78-6	2-Hexanone	UG/KG	-	-	-	2.5 J	-
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/KG	-	-	-	-	-
75-09-2	Methylene chloride	UG/KG	-	-	-	-	-
127-18-4	Tetrachloroethene	UG/KG	-	-	-	-	-
108-88-3	Toluene	UG/KG	-	-	-	-	-
79-01-6	Trichloroethene	UG/KG	-	-	-	-	-
75-01-4	Vinyl chloride	UG/KG	-	-	-	-	-
1330-20-7	Xylenes (total)	UG/KG	-	-	-	-	-
156-59-2	cis-1,2-Dichloroethene	UG/KG	-	-	-	-	-
	SEMIVOLATILES						
83-32-9	Acenaphthene	UG/KG					
208-96-8	Acenaphthylene	UG/KG	-	-		-	-
120-12-7	Anthracene	UG/KG					
56-55-3	Benzo(a)anthracene	UG/KG					
50-32-8	Benzo(a)pyrene	UG/KG					
205-99-2	Benzo(b)fluoranthene	UG/KG					
191-24-2	Benzo(ghi)perylene	UG/KG					
207-08-9	Benzo(k)fluoranthene	UG/KG					
85-68-7	Butyl benzyl phthalate	UG/KG					
86-74-8	Carbazole	UG/KG					
218-01-9	Chrysene	UG/KG					
84-74-2	Di-n-butyl phthalate	UG/KG					
117-84-0	Di-n-octyl phthalate	UG/KG	-	-	-	-	-
53-70-3	Dibenz(a,h)anthracene	UG/KG					
132-64-9	Dibenzofuran	UG/KG					
105-67-9	2,4-Dimethylphenol	UG/KG					
206-44-0	Fluoranthene	UG/KG					
86-73-7	Fluorene	UG/KG					
193-39-5	Indeno(1,2,3-cd)pyrene	UG/KG					
91-57-6	2-Methylnaphthalene	UG/KG					
95-48-7	2-Methylphenol	UG/KG					
108-39-4	3-Methylphenol	UG/KG					
106-44-5	4-Methylphenol	UG/KG					
91-20-3	Naphthalene	UG/KG					
76-01-7	Pentachloroethane	UG/KG					
85-01-8	Phenanthrene	UG/KG					
108-95-2	Phenol	UG/KG	-	-	-	-	-
129-00-0	Pyrene	UG/KG					
117-81-7	bis(2-Ethylhexyl) phthalate	UG/KG					

TABLE 4.17
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SUBSURFACE SOIL DATA

CAS NO.	COMPOUND	SAMPLE ID: (1) / DEPTH: / LAB ID: / SOURCE: / SDG: / MATRIX: / SAMPLED: / UNITS:	SBWD1 30-32' A5L190138-006 QUANTERRA L16128 SOIL 12/18/95	SBWD1 34-36' A5L190138-007 QUANTERRA L16128 SOIL 12/18/95	SBWD2 04-06' A5L190138-008 QUANTERRA L16128 SOIL 12/18/95	SBWD2 10-12' A5L190138-009 QUANTERRA L16128 SOIL 12/18/95	SBWD2 14-16' A5L190138-010 QUANTERRA L16128 SOIL 12/18/95
	PESTICIDE/PCBs						
72-43-5	Methoxychlor	UG/KG					
12672-29-6	Aroclor 1248	UG/KG					
11097-69-1	Aroclor 1254	UG/KG					
TPCBS	Total PCBs	UG/KG					
	DIOXINS						
TDIOXINS	Total TEFs	UG/KG					
	INORGANICS						
7429-90-5	Aluminum	UG/KG					
7440-36-0	Antimony	UG/KG					
7440-38-2	Arsenic	UG/KG					
7440-39-3	Barium	UG/KG					
7440-41-7	Beryllium	UG/KG					
7440-43-9	Cadmium	UG/KG					
7440-70-2	Calcium	UG/KG					
7440-47-3	Chromium	UG/KG					
7440-48-4	Cobalt	UG/KG					
7440-50-8	Copper	UG/KG					
57-12-5	Cyanide	UG/KG					
7439-89-6	Iron	UG/KG					
7439-92-1	Lead	UG/KG					
7439-95-4	Magnesium	UG/KG					
7439-96-5	Manganese	UG/KG					
7439-97-6	Mercury	UG/KG					
7440-02-0	Nickel	UG/KG					
7440-09-7	Potassium	UG/KG					
7782-49-2	Selenium	UG/KG					
7440-22-4	Silver	UG/KG					
7440-23-5	Sodium	UG/KG					
7440-31-5	Tin	UG/KG					
7440-62-2	Vanadium	UG/KG					
7440-66-6	Zinc	UG/KG					
	OTHER						
10-31-1	Solids, Percent	%	89.7	91.3	93.2	89.2	80.1

J = Estimated Value
- = Not Detected
R = Rejected Value
(1) Duplicate samples are designated by adding 50 to the soil boring numbe

TABLE 4.17
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SUBSURFACE SOIL DATA

CAS NO.	COMPOUND	SAMPLE ID: [1] / DEPTH: / LAB ID: / SOURCE: / SDG: / MATRIX: / SAMPLED: / UNITS:	SBWD2 20-22' A5L190138-011 QUANTERRA L16128 SOIL 12/18/95	SBWD2 24-26' A5L190138-012 QUANTERRA L16128 SOIL 12/18/95	SBWD2 24-26' A5L200158-001 QUANTERRA L16128 SOIL 12/18/95	SBWD2 30-32' A5L200158-002 QUANTERRA L16128 SOIL 12/19/95	SBWD2 34-36' A5L200158-003 QUANTERRA L16128 SOIL 12/19/95
	VOLATILES						
67-64-1	Acetone	UG/KG	-	-	-	14 J	-
71-43-2	Benzene	UG/KG	-	-	-	-	-
78-93-3	2-Butanone (MEK)	UG/KG	17 J	6.9 J	6.3 J	2.4 J	-
75-15-0	Carbon disulfide	UG/KG	-	-	-	-	-
106-46-7	1,4-Dichlorobenzene	UG/KG	-	-	-	-	-
75-34-3	1,1-Dichloroethane	UG/KG	-	-	-	-	-
100-41-4	Ethylbenzene	UG/KG	-	4.1 J	-	-	-
591-78-6	2-Hexanone	UG/KG	-	-	-	-	-
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/KG	3 J	-	-	-	-
75-09-2	Methylene chloride	UG/KG	3.1 J	-	-	-	-
127-18-4	Tetrachloroethene	UG/KG	7.5 J	-	-	-	-
108-88-3	Toluene	UG/KG	-	-	-	-	-
79-01-6	Trichloroethene	UG/KG	-	-	-	-	-
75-01-4	Vinyl chloride	UG/KG	-	-	-	-	-
1330-20-7	Xylenes (total)	UG/KG	-	-	-	-	-
156-59-2	cis-1,2-Dichloroethene	UG/KG	-	-	-	-	-
	SEMIVOLATILES						
83-32-9	Acenaphthene	UG/KG			-		
208-96-8	Acenaphthylene	UG/KG	-	-	-	-	-
120-12-7	Anthracene	UG/KG			-		
56-55-3	Benzo(a)anthracene	UG/KG			63 J		
50-32-8	Benzo(a)pyrene	UG/KG			93 J		
205-99-2	Benzo(b)fluoranthene	UG/KG			120 J		
191-24-2	Benzo(ghi)perylene	UG/KG			51 J		
207-08-9	Benzo(k)fluoranthene	UG/KG			49 J		
85-68-7	Butyl benzyl phthalate	UG/KG			-		
86-74-8	Carbazole	UG/KG			-		
218-01-9	Chrysene	UG/KG			72 J		
84-74-2	Di-n-butyl phthalate	UG/KG			-		
117-84-0	Di-n-octyl phthalate	UG/KG	-	-	-	-	-
53-70-3	Dibenz(a,h)anthracene	UG/KG			-		
132-64-9	Dibenzofuran	UG/KG			-		
105-67-9	2,4-Dimethylphenol	UG/KG			-		
206-44-0	Fluoranthene	UG/KG			97 J		
86-73-7	Fluorene	UG/KG			200		
193-39-5	Indeno(1,2,3-cd)pyrene	UG/KG			46 J		
91-57-6	2-Methylnaphthalene	UG/KG			150 J		
95-48-7	2-Methylphenol	UG/KG			-		
108-39-4	3-Methylphenol	UG/KG			-		
106-44-5	4-Methylphenol	UG/KG			-		
91-20-3	Naphthalene	UG/KG			50 J		
76-01-7	Pentachloroethane	UG/KG			99 J		
85-01-8	Phenanthrene	UG/KG			390		
108-95-2	Phenol	UG/KG	-	-	-	-	-
129-00-0	Pyrene	UG/KG			77 J		
117-81-7	bis(2-Ethylhexyl) phthalate	UG/KG			170 J		

TABLE 4.17
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SUBSURFACE SOIL DATA

CAS NO.	COMPOUND	SAMPLE ID: (1) / DEPTH: / LAB ID: / SOURCE: / SDG: / MATRIX: / SAMPLED: / UNITS:	SBWD2 20-22' A5L190138-011 QUANTERRA L16128 SOIL 12/18/95	SBWD2 24-26' A5L190138-012 QUANTERRA L16128 SOIL 12/18/95	SBWD2 24-26' A5L200158-001 QUANTERRA L16128 SOIL 12/18/95	SBWD2 30-32' A5L200158-002 QUANTERRA L16128 SOIL 12/19/95	SBWD2 34-36' A5L200158-003 QUANTERRA L16128 SOIL 12/19/95
	PESTICIDE/PCBs						
72-43-5	Methoxychlor	UG/KG			-		
12672-29-6	Aroclor 1248	UG/KG			2400		
11097-69-1	Aroclor 1254	UG/KG			-		
TPCBS	Total PCBs	UG/KG			2400		
	DIOXINS						
TDIOXINS	Total TEFs	UG/KG			2.45E-05		
	INORGANICS						
7429-90-5	Aluminum	UG/KG			2880000		
7440-36-0	Antimony	UG/KG			-		
7440-38-2	Arsenic	UG/KG			1780		
7440-39-3	Barium	UG/KG			32200		
7440-41-7	Beryllium	UG/KG			-		
7440-43-9	Cadmium	UG/KG			-		
7440-70-2	Calcium	UG/KG			17000000		
7440-47-3	Chromium	UG/KG			13800		
7440-48-4	Cobalt	UG/KG			-		
7440-50-8	Copper	UG/KG			19700		
57-12-5	Cyanide	UG/KG			-		
7439-89-6	Iron	UG/KG			7430000		
7439-92-1	Lead	UG/KG			1300000		
7439-95-4	Magnesium	UG/KG			913000		
7439-96-5	Manganese	UG/KG			223000		
7439-97-6	Mercury	UG/KG			-		
7440-02-0	Nickel	UG/KG			16300		
7440-09-7	Potassium	UG/KG			-		
7782-49-2	Selenium	UG/KG			-		
7440-22-4	Silver	UG/KG			-		
7440-23-5	Sodium	UG/KG			268000		
7440-31-5	Tin	UG/KG					
7440-62-2	Vanadium	UG/KG			6430		
7440-66-6	Zinc	UG/KG			9810		
	OTHER						
10-31-1	Solids, Percent	%	81.8	77.8	83.6	83.8	90.4

J = Estimated Value
- = Not Detected
R = Rejected Value
(1) Duplicate samples are designated by adding 50 to the soil boring numbe

TABLE 4.17
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SUBSURFACE SOIL DATA

CAS NO.	COMPOUND	SAMPLE ID: [1] / DEPTH: / LAB ID: / SOURCE: / SDG: / MATRIX: / SAMPLED: / UNITS:	SBWD3 30-32' A5L200142-009 QUANTERRA L20142 SOIL 12/19/95	SBWD3 34-36' A5L200142-010 QUANTERRA L20142 SOIL 12/19/95	SBMW16 05-07' A5L210121-003 QUANTERRA L20142 SOIL 12/20/95	SBDW16 16-18' A5L160125-004 QUANTERRA L16125 SOIL 12/15/95	SBMW17 06-08' A5L210121-004 QUANTERRA L20142 SOIL 12/20/95
	VOLATILES						
67-64-1	Acetone	UG/KG	9.8 J	16 J	-	2.5 J	-
71-43-2	Benzene	UG/KG	-	-	-	-	-
78-93-3	2-Butanone (MEK)	UG/KG	2.6 J	3 J	-	-	-
75-15-0	Carbon disulfide	UG/KG	-	-	-	-	2.6 J
106-46-7	1,4-Dichlorobenzene	UG/KG	-	-	-	-	-
75-34-3	1,1-Dichloroethane	UG/KG	-	-	-	-	-
100-41-4	Ethylbenzene	UG/KG	-	-	-	-	-
591-78-6	2-Hexanone	UG/KG	-	-	-	-	-
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/KG	-	-	-	-	-
75-09-2	Methylene chloride	UG/KG	-	-	3.2 J	-	-
127-18-4	Tetrachloroethene	UG/KG	-	-	2.4 J	-	2.5 J
108-88-3	Toluene	UG/KG	-	-	-	-	-
79-01-6	Trichloroethene	UG/KG	-	-	-	-	-
75-01-4	Vinyl chloride	UG/KG	-	-	-	-	-
1330-20-7	Xylenes (total)	UG/KG	-	-	-	-	-
156-59-2	cis-1,2-Dichloroethene	UG/KG	-	-	-	-	-
	SEMIVOLATILES						
83-32-9	Acenaphthene	UG/KG			-	-	33 J
208-96-8	Acenaphthylene	UG/KG	-	-	-	-	-
120-12-7	Anthracene	UG/KG			-	-	-
56-55-3	Benzo(a)anthracene	UG/KG			-	-	-
50-32-8	Benzo(a)pyrene	UG/KG			-	-	-
205-99-2	Benzo(b)fluoranthene	UG/KG			-	-	-
191-24-2	Benzo(ghi)perylene	UG/KG			-	-	-
207-08-9	Benzo(k)fluoranthene	UG/KG			-	-	-
85-68-7	Butyl benzyl phthalate	UG/KG			-	-	-
86-74-8	Carbazole	UG/KG			-	-	-
218-01-9	Chrysene	UG/KG			-	-	-
84-74-2	Di-n-butyl phthalate	UG/KG			-	-	-
117-84-0	Di-n-octyl phthalate	UG/KG	-	-	-	-	-
53-70-3	Dibenz(a,h)anthracene	UG/KG			-	-	-
132-64-9	Dibenzofuran	UG/KG			-	-	26 J
105-67-9	2,4-Dimethylphenol	UG/KG			-	-	-
206-44-0	Fluoranthene	UG/KG			-	-	46 J
86-73-7	Fluorene	UG/KG			-	-	46 J
193-39-5	Indeno(1,2,3-cd)pyrene	UG/KG			-	-	-
91-57-6	2-Methylnaphthalene	UG/KG			-	-	230
95-48-7	2-Methylphenol	UG/KG			-	-	38 J
108-39-4	3-Methylphenol	UG/KG					
106-44-5	4-Methylphenol	UG/KG			-	-	83 J
91-20-3	Naphthalene	UG/KG			-	-	210
76-01-7	Pentachloroethane	UG/KG					
85-01-8	Phenanthrene	UG/KG			-	-	120 J
108-95-2	Phenol	UG/KG	-	-	-	-	-
129-00-0	Pyrene	UG/KG			-	-	32 J
117-81-7	bis(2-Ethylhexyl) phthalate	UG/KG			-	-	-

TABLE 4.17
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SUBSURFACE SOIL DATA

		SAMPLE ID: (1)	SBWD3	SBWD3	SBMW16	SBDW16	SBMW17
		DEPTH:	30-32'	34-36'	05-07'	16-18'	06-08'
		LAB ID:	A5L200142-009	A5L200142-010	A5L210121-003	A5L160125-004	A5L210121-004
		SOURCE:	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA
		SDG:	L20142	L20142	L20142	L16125	L20142
		MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL
		SAMPLED:	12/19/95	12/19/95	12/20/95	12/15/95	12/20/95
CAS NO.	COMPOUND	UNITS:					
	PESTICIDE/PCBs						
72-43-5	Methoxychlor	UG/KG			-	-	-
12672-29-6	Aroclor 1248	UG/KG			-	-	-
11097-69-1	Aroclor 1254	UG/KG			-	-	-
TPCBS	Total PCBs	UG/KG			-	-	-
	DIOXINS						
TDIOXINS	Total TEFs	UG/KG					
	INORGANICS						
7429-90-5	Aluminum	UG/KG			1870000	2580000	1600000
7440-36-0	Antimony	UG/KG			-	-	664
7440-38-2	Arsenic	UG/KG			730	2790	2430
7440-39-3	Barium	UG/KG			6100	9070	16400
7440-41-7	Beryllium	UG/KG			-	165	-
7440-43-9	Cadmium	UG/KG			44.9	63.2	-
7440-70-2	Calcium	UG/KG			34800000	75400000	1230000
7440-47-3	Chromium	UG/KG			4010	3810	30500
7440-48-4	Cobalt	UG/KG			-	3080	-
7440-50-8	Copper	UG/KG			4960	6320	55800
57-12-5	Cyanide	UG/KG			-	-	620
7439-89-6	Iron	UG/KG			3020000	5540000	16300000
7439-92-1	Lead	UG/KG			2250	1680	6170
7439-95-4	Magnesium	UG/KG			7340000	23900000	814000
7439-96-5	Manganese	UG/KG			78400	179000	248000
7439-97-6	Mercury	UG/KG			-	-	-
7440-02-0	Nickel	UG/KG			5640	7040	33800
7440-09-7	Potassium	UG/KG			-	-	-
7782-49-2	Selenium	UG/KG			-	-	-
7440-22-4	Silver	UG/KG			-	-	-
7440-23-5	Sodium	UG/KG			303000	464000	226000
7440-31-5	Tin	UG/KG					
7440-62-2	Vanadium	UG/KG			6780	10500	5290
7440-66-6	Zinc	UG/KG			13000	12400	7910
	OTHER						
10-31-1	Solids, Percent	%	84.5	90.4	86.9	90.93	83.4

J = Estimated Value
- = Not Detected
R = Rejected Value
(1) Duplicate samples are designated by adding 50 to the soil boring numbe

TABLE 4.17
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SUBSURFACE SOIL DATA

CAS NO.	COMPOUND	SAMPLE ID: [1] / DEPTH: / LAB ID: / SOURCE: / SDG: / MATRIX: / SAMPLED: / UNITS:	SBMW17 10-12' A5L150193-009 QUANTERRA L15193 SOIL 12/14/95	SBMW18 16-18' A5L150193-010 QUANTERRA L15193 SOIL 12/14/95	SBDW18 34-36' A5L210121-005 QUANTERRA L20142 SOIL 12/20/95	SBDW68 (DUP OF SBDW18) 34-36' A5L210121-006 QUANTERRA L20142 SOIL 12/20/95	SBMW19 25-27' A5L190138-013 QUANTERRA L16128 SOIL 12/18/95
	VOLATILES						
67-64-1	Acetone	UG/KG	-	20 J	-	-	22 J
71-43-2	Benzene	UG/KG	-	-	-	-	-
78-93-3	2-Butanone (MEK)	UG/KG	-	-	-	-	3.4 J
75-15-0	Carbon disulfide	UG/KG	-	-	-	-	-
106-46-7	1,4-Dichlorobenzene	UG/KG	-	-	-	-	-
75-34-3	1,1-Dichloroethane	UG/KG	-	-	-	-	-
100-41-4	Ethylbenzene	UG/KG	-	-	-	-	-
591-78-6	2-Hexanone	UG/KG	-	-	-	-	-
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/KG	-	-	-	-	-
75-09-2	Methylene chloride	UG/KG	-	-	-	-	-
127-18-4	Tetrachloroethene	UG/KG	-	-	-	-	2.9 J
108-88-3	Toluene	UG/KG	-	-	-	-	-
79-01-6	Trichloroethene	UG/KG	-	-	-	-	-
75-01-4	Vinyl chloride	UG/KG	-	-	-	-	-
1330-20-7	Xylenes (total)	UG/KG	-	-	-	-	-
156-59-2	cis-1,2-Dichloroethene	UG/KG	-	-		-	-
	SEMIVOLATILES						
83-32-9	Acenaphthene	UG/KG	-	38 J	-	-	-
208-96-8	Acenaphthylene	UG/KG	-	-	-	-	-
120-12-7	Anthracene	UG/KG	-	23 J	-	-	-
56-55-3	Benzo(a)anthracene	UG/KG	-	42 J	-	-	-
50-32-8	Benzo(a)pyrene	UG/KG	-	25 J	-	-	-
205-99-2	Benzo(b)fluoranthene	UG/KG	-	43 J	-	-	-
191-24-2	Benzo(ghi)perylene	UG/KG	-	21 J	-	-	-
207-08-9	Benzo(k)fluoranthene	UG/KG	-	-	-	-	-
85-68-7	Butyl benzyl phthalate	UG/KG	-	-	-	-	-
86-74-8	Carbazole	UG/KG	-	-	-	-	-
218-01-9	Chrysene	UG/KG	-	55 J	-	-	-
84-74-2	Di-n-butyl phthalate	UG/KG	-	-	-	-	-
117-84-0	Di-n-octyl phthalate	UG/KG	-		-	-	-
53-70-3	Dibenz(a,h)anthracene	UG/KG	-	-	-	-	-
132-64-9	Dibenzofuran	UG/KG	-	22 J	-	-	-
105-67-9	2,4-Dimethylphenol	UG/KG	-	-	-	-	-
206-44-0	Fluoranthene	UG/KG	-	99 J	-	-	-
86-73-7	Fluorene	UG/KG	-	-	-	-	-
193-39-5	Indeno(1,2,3-cd)pyrene	UG/KG	-	-	-	-	-
91-57-6	2-Methylnaphthalene	UG/KG	-	61 J	-	-	-
95-48-7	2-Methylphenol	UG/KG	-		-	-	-
108-39-4	3-Methylphenol	UG/KG					
106-44-5	4-Methylphenol	UG/KG	-	-	-	-	-
91-20-3	Naphthalene	UG/KG	-	130 J	-	-	-
76-01-7	Pentachloroethane	UG/KG					
85-01-8	Phenanthrene	UG/KG	-	150 J	-	-	-
108-95-2	Phenol	UG/KG	-	-	-	-	-
129-00-0	Pyrene	UG/KG	-	53 J	-	-	-
117-81-7	bis(2-Ethylhexyl) phthalate	UG/KG	-	-	-	-	-

TABLE 4.17
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SUBSURFACE SOIL DATA

CAS NO.	COMPOUND	SAMPLE ID: (1) DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED: UNITS:	SBMW17 10-12' A5L150193-009 QUANTERRA L15193 SOIL 12/14/95	SBMW18 16-18' A5L150193-010 QUANTERRA L15193 SOIL 12/14/95	SBDW18 34-36' A5L210121-005 QUANTERRA L20142 SOIL 12/20/95	SBDW68 (DUP OF SBDW18) 34-36' A5L210121-006 QUANTERRA L20142 SOIL 12/20/95	SBMW19 25-27' A5L190138-013 QUANTERRA L16128 SOIL 12/18/95
	PESTICIDE/PCBs						
72-43-5	Methoxychlor	UG/KG	-	-	-	-	-
12672-29-6	Aroclor 1248	UG/KG	-	-	-	-	-
11097-69-1	Aroclor 1254	UG/KG	-	-	-	-	-
TPCBS	Total PCBs	UG/KG	-	-	-	-	-
	DIOXINS						
TDIOXINS	Total TEFs	UG/KG					
	INORGANICS						
7429-90-5	Aluminum	UG/KG	625000	2670000	1700000	1340000	1660000
7440-36-0	Antimony	UG/KG	-	467	-	-	1410
7440-38-2	Arsenic	UG/KG	603	1610	2150	3160	1180
7440-39-3	Barium	UG/KG	156000	20400	10200	7180	11600
7440-41-7	Beryllium	UG/KG	-	178	-	-	-
7440-43-9	Cadmium	UG/KG	121	157	42.9	43.4	-
7440-70-2	Calcium	UG/KG	425000000	5400000	51300000	51100000	-
7440-47-3	Chromium	UG/KG	1690	21400	3810	4830	4380
7440-48-4	Cobalt	UG/KG	-	-	-	-	-
7440-50-8	Copper	UG/KG	2790	28400	4000	4140	3200
57-12-5	Cyanide	UG/KG	-	-	1900	-	-
7439-89-6	Iron	UG/KG	2060000	9980000	3620000	3020000	4050000
7439-92-1	Lead	UG/KG	-	113000	1800	1840	70200
7439-95-4	Magnesium	UG/KG	9630000	885000	10100000	9220000	328000
7439-96-5	Manganese	UG/KG	425000	227000	124000	110000	32400
7439-97-6	Mercury	UG/KG	-	-	-	-	-
7440-02-0	Nickel	UG/KG	3060	33200	4410	4570	4760
7440-09-7	Potassium	UG/KG	-	-	-	-	-
7782-49-2	Selenium	UG/KG	-	339	-	-	-
7440-22-4	Silver	UG/KG	-	-	-	-	-
7440-23-5	Sodium	UG/KG	679000	227000	336000	324000	159000
7440-31-5	Tin	UG/KG					
7440-62-2	Vanadium	UG/KG	-	7310	6270	5610	4850
7440-66-6	Zinc	UG/KG	3960	23000	13300	14100	7900
	OTHER						
10-31-1	Solids, Percent	%	55.57	84.08	85.1		82.9

J = Estimated Value
- = Not Detected
R = Rejected Value
(1) Duplicate samples are designated by adding 50 to the soil boring numbe

TABLE 4.17
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SUBSURFACE SOIL DATA

CAS NO.	COMPOUND	SAMPLE ID:[1] / DEPTH: / LAB ID: / SOURCE: / SDG: / MATRIX: / SAMPLED: / UNITS:	SBDW19 36-38' A5L160128-001 QUANTERRA L16128 SOIL 12/15/95	SBMW20 23-25' A5L210121-001 QUANTERRA L20142 SOIL 12/20/95	SBMW70 (DUP OF SBMW20) 23-25' A5L210121-002 QUANTERRA L20142 SOIL 12/20/95	SBDW20 40-42' A5L200142-011 QUANTERRA L20142 SOIL 12/19/95	SBDW70 (DUP OF SBDW20) 40-42' A5L200142-012 QUANTERRA L20142 SOIL 12/19/95
	VOLATILES						
67-64-1	Acetone	UG/KG	88	-	310 J	12 J	11 J
71-43-2	Benzene	UG/KG	-	-	-	-	-
78-93-3	2-Butanone (MEK)	UG/KG	18 J	-	1100 J	2.5 J	2.8 J
75-15-0	Carbon disulfide	UG/KG	9.6 J	-	-	-	-
106-46-7	1,4-Dichlorobenzene	UG/KG	-	-	-	-	-
75-34-3	1,1-Dichloroethane	UG/KG	-	-	-	16	21
100-41-4	Ethylbenzene	UG/KG	-	6100	5400	-	-
591-78-6	2-Hexanone	UG/KG	-	-	-	-	-
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/KG	-	-	-	-	-
75-09-2	Methylene chloride	UG/KG	-	-	-	-	-
127-18-4	Tetrachloroethene	UG/KG	-	-	-	-	-
108-88-3	Toluene	UG/KG	3.7 J	1500	2500	-	-
79-01-6	Trichloroethene	UG/KG	-	-	-	-	-
75-01-4	Vinyl chloride	UG/KG	-	-	-	4 J	15
1330-20-7	Xylenes (total)	UG/KG	-	20000	17000	-	-
156-59-2	cis-1,2-Dichloroethene	UG/KG	-	-	-	8.6	16
	SEMIVOLATILES						
83-32-9	Acenaphthene	UG/KG	-	5300 J	6500	-	-
208-96-8	Acenaphthylene	UG/KG	-	-	-	-	-
120-12-7	Anthracene	UG/KG	-	-	-	-	-
56-55-3	Benzo(a)anthracene	UG/KG	-	5600 J	6300	-	-
50-32-8	Benzo(a)pyrene	UG/KG	-	-	-	-	-
205-99-2	Benzo(b)fluoranthene	UG/KG	-	4200 J	8300	-	-
191-24-2	Benzo(ghi)perylene	UG/KG	-	-	-	-	-
207-08-9	Benzo(k)fluoranthene	UG/KG	-	-	-	-	-
85-68-7	Butyl benzyl phthalate	UG/KG	-	8200 J	-	380	-
86-74-8	Carbazole	UG/KG	-	-	-	-	-
218-01-9	Chrysene	UG/KG	-	8000 J	9700	-	-
84-74-2	Di-n-butyl phthalate	UG/KG	-	-	-	-	-
117-84-0	Di-n-octyl phthalate	UG/KG	-	-	-	-	-
53-70-3	Dibenz(a,h)anthracene	UG/KG	-	-	-	-	-
132-64-9	Dibenzofuran	UG/KG	-	-	4200	-	-
105-67-9	2,4-Dimethylphenol	UG/KG	-	-	-	41 J	30 J
206-44-0	Fluoranthene	UG/KG	-	15000 J	21000	38 J	-
86-73-7	Fluorene	UG/KG	-	7500 J	9200	-	-
193-39-5	Indeno(1,2,3-cd)pyrene	UG/KG	-	-	-	-	-
91-57-6	2-Methylnaphthalene	UG/KG	-	85000	120000	110 J	-
95-48-7	2-Methylphenol	UG/KG	-	-	-	25 J	27 J
108-39-4	3-Methylphenol	UG/KG				-	-
106-44-5	4-Methylphenol	UG/KG	-	-	-	-	-
91-20-3	Naphthalene	UG/KG	-	12000 J	19000	-	-
76-01-7	Pentachloroethane	UG/KG				-	-
85-01-8	Phenanthrene	UG/KG	-	21000 J	26000	45 J	-
108-95-2	Phenol	UG/KG	-	-	-	-	-
129-00-0	Pyrene	UG/KG	-	13000 J	13000	24 J	-
117-81-7	bis(2-Ethylhexyl) phthalate	UG/KG	-	24000 J	35000	-	-

TABLE 4.17
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SUBSURFACE SOIL DATA

CAS NO.	COMPOUND	SAMPLE ID: [1] / DEPTH: / LAB ID: / SOURCE: / SDG: / MATRIX: / SAMPLED: / UNITS:	SBDW19 36-38' A5L160128-001 QUANTERRA L16128 SOIL 12/15/95	SBMW20 23-25' A5L210121-001 QUANTERRA L20142 SOIL 12/20/95	SBMW70 (DUP OF SBMW20) 23-25' A5L210121-002 QUANTERRA L20142 SOIL 12/20/95	SBDW20 40-42' A5L200142-011 QUANTERRA L20142 SOIL 12/19/95	SBDW70 (DUP OF SBDW20) 40-42' A5L200142-012 QUANTERRA L20142 SOIL 12/19/95
	PESTICIDE/PCBs						
72-43-5	Methoxychlor	UG/KG	-	-	-	-	-
12672-29-6	Aroclor 1248	UG/KG	-	27000	31000	-	-
11097-69-1	Aroclor 1254	UG/KG	-	11000	12000	-	-
TPCBS	Total PCBs	UG/KG	-	38000	43000	-	-
	DIOXINS						
TDIOXINS	Total TEFs	UG/KG				7.80E-08	3.31E-07
	INORGANICS						
7429-90-5	Aluminum	UG/KG	1790000	1850000	2250000	1210000	1200000
7440-36-0	Antimony	UG/KG	-	1010	971	-	-
7440-38-2	Arsenic	UG/KG	8300	2890	2280	1580	1710
7440-39-3	Barium	UG/KG	60900	187000	267000	4730	4590
7440-41-7	Beryllium	UG/KG	-	-	-	-	-
7440-43-9	Cadmium	UG/KG	96.7	997	984	47.3	42.3
7440-70-2	Calcium	UG/KG	10100000	5030000	3430000	35700000	34900000
7440-47-3	Chromium	UG/KG	3550	17200	14200	3260	2960
7440-48-4	Cobalt	UG/KG	-	-	-	-	-
7440-50-8	Copper	UG/KG	15700	143000	126000	6180	3740
57-12-5	Cyanide	UG/KG	-	1900	3500	-	-
7439-89-6	Iron	UG/KG	10800000	10600000	8430000	2950000	2820000
7439-92-1	Lead	UG/KG	2260	112000	89800	2270	1830
7439-95-4	Magnesium	UG/KG	10700000	1140000	1100000	7810000	7170000
7439-96-5	Manganese	UG/KG	340000	252000	170000	93500	95100
7439-97-6	Mercury	UG/KG	-	647	1390	-	-
7440-02-0	Nickel	UG/KG	6950	60500	47800	5140	4650
7440-09-7	Potassium	UG/KG	-	-	-	-	-
7782-49-2	Selenium	UG/KG	-	386	-	-	-
7440-22-4	Silver	UG/KG	-	-	-	-	-
7440-23-5	Sodium	UG/KG	404000	290000	371000	406000	399000
7440-31-5	Tin	UG/KG				-	-
7440-62-2	Vanadium	UG/KG	6490	4890	5760	5100	4620
7440-66-6	Zinc	UG/KG	19800	68400	73200	10500	9590
	OTHER						
10-31-1	Solids, Percent	%	66.2	88.3	85.3	84.6	84

J = Estimated Value
- = Not Detected
R = Rejected Value
(1) Duplicate samples are designated by adding 50 to the soil boring numbe

TABLE 4.17
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SUBSURFACE SOIL DATA

CAS NO.	COMPOUND	SAMPLE ID:[1] / DEPTH: / LAB ID: / SOURCE: / SDG: / MATRIX: / SAMPLED: / UNITS:	SBDW21 18-20' A5L200142-014 QUANTERRA L20142 SOIL 12/19/95	SBMW22 16-18' A5L150192-005 QUANTERRA L15192 SOIL 12/12/95	SBDW22 32-34' A5L200142-015 QUANTERRA L20142 SOIL 12/19/95
	VOLATILES				
67-64-1	Acetone	UG/KG	-	210 J	11 J
71-43-2	Benzene	UG/KG	-	-	-
78-93-3	2-Butanone (MEK)	UG/KG	-	58 J	-
75-15-0	Carbon disulfide	UG/KG	-	-	-
106-46-7	1,4-Dichlorobenzene	UG/KG	-	-	-
75-34-3	1,1-Dichloroethane	UG/KG	-	-	-
100-41-4	Ethylbenzene	UG/KG	-	300	-
591-78-6	2-Hexanone	UG/KG	-	-	-
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/KG	-	-	-
75-09-2	Methylene chloride	UG/KG	-	-	-
127-18-4	Tetrachloroethene	UG/KG	-	-	-
108-88-3	Toluene	UG/KG	-	250	-
79-01-6	Trichloroethene	UG/KG	-	-	-
75-01-4	Vinyl chloride	UG/KG	-	-	-
1330-20-7	Xylenes (total)	UG/KG	-	2400	-
156-59-2	cis-1,2-Dichloroethene	UG/KG	-	-	-
	SEMIVOLATILES				
83-32-9	Acenaphthene	UG/KG	-	-	-
208-96-8	Acenaphthylene	UG/KG	-	-	-
120-12-7	Anthracene	UG/KG	310 J	4900 J	54 J
56-55-3	Benzo(a)anthracene	UG/KG	-	7700 J	42 J
50-32-8	Benzo(a)pyrene	UG/KG	-	-	-
205-99-2	Benzo(b)fluoranthene	UG/KG	-	-	28 J
191-24-2	Benzo(ghi)perylene	UG/KG	-	4200 J	-
207-08-9	Benzo(k)fluoranthene	UG/KG	-	-	-
85-68-7	Butyl benzyl phthalate	UG/KG	-	-	390
86-74-8	Carbazole	UG/KG	-	-	43 J
218-01-9	Chrysene	UG/KG	-	12000 J	47 J
84-74-2	Di-n-butyl phthalate	UG/KG	-	-	-
117-84-0	Di-n-octyl phthalate	UG/KG	-	-	-
53-70-3	Dibenz(a,h)anthracene	UG/KG	-	-	-
132-64-9	Dibenzofuran	UG/KG	-	-	-
105-67-9	2,4-Dimethylphenol	UG/KG	-	-	54 J
206-44-0	Fluoranthene	UG/KG	350 J	19000 J	190
86-73-7	Fluorene	UG/KG	1200 J	5400 J	54 J
193-39-5	Indeno(1,2,3-cd)pyrene	UG/KG	-	-	-
91-57-6	2-Methylnaphthalene	UG/KG	2400	19000 J	130 J
95-48-7	2-Methylphenol	UG/KG	-	-	-
108-39-4	3-Methylphenol	UG/KG			110 J
106-44-5	4-Methylphenol	UG/KG	-	-	110 J
91-20-3	Naphthalene	UG/KG	-	7100 J	69 J
76-01-7	Pentachloroethane	UG/KG			-
85-01-8	Phenanthrene	UG/KG	3100	25000 J	230
108-95-2	Phenol	UG/KG	-	-	-
129-00-0	Pyrene	UG/KG	350 J	13000 J	110 J
117-81-7	bis(2-Ethylhexyl) phthalate	UG/KG	-	-	-

TABLE 4.17
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD SUBSURFACE SOIL DATA

CAS NO.	COMPOUND	SAMPLE ID: (1) DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED: UNITS:	SBDW21 18-20' A5L200142-014 QUANTERRA L20142 SOIL 12/19/95	SBMW22 16-18' A5L150192-005 QUANTERRA L15192 SOIL 12/12/95	SBDW22 32-34' A5L200142-015 QUANTERRA L20142 SOIL 12/19/95
	PESTICIDE/PCBs				
72-43-5	Methoxychlor	UG/KG	-	R	-
12672-29-6	Aroclor 1248	UG/KG	-	8200 J	-
11097-69-1	Aroclor 1254	UG/KG	-	R	-
TPCBS	Total PCBs	UG/KG	-	8200	-
	DIOXINS				
TDIOXINS	Total TEFs	UG/KG			1.40E-04
	INORGANICS				
7429-90-5	Aluminum	UG/KG	4360000	8220000	2000000
7440-36-0	Antimony	UG/KG	-	150000	394
7440-38-2	Arsenic	UG/KG	5020	20000	3360
7440-39-3	Barium	UG/KG	30900	5720000	51500
7440-41-7	Beryllium	UG/KG	-	1050	-
7440-43-9	Cadmium	UG/KG	77.4	3510	114
7440-70-2	Calcium	UG/KG	27300000	28800000	90800000
7440-47-3	Chromium	UG/KG	8010	207000	7990
7440-48-4	Cobalt	UG/KG	5860	29200	4620
7440-50-8	Copper	UG/KG	9970	1110000	18700
57-12-5	Cyanide	UG/KG	-	3100	-
7439-89-6	Iron	UG/KG	8670000	120000000	7500000
7439-92-1	Lead	UG/KG	4770	1350000	8520
7439-95-4	Magnesium	UG/KG	13600000	4100000	15100000
7439-96-5	Manganese	UG/KG	192000	3900000	216000
7439-97-6	Mercury	UG/KG	-	1560	-
7440-02-0	Nickel	UG/KG	11300	351000	14800
7440-09-7	Potassium	UG/KG		737000	-
7782-49-2	Selenium	UG/KG	-	1940	-
7440-22-4	Silver	UG/KG	-	2370	-
7440-23-5	Sodium	UG/KG	274000	890000	368000
7440-31-5	Tin	UG/KG			-
7440-62-2	Vanadium	UG/KG	15200	37100	6250
7440-66-6	Zinc	UG/KG	22500	4040000	28900
	OTHER				
10-31-1	Solids, Percent	%	85.3		87.6

J = Estimated Value
- = Not Detected
R = Rejected Value
(1) Duplicate samples are designated by adding 50 to the soil boring numbe

TABLE 4.18
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
PART 201 SOIL SCREENING CRITERIA EXCEEDANCE SUMMARY - WEST YARD SUBSURFACE SOIL

CAS NO.	COMPOUND	UNITS:	Maximum Concentration	Average Detected Concentration [1]	No. of Exceedences [2] / No. of Locations	Criteria Exceeded	Location of Exceedences
	VOLATILES						
67-64-1	Acetone	UG/KG	2200 J	106	0/45	NONE	NONE
71-43-2	Benzene	UG/KG	720 J	720	0/45	NONE	NONE
78-93-3	2-Butanone (MEK)	UG/KG	1600 J	110	0/45	NONE	NONE
75-15-0	Carbon disulfide	UG/KG	9.6 J	5.4	0/45	NONE	NONE
106-46-7	1,4-Dichlorobenzene	UG/KG	2.7 J	2.7	0/45	NONE	NONE
75-34-3	1,1-Dichloroethane	UG/KG	21	19	0/45	NONE	NONE
100-41-4	Ethylbenzene	UG/KG	25000	7400	0/45	NONE	NONE
591-78-6	2-Hexanone	UG/KG	2.5 J	2.5	0/45	NONE	NONE
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/KG	3.9 J	3.5	0/45	NONE	NONE
75-09-2	Methylene chloride	UG/KG	25000 J	4200	0/45	NONE	NONE
127-18-4	Tetrachloroethene	UG/KG	7.5 J	3.6	0/45	NONE	NONE
108-88-3	Toluene	UG/KG	42000	8900	0/45	NONE	NONE
75-01-4	Vinyl chloride	UG/KG	15	10	0/45	NONE	NONE
1330-20-7	Xylenes (total)	UG/KG	150000	29000	0/45	NONE	NONE
156-59-2	cis-1,2-Dichloroethene	UG/KG	16	12	0/45	NONE	NONE
	SEMIVOLATILES						
83-32-9	Acenaphthene	UG/KG	14000 J	3700	0/26	NONE	NONE
120-12-7	Anthracene	UG/KG	11000 J	2100	0/26	NONE	NONE
56-55-3	Benzo(a)anthracene	UG/KG	7700 J	2100	0/26	NONE	NONE
50-32-8	Benzo(a)pyrene	UG/KG	690	180	0/26	NONE	NONE
205-99-2	Benzo(b)fluoranthene	UG/KG	8300	1600	0/26	NONE	NONE
191-24-2	Benzo(ghi)perylene	UG/KG	4200 J	710	0/26	NONE	NONE
207-08-9	Benzo(k)fluoranthene	UG/KG	460	160	0/26	NONE	NONE
85-68-7	Butyl benzyl phthalate	UG/KG	1100000	190000	1/26	C_{sat}	SBTT3
86-74-8	Carbazole	UG/KG	110 J	60	0/26	NONE	NONE
218-01-9	Chrysene	UG/KG	12000 J	3100	0/26	NONE	NONE
84-74-2	Di-n-butyl phthalate	UG/KG	480000	4180000	0/26	NONE	NONE
117-84-0	Di-n-octyl phthalate	UG/KG	37000 J	37000	0/45	NONE	NONE
53-70-3	Dibenz(a,h)anthracene	UG/KG	250	97	0/26	NONE	NONE
132-64-9	Dibenzofuran	UG/KG	13000 J	2900	0/26	NONE	NONE
105-67-9	2,4-Dimethylphenol	UG/KG	72000 J	12000	0/26	NONE	NONE
206-44-0	Fluoranthene	UG/KG	22000 J	6000	0/26	NONE	NONE
86-73-7	Fluorene	UG/KG	26000 J	5000	0/26	NONE	NONE
193-39-5	Indeno(1,2,3-cd)pyrene	UG/KG	510	140	0/26	NONE	NONE
91-57-6	2-Methylnaphthalene	UG/KG	120000	19000	0/26	NONE	NONE
95-48-7	2-Methylphenol	UG/KG	320	80	0/26	NONE	NONE
108-39-4	3-Methylphenol	UG/KG	110 J	82	0/7	NONE	NONE
106-44-5	4-Methylphenol	UG/KG	70000 J	12000	0/26	NONE	NONE
91-20-3	Naphthalene	UG/KG	70000 J	10000	0/26	NONE	NONE
76-01-7	Pentachloroethane	UG/KG	99 J	99	0/8	NONE	NONE
85-01-8	Phenanthrene	UG/KG	52000 J	8300	0/26	NONE	NONE
108-95-2	Phenol	UG/KG	140000	47000	0/45	NONE	NONE
129-00-0	Pyrene	UG/KG	17000 J	4400	0/26	NONE	NONE
117-81-7	bis(2-Ethylhexyl) phthalate	UG/KG	35000	15000	0/26	NONE	NONE

TABLE 4.18
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
PART 201 SOIL SCREENING CRITERIA EXCEEDANCE SUMMARY - WEST YARD SUBSURFACE SOIL

CAS NO.	COMPOUND	UNITS:	Maximum Concentration	Average Detected Concentration [1]	No. of Exceedences [2] / No. of Locations	Criteria Exceeded	Location of Exceedences
	PESTICIDE/PCBs						
TPCBS	Total PCBs	UG/KG	43000	19000	1/26	Direct Contact	SBMW20,SBMW70(SBMW20 DUP)
	DIOXINS						
TDIOXINS	Total TEFs	UG/KG	0.00014	0.000052	0/7	NONE	NONE
	INORGANICS						
7429-90-5	Aluminum	UG/KG	10800000	3050000	0/26	NONE	NONE
7440-36-0	Antimony	UG/KG	1740000	119000	1/26	Direct Contact	SBSB5
7440-38-2	Arsenic	UG/KG	35700	4570	0/26	NONE	NONE
7440-39-3	Barium	UG/KG	5720000	290000	0/26	NONE	NONE
7440-41-7	Beryllium	UG/KG	1050	474	0/26	NONE	NONE
7440-43-9	Cadmium	UG/KG	10700	914	0/26	NONE	NONE
7440-70-2	Calcium	UG/KG	425000000	41800000	0/26	NONE	NONE
7440-47-3	Chromium	UG/KG	1020000	74700	0/26	NONE	NONE
7440-48-4	Cobalt	UG/KG	34600	11900	0/26	NONE	NONE
7440-50-8	Copper	UG/KG	2370000	179000	0/26	NONE	NONE
7439-89-6	Iron	UG/KG	376000000	28200000	0/26	NONE	NONE
7439-92-1	Lead	UG/KG	1350000	151000	3/26	Direct Contact	SBSB5, SBWD2, SBMW22
7439-95-4	Magnesium	UG/KG	23900000	5950000	0/26	NONE	NONE
7439-96-5	Manganese	UG/KG	3900000	657000	7/26	PSIC [3]	SBTT1, SBTT3, SBTT4, SBTT5, SBSB5, SBWD1, SBMW22
7439-97-6	Mercury	UG/KG	2230	1010	0/26	NONE	NONE
7440-02-0	Nickel	UG/KG	354000	49100	0/26	NONE	NONE
7440-09-7	Potassium	UG/KG	2690000	1180000	0/26	NONE	NONE
7782-49-2	Selenium	UG/KG	7670	1690	0/26	NONE	NONE
7440-22-4	Silver	UG/KG	2370	1630	0/26	NONE	NONE
7440-23-5	Sodium	UG/KG	2490000	446000	0/26	NONE	NONE
7440-31-5	Tin	UG/KG	51300	51300	0/3	NONE	NONE
7440-62-2	Vanadium	UG/KG	61400	11200	0/26	NONE	NONE
7440-66-6	Zinc	UG/KG	4040000	250000	0/26	NONE	NONE
57-12-5	Cyanide	UG/KG	4100	1790	0/26	NONE	NONE
	OTHER						
10-31-1	Solids, Percent	%	96.7	86.7	0/44	NONE	NONE

J = Estimated Value
(1) Average concentration calculated using detected values only.
(2) See Table 4.5 for Part 201 soil screening criteria values.
(3) Particulate Soil Inhalation Criteria

TABLE 4.19
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD GROUNDWATER

CAS NO.	COMPOUND	SAMPLE ID: [1] LAB ID: SOURCE: SDG: MATRIX: SAMPLED: UNITS:	MW5 A6A190124-002 QUANTERRA A6A190124 WATER 1/18/96	MW5 A6B150157-012 QUANTERRA A6B150157 WATER 2/13/96	MW7 A6A180129-003 QUANTERRA A6A180129 WATER 1/17/96	MW57 (DUP OF MW7) A6A180129-005 QUANTERRA A6A180129 WATER 1/17/96	MW7 A6B150157-015 QUANTERRA A6B150157 WATER 2/14/96
	VOLATILES						
67-64-1	Acetone	UG/L	-		6.6 J	5.6 J	
71-43-2	Benzene	UG/L	1.1 J		17	15	13
78-93-3	2-Butanone (MEK)	UG/L	-		-	-	
75-00-3	Chloroethane	UG/L	24		1.6	1.6	
75-34-3	1,1-Dichloroethane	UG/L	4.5		11	12	
107-06-2	1,2-Dichloroethane	UG/L	1.3		-	-	
100-41-4	Ethylbenzene	UG/L	-		-	-	
108-88-3	Toluene	UG/L	-		-	-	
75-01-4	Vinyl chloride	UG/L	-		12	12	13
1330-20-7	Xylenes (total)	UG/L	-		-	-	
156-59-2	cis-1,2-Dichloroethene	UG/L	-		7.8	7.9	
	SEMIVOLATILES						
120-12-7	Anthracene	UG/L	-		-	-	
100-51-6	Benzyl alcohol	UG/L					
85-68-7	Butyl benzyl phthalate	UG/L	-		-	-	
218-01-9	Chrysene	UG/L	-		-		
105-67-9	2,4-Dimethylphenol	UG/L	-		-	2.8 J	
206-44-0	Fluoranthene	UG/L	-		-	-	
86-73-7	Fluorene	UG/L	-			-	
91-57-6	2-Methylnaphthalene	UG/L	-		-	-	
95-48-7	2-Methylphenol	UG/L	-		-	-	
108-39-4	3-Methylphenol	UG/L					
106-44-5	4-Methylphenol	UG/L	-		-	-	
91-20-3	Naphthalene	UG/L	-		-	-	
85-01-8	Phenanthrene	UG/L	-		-		
129-00-0	Pyrene	UG/L	-		-	-	
117-81-7	bis(2-Ethylhexyl) phthalate	UG/L	3.7 J		16	0.92 J	-

TABLE 4.19
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD GROUNDWATER

		SAMPLE ID: (1)	MW5	MW5	MW7	MW57 (DUP OF MW7)	MW7
		LAB ID:	A6A190124-002	A6B150157-012	A6A180129-003	A6A180129-005	A6B150157-015
		SOURCE:	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA
		SDG:	A6A190124	A6B150157	A6A180129	A6A180129	A6B150157
		MATRIX:	WATER	WATER	WATER	WATER	WATER
		SAMPLED:	1/18/96	2/13/96	1/17/96	1/17/96	2/14/96
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
	PCBs						
11104-28-2	Aroclor 1221	UG/L					
12672-29-6	Aroclor 1248	UG/L	-		-	-	
11097-69-1	Aroclor 1254	UG/L	-		-	-	
TPCBS	Total PCBs	UG/L	-		-	-	
	DIOXINS						
TDIOXINS	Total TEFs	UG/L					
	INORGANICS						
7429-90-5	Aluminum -DISS	UG/L	199	156	148	515	105
7440-38-2	Arsenic -DISS	UG/L	5 1		5.4	5.2	
7440-39-3	Barium -DISS	UG/L	229		398	396	
7440-70-2	Calcium -DISS	UG/L	75500	73300	82100	82900	74800
7439-89-6	Iron -DISS	UG/L	2930	2320	5340	5550	4670
7439-92-1	Lead -DISS	UG/L	-		-	-	
7439-95-4	Magnesium -DISS	UG/L	29200		25300	25300	
7439-96-5	Manganese -DISS	UG/L	115	104	101	105	90
7440-02-0	Nickel -DISS	UG/L	-		-	-	
7440-09-7	Potassium -DISS	UG/L	24600	16900	30900	30400	24300
7440-23-5	Sodium -DISS	UG/L	763000	662000	1370000	1250000	1010000
7440-66-6	Zinc -DISS	UG/L	-		-	26	
	OTHER						
57-12-5	Cyanide	UG/L	21		-	-	
18496-25-8	Sulfide	MG/L					

J = Estimated Value
- = Not Detected
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** = Identity suspect due to matrix interference
*** = Identity suspect due to matrix interference
(1) Duplicate samples are designated by adding 50 to the well number.

TABLE 4.19
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD GROUNDWATER

		SAMPLE ID: [1]	MW8	MW8	MW108 (DUP OF MW8)	MW16	MW16
		LAB ID:	A6C080138-001	T966118	T966119	A6A180129-004	A6B150157-013
		SOURCE:	QUANTERRA	TRIANGLE	TRIANGLE	QUANTERRA	QUANTERRA
		SDG:	C08138	38976	38976	A6A180129	A6B150157
		MATRIX:	WATER	WATER	WATER	WATER	WATER
		SAMPLED:	3/01/96	9/24/96	9/24/96	1/17/96	2/14/96
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	UG/L	7.2 J			-	
71-43-2	Benzene	UG/L	1.4 J			1.5 J	
78-93-3	2-Butanone (MEK)	UG/L				-	
75-00-3	Chloroethane	UG/L	2			11	
75-34-3	1,1-Dichloroethane	UG/L	1.3			2.4	
107-06-2	1,2-Dichloroethane	UG/L	1.4			-	
100-41-4	Ethylbenzene	UG/L				-	
108-88-3	Toluene	UG/L				-	
75-01-4	Vinyl chloride	UG/L	9.1			-	
1330-20-7	Xylenes (total)	UG/L				-	
156-59-2	cis-1,2-Dichloroethene	UG/L	2.5			-	
	SEMIVOLATILES						
120-12-7	Anthracene	UG/L				-	
100-51-6	Benzyl alcohol	UG/L					
85-68-7	Butyl benzyl phthalate	UG/L				-	
218-01-9	Chrysene	UG/L				-	
105-67-9	2,4-Dimethylphenol	UG/L				-	
206-44-0	Fluoranthene	UG/L				-	
86-73-7	Fluorene	UG/L				-	
91-57-6	2-Methylnaphthalene	UG/L				-	
95-48-7	2-Methylphenol	UG/L				-	
108-39-4	3-Methylphenol	UG/L					
106-44-5	4-Methylphenol	UG/L				-	
91-20-3	Naphthalene	UG/L				-	
85-01-8	Phenanthrene	UG/L				-	
129-00-0	Pyrene	UG/L				-	
117-81-7	bis(2-Ethylhexyl) phthalate	UG/L				-	

TABLE 4.19
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD GROUNDWATER

		SAMPLE ID: (1)	MW8	MW8	MW108 (DUP OF MW8)	MW16	MW16
		LAB ID:	A6C080138-001	T966118	T966119	A6A180129-004	A6B150157-013
		SOURCE:	QUANTERRA	TRIANGLE	TRIANGLE	QUANTERRA	QUANTERRA
		SDG:	C08138	38976	38976	A6A180129	A6B150157
		MATRIX:	WATER	WATER	WATER	WATER	WATER
		SAMPLED:	3/01/96	9/24/96	9/24/96	1/17/96	2/14/96
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
	PCBs						
11104-28-2	Aroclor 1221	UG/L	0.16 *				
12672-29-6	Aroclor 1248	UG/L				-	
11097-69-1	Aroclor 1254	UG/L				-	
TPCBS	Total PCBs	UG/L	0.16 *			-	
	DIOXINS						
TDIOXINS	Total TEFs	UG/L		1.13E-06	1.47E-06		
	INORGANICS						
7429-90-5	Aluminum -DISS	UG/L				-	
7440-38-2	Arsenic -DISS	UG/L				-	
7440-39-3	Barium -DISS	UG/L				-	
7440-70-2	Calcium -DISS	UG/L	88400			98200	104000
7439-89-6	Iron -DISS	UG/L	248			4220	4480
7439-92-1	Lead -DISS	UG/L				-	
7439-95-4	Magnesium -DISS	UG/L	25500			30400	
7439-96-5	Manganese -DISS	UG/L	203			130	135
7440-02-0	Nickel -DISS	UG/L				-	
7440-09-7	Potassium -DISS	UG/L	20400			-	
7440-23-5	Sodium -DISS	UG/L	944000			461000	396000
7440-66-6	Zinc -DISS	UG/L				-	
	OTHER						
57-12-5	Cyanide	UG/L				25	
18496-25-8	Sulfide	MG/L					

J = Estimated Value
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*** = Identity suspect due to matrix interference
(1) Duplicate samples are designated by adding 50 to the well number.

TABLE 4.19
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD GROUNDWATER

		SAMPLE ID: [1]	MW16	DW16	DW16	DW16	MW17
		LAB ID:	T966120	A6A190124-001	A6B150157-014	T966121	A6A170141-001
		SOURCE:	TRIANGLE	QUANTERRA	QUANTERRA	TRIANGLE	QUANTERRA
		SDG:	38976	A6A190124	A6B150157	38976	A6A170141
		MATRIX:	WATER	WATER	WATER	WATER	WATER
		SAMPLED:	9/24/96	1/18/96	2/14/96	9/24/96	1/16/96
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	UG/L		7.7 J			4 J
71-43-2	Benzene	UG/L		-			-
78-93-3	2-Butanone (MEK)	UG/L		-			-
75-00-3	Chloroethane	UG/L		3.9			-
75-34-3	1,1-Dichloroethane	UG/L		1.1			-
107-06-2	1,2-Dichloroethane	UG/L		-			-
100-41-4	Ethylbenzene	UG/L		-			-
108-88-3	Toluene	UG/L		-			-
75-01-4	Vinyl chloride	UG/L		-			-
1330-20-7	Xylenes (total)	UG/L		-			-
156-59-2	cis-1,2-Dichloroethene	UG/L		1.5			-
	SEMIVOLATILES						
120-12-7	Anthracene	UG/L		-			-
100-51-6	Benzyl alcohol	UG/L					-
85-68-7	Butyl benzyl phthalate	UG/L		-			-
218-01-9	Chrysene	UG/L		-			-
105-67-9	2,4-Dimethylphenol	UG/L		-			-
206-44-0	Fluoranthene	UG/L		-			-
86-73-7	Fluorene	UG/L		-			-
91-57-6	2-Methylnaphthalene	UG/L		-			1.7 J
95-48-7	2-Methylphenol	UG/L		-			-
108-39-4	3-Methylphenol	UG/L					1.2 J
106-44-5	4-Methylphenol	UG/L		-			1.3 J
91-20-3	Naphthalene	UG/L		-			1.9 J
85-01-8	Phenanthrene	UG/L		-			0.62 J
129-00-0	Pyrene	UG/L		-			-
117-81-7	bis(2-Ethylhexyl) phthalate	UG/L		4.7 J			-

TABLE 4.19
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD GROUNDWATER

		SAMPLE ID: (1)	MW16	DW16	DW16	DW16	MW17
		LAB ID:	T966120	A6A190124-001	A6B150157-014	T966121	A6A170141-001
		SOURCE:	TRIANGLE	QUANTERRA	QUANTERRA	TRIANGLE	QUANTERRA
		SDG:	38976	A6A190124	A6B150157	38976	A6A170141
		MATRIX:	WATER	WATER	WATER	WATER	WATER
		SAMPLED:	9/24/96	1/18/96	2/14/96	9/24/96	1/16/96
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
	PCBs						
11104-28-2	Aroclor 1221	UG/L					
12672-29-6	Aroclor 1248	UG/L		-			-
11097-69-1	Aroclor 1254	UG/L		-			-
TPCBS	Total PCBs	UG/L		-			-
	DIOXINS						
TDIOXINS	Total TEFs	UG/L	3.40E-06			3.89E-06	1.30E-07
	INORGANICS						
7429-90-5	Aluminum -DISS	UG/L		-			-
7440-38-2	Arsenic -DISS	UG/L		-			-
7440-39-3	Barium -DISS	UG/L		622			-
7440-70-2	Calcium -DISS	UG/L		161000	194000		53600
7439-89-6	Iron -DISS	UG/L		100			2550
7439-92-1	Lead -DISS	UG/L		-			-
7439-95-4	Magnesium -DISS	UG/L		64100			31700
7439-96-5	Manganese -DISS	UG/L		196	201		271
7440-02-0	Nickel -DISS	UG/L		104	-		-
7440-09-7	Potassium -DISS	UG/L		22000	27800		23200
7440-23-5	Sodium -DISS	UG/L		1490000	1440000		172000
7440-66-6	Zinc -DISS	UG/L		-			-
	OTHER						
57-12-5	Cyanide	UG/L		-			-
18496-25-8	Sulfide	MG/L					-

J = Estimated Value
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(1) Duplicate samples are designated by adding 50 to the well number.

TABLE 4.19
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD GROUNDWATER

		SAMPLE ID: (1)	MW17	MW17	DW17	DW17	DW17
		LAB ID:	A6B150157-001	T966105	A6A170141-002	A6B150157-002	T966106
		SOURCE:	QUANTERRA	TRIANGLE	QUANTERRA	QUANTERRA	TRIANGLE
		SDG:	A6B150157	38976	A6A170141	A6B150157	38976
		MATRIX:	WATER	WATER	WATER	WATER	WATER
		SAMPLED:	2/13/96	9/24/96	1/16/96	2/13/96	9/24/96
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	UG/L			4.2 J		
71-43-2	Benzene	UG/L			-		
78-93-3	2-Butanone (MEK)	UG/L			-		
75-00-3	Chloroethane	UG/L			-		
75-34-3	1,1-Dichloroethane	UG/L			-		
107-06-2	1,2-Dichloroethane	UG/L			-		
100-41-4	Ethylbenzene	UG/L			-		
108-88-3	Toluene	UG/L			-		
75-01-4	Vinyl chloride	UG/L			-		
1330-20-7	Xylenes (total)	UG/L			-		
156-59-2	cis-1,2-Dichloroethene	UG/L			-		
	SEMIVOLATILES						
120-12-7	Anthracene	UG/L			-		
100-51-6	Benzyl alcohol	UG/L			-		
85-68-7	Butyl benzyl phthalate	UG/L			-		
218-01-9	Chrysene	UG/L			-		
105-67-9	2,4-Dimethylphenol	UG/L			-		
206-44-0	Fluoranthene	UG/L			-		
86-73-7	Fluorene	UG/L			-		
91-57-6	2-Methylnaphthalene	UG/L			2.1 J		
95-48-7	2-Methylphenol	UG/L			-		
108-39-4	3-Methylphenol	UG/L			0.99 J		
106-44-5	4-Methylphenol	UG/L			1.1 J		
91-20-3	Naphthalene	UG/L			1.4 J		
85-01-8	Phenanthrene	UG/L			0.99 J		
129-00-0	Pyrene	UG/L			-		
117-81-7	bis(2-Ethylhexyl) phthalate	UG/L			-		

TABLE 4.19
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD GROUNDWATER

		SAMPLE ID: (1)	MW17	MW17	DW17	DW17	DW17
		LAB ID:	A6B150157-001	T966105	A6A170141-002	A6B150157-002	T966106
		SOURCE:	QUANTERRA	TRIANGLE	QUANTERRA	QUANTERRA	TRIANGLE
		SDG:	A6B150157	38976	A6A170141	A6B150157	38976
		MATRIX:	WATER	WATER	WATER	WATER	WATER
		SAMPLED:	2/13/96	9/24/96	1/16/96	2/13/96	9/24/96
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
	PCBs						
11104-28-2	Aroclor 1221	UG/L					
12672-29-6	Aroclor 1248	UG/L			-		
11097-69-1	Aroclor 1254	UG/L			-		
TPCBS	Total PCBs	UG/L			-		
	DIOXINS						
TDIOXINS	Total TEFs	UG/L		5.70E-07	4.48E-06		1.15E-06
	INORGANICS						
7429-90-5	Aluminum -DISS	UG/L			-		
7440-38-2	Arsenic -DISS	UG/L			-		
7440-39-3	Barium -DISS	UG/L			-		
7440-70-2	Calcium -DISS	UG/L	51500		60700	60600	
7439-89-6	Iron -DISS	UG/L	6400		7550	6710	
7439-92-1	Lead -DISS	UG/L			-		
7439-95-4	Magnesium -DISS	UG/L			29900		
7439-96-5	Manganese -DISS	UG/L	293		366	320	
7440-02-0	Nickel -DISS	UG/L			-		
7440-09-7	Potassium -DISS	UG/L	23300		28000	26700	
7440-23-5	Sodium -DISS	UG/L	183000		236000	212000	
7440-66-6	Zinc -DISS	UG/L			-		
	OTHER						
57-12-5	Cyanide	UG/L			-		
18496-25-8	Sulfide	MG/L			-		

J = Estimated Value
- = Not Detected
* = Elevated detection limit due to matrix interference.
** = Identity suspect due to matrix interference
*** = Identity suspect due to matrix interference
(1) Duplicate samples are designated by adding 50 to the well number.

TABLE 4.19
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD GROUNDWATER

		SAMPLE ID: [1]	MW18	MW18	MW18	DW18	DW18
		LAB ID:	A6A170141-003	A6B150157-003	T966114	A6A170141-004	T966115
		SOURCE:	QUANTERRA	QUANTERRA	TRIANGLE	QUANTERRA	TRIANGLE
		SDG:	A6A170141	A6B150157	38976	A6A170141	38976
		MATRIX:	WATER	WATER	WATER	WATER	WATER
		SAMPLED:	1/16/96	2/13/96	9/24/96	1/16/96	9/24/96
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	UG/L	-			8.4 J	
71-43-2	Benzene	UG/L	-			-	
78-93-3	2-Butanone (MEK)	UG/L	-			-	
75-00-3	Chloroethane	UG/L	-			4.5	
75-34-3	1,1-Dichloroethane	UG/L	-			-	
107-06-2	1,2-Dichloroethane	UG/L	-			-	
100-41-4	Ethylbenzene	UG/L	-			-	
108-88-3	Toluene	UG/L	-			-	
75-01-4	Vinyl chloride	UG/L	-			-	
1330-20-7	Xylenes (total)	UG/L	-			-	
156-59-2	cis-1,2-Dichloroethene	UG/L	-			-	
	SEMIVOLATILES						
120-12-7	Anthracene	UG/L	-				
100-51-6	Benzyl alcohol	UG/L					
85-68-7	Butyl benzyl phthalate	UG/L	-				
218-01-9	Chrysene	UG/L	-				
105-67-9	2,4-Dimethylphenol	UG/L	-				
206-44-0	Fluoranthene	UG/L	-				
86-73-7	Fluorene	UG/L	-				
91-57-6	2-Methylnaphthalene	UG/L	-			-	
95-48-7	2-Methylphenol	UG/L	-			-	
108-39-4	3-Methylphenol	UG/L					
106-44-5	4-Methylphenol	UG/L	-			-	
91-20-3	Naphthalene	UG/L	0.58 J			-	
85-01-8	Phenanthrene	UG/L	0.64 J			-	
129-00-0	Pyrene	UG/L	-			-	
117-81-7	bis(2-Ethylhexyl) phthalate	UG/L	-			-	

TABLE 4.19
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD GROUNDWATER

CAS NO.	COMPOUND	SAMPLE ID: [1] / LAB ID: / SOURCE: / SDG: / MATRIX: / SAMPLED: / UNITS:	MW18 A6A170141-003 QUANTERRA A6A170141 WATER 1/16/96	MW18 A6B150157-003 QUANTERRA A6B150157 WATER 2/13/96	MW18 T966114 TRIANGLE 38976 WATER 9/24/96	DW18 A6A170141-004 QUANTERRA A6A170141 WATER 1/16/96	DW18 T966115 TRIANGLE 38976 WATER 9/24/96
	VOLATILES						
	PCBs						
11104-28-2	Aroclor 1221	UG/L					
12672-29-6	Aroclor 1248	UG/L	-			-	
11097-69-1	Aroclor 1254	UG/L	-			-	
TPCBS	Total PCBs	UG/L	-			-	
	DIOXINS						
TDIOXINS	Total TEFs	UG/L			2.84E-06		5.93E-07
	INORGANICS						
7429-90-5	Aluminum -DISS	UG/L	-			536	
7440-38-2	Arsenic -DISS	UG/L	5.5			-	
7440-39-3	Barium -DISS	UG/L	-			278	
7440-70-2	Calcium -DISS	UG/L	115000	109000		57400	
7439-89-6	Iron -DISS	UG/L	16700	15900		5200	
7439-92-1	Lead -DISS	UG/L	-			-	
7439-95-4	Magnesium -DISS	UG/L	37400			21700	
7439-96-5	Manganese -DISS	UG/L	505	474		36	
7440-02-0	Nickel -DISS	UG/L	-			-	
7440-09-7	Potassium -DISS	UG/L	19300	17800		12800	
7440-23-5	Sodium -DISS	UG/L	77800			1170000	
7440-66-6	Zinc -DISS	UG/L	84			-	
	OTHER						
57-12-5	Cyanide	UG/L	-			-	
18496-25-8	Sulfide	MG/L					

J = Estimated Value
- = Not Detected
* = Elevated detection limit due to matrix interference.
** = Identity suspect due to matrix interference
*** = Identity suspect due to matrix interference
[1] Duplicate samples are designated by adding 50 to the well number.

TABLE 4.19
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD GROUNDWATER

CAS NO.	COMPOUND	SAMPLE ID: [1] / LAB ID: / SOURCE: / SDG: / MATRIX: / SAMPLED: / UNITS:	MW19 / A6A170141-005 / QUANTERRA / A6A170141 / WATER / 1/16/96	MW19 / T966116 / TRIANGLE / 38976 / WATER / 9/24/96	DW19 / A6A170141-006 / QUANTERRA / A6A170141 / WATER / 1/16/96	DW19 / T966117 / TRIANGLE / 38976 / WATER / 9/24/96	MW20 / A6A190124-005 / QUANTERRA / A6A190124 / WATER / 1/18/96
	VOLATILES						
67-64-1	Acetone	UG/L	-		5.1 J		-
71-43-2	Benzene	UG/L	-		-		19
78-93-3	2-Butanone (MEK)	UG/L	-		-		-
75-00-3	Chloroethane	UG/L	-		-		21
75-34-3	1,1-Dichloroethane	UG/L	-		-		15
107-06-2	1,2-Dichloroethane	UG/L	-		-		-
100-41-4	Ethylbenzene	UG/L	-		-		56
108-88-3	Toluene	UG/L	-		-		38
75-01-4	Vinyl chloride	UG/L	-		-		6.4
1330-20-7	Xylenes (total)	UG/L	-		-		170
156-59-2	cis-1,2-Dichloroethene	UG/L	-		-		3.8
	SEMIVOLATILES						
120-12-7	Anthracene	UG/L	-		-		-
100-51-6	Benzyl alcohol	UG/L					-
85-68-7	Butyl benzyl phthalate	UG/L	-		-		-
218-01-9	Chrysene	UG/L	-		-		-
105-67-9	2,4-Dimethylphenol	UG/L	-		-		390
206-44-0	Fluoranthene	UG/L	-		-		-
86-73-7	Fluorene	UG/L	-		-		7.3 J
91-57-6	2-Methylnaphthalene	UG/L	-		-		47 J
95-48-7	2-Methylphenol	UG/L	-		-		7.6 J
108-39-4	3-Methylphenol	UG/L					-
106-44-5	4-Methylphenol	UG/L	-		-		-
91-20-3	Naphthalene	UG/L	-		-		10 J
85-01-8	Phenanthrene	UG/L	-		-		13 J
129-00-0	Pyrene	UG/L	-		-		-
117-81-7	bis(2-Ethylhexyl) phthalate	UG/L	-		-		-

TABLE 4.19
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD GROUNDWATER

CAS NO.	COMPOUND	SAMPLE ID: [1] / LAB ID: / SOURCE: / SDG: / MATRIX: / SAMPLED: / UNITS:	MW19 / A6A170141-005 / QUANTERRA / A6A170141 / WATER / 1/16/96	MW19 / T966116 / TRIANGLE / 38976 / WATER / 9/24/96	DW19 / A6A170141-006 / QUANTERRA / A6A170141 / WATER / 1/16/96	DW19 / T966117 / TRIANGLE / 38976 / WATER / 9/24/96	MW20 / A6A190124-005 / QUANTERRA / A6A190124 / WATER / 1/18/96
	VOLATILES						
	PCBs						
11104-28-2	Aroclor 1221	UG/L					
12672-29-6	Aroclor 1248	UG/L	-		-		37
11097-69-1	Aroclor 1254	UG/L	-		-		-
TPCBS	Total PCBs	UG/L	-		-		37
	DIOXINS						
TDIOXINS	Total TEFs	UG/L		9.310E-07		1.65E-06	2.12E-04
	INORGANICS						
7429-90-5	Aluminum -DISS	UG/L	138		-		185
7440-38-2	Arsenic -DISS	UG/L	5.8		-		-
7440-39-3	Barium -DISS	UG/L	-		287		906
7440-70-2	Calcium -DISS	UG/L	92600		258000		10700
7439-89-6	Iron -DISS	UG/L	56200		571		482
7439-92-1	Lead -DISS	UG/L	5.1		-		-
7439-95-4	Magnesium -DISS	UG/L	29700		74800		9340
7439-96-5	Manganese -DISS	UG/L	342		435		28
7440-02-0	Nickel -DISS	UG/L	-		-		-
7440-09-7	Potassium -DISS	UG/L	20300		-		25100
7440-23-5	Sodium -DISS	UG/L	109000		128000		175000
7440-66-6	Zinc -DISS	UG/L	-		56		27
	OTHER						
57-12-5	Cyanide	UG/L	-		-		1600
18496-25-8	Sulfide	MG/L					5

J = Estimated Value
- = Not Detected
* = Elevated detection limit due to matrix interference.
** = Identity suspect due to matrix interference
*** = Identity suspect due to matrix interference
[1] Duplicate samples are designated by adding 50 to the well number.

TABLE 4.19
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD GROUNDWATER

CAS NO.	COMPOUND	SAMPLE ID: [1] LAB ID: SOURCE: SDG: MATRIX: SAMPLED: UNITS:	MW20 A6B150157-008 QUANTERRA A6B150157 WATER 2/13/96	MW20 W116507 TRIANGLE 38993C WATER 9/25/96	MW70 (DUP OF MW20) A6B150157-010 QUANTERRA A6B150157 WATER 2/13/96	DW20 A6A190124-004 QUANTERRA A6A190124 WATER 1/18/96	DW70 (DUP OF DW20) A6A190124-003 QUANTERRA A6A190124 WATER 1/18/96
	VOLATILES						
67-64-1	Acetone	UG/L				-	-
71-43-2	Benzene	UG/L	22			-	-
78-93-3	2-Butanone (MEK)	UG/L				-	-
75-00-3	Chloroethane	UG/L				18	18
75-34-3	1,1-Dichloroethane	UG/L				30	26
107-06-2	1,2-Dichloroethane	UG/L				-	-
100-41-4	Ethylbenzene	UG/L				-	-
108-88-3	Toluene	UG/L				-	-
75-01-4	Vinyl chloride	UG/L	5			280	280
1330-20-7	Xylenes (total)	UG/L				-	-
156-59-2	cis-1,2-Dichloroethene	UG/L				84	89
	SEMIVOLATILES						
120-12-7	Anthracene	UG/L				-	-
100-51-6	Benzyl alcohol	UG/L				11 J	9.8 J
85-68-7	Butyl benzyl phthalate	UG/L				4 J	4.2 J
218-01-9	Chrysene	UG/L				-	-
105-67-9	2,4-Dimethylphenol	UG/L	350			21	18 J
206-44-0	Fluoranthene	UG/L				-	-
86-73-7	Fluorene	UG/L				-	-
91-57-6	2-Methylnaphthalene	UG/L	150			8 J	7.6 J
95-48-7	2-Methylphenol	UG/L				49	48
108-39-4	3-Methylphenol	UG/L				-	-
106-44-5	4-Methylphenol	UG/L				-	-
91-20-3	Naphthalene	UG/L				-	-
85-01-8	Phenanthrene	UG/L				-	-
129-00-0	Pyrene	UG/L				-	-
117-81-7	bis(2-Ethylhexyl) phthalate	UG/L				-	-

TABLE 4.19
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD GROUNDWATER

CAS NO.	COMPOUND	SAMPLE ID: [1] LAB ID: SOURCE: SDG: MATRIX: SAMPLED: UNITS:	MW20 A6B150157-008 QUANTERRA A6B150157 WATER 2/13/96	MW20 W116507 TRIANGLE 38993C WATER 9/25/96	MW70 (DUP OF MW20) A6B150157-010 QUANTERRA A6B150157 WATER 2/13/96	DW20 A6A190124-004 QUANTERRA A6A190124 WATER 1/18/96	DW70 (DUP OF DW20) A6A190124-003 QUANTERRA A6A190124 WATER 1/18/96
	VOLATILES						
	PCBs						
11104-28-2	Aroclor 1221	UG/L					
12672-29-6	Aroclor 1248	UG/L	15			0.17 **	0.6 **
11097-69-1	Aroclor 1254	UG/L	-			-	0.35
TPCBS	Total PCBs	UG/L	15			0.17	0.95
	DIOXINS						
TDIOXINS	Total TEFs	UG/L		1.17E-03		1.60E-04	7.61E-05
	INORGANICS						
7429-90-5	Aluminum -DISS	UG/L	708			426	565
7440-38-2	Arsenic -DISS	UG/L				5	5.9
7440-39-3	Barium -DISS	UG/L				352	336
7440-70-2	Calcium -DISS	UG/L	14000			50900	47800
7439-89-6	Iron -DISS	UG/L	2270			6070	6490
7439-92-1	Lead -DISS	UG/L				-	-
7439-95-4	Magnesium -DISS	UG/L				28400	26200
7439-96-5	Manganese -DISS	UG/L				139	140
7440-02-0	Nickel -DISS	UG/L				-	-
7440-09-7	Potassium -DISS	UG/L				31700	29700
7440-23-5	Sodium -DISS	UG/L	167000			1390000	1290000
7440-66-6	Zinc -DISS	UG/L				258	41
	OTHER						
57-12-5	Cyanide	UG/L	4500		1500	23	-
18496-25-8	Sulfide	MG/L	3			5	5

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[1] Duplicate samples are designated by adding 50 to the well number.

TABLE 4.19
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD GROUNDWATER

		SAMPLE ID: [1]	DW20	DW20	DW70 (DUP OF DW20)	DW21	DW21
		LAB ID:	T966287	A6B150157-009	A6B150157-011	A6A170141-007	A6B150157-007
		SOURCE:	TRIANGLE	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA
		SDG:	38993Ar2	A6B150157	A6B150157	A6A170141	A6B150157
		MATRIX:	WATER	WATER	WATER	WATER	WATER
		SAMPLED:	9/25/96	2/13/96	2/13/96	1/16/96	2/13/96
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	UG/L				5 J	
71-43-2	Benzene	UG/L		-	-	-	
78-93-3	2-Butanone (MEK)	UG/L				-	
75-00-3	Chloroethane	UG/L				-	
75-34-3	1,1-Dichloroethane	UG/L				-	
107-06-2	1,2-Dichloroethane	UG/L				-	
100-41-4	Ethylbenzene	UG/L				-	
108-88-3	Toluene	UG/L				-	
75-01-4	Vinyl chloride	UG/L		310	260	-	
1330-20-7	Xylenes (total)	UG/L				-	
156-59-2	cis-1,2-Dichloroethene	UG/L		87	84	-	
	SEMIVOLATILES						
120-12-7	Anthracene	UG/L				2.6 J	
100-51-6	Benzyl alcohol	UG/L					
85-68-7	Butyl benzyl phthalate	UG/L				-	
218-01-9	Chrysene	UG/L				0.69 J	
105-67-9	2,4-Dimethylphenol	UG/L		10 J	12 J	-	
206-44-0	Fluoranthene	UG/L				2.7 J	
86-73-7	Fluorene	UG/L				10	
91-57-6	2-Methylnaphthalene	UG/L		-	-	43	22
95-48-7	2-Methylphenol	UG/L				-	
108-39-4	3-Methylphenol	UG/L					
106-44-5	4-Methylphenol	UG/L				-	
91-20-3	Naphthalene	UG/L				-	
85-01-8	Phenanthrene	UG/L				25	
129-00-0	Pyrene	UG/L				3.6 J	
117-81-7	bis(2-Ethylhexyl) phthalate	UG/L		-	-	-	

TABLE 4.19
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD GROUNDWATER

CAS NO.	COMPOUND	SAMPLE ID: [1] LAB ID: SOURCE: SDG: MATRIX: SAMPLED: UNITS:	DW20 T966287 TRIANGLE 38993Ar2 WATER 9/25/96	DW20 A6B150157-009 QUANTERRA A6B150157 WATER 2/13/96	DW70 (DUP OF DW20) A6B150157-011 QUANTERRA A6B150157 WATER 2/13/96	DW21 A6A170141-007 QUANTERRA A6A170141 WATER 1/16/96	DW21 A6B150157-007 QUANTERRA A6B150157 WATER 2/13/96
	VOLATILES						
	PCBs						
11104-28-2	Aroclor 1221	UG/L					
12672-29-6	Aroclor 1248	UG/L		-	-	3.6	0.61
11097-69-1	Aroclor 1254	UG/L		-	-	-	-
TPCBS	Total PCBs	UG/L		-	-	3.6	0.61
	DIOXINS						
TDIOXINS	Total TEFs	UG/L	5.33E-06				
	INORGANICS						
7429-90-5	Aluminum -DISS	UG/L		210	267	-	
7440-38-2	Arsenic -DISS	UG/L				29.2	
7440-39-3	Barium -DISS	UG/L				206	
7440-70-2	Calcium -DISS	UG/L		48800	43800	144000	136000
7439-89-6	Iron -DISS	UG/L		6310	5810	13000	14000
7439-92-1	Lead -DISS	UG/L				-	
7439-95-4	Magnesium -DISS	UG/L				46000	
7439-96-5	Manganese -DISS	UG/L		88	82	459	295
7440-02-0	Nickel -DISS	UG/L		-	-	-	
7440-09-7	Potassium -DISS	UG/L		27600	25600	-	
7440-23-5	Sodium -DISS	UG/L		1180000	1070000	240000	
7440-66-6	Zinc -DISS	UG/L				-	
	OTHER						
57-12-5	Cyanide	UG/L				-	
18496-25-8	Sulfide	MG/L		0.5	0.8		

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[1] Duplicate samples are designated by adding 50 to the well number.

TABLE 4.19
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD GROUNDWATER

		SAMPLE ID: [1]	DW21	MW22	MW22	MW22	DW22
		LAB ID:	T966297	A6A180129-002	A6B150157-004	T966485	A6A180129-001
		SOURCE:	TRIANGLE	QUANTERRA	QUANTERRA	TRIANGLE	QUANTERRA
		SDG:	38993Ar2	A6A180129	A6B150157	38993Cr1	A6A180129
		MATRIX:	WATER	WATER	WATER	WATER	WATER
		SAMPLED:	9/25/96	1/17/96	2/13/96	9/25/96	1/17/96
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	UG/L		5.7 J			-
71-43-2	Benzene	UG/L		1 J			-
78-93-3	2-Butanone (MEK)	UG/L		2.6 J			-
75-00-3	Chloroethane	UG/L		-			-
75-34-3	1,1-Dichloroethane	UG/L		-			-
107-06-2	1,2-Dichloroethane	UG/L		-			-
100-41-4	Ethylbenzene	UG/L		-			-
108-88-3	Toluene	UG/L		1.1			-
75-01-4	Vinyl chloride	UG/L		-			-
1330-20-7	Xylenes (total)	UG/L		4.8			-
156-59-2	cis-1,2-Dichloroethene	UG/L		-			-
	SEMIVOLATILES						
120-12-7	Anthracene	UG/L		-			-
100-51-6	Benzyl alcohol	UG/L		-			-
85-68-7	Butyl benzyl phthalate	UG/L		-			-
218-01-9	Chrysene	UG/L		-			-
105-67-9	2,4-Dimethylphenol	UG/L		-			-
206-44-0	Fluoranthene	UG/L		-			-
86-73-7	Fluorene	UG/L		-			-
91-57-6	2-Methylnaphthalene	UG/L		1.9 J			-
95-48-7	2-Methylphenol	UG/L		-			-
108-39-4	3-Methylphenol	UG/L		-			-
106-44-5	4-Methylphenol	UG/L		-			-
91-20-3	Naphthalene	UG/L		1.4 J			-
85-01-8	Phenanthrene	UG/L		0.71 J			-
129-00-0	Pyrene	UG/L		-			-
117-81-7	bis(2-Ethylhexyl) phthalate	UG/L		-			-

TABLE 4.19
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD GROUNDWATER

CAS NO.	COMPOUND	SAMPLE ID: [1] LAB ID: SOURCE: SDG: MATRIX: SAMPLED: UNITS:	DW21 T966297 TRIANGLE 38993Ar2 WATER 9/25/96	MW22 A6A180129-002 QUANTERRA A6A180129 WATER 1/17/96	MW22 A6B150157-004 QUANTERRA A6B150157 WATER 2/13/96	MW22 T966485 TRIANGLE 38993Cr1 WATER 9/25/96	DW22 A6A180129-001 QUANTERRA A6A180129 WATER 1/17/96
	VOLATILES						
	PCBs						
11104-28-2	Aroclor 1221	UG/L					
12672-29-6	Aroclor 1248	UG/L		0.11 ***			-
11097-69-1	Aroclor 1254	UG/L		-			-
TPCBS	Total PCBs	UG/L		0.11			-
	DIOXINS						
TDIOXINS	Total TEFs	UG/L	7.72E-05	1.18E-04		1.26E-04	8.39E-06
	INORGANICS						
7429-90-5	Aluminum -DISS	UG/L		109	100		-
7440-38-2	Arsenic -DISS	UG/L		14.9			-
7440-39-3	Barium -DISS	UG/L		312			1910
7440-70-2	Calcium -DISS	UG/L		21800	23300		415000
7439-89-6	Iron -DISS	UG/L		2850	5050		13600
7439-92-1	Lead -DISS	UG/L		-			-
7439-95-4	Magnesium -DISS	UG/L		10500			114000
7439-96-5	Manganese -DISS	UG/L		220	270		2570
7440-02-0	Nickel -DISS	UG/L		-			-
7440-09-7	Potassium -DISS	UG/L		40700	39600		38200
7440-23-5	Sodium -DISS	UG/L		311000	288000		1710000
7440-66-6	Zinc -DISS	UG/L		-			-
	OTHER						
57-12-5	Cyanide	UG/L		78			-
18496-25-8	Sulfide	MG/L		0.6	-		-

J = Estimated Value
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[1] Duplicate samples are designated by adding 50 to the well number.

TABLE 4.19
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD GROUNDWATER

		SAMPLE ID: [1]	DW22	DW72 (DUP OF DW22)	DW22	MW23
		LAB ID:	A6B150157-005	A6B150157-006	T966282	T966113
		SOURCE:	QUANTERRA	QUANTERRA	TRIANGLE	TRIANGLE
		SDG:	A6B150157	A6B150157	38993Ar1	38976
		MATRIX:	WATER	WATER	WATER	WATER
		SAMPLED:	2/13/96	2/13/96	9/25/96	9/24/96
CAS NO.	COMPOUND	UNITS:				
	VOLATILES					
67-64-1	Acetone	UG/L				
71-43-2	Benzene	UG/L				
78-93-3	2-Butanone (MEK)	UG/L				
75-00-3	Chloroethane	UG/L				
75-34-3	1,1-Dichloroethane	UG/L				
107-06-2	1,2-Dichloroethane	UG/L				
100-41-4	Ethylbenzene	UG/L				
108-88-3	Toluene	UG/L				
75-01-4	Vinyl chloride	UG/L				
1330-20-7	Xylenes (total)	UG/L				
156-59-2	cis-1,2-Dichloroethene	UG/L				
	SEMIVOLATILES					
120-12-7	Anthracene	UG/L				
100-51-6	Benzyl alcohol	UG/L				
85-68-7	Butyl benzyl phthalate	UG/L				
218-01-9	Chrysene	UG/L				
105-67-9	2,4-Dimethylphenol	UG/L				
206-44-0	Fluoranthene	UG/L				
86-73-7	Fluorene	UG/L				
91-57-6	2-Methylnaphthalene	UG/L				
95-48-7	2-Methylphenol	UG/L				
108-39-4	3-Methylphenol	UG/L				
106-44-5	4-Methylphenol	UG/L				
91-20-3	Naphthalene	UG/L				
85-01-8	Phenanthrene	UG/L				
129-00-0	Pyrene	UG/L				
117-81-7	bis(2-Ethylhexyl) phthalate	UG/L				

TABLE 4.19
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD GROUNDWATER

CAS NO.	COMPOUND	SAMPLE ID: [1] LAB ID: SOURCE: SDG: MATRIX: SAMPLED: UNITS:	DW22 A6B150157-005 QUANTERRA A6B150157 WATER 2/13/96	DW72 (DUP OF DW22) A6B150157-006 QUANTERRA A6B150157 WATER 2/13/96	DW22 T966282 TRIANGLE 38993Ar1 WATER 9/25/96	MW23 T966113 TRIANGLE 38976 WATER 9/24/96
	VOLATILES					
	PCBs					
11104-28-2	Aroclor 1221	UG/L				
12672-29-6	Aroclor 1248	UG/L				
11097-69-1	Aroclor 1254	UG/L				
TPCBS	Total PCBs	UG/L				
	DIOXINS					
TDIOXINS	Total TEFs	UG/L			2.53E-06	2.01E-05
	INORGANICS					
7429-90-5	Aluminum -DISS	UG/L		-		
7440-38-2	Arsenic -DISS	UG/L				
7440-39-3	Barium -DISS	UG/L				
7440-70-2	Calcium -DISS	UG/L	422000	425000		
7439-89-6	Iron -DISS	UG/L	14100	14300		
7439-92-1	Lead -DISS	UG/L				
7439-95-4	Magnesium -DISS	UG/L				
7439-96-5	Manganese -DISS	UG/L	2780	2820		
7440-02-0	Nickel -DISS	UG/L		-		
7440-09-7	Potassium -DISS	UG/L	33300	35200		
7440-23-5	Sodium -DISS	UG/L	1680000	1780000		
7440-66-6	Zinc -DISS	UG/L				
	OTHER					
57-12-5	Cyanide	UG/L				
18496-25-8	Sulfide	MG/L				

J = Estimated Value
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[1] Duplicate samples are designated by adding 50 to the well number.

TABLE 4.20
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
PART 201 GROUNDWATER CONTACT CRITERIA EXCEEDENCE SUMMARY - WEST YARD GROUNDWATER SAMPLES

CAS NO.	COMPOUND	GENERIC GROUNDWATER CONTACT CRITERIA [1]	UNITS	Maximum Concentration	Average Detected Concentration [2]	No. of Exceedences / No. of Locations	Location of Exceedences [3]
	VOLATILES						
67-64-1	Acetone	30,000,000	UG/L	8.4 J	6	0/18	NONE
71-43-2	Benzene	9,200	UG/L	22	10	0/22	NONE
78-93-3	2-Butanone (MEK)	240,000,000	UG/L	2.6 J	2.6	0/17	NONE
75-00-3	Chloroethane	200,000	UG/L	24	11	0/18	NONE
75-34-3	1,1-Dichloroethane	2,100,000	UG/L	30	11	0/18	NONE
107-06-2	1,2-Dichloroethane	11,000	UG/L	1.4	1.4	0/18	NONE
100-41-4	Ethylbenzene	170,000	UG/L	56	56	0/17	NONE
108-88-3	Toluene	530,000	UG/L	38	20	0/17	NONE
75-01-4	Vinyl chloride	290	UG/L	310	120	1/24	DW20
1330-20-7	Xylenes (total)	190,000	UG/L	170	87	0/17	NONE
156-59-2	cis-1,2-Dichloroethene	170,000	UG/L	89	41	0/20	NONE
	SEMIVOLATILES						
120-12-7	Anthracene	43	UG/L	2.6 J	2.6	0/17	NONE
100-51-6	Benzyl alcohol	44,000,000	UG/L	11 J	10	0/7	NONE
85-68-7	Butyl benzyl phthalate	2,690	UG/L	4.2 J	4.1	0/17	NONE
218-01-9	Chrysene	2	UG/L	0.69 J	0.69	0/17	NONE
105-67-9	2,4-Dimethylphenol	440,000	UG/L	390	110	0/20	NONE
206-44-0	Fluoranthene	206	UG/L	2.7 J	2.7	0/17	NONE
86-73-7	Fluorene	1,980	UG/L	10	9	0/17	NONE
91-57-6	2-Methylnaphthalene	24,600	UG/L	150	31	0/21	NONE
95-48-7	2-Methylphenol	690,000	UG/L	49	35	0/17	NONE
108-39-4	3-Methylphenol	760,000	UG/L	1.2 J	1.1	0/7	NONE
106-44-5	4-Methylphenol	76,000	UG/L	1.3 J	1.2	0/17	NONE
91-20-3	Naphthalene	31,000	UG/L	10 J	3.1	0/17	NONE
85-01-8	Phenanthrene	1,000	UG/L	25	6.8	0/17	NONE
9-00-0	Pyrene	135	UG/L	3.6 J	3.6	0/17	NONE
1-81-7	bis(2-Ethylhexyl) phthalate	46	UG/L	16	6.3	0/20	NONE
	PCBs						
TPCBS	Total PCBs	2.4	UG/L	37	7.2	2/22	MW20, DW21
	DIOXINS						
TDIOXINS	Total TEFs	NC	UG/L	0.00117	0.000086	0/23	NONE
	INORGANICS						
7429-90-5	Aluminum -DISS	70,000,000	UG/L	708	291	0/24	NONE
7440-38-2	Arsenic -DISS	4,700	UG/L	29.2	9.11	0/17	NONE
7440-39-3	Barium -DISS	15,000,000	UG/L	1910	519	0/17	NONE
7440-70-2	Calcium -DISS	NC	UG/L	425000	115000	0/32	NONE
7439-89-6	Iron -DISS	NC	UG/L	56200	8130	0/31	NONE
7439-92-1	Lead -DISS	NC	UG/L	5.1	5.1	0/17	NONE
7439-95-4	Magnesium -DISS	1,000,000,000	UG/L	114000	36600	0/18	NONE
7439-96-5	Manganese -DISS	10,000,000	UG/L	2820	462	0/31	NONE
7440-02-0	Nickel -DISS	160,000,000	UG/L	104	104	0/21	NONE
7440-09-7	Potassium -DISS	NC	UG/L	40700	26700	0/29	NONE
7440-23-5	Sodium -DISS	1,000,000,000	UG/L	1780000	778000	0/30	NONE
7440-66-6	Zinc -DISS	120,000,000	UG/L	258	82	0/17	NONE
57-12-5	Cyanide	650,000	UG/L	4500	1110	0/19	NONE
	OTHER						
18496-25-8	Sulfide	NC	UG/L	5000	2840	0/11	NONE

J = Estimated Value.
NC = No Criteria
[1] Source: MDEQ Environmental Response Division Addendum to Interim Operational Memoranda #8, Revision 4 and #14, Revision 2, April 12, 1996.
[2] Average concentration calculated using detected concentrations only.
[3] Duplicate samples are designated by adding 50 to the well number.

TABLE 4.21
WEST YARD INVESTIGATION
GM, PONTIAC, MICHIGAN
DETECTED ANALYTES - WEST YARD NAPL ANALYSIS

COMPOUND	SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED: UNITS:	MW6 MW006 SPL 9601374-02 OIL 1/24/96	MW13 MW013 SPL 9602218-01 LIQUID 1/16/96
HALOGENATED VOCs			
1,1-Dichloroethene	UG/L	-	17,000
Tetrachloroethene	UG/L	-	940
Chlorobenzene	UG/L	-	660
1,2-Dichlororbenzene	UG/L	-	30,000
1,3-Dichlororbenzene	UG/L	-	560
1,4-Dichlororbenzene	UG/L	-	1,200
PAHs			
NONE	UG/L	-	-
PCBs			
PCB-1248	UG/L	244,000	-
PCB-1254	UG/L	-	28,200
FINGERPRINT ANALYSIS		The free product appears to be motor oil with a small amount of diesel fuel	The unknown hydrocarbon is made up of motor oil mixed with gasoline and fuel oil range components.

- = Not Detected.

SECTION 5

MIGRATION ANALYSIS

The purpose of this section is to identify likely pathways through which parameters detected in the various environmental media may migrate and produce a human health risk, based on sampling results presented in Section 4.

A preliminary site conceptual model was developed for the work plan (Parsons ES, 1995) to illustrate the relationship among potential source areas, release mechanisms, migration pathways, and receptors. This investigation was intended to address potential constituent migration from former disposal or treatment areas in the West Yard to underlying soils and groundwater.

The following sections discuss the potential migration routes for hazardous substances in surface soil, subsurface soil, and groundwater, and potential impacts to exposed receptors.

5.1 SURFACE SOIL ROUTE

Surface soils could potentially lead to exposure to impacted surface soils by site personnel via direct contact or inhalation. Soil exposure via the direct contact exposure pathway, while potentially complete for site workers at the West Yard, does not pose an unacceptable health risk as shown by the meeting of Generic Direct Contact Industrial Criteria. The purpose of the direct contact criteria is to protect workers against long-term health effects from dermal contact and ingestion of hazardous substances in site soils. The algorithms used to calculate the values use exposure assumptions for a worker who spends significant time outdoors. The concentrations of organic compounds and inorganics in West Yard surface soil samples were below these criteria.

The exposure pathway of inhalation of particulates is potentially complete for site workers at the West Yard because most of the site is not covered by pavement or vegetation. Nine West Yard surface soil sample locations exceeded the Generic Particulate Soil Inhalation Criteria for manganese - the only exceedences even though sampling was biased towards areas of suspected prior waste management activities. The purpose of the soil inhalation criteria is to protect site workers against long-term health effects from exposure to ambient airborne substances in site soils. The algorithms for calculating the criteria use exposure assumptions for a worker who spends significant time outdoors, which is a conservative assumption at the West Yard.

5.2 SUBSURFACE SOIL ROUTE

The potential exposure pathways for hazardous substances in disturbed subsurface soils would be the same as for surface soils: direct contact and inhalation. The potential for these completed pathways is limited compared to surface soils, however, because the extent of disturbance would be limited in size and time. The potential for

migration of subsurface soils is also limited. Subsurface soils are stationary unless disturbed through excavation or construction activities. Only a few sporadic soil samples had concentrations of one or two parameters that exceeded the Generic Direct Contact Industrial Criteria. Most of the exceedences occurred at depths greater than 16 feet below ground surface, which would not be disturbed during typical excavation/construction due to their depth of occurrence. Seven of the 26 subsurface soil samples had concentrations of manganese that exceeded the Generic Particulate Soil Inhalation Criteria.

5.3 GROUNDWATER ROUTE

The potential routes for migration of hazardous substances in groundwater are through groundwater flow through soil, and migration to surface water. Groundwater at the West Yard flows towards the southwest in sand and fill zones confined by an underlying very low permeability zone (1E-07 to 1E-08 cm/sec). Migration to surface water is not a pertinent pathway because there is no surface water onsite or immediately adjacent offsite. A small lake (Harris Lake) is located within one half mile downgradient.

Potential exposure pathways to groundwater receptors are through dermal contact, inhalation, and ingestion. Of these pathways, dermal contact for onsite workers is considered to be the most realistic (but nevertheless unlikely) pathway, with inhalation being a possibility only under confined space conditions. Exposure via dermal contact is the most likely scenario for sites in urban areas (MDEQ, 1996c). The scenarios in which dermal contact with water constituents could possible occur are during drilling, excavation or construction activities that reach groundwater. Depth to groundwater at the West Yard varies from approximately 5 feet to 27 feet below ground surface, which minimizes the possibility that typical excavation or construction activities would reach site groundwater.

Contact with onsite groundwater is not considered a significant health risk because the concentrations of organic and inorganic compounds in site groundwater, with one exception, did not exceed the Generic Groundwater Contact Criteria that are protective of worker health. PCB concentrations in two wells, MW-20 and DW-21 (the site upgradient well), exceeded the groundwater contact criteria.

The inhalation pathway for groundwater may be a completed pathway if subsurface excavation leads to confined space conditions, i.e. workers enter an excavation deeper than 4 feet. However, the low concentrations of VOCs in monitoring wells (generally less than 40 ppb) indicate that the risk would be low.

Ingestion is not a completed pathway onsite, because West Yard groundwater is not used as a potable water source. Another possible exposure scenario is residential ingestion of groundwater downgradient of the West Yard. This is an unlikely pathway for hazardous substances for several reasons.

Organic compound concentrations are lower in wells near the downgradient (south and west) boundary than in mid-site wells. This absence of evidence of widespread migration of organic compounds from the West Yard reduces or eliminates risk to

offsite receptors. The peat and marl layers beneath the Fill along the southern (downgradient) boundary of the West Yard also may act to attenuate organic groundwater constituents. Peat has a significant organic content and marl is fine grained, both properties which increase the sorption of organic compounds.

Furthermore, the local residents obtain their water from a municipal water supply located outside the area. There are no individual supply wells within 1 mile of the West Yard. The closest individual supply wells were located between 1 and 2 miles south of the site, which are not downgradient of the West Yard (Environmental Data Resources, 1996) (Appendix G). Residences in Pontiac are served by a public water system, and it is unlikely that any residences downgradient of the West Yard would be dependent in the future on groundwater as their potable water supply.

Given the continued industrial use of the property and the existence of the municipal water supply system, it is highly unlikely that groundwater at this site will have a further use.

5.4 NAPL

NAPL was detected in the area of the former hazardous waste storage pad during closure activities and, during the West Yard investigation, in three pad monitoring wells (MW3, MW6, and MW13), in seven Geoprobe™ soil borings around the wells, and in MW-22. The area with NAPL appears to be limited to the immediate vicinity of these wells. No NAPL delineation has currently been conducted in the vicinity of MW-22. There is no evidence to suggest significant impact on downgradient groundwater quality based on data from downgradient perimeter wells.

One soil sample from beneath the storage pad exceeded the C_{sat} concentration for xylenes. This sample was at a location at the southern end of the pad where NAPL has been observed, and is within the area of NAPL delineation

One subsurface soil sample from Test Trench 3 exceeded the C_{sat} concentration for butyl benzyl phthalate. This indicates that possibility that free phase may be present in this area in the central portion of the West Yard. No free phase has been observed in well pair MW/DW-20, the closest downgradient wells to TT3.

SECTION 6

SUMMARY AND CONCLUSIONS

6.1 SUMMARY

6.1.1 Storage Pad Closure Activities

The objective of initial closure activities at the former storage hazardous waste pad was to clean the pad after discontinuing hazardous waste storage activities and to document that clean closure had been achieved. All samples collected were analyzed for parameters that were representative of what had been stored on the pad during its operation, and analytical results were compared to closure criteria specified in the MDEQ-approved closure plan. Following cleaning, the storage pad was sampled by wipe samples, rinsate samples, and concrete core samples. These samples met the closure criteria. Samples taken from soil borings to a depth of 20 feet below the pad, and groundwater samples from monitoring wells installed at and near the pad, had some concentrations of organics and lead that exceeded the closure criteria.

Additional closure activities were conducted to further delineate the extent of groundwater concentrations that exceeded closure criteria. These activities included the installation of additional monitoring wells.

Review of the pad sampling results and the sampling results from soils and monitoring wells indicates that the source of compounds in soils and groundwater under the pad most likely was not the activities at the pad, but historical waste management activities in the entire West Yard area associated with automotive manufacturing and support operations.

Soil samples from soil borings to a depth of 20 feet below the pad for the most part did not exceed Part 201 Generic Industrial Direct Contact Criteria, Generic Soil Water Partitioning Criteria, Generic Soil Saturation Screening (C_{sat}) Concentrations, and Generic Soil Inhalation Criteria. The exceptions were one subsurface soil sample from soil boring P-9 that exceeded the C_{sat} concentration for xylenes, and one subsurface soil sample from soil boring P-3 that exceeded the direct contact criteria for lead.

Groundwater samples from monitoring wells installed during closure activities did not exceed part 201 Generic Groundwater Contact Criteria.

MDEQ has accepted the closure of the pad surface itself. GM agreed to conduct a West Yard area-wide investigation to evaluate the environmental conditions and assess the need for any appropriate corrective actions.

6.1.2 West Yard Investigation

6.1.2.1 Achievement of Objectives

The objectives of the West Yard investigation were to:

- Characterize the nature and extent of impacts (if any) to surface soil, subsurface soil, and groundwater over the West Yard area.
- Characterize groundwater quality and flow downgradient of the former hazardous waste storage pad.
- Characterize the nature and extent of NAPL in three historical solid waste disposal areas and two wells.
- Characterize the presence and extent of geological low permeability zones.
- Characterize the hydraulic properties of subsurface geologic material.

The objectives were achieved as described in the following paragraphs and sections.

The geology of the West Yard consists of variable thicknesses of fill, composed primarily of foundry sand, overlying sand with lenses of silt or peat and marl. The sand unit is variable in thickness and overlies a very low permeability (1E-07 to 1E-08 cm/sec) clay and silt.

Groundwater in the vicinity of the West Yard generally flows toward the southwest in the sand and peat or marl unit, apparently controlled by the top of the low permeability zone. Hydraulic conductivity in wells screened in the sand unit ranged from 1E-05 to 5E-02 cm/sec.

6.1.2.2 Analytes Detected in Soils

Subsurface soil sampling conducted across the site showed exceedences of Generic Direct Contact Industrial Soil Criteria for only one organic (one location for PCBs) and for two organics (one location for antimony and three locations for lead). There were no surface soil exceedences of direct contact criteria, and three of the five subsurface soil exceedences were at depths of 16 feet bgs or more.

No soil sample concentrations exceeded GCC SWP criteria, and only one subsurface soil sample from TT3 exceeded the C_{sat} concentration for one compound, butyl benzyl phthalate.

Nine of 17 surface soil samples and seven of 26 subsurface soil samples had concentrations of manganese that exceeded the Generic Particulate Soil Inhalation Criteria.

6.1.2.3 Analytes Detected in Groundwater

Organic constituents detected in groundwater at the site include VOCs, SVOCs, PCBs, and dioxins. Exceedences of Generic Groundwater Contact Criteria occurred for PCBs only in two wells.

A range of inorganics were detected in site groundwater, but no exceedences of Generic Groundwater Contact Criteria were found.

NAPL was observed in three monitoring wells near the storage pad (MW-3, MW-6, MW-13) and one well near a suspected disposal area (MW-22) during groundwater sampling. NAPL sampled from MW-6 contained PCBs only, and NAPL sampled from

MW-13 contained six VOCs, and a different PCB aroclor at a concentration an order of magnitude lower than detected in MW-6. The difference in analytical results suggests two different sources.

A limited soil investigation in the vicinity of the wells with NAPL near the pad was carried out to determine the lateral extent of NAPL. The examination of sixteen Geoprobe™ soil borings delineated one small area around MW-13/MW-3 and another around MW-6. The lateral extent of NAPL appears to be very limited, without much migration.

6.1.2.4 Extent of Impacts and Potential for Migration

Soil Pathway

The migration pathway available to site soils is through mechanical soil movement and fugitive dust generation, either from the surface or if subsurface soils are exposed through excavation/construction activities. The direct contact exposure pathway is unlikely to be completed for West Yard site workers because there were no exceedences by surface soils and exceedences by the subsurface were limited to four locations, mostly at depths from 16 feet to 26 feet bgs.

The inhalation pathway for site workers at the West Yard may potentially be complete for site soils. Exceedences of the particulate soil inhalation criteria occurred for manganese, but these may not indicate an unacceptable risk because site workers do not spend much time in the West Yard and soil samples location was biased toward areas of suspected historical waste management activities.

Groundwater Pathway

The lateral pattern of detections of organics in groundwater was sporadic, indicating there is no plume onsite. The migration pathway for groundwater is via the southwesterly groundwater flow. The concentrations of organics also decreased or were not detected downgradient, which supports the contention that organics are not migrating.

The potential for exposure is limited to dermal contact by workers because the groundwater is not used as a potable water source onsite. A survey of public water supply wells in the vicinity of the West Yard did not identify any public supply wells downgradient of the source. The exposure pathway of contact with site groundwater is limited to drilling and excavation/construction activities that reach the water table, unlikely to occur at the site. The risk from contact with groundwater is low because the exceedences of Generic Groundwater Contact Criteria were only for PCBs in two locations. The risk from inhalation is also acceptable due to the low concentrations of VOCs in groundwater.

There is no evidence that the NAPL found in the vicinity of MW-3/MW-13 and MW-6 is migrating based on the small lateral extent of sheen in subsurface soils. The NAPL in MW-22 has not been delineated, but only was discovered recently, so it is unlikely to be widespread.

6.2 CONCLUSIONS

The following conclusions were reached as a result of closure activities:

- The former hazardous waste storage pad was successfully cleaned and met closure requirements.
- Soils and groundwater underlying the storage pad most likely contain residuals of historical waste management activities at the West Yard.
- Soil samples showed only two exceedences of Part 201 soil screening criteria, one of direct contact criteria for lead and one of C_{sat} for xylenes.
- No groundwater samples exceeded Generic Groundwater Contact Criteria.

The following conclusions were reached as a result of the West Yard investigation:

- There were no exceedences of Generic Industrial Direct Contact Criteria, Soil/Water Partitioning GCC Criteria, or C_{sat} concentrations in West Yard surface soil samples. Nine surface soil samples exceeded Generic Particulate Soil Inhalation Criteria for manganese.
- In West Yard subsurface soil samples, five samples exceeded Generic Industrial Direct Contact for three compounds (one for PCBs, one for antimony and three for lead), one sample that exceeded one C_{sat} concentration (for butyl benzyl phthalate), and no samples exceeded the Soil/Water Partitioning GCC Criteria. The exceedences mostly occurred at depths greater than 16 feet. Seven subsurface samples exceeded the Generic Particulate Soil Inhalation Criteria for manganese.
- Groundwater flow is generally to the southwest, and is predominantly horizontal due to the presence of a very low permeability clay and silt layer which apparently controls flow.
- The very low permeability layer underlies the saturated sand/peat unit to a depth of 100 feet. Vertical hydraulic conductivities measured in this low permeability layer ranged from 1.21E-08 cm/sec to 1.33E-07 cm/sec.
- Limited and sporadic detections of organics in groundwater, all below Generic Groundwater Contact Criteria except for PCBs in samples from two wells, indicate these constituents do not represent a significant environmental or health threat and given the time period in which releases occurred, are not migrating significantly.
- Inorganics in groundwater are present on the site, but not in exceedence of Generic Groundwater Contact Criteria.
- Two very small areas of NAPL (motor oil with diesel, gas, and fuel oil) were detected in the vicinity of MW-3/MW-13 and MW-6, respectively near the storage pad. NAPL was also observed near a historical waste disposal area. No significant NAPL migration was indicated.

SECTION 7

REFERENCES

Bouwer, H. and Rice, R.C., 1976, A Slug Test for Determining Hydraulic conductivity of Unconfined Aquifers with Completely or Partially Penetrating Wells, Water Resources Research, Vol. 12, No. 3, pp. 423-428.

Cooper, H.H., J.D. Bredehoeft and S.S. Papadopulos, 1967, Response of a Finite-Diameter Well to an Instantaneous Charge of Water, Water Resources Research, Vol. 3, No. 1, pp. 263-267.

Dames & Moore, 1989. Interim Closure Report, Former Container Storage Area. Submitted to Chevrolet-Pontiac-Canada Group, Pontiac, Michigan by Dames & Moore, Farmington Hills, Michigan.

Dansby, D.A. and Price, C.A. 1987. Graphical Well Analysis Package.

Environmental Data Resources, 1996. The EDR-Geocheck™ Report. Pontiac, MI. Prepared by Environmental Data Resources, October 9, 1996.

Freeze, R.A. and J.A. Cherry, 1979. Groundwater, Prentice-Hall, Inc., Englewood Cliffs, New Jersey.

GTI, 1991, RCRA Pad Review, Hazardous Waste Storage Area, October 1991, Submitted to Chevrolet-Pontiac-Canada Facility, General Motors Corporation, Pontiac, Michigan by Groundwater Technology, Inc., Farmington Hills, Michigan.

MDEQ, 1996a. Environmental Response Division Operational Memorandum #14 Revision 2. Michigan Department of Natural Resources, originally issued on June 6, 1995 and last revised on January 25, 1996.

MDEQ, 1996b. Environmental Response Division Addendum to Interim Operational Memoranda #8, Revision 4 (June 5, 1995) and #14, Revision 2 (June 6, 1995). Michigan Department of Environmental Quality, April 12, 1996.

MDEQ, 1997a. Generic Groundwater Contact Criteria: Technical Support Document. Michigan Department of Environmental Quality, January 17, 1996.

MDEQ, 1997b. Generic Soil Saturation Screening Concentrations: Technical Support Document. Michigan Department of Environmental Quality, January 17, 1996.

MDEQ, 1997c. Generic Soil/Water Partitioning Criteria: Technical Support Document. Michigan Department of Environmental Quality, January 17, 1997.

MDEQ, 1997d. Generic Soil Inhalation Criteria for Ambient Air: Technical Support Document. Michigan Department of Environmental Quality, February 6, 1997.

Parsons ES, 1995. Work Plan for GM West Yard - May 1995, Submitted to General Motors Corporation, Pontiac, Michigan by Parsons Engineering Science, Bingham Farms, Michigan.

USEPA, 1988a. Interim Guidance on Compliance with Other Applicable or Relevant and Appropriate Requirements, 1988.

APPENDIX A

BORING LOGS

Depth (feet)	Sample Location	Sample Number	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS
0		1		Medium gravel FILL with some black fine foundry sand
		2		
		3		grades with more foundry sand, moist
		4		
5		5		grades to all black foundry sand, no gravel
10		6		
15		7		
20		8		Light brown fine SAND, loose, moist

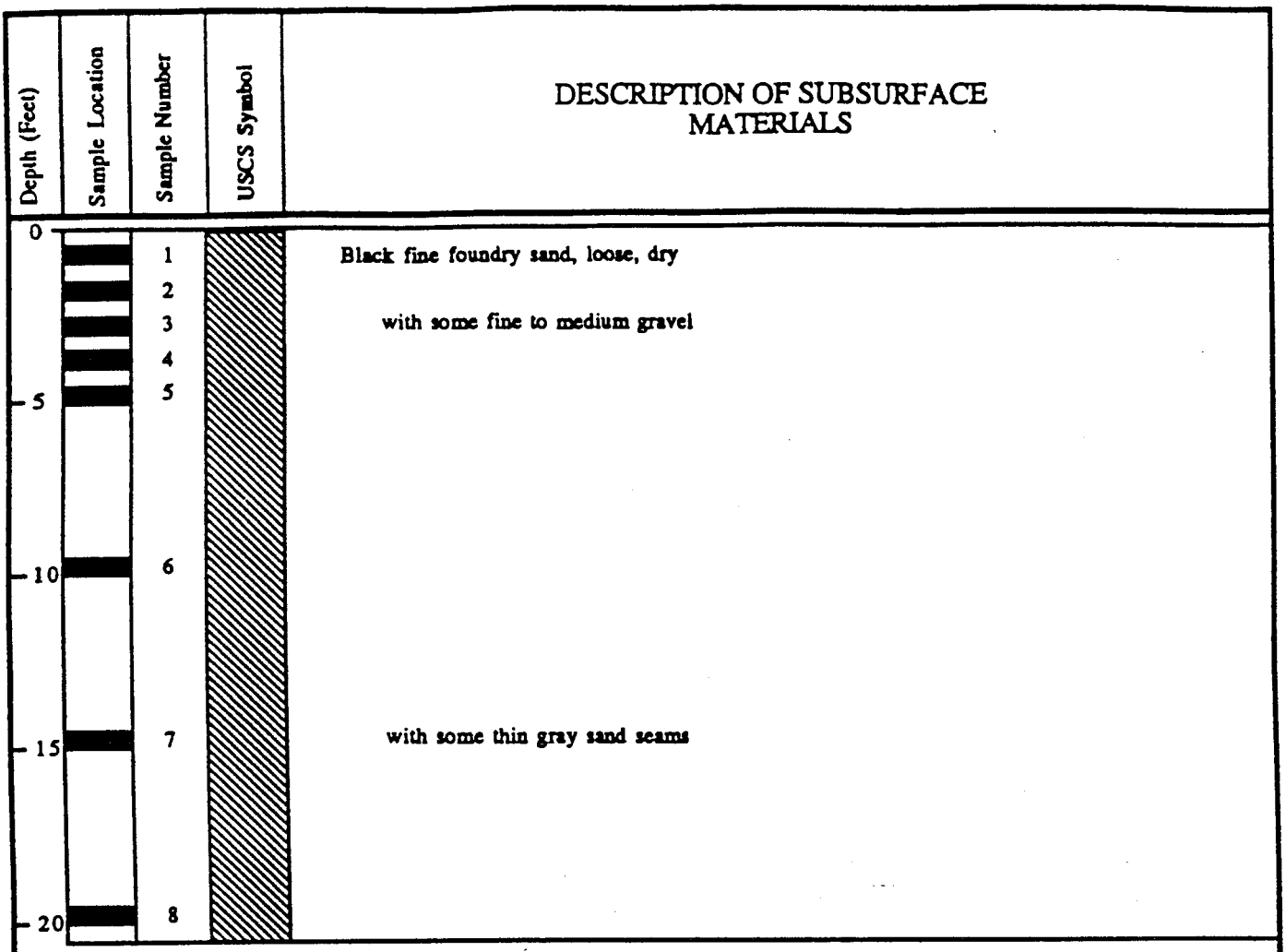
Boring terminated st 20.5 feet on 7/25/88.
Hole dry.

Dames & Moore

Job No.
00299-164-14

CPC
Pontiac, Michigan

BACKGROUND
SOIL BORING 1



Dames & Moore Job No. 00299-164-14	CPC Pontiac, Michigan	BACKGROUND SOIL BORING 2

Depth (Feet)	Sample Location	Sample Number	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS
0		1		Black fine foundry sand, loose, dry
		2		
		3		
		4		
5		5		
10		6		
15		7		Light brown silty fine SAND, loose to medium dense, moist
20		8		

Boring terminated st 20.5 feet on 7/25/88.
Hole dry.

Dames & Moore Job No. 00299-164-14	CPC Pontiac, Michigan	BACKGROUND SOIL BORING 3

Depth (Feet)	Sample Location	Sample Number	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS
0		1		Black fine foundry sand, loose, dry
		2		
		3		with medium to large slag fragments
		4		
5		5		
10				
15				
20				

Auger refusal on three separate attempts; boring terminated st 5.0 feet on 7/25/88.
Hole dry.

Dames & Moore

Job No.
00299-164-14

CPC
Pontiac, Michigan

BACKGROUND
SOIL BORING 4

Depth (Feet)	Sample Location	Sample Number	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS
0				Concrete
		1		Light brown fine SAND, with a trace of silt, medium dense, moist
				Black fine foundry sand, loose, dry
		2		Light tan fine SAND, with a trace of silt, moist
		3		Black fine foundry sand, with seams of clayey fill
		4		
5		5		Light brown fine SAND, with a trace of silt, medium dense, moist
				Green brown silty fine SAND, loose, moist
10		6		
				Gray brown SILT, medium dense, very moist
15		7		Gray brown silty CLAY, with silt seams, saturated, very soft
20		8		Brown fine to medium SAND, saturated, loose

Boring terminated at 20.5 feet on 7/26/88.

Dames & Moore Job No. 00299-164-14	CPC Pontiac, Michigan	STORAGE PAD SOIL BORING 1

Depth (Feet)	Sample Location	Sample Number	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS
0		1		Concrete
		2		Black fine foundry sand, loose, dry
		3		Light brown fine SAND, with silt, loose, moist
		4		
		5		grades black with a strong chemical odor
5				
		6		grades tan with same chemical odor
10				
		7		Gray SILT, medium dense, very moist
15				Gray silty CLAY, with silt seams, saturated, soft
20		8		Brown fine to medium SAND, with some fine gravel, saturated, loose

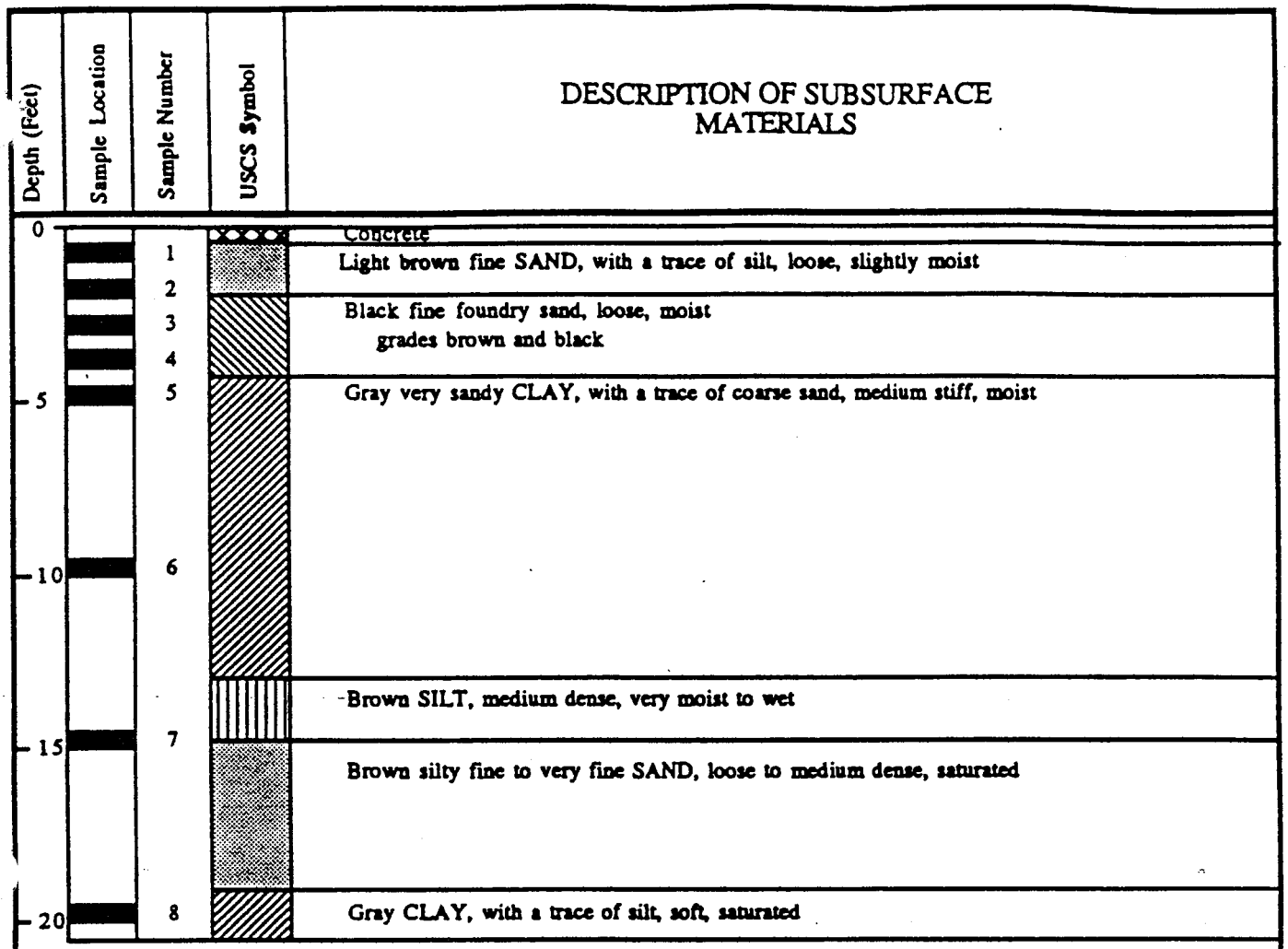
Boring terminated st 20.5 feet on 7/26/88.

Dames & Moore

Job No.
00299-164-14

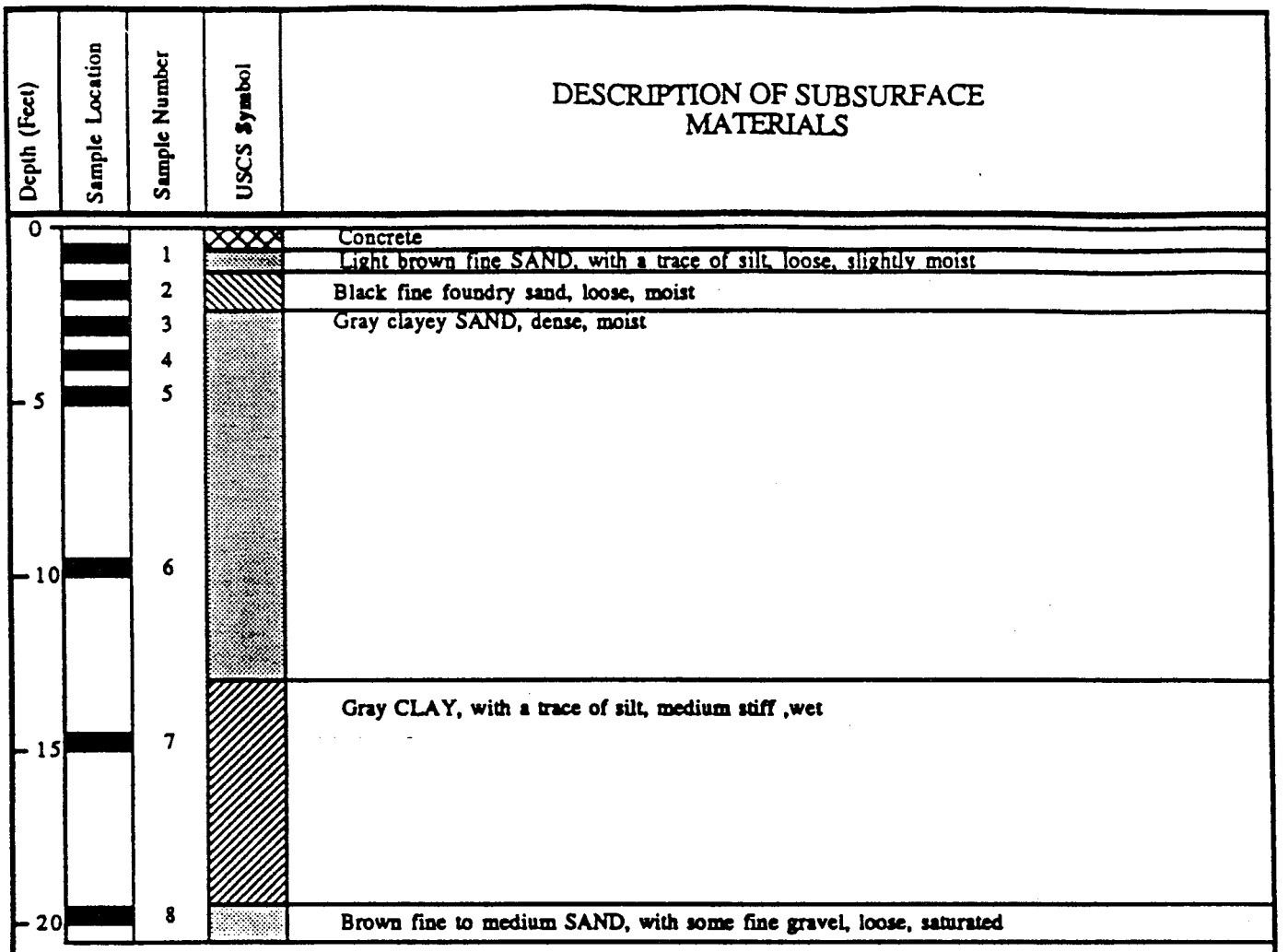
CPC
Pontiac, Michigan

STORAGE PAD
SOIL BORING 2



Boring terminated st 20.5 feet on 7/27/88.

Dames & Moore Job No. 00299-164-14	CPC Pontiac, Michigan	STORAGE PAD SOIL BORING 3

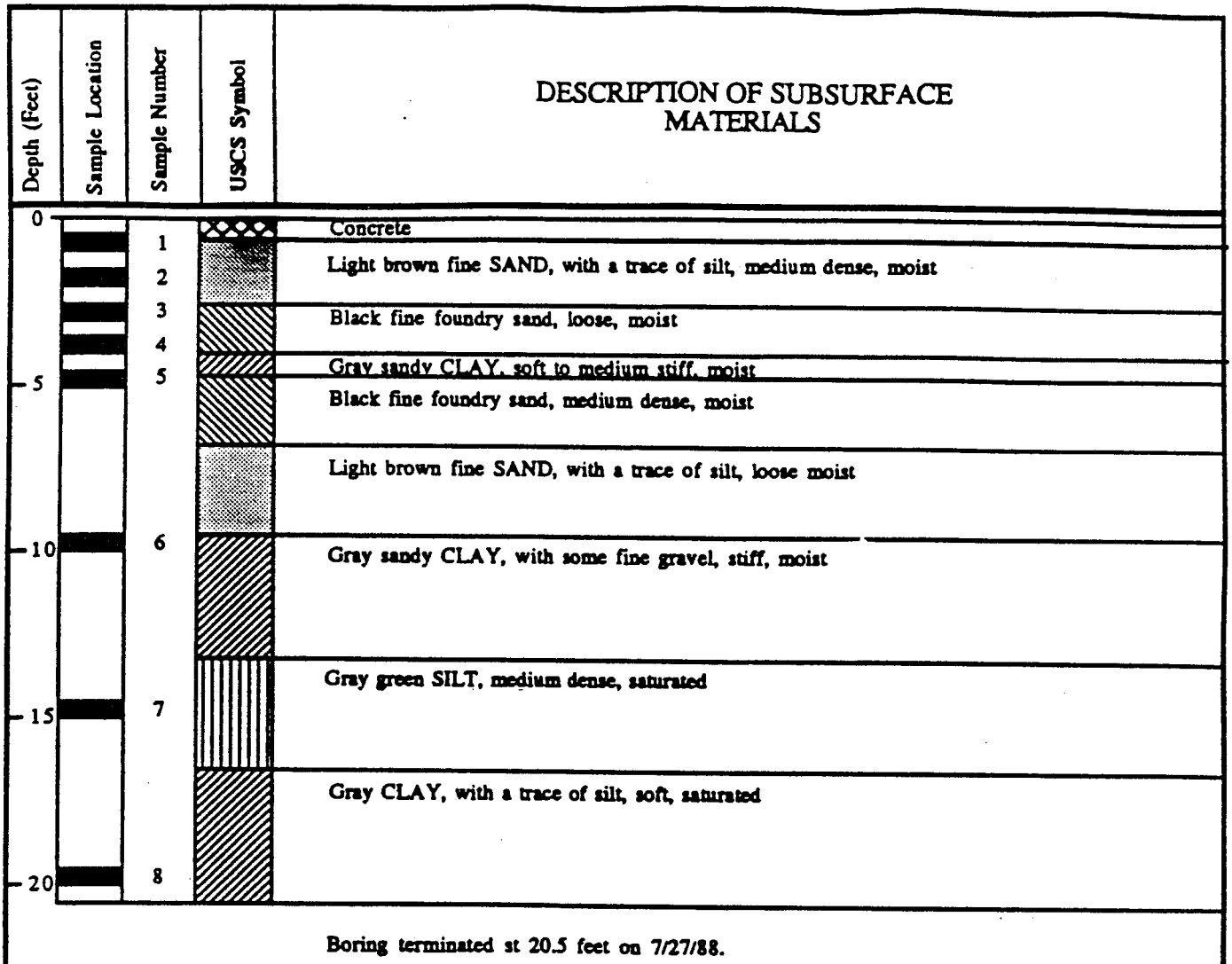


Dames & Moore Job No. 00299-164-14	CPC Pontiac, Michigan	STORAGE PAD SOIL BORING 4

Depth (Feet)	Sample Location	Sample Number	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS
0		1		Concrete
				Light brown fine SAND, with a trace of silt, loose, slightly moist
		2		Black fine foundry sand, loose, moist
		3		
		4		
5		5		
10		6		Gray green clayey SAND, dense, moist
				Gray sandy CLAY, with a trace of silt, medium stiff
15		7		Gray brown SILT, medium dense, moist
				Gray CLAY, with a trace of silt, medium [illegible], moist
20		8		

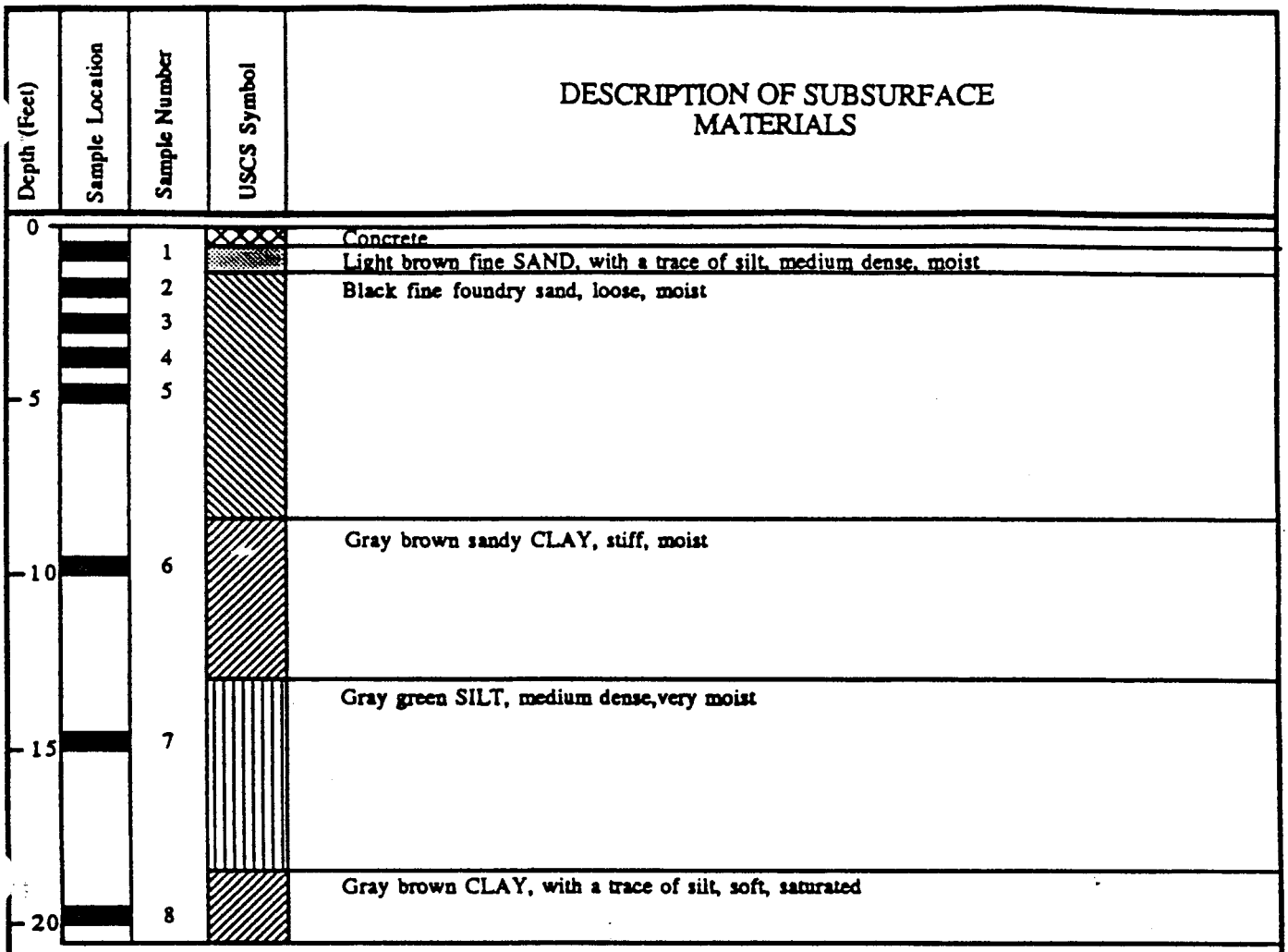
Boring terminated at 20.5 feet on 7/28/88.

Dames & Moore Job No. 00299-164-14	CPC Pontiac, Michigan	STORAGE PAD SOIL BORING 5



Boring terminated at 20.5 feet on 7/27/88.

Dames & Moore Job No. 00299-164-14	CPC Pontiac, Michigan	STORAGE PAD SOIL BORING 6



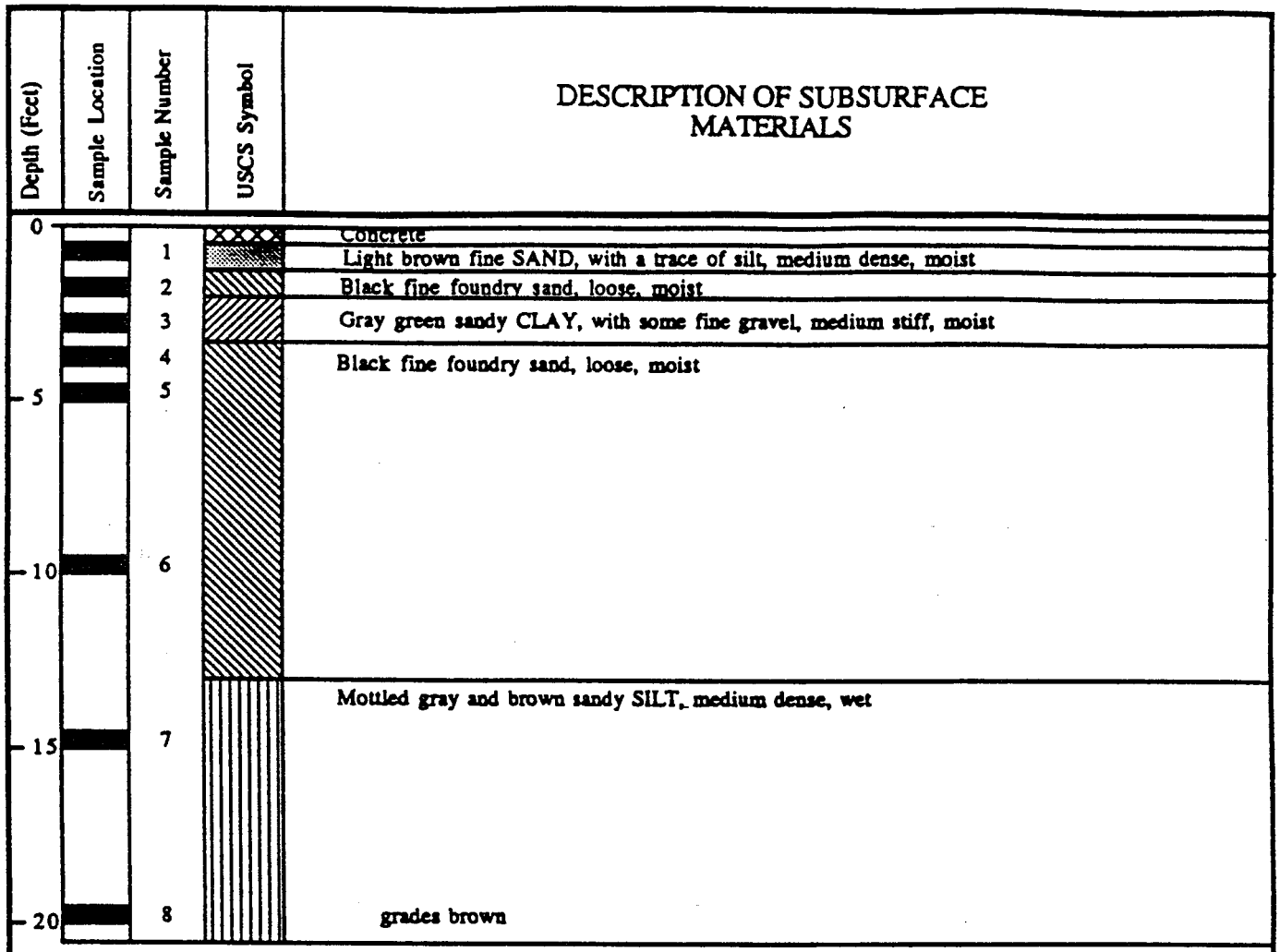
Boring terminated st 20.5 feet on 7/28/88.

Dames & Moore

Job No.
00299-164-14

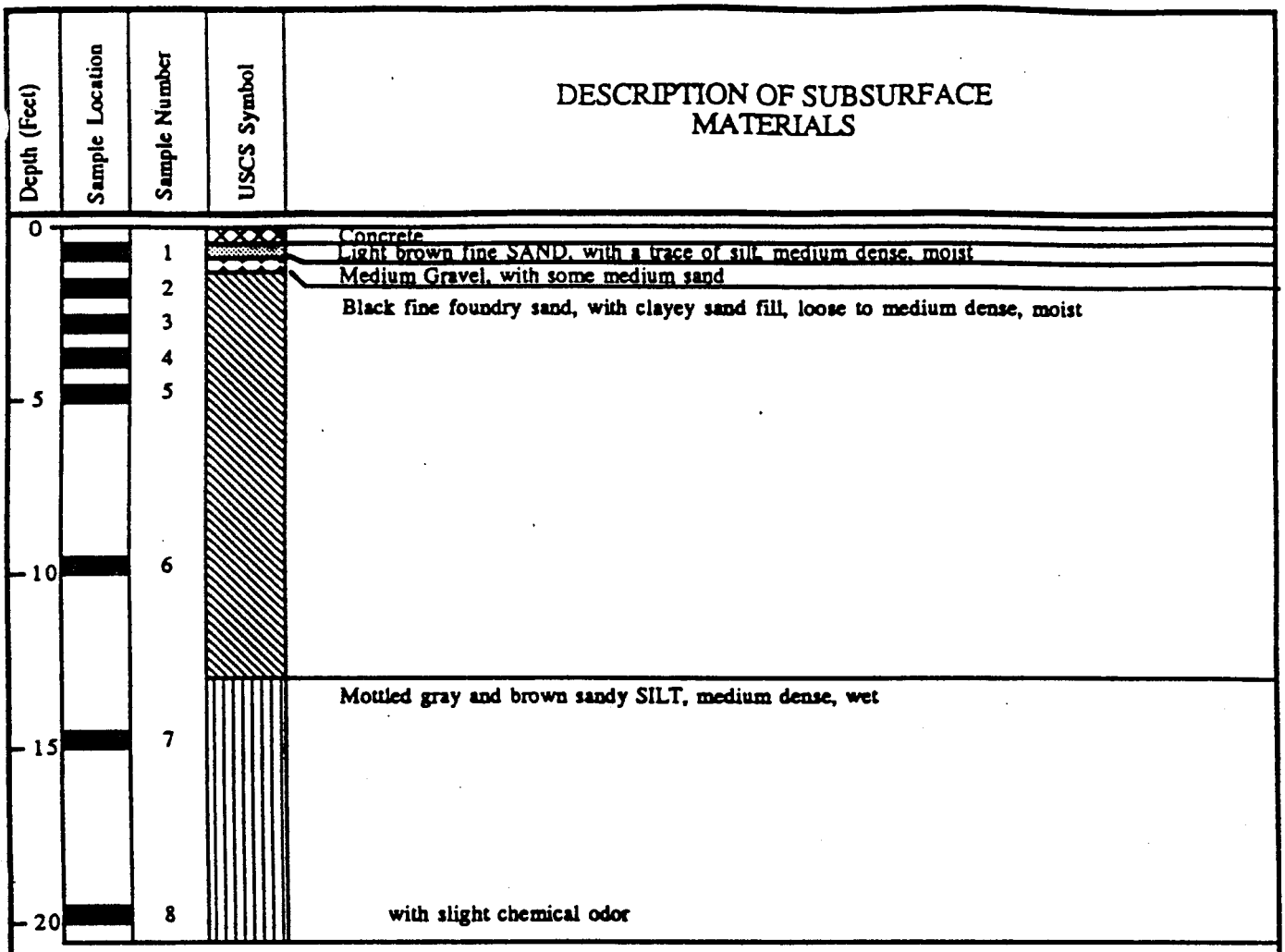
CPC
Pontiac, Michigan

STORAGE PAD
SOIL BORING 7



Boring terminated st 20.5 feet on 7/29/88.

Dames & Moore Job No. 00299-164-14	CPC Pontiac, Michigan	STORAGE PAD SOIL BORING 8



Dames & Moore Job No. 00299-164-14	CPC Pontiac, Michigan	STORAGE PAD SOIL BORING 9

Depth (Feet)	Sample Location	Sample Number	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS
0		1		Concrete
				Light brown fine SAND, with a trace of silt, medium dense, moist
		2		Black fine foundry sand, loose to medium dense, moist
		3		
		4		grades wet
5				
10				
15				
20				

Boring terminated st 4.5 feet on 7/29/88 due to the same type of obstruction encountered in background boring 4.

Dames & Moore Job No. 00299-164-14	CPC Pontiac, Michigan	STORAGE PAD SOIL BORING 10

Depth (feet)	Sample Location	Sample Number	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS
0				Concrete
		1		Light brown fine SAND, with a trace of silt, medium dense, moist
		2		Black fine foundry sand, loose, moist
		3		
		4		
5		5		
				void encountered at approimately 9.5 feet, cause unknown
10				
		6		Mottled gray and brown sandy SILT, medium dense, wet
15		7		grades dark green with an oily sheen
				Gray silty CLAY, very soft, wet
20		8		

Boring terminated st 20.5 feet on 7/28/88.

Dames & Moore

Job No.
00299-164-14

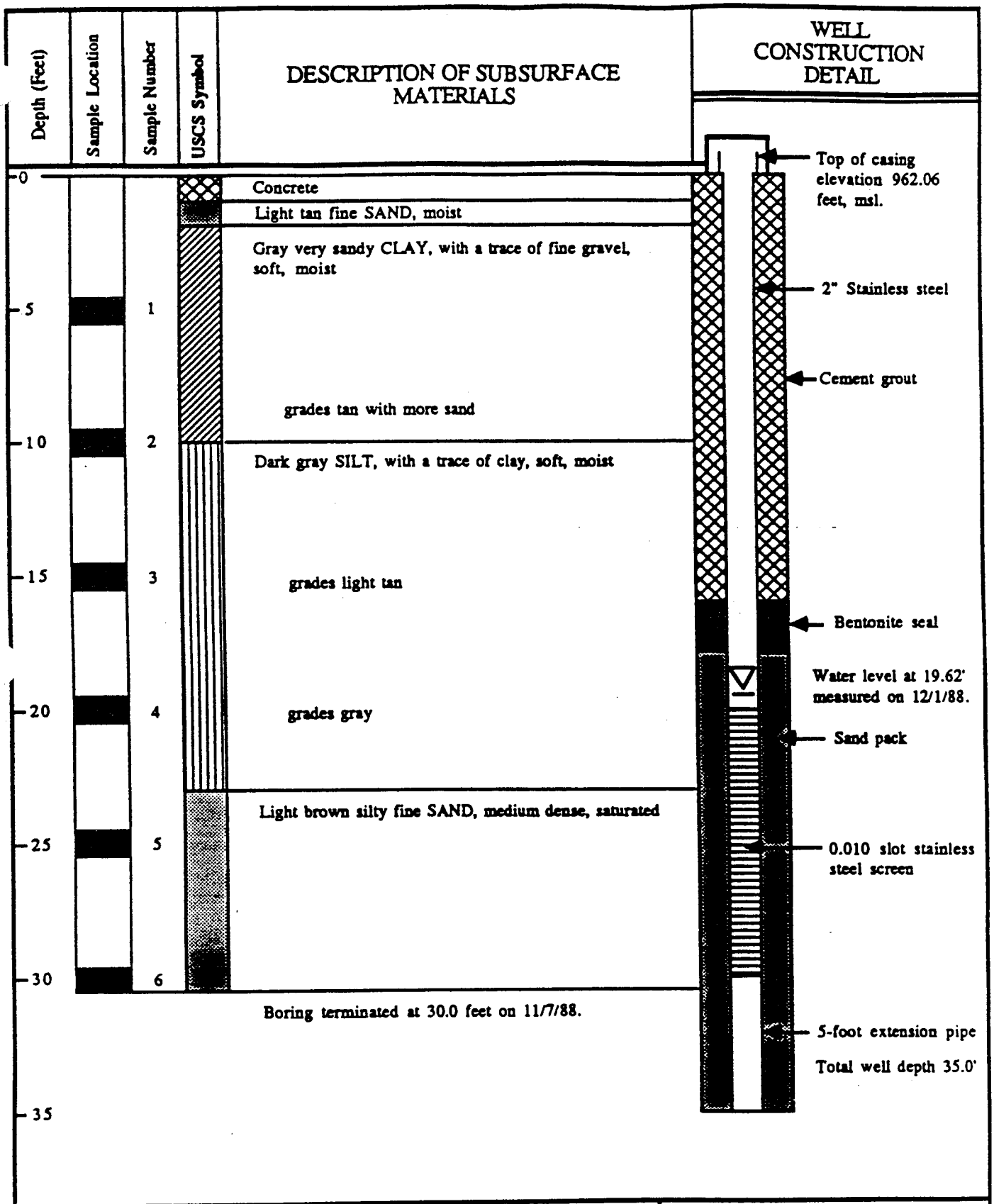
CPC
Pontiac, Michigan

STORAGE PAD
SOIL BORING 11

Depth (Feet)	Sample Location	Sample Number	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS
0		1		Concrete
				Light brown fine SAND, with a trace of silt, medium dense, moist
		2		Black fine foundry sand, loose to medium dense, moist
		3		
		4		grades clayey with a sweet chemical odor
5		5		
10				
15				
20				

Boring terminated st 6.5 feet on 7/29/88 due to the same type of obstruction encountered in background boring 4.

Dames & Moore Job No. 00299-164-14	CPC Pontiac, Michigan	STORAGE PAD SOIL BORING 12

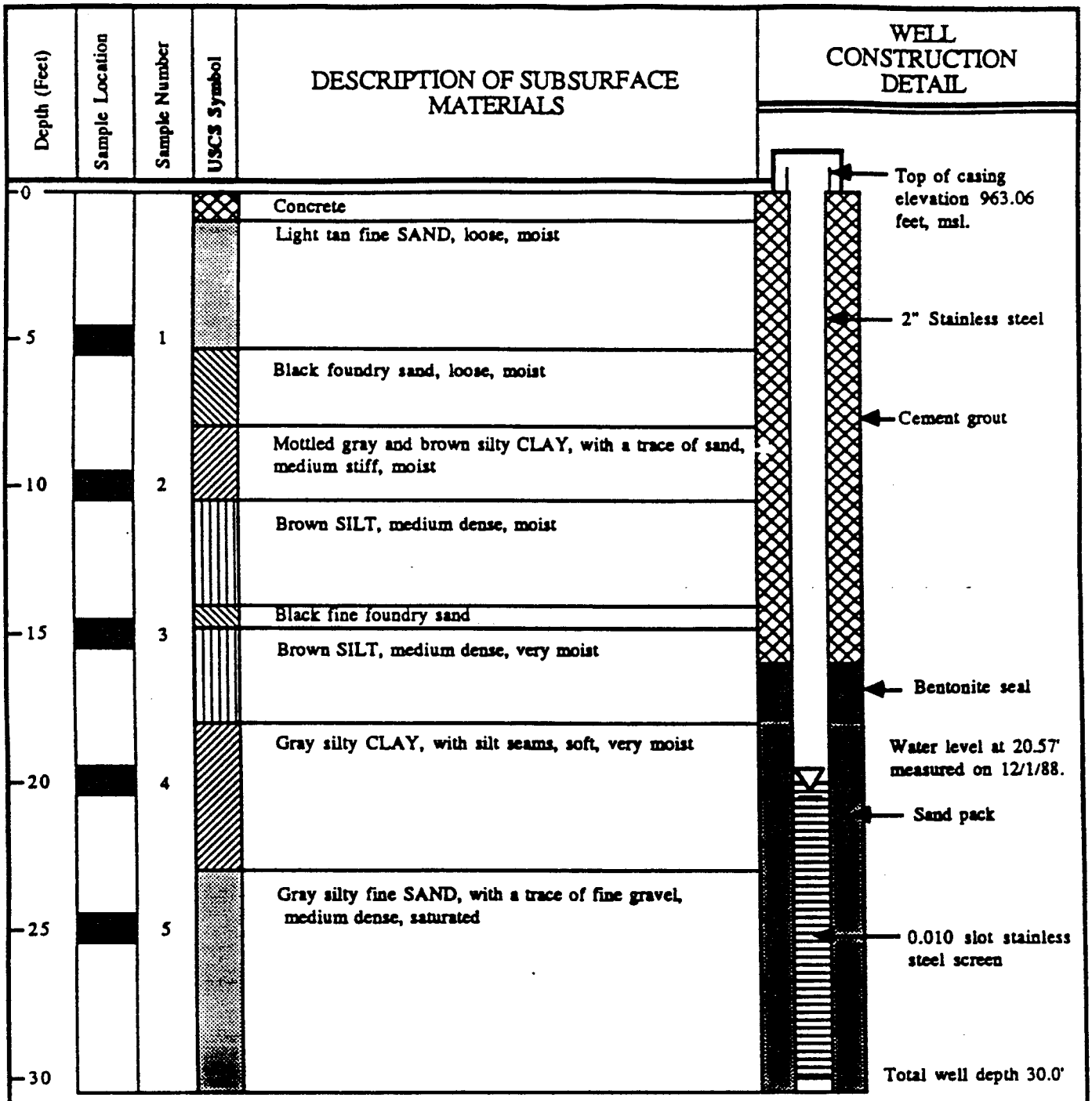


Dames & Moore

Job No. 00299-164-14

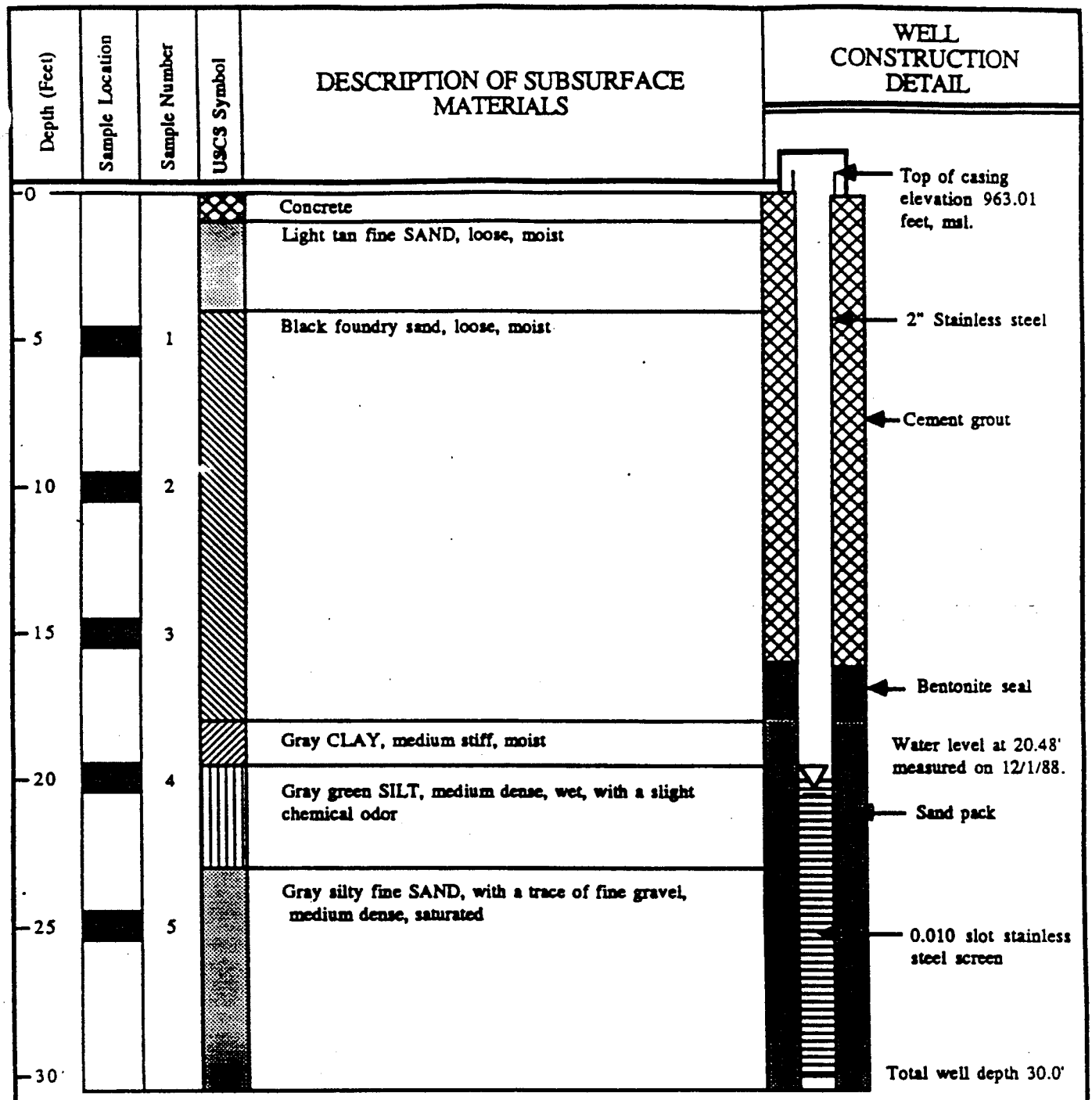
SOIL BORING LOG AND WELL CONSTRUCTION DIAGRAM
B-193

MONITORING WELL
MW-1



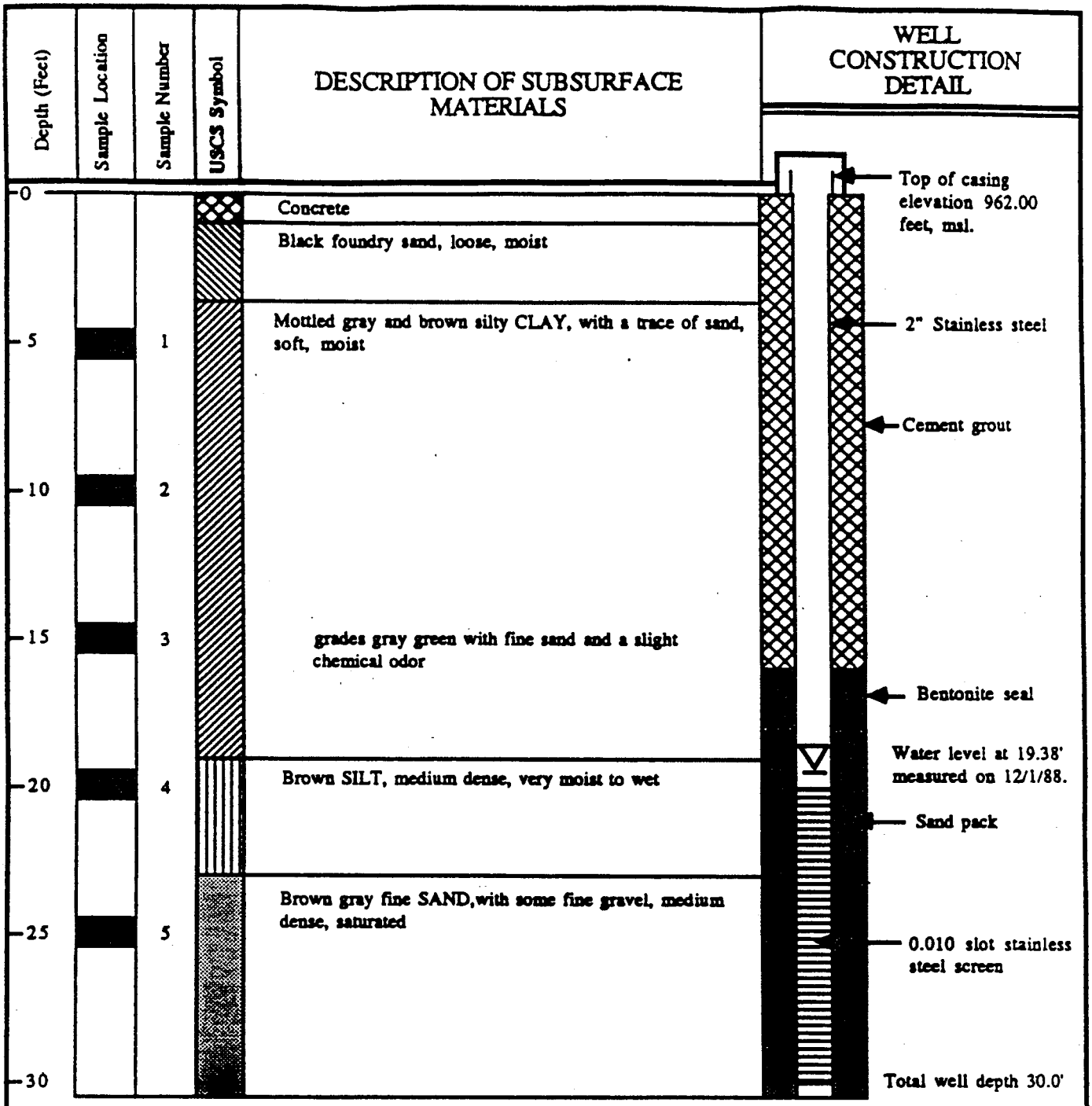
Boring terminated at 30.0 feet on 11/9/88.

Dames & Moore Job No. 00299-164-14	SOIL BORING LOG AND WELL CONSTRUCTION DIAGRAM	MONITORING WELL MW-2



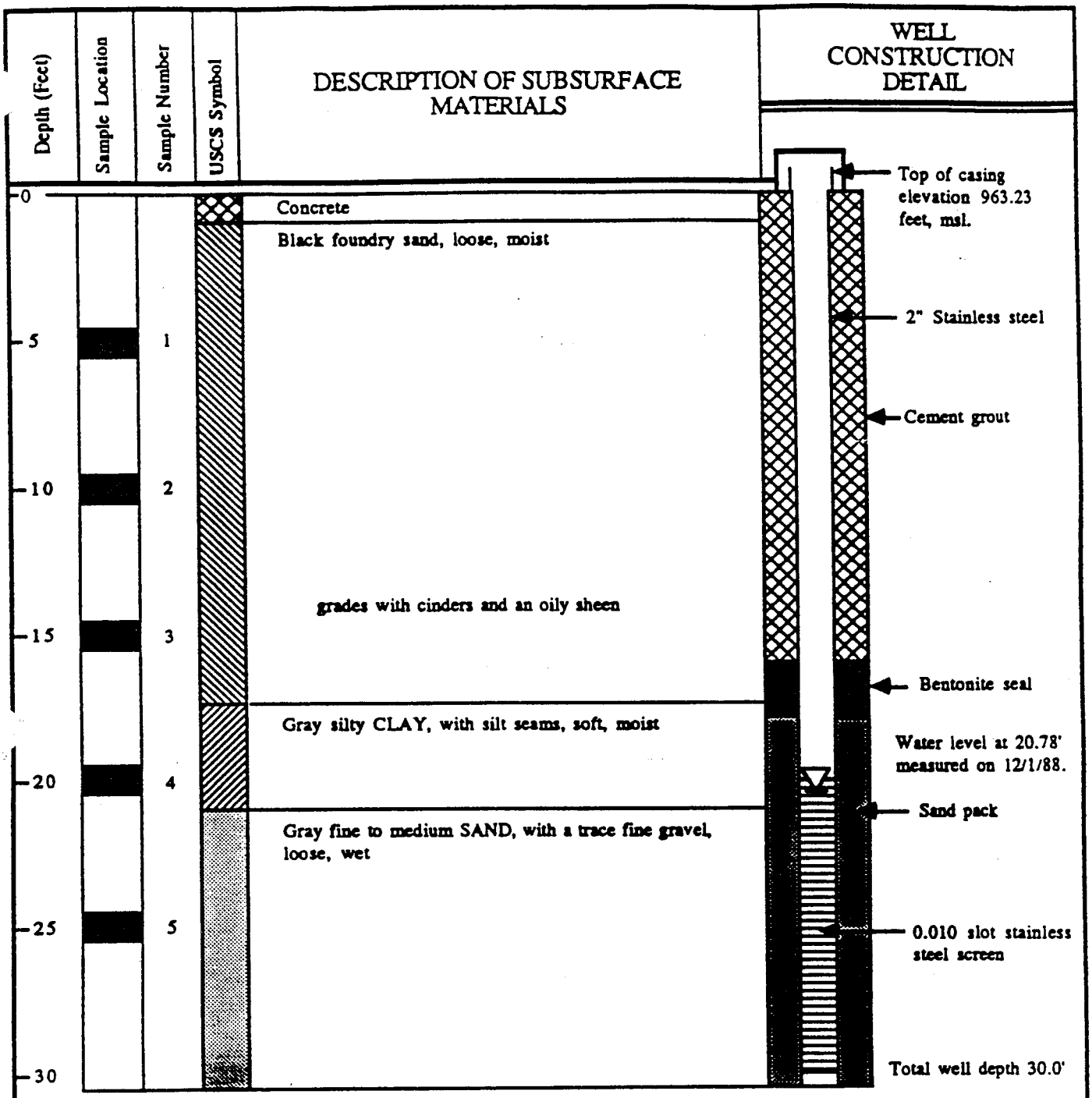
Boring terminated at 30.0 feet on 11/10/88.

Dames & Moore Job No. 00299-164-14	SOIL BORING LOG AND WELL CONSTRUCTION DIAGRAM	MONITORING WELL MW-3



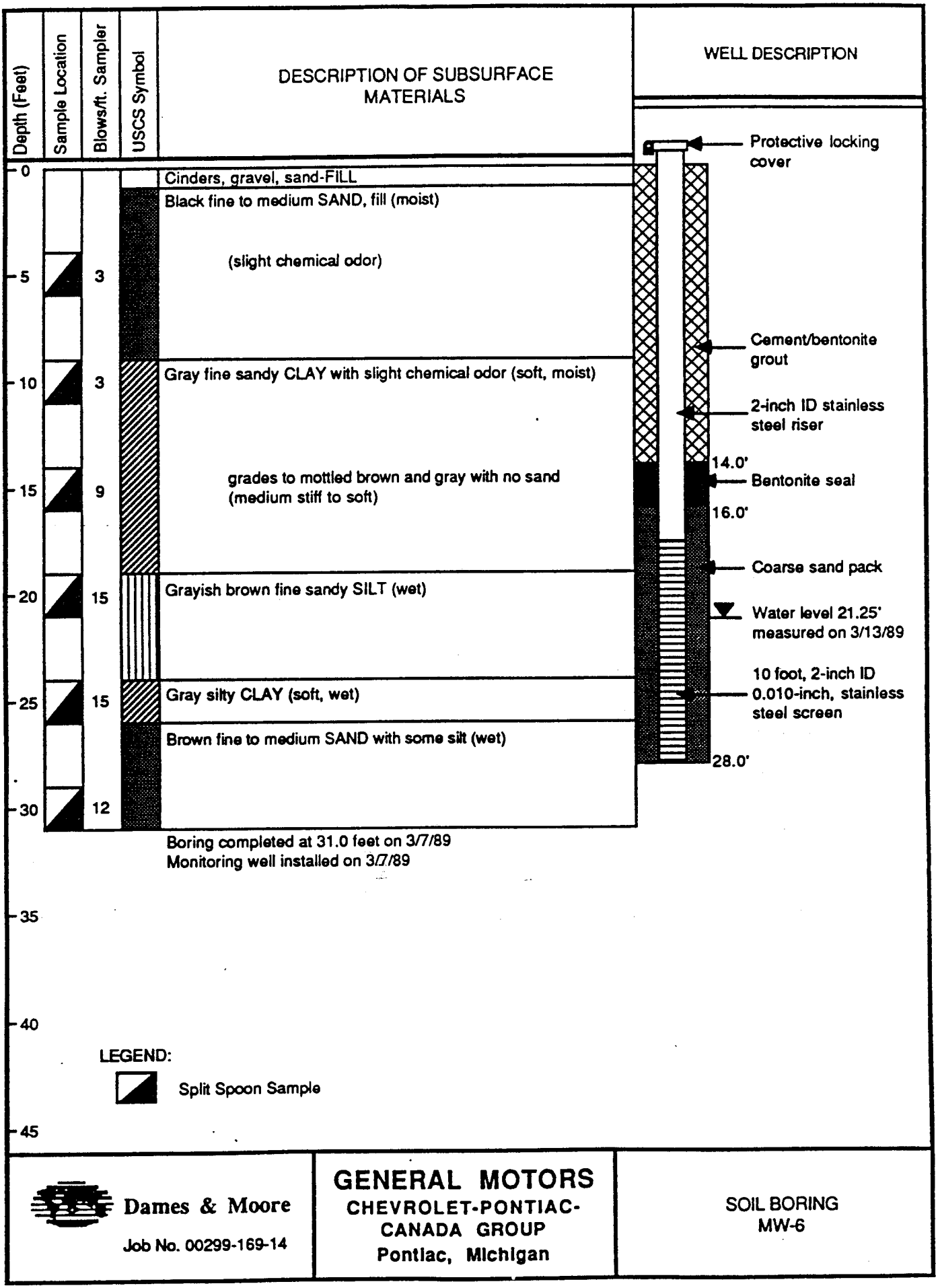
Boring terminated at 30.0 feet on 11/28/88.

Dames & Moore Job No. 00299-164-14	SOIL BORING LOG AND WELL CONSTRUCTION DIAGRAM	MONITORING WELL MW-4



Boring terminated at 30.0 feet on 11/29/88.

Dames & Moore Job No. 00299-164-14	SOIL BORING LOG AND WELL CONSTRUCTION DIAGRAM	MONITORING WELL MW-5

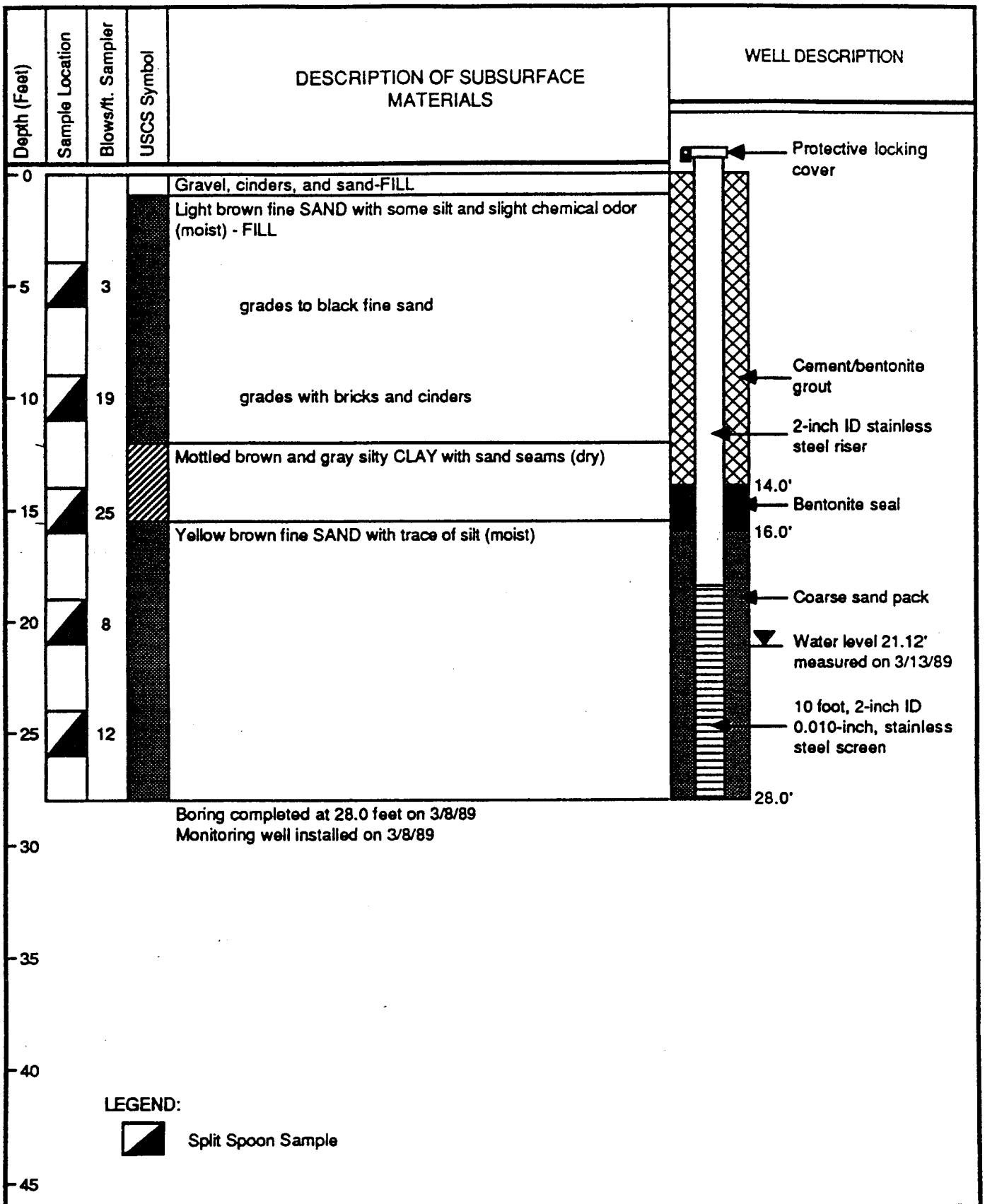


Dames & Moore

Job No. 00299-169-14

GENERAL MOTORS
CHEVROLET-PONTIAC-CANADA GROUP
Pontiac, Michigan

SOIL BORING
MW-6

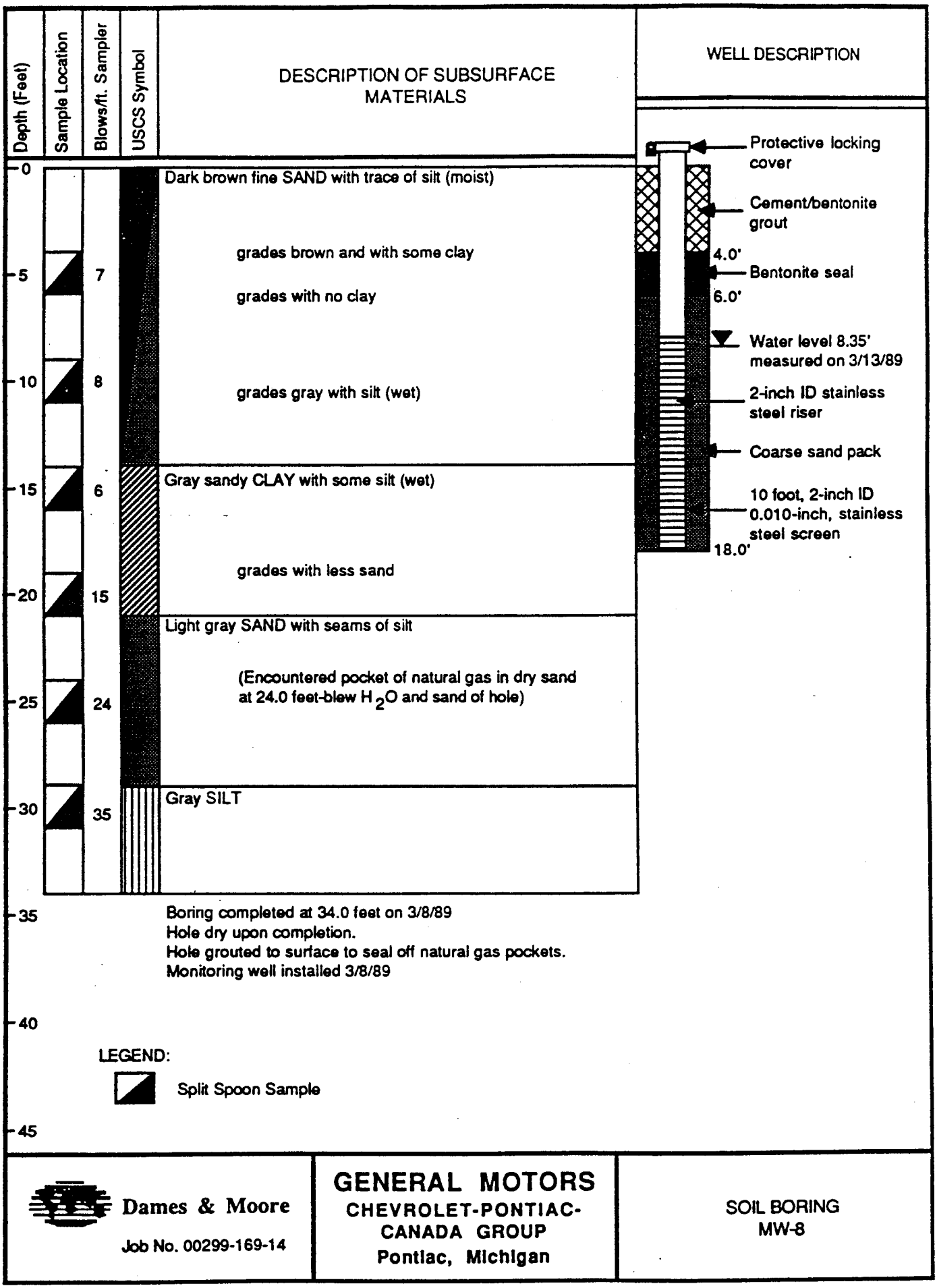


Dames & Moore

Job No. 00299-169-14

GENERAL MOTORS
CHEVROLET-PONTIAC-CANADA GROUP
Pontiac, Michigan

SOIL BORING
MW-7



Dames & Moore

Job No. 00299-169-14

GENERAL MOTORS
CHEVROLET-PONTIAC-CANADA GROUP
Pontiac, Michigan

SOIL BORING
MW-8

C.P.C. Pontiac — Boring No. MW-13

DRILLING LOG

Pontiac, Mi. — Project Number 0400009897

te Drilled 8-23-91 Total Depth 15' Boring Diameter (inches) 6.25"

O.C Elevation N.A. Initial Water Depth N.A. Static/24 hr. 0.00

reen Diameter (inches) 2.0 Length 10' Slot Size (inches) .010

sing Diameter (inches) 2.0 Length 7.5' Type SCH 40 PVC

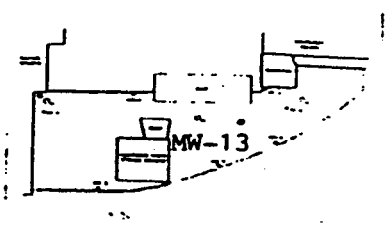
illing Company C.T.I. Driller(s) J. Springstead & E. Near

illing Method Hollow Steam Auger Sampling Method Split Spoon

gged By Tom Peters & Kevin Stites Sketched By Jeff Bachus

All other measurements in feet

Sketch Map



Notes

See site map for further details.

Depth (ft)	Well Construction	Notes	Sample No.	Blow Count	Recovery (in.)	PID/FID (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
		3.5" riser						
		roadbox						Concrete
0		concrete						
1		bentonite	SS1	13 10 9 8	24"	180		Black, dry, SAND, with silt combination, medium density, with a strong hydrocarbon odor.
2		casing	SS2	3 6 8 11	24"	190		Black, moist, SILT, with some clay, dark stained, stiff in density.
5			SS3	7 3 4 3	24"	75		Black and Tan, moist, SAND, loose in density.
6								
7			SS4	2 3 4 1	24"	95		Black and Tan, dry, SAND, medium grain, hydrocarbon odor.
8								
9			SS5	2 2 2 2	24"	50		Black stained, moist, fine SAND, very loose in density.
0		screen						
1			SS6	3 4 3 2	24"	50		Brown to Black, moist, SAND, loose in density.
2								
3		sand pack	SS7	1 2 5 2	24"	30		Brown, very moist, CLAY, medium stiff in density.
4								End of boring at 15.0 feet.
5								
6								
7								
8								
9								
0								
1								
2								
3								

GROUNDWATER TECHNOLOGY

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DRILLING LOG

Boring No. MW-14

Project: C.P.C. Pontiac

Location: Pontiac, Mi. Project Number 0400009897

Date Drilled 8-23-91 Total Depth 13' Boring Diameter (inches) 6.25"

T.O.C Elevation _____ Initial Water Depth N.A. Static/24 hr. _____

Screen Diameter (inches) 2.0 Length 10' Slot Size (inches) .010

Casing Diameter (inches) 2.0 Length 6.0 Type SCH 40 PVC

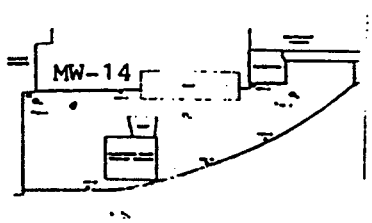
Drilling Company C.T.I. Driller(s) J. Springstead & R. Near

Drilling Method Hollow Stem Auger Sampling Method Split Spoon

Logged By Tom Peters & Kevin Stites Sketched By Jeff Bachus

All other measurements in feet

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No.	Blow Count	Recovery (in.)	PID/FID (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
		3.0" riser						
		roadbox						
0		concrete						Concrete
1		bentonite	SS1	2 5 11 8	24"	350		Black and Tan, moist, SAND,
2		casing						
			SS2	4 4 4 4	24"	360		Black and Tan, moist, SAND
5			SS3	2 2 1 1	24"	600		Black and Tan, moist, SAND
6								
7			SS4	3 3 2 2	24"	90		Grey, wet, CLAY
8								
9			SS5	2 8 5 5	24"	180		Tan, wet, silty SAND
10		screen						
11			SS6	2 4 6 6	24"	75		Grey, CLAY, very plastic
12								
13		sand pack						End of boring at 13 feet

GROUNDWATER TECHNOLOGY

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DRILLING LOG

Project CPC PONTIAC Boring No. RW-1

Location PONTIAC, MI Project Number 040009897

Date Drilled 5-1-90 Total Depth 20' Boring Diameter (inches) 14.0"

T.O.C Elevation 960.79 Initial Water Depth N/A Static/24 hr 19.55'

Screen Diameter (inches) 6.0" Length 15.0' Slot Size (inches) 0.020

Casing Diameter (inches) 6.0" Length 7.0' Type STAINLESS STEEL

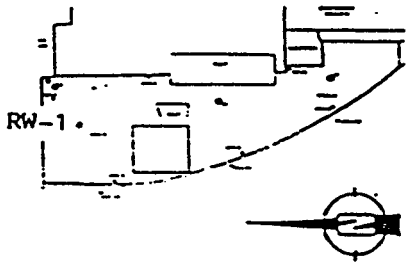
Drilling Company FOX DRILLING Driller(s) WILLIE HOLOMAN

Drilling Method HOLLOW STEM AUGERS Sampling Method SPLIT SPOON

Logged By TODD FOURNEY Sketched By TODD FOURNEY

All other measurements in feet

Sketch Map



Notes

Well Construction	Notes	Sample No.	Blow Count	Recovery (in.)	PID/FID (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
stand pipe to 2'							
concrete							CONCRETE
casing							Gravel, Asphalt, and Foundry Sand (fill). and SILTY CLAY
bentonite							
screen		1	6 6 7 14	20	0		Brown and Green, wet to moist, fine grained SAND.
sand pack		2	5 5 7 8	22	91.0		Brown and Green, wet, SILTY SAND with some clay.
		3	4 6 9 12	24	90.0		Brown, wet, CLAYEY SILT with some sand.
		4	5 7 8 9	22	0		Brown, wet, fine to medium grained SAND.
							End of Boring = 20.0'

0 1 2 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

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DRILLING LOG

ct C.P.C.–Pontiac. Boring No. RW–1A

ation Pontiac, Mich. Project Number 040009897

Date Drilled 8–27–91 Total Depth 14' Boring Diameter (inches) 12

T.O.C Elevation 961.03 Initial Water Depth N.D. Static/24 hr. N.D.

Screen Diameter (inches) 6 Length 10' Slot Size (inches) 0.020

Casing Diameter (inches) 6 Length 6' Type Stainless

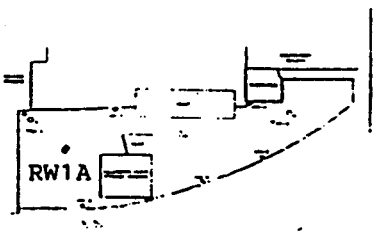
Drilling Company C.T.I. Driller(s) Rick Near + Rick Kroll

Drilling Method Hollow Steam Auger Sampling Method Split Spoon

Logged By Ed Edverding Sketched By Jeff Bachus

All other measurements in feet

Sketch Map



Notes: See site map for further details.

Depth (ft)	Well Construction	Notes	Sample No.	Blow Count	Recovery (in.)	PID/FID (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
		2" above grd.						Concrete
0–1		concrete	SS1	5 16 35 32	18"	90		Black, damp, SAND, medium gravel with light brown sand, very dense, trace of metal shavings, slight odor.
1–2		bentonite						
2–3		casing	SS2	2 3 4 5	9"	40		Brown to yellow, moist, CLAY, with trace of coarse and fine sand, medium stiff in density.
4–5			SS3	3 3 5 5	10"	40		Light brown and yellow, moist, CLAY, with trace of coarse sand, stiff in density.
6–7			SS4	2 2 2 4	12"	4		Light brown and green, wet, SAND with a trace of clay and trace of medium sand, very loose in density.
8–9			SS5	2 3 5 7	20"	>1000		Light brown and green, wet SILT, with a trace of medium sand, stiff in density, with slight odor.
9–10		screen						
10–11			SS6	NA	22"	850		Same as above
11–12								
12–13		sand pack	SS7	7 5 6 8	22"	200		Light brown, wet, CLAY, and SILT, with a trace of medium fine sand, medium density, with slight odor.
14								End of boring at 14 feet
15–25								

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DRILLING LOG

Client CPC PONTIAC — Boring No. MW-9

Location PONTIAC, MI — Project Number 040009897

Date Drilled 4-30-90 — Total Depth 20' — Boring Diameter (inches) 8.0"

T.O.C Elevation 961.51 — Initial Water Depth N/A — Static/24 hr 15.04'

Screen Diameter (inches) 2.0" — Length 15.0' — Slot Size (inches) 0.020

Casing Diameter (inches) 2.0" — Length 7.0' — Type PVC

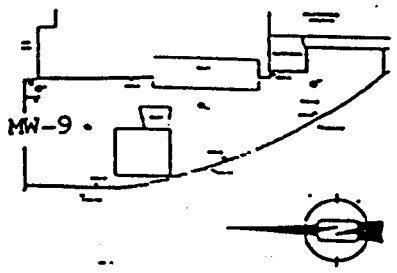
Drilling Company FOX DRILLING — Driller(s) WILLIE HOLOMAN

Drilling Method HOLLOW STEM AUGERS — Sampling Method SPLIT SPOON

Logged By TODD FOURNEY — Sketched By TODD FOURNEY

All other measurements in feet

Sketch Map



Notes

Well Construction	Notes	Sample No.	Blow Count	Recovery (in.)	PID/FID (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
	stand pipe to 2'						
	concrete						CONCRETE
	bentonite						
	casing	1	5, 28, 31, 21	15	10		Black, moist, FOUNDRY SAND with some gravel. (fill)
		2	9, 5, 5, 6	18	0		
		3	5, 6, 7, 7	18	0		Brown, moist, SILTY CLAY.
		4	3, 3, 4, 4	20	0		
	screen	5	3, 4, 5, 6	22	0		Gray, moist, fine grained SAND.
	sand pack	6	7, 8, 9, 10	24	0		Brown and Gray, wet, fine grained SAND.
		7	4, 5, 6, 7	24	2.0		Brown, moist, SILTY CLAY
		8	4, 4, 5, 5	22	0		
		9	4, 6, 7, 7	24	0		Brown, wet, SILTY SAND with some clay.
		10	4, 7, 9, 9	24	0		Brown, wet, medium to coarse grained SAND.
							Brown and Gray, moist, CLAY.
							End of Boring = 21.0'

DRILLING LOG

Project CPC PONTIAC — Boring No. MW-10

Location PONTIAC, MI — Project Number 040009897

Date Drilled 5-2-90 — Total Depth 20' — Boring Diameter (inches) 8.0"

T.O.C Elevation 963.28 — Initial Water Depth N/A — Static/24 hr 17.51'

Screen Diameter (inches) 2.0" — Length 15.0' — Slot Size (inches) 0.020

Casing Diameter (inches) 2.0" — Length 7.0' — Type PVC

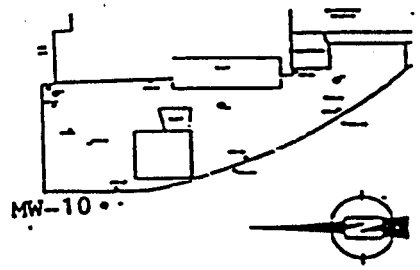
Drilling Company FOX DRILLING — Driller(s) WILLIE HOLOMAN

Drilling Method HOLLOW STEM AUGERS — Sampling Method SPLIT SPOON

Logged By TODD FOURNEY — Sketched By TODD FOURNEY

All other measurements in feet

Sketch Map



Notes

Well Construction	Notes	Sample No.	Blow Count	Recovery (in.)	HNU/PID (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
	stand pipe to 2'						
	concrete						
	casing						
	bentonite						Gravel, Asphalt, and Foundry Sand (fill).
		1	5 9 12 14	20	0		
	screen						Brown, moist, SILTY CLAY with glass and rock fragments.
		2	4 5 5 5	22	0		
	sand pack						Brown, moist, SAND with some clay.
		3	6 9 11 12	24	0		
							Brown, wet, fine grained SAND.
		4	2 4 [illegible]	24	0		Brown, wet, SILTY SAND with some clay.
							End of Boring = 22.0'

Page 1 of 1

DRILLING LOG

Project CPC PONTIAC Boring No. MW-11

Location PONTIAC, MI Project Number 040009897

Date Drilled 5-1-90 Total Depth 20' Boring Diameter (inches) 8.0"

T.O.C Elevation 963.43 Initial Water Depth N/A Static/24 hr 18.30'

Screen Diameter (inches) 2.0" Length 15.0' Slot Size (inches) 0.020

Casing Diameter (inches) 2.0" Length 7.0' Type PVC

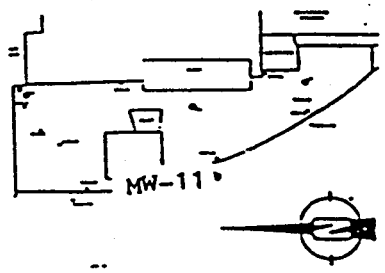
Drilling Company FOX DRILLING Driller(s) WILLIE HOLOMAN

Drilling Method HOLLOW STEM AUGERS Sampling Method SPLIT SPOON

Logged By TODD FOURNEY Sketched By TODD FOURNEY

All other measurements in feet

Sketch Map



Notes

Well Construction	Notes	Sample No.	Blow Count	Recovery (in.)	PID/FID (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
	stand pipe to 2'						
	concrete						CONCRETE
	casing						
	bentonite						Gravel, Asphalt, and Foundry Sand (fill).
		1	7 4 5 5	20	0		Black, moist, FOUNDRY SAND with some gravel. (fill)
	screen	2	1 2 2 2	22	0		Brown, wet, SILTY CLAY.
	sand pack	3	6 9 9 12	24	0		Brown and Gray, moist to wet, fine grained SAND.
		4	6 9 10 12	22	0		Brown, wet, CLAY with some silt.
							Brown, moist, fine to medium grained SAND.
							End of Boring = 22.0'

Page 1 of 1

DRILLING LOG

ject CPC PONTIAC Boring No. MW-12

cation PONTIAC, MI Project Number 04J009897

Date Drilled 5-1-90 Total Depth 20' Boring Diameter (inches) 8.0"

T.O.C Elevation 963.77 Initial Water Depth N/A Static/24 hr 15.99'

Screen Diameter (inches) 2.0" Length 15.0' Slot Size (inches) 0.020

Casing Diameter (inches) 2.0" Length 7.0' Type PVC

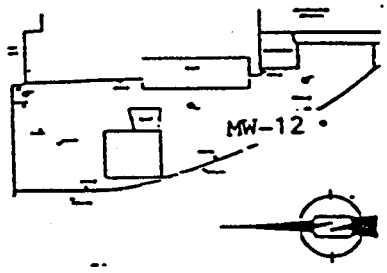
Drilling Company FOX DRILLING Driller(s) WILLIE HOLOMAN

Drilling Method HOLLOW STEM AUGERS Sampling Method SPLIT SPOON

Logged By TODD FOURNEY Sketched By TODD FOURNEY

All other measurements in feet

Sketch Map



Notes

Well Construction	Notes	Sample No.	Blow Count	Recovery (in.)	PID/FID (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
	stand pipe to 2'						
	concrete						CONCRETE
	casing						
	bentonite						Gravel, Asphalt, and Foundry Sand (fill).
		1	22 10 23 40	20	3.0		Black, moist, FOUNDRY SAND with some gravel. (fill)
	screen						
		2	[illegible]	[illegible]	32.0		Black and Brown, moist, FOUNDRY SAND (fill).
	sand pack						
		3	[illegible] 10	24	5.0		
							Black and gray, moist to wet, SANDY CLAY.
							Brown, wet, fine grained SAND.
							End of Boring = 22.0'

Page ___ of ___

DRILLING LOG

Project CPC PONTIAC Boring No. SV-1

Location PONTIAC, MI Project Number 040009897

Date Drilled 3-14-90 Total Depth 22' Boring Diameter (inches) 8.0"

T.O.C Elevation N/A Initial Water Depth N/A Static/24 hr N/A

Screen Diameter (inches) 2.0" Length 20.0' Slot Size (inches) 0.020

Casing Diameter (inches) 2.0" Length 4.0' Type PVC

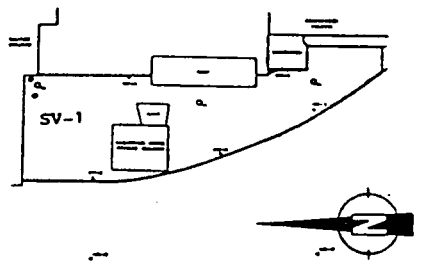
Drilling Company CTI DRILLING Driller(s)

Drilling Method HOLLOW STEM AUGERS Sampling Method SPLIT SPOON

Logged By TODD FOURNEY Sketched By TODD FOURNEY

All other measurements in feet

Sketch Map



Notes

Well Construction	Notes	Sample No.	Blow Count	Recovery (in.)	PID/FID (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
stand pipe to 2'							
concrete							ASPHALT
bentonite							
casing							Black, moist, SILTY CLAY.
		1		4.0	1.0		
screen							Black and gray, moist, SILT with some clay.
		2		10.0	1.0		
sand pack							Gray, moist, SILTY SAND.
		3		12.0	0.0		
		4		12.0	0.0		Gray, wet, CLAYEY SAND.
							End of boring = 22.0'

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

Project CPC PONTIAC

Boring No. SV-2 DRILLING LOG

Location PONTIAC, MI Project Number 040009897

Date Drilled 3-14-90 Total Depth 22' Boring Diameter (inches) 8.0"

T.O.C Elevation N/A Initial Water Depth N/A Static/24 hr N/A

Screen Diameter (inches) 2.0" Length 20.0' Slot Size (inches) 0.020

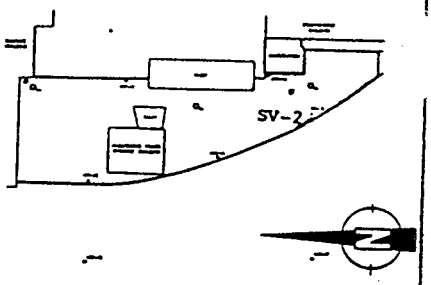
Casing Diameter (inches) 2.0" Length 4.0' Type PVC

Drilling Company CTI DRILLING Driller(s)

Drilling Method HOLLOW STEM AUGERS Sampling Method SPLIT SPOON

Logged By TODD FOURNEY Sketched By TODD FOURNEY

Sketch Map



Notes

All other measurements in feet

Well Construction	Notes	Sample No.	Blow Count	Recovery (in.)	PID/FID (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
stand pipe to 2'							
concrete							
bentonite							ASPHALT
casing							
							Boulders, wire, pieces of steel, etc. (fill)
		1		0.0			
							Black, moist, SILTY SANDY CLAY.
screen		2		10.0	2.0		
sand pack							
							Black, moist, SILTY SANDY CLAY.
		3		12.0	1.0		
		4		14.0	0.0		
							Black, wet, SILTY SANDY CLAY
							End of boring = 22.0'

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. MW-16

Sheet 1 of 1

Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	J.S. Poulsen
Rig Type:	CME 95
Method:	4.25-inch HSA
PROJECT NAME	General Motors - West Yard
PROJECT NUMBER	727249.00
Location:	
Weather	Partly cloudy, 26 deg F.
Date/Time Start	December 20, 1005. / 1515
Date/Time Finish	December 20, 1995. / 1545

423652.11 northing
13411700.55 easting
952.59 TOC elev.
950.05 GS elev.

GROUNDWATER OBSERVATIONS

Date	13-Feb-95		
From	TOC		
Depth	7.83		

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL		COMMENTS
							4-inch Steel Protective Casing
		0					
				HA			Cement/Bentonite Grout
		1		HA			
				HA			Bentonite Seal (1.5-2.5 ft.)
		2		HA			Fine Sand
				HA			
		3		HA			
				HA			
		4		HA	light brown sand and gravel FILL	(damp)	Sand Pack (3-10 ft.)
0			80	3			
		5		6			
				6			2-inch ID 0.010 Slot Stainless Steel Screen (3.5-8.5 ft.)
		6		7		6 ft.	
0			75	5			
		7		7	medium gray medium SAND	(wet)	
				8	little fines		
		8		9			
0			100	3			
		9		6	light gray medium SAND		
				8	trace gravel , fines		2-inch ID PVC Sump (8.5-10.5 ft.)
		10		9			
0			100	5			
		11		6			
					BORING TERMINATED AT 11 FEET.		
		12					
		13					
		14					
		15					
		16					
		17					

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Sample GMWYSBMW16(5-7') / 1545 TCL/TAL

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. DW-16

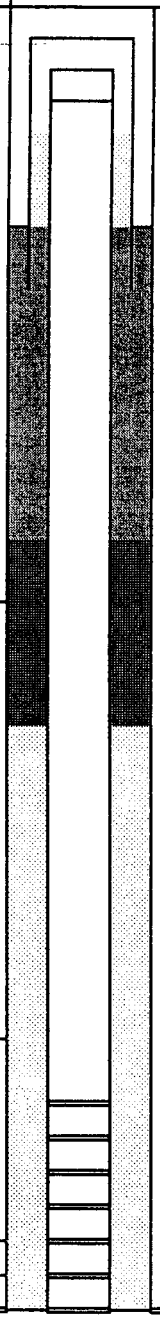
Sheet 1 of 2

Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	J.S. Poulsen
Rig Type:	CME 95
Method:	4.25-inch HSA
PROJECT NAME	General Motors - West Yard
PROJECT NUMBER	727249.00
Location:	
Weather	high overcast, calm, 38deg F
Date/Time Start	December 15, 1995 / 0800
Date/Time Finish	December 15, 1995 / 1200

423648.95 northing
13411701.05 easting
964.67 Toc Elev.
952.38 GS elev.

GROUNDWATER OBSERVATIONS			
Date	02/13/96		
Time	TOC		
Depth	7.72		

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL		COMMENTS
							4-inch ID Steel Protective Casing
		0					
				HA			
		1		HA			
				HA			
		2		HA			Cement/Bentonite Grout (0-5 ft.
				HA			
		3		HA			
				HA			
		4		HA	light brown sand and gravel FILL	(damp)	2-inch ID PVC Riser (+2.5-14 ft.)
0			80	3			
		5		6			
				6			
		6		7		6 ft.	BENTONITE SEAL (5-8 feet)
0			75	5			
		7		7	medium gray medium SAND	(wet)	
				8	little fines		
		8		9			
0			100	3			
		9		6	light gray medium SAND		
				8	trace gravel , fines		NATURAL SAND PACK (flowing sand) (8-19 ft)
		10		9			
0			100	5			
		11		6			
				8			
		12		10			
0			100	1			
		13		4		13 ft.	
				8			
		14		6			
0			100	4	light grey SILT	(wet)	2-INCH ID STAINLESS STEEL SCREEN 0.010 SLOT (14-19 FT.)
		15		5	trace fine sand		
				8			
		16		4		16 ft.	
0			100	4	coarse SAND/GRAVEL	16.5 ft.	
		17		12	red/grey CLAY, some silt, sand	17.0 ft.	



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Sample: GMWYSSDW(0-6") / 0830

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. DW-16

Sheet 2 of 2

Location:

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00

Weather high overcast, calm, 38deg F
Date/Time Start December 15, 1995 / 0800
Date/Time Finish December 15, 1995 / 1200

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
				14	gray fine SAND (wet)	
		18		8	little silt, trace 1/4" gravel 18 ft.	
0			100	3		
		19		4	light gray CLAY (damp)	NATURAL SAND PACK (flowing sand) (8-19 ft)
				11	some silt, little fine sand, firm	
		20		8	trace fine rounded gravel	
0			100	1		
		21		3		
				5		
		22		6		
					BORING TERMINATED AT 22 FEET.	
		23				
		24				
		25				
		26				
		27				
		28				
		29				
		30				
		31				
		32				
		33				
		34				
		35				
		36				
		37				

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. MW-17

Sheet 1 of 1

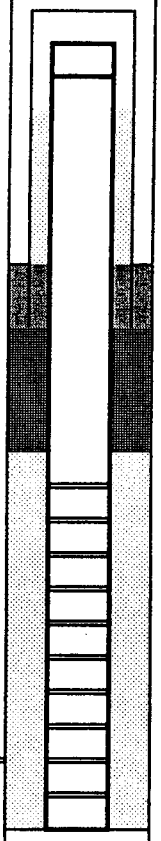
Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	J.S. Poulsen
Rig Type:	CME 95
Method:	4.25-inch HSA
PROJECT NAME	General Motors - West Yard
PROJECT NUMBER	727249.00
Location:	
Weather	Overcast, 36deg F. calm
Date/Time Start	December 12, 1995 / 1600
Date/Time Finish	December 20, 1995 / 1630

423308.58 northing
13411868.17 easting
948.55 TOC elev.
946.16 GS elev.

GROUNDWATER OBSERVATIONS

Date	02/13/96		
Time	TOC		
Depth	7.45		

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
		0				
0			100	HA		
		1		HA	FILL	
				HA	black fine/medium sand and cobbles	
		2		HA	tight packed	
0			100	HA		
		3		HA		
				HA		
		4		HA		
0			80	4		
		5		4	(wet)	
				4		
		6		6		
0			75	3		
		7		8		
				13		
		8			BORING TERMINATED AT 7.5 FEET/	
		9				
		10				
		11				
		12				
		13				
		14				
		15				
		16				



4" Steel Protective Casing

Cement/Bentonite Grout (0-1 ft.)

Bentonite Seal (1-3 ft.)

Sand Pack (3-8.5 ft.)

2-inch ID Stainless Steel Screen 0.010 Slot (3.5-8.5 ft.)

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Sample: GMWYSBMW17 (6-8') / 1620 TCL/TAL

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. DW-17

Sheet 1 of 1

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00
Location:

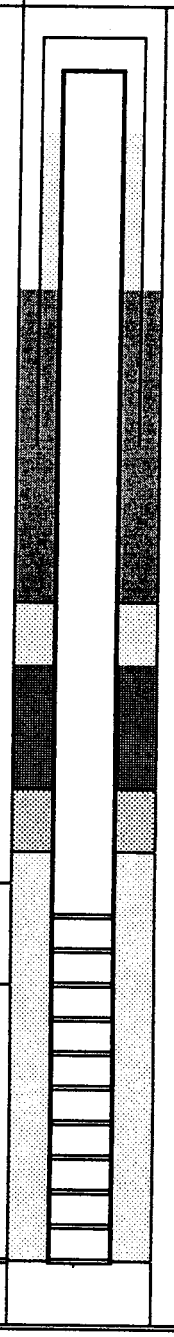
Weather overcast, mod winds, 30deg F.
Date/Time Start December 14, 1995. / 1400
Date/Time Finish December 14, 1995. / 1525

423312.16 northing
13411867.94 easting
948.64 TOC elev.
946.16 GS elev.

GROUNDWATER OBSERVATIONS

Date	02/13/96		
Time	TOC		
Depth	7.67		

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
		0			
0			100	HA	
		1		HA	FILL
				HA	black fine/medium sand and cobbles
		2		HA	tight packed
0			100	HA	
		3		HA	
				HA	
		4		HA	
0			80	4	
		5		4	(wet)
				4	
		6		6	
0			75	3	
		7		8	
				13	
		8		15	(moist)
0			80	6	
		9		4	
				3	9.5 ft.
		10		3	dark brown PEAT (moist)
0			100	1	fine white rootlets throughout
		11		1	11 ft.
				2	
		12		2	light pink/white MARL (wet)
0			100	1	very fine, pasty
		13		0	trace organic debris
				1	
		14		4	
0			100	3	
		15		2	
					BORING TERMINATED AT 15 FEET.
		16			



COMMENTS

4" Steel Protective Casing

2-inch ID PVC Riser (+2.5-10 ft.)

Cement/Bentonite Grout (0-5 ft.)

Fine Sand (5-6 ft.)

Bentonite Seal (6-8 ft.)

Fine Sand (8-9 ft.)

Sand Pack (9-15 ft.)

2-inch ID Stainless Steel Screen 0.010 Slot (10-15 ft.)

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. MW-18

Sheet 1 of 2

Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	J.S. Poulsen
Rig Type:	CME 95
Method:	4.25-inch HSA
PROJECT NAME	General Motors - West Yard
PROJECT NUMBER	727249.00
Location:	
Weather	Overcast, PPTN. 32deg F.
Date/Time Start	December 13, 1995. / 1535
Date/Time Finish	December 14, 1995. / 1310

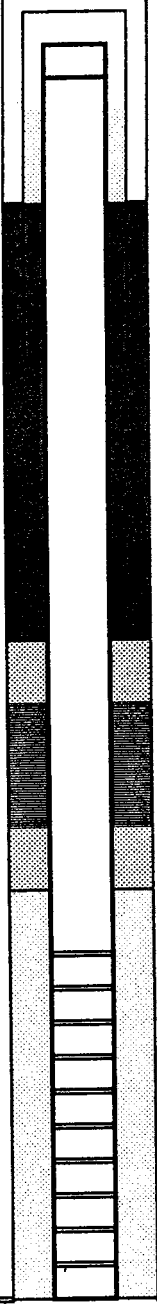
423276.8 northing
13412205.3 easting
957.78 TOC elev.
955.27 GS elev.

GROUNDWATER OBSERVATIONS

Date	02/13/96		
Time	TOC		
Depth	16.40		

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	
		0				
0				HA	0-9 inches reinforced (CONCRETE)	
		1		HA		
				HA	black medium sand FILL	(dry)
		2		HA	little fines	
0				HA		
		3		HA		
				HA		
		4		HA		
0			50	3	brown/black stained sand FILL	
		5		3		
		6		1		
0			60	1		
		7		2		
				2		
		8		2		
0			100	5	red/black stained sand FILL	(dry)
		9		7	powdery, no odor	
				8		
		10		10		
0			70	5		
		11		4		
				4		
		12		3		
0			75	2		
		13		2		
				1		
		14		1		
0			50	46	light yellow/brown medium sand FILL	
		15		11		(wet)
				5		
		16		8	black sand FILL	
0			100	6	little gray sand , some fines	
		17		5		

COMMENTS



4" Steel Protective Casing

Cement/ Bentonite Grout (0-7 feet)

2-inch ID PVC Riser (+2.5-12 ft.)

Fine Sand (7-8 ft.)

Bentonite Seal (8-10 ft.)

Fine Sand (10-11 ft.)

Sand Pack (11-17 ft.)

2-INCH ID Stainless Steel Screen 0.010 Slot (12-17 ft.)

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:
Samples ID: GMWYSSMW18, (0-6") /1630 : TLC/TAL
Samples ID: GMWYSBMW18, (16-18')/1300:TCL/TAL

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. MW-18

Sheet 2 of 2

Location:

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00

Weather Overcast, PPTN. 32deg F.
Date/Time Start December 13, 1995. / 1535
Date/Time Finish December 14, 1995./ 1310

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
				5		
		18		5	black sand FILL	
0			100	WOH	little gray sand , some fines	
		19		0	19 ft.	
				1	brown/black PEAT and gray CLAY	
		20		0		
					BORING TERMINATED AT 20 FEET	
		21				
		22				
		23				
		24				
		25				
		26				
		27				
		28				
		29				
		30				
		31				
		32				
		33				
		34				
		35				
		36				
		37				

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. DW-18

Sheet 1 of 2

Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	J.S. Poulsen
Rig Type:	CME 95
Method:	4.25-inch HSA
PROJECT NAME	General Motors - West Yard
PROJECT NUMBER	727249.00
Location:	
Weather	Overcast, PPTN, 32 deg F.
Date/Time Start	December 10 , 1995. / 1100
Date/Time Finish	December 20, 1995. / 1430

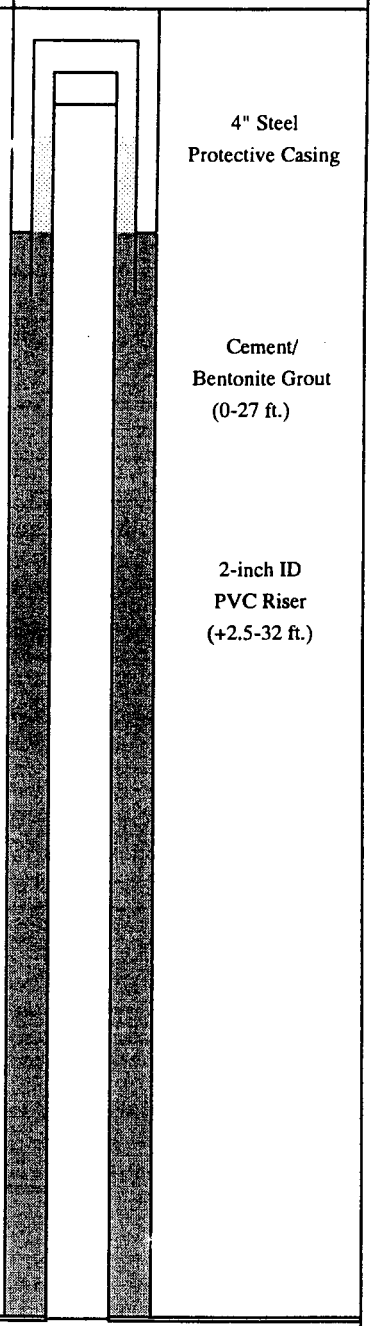
423276.32 northing
13412201.45 easting
957.69 TOC elev.
955.27 GS elev.

GROUNDWATER OBSERVATIONS

Date	02/13/96		
Time	TOC		
Depth	17.40		

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	
		0				
0				HA	0-9" Concrete	
		1		HA		
				HA		
		2		HA	black medium sand FILL	(dry)
0				HA	little fines	
		3		HA		
				HA		
		4		HA		
0			50	3	brown/black stained FILL	
		5		3		
				1		
		6		1		
0			60	1		
		7		2		
				2		
		8		2		
0			100	5	red/black stained sand FILL	(dry)
		9		7		
				8		
		10		10		
0			70	5		
		11		4		
				4		
		12		3		
0			75	2		
		13		2		
				1		
		14		1		
0			50	46	light yellow/brown medium sand FILL	
		15		11		
				5		(wet)
0		16		8	black sand FILL	
			100	6	little gray sand, some fines	
		17		5		

COMMENTS



STANDARD PENETRATION

SS = SPLIT SPOON

A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. DW-18

Sheet 2 of 2

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00
Location:

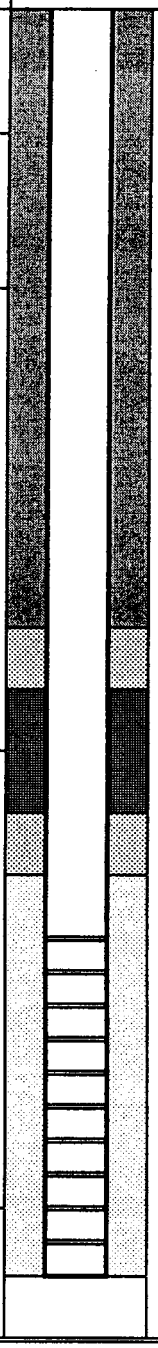
Weather Overcast, PPTN, 32 deg F.
Date/Time Start December 10 , 1995. / 1100
Date/Time Finish December 20, 1995. / 1430

423276.8 northing
13412205.3 easting
957.78 GS. elev.
955.27 TOC elev.

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL		COMMENTS
				5			
		18		5			
0			100	WOH	black sand FILL		Cement/Bentonite Grout (0-27 ft.)
		19		0	little gray sand, some fines	19 ft.	
				1			
		20		0	brown/black PEAT and gray CLAY		
0			100	3			
		21		3		(damp)	
				4		21.5 ft.	
		22		5			
0			100	2			
		23		2	light gray MARL	(damp)	
				2	some silt		
		24		2	rootlets,shell fragments, soft		
0			100	1			
		25		1			
				1			
		26		3			
0			100	1			
		27		1			
				1			Fine Sand (27-28 ft.)
		28		1			
0			100	1			
		29		0		29 ft.	Bentonite Seal (28-30 ft.)
				3			
		30		4			
0			100	3	pink/gray fine-medium SAND	(wet)	Fine Sand (30-31 ft.)
		31		4	little silt		
				5			
		32		6	silt grading out with depth		
0			100	3			Sand Pack (31-37 ft.)
		33		3			
				3			
		34		4	medium gray fine-medium SAND		
0			100	1	trace silt, 1" angular gravel		
		35		3	[flowing]		2-inch ID 0.010 slot Stainless Steel Screen (32-37 ft.)
				2			
		36		4		36 ft.	
0			100	3	light -medium gray CLAY		
		37		4	little silt, trace gravel	(damp)	
				6			
		38		7	BORING TERMINATED AT 38 FEET.		



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	J.S. Poulsen
Rig Type:	CME 95
Method:	4.25-inch HSA

BORING NO. MW-19

Sheet 1 of 2

PROJECT NAME General Motors - West Yard

PROJECT NUMBER 727249.00

Location:

Weather Clear, windy , 28 deg F.

Date/Time Start December 18, 1995. / 1140

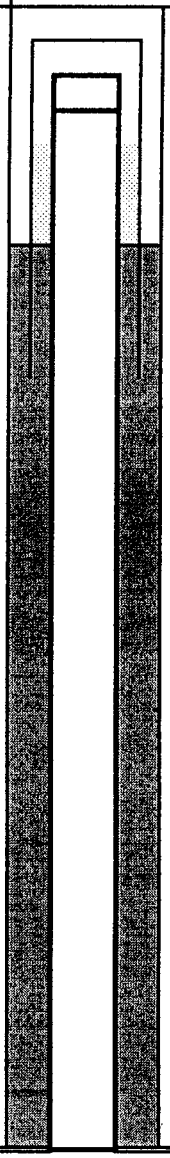
Date/Time Finish December 18, 1995./ 1400

423311.29 northing
13412318.49 easting
971.01 TOC elev.
968.42 GS elev.

GROUNDWATER OBSERVATIONS

Date	02/13/96		
Time	TOC		
Depth	28.31		

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	
		0				
		1		HA	dark brown/black stained fine-medium sand FILL	
				HA	little debris, cinders	(dry)
		2		HA	trace fines, gravel	
				HA		
		3		HA		
				HA		
		4		HA		
15			100	23		
		5		25		
				67		
		6		REF		
140			100	12	light brown medium sand FILL	(moist)
		7		25		
				18		
		8		12	black soft fine sand FILL	(dry)
15			100	2	trace ash	
		9		10	odor	
				15		
		10		9		
32			100	11		(damp)
		11		17		
				10		
		12		6		
13.5			75	1		
		13		2		
				2		



Cement/Bentonite Grout (0-19 ft.)

2-inch PVC Riser (0-19 ft.)

COMMENTS

STANDARD PENETRATION

SS = SPLIT SPOON

A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. MW-19

Sheet 2 of 2

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

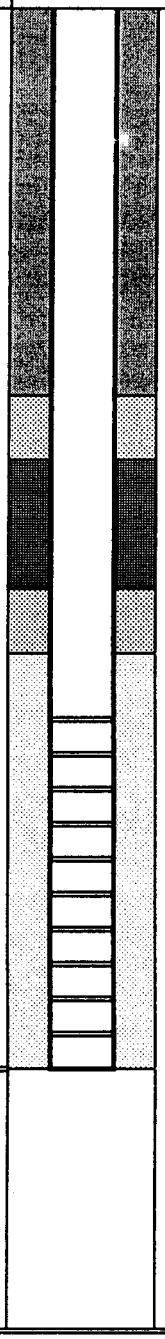
PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00
Location:

Weather Clear, windy , 28 deg F.
Date/Time Start December 18, 1995. / 1140
Date/Time Finish December 18, 1995./ 1400

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	
		14		7		
8			75	1		
		15		1		
				1	black soft fine sand FILL	
		16		2	trace ash	
1			100	2	odor	
		17		2		
				2		
		18		3		
0			100	2		
		19		3		
				5		
		20		4		
0			100	1		
		21		1		
				1		
		22		1		
0			100	2	black fine-medium sand FILL	(moist)
		23		3	trace fines, debris	
				2		
		24		2		
0			100	2		(wet)
		25		3		
				4		
		26		5		
0			100	5		
		27		4		
				3		
		28		3		
0			100	1		
		29		2		

COMMENTS



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. DW-19

Sheet 1 of 3

Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	J.S. Poulsen
Rig Type:	CME 95
Method:	4.25-inch HSA
PROJECT NAME	General Motors - West Yard
PROJECT NUMBER	727249.00
Location:	
Weather	high overcast, calm, 36deg F
Date/Time Start	December 15, 1996 . /1430
Date/Time Finish	December 15, 1995. / 1515

423310.57 northing
13412524.11 easting
970.77 TOC elev.
968.42 GS elev.

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL		COMMENTS
							Steel Protective Casing
		0					
		1		HA	dark brown/black stained fine-medium sand FILL		
				HA	little debris, cinders	(dry)	
		2		HA	trace fines, gravel		
				HA			
				HA			
		1		HA	dark brown/black stained fine-medium sand FILL		Cement/Bentonite Grout (0-29 ft.)
				HA	little debris, cinders	(dry)	
		2		HA	trace fines, gravel		
				HA			
		3		HA			
				HA			
		4		HA			
15			100	23			
		5		25			
				67			
		6		REF			
140			100	12	light brown medium sand FILL	(moist)	2-Inch ID PVC Riser (+2.5 - 34 ft.)
		7		25			
				18			
		8		12	black soft fine sand FILL	(dry)	
15			100	2	trace ash		
		9		10	odor		
				15			
		10		9			
32			100	11		(damp)	
		11		17			
				10			
		12		6			
13.5			75	1			
		13		2			
				2			

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: GMWYSBDW19 (36-38 ft.) / 1510 TCL/TAL

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	J.S. Poulsen
Rig Type:	CME 95
Method:	4.25-inch HSA

PROJECT NAME: General Motors - West Yard
PROJECT NUMBER: 727249.00

BORING NO. DW-19
Sheet 2 of 3
Location:

Weather: high overcast, calm, 36deg F
Date/Time Start: December 15, 1996 . /1430
Date/Time Finish: December 15, 1995. / 1515

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
		14		7		
8			75	1	black soft fine sand FILL	
		15		1	trace ash	
				1	odor (dry)	
		16		2		
1			100	2		
		17		2		
				2		
		18		3		Cement/Bentonite Grout (0-29 ft.)
0			100	2		
		19		3		
				5		
		20		4		
0			100	1		
		21		1		
				1		
		22		1		
0			100	2	black fine-medium sand FILL (moist)	
		23		3	trace fines, debris	
				2		2-Inch ID PVC Riser (+2.5 - 34 ft.)
		24		2		
0			100	2	(wet)	
		25		3		
				4		
		26		5		
0			100	5		
		27		4		
				3		
		28		3		
0			100	1		
		29		2		
				3	29.5 ft.	Fine Sand (29-30 ft.
		30		4		
0			100	1	gray organic SILT	Bentonite Seal (30-32 ft.)
		31		1	some clay, trace sand	
				3	firm, rootlets	
		32		7	32 ft.	
0			100	WOH		Fine Sand (32-33 ft.)
		33		WOH		

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. DW-19

Sheet 3 of 3

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00
Location:

Weather high overcast, calm, 36deg F
Date/Time Start December 15, 1996 . /1430
Date/Time Finish December 15, 1995. / 1515

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
				2		
		34		3	interbedded medium brown medium SAND and PEAT	
0			100	1	organic debris, trace fine gravel 34.5	Sand Pask
		35		0		(33-40 ft.)
				1	medium gray SILT and MARL	
		36		2	shell fragments, root debris (wet)	
0			100	WOH	trace fine sand, clay	
		37		1		2-inch ID
				1		Stainless Steel
		38		1		0.010 Slot Screen
0			100	1	38.5	(34-39 ft.)
		39		4	medium gray CLAY	
				4	some silt, trace fine gravel (moist)	
		40		7		
					BORING TERMINATED AT 40 FEET.	
		41				
		42				
		43				
		44				
		45				
		46				
		47				
		48				
		49				
		50				

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Sample: GMWYSBDW19(36-38 ') / 1510

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. MW-20

Sheet 1 of 2

Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	J.S. Poulsen
Rig Type:	CME 95
Method:	4.25-inch HSA
PROJECT NAME	General Motors - West Yard
PROJECT NUMBER	727249.00
Location:	
Weather	Overcast, mod.winds, 27deg F
Date/Time Start	December 20, 1995. / 1130
Date/Time Finish	December 20, 1995. / 1305

423472.58 northing
13412216.34 easting
971.20 TOC elev.
968.73 GS elev.

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL		COMMENTS
							4" Steel Protective Casing
		0					
0			50	8	gravel, brown/black medium sand FILL		
		1		6		(dry)	
				8			
		2		6			Cement/ Bentonite Grout (0-16 ft.)
0			100	4	mottled black/red sand FILL		
		3		8	trace gravel		
				9	slight odor		
		4		9			
15			75	2		(damp)	2-inch ID PVC Riser (+2.5-21 ft.)
		5		9			
				8			
		6		9	firmly packed fines FILL		
9			80	1	oily odor		
		7		2			
				2			
		8		2			
43			50	1	black silt, sand FILL	(moist)	
		9		2	little debris		
				2	odor		
		10		2			
0			10	4			
		11		5			
				4			
		12		4			
0			10	1			
		13		3			
				3			
		14		3			
0			25	3	medium black sand FILL	(moist)	
		15		3	little fines		
				3	odor		
		16		3	metal debris		
0			50	3			Fine Sand (16-17 ft.)
		17		3			

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Sample: GMWYSBMW20 (23-25") / 1305 TCL/TAL

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. MW-20

Sheet 2 of 2

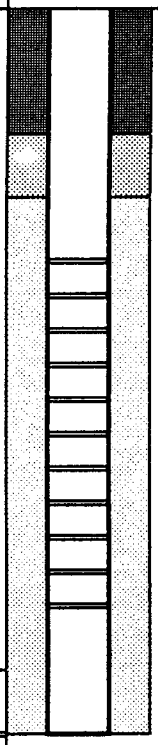
Location:

Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	J.S. Poulsen
Rig Type:	CME 95
Method:	4.25-inch HSA
PROJECT NAME	General Motors - West Yard
PROJECT NUMBER	727249.00
Weather	Overcast, mod.winds, 27deg F
Date/Time Start	December 20, 1995. / 1130
Date/Time Finish	December 20, 1995. / 1305

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
				4	
		18		7	medium black sand FILL (moist)
0			50	3	little fines
		19		2	odor
				2	metal debris
		20		4	
0			100	1	
"		21		2	
				2	
		22		2	
21			50	1	
		23		3	
				2	
		24		4	
2			100	5	
		25		4	(wet)
				4	
		26		5	
0			100	1	
		27		2	27 ft.
				4	
		28		6	tan/olive gray SILT and SAND
					BORING TERMINATED AT 28 FEET.
		29			
		30			
		31			
		32			
		33			
		34			
		35			
		36			
		37			



COMMENTS

Bentonite Seal
(15-17 ft.)
17-19

Fine Sand
(17-19 ft.)
19-20

2-inch ID
Stainless Steel
0.010 slot Screen
(21-26 ft.)

Sand Pack
(20-28 ft.)

2-inch ID PVC
Sump
(26-28 ft.)

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. DW-20

Sheet 1 of 3

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00
Location:

Weather Overcast, mod.winds, 27deg F
Date/Time Start December 18, 1995. / 4405
Date/Time Finish December 19, 1995. / 0835

423473.03 northing
1341212.83 easting
970.03 TOC
968.73 GS

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
						4" Steel Protective Casing
		0				
0			50	8	gravel, brown/black medium sand FILL	
		1		6	(dry)	
				8		
		2		6		Cement/ Bentonite Grout (0-32 feet)
0			100	4	mottled black/red sand FILL	
		3		8	trace gravel	
				9	slight odor	
		4		9		
15			75	2	(damp)	2-inch ID PVC Riser (+2.5-37 ft.)
		5		9		
				8		
		6		9	firmly packed fines FILL	
9			80	1	oily odor	
		7		2		
				2		
		8		2		
43			50	1	black silt, sand FILL (moist)	
		9		2	little debris	
				2	odor	
		10		2		
0			10	4		
		11		5		
				4		
		12		4		
0			10	1		
		13		3		
				3		
		14		3		
0			25	3	medium black sand FILL (moist)	
		15		3	little fines	
				3	odor	
		16		3	metal debris	
0			50	3		
		17		3		

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Sample: GMWYSSMW20 (0-6") / 1420 TCL/TAL

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. DW-20

Sheet 2 of 3

Location:

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00

Weather Overcast, mod.winds, 27deg F

Date/Time Start December 18, 1995. / 4405

Date/Time Finish December 19, 1995. / 0835

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
				4		
		18		7	medium black sand FILL (moist)	
0			50	3	little fines	
		19		2	odor	
				2	metal debris	
		20		4		
0			100	1		
		21		2		
				2		Cement/ Bentonite Grout (0-32 feet)
		22		2		
21			50	1		
		23		3		
				2		
		24		4		2-inch ID PVC Riser (+2.5-37 ft.)
2			100	5		
		25		4	(wet)	
				4		
		26		5		
0			100	1		
		27		2	27 ft.	
				4		
		28		6	tan/olive gray SILT and SAND	
0			80	4	grading into fine-medium sand (wet)	
		29		5	little fines	
				8	odor	
		30		7		
0			80	1		
		31		3	31 ft.	
				5		
		32		7	light gray SILT (wet)	
0			80	2	little fine sand	Fine Sand (32-33 ft.)
		33		5	trace sheen 33 ft.	
				4		
		34		5		Bentonite Seal (33-35 ft.)
0			100	3	medium gray fine-medium SAND	
		35		8	trace-little fines (wet)	Fine Sand (35-36 ft.)
				12	trace fine rounded gravel	
		36		18	soft	
0			100	1		
		37		2		
				2		

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

Contractor:	Carlo Environmental Tech.				**PARSONS ENGINEERING-SCIENCE DRILLING RECORD**	**BORING NO.**	DW-20
Driller:	Paul Libby						
Inspector:	J.S. Poulsen				PROJECT NAME General Motors - West Yard	Sheet 3 of 3	
Rig Type:	CME 95				PROJECT NUMBER 727249.00	Location:	
Method:	4.25-inch HSA						
GROUNDWATER	OBSERVATIONS				Weather Overcast, mod.winds, 27deg F		
Date					Date/Time Start December 18, 1995. / 4405		
Time							
Depth					Date/Time Finish December 19, 1995. / 0835		

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
		38				
				1	light-medium gray fine-medium SAND (wet)	Sand Pack
		39		1	cluen	(36-44 ft.)
				1		
		40		1		2-inch ID
				4		Stainless Steel
		41		4		Screen
				5	41.5 ft.	(37-42 ft.)
		42		7	medium gray CLAY, little silt (damp)	
					BORING TERMINATED AT 42 FEET.	
		43				2-inch ID
						PVC Sump
		44				(42-44 ft.)
		45				
		46				
		47				
		48				
		49				
		50				
		51				
		52				
		53				
		54				
		55				
		56				
		57				

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Sample: GMWYSBDW20(40-42')/0835 Appendix IX

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. DW-21

Sheet 1 of 2

Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	J.S. Poulsen
Rig Type:	CME 95
Method:	4.25-inch HSA
PROJECT NAME	General Motors - West Yard
PROJECT NUMBER	727249.00
Location:	
Weather	clear/windy 28deg F.
Date/Time Start	December 19, 1995 / 1200
Date/Time Finish	December 19, 1995 / 1330

424048.50 northing
13412634.77 easting
968.21 TOC elev.
966.02 GS elev.

GROUNDWATER OBSERVATIONS

Date	02/13/96		
Time	TOC		
Depth	19.86		

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
						4" Steel Protective Casing
		0				
0			50	2	silt, sand FILL	
		1		5	(dry)	
				8		
		2		7		Cement/ Bentonite Grout (0-26 feet)
0			75	4	silt/sand FILL	
		3		4	little clay,trace gravel (damp)	
				3		
		4		4	4 ft.	
0			100	1	olive/tan gray SILT (moist)	2-inch PVC Riser (+2.5-14 ft.)
		5		1	little fine sand	
				3	trace gravel	
		6		3		
0			80	1		
		7		1		
				1		
		8		2		
0			75	1		
		9		1		
				1	(wet)	Fine Sand (9-10ft.)
		10		1		
0			80	1		Bentonite Seal (10-12 ft.)
		11		1		
				1		
		12		3		
0			80	1		Fine Sand (12-13 ft.)
		13		1	13 ft.	
				2	medium gray CLAY (moist)	
		14		2	some silt	
0			0	2	trace fine sand	
		15		1		
				4		Sand Pack (13-22 ft.)
		16		11	16 ft.	
0			80	14	coarse SAND and GRAVEL	
		17		11	trace cobbles, sheen	

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: GMWYSSMW21(0-6")/1215 TCL/TAL
GMWYSBDW21 (18-20')/1257 TCL/TAL

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. DW-21

Sheet 2 of 2

Location:

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00

Weather clear/windy 28deg F.
Date/Time Start December 19, 1996. / 1200
Date/Time Finish December 19, 1996. / 1330

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
						2-Inch ID Stainless Steel Screen 0.010 Slot (14-19 ft.)
		18				
					coarse SAND and GRAVEL	
		19			19 ft.	
					medium gray CLAY (damp)	
		20			little silt	
					trace 1/4" rounded gravel	
		21				
		22				
					BORING TERMINATED AT 22 FEET	
		23				
		24				
		25				
		26				
		27				
		28				
		29				
		30				
		31				
		32				
		33				
		34				
		35				
		36				
		37				
		38				

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: ~~GMWYSBDW22 (32-34 ft) / 1445 Appendix IX~~

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. MW-22

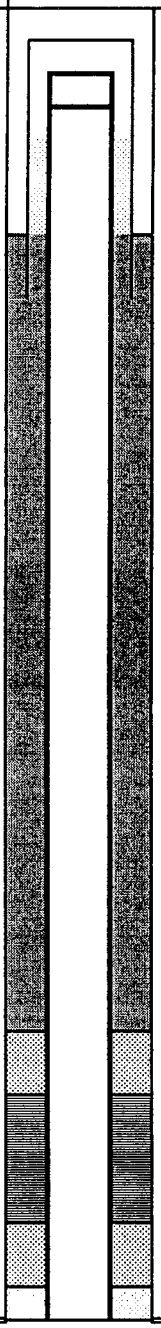
Sheet 1 of 2

Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	J.S. Poulsen
Rig Type:	CME 95
Method:	4.25-inch HSA
PROJECT NAME	General Motors - West Yard
PROJECT NUMBER	727249.00
Location:	
Weather	Overcast, 15deg F
Date/Time Start	December 12, 1996. / 1230
Date/Time Finish	December 12, 1996. / 1645

423666.59 northing
13412423.69 easting
970.37 TOC elev.
967.98 GS elev.

GROUNDWATER OBSERVATIONS			
Date	02/13/96		
	TOC		
Depth	24.40		

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	
		0				
				HA	black /orange/red medium sand FILL	(damp)
		1		HA		
				HA		
		2		HA		
				HA		
		3		HA		
				HA		
		4		HA		
35			100	17		
		5		15		
				7	firm gray silt FILL	(moist)
		6		4	little black staining,	
56			10	6	oily odor, sheen, sticky	
		7		6	little lime like material	
				8		
		8		6		
55			100	4		
		9		3		
				2	medium-light brown wood debris FILL	
		10		3	(saw dust)	
45			100	4	odor. trace sheen	
		11		5		
				2		
		12		3		
56			100	1		
		13		6		
				2		
		14		6		
43			75	5		
		15		1		
				5		
		16		9		
21			20	1	loose, black, sand and silt FILL	(wet)
		17		0	strong odor	



4" Steel Protective Casing

Cement/ Bentonite Grout (0-13 feet)

2-in PVC Riser (+2.5-19ft.)

Fine Sand (13-14 ft.)

Bentonite Seal (14-16 ft.)

Fine Sand (16-17 ft.)

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:
Sample: GMWYSSMW22 (0-6") / 1055
Sample: GMWYSBMW22 (16-18') /1305

Contractor:	Carlo Environmental Tech.				**PARSONS ENGINEERING-SCIENCE DRILLING RECORD**	**BORING NO.**	MW-22
Driller:	Paul Libby						
Inspector:	J.S. Poulsen				PROJECT NAME General Motors - West Yard	Sheet 2 of 2	
Rig Type:	CME 95				PROJECT NUMBER 727249.00	Location:	
Method:	4.25-inch HSA						
					Weather Overcast, 15deg F		
GROUNDWATER	OBSERVATIONS						
Date					Date/Time Start December 12, 1996. / 1230		
Time							
Depth					Date/Time Finish December 12, 1996. / 1645		

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
				2		
		18		3		Sand Pack
0			100	1	black stained sand and gravel FILL (wet)	(17-27 ft.)
		19		0	slight sheen, odor	
				1		
		20		0		
0			50	1	black stained medium-fine sand/silt FILL	
		21		3	trace sheen, odor	2-INCH ID
				3		Stainless Steel
		22		3		Screen
0			25	2		0.010 Slot
		23		4		(19-24 ft.)
				2		
		24		9		
0			25	7	light-medium gray FILL	
		25		11	silt/sand/gravel	2-inch ID
				15	debris	PVC Sump
		26		21	26 ft.	(24-26')
0			100	7		
		27		9	light gray medium SAND	
				12	little interbedded silt	
		28		15	trace coarse (1") angular gravel	
0			100	4	no odor	
		29		9		
				11		Bentonite Seal
		30		9		(27-38) ft.
0			100	1	light gray medium SAND (wet)	
		31		2		
				4		
		32		6		
0			100	4		
		33		10	33 ft.	
				14		
		34		16	light gray Silt and fine SAND	
0			100	4	firm	
		35		5	35 ft.	
				4		
		36		6	firm CLAY	
0			25	3	some silt	
		37		5	trace fine angular gravel (damp)	
				6		
		38		9		
					BORING TERMINATED AT 38 FEET.	

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: GMWYGWMW22 (20ft) / 1350 TCL VOC
GMWYGWMW22 (30ft.) / 1555 TCL VOC

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. DW-22

Sheet 1 of 2

Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	J.S. Poulsen
Rig Type:	CME 95
Method:	4.25-inch HSA
PROJECT NAME	General Motors - West Yard
PROJECT NUMBER	727249.00
Location:	
Weather	Clear,windy, 28deg F.
Date/Time Start	DECEMBER 19, 1996. / 1430
Date/Time Finish	DECEMBER 19, 1996. / 1530

423670.56 northing
13412423.04 easting
970.31 TOC elev.
967.98 GS elev.

GROUNDWATER OBSERVATIONS

Date	02/13/96		
Time	TOC		
Depth	24.40		

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL		COMMENTS
							4" Steel Protective Casing
		0					
				HA	black /orange/red medium sand FILL	(damp)	
		1		HA			
				HA			
		2		HA			Cement/ Bentonite Grout (0-26 feet)
				HA			
		3		HA			
				HA			
		4		HA			
35			100	17			
		5		15			
				7	firm gray silt FILL	(moist)	
		6		4	little black staining,		
56			10	6	oily odor, sheen, sticky		2-inch ID PVC Riser (+2.5-31 ft.)
		7		6	little lime like material		
				8			
		8		6			
55			100	4			
		9		3			
				2	medium-light brown wood debris FILL		
		10		3	(saw dust)		
45			100	4	odor. trace sheen		
		11		5			
				2			
		12		3			
56			100	1			
		13		6			
				2			
		14		6			
43			75	5			
		15		1			
				5			
		16		9			
21			20	1	loose, black, sand and silt FILL	(wet)	
		17		0	strong odor		

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

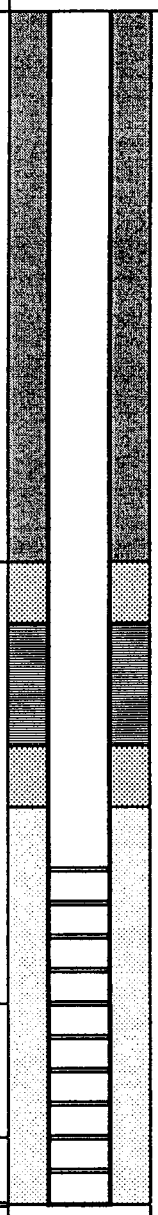
BORING NO. DW-22

Sheet 2 of 2

Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	J.S. Poulsen
Rig Type:	CME 95
Method:	4.25-inch HSA
PROJECT NAME	General Motors - West Yard
PROJECT NUMBER	727249.00
Location:	
Weather	Clear,windy, 28deg F.
Date/Time Start	DECEMBER 19, 1996. / 1430
Date/Time Finish	DECEMBER 19, 1996. / 1530

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	
				2		
		18		3		
0			100	1	black stained sand and gravel FILL	(wet)
		19		0	slight sheen, odor	
				1		
		20		0		
0			50	1	black stained medium-fine sand/silt FILL	
		21		3	trace sheen, odor	
				3		
		22		3		
0			25	2		
		23		4		
				2		
		24		9		
0			25	7	light-medium gray FILL	
		25		11	silt/sand/gravel	
				15	debris	
		26		21		26 ft.
0			100	7		
		27		9	light gray medium SAND	
				12	little interbedded silt	
		28		15	trace coarse (1") angular gravel	
0			100	4	no odor	
		29		9		
				11		
		30		9		
0			100	1	light gray medium SAND	(wet)
		31		2		
				4		
		32		6		
0			100	4		
		33		10		33 ft.
				14		
		34		16	light gray SILT and fine SAND	(wet)
0			100	4	firm	
		35		5		35 ft.
				4	firm CLAY	
		36		6	some silt, trace fine angular gravel	(damp)
					BORING TERMINATED AT 36 FEET.	
		37				
		38				



COMMENTS

Cement/ Bentonite Grout (0-26 feet)

Fine Sand (26-27 ft.)

Bentonite Seal (27-29 ft.)

Fine Sand (29-30 ft.)

Sand Pack (30-36 ft.)

2-Inch ID Stainless Steel Screen 0.010 Slot (31-36 ft.)

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: GMWYSBDW22 (32-34 ft) / 1445 Appendix IX

Contractor: Paul Libby
Driller: Paul Libby
Inspector: B. Reeser
Rig Type: CME–95, 4.25" HSA

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

PROJECT NAME: GENERAL MOTORS – WEST YARD
PROJECT NO. 730627.01000

BORING/ WELL NO. MW23 **Sheet** 1 **of** 1
Location Description: GMWY

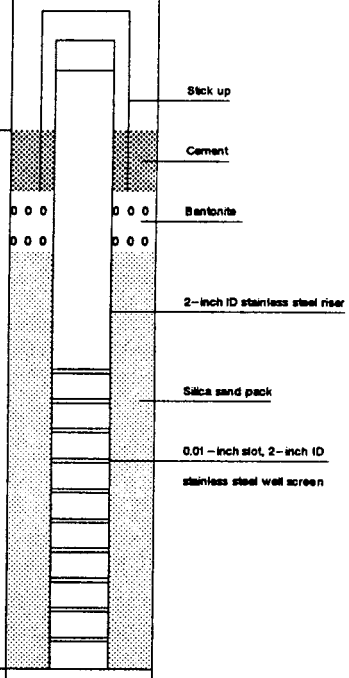
Weather: Cloudy, 60 degrees F.
Date/Time Start: September 23, 1996
Date/Time Finish: September 23, 1996

Location Plan

GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

Sample Depth	Sample I.D.	SPT	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL
+2					
+1					
0		A			
		A		NA	0–9" Concrete
1		A		NA	
		A		NA	9"–3.5 feet, sand Fill, fine to coarse, tan
2		A		NA	
		A		NA	
3		A		NA	
		A		NA	
4		A		NA	3.5'–4 feet, sand Fill, fine, black
		15	100	NA	
5		12		NA	same as above, wet at 5.5 feet
		14		NA	
6		11		NA	5.8'– 6 feet, glass–like waste
		A		NA	
7		A		NA	
		A		NA	
8		A		NA	
		A		NA	
9		A		NA	
					Boring terminated at 9 feet

SCHEMATIC



COMMENTS

COMMENTS:

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
C = CORED

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. GT-1

Sheet 1 of 5

Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	B.E. Reeser
Rig Type:	CME 95
Method:	4.25-inch HSA
PROJECT NAME	General Motors - West Yard
PROJECT NUMBER	727249.00
Location:	
Weather	Cloudy, 36deg F.
Date/Time Start	December 5, 1995. / 0850
Date/Time Finish	December 7, 1995. / 0947

423884.12 northing
13411694.26 easting
954.20 GS elev.

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
		1			fine/medium sand FILL	
					(moist)	
		2				
		3				
		4				
			0			
		5				
		6			6 ft..	
4			50	1	CLAY, some silt, trace brown peat	
		7		2		
				5		
		8		8	8 ft.	
7			60	1		Boring grouted
		9		2	mottled tan/gray SILT	to the surface
				4		
		10		4		
13			95	3	10.5 ft.	
		11		3		
				3	mottled gray/tan CLAY	
		12		5	some silt, trace fines gray sand	
6			80	2	trace silt	
		13		5		
				6		
		14		6	14 ft.	
7			100	6		
		15		6	gray fine-coarse SAND (wet)	
				6	trace fine gravel	
		16		6	trace silt	
3			100	1		
		17		4		
				7		
		18		10		
4			100	1		
		19		3		
				8		
		20		6		
7			95	2		

STANDARD PENETRATION

SS = SPLIT SPOON

A = AUGER CUTTINGS

SUMMARY:

Contractor:	Carlo Environmental Tech.		**PARSONS ENGINEERING-SCIENCE DRILLING RECORD**			**BORING NO.**	GT-1
Driller:	Paul Libby						
Inspector:	B.E. Reeser		PROJECT NAME	General Motors - West Yard		Sheet 2 of 5	
Rig Type:	CME 95		PROJECT NUMBER	727249.00		Location:	
Method:	4.25-inch HSA						
			Weather	Cloudy, 36deg F.			
GROUNDWATER	OBSERVATIONS						
Date			Date/Time Start	December 5, 1995. / 0850			
Time							
Depth			Date/Time Finish	December 7, 1995. / 0947			

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
				4		
		22		5	grey fine-coarse SAND (wet)	
3			100	1	trace silt	
		23		2		
				4		
		24		7		
5			100	2	grey fine-soarse SAND	
		25		3	trace silt and fine gravel	
				4		
		26		5	26 ft.	
9			100	1	gray CLAY	
		27		2	some fine-medium sand (moist)	
				3	little silt	
		28		5	trace fine gravel	
			100			
		29			Shelby Tube ID: GMWYSBGT01, 28-30 ft./	
						Boring grouted to the surface
		30				
8			100	4		
		31		5		
				6		
		32		6		
11			80	4		
		33		6		
				6	tan CLAY	
		34		8	some fine-medium sand	
14			100	4	little olive silt	
		35		6	trace fine rounded gravel	
				6		
		36		8		
10			100	4		
		37		6		
				6		
		38		8		
9			80	3		
		39		4		
				6		
		40		7		
8			100	4		
		41		7		
				8		

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Shelby Tube ID: GMWYSBGT01, 28-30 ft./

PARSONS ENGINEERING-SCIENCE DRILLING RECORD

Contractor:	Carlo Environmental Tech.	BORING NO.	GT-1
Driller:	Paul Libby		
Inspector:	B.E. Reeser	PROJECT NAME: General Motors - West Yard	Sheet 3 of 5
Rig Type:	CME 95	PROJECT NUMBER: 727249.00	Location:
Method:	4.25-inch HSA		

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Weather: Cloudy, 36deg F.

Date/Time Start: December 5, 1995. / 0850

Date/Time Finish: December 7, 1995. / 0947

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
		42		10	tan CLAY	
8			100	2	some fine-medium sand (moist)	
		43		4	little olive silt	
				5	trace fine rounded gravel	
		44		7		
12			100	3		
		45		4		
				6		
		46		6		
11			100	3		
		47		3		
				5		
		48		7		
11			100	2		
		49		7		
				10		
		50		12		Boring grouted to the surface
0			80	7	gray CLAY	
		51		7	some fine-coarse sand	
				7	trace fine rounded gravel	
		52		12		
0			50	1		
		53		1		
				4		
		54		5	54 ft.	
0			50	7		
		55		7	gray fine-coarse SAND	
				7	trace silt	
		56		7		
0			50	1		
		57		7	some silt	
				10		
		58		13	little clay	
0			50	1		
		59		1		
				7		
		60		10		
0			50	1		
		61		8	61 ft.	
				7		

STANDARD PENETRATION

SS = SPLIT SPOON

A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. GT-1

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: B.E. Reeser
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME: General Motors - West Yard
PROJECT NUMBER: 727249.00

Sheet 4 of 5
Location:

Weather: Cloudy, 36deg F.
Date/Time Start: December 5, 1995. / 0850
Date/Time Finish: December 7, 1995. / 0947

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
				7		
		62		3	gray CLAY (wet)	
			0	5	some fine-coarse sand	
		63		5	some silt	
				5		
		64		5		
0			50	1		
		65		4	65 ft.	
				8	gray fine-coarse SAND	
		66		9	66 ft.	
0			50	2	gray CLAY, some fine-coarse sand, some silt	
		67		7	67 ft.	
				5		
		68		4	gray fine-coarse SAND (wet)	
0			50	1	trace fine-medium coarse rounded gravel	
		69		9		
				9		Boring grouted to the surface
		70		11		
0			50	4		
		71		7		
				10		
		72		2		
0			100	7		
		73		10		
				42		
		74		48		
0			100	20		
		75		24		
				29	some bedded clay	
		76		56		
2			100	7		
		77		89		
				103		
		78		75	gray fine-medium SAND	
1			100	26	some silt	
		79		42	trace gravel	
				44		
		80		50		
2			100	27		
		81		25		
				26		

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. GT-1

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: B.E. Reeser
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME: General Motors - West Yard
PROJECT NUMBER: 727249.00

Sheet 5 of 5
Location:

Weather: Cloudy, 36deg F.
Date/Time Start: December 5, 1995. / 0850
Date/Time Finish: December 7, 1995. / 0947

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
		82		35	gray fine-medium SAND	
1			100	9	some silt (wet)	
		83		15	trace gravel	
				27		
		84		35		
2			100	24	(moist)	
		85		70		Boring grouted to the surface
				103		
		86		166		
2			100	40		
		87		70		
				130		
		88		135		
1			80	45		
		89		90		
				275	89.5 ft.	
		90		125		
1			80	10	gray	
		91		20	1 ft. thick interbedded CLAY and fine-coarse SAND	
				80	some silt	
		92		350		
0			100	12		
		93		40		
				29		
		94		32		
2			100	25		
		95		33		
				50	95.5 ft.	
		96		86		
2			100	17	gray CLAY	
		97		35	some silt	
				48	little fine-coarse sand	
		98		80		
3			100	20		
		99		40		
				63		
		100		70		
					Boring terminated at 100 feet.	
		101				

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. GT-2

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00

Sheet 1 of 5
Location:

Weather Clear, windy, 30deg. F
Date/Time Start November 28, 1995. / 1430
Date/Time Finish December 1, 1995. / 1500

423303.40 northing
13411873.87 easting
946.16 GS elev.

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
0			100	HA		
		1		HA	FILL	
				HA	black fine/medium sand and cobbles	
		2		HA	tight packed	
0			100	HA		
		3		HA		
				HA		
		4		HA		
0			80	4		
		5		4	(wet)	
				4		
		6		6		
0			75	3		
		7		8		
				13		
		8		15	(moist)	
0			80	6		Boring grouted to the surface
		9		4		
				3	9.5 ft.	
		10		3	dark brown PEAT (moist)	
0			100	1	fine white rootlets throughout	
		11		1	11 ft.	
				2		
		12		2	light pink/white MARL (wet)	
0			100	1	very fine, pasty	
		13		0	trace organic debris	
				1		
		14		0		
0			80	1		
		15		1		
				1	15.5 ft.	
		16		1		
0			80	3	light/medium gray CLAY (moist)	
		17		6	little silt, trace fine gravel	
				7		
		18		9		
0			100	4		
		19		4		
				8		
		20		11		
0			100	ST	SHELBY TUBE: GMWYGT02, 20-22 ft.,11-28-95/1545hrs	

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: SHELBY TUBE: GMWYGT02, 20-22 ft.,11-28-95/1545hrs

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. GT-2

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00

Sheet 2 of 5
Location:

Weather Clear, windy, 30deg. F
Date/Time Start November 28, 1995. / 1430
Date/Time Finish December 1, 1995. / 1500

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
				ST	21.5 ft.	
		22		ST		
0			100	2	light brown fine/medium SAND (wet)	
		23		2	trace very fine gravel	
				3	[flowing sand]	
		24		4		
0			100	2		
		25		2		
				2		
		26		2	light gray/brown mottled fine SAND	
0			100	1	trace very fine sand	
		27		3		
				4		
		28		6		
0			100	8		
		29		5		
				5		Boring grouted
		30		8	light brown SAND	to the surface
0			100	2	little 1/4" gravel, some-little clay	
		31		4		
				8	light gray SILT and fine/medium SAND	
		32		11	trace clay, gravel	
0			100	5		
		33		9	light gray SAND, little silt, gravel(rounded)	
				7		
		34		9		
0			100	5	reddish/gray medium SAND (moist)	
		35		7	trace silt, clay, gravel	
				8		
		36		9	36 ft.	
0			100	4	light/medium gray CLAY (wet)	
		37		6	little fine sand, trace 1/8" gravel	
				7	stiff	
		38		9		
0			70	ST	SHELBY TUBE: GMWYGT02, 38-40 ft.,11-29-95/1000hrs.	
		39		ST		
				ST		
		40		ST		
0			100	6	light/medium gray CLAY	
		41		8	little fine sand, trace 1/4" rounded gravel	
				8		

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: SHELBY TUBE: GMWYGT02, 38-40 ft.,11-29-95/1000hrs.

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. GT-2

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME: General Motors - West Yard
PROJECT NUMBER: 727249.00

Sheet 3 of 5
Location:

Weather: Clear, windy, 30deg. F
Date/Time Start: November 28, 1995. / 1430
Date/Time Finish: December 1, 1995. / 1500

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
		42		9		
0			100	4	light/medium gray CLAY	
		43		5	little fine sand, trace 1/4" rounded gravel	
				6		
		44		6	44 ft.	
0			100	1	medium gray SILT (moist)	
		45		3	some wet sand in 1" thick lenses	
				3	trace fine gravel	
		46		4		
0			100	1	medium gray SILT	
		47		3	little-some clay, trace fine gravel	
				4	trace sand, soft	
		48		5		
0			100	3		
		49		3		
				5		Boring grouted
		50		5	50 ft.	to the surface
0			100	3	medium gray CLAY	
		51		3	some silt (damp)	
				3	trace sand and fine gravel	
		52		3	firm	
0			100	WOH		
		53		3		
				5		
		54		5	increasing clay with depth	
0			100	1		
		55		2		
				4		
		56		5		
0			100	3		
		57		5		
				8		
		58		11		
0			100	2		
		59		3		
				5		
		60		6		
0			100	2	medium gray CLAY	
		61		2	little silt, trace sand and fine gravel	
				3	loose	

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. GT-2

Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	J.S. Poulsen
Rig Type:	CME 95
Method:	4.25-inch HSA
PROJECT NAME	General Motors - West Yard
PROJECT NUMBER	727249.00
Sheet	4 of 5
Location:	
Weather	Clear, windy, 30deg. F
Date/Time Start	November 28, 1995. / 1430
Date/Time Finish	December 1, 1995. / 1500

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
		62			medium gray CLAY	
0			100	2	little silt, trace sand and fine gravel	
		63		5	loose	
				7		
		64		9		
0			100	ST	SHELBY TUBE: GMWYGT02, 64-66 ft.,11-29-95/1510hrs.	
		65		ST		
				ST		
		66		ST		
0			100	3		
		67		4		
				6		
		68		8		
0			100	3	medium gray CLAY	
		69		4	some silt, trace fine sand and gravel	
				5	grading down into a clayey silt	Boring grouted
		70		6	loose	to the surface
0			100	3	70.5 ft.	
		71		3	fine/medium SAND and fine GRAVEL (1/4" rounded)	
				4	some silt (wet)	
		72		5	[flowing]	
0			100	4		
		73		5		
				5	coarse SAND and GRAVEL	
		74		7	semi-angular (1")	
0			80	4	trace silt, fine sand	
		75		7	75 ft.	
				11		
		76		35	medium/dark gray SILT (damp)	
0			100	24	little-some 1/4'-1/2" semi-angular gravel	
		77		38	hard parked, friable	
				36		
		78		42		
0			100	19		
		79		37		
				38		
		80		46		
0			100	6		
		81		23		
				41		

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: SHELBY TUBE: GMWYGT02, 64-66 ft.,11-29-95/1510hrs.

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. GT-2

Sheet 5 of 5

Location:

Contractor: Carlo Environmental Tech.

Driller: Paul Libby

Inspector: J.S. Poulsen

Rig Type: CME 95

Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard

PROJECT NUMBER 727249.00

Weather Clear, windy, 30deg. F

Date/Time Start November 28, 1995. / 1430

Date/Time Finish December 1, 1995. / 1500

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
		82		64		
0			100	3	medium/dark gray SILT (damp)	
		83		35	little-some 1/4'1/2" semi-angular gravel	
				61	hard packed, friable	
		84		113		
0			100	34	84.5 ft.	
		85		35		Boring grouted to the surface
				55	light gray/brown medium SAND [flowing] (wet)	
		86		69	trace 1/2" gravel, silt 86 ft.	
0			50	10		
		87		50	hard packed SILT (damp)	
				100/.2	little medium gravel (sub-angular)	
		88		REF.	(trace rock chips)	
				REF		
		89		REF	auger refusal @89 ft. 89 ft	
					Boring terminated and 89 feet	
		90				

STANDARD PENETRATION

SS = SPLIT SPOON

A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. GT-3

Sheet 1 of 5

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00
Location:

Weather Clear to Overcast, snow, 35 deg. F
Date/Time Start December 4, 1995. / 1016
Date/Time Finish December 5, 1995. / 1530

423316.09 northing
13412493.63 easting
967.81 GS elev.

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
				HA		
		1		HA	dark brown/black stained fine-medium sand FILL	
				HA	little debris, cinders (dry)	
		2		HA	trace fines, gravel	
				HA		
		3		HA		
				HA		
		4		HA		
15			100	23		
		5		25		
				67		
		6		REF		
140			100	12	light brown medium sand FILL (moist)	
		7		25		
				18		
		8		12	black soft fine sand FILL (dry)	
15			100	2	trace ash	Boring grouted
		9		10	odor	to the surface
				15		
		10		9		
32			100	11	(damp)	
		11		17		
				10		
		12		6		
13.5			75	1		
		13		2		
				2		
		14		7		
8			75	1		
		15		1		
				1		
		16		2	black soft fine sand FILL	
1			100	2	trace ash	
		17		2	odor	
				2		
		18		3		
0			100	2		
		19		3		
				5		
		20		4		
0			100	1		

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. GT-3

Sheet 2 of 5

Location:

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00

Weather Clear to Overcast, snow, 35 deg. F
Date/Time Start December 4, 1995. / 1016
Date/Time Finish December 5, 1995. / 1530

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
		21		1		
				1		
		22		1		
0			100	2	black fine-medium sand FILL (moist)	
		23		3	trace fines, debris	
				2		
		24		2		
0			100	2	(wet)	
		25		3		
				4		
		26		7		
0			100	2		
		27		3		
				3		
		28		3		
0			100	1		Boring grouted to the surface
		29		2		
				3	29.5 ft	
		30		4		
0			100	1	gray organic SILT (moist)	
		31		1	some clay, trace sand	
				3	firm, rootlets	
		32		7	32 ft.	
0			100	WOH		
		33		WOH	interlayered medium brown medium SAND and PEAT	
				2	organic debris, trace fine gravel	
		34		3		
0			100	1	34.5 ft.	
		35		0		
				1	medium gray silt MARL (wet)	
		36		2	shell fragments, root debris	
0			100	1	trace fine sand, clay	
		37		1		
				1		
		38		1		
0			75	3	38.5 ft.	
		39		2		
				4	pink /gray CLAY (moist)	
		40		5	some silt, trace 1/8" rounded gravel	
				ST		

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. GT-3

Sheet 3 of 5

Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	J.S. Poulsen
Rig Type:	CME 95
Method:	4.25-inch HSA
PROJECT NAME	General Motors - West Yard
PROJECT NUMBER	727249.00
Location:	
Weather	Clear to Overcast, snow, 35 deg. F
Date/Time Start	December 4, 1995. / 1016
Date/Time Finish	December 5, 1995. / 1530

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL		COMMENTS
				ST			
		41		ST	Shelby Tube ID: GMWYGT03, 40-42 ft./1405 hrs		
				ST			
		42		ST			
0			100	4	pink /gray CLAY		
		43		7	some silt, trace 1/8" rounded gravel	43 ft.	
				9			
		44		12	gray medium SAND and GRAVEL [flowing]	(wet)	
0			100	1	little silt		
		45		1			
				2			
		46		3	interbedded olive fine SAND and SILT		
0			50	1	trace fine gravel		
		47		1			
				1			
		48		3			
0			100	2			Boring grouted to the surface
		49		4			
				4	gray coarse SAND and GRAVEL		
		50		3	little silt		
0			100	2			
		51		3			
				3		51.5 ft.	
		52		3			
0			100	WOH	light/medium gray SILT	(moist)	
		53		WOH	little fine sand		
				4	trace fine gravel, soft		
		54		4		54 ft.	
0			100	3			
		55		3	medium gray CLAY	(damp)	
				4	little silt, trace 1/4" gravel, firm		
		56		4			
0			100	ST	Shelby Tube ID: GMWYGT03, 56-58ft. /1630hrs		
		57		ST			
				ST			
		58		ST			
0			100	2			
		59		7			
				9			
		60		7			
0			75	3			

STANDARD PENETRATION

SS = SPLIT SPOON

A = AUGER CUTTINGS

SUMMARY:

Shelby Tube ID: GMWYGT03, 40-42 ft./1405 hrs

Shelby Tube ID: GMWYGT03, 56-58ft. /1630hrs

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. GT-3

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME: General Motors - West Yard
PROJECT NUMBER: 727249.00

Sheet 4 of 5
Location:

Weather: Clear to Overcast, snow, 35 deg. F
Date/Time Start: December 4, 1995. / 1016
Date/Time Finish: December 5, 1995. / 1530

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL		COMMENTS
		61		4	medium gray CLAY	(damp)	
				4	little silt		
		62		4	trace 1/9" gravel, sand		
0			100	5	firm		
		63		9			
				10			
		64		11			
0			100	3			
		65		4			
				4			
		66		6			
0			100	5			
		67		8			
				12			
		68		13		68 ft.	
0			100	5	medium gray SILT		Boring grouted
		69		8	some medium sand and 1/4-1/2" gravel	(moist)	to the surface
				9	trace fines		
		70		11		70 ft.	
0			100	3			
		71		4	gray medium SAND and coarse (1/4-1") GRAVEL		
				6	[flowing]	(wet)	
		72		4			
0			100	5			
		73		5		73 ft.	
				7	medium/dark gray SILT		
		74		8	little semiangular gravel, sand	74 ft.	
0			100	3			
		75		6	medium gray CLAY		
				7	some silt, little fine/medium sand		
		76		9	trace 1/4" gravel		
0			100	4	firm		
		77		6			
				8			
		78		9			
0			100	ST	Shelby Tube ID: GMWYGT03, 78-80 ft. / 1035hrs.		
		79		ST			
				ST			
		80		ST			
0			100	11			

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Shelby Tube ID: GMWYGT03, 78-80 ft. / 1035

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. GT-3

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME: General Motors - West Yard
PROJECT NUMBER: 727249.00

Sheet 5 of 5
Location:

Weather: Clear to Overcast, snow, 35 deg. F
Date/Time Start: December 4, 1995. / 1016
Date/Time Finish: December 5, 1995. / 1530

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
		81		13	medium gray CLAY	
				16	some silt, little fine/medium sand (moist)	
		82		16	trace 1/4" rounded gravel	
0			100	8	firm	
		83		10		
				13		
		84		15		Boring grouted
0			100	3		to the surface
		85		4		
				7		
		86		8		
0			100	2		
		87		6		
				6		
		88		8		
0			100	3		
		89		4	89 ft.	
				4		
		90		5	gray medium/coarse SAND (wet)	
0			100	6	little 1/4" -1/2" rounded gravel	
		91		3	trace silt	
				9	[flowing]	
		92		11		
0			100	11		
		93		12		
				6		
		94		7		
0			100	3		
		95		3		
				3		
		96		3		
0			100	4		
		97		7		
				9		
		98		10		
0			80	71		
		99		90	99 ft.	
				154	hard packed SILT, SAND, GRAVEL	
		100		180/3"	friable (damp)	
					Boring Terminated at 100 feet.	

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. GT-4

Sheet 1 of 5

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00
Location:

Weather Clear, Windy, 30deg. F.
Date/Time Start December 4, 1995. / 1100
Date/Time Finish December 8, 1995./ 1210

423927.80 northing
134122.32.07 easting
963.03 GS elev.

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL		COMMENTS
				HA			
		1		HA	CONCRETE	(dry)	
				HA	fine-coarse SAND		
		2		HA	trace fine-coarse gravel		
				HA	brick		
		3		HA			10" ID Steel
				HA	oily		casing set to 25'
		4		HA			
110			95	9	fine black sand FILL	(moist)	
		5		21	trace fine gravel		
				42			
		6		22			
316			90	9			
		7		11			
				9			
		8		16			
226			5	5			Boring grouted
		9		6			to the surface
				2			
		10		2			
39			5	1	tan clay FILL		
		11		1		(damp)	
				1	sand FILL		
		12		1	debris		
82			10	1	oily	(wet)	
		13		1			
				2			
		14		5			
43			50	1			
		15		1		(moist)	
				3			
		16		3			
39			20	1			
		17		3		17 ft.	
				3	dark brown PEAT, SILT, CLAY	17.5 ft.	
		18		3	olive green/gray CLAY		
11			50	1	trace silt, fine sand	(moist)	
		19		1			
				1			
		20		2			
13			95	1			

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. GT-4

Sheet 2 of 5

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00
Location:

Weather Clear, Windy, 30deg. F.
Date/Time Start December 4, 1995. / 1100
Date/Time Finish December 8, 1995./ 1210

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
				6		
		22		9		
-			1	ST	Shelby Tube ID:GMWYSBGT04, 22-24 ft.	
		23		ST		
				ST		
		24		ST		
8			95	-	olive green/gray CLAY (moist)	
		25		-	trace silt, fine sand, gravel	
				-		
		26		-		
8			100	3		
		27		6		
				10		
		28		13		
6			90	3		
		29		5		
				11		Boring grouted to the surface
		30		12		
5			90	4		
		31		7		
				9		
		32		13		
0			100	3	red-gray CLAY (damp)	
		33		6	little silt	
				8	trace 1/4" rounded gravel	
		34		10	stiff	
0			100	3		
		35		6	35 ft.	
				3		
		36		4	gray/brown medium/coarse SAND (wet)	
0			100	3	trace 1/4-1" angular gravel	
		37		4	37 ft.	
				5		
		38		5	medium-dark gray CLAY (wet)	
0			100	1	some silt	
		39		4	trace sand , gravel	
				5	soft	
		40		5		
			80	ST	Shelby Tube ID: GMWYSBGT04, 40-42ft./ 0930hrs.	
		41		ST		
				ST		

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:
Shelby Tube ID:GMWYSBGT04, 22-24 ft.
Shelby Tube ID: GMWYSBGT04, 40-42ft./ 0930hrs.

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. GT-4

Sheet 3 of 5

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00
Location:

Weather Clear, Windy, 30deg. F.
Date/Time Start December 4, 1995. / 1100
Date/Time Finish December 8, 1995./ 1210

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL		COMMENTS
				ST			
		42		ST			
0			100	4	medium-dark gray CLAY	(moist)	
		43		5	some silt		
				6	trace sand , gravel		
		44		8	soft		
0			100	4			
		45		4			
				6			
		46		4		46 ft.	
0			100	WOR	gray SILT	(wet)	
		47		3	little clay,sand/gravel, soft	47 ft.	
				10		(wet)	
		48		8	medium SAND, trace gravel, fines	48 ft.	
0			100	2			
		49		3	medium gray SILT	(wet)	
				5	little sand, trace gravel, soft		
		50		5		50 ft.	
0			75	3	medium/coarse SAND		
		51		3	little fine gravel, trace silt	(wet)	
				3			
		52		3			
0			100	4			
		53		3		53 ft.	
				5	gray SILT, little clay	(dry)	
		54		5	trace fine gravel, hard packed, friable	54 ft.	
0			100	7			
		55		8	medium gray CLAY	(damp)	
				10	some silt		
		56		12	trace fine sand, 1/4" gravel		
0			100	9	stiff		
		57		13			
				15			
		58		18			
0			100	4	medium gray packed CLAY		
		59		10	little silt		
				14	trace gravel, hard		
		60		19		60 ft.	
0			100	18	gray SILT	(moist)	
		61		43	some clay, little angular gravel		
				57	occasional medium sand lens	(wet)	

Boring grouted to the surface

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. GT-4

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00

Sheet 4 of 5
Location:

Weather Clear, Windy, 30deg. F.
Date/Time Start December 4, 1995. / 1100
Date/Time Finish December 8, 1995./ 1210

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
					gray SILT (moist)	
		62		74	some clay, little angular gravel	
0			100	28	occasional medium sand lens 62.5 ft.	
		63		31		
				36	medium-coarse SAND (wet)	
		64		42	trace 1/2-2" subangular gravel	
0			100	4	[flowing]	
		65		11		
				26		
		66		29		
0			100	8		
		67		20		
				28		
		68		35		
0			100	13	medium-coarse SAND (wet)	
		69		28	trace 1/2-2" subangular gravel, trace silt	
				42	[flowing]	Boring grouted to the surface
		70		37		
0			75	9		
		71		23		
				26		
		72		28		
0			100	4		
		73		8	73 ft.	
				17		
		74		20	medium gray CLAY (moist)	
0			100	13	little silt, trace 1/4" gravel	
		75		24		
				21		
		76		14		
0			60	9		
		77		18		
				25		
		78		39		
0			100	10		
		79		31	79 ft.	
				36	medium gray SILT	
		80		43	some fine-medium sand (moist)	
0			100	14	trace clay, gravel	
		81		22		
				38		

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. GT-4

Sheet 5 of 5

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME: General Motors - West Yard
PROJECT NUMBER: 727249.00
Location:

Weather: Clear, Windy, 30deg. F.
Date/Time Start: December 4, 1995. / 1100
Date/Time Finish: December 8, 1995./ 1210

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
		82		25	gray SILT	
0			100	41	some fine/medium sand (damp)	
		83		32	trace 1/4-1/2" angular gravel	
				57	stiff, friable	
		84		29		
0			100	9		
		85		13		Boring grouted to the surface
				17		
		86		26		
0			50	35	medium gray SILT	
		87		24	little fine rounded gravel (damp)	
				100/.5"	dense, friable	
		88		REF	trace clay, coarse gravel	
0			30	97		
		89		200/3"		
				REF		
		90		REF		
0			10	131		
		91		130/2"		
				REF		
		92		REF		
0			10	163		
		93		185/1"		
				REF		
		94		REF		
					Terminate Boring at 94 feet.	
		95				
		96				

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. WD-1

Sheet 1 of 2

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: B.E.Reeser
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00
Location:

Weather Cloudy, 27deg F>
Date/Time Start December 18, 1995. / 0850
Date/Time Finish December 18, 1995. / 1115

423795.92 northing
13412482.82 easting
966.89 GS elev.

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL		COMMENTS
				HA			
		1		HA	black clay FILL	(moist0	
				HA	little fine-coarse sand		
		2		HA	trace gravel, silt		
10				HA			
		3		HA			
				HA			
		4		HA			
0			100	29			
		5		27			
				21			
		6		21			
0			90	11	black/brown fine sand FILL	(damp)	
		7		9	little silt, trace gravel, debris		
				8			
		8		7			
0			50	2			Boring grouted to the surface
		9		2			
				2			
		10		4			
0			100	2			
		11		2			
				2			
		12		4			
0			10	3			
		13		4			
				4			
		14		5			
0			50	1			
		15		3			
				2			
		16		4	black/brown fine sand FILL	(damp)	
0			90	2	little silt, trace gravel, debris		
		17		4			
				5			
		18		5		18 ft.	
-			100	2	MARL	18.5 ft.	
		19		2			
				2	brown CLAY	(moist)	
		20		1	little silt and fine snad		
0			90	4			

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. WD-1

Sheet 2 of 2

Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	B.E.Reeser
Rig Type:	CME 95
Method:	4.25-inch HSA
PROJECT NAME	General Motors - West Yard
PROJECT NUMBER	727249.00
Location:	
Weather	Cloudy, 27deg F>
Date/Time Start	December 18, 1995. / 0850
Date/Time Finish	December 18, 1995. / 1115

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
				5		
		22		7	brown CLAY (moist)	
0			50	2	little silt and fine snad	
		23		4		
				16		
		24		13		
0			100	8		
		25		10		
				15	interbedded brown mottled stiff CLAY	
		26		22	occasional fine-medium brown sand stringer	
0			80	8		
		27		13	(dry-damp)	
				11		
		28		6		
0			100	5		
		29		6		
				9		Boring grouted to the surface
		30		14		
0			100	13		
		31		10		
				10		
		32		8		
0			80	5		
		33		5		
				5		
		34		7		
0			100	5		
		35		7		
				11		
		36		13	36 ft	
					BORING TERMINATED AT 36 FEET.	
		37				
		38				
		39				
		40				
		41				

STANDARD PENETRATION

SS = SPLIT SPOON

A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. WD-2

Sheet 1 of 2

Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	J.S. Poulsen
Rig Type:	CME 95
Method:	4.25-inch HSA
PROJECT NAME	General Motors - West Yard
PROJECT NUMBER	727249.00
Location:	
Weather	Cloudy, 27 deg F.
Date/Time Start	December 18, 1995. / 1420
Date/Time Finish	December 19, 1995. / 0909

42550.49 northing
13412420.91 easting
968.54 GS elev.

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
				HA	0-6" concrete	
		1		HA		
				HA		
		2		HA		
				HA		
		3		HA		
				HA		
		4		HA		
0			50	26	black /brown fine-medium sand FILL	
		5		22	little fines (dry)	
				19	debris	
		6		18		
0			80	9		
		7		13		
				15		
		8		12		
0			100	9		Boring grouted to the surface
		9		27		
				37		
		10		32		
0			100	13		
		11		30		
				24		
		12		20		
0			30	2		
		13		2		
				3		
		14		4		
0			100	4		
		15		5	black /brown fine-medium sand FILL	
				8	little fines	
		16		8	debris	
0			50	2	(moist)	
		17		2		
				3		
		18		1		
0			5	4		
		19		32		
				28		
		20		19		
0			100	4		

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. WD-2

Sheet 2 of 2

Location:

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00

Weather Cloudy, 27 deg F.

Date/Time Start December 18, 1995. / 1420

Date/Time Finish December 19, 1995. / 0909

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
				10	
		22		6	
-			0	3	
		23		2	black /brown fine-medium sand FILL
				3	little fines
		24		4	debris (wet)
0			100	1	
		25		4	sheen
				5	
		26		6	
0			50	2	
		27		2	
				5	
		28		6	
0			100	4	
		29		7	
				2	
		30		9	30 ft.
0			100	9	fine-coarse GRAVEL
		31		6	little fine-medium sand, trace silt 31 ft.
				10	
		32		17	gray SILT
0			50	5	some clay, fine sand (damp)
		33		6	
				7	
		34		8	34 ft.
0			20	1	
		35		7	gray CLAY
				9	some fine-medium sand and silt (damp)
		36		12	trace gravel
0			100	3	
		37		4	
				6	
		38		8	
					BORING TERMINATED AT 38 FEET.
		39			
		40			
		41			

COMMENTS

Boring grouted to the surface

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE DRILLING RECORD

BORING NO. WD-3

Sheet 1 of 2

Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	J.S. Poulsen
Rig Type:	CME 95
Method:	4.25-inch HSA
PROJECT NAME	General Motors - West Yard
PROJECT NUMBER	727249.00
Location:	
Weather	cloudy, 25deg F.
Date/Time Start	December 19, 1995. / 1310
Date/Time Finish	December 19, 1995. / 1618

423534.62 northing
13412638.05 easting
969.03 GS elev.

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
				HA		
		1		HA	0-6" concrete	
				HA	(dry)	
		2		HA	black fine-coarse sand FILL	
				HA		
		3		HA		
				HA	debris	
		4		HA		
0			100	8		
		5		7		
				6		
		6		8		
0			90	21		
		7		29		
				30		
		8		23		
0			50	7		Boring grouted to the surface
		9		8		
				12		
		10		12		
0			100	1		
		11		6		
				8		
		12		9		
0			60	4		
		13		3		
				3		
		14		4		
0			0	21	black fine-coarse sand FILL (dry)	
		15		44	some fines, debris (brick)	
				51		
		16		34		
0			0	8		
		17		5		
				4		
		18		4		
0			5	1		
		19		3		
				6		
		20		5		
0			100	5		

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. WD-3

Sheet 2 of 2

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00
Location:

Weather cloudy, 25deg F.
Date/Time Start December 19, 1995. / 1310
Date/Time Finish December 19, 1995. / 1618

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
				12		
		22		8		
0			50	6		
		23		4	black fine-coarse sand FILL (damp)	
				5	some fines, debris (brick)	
		24		5		
0			100	8		
		25		11		
				9		
		26		7	26 ft.	
0			50	1	green.black CLAY (damp)	
		27		2	some fine-medium sand	
				9	rootlets	
		28		6	28 ft.	
0			100	2		
		29		3	tan/green fine-medium SAND	
				5	trace silt and clay	Boring grouted to the surface
		30		10		
0			90	8	(wet)	
		31		16		
				22		
		32		8		
0			100	7		
		33		7		
				10		
		34		12		
0			100	18		
		35		19	35 ft.	
				18		
		36		3	gray CLAY (moist)	
0			50	6	some fine-medium sand	
		37		9	trace silt, fine gravel	
				12		
		38		14		
					BORING TERMINATED AT 38 FEET.	
		39				
		40				
		41				

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. SB-1

Sheet 1 of 2

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: Brian Reeser
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00
Location:

Weather Partially cloudy, 15deg F.
Date/Time Start December 12, 1995. / 0905
Date/Time Finish December 12, 1996. / 1255

423693.88 northing
13411757.76 easting
961.64 GS elev.

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
0		1	100	HA	black sand and gravel FILL (dry)	
				HA	trace debris	
		2		HA		
			100	HA		
		3		HA		
				HA		
		4		HA	4'	
4			100	12	tan fine SAND (damp)	
		5		53	trace clay and silt	
				20		
		6		13		
10			100	4	some clay stringers	
		7		16		
				20		
		8		22		
5			100	13		Boring grouted to the surface
		9		13		
				13		
		10		11		
3			100	2	trace clay and silt	
		11		16		
				34		
		12		12		
6			100	14	some tan/white mottled clay	
		13		12		
				17		
		14		16	14 ft.	
23			80	7		
		15		10	tan fine-coarse SAND (dry)	
				9	trace fine gravel	
		16		11		
70			90	8		
		17		12	gray fine-medium SAND (wet)	
				17	little silt	
		18		23		
10			100	11		
		19		12		
				13		
		20		15		
				8		

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. SB-1

Sheet 2 of 2

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: Brian Reeser
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00
Location:

Weather Partially cloudy, 15deg F.
Date/Time Start December 12, 1995. / 0905
Date/Time Finish December 12, 1996. / 1255

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
				9		
		22		15	gray fine-medium SAND (wet)	
				3	little silt	
		23		6		
				12		
		24		28		
				10		
		25		24		
				40		
		26		25	26 ft.	
				4		
		27		6	gray CLAY	
				8	some fine-coarse sand	
		28		9	trace fines and gravel	
				1		
		29		6		
				12		
		30		13		
					BORING TERMINATED AT 30 FEET	
		31				
		32				
		33				
		34				
		35				
		36				
		37				
		38				
		39				
		40				
		41				

Boring grouted to the surface

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. SB-2

Sheet 1 of 1

Location:

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: B.E. Reeser
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00

Weather light rain, 35deg F.
Date/Time Start December 14, 1995. / 0915
Date/Time Finish December 14, 1996. / 1026

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
0				HA		
		1		HA	0-8" Concrete	
				HA		
		2		HA		
0				HA	black silt, sand, organics	
		3		HA		
				HA		
		4		HA		
0			40	2	tan/grey clay FILL (moist)	
		5		5	some sand	
				3		
		6		1		
0			10	2	wood debris	
		7		7		
				8		
		8		7		
2			10	2		
		9		2	9 ft.	Boring grouted to the surface
				2		
		10		1	brown/tan CLAY	
2			20	2	some fine-medium sand	
		11		5	trace gravel	
				7	(moist)	
		12		10		
2			30	5		
		13		10		
				14		
		14		15		
4			50	9		
		15		11		
				15		
		16		17		
8			80	26	(dry)	
		17		28		
				26		
		18		25		
					BORING TERMINATED AT 18 FEET.	
		19				
		20				

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. SB-3

Sheet 1 of 2

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00
Location:

Weather Cloudy, 35 deg F.
Date/Time Start December 14, 1995. / 1215
Date/Time Finish December 14, 1995. / 1500

423587.97 northing
13411883.84 easting
963.48 GS elev.

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
0				HA		
		1		HA	black fine-coarse sand FILL (damp)	
				HA	debris	
		2		HA		
				HA		
		3		HA		
				HA		
		4		HA		
5			80	3		
		5		3		
				4		
		6		3		
26			80	6	(moist)	
		7		7		
				9		
		8		6	black fine-coarse sand FILL	
29			80	4	debris	Boring grouted to the surface
		9		3		
				4		
		10		3	10 ft.	
29			80	2		
		11		4	green/gray CLAY (dry)	
				9	some fine-medium sand, silt	
		12		9		
44			100	6		
		13		5	13 ft.	
				6		
		14		6	tan fine-medium SAND (wet)	
30			100	9	black staining	
		15		7	some silt	
				7		
		16		6		
45			70	3		
		17		6		
				6		
		18		8		
25			60	1		
		19		3		
				6		
		20		8		
3			80	1		

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Sample: GMWYSSSB3(0-6") / 1245 TCL/TAL

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. SB-3

Sheet 2 of 2

Location:

Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	J.S. Poulsen
Rig Type:	CME 95
Method:	4.25-inch HSA
PROJECT NAME	General Motors - West Yard
PROJECT NUMBER	727249.00
Weather	Cloudy, 35 deg F.
Date/Time Start	December 14, 1995. / 1215
Date/Time Finish	December 14, 1995. / 1500

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
				3		
		22		4	light gray fine-coarse SAND (wet)	
4			80	1	some silt	
		23		1	trace gravel	
				1		
		24		3		
8			100	1		
		25		3	25 ft.	
				4		Boring grouted
		26		5	gray CLAY (damp)	to the surface
11			100	2	some fine-medium sand	
		27		3	little silt	
				5		
		28		7		
					BORING TERMINATED AT 28 FEET.	
		29				
		30				
		31				
		32				
		33				
		34				
		35				
		36				
		37				
		38				
		39				
		40				
		41				

STANDARD PENETRATION

SS = SPLIT SPOON

A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. SB-4

Sheet 1 of 2

Contractor:	Carlo Environmental Tech.
Driller:	Paul Libby
Inspector:	J.S. Poulsen
Rig Type:	CME 95
Method:	4.25-inch HSA
PROJECT NAME	General Motors - West Yard
PROJECT NUMBER	727249.00
Location:	
Weather	Cloudy, 30deg F.
Date/Time Start	December 15, 1996./ 1130
Date/Time Finish	December 15, 1996./ 1254

423570.88 northing
13411933.46 easting
966.34 GS elev.

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
0				HA		
		1		HA	black, fine-coarse gravel and sand FILL (dry)	
				HA		
		2		HA		
2				HA		
		3		HA		
				HA		
		4		HA		
11			80	5	black/brown fine-coarse sand FILL	
		5		5	trace gravel , debris	
				4		
		6		5		
35			60	7		
		7		7	(damp)	
				7		
		8		6		
20			50	2		Boring grouted to the surface
		9		2		
				2		
		10		1		
0			60	2		
		11		3		
				2		
		12		3		
			0	3		
		13		4		
		14		54		
0			100	2		
		15		2		
				3		
		16		3		
3			100	3	(moist)	
		17		3	17 ft.	
				3	white chalky MARL 17.5 ft.	
		18		2		
0			80	1	gray CLAY	
		19		2	some fine-medium SAND (dry)	
				3	little silt	
		20		4		
0			100	8		

STANDARD PENETRATION

SS = SPLIT SPOON

A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. SB-4

Sheet 2 of 2

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: J.S. Poulsen
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00
Location:

Weather Cloudy, 30deg F.
Date/Time Start December 15, 1996./ 1130
Date/Time Finish December 15, 1996./ 1254

GROUNDWATER OBSERVATIONS				
Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
				11		
		22		14	green/gray CLAY (damp)	
0			100	4	some fine-medium SAND	
		23		7	trace silt	
				9		
		24		11		
					BORING TERMINATED AT 24 FEET.	
		25				
		26				
		27				
		28				
		29				
		30				
		31				
		32				
		33				
		34				
		35				
		36				
		37				
		38				
		39				
		40				
		41				

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. SB-5

Sheet 1 of 2

Location:

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: B.E. Reeser
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00

Weather Cloudy, 20 deg F.
Date/Time Start December 12, 1995.
Date/Time Finish December 13, 1995.

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
			100			
		1			0-8" concrete	
20						
		2				
					black fine-medium sand FILL (dry)	
		3			some fines, clay, debris	
		4				
370			100	9	(moist)	
		5		15		
				22		
		6		23	oily	
301				9		
		7		18		
				10		
		8		6		
			0	7		Boring grouted to the surface
-		9		8		
				7		
		10		8	black fine-medium sand FILL	
-			0	6	some fines, clay, debris	
		11		8		
				7		
		12		5		
55			100	3		
		13		4		
				3	13.5 ft.	
		14		3		
60			100	4	green/gray fine-medium SAND (wet)	
		15		7	some silt	
				9	rootlets	
		16		14	trace silt	
19			100	7		
		17		14		
				17		
		18		15		
44			100	4		
		19		8		
				11		
		20		12		
78			100	9		

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING-SCIENCE
DRILLING RECORD

BORING NO. SB-5

Contractor: Carlo Environmental Tech.
Driller: Paul Libby
Inspector: B.E. Reeser
Rig Type: CME 95
Method: 4.25-inch HSA

PROJECT NAME General Motors - West Yard
PROJECT NUMBER 727249.00

Sheet # of 2
Location:

Weather Cloudy, 20 deg F.
Date/Time Start December 12, 1995.
Date/Time Finish December 13, 1995.

GROUNDWATER OBSERVATIONS

Date				
Time				
Depth				

Photovac Reading	Sample I.D.	Sample Depth	Percent Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
				9	green/gray fine-medium SAND	
		21		8	some silt 21 ft.	
				11		
		22		12	gray SILT	
22			80	9	little-some fine sand (wet)	
		23		10		
				12		
		24		13	24 ft.	
42			100	6		
		25		7	gray fine-medium SAND (moist-	
				10	little silt wet)	
		26		12		
15			100	2		
		27		12		
				20		
		28		23		
8			100	4		Boring grouted to the surface
		29		6		
				9		
		30		12		
54			10	6	gray fine-medium SAND	
		31		10	little silt (wet)	
				14		
		32		19		
34			10	3		
		33		5		
				5		
		34		9		
0			10	6		
		35		6		
				6		
		36		6	36 ft.	
0			4	3		
		37		5	gray CLAY	
				8	some fine-medium sand and silt	
		38		10		
0			4	8		
		39		12		
				16		
		40		16		
					BORING TERMINATED AT 40 FEET.	

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY:

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

BORING/ WELL NO. SB6 **Sheet** 1 **of** 1

Contractor: Fibertec
Driller:
Inspector: B. Reeser
Rig Type: Geoprobe, 4' sampler

PROJECT NAME: GENERAL MOTORS – WEST YARD
PROJECT NO. 730627.01000

Location Description: GMWY

GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

Weather: Light snow, 30 degrees F.
Date/Time Start: February 14, 1996
Date/Time Finish: February 14, 1996

Location Plan

Sample Depth	Moisture Content	SPT	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	SCHEMATIC	COMMENTS
0							
	Dry	G	80	NA	0–6–inches, Concrete.		
1		G		NA	6"–1.5 feet, Clay, some fine–coarse sand,		
		G		NA	trace fine gravel, tan to gray.		
2		G		NA	1.5–3.5 feet, Sand, fine to coarse, some clay,		borehole backfilled with
		G		NA	mottled tan and gray.		soil cuttings
3		G		NA			
	Damp	G		NA			
4		G		NA	3.5–4 feet, fine Sand, black.		
		G	30	NA			
5		G		NA	4–8 feet Slough from above.		
	Damp	G		NA			
6		G		NA			
		G		NA			
7		G		NA			
		G		NA			
8		G		NA			
	Dry	G	80	NA	8–10 feet, Sand, fine to medium with silt, black.		
9		G		NA			
		G		NA			
10	Wet/	G		NA			
	Moist	G		NA	10–11 feet, white Marl, fine sand and silt, trace clay,		
11	Wet	G		NA	grayish black.		
		G		NA	11–12 feet, Silt, some clay and fine sand, gray,		
12		G		NA	rapid dilatency.		
	Wet	G	90	NA	12–14 feet, Silt, gray, rapid dilatency, oil sheen.		
13		G		NA			
		G		NA			
14		G		NA			
		G		NA	14–16 feet, Silt, tan, rapid dilatency, oil sheen		
15		G		NA			
		G		NA			
16		G		NA			
	Wet	G	90	NA	16–17 feet, fine–medium Sand, gray		
17		G		NA			
		G		NA	17–20 feet, fine–medium Sand, tan		
18		G		NA			
		G		NA			
19		G		NA			
		G		NA			
20		G		NA			
					Boring terminated at 20 feet.		

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
G = GEOPROBE

COMMENTS:

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

BORING/ WELL NO. SB7 **Sheet** 1 **of** 1

Contractor: Fibertec
Driller:
Inspector: B. Reeser
Rig Type: Geoprobe, 2" X 4' sampler

PROJECT NAME: GENERAL MOTORS – WEST YARD
PROJECT NO. 730627.01000

Location Description: GMWY

GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

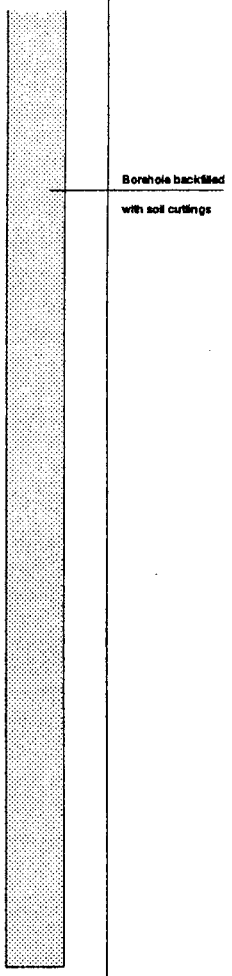
Weather: Light snow, 30 degrees F.

Date/Time Start: February 14, 1996

Date/Time Finish: February 14, 1996

Location Plan

Sample Depth	Moisture Content	SPT	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL
0					
	Dry	G	80	NA	0–2 inches, Concrete. 2" –1 foot, fine to coarse Sand, some clay
1		G		NA	trace fine to coares gravel, tan/brown.
		G		NA	1–2 feet, fine –medium sand, tan.
2		G		NA	
		G		NA	2–2.5 feet, Clay, some fine sand, tan.
3		G		NA	
		G		NA	2.5–7.8 feet, fine to medium Sand, tan.
4		G		NA	
	Dry	G	60	NA	
5		G		NA	
		G		NA	
6		G		NA	
		G		NA	
7		G		NA	
		G		NA	
8		G		NA	7.8–8 feet, fine – med. sand, trace clay and gravel, iron.
	Moist	G	60	NA	
9		G		NA	8–12 feet, fine to medium Sand, gray.
		G		NA	
10		G		NA	
		G		NA	
11		G		NA	
		G		NA	
12		G		NA	
	Wet	G	100	NA	12–13 feet, fine Sand, black, oily.
13		G		NA	
	Dry	G		NA	13–15.5 feet, tan Clay.
14		G		NA	
		G		NA	
15		G		NA	
	Moist	G		NA	
16		G		NA	15.5–16 feet, mixed clay, sand, and fine gravel, tan.
					Boring terminated at 16 feet.



SCHEMATIC

COMMENTS

COMMENTS:

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
G = GEOPROBE

Contractor: Fibertec
Driller:
Inspector: B. Reeser
Rig Type: Geoprobe, 2" X 4' sampler

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

BORING/ WELL NO. SB8 Sheet 1 of 1

Location Description: GMWY

PROJECT NAME: GENERAL MOTORS – WEST YARD
PROJECT NO. 730627.01000

GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

Weather: Light snow, 30 degrees F.

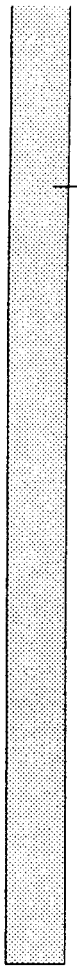
Date/Time Start: February 14, 1996

Date/Time Finish: February 14, 1996

Location Plan

Sample Depth	Moisture Content	SPT	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL
0					
	Dry	G	100	NA	0–2 inches, Concrete. 2" –1–foot fine to medium Sand, gray
1		G		NA	
		G		NA	.1–2 feet, gray silt.
2		G		NA	
		G		NA	2–2.5 feet, Clay, gray.
3		G		NA	
		G		NA	2.5–4 feet, Clay, some silt, black.
4		G		NA	
		G	80	NA	4–6 feet, Clay, some silt, gray.
5		G		NA	
	Dry	G		NA	
6		G		NA	
	Dry	G		NA	6–8 feet, fine to medium Sand, iron.
7		G		NA	
		G		NA	
8		G		NA	
	Wet	G	50	NA	8–9 feet, fine to coarse Sand, gray.
9		G		NA	
		G		NA	9–10 feet, fine to coarse Sand, some silt, trace glass, black.
10		G		NA	
		G		NA	10–12 feet, Sand, fine to medium, some silt, gray.
11		G		NA	
		G		NA	
12		G		NA	
	Moist	G	80	NA	12–13 feet, fine to medium Sand, mottled tan/gray, oily.
13		G		NA	
		G		NA	13–16 feet, fine sand, some silt, mottled tan/gray.
14		G		NA	
		G		NA	
15		G		NA	
		G		NA	
16		G		NA	
					Boring terminated at 16 feet.

SCHEMATIC



COMMENTS:

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
G = GEOPROBE

Contractor: Fibertec
Driller:
Inspector: B. Reeser
Rig Type: Geoprobe, 2" X 4' sampler

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

BORING/ WELL NO. SB9 **Sheet** 1 **of** 1

Location Description: GMWY

PROJECT NAME: GENERAL MOTORS – WEST YARD
PROJECT NO. 730627.01000

GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

Weather: Cloudy, 30 degrees F.

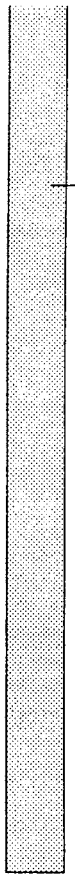
Date/Time Start: February 14, 1996

Date/Time Finish: February 14, 1996

Location Plan

Sample Depth	Moisture Content	SPT	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL
0					
	Moist	G	40	NA	0–2 inches, Concrete.
1		G		NA	
		G		NA	2" to 4 feet, Sand, fine to coarse, trace fine gravel, tan.
2		G		NA	
		G		NA	
3		G		NA	
		G		NA	
4		G		NA	
		G	50	NA	4 to 9 feet, as above, Sand, fine to coarse, trace fine gravel, tan.
5		G		NA	
	Moist	G		NA	
6		G		NA	
		G		NA	
7		G		NA	
		G		NA	
8		G		NA	
		G	50	NA	8 to 9 feet, as above, Sand, fine to coarse, trace fine gravel, tan.
9		G		NA	
	Moist	G		NA	9–11 feet, Clay, some fine to medium Sand, gray.
10		G		NA	
		G		NA	
11		G		NA	
		G		NA	11–12 feet, fine Sand, black.
12		G		NA	
	Moist/	G	50	NA	12–12.5 feet, fine–medium sand, tan.
13	Wet	G		NA	12.5–13.5 feet, fine Sand, black.
		G		NA	
14		G		NA	13.5–14 feet, Clay, gray.
		G		NA	14–14.5 feet, concrete, refusal.
					Boring terminated at 14.5 feet.

SCHEMATIC



COMMENTS

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
G = Geoprobe

COMMENTS:

Contractor: Fibertec
Driller:
Inspector: B. Reeser
Rig Type: Geoprobe, 2" X 4' sampler

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

BORING/ WELL NO. SB10 **Sheet** 1 **of** 1

Location Description: GMWY

PROJECT NAME: GENERAL MOTORS – WEST YARD
PROJECT NO. 730627.01000

GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

Weather: Cloudy, 30 degrees F.

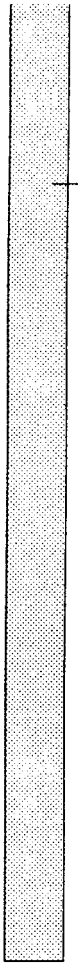
Date/Time Start: February 14, 1996

Date/Time Finish: February 14, 1996

Location Plan

Sample Depth	Moisture Content	SPT	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL
0					
	Dry	G	80	NA	0–6 inches, Concrete.
1		G		NA	6"–3 feet fine–medium sand, brown.
	Moist	G		NA	
2		G		NA	
		G		NA	
3		G		NA	
		G		NA	3–5 feet, fine Sand, black.
4		G		NA	
		G	80	NA	
5	Moist	G		NA	
	Damp	G		NA	5–7 feet, Clay, some silt, black.
6		G		NA	
		G		NA	
7		G		NA	
		G		NA	7–8 feet, Clay, some silt and fine sand, trace rubber and glass, black.
8		G		NA	
	Wet	G	20	NA	8–12 feet, fine Sand, black, oily sheen.
9		G		NA	
		G		NA	
10		G		NA	
		G		NA	
11		G		NA	
		G		NA	
12		G		NA	
		G	0	NA	No recovery.
13		G		NA	
		G		NA	
14		G		NA	
		G		NA	
15		G		NA	
	Moist	G		NA	
16		G		NA	
					Boring terminated at 16 feet.

SCHEMATIC



COMMENTS

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
G = GEOPROBE

COMMENTS:

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

BORING/ WELL NO. SB11 **Sheet** 1 **of** 1

Contractor: Fibertec
Driller:
Inspector: B. Reeser
Rig Type: Geoprobe, 4' sampler

PROJECT NAME: GENERAL MOTORS – WEST YARD
PROJECT NO. 730627.01000

Location Description: GMWY

Location Plan

GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

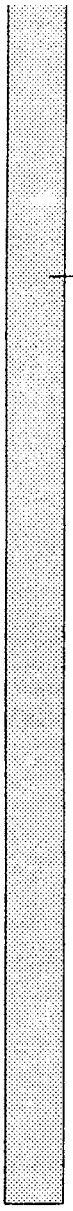
Weather: Cloudy, 30 degrees F.

Date/Time Start: February 14, 1996

Date/Time Finish: February 14, 1996

Sample Depth	Moisture Content	SPT	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL
0					
	Dry	G	90	NA	0–4 feet, coarse Sand, fine Gravel, and slag, brown to red.
1		G		NA	
		G		NA	
2		G		NA	
		G		NA	
3		G		NA	
		G		NA	
4		G		NA	
	Dry	G	60	NA	
5		G		NA	4–6 feet Slag, black.
		G		NA	
6		G		NA	
		G		NA	
7		G		NA	6–8 feet, fine to medium Sand, mottled black and reddish tan.
	Damp	G		NA	
8		G		NA	
		G	50	NA	
9		G		NA	8–12 feet, fine black Sand.
	Dry	G		NA	
10		G		NA	
		G		NA	
11		G		NA	
		G		NA	
12		G		NA	
	Dry	G	90	NA	
13		G		NA	12–15 feet, fine to coarse Sand, trace fine gravel,
		G		NA	trace brick and glass, brown.
14		G		NA	
		G		NA	
15		G		NA	
	Moist/	G		NA	
16	Wet	G		NA	15–20 feet, fine black Sand.
		G	100	NA	16–17 feet, fine–medium Sand, gray
17		G		NA	
		G		NA	17–19.6 feet, fine–medium Sand, tan
18		G		NA	
		G		NA	
19		G		NA	
		G		NA	
20		G		NA	19.6–20 feet, white Marl.
					Boring terminated at 20 feet.

SCHEMATIC



COMMENTS

COMMENTS:

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
G = GEOPROBE

Contractor: Fibertec
Driller:
Inspector: B. Reeser
Rig Type: Geoprobe, 4' sampler

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

BORING/ WELL NO. SB12 **Sheet** 1 **of** 2

Location Description: GMWY

PROJECT NAME: GENERAL MOTORS – WEST YARD
PROJECT NO. 730627.01000

GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

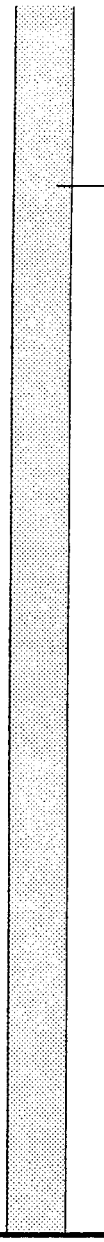
Weather: Light snow, 30 degrees F.

Date/Time Start: February 14, 1996

Date/Time Finish: February 14, 1996

Location Plan

Sample Depth	Moisture Content	SPT	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL
0					
	Dry	G	80	NA	0–2 feet, coarse Sand and fine Gravel, tan.
1		G		NA	
		G		NA	
2		G		NA	
		G		NA	2–5 feet, fine to medium Sand, brown.
3		G		NA	
		G		NA	
4		G		NA	
		G	100	NA	
5		G		NA	
	Moist	G		NA	5–8 feet. fine to medium Sand, brown.
6		G		NA	
		G		NA	
7		G		NA	
		G		NA	
8		G		NA	
		G	90	NA	
9		G		NA	8–12 feet, fine to coarse Sand and fine gravel, little silt,
	Dry/	G		NA	trace wood, nails, and rubber.
10	Moist	G		NA	
		G		NA	
11		G		NA	
		G		NA	
12		G		NA	
	Dry	G	90	NA	
13		G		NA	12–14 feet. wood, brick, and concrete.
		G		NA	
14		G		NA	
	Damp	G		NA	
15		G		NA	14–20 feet, fine Sand, some silt, black.
		G		NA	
16		G		NA	
		G	20	NA	
17		G		NA	
		G		NA	
18		G		NA	
		G		NA	
19		G		NA	
		G		NA	
20		G		NA	
		G		NA	



SCHEMATIC | **COMMENTS**

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
G = GEOPROBE

COMMENTS:

Contractor: Fibertec
Driller:
Inspector: B. Reeser
Rig Type: Geoprobe, 4' sampler

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

PROJECT NAME: GENERAL MOTORS – WEST YARD
PROJECT NO. 730627.01000

BORING/ WELL NO. SB12 **Sheet** 2 **of** 2
Location Description: GMWY

Location Plan

GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

Weather: Light snow, 30 degrees F.
Date/Time Start: February 14, 1996
Date/Time Finish: February 14, 1996

Sample Depth	Moisture Content	SPT	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	SCHEMATIC	COMMENTS
20		G					
	Moist/	G	100	NA	20–22 feet, fine–medium Sand, some silt, black.		
21	Wet	G		NA			
		G		NA			
22		G		NA			boring backfilled with soil cuttings
		G		NA	22–24 feet, fine–medium Sand, some silt, tan.		
23		G		NA			
		G		NA			
24		G		NA			
					Boring terminated at 24 feet.		

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
G = GEOPROBE

COMMENTS:

Contractor: Fibertec
Driller:
Inspector: B. Reeser
Rig Type: Geoprobe, 4' sampler

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

BORING/ WELL NO. SB13 **Sheet** 1 **of** 1

Location Description: GMWY

PROJECT NAME: GENERAL MOTORS – WEST YARD
PROJECT NO. 730627.01000

GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

Weather: Cloudy, 15 degrees F.

Date/Time Start: February 15, 1996

Date/Time Finish: February 15, 1996

Location Plan

Sample Depth	Moisture Content	SPT	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	SCHEMATIC	COMMENTS
0							
	Dry	G	95	NA	0–2 feet, fine to medium Sand, tan.		
1		G		NA			
		G		NA			
2		G		NA			
	Damp	G		NA	2–4 feet, fine to medium Sand, black.		
3		G		NA			
		G		NA			
4		G		NA			borehole backfilled with soil cuttings
	Damp/	G	100	NA	4–12 feet, Clay, some fine to coarse sand, tan.		
5	Moist	G		NA			
		G		NA			
6		G		NA			
		G		NA			
7		G		NA			
		G		NA			
8		G		NA			
		G	100	NA			
9		G		NA			
		G		NA			
10		G		NA			
		G		NA			
11		G		NA			
		G		NA			
12		G		NA			
	Moist	G	100	NA	12–15 feet, Clay, some silt and fine sand, mottled tan and gray.		
13		G		NA			
		G		NA			
14		G		NA			
		G		NA			
15		G		NA			
	Dry	G		NA	15–16 feet, Silt, mottled tan and gray.		
16		G		NA			
	Wet	G	100	NA			
17		G		NA	16–18 feet, Silt, tan, oil sheen.		
		G		NA			
18		G		NA			
	Wet	G		NA			
19		G		NA	18–20 feet, Silt, gray.		
		G		NA			
20		G		NA			
					Boring terminated at 20 feet.		

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
G = GEOPROBE

COMMENTS:

Contractor: Fibertec
Driller:
Inspector: B. Reeser
Rig Type: Geoprobe, 2" X 4' sampler

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

BORING/ WELL NO. SB14 **Sheet** 1 **of** 1

Location Description: GMWY

PROJECT NAME: GENERAL MOTORS – WEST YARD
PROJECT NO. 730627.01000

GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

Weather: Cloudy, 15 degrees F.

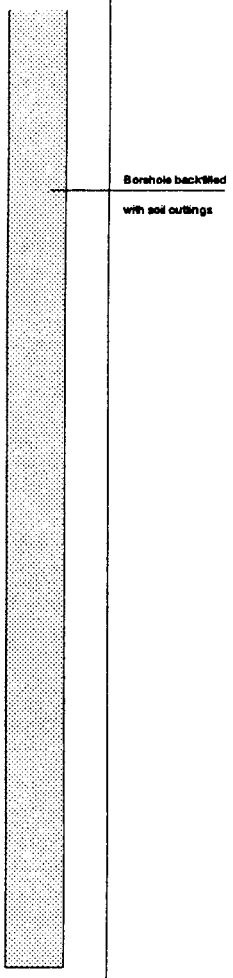
Date/Time Start: February 15, 1996

Date/Time Finish: February 15, 1996

Location Plan

Sample Depth	Moisture Content	SPT	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL
0					
	Dry	G	50	NA	0–4 feet, coarse Sand and fine Gravel.
1		G		NA	
		G		NA	
2		G		NA	
		G		NA	
3		G		NA	
		G		NA	
4		G		NA	
	Damp/	G	50	NA	
5	Moist	G		NA	4–8 feet, Clay, some fine to coarse sand, tan.
		G		NA	
6		G		NA	
		G		NA	
7		G		NA	
		G		NA	
8		G		NA	
	Damp	G	80	NA	8–10 feet, fine to medium Sand, tan.
9		G		NA	
		G		NA	
10		G		NA	
		G		NA	10–11 feet, Clay, some fine sand, trace silt, tan.
11		G		NA	
	Dry	G		NA	11–12 feet, Silt, some fine sand, black.
12		G		NA	
	Moist	G	100	NA	12–13 feet, Clay, some fine sand, tan.
13		G		NA	
		G		NA	
14		G		NA	13–16 feet, Silt, tan.
	Wet	G		NA	
15		G		NA	
		G		NA	
16		G		NA	
					Boring terminated at 16 feet.

SCHEMATIC



COMMENTS

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
G = GEOPROBE

COMMENTS:

Contractor: Fibertec
Driller:
Inspector: B. Reeser
Rig Type: Geoprobe, 2" X 4' sampler

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

BORING/ WELL NO. SB15 **Sheet** 1 **of** 1

Location Description: GMWY

PROJECT NAME: GENERAL MOTORS – WEST YARD
PROJECT NO. 730627.01000

GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

Weather: Cloudy, 15 degrees F.

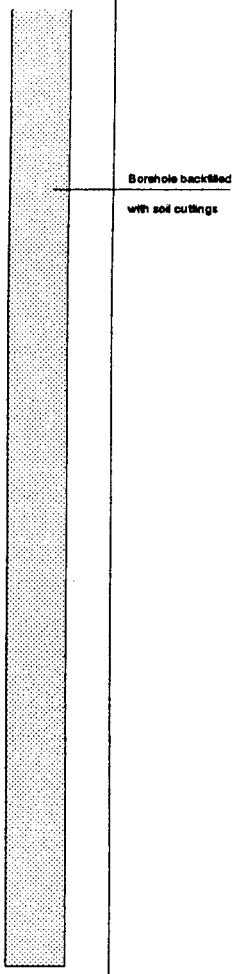
Date/Time Start: February 15, 1996

Date/Time Finish: February 15, 1996

Location Plan

Sample Depth	Moisture Content	SPT	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL
0					
	Dry	G	100	NA	0–1 feet, coarse Sand, and fine Gravel.
1		G		NA	
		G		NA	1–2 feet, fine to coarse Sand, tan.
2		G		NA	
		G		NA	2–3 feet, fine Sand, some silt, black.
3		G		NA	
		G		NA	3–6.5 feet, fine to medium Sand, gray.
4		G		NA	
		G	60	NA	
5		G		NA	
		G		NA	
6		G		NA	
	Wet	G		NA	
7		G		NA	6.5–8 feet, Clay, some fine sand, tan.
	Damp	G		NA	
8		G		NA	
	Moist	G	80	NA	8–10 feet. Clay, some fine sand, gray.
9		G		NA	
		G		NA	
10		G		NA	
		G		NA	10–13 feet, fine Sand, trace clay and silt, tan.
11		G		NA	
		G		NA	
12		G		NA	
		G	100	NA	
13		G		NA	
	Wet	G		NA	13–16 feet, Silt, trace fine sand, tan.
14		G		NA	
		G		NA	
15		G		NA	
		G		NA	
16		G		NA	
					Boring terminated at 16 feet.

SCHEMATIC



COMMENTS

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
G = GEOPROBE

COMMENTS:

Contractor: Fibertec
Driller:
Inspector: B. Reeser
Rig Type: Geoprobe, 4' sampler

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

BORING/ WELL NO. SB16 Sheet 1 of 1

Location Description: GMWY

PROJECT NAME: GENERAL MOTORS – WEST YARD
PROJECT NO. 730627.01000

GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

Weather: Cloudy, 15 degrees F.

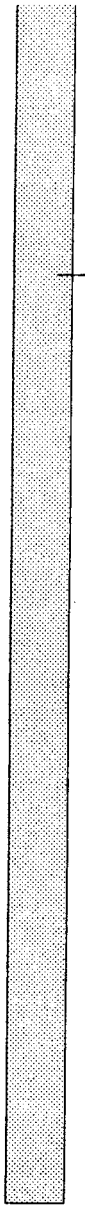
Date/Time Start: February 15, 1996

Date/Time Finish: February 15, 1996

Location Plan

Sample Depth	Moisture Content	SPT	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL
0					
	Dry	G	100	NA	0–2 feet, Slag, reddish brown.
1		G		NA	
		G		NA	
2		G		NA	
		G		NA	2–4 feet. fine to coarse sand, trace silt and clay,
3		G		NA	mottled tan and gray.
		G		NA	
4		G		NA	
		G	100	NA	
5		G		NA	4–7 feet, Clay, little fine sand, mottled tan and gray.
		G		NA	
6		G		NA	
		G		NA	
7		G		NA	
		G		NA	7–8 feet, fine Sand, black.
8		G		NA	
		G	90	NA	8–9 feet, Clay, some silt and fine sand, tan.
9		G		NA	
		G		NA	9–11 feet, Silt, tan.
10		G		NA	
	Wet	G		NA	
11		G		NA	
	Moist/	G		NA	
12	Wet	G		NA	11–14 feet, Clay, some silt and fine sand, tan.
		G	50	NA	
13		G		NA	
		G		NA	
14		G		NA	
	Dry	G		NA	
15		G		NA	14–18 feet, Clay, some silt, trace wood material, black.
		G		NA	
16		G		NA	
	Wet	G	50	NA	
17		G		NA	
		G		NA	
18		G		NA	
		G		NA	
19	Wet/	G		NA	18–20 feet, Silt, some fine sand, trace clay and fine gravel, gray.
	Moist	G		NA	
20		G		NA	
					Boring terminated at 20 feet.

SCHEMATIC



COMMENTS

COMMENTS:

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
G = GEOPROBE

Contractor: Fibertec
Driller:
Inspector: B. Reeser
Rig Type: Geoprobe, 2" X 4' sampler

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

PROJECT NAME: GENERAL MOTORS – WEST YARD
PROJECT NO. 730627.01000

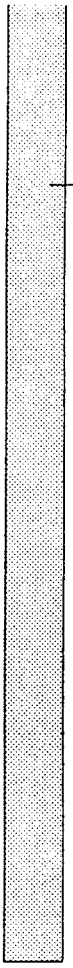
BORING/ WELL NO. SB17 **Sheet** 1 **of** 1
Location Description: GMWY

GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

Weather: Flurries, 15 degrees F.
Date/Time Start: February 15, 1996
Date/Time Finish: February 15, 1996

Location Plan

Sample Depth	Moisture Content	SPT	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL
0					
	Dry	G	100	NA	
1		G		NA	0–3 feet, coarse sand and fine gravel.
		G		NA	
2		G		NA	
		G		NA	
3		G		NA	
		G		NA	
4		G		NA	3–7 feet, fine to medium Sand, tan.
		G	90	NA	
5		G		NA	
		G		NA	
6		G		NA	
		G		NA	
7		G		NA	
	Moist/	G		NA	
8	Wet	G		NA	7–15 feet, Sand, some silt, black.
		G	100	NA	Oil sheen at 8 feet.
9		G		NA	
		G		NA	
10		G		NA	
		G		NA	
11		G		NA	
		G		NA	
12		G		NA	
	Wet	G	100	NA	
13		G		NA	
		G		NA	
14		G		NA	
		G		NA	
15		G		NA	
	Dry	G		NA	15–16 feet, Silt, tan.
16		G		NA	
					Boring terminated at 16 feet.



SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
G = GEOPROBE

COMMENTS:

Contractor: Fibertec
Driller:
Inspector: B. Reeser
Rig Type: Geoprobe, 4' sampler

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

BORING/ WELL NO. SB18 **Sheet** 1 **of** 1

Location Description: GMWY

PROJECT NAME: GENERAL MOTORS – WEST YARD
PROJECT NO. 730627.01000

GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

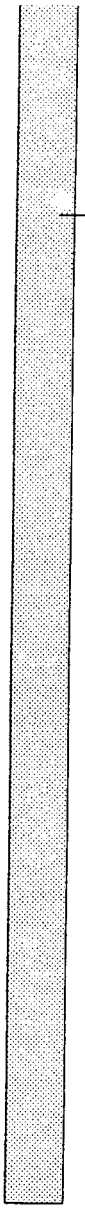
Weather: Flurries, 15 degrees F.

Date/Time Start: February 15, 1996

Date/Time Finish: February 15, 1996

Location Plan

Sample Depth	Moisture Content	SPT	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	SCHEMATIC	COMMENTS
0							
	Dry	G	100	NA	0–3 feet, coarse Sand and fine gravel.		
1		G		NA			
		G		NA			
2		G		NA			
		G		NA			
3		G		NA			
		G		NA			
4		G		NA	3–15 feet, fine Sand, some silt, black.		
		G	100	NA			
5		G		NA			
	Damp	G		NA			
6		G		NA			
		G		NA			
7		G		NA			
		G		NA			
8		G		NA			
		G	100	NA			
9		G		NA			
		G		NA			
10		G		NA			
		G		NA			
11		G		NA			
		G		NA			
12		G		NA			
		G	100	NA			
13		G		NA			
		G		NA			
14		G		NA			
		G		NA			
15		G		NA			
	Moist/	G		NA			
16	Wet	G		NA	15–18 feet, Silt, mottled tan and gray.		
		G		NA	16–18 feet, oil sheen.		
17		G		NA			
		G		NA			
18		G		NA			
		G		NA			
19	Wet/	G		NA	18–20 feet, fine–medium Sand, gray, oil sheen.		
	Moist	G		NA			
20		G		NA			
					Boring terminated at 20 feet.		



SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
G = GEOPROBE

COMMENTS:

Contractor: Fibertec
Driller:
Inspector: B. Reeser
Rig Type: Geoprobe, 4' sampler

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

BORING/ WELL NO. SB19 **Sheet** 1 **of** 1
Location Description: GMWY

PROJECT NAME: GENERAL MOTORS – WEST YARD
PROJECT NO. 730627.01000

GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

Weather: Clear, 10 degrees F.
Date/Time Start: February 16, 1996
Date/Time Finish: February 16, 1996

Location Plan

Sample Depth	Moisture Content	SPT	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	SCHEMATIC	COMMENTS
0							
	Dry	G	100	NA	0–2 feet, coarse Sand and fine Gravel.		
1		G		NA			
		G		NA			
2		G		NA			
		G		NA	2–3 feet, Slag, brown.		
3		G		NA			
		G		NA			
4		G		NA	4–8 feet, Clay, some fine sand, gray.		borehole backfilled with soil cuttings
	Moist	G	50	NA			
5		G		NA			
		G		NA			
6		G		NA			
		G		NA			
7		G		NA			
		G		NA			
8		G		NA			
		G	100	NA	8–11 feet, Clay, some fine sand, trace silt, tan.		
9		G		NA			
		G		NA			
10		G		NA			
		G		NA			
11		G		NA			
		G		NA	11–12 feet, fine Sand, trace clay and silt, tan.		
12		G		NA			
		G	90	NA			
13		G		NA	12–14' Clay, some fine sand, trace silt, tan.		
		G		NA			
14		G		NA			
	Dry	G		NA	14–15 feet, Clay, some silt, trace fine sand, trace roots, black.		
15		G		NA			
		G		NA	15–16 feet, Clay, some fine sand, trace silt, gray.		
16		G		NA			
	Wet	G		NA			
17		G		NA	16–19 feet, Silt, gray.		
		G		NA			
18		G		NA			
		G		NA			
19		G		NA			
	Damp	G		NA	19–20 Clay, some silt, gray.		
20		G		NA			
					Boring terminated at 20 feet.		

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
G = GEOPROBE

COMMENTS:

Contractor: Fibertec
Driller:
Inspector: B. Reeser
Rig Type: Geoprobe, 4' sampler

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

BORING/ WELL NO. SB20 Sheet 1 of 1

Location Description: GMWY

PROJECT NAME: GENERAL MOTORS – WEST YARD
PROJECT NO. 730627.01000

GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

Weather: Clear, 10 degrees F.

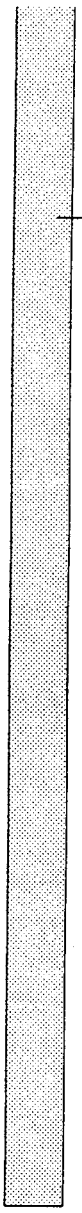
Date/Time Start: February 16, 1996

Date/Time Finish: February 16, 1996

Location Plan

Sample Depth	Moisture Content	SPT	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL
0					
	Dry	G	100	NA	0–1 feet, fine to coarse Sand and Clay, mottled tan and brown.
1		G		NA	
		G		NA	
2		G		NA	1–4 feet, Slag, brown.
		G		NA	
3		G		NA	
		G		NA	
4		G		NA	
	Damp	G	80	NA	
5		G		NA	4–7.5 feet, fine Sand, tan.
		G		NA	
6		G		NA	
		G		NA	
7		G		NA	
		G		NA	7.5–8 feet, fine Sand, little clay, tan.
8		G		NA	
		G	100	NA	8–10 feet, fine to medium Sand, tan
9		G		NA	
		G		NA	
10		G		NA	
		G		NA	10–12 feet, fine Sand, some silt, tan.
11	Wet	G		NA	
		G		NA	
12		G		NA	
	Dry	G	100	NA	12–13' Clay, some fine sand, mottled tan and gray.
13		G		NA	
		G		NA	13–14 feet, fine to medium Sand, gray.
14	Moist	G		NA	
		G		NA	14–15 feet, Clay, some silt, mottled tan and gray.
15		G		NA	
	Moist	G		NA	15–16 feet, Silt, some clay, tan.
16		G		NA	
		G	100	NA	
17	Wet	G		NA	16–20 feet, fine to coarse Sand, gray.
		G		NA	
18		G		NA	
		G		NA	
19		G		NA	
		G		NA	
20		G		NA	
					Boring terminated at 20 feet.

SCHEMATIC



COMMENTS:

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
G = GEOPROBE

Contractor: Fibertec
Driller:
Inspector: B. Reeser
Rig Type: Geoprobe, 4' sampler

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

BORING/ WELL NO. SB21 **Sheet** 1 **of** 1

Location Description: GMWY

PROJECT NAME: GENERAL MOTORS – WEST YARD
PROJECT NO. 730627.01000

GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

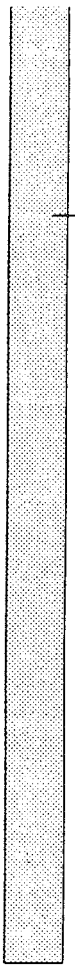
Weather: Clear, 10 degrees F.

Date/Time Start: February 16, 1996

Date/Time Finish: February 16, 1996

Location Plan

Sample Depth	Moisture Content	SPT	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL
0					
	Dry	G	100	NA	0–14 inches, Concrete.
1		G		NA	
		G		NA	14–inches to 3 feet, fine to coarse sand, some fine gravel, brown.
2		G		NA	
		G		NA	
3		G		NA	
		G		NA	3–5 feet, fine Sand, some silt, black.
4		G		NA	
		G	100	NA	
5		G		NA	
		G		NA	5–6 feet. Clay, some silt and fine sand, black.
6		G		NA	
		G		NA	6–6.5 feet, Concrete.
7		G		NA	6.5–7 feet, Clay, gray.
	Moist	G		NA	7–8 feet, brown Slag and Clay, some fine sand, tan.
8		G		NA	
		G	50	NA	
9		G		NA	8–11 feet, Gravel and Slag, black.
		G		NA	
10		G		NA	
	Wet	G		NA	
11		G		NA	
	Dry	G		NA	11–12 feet, fine Sand, tan.
12		G		NA	
	Wet	G	50	NA	12–13 feet, fine to coarse Sand, black.
13		G		NA	
		G		NA	13–16 feet, fine to coarse Sand, gray.
14	Moist	G		NA	
		G		NA	
15		G		NA	
		G		NA	
16		G		NA	
					Boring terminated at 16 feet.

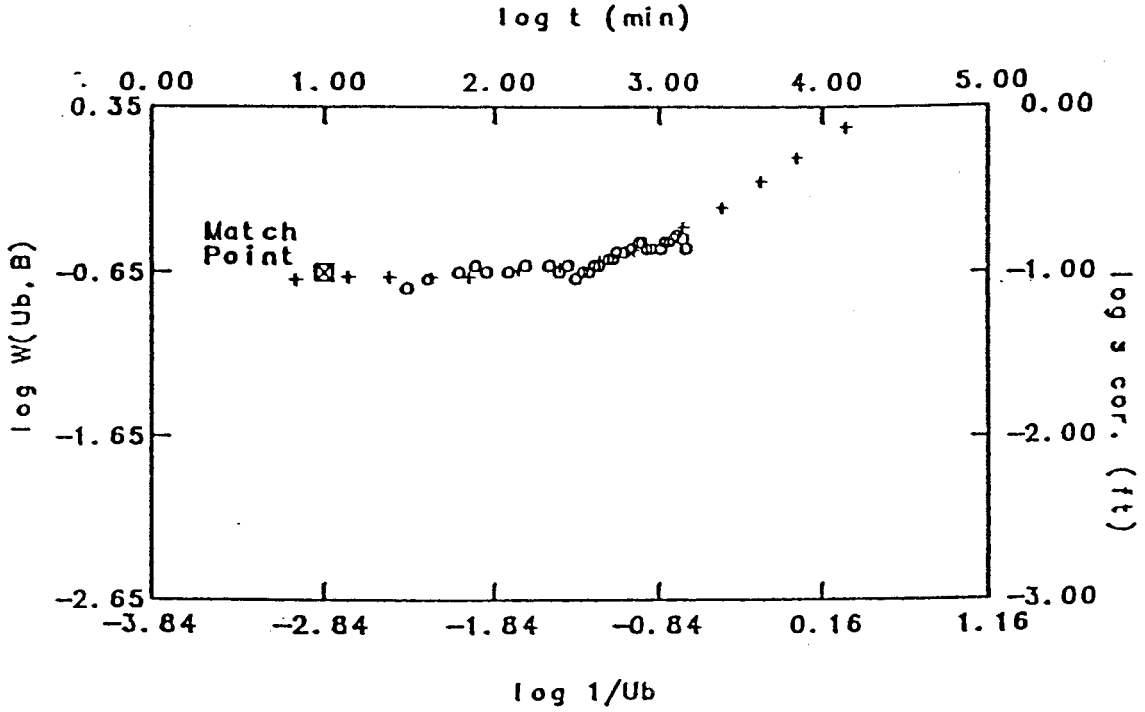


SCHEMATIC	COMMENTS

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
G = GEOPROBE

COMMENTS:

CPC–PONTIAC SV–1



o – Data
\+ – Type Curve
Unconf. Delayed: beta = 1.50

MATCH POINT		SOLUTION	
t	= 1.000E+0001	Transmissivity	= 3.206E+0002 gpd/ft
s	= 1.000E–0001	Hydraulic. Cond.	= 2.137E+0001 gpd/sq ft
1/Ub	= 1.445E–0003	Specific Yield	= 4.715E–0001
W(Ub, B)	= 2.239E–0002		

WELL INFORMATION	
WELL IDENTIFICATION	: SV–1
DATE OF AQUIFER TEST	: 5/8/90
AQUIFER THICKNESS (b)	: 1.500E+0001 ft
DISCHARGE RATE (Q)	: 1.250E+0000 gpm
PUMPING WELL RADIUS (r)	: 5.000E–0001 ft
DISTANCE OF OBS. WELL FROM PUMPING WELL (d)	: 2.090E+0001 ft

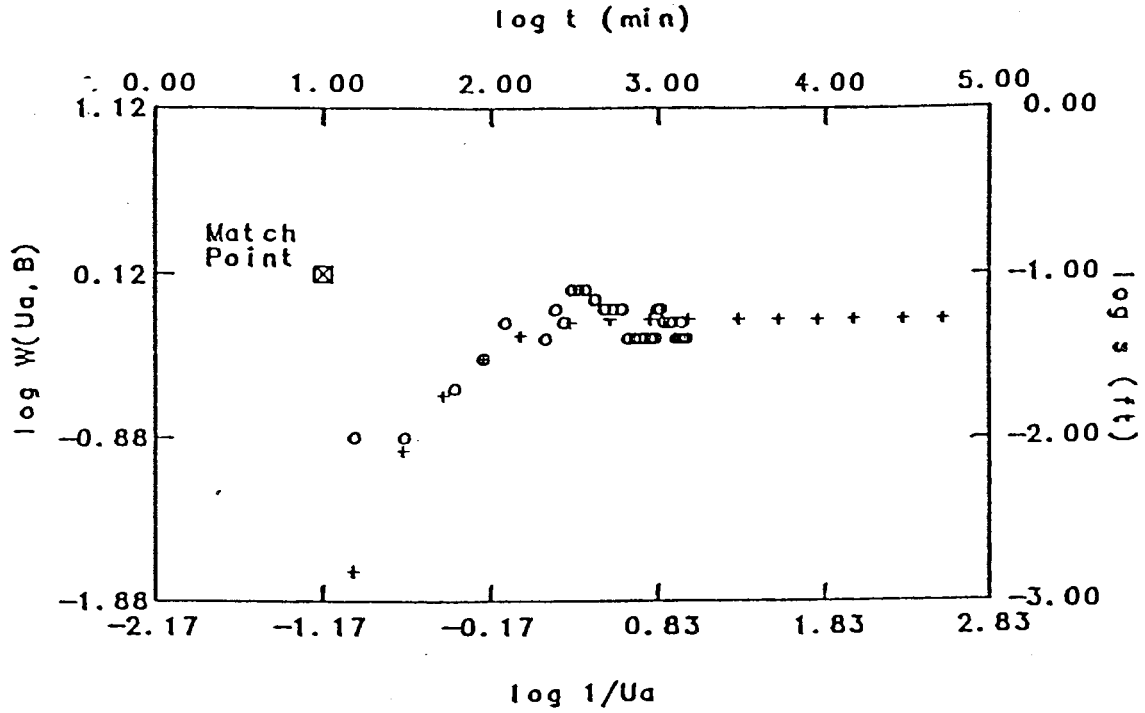
GROUNDWATER TECHNOLOGY, INC.

Data for Pump Test

Well Name: SV-1 Date of Test: 5/8/90
Aquifer Thickness (b): 15.000 ft
Pumped Well Discharge(Q) = 1.250 gpm
Radius of Pumping Well = 0.500 ft
Distance of Observation Well from Pumping Well = 20.900 ft

Entry No.	Time(t) (min)	Drawdown(s) (ft)	t / d^2 (min/sq ft)
1	0.000	0.000	
2	30.000	0.080	6.868E-0002
3	40.000	0.090	9.157E-0002
4	60.000	0.100	1.374E-0001
5	75.000	0.110	1.717E-0001
6	90.000	0.100	2.060E-0001
7	120.000	0.100	2.747E-0001
8	150.000	0.110	3.434E-0001
9	210.000	0.110	4.808E-0001
10	240.000	0.100	5.494E-0001
11	270.000	0.110	6.181E-0001
12	300.000	0.090	6.868E-0001
13	330.000	0.100	7.555E-0001
14	360.000	0.100	8.242E-0001
15	390.000	0.110	8.928E-0001
16	420.000	0.110	9.615E-0001
17	480.000	0.120	1.099E+0000
18	510.000	0.120	1.168E+0000
19	540.000	0.130	1.236E+0000
20	600.000	0.130	1.374E+0000
21	660.000	0.140	1.511E+0000
22	735.000	0.150	1.683E+0000
23	780.000	0.150	1.786E+0000
24	840.000	0.140	1.923E+0000
25	900.000	0.140	2.060E+0000
26	1020.000	0.140	2.335E+0000
27	1080.000	0.150	2.472E+0000
28	1140.000	0.150	2.610E+0000
29	1215.000	0.160	2.782E+0000
30	1260.000	0.170	2.885E+0000
31	1380.000	0.160	3.159E+0000
32	1440.000	0.140	3.297E+0000

CPC–PONTIAC MW–10



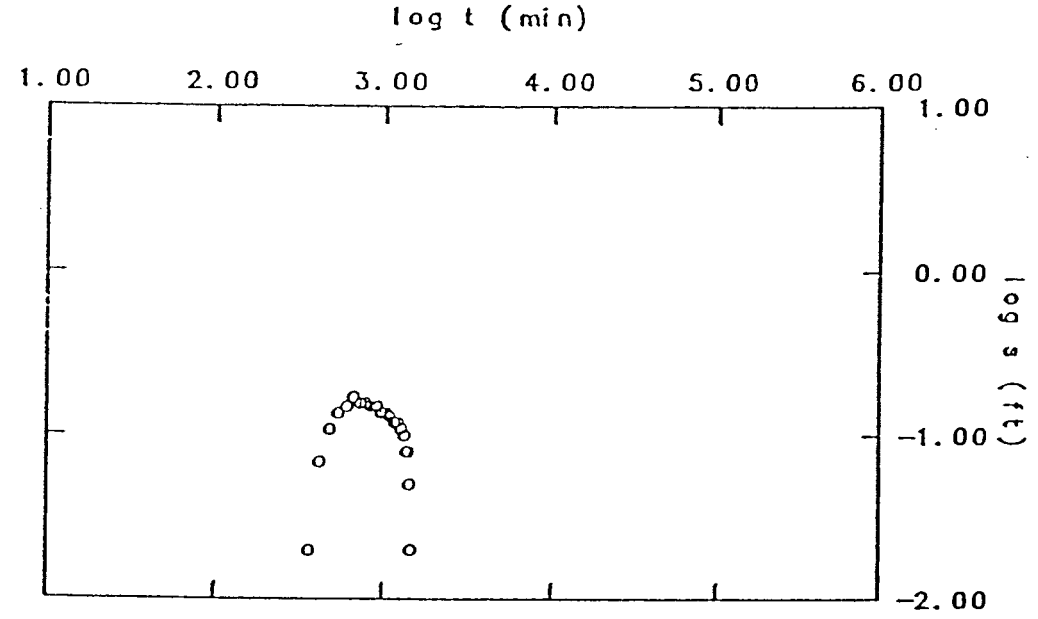
o – Data
+ – Type Curve
Unconf. Elastic: beta = 0.40

MATCH POINT		SOLUTION	
t	= 1.000E+0001	Transmissivity	= 1.888E+0003 gpd/ft
s	= 1.000E–0001	Hydraulic. Cond.	= 1.259E+0002 gpd/sq ft
1/Ua	= 6.761E–0002	Storativity	= 5.916E–0003
W(Ua, B)	= 1.318E–0001		

WELL INFORMATION	
WELL IDENTIFICATION	: MW–10
DATE OF AQUIFER TEST	: 5/8/90
AQUIFER THICKNESS (b)	: 1.500E+0001 ft
DISCHARGE RATE (Q)	: 1.250E+0000 gpm
PUMPING WELL RADIUS (r)	: 5.000E–0001 ft
DISTANCE OF OBS. WELL FROM PUMPING WELL (d)	: 6.620E+0001 ft

GROUNDWATER TECHNOLOGY, INC.

CPC-PONTIAC MW-9



o - Data

WELL INFORMATION		
WELL IDENTIFICATION	:	MW-9
DATE OF AQUIFER TEST	:	5/8/90
AQUIFER THICKNESS (b)	:	1.500E+0001 ft
DISCHARGE RATE (Q)	:	1.250E+0000 gpm
PUMPING WELL RADIUS (r)	:	5.000E-0001 ft
DISTANCE OF OBS. WELL FROM PUMPING WELL (d)	:	2.230E+0001 ft

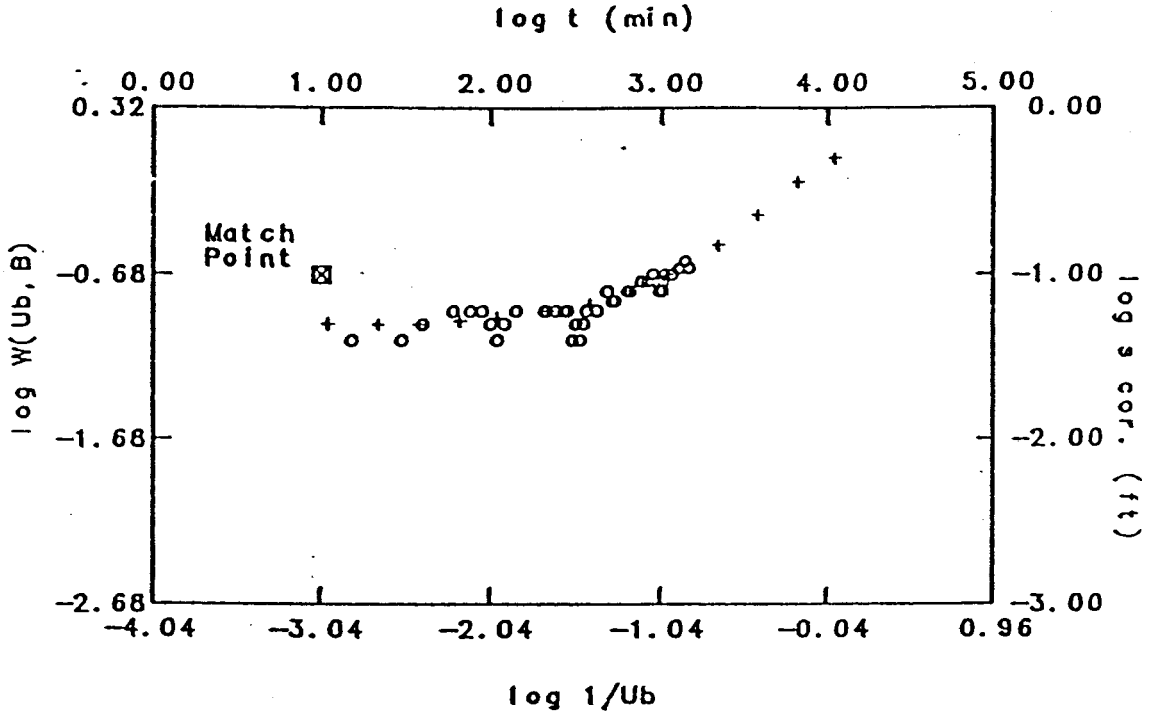
GROUNDWATER TECHNOLOGY, INC.

Data for Pump Test

Well Name: MW-6 Date of Test: 5/8/90
Aquifer Thickness (b): 15.000 ft
Pumped Well Discharge(Q) = 1.250 gpm
Radius of Pumping Well = 0.500 ft
Distance of Observation Well from Pumping Well = 129.000 ft

Entry No.	Time(t) (min)	Drawdown(s) (ft)	t / d^2 (min/sq ft)
1	0.000	0.000	
2	15.000	0.010	9.014E-0004
3	30.000	0.010	1.803E-0003
4	60.000	0.010	3.606E-0003
5	90.000	0.000	5.408E-0003
6	120.000	0.010	7.211E-0003
7	210.000	0.010	1.262E-0002
8	240.000	0.010	1.442E-0002
9	270.000	0.010	1.622E-0002
10	300.000	0.010	1.803E-0002
11	330.000	0.010	1.983E-0002
12	360.000	0.010	2.163E-0002
13	420.000	0.000	2.524E-0002
14	480.000	0.010	2.884E-0002
15	540.000	0.010	3.245E-0002
16	600.000	0.010	3.606E-0002
17	660.000	0.010	3.966E-0002
18	720.000	0.010	4.327E-0002
19	780.000	0.010	4.687E-0002
20	840.000	0.000	5.048E-0002
21	900.000	0.000	5.408E-0002
22	915.000	0.000	5.498E-0002
23	945.000	0.000	5.679E-0002
24	975.000	0.000	5.859E-0002
25	1020.000	0.000	6.129E-0002
26	1080.000	0.000	6.490E-0002
27	1140.000	0.000	6.851E-0002
28	1200.000	0.000	7.211E-0002
29	1260.000	0.000	7.572E-0002
30	1320.000	0.000	7.932E-0002
31	1350.000	0.000	8.112E-0002
32	1300.000	0.000	7.812E-0002
33	1410.000	0.000	8.473E-0002
34	1440.000	0.000	8.653E-0002

CPC–PONTIAC MW–2



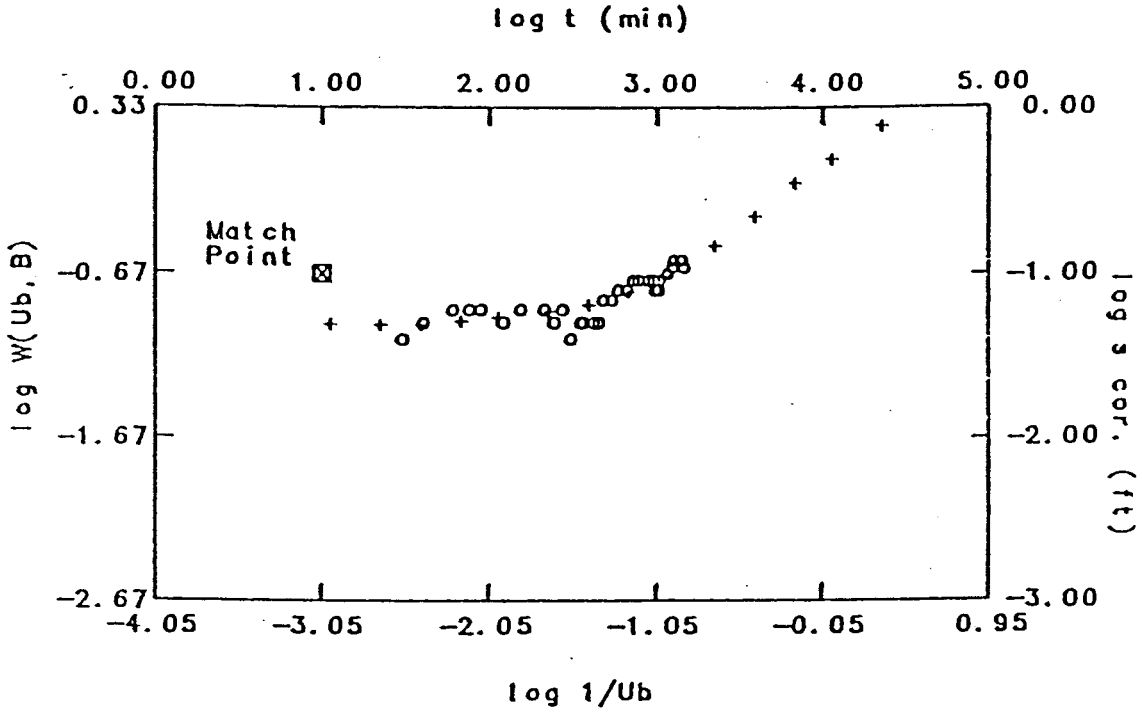
o – Data
+ – Type Curve
Unconf. Delayed: beta = 2.50

MATCH POINT		SOLUTION	
t	= 1.000E+0001	Transmissivity	= 2.992E+0002 gpd/ft
s	= 1.000E–0001	Hydraulic. Cond.	= 1.995E+0001 gpd/sq ft
1/Ub	= 9.120E–0004	Specific Yield	= 7.849E–0002
W(Ub, B)	= 2.089E–0002		

WELL INFORMATION	
WELL IDENTIFICATION	: MW–2
DATE OF AQUIFER TEST	: 5/8/90
AQUIFER THICKNESS (b)	: 1.500E+0001 ft
DISCHARGE RATE (Q)	: 1.250E+0000 gpm
PUMPING WELL RADIUS (r)	: 5.000E–0001 ft
DISTANCE OF OBS. WELL FROM PUMPING WELL (d)	: 6.230E+0001 ft

GROUNDWATER TECHNOLOGY, INC.

CPC–PONTIAC MW–1



o – Data
+ – Type Curve
Unconf. Delayed: beta = 2.50

MATCH POINT			SOLUTION		
t	=	1.000E+0001	Transmissivity	=	3.062E+0002 gpd/ft
s	=	1.000E–0001	Hydraulic. Cond.	=	2.041E+0001 gpd/sq ft
1/Ub	=	8.913E–0004	Specific Yield	=	5.523E–0002
W(Ub, B)	=	2.138E–0002			

WELL INFORMATION		
WELL IDENTIFICATION	:	MW–1
DATE OF AQUIFER TEST	:	5/8/90
AQUIFER THICKNESS (b)	:	1.500E+0001 ft
DISCHARGE RATE (Q)	:	1.250E+0000 gpm
PUMPING WELL RADIUS (r)	:	5.000E–0001 ft
DISTANCE OF OBS. WELL FROM PUMPING WELL (d)	:	7.600E+0001 ft

GROUNDWATER TECHNOLOGY, INC.

SLUG TEST
PROJECT NAME: CPC PONTIAC
PROJECT NUMBER: 4000-9897-02

DATE OF TEST: 3-13-90
WELL NUMBER: MW-3
INITIAL WATER DEPTH OR LEVEL: 20.23 FT
CASING DIAMETER: (d) .16667 FT INTAKE DIAMETER: (D) .58333 FT
LENGTH OF SCREEN: (L) 10 FT

ELAPSED TIME	WATER LEVEL	RECOVERY	HEAD RATIO
MIN	FT	FT	H/HO
0.25	25.78	5.55	1.0000
0.50	25.27	5.04	0.9081
0.75	25.02	4.79	0.8631
1.00	24.78	4.55	0.8198
1.50	24.37	4.14	0.7459
2.00	24.10	3.87	0.6973
2.50	23.73	3.50	0.6306
3.00	23.37	3.14	0.5658
3.50	22.98	2.75	0.4955
4.00	22.57	2.34	0.4216
4.50	22.05	1.82	0.3279
5.00	21.74	1.51	0.2721
6.00	21.05	0.82	0.1477
7.00	20.37	0.14	0.0252
8.00	20.35	0.12	0.0216
9.00	20.33	0.10	0.0180
10.00	20.32	0.09	0.0162
11.00	20.32	0.09	0.0162
12.00	20.31	0.08	0.0144
13.00	20.31	0.08	0.0144
14.00	20.31	0.08	0.0144
15.00	20.30	0.07	0.0126
20.00	20.30	0.07	0.0126
25.00	20.30	0.07	0.0126
30.00	20.28	0.05	0.0090
45.00	20.25	0.02	0.0036
60.00	20.23	0.00	0.0000

THE VALUE OF TIME (T) AT H/HO = 4.259844

F = PI * L/ ln((L/D) + SQRT(1 +(L/D)^2)
F = 8.885632 FT

K = (PI * d^2/4)/(F * T)
K = 5.763979E-04 FT/MIN
= 0.0005764
K = 2.881989E-04 CM/S
= 0.0002882
K = 6.205884 U.S. GAL./DAY/FT^2
= 6.2

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-20, INJECTION
TIME OF SLUG INJ/WITH = 15:25:48 MILITARY TIME
STATIC WATER LEVEL = 25.32 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 163
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	15:25:55	24.76	0.12	0.000	0.56	0.56
01/18/93	15:25:55	24.66	0.12	0.000	0.66	0.66
01/18/93	15:25:56	24.63	0.13	0.000	0.69	0.69
01/18/93	15:25:56	24.53	0.13	0.000	0.79	0.79
01/18/93	15:25:56	24.42	0.13	0.000	0.90	0.90
01/18/93	15:25:56	24.34	0.14	0.000	0.98	0.98
01/18/93	15:25:56	24.45	0.14	0.000	0.87	0.87
01/18/93	15:25:57	24.41	0.14	0.000	0.91	0.91
01/18/93	15:25:57	24.51	0.15	0.000	0.81	0.81
01/18/93	15:25:57	24.52	0.15	0.000	0.80	0.80
01/18/93	15:25:57	24.53	0.15	0.000	0.79	0.79
01/18/93	15:25:57	24.50	0.16	0.000	0.82	0.82
01/18/93	15:25:58	24.43	0.16	0.000	0.89	0.89
01/18/93	15:25:58	24.38	0.16	0.000	0.94	0.94
01/18/93	15:25:58	24.52	0.17	0.000	0.80	0.80
01/18/93	15:25:58	24.74	0.17	0.000	0.58	0.58
01/18/93	15:25:58	24.60	0.17	0.000	0.72	0.72
01/18/93	15:25:59	24.83	0.18	0.000	0.49	0.49
01/18/93	15:25:59	24.97	0.18	0.000	0.35	0.35
01/18/93	15:25:59	24.85	0.18	0.000	0.47	0.47
01/18/93	15:25:59	24.80	0.19	0.000	0.52	0.52
01/18/93	15:25:59	24.97	0.19	0.000	0.35	0.35
01/18/93	15:26:00	24.83	0.19	0.000	0.49	0.49
01/18/93	15:26:00	24.68	0.20	0.000	0.64	0.64
01/18/93	15:26:00	25.12	0.20	0.000	0.20	0.20
01/18/93	15:26:00	24.93	0.20	0.000	0.39	0.39
01/18/93	15:26:00	25.04	0.21	0.000	0.28	0.28
01/18/93	15:26:01	25.01	0.21	0.000	0.31	0.31
01/18/93	15:26:01	24.99	0.21	0.000	0.33	0.33
01/18/93	15:26:01	25.02	0.22	0.000	0.30	0.30
01/18/93	15:26:01	25.00	0.22	0.000	0.32	0.32
01/18/93	15:26:01	25.04	0.22	0.000	0.28	0.28
01/18/93	15:26:02	25.04	0.23	0.000	0.28	0.28
01/18/93	15:26:02	25.05	0.23	0.000	0.27	0.27
01/18/93	15:26:02	25.06	0.23	0.000	0.26	0.26
01/18/93	15:26:02	25.07	0.24	0.000	0.25	0.25
01/18/93	15:26:02	25.08	0.24	0.000	0.24	0.24

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-20, INJECTION
TIME OF SLUG INJ/WITH = 15:25:48 MILITARY TIME
STATIC WATER LEVEL = 25.32 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 163
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	15:26:03	25.09	0.24	0.000	0.23	0.23
01/18/93	15:26:03	25.10	0.25	0.000	0.22	0.22
01/18/93	15:26:03	25.11	0.25	0.000	0.21	0.21
01/18/93	15:26:03	25.12	0.25	0.000	0.20	0.20
01/18/93	15:26:03	25.12	0.26	0.000	0.20	0.20
01/18/93	15:26:04	25.13	0.26	0.000	0.19	0.19
01/18/93	15:26:04	25.14	0.26	0.000	0.18	0.18
01/18/93	15:26:04	25.14	0.27	0.000	0.18	0.18
01/18/93	15:26:04	25.15	0.27	0.000	0.17	0.17
01/18/93	15:26:04	25.15	0.27	0.000	0.17	0.17
01/18/93	15:26:05	25.16	0.28	0.000	0.16	0.16
01/18/93	15:26:05	25.16	0.28	0.000	0.16	0.16
01/18/93	15:26:05	25.16	0.28	0.000	0.16	0.16
01/18/93	15:26:05	25.17	0.29	0.000	0.15	0.15
01/18/93	15:26:05	25.18	0.29	0.000	0.14	0.14
01/18/93	15:26:06	25.18	0.29	0.000	0.14	0.14
01/18/93	15:26:06	25.18	0.30	0.000	0.14	0.14
01/18/93	15:26:06	25.19	0.30	0.000	0.13	0.13
01/18/93	15:26:06	25.19	0.30	0.000	0.13	0.13
01/18/93	15:26:06	25.19	0.31	0.000	0.13	0.13
01/18/93	15:26:07	25.19	0.31	0.000	0.13	0.13
01/18/93	15:26:07	25.19	0.31	0.000	0.13	0.13
01/18/93	15:26:07	25.20	0.32	0.000	0.12	0.12
01/18/93	15:26:07	25.20	0.32	0.000	0.12	0.12
01/18/93	15:26:07	25.20	0.32	0.000	0.12	0.12
01/18/93	15:26:08	25.21	0.33	0.000	0.11	0.11
01/18/93	15:26:08	25.21	0.33	0.000	0.11	0.11
01/18/93	15:26:08	25.21	0.33	0.000	0.11	0.11
01/18/93	15:26:09	25.21	0.35	0.000	0.11	0.11
01/18/93	15:26:10	25.22	0.37	0.000	0.10	0.10
01/18/93	15:26:11	25.23	0.38	0.000	0.09	0.09
01/18/93	15:26:12	25.23	0.40	0.000	0.09	0.09
01/18/93	15:26:13	25.24	0.42	0.000	0.08	0.08
01/18/93	15:26:14	25.24	0.43	0.000	0.08	0.08
01/18/93	15:26:15	25.25	0.45	0.000	0.07	0.07
01/18/93	15:26:16	25.24	0.47	0.000	0.08	0.08
01/18/93	15:26:17	25.24	0.48	0.000	0.08	0.08

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-20, INJECTION
TIME OF SLUG INJ/WITH = 15:25:48 MILITARY TIME
STATIC WATER LEVEL = 25.32 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 163
INJECTION/WITHDRAWAL (1/2): 1

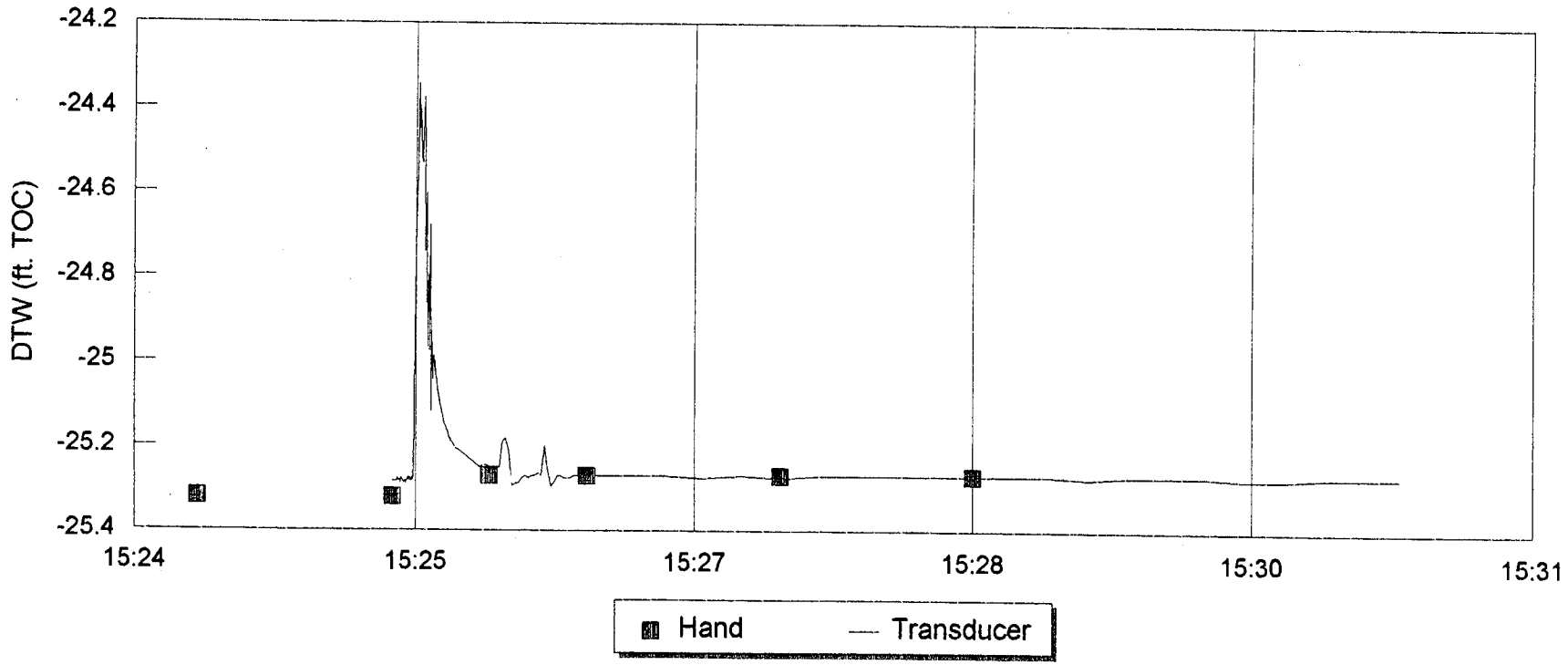
DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	15:26:18	25.25	0.50	0.000	0.07	0.07
01/18/93	15:26:19	25.25	0.52	0.000	0.07	0.07
01/18/93	15:26:20	25.25	0.53	0.000	0.07	0.07
01/18/93	15:26:21	25.25	0.55	0.000	0.07	0.07
01/18/93	15:26:22	25.19	0.57	0.000	0.13	0.13
01/18/93	15:26:23	25.18	0.58	0.000	0.14	0.14
01/18/93	15:26:24	25.21	0.60	0.000	0.11	0.11
01/18/93	15:26:25	25.30	0.62	0.000	0.02	0.02
01/18/93	15:26:26	25.29	0.63	0.000	0.03	0.03
01/18/93	15:26:27	25.29	0.65	0.000	0.03	0.03
01/18/93	15:26:28	25.28	0.67	0.000	0.04	0.04
01/18/93	15:26:29	25.27	0.68	0.000	0.05	0.05
01/18/93	15:26:30	25.28	0.70	0.000	0.04	0.04
01/18/93	15:26:31	25.27	0.72	0.000	0.05	0.05
01/18/93	15:26:32	25.27	0.73	0.001	0.05	0.05
01/18/93	15:26:33	25.26	0.75	0.001	0.06	0.06
01/18/93	15:26:34	25.27	0.77	0.001	0.05	0.05
01/18/93	15:26:35	25.20	0.78	0.001	0.12	0.12
01/18/93	15:26:36	25.26	0.80	0.001	0.06	0.06
01/18/93	15:26:37	25.30	0.82	0.001	0.02	0.02
01/18/93	15:26:38	25.28	0.83	0.001	0.04	0.04
01/18/93	15:26:39	25.27	0.85	0.001	0.05	0.05
01/18/93	15:26:40	25.27	0.87	0.001	0.05	0.05
01/18/93	15:26:41	25.28	0.88	0.001	0.04	0.04
01/18/93	15:26:42	25.28	0.90	0.001	0.04	0.04
01/18/93	15:26:43	25.28	0.92	0.001	0.04	0.04
01/18/93	15:26:44	25.27	0.93	0.001	0.05	0.05
01/18/93	15:26:45	25.27	0.95	0.001	0.05	0.05
01/18/93	15:26:46	25.27	0.97	0.001	0.05	0.05
01/18/93	15:26:47	25.28	0.98	0.001	0.04	0.04
01/18/93	15:26:48	25.27	1.00	0.001	0.05	0.05
01/18/93	15:27:00	25.27	1.20	0.001	0.05	0.05
01/18/93	15:27:12	25.27	1.40	0.001	0.05	0.05
01/18/93	15:27:24	25.28	1.60	0.001	0.04	0.04
01/18/93	15:27:36	25.27	1.80	0.001	0.05	0.05
01/18/93	15:27:48	25.28	2.00	0.001	0.04	0.04
01/18/93	15:28:00	25.27	2.20	0.002	0.05	0.05

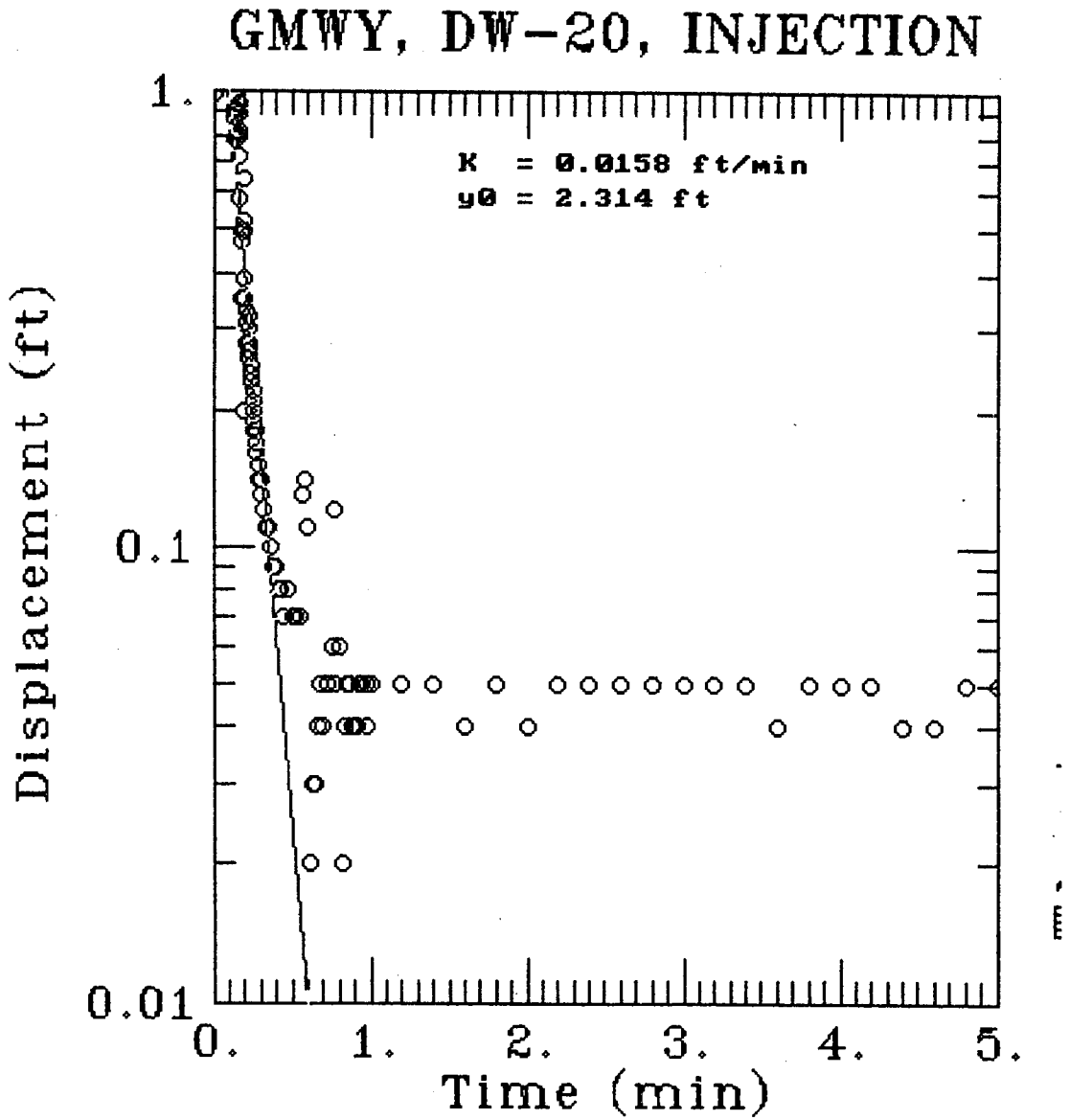
SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-20, INJECTION
TIME OF SLUG INJ/WITH = 15:25:48 MILITARY TIME
STATIC WATER LEVEL = 25.32 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 163
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	15:28:12	25.27	2.40	0.002	0.05	0.05
01/18/93	15:28:24	25.27	2.60	0.002	0.05	0.05
01/18/93	15:28:36	25.27	2.80	0.002	0.05	0.05
01/18/93	15:28:48	25.27	3.00	0.002	0.05	0.05
01/18/93	15:29:00	25.27	3.20	0.002	0.05	0.05
01/18/93	15:29:12	25.27	3.40	0.002	0.05	0.05
01/18/93	15:29:24	25.28	3.60	0.003	0.04	0.04
01/18/93	15:29:36	25.27	3.80	0.003	0.05	0.05
01/18/93	15:29:48	25.27	4.00	0.003	0.05	0.05
01/18/93	15:30:00	25.27	4.20	0.003	0.05	0.05
01/18/93	15:30:12	25.28	4.40	0.003	0.04	0.04
01/18/93	15:30:24	25.28	4.60	0.003	0.04	0.04
01/18/93	15:30:36	25.27	4.80	0.003	0.05	0.05
01/18/93	15:30:48	25.27	5.00	0.003	0.05	0.05
01/18/93	15:31:00	25.27	5.20	0.004	0.05	0.05

AQUIFER TEST QA PLOT

GM-WEST YARD, DW20, INJECTION




GMWY, DW-20, INJECTION
K = 0.0158 ft/min
y0 = 2.314 ft
Displacement (ft)
1.
0.1
0.01
0.
1.
2.
3.
4.
5.
Time (min)

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-20, WITHDRAWAL
TIME OF SLUG INJ/WITH = 15:35:42 MILITARY TIME
STATIC WATER LEVEL = 25.27 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 163
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	15:34:42	25.27	-1.00	-0.001	0.00	0.00
01/18/93	15:35:42	25.33	0.00	0.000	0.06	0.06
01/18/93	15:35:42	25.48	0.00	0.000	0.21	0.21
01/18/93	15:35:42	25.41	0.01	0.000	0.14	0.14
01/18/93	15:35:43	25.28	0.01	0.000	0.01	0.01
01/18/93	15:35:43	25.29	0.01	0.000	0.02	0.02
01/18/93	15:35:43	25.15	0.02	0.000	-0.12	-0.12
01/18/93	15:35:43	25.47	0.02	0.000	0.20	0.20
01/18/93	15:35:43	25.24	0.02	0.000	-0.03	-0.03
01/18/93	15:35:44	25.53	0.03	0.000	0.26	0.26
01/18/93	15:35:44	25.39	0.03	0.000	0.12	0.12
01/18/93	15:35:44	25.37	0.03	0.000	0.10	0.10
01/18/93	15:35:44	25.74	0.04	0.000	0.47	0.47
01/18/93	15:35:44	25.75	0.04	0.000	0.47	0.47
01/18/93	15:35:45	25.66	0.04	0.000	0.39	0.39
01/18/93	15:35:45	25.97	0.05	0.000	0.70	0.70
01/18/93	15:35:45	26.03	0.05	0.000	0.76	0.76
01/18/93	15:35:45	26.13	0.05	0.000	0.86	0.86
01/18/93	15:35:45	26.21	0.06	0.000	0.93	0.93
01/18/93	15:35:46	26.27	0.06	0.000	1.00	1.00
01/18/93	15:35:46	26.26	0.06	0.000	0.98	0.98
01/18/93	15:35:46	26.21	0.07	0.000	0.93	0.93
01/18/93	15:35:46	26.14	0.07	0.000	0.86	0.86
01/18/93	15:35:46	26.08	0.07	0.000	0.81	0.81
01/18/93	15:35:47	26.02	0.08	0.000	0.75	0.75
01/18/93	15:35:47	25.95	0.08	0.000	0.68	0.68
01/18/93	15:35:47	25.91	0.08	0.000	0.64	0.64
01/18/93	15:35:47	25.87	0.09	0.000	0.59	0.59
01/18/93	15:35:47	25.83	0.09	0.000	0.56	0.56
01/18/93	15:35:48	25.79	0.09	0.000	0.52	0.52
01/18/93	15:35:48	25.76	0.10	0.000	0.49	0.49
01/18/93	15:35:48	25.73	0.10	0.000	0.46	0.46
01/18/93	15:35:48	25.70	0.10	0.000	0.43	0.43
01/18/93	15:35:48	25.68	0.11	0.000	0.40	0.40
01/18/93	15:35:49	25.66	0.11	0.000	0.39	0.39
01/18/93	15:35:49	25.63	0.11	0.000	0.36	0.36
01/18/93	15:35:49	25.61	0.12	0.000	0.34	0.34

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-20, WITHDRAWAL
TIME OF SLUG INJ/WITH = 15:35:42 MILITARY TIME
STATIC WATER LEVEL = 25.27 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 163
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	15:35:49	25.59	0.12	0.000	0.32	0.32
01/18/93	15:35:49	25.58	0.12	0.000	0.30	0.30
01/18/93	15:35:50	25.56	0.13	0.000	0.29	0.29
01/18/93	15:35:50	25.55	0.13	0.000	0.28	0.28
01/18/93	15:35:50	25.53	0.13	0.000	0.26	0.26
01/18/93	15:35:50	25.52	0.14	0.000	0.25	0.25
01/18/93	15:35:50	25.51	0.14	0.000	0.23	0.23
01/18/93	15:35:51	25.49	0.14	0.000	0.22	0.22
01/18/93	15:35:51	25.49	0.15	0.000	0.22	0.22
01/18/93	15:35:51	25.47	0.15	0.000	0.20	0.20
01/18/93	15:35:51	25.47	0.15	0.000	0.20	0.20
01/18/93	15:35:51	25.46	0.16	0.000	0.18	0.18
01/18/93	15:35:52	25.45	0.16	0.000	0.18	0.18
01/18/93	15:35:52	25.44	0.16	0.000	0.17	0.17
01/18/93	15:35:52	25.43	0.17	0.000	0.16	0.16
01/18/93	15:35:52	25.42	0.17	0.000	0.15	0.15
01/18/93	15:35:52	25.42	0.17	0.000	0.15	0.15
01/18/93	15:35:53	25.41	0.18	0.000	0.14	0.14
01/18/93	15:35:53	25.40	0.18	0.000	0.13	0.13
01/18/93	15:35:53	25.40	0.18	0.000	0.13	0.13
01/18/93	15:35:53	25.40	0.19	0.000	0.13	0.13
01/18/93	15:35:53	25.39	0.19	0.000	0.12	0.12
01/18/93	15:35:54	25.39	0.19	0.000	0.12	0.12
01/18/93	15:35:54	25.39	0.20	0.000	0.12	0.12
01/18/93	15:35:54	25.39	0.20	0.000	0.12	0.12
01/18/93	15:35:54	25.38	0.20	0.000	0.11	0.11
01/18/93	15:35:54	25.38	0.21	0.000	0.11	0.11
01/18/93	15:35:55	25.37	0.21	0.000	0.10	0.10
01/18/93	15:35:55	25.36	0.21	0.000	0.09	0.09
01/18/93	15:35:55	25.36	0.22	0.000	0.09	0.09
01/18/93	15:35:55	25.36	0.22	0.000	0.09	0.09
01/18/93	15:35:55	25.35	0.22	0.000	0.08	0.08
01/18/93	15:35:56	25.35	0.23	0.000	0.08	0.08
01/18/93	15:35:56	25.35	0.23	0.000	0.08	0.08
01/18/93	15:35:56	25.35	0.23	0.000	0.08	0.08
01/18/93	15:35:56	25.35	0.24	0.000	0.08	0.08
01/18/93	15:35:56	25.34	0.24	0.000	0.07	0.07

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-20, WITHDRAWAL
TIME OF SLUG INJ/WITH = 15:35:42 MILITARY TIME
STATIC WATER LEVEL = 25.27 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 163
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	15:35:57	25.34	0.24	0.000	0.07	0.07
01/18/93	15:35:57	25.34	0.25	0.000	0.07	0.07
01/18/93	15:35:57	25.34	0.25	0.000	0.07	0.07
01/18/93	15:35:57	25.34	0.25	0.000	0.06	0.06
01/18/93	15:35:57	25.34	0.26	0.000	0.06	0.06
01/18/93	15:35:58	25.34	0.26	0.000	0.06	0.06
01/18/93	15:35:58	25.34	0.26	0.000	0.06	0.06
01/18/93	15:35:58	25.33	0.27	0.000	0.06	0.06
01/18/93	15:35:58	25.33	0.27	0.000	0.06	0.06
01/18/93	15:35:58	25.33	0.27	0.000	0.06	0.06
01/18/93	15:35:59	25.33	0.28	0.000	0.06	0.06
01/18/93	15:35:59	25.33	0.28	0.000	0.06	0.06
01/18/93	15:35:59	25.32	0.28	0.000	0.05	0.05
01/18/93	15:35:59	25.32	0.29	0.000	0.05	0.05
01/18/93	15:35:59	25.32	0.29	0.000	0.05	0.05
01/18/93	15:36:00	25.32	0.29	0.000	0.05	0.05
01/18/93	15:36:00	25.32	0.30	0.000	0.05	0.05
01/18/93	15:36:00	25.32	0.30	0.000	0.05	0.05
01/18/93	15:36:00	25.32	0.30	0.000	0.05	0.05
01/18/93	15:36:00	25.32	0.31	0.000	0.05	0.05
01/18/93	15:36:01	25.32	0.31	0.000	0.05	0.05
01/18/93	15:36:01	25.32	0.31	0.000	0.05	0.05
01/18/93	15:36:01	25.32	0.32	0.000	0.05	0.05
01/18/93	15:36:01	25.32	0.32	0.000	0.05	0.05
01/18/93	15:36:01	25.32	0.32	0.000	0.05	0.05
01/18/93	15:36:02	25.32	0.33	0.000	0.05	0.05
01/18/93	15:36:02	25.31	0.33	0.000	0.04	0.04
01/18/93	15:36:02	25.31	0.33	0.000	0.04	0.04
01/18/93	15:36:03	25.30	0.35	0.000	0.03	0.03
01/18/93	15:36:04	25.30	0.37	0.000	0.03	0.03
01/18/93	15:36:05	25.30	0.38	0.000	0.03	0.03
01/18/93	15:36:06	25.30	0.40	0.000	0.03	0.03
01/18/93	15:36:07	25.30	0.42	0.000	0.03	0.03
01/18/93	15:36:08	25.29	0.43	0.000	0.02	0.02
01/18/93	15:36:09	25.29	0.45	0.000	0.02	0.02
01/18/93	15:36:10	25.29	0.47	0.000	0.02	0.02
01/18/93	15:36:11	25.25	0.48	0.000	-0.02	-0.02

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-20, WITHDRAWAL
TIME OF SLUG INJ/WITH = 15:35:42 MILITARY TIME
STATIC WATER LEVEL = 25.27 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 163
INJECTION/WITHDRAWAL (1/2): 2

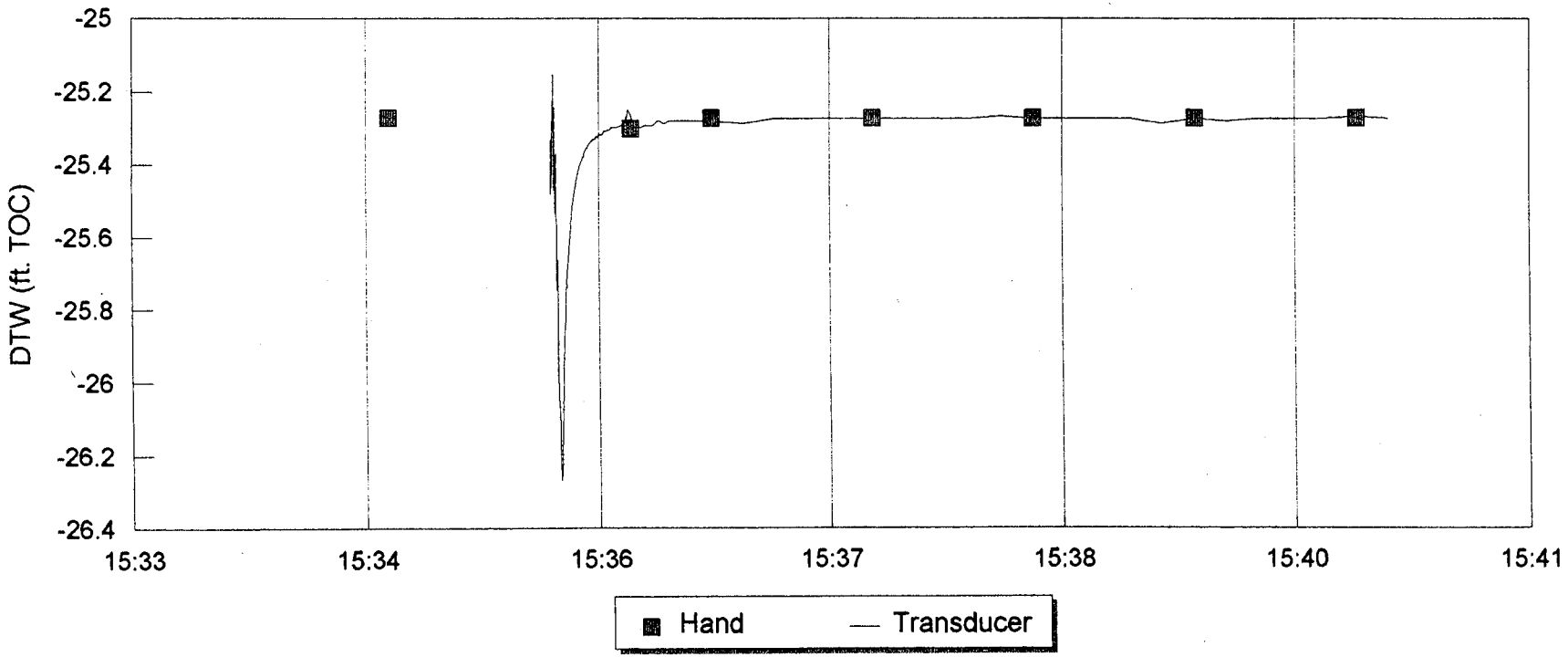
DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	15:36:12	25.27	0.50	0.000	-0.00	-0.00
01/18/93	15:36:13	25.29	0.52	0.000	0.02	0.02
01/18/93	15:36:14	25.30	0.53	0.000	0.03	0.03
01/18/93	15:36:15	25.30	0.55	0.000	0.03	0.03
01/18/93	15:36:16	25.30	0.57	0.000	0.03	0.03
01/18/93	15:36:17	25.29	0.58	0.000	0.02	0.02
01/18/93	15:36:18	25.29	0.60	0.000	0.02	0.02
01/18/93	15:36:19	25.29	0.62	0.000	0.02	0.02
01/18/93	15:36:20	25.29	0.63	0.000	0.02	0.02
01/18/93	15:36:21	25.29	0.65	0.000	0.01	0.01
01/18/93	15:36:22	25.28	0.67	0.000	0.01	0.01
01/18/93	15:36:23	25.28	0.68	0.000	0.01	0.01
01/18/93	15:36:24	25.29	0.70	0.000	0.01	0.01
01/18/93	15:36:25	25.29	0.72	0.000	0.01	0.01
01/18/93	15:36:26	25.28	0.73	0.001	0.01	0.01
01/18/93	15:36:27	25.28	0.75	0.001	0.01	0.01
01/18/93	15:36:28	25.28	0.77	0.001	0.01	0.01
01/18/93	15:36:29	25.28	0.78	0.001	0.01	0.01
01/18/93	15:36:30	25.28	0.80	0.001	0.01	0.01
01/18/93	15:36:31	25.28	0.82	0.001	0.01	0.01
01/18/93	15:36:32	25.28	0.83	0.001	0.01	0.01
01/18/93	15:36:33	25.28	0.85	0.001	0.01	0.01
01/18/93	15:36:34	25.28	0.87	0.001	0.01	0.01
01/18/93	15:36:35	25.28	0.88	0.001	0.01	0.01
01/18/93	15:36:36	25.28	0.90	0.001	0.01	0.01
01/18/93	15:36:37	25.28	0.92	0.001	0.01	0.01
01/18/93	15:36:38	25.28	0.93	0.001	0.01	0.01
01/18/93	15:36:39	25.28	0.95	0.001	0.01	0.01
01/18/93	15:36:40	25.28	0.97	0.001	0.01	0.01
01/18/93	15:36:41	25.28	0.98	0.001	0.01	0.01
01/18/93	15:36:42	25.28	1.00	0.001	0.01	0.01
01/18/93	15:36:54	25.29	1.20	0.001	0.01	0.01
01/18/93	15:37:06	25.27	1.40	0.001	0.00	0.00
01/18/93	15:37:18	25.27	1.60	0.001	0.00	0.00
01/18/93	15:37:30	25.27	1.80	0.001	0.00	0.00
01/18/93	15:37:42	25.27	2.00	0.001	0.00	0.00
01/18/93	15:37:54	25.27	2.20	0.002	0.00	0.00

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-20, WITHDRAWAL
TIME OF SLUG INJ/WITH = 15:35:42 MILITARY TIME
STATIC WATER LEVEL = 25.27 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 163
INJECTION/WITHDRAWAL (1/2): 2

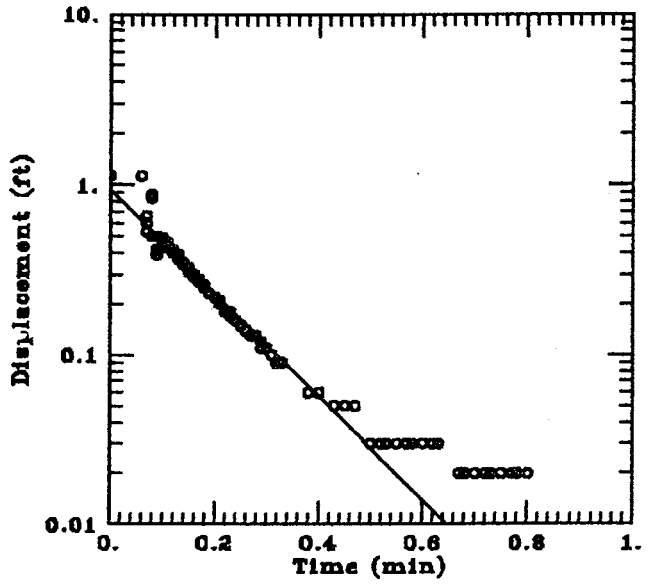
DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	15:38:06	25.27	2.40	0.002	0.00	0.00
01/18/93	15:38:18	25.27	2.60	0.002	0.00	0.00
01/18/93	15:38:30	25.27	2.80	0.002	-0.00	-0.00
01/18/93	15:38:42	25.27	3.00	0.002	0.00	0.00
01/18/93	15:38:54	25.27	3.20	0.002	0.00	0.00
01/18/93	15:39:06	25.27	3.40	0.002	0.00	0.00
01/18/93	15:39:18	25.27	3.60	0.003	0.00	0.00
01/18/93	15:39:30	25.29	3.80	0.003	0.01	0.01
01/18/93	15:39:42	25.27	4.00	0.003	0.00	0.00
01/18/93	15:39:54	25.28	4.20	0.003	0.01	0.01
01/18/93	15:40:06	25.27	4.40	0.003	0.00	0.00
01/18/93	15:40:18	25.27	4.60	0.003	0.00	0.00
01/18/93	15:40:30	25.27	4.80	0.003	0.00	0.00
01/18/93	15:40:42	25.27	5.00	0.003	-0.00	-0.00
01/18/93	15:40:54	25.27	5.20	0.004	0.00	0.00

AQUIFER TEST QA PLOT

GM-WEST YARD, DW-20, WITHDRAWAL



GMWY, DW-18, INJECTION



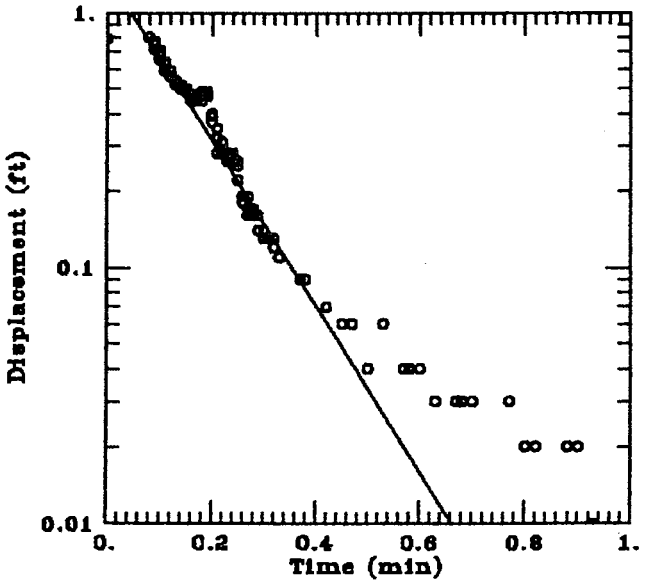
DATA SET:
C:\GMWY\PRT\AQT
02/01/96

AQUIFER TYP
Unconfined
SOLUTION ME
Bouwer-Rice

ESTIMATED P
K = 0.01236 ft
y0 = 0.9315 ft

TEST DATA:
H0 = 1.13 ft
rc = 0.08 ft
rw = 0.33 ft
L = 5. ft
b = 21.2 ft
H = 21.2 ft

GMWY, DW18, WITHDRAWAL



DATA SET:
C:\GMWY\PRT\AQT
02/01/96

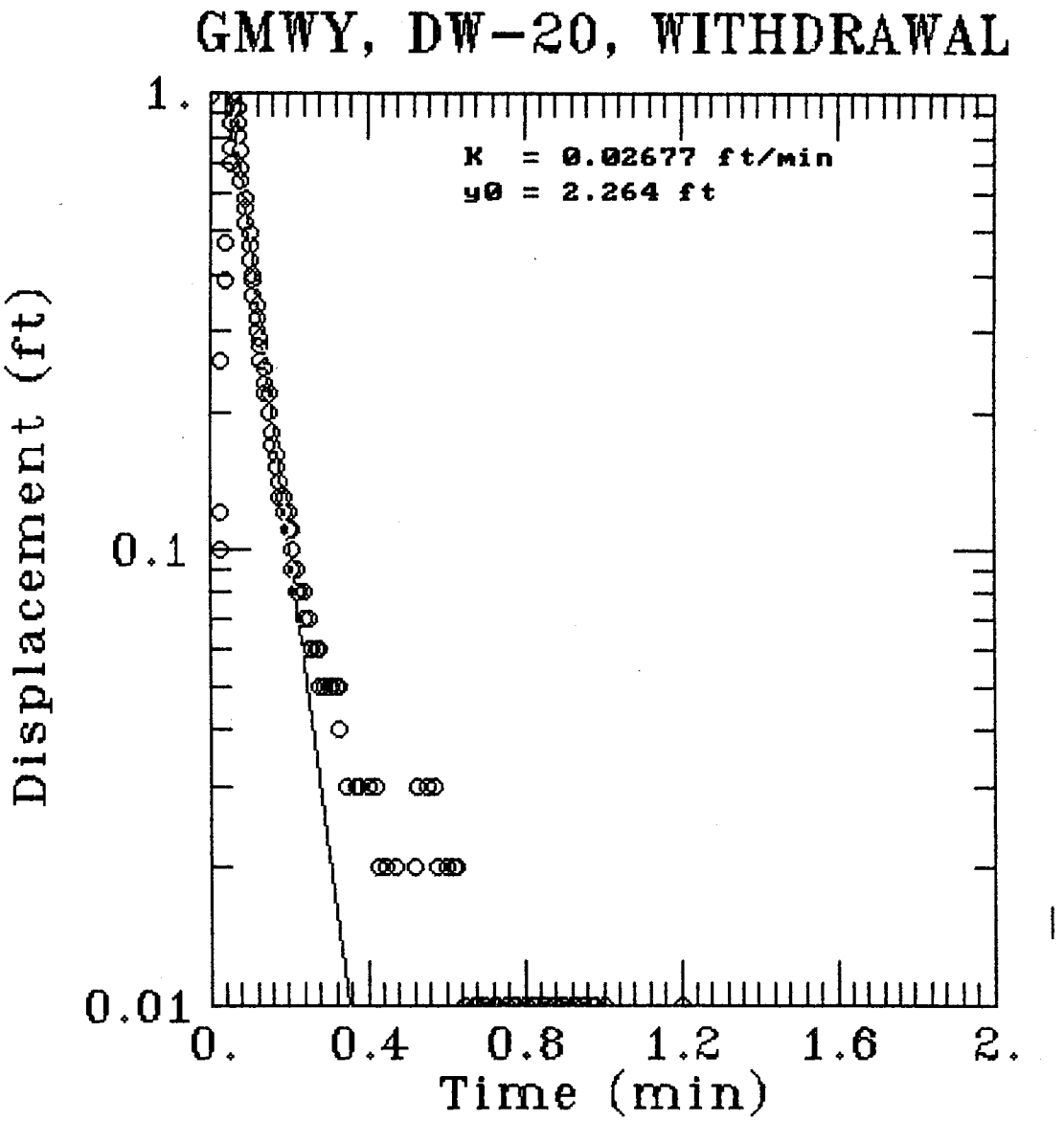
AQUIFER TYP
Unconfined
SOLUTION ME
Bouwer-Rice

ESTIMATED P
K = 0.01318 ft
y0 = 1.419 ft

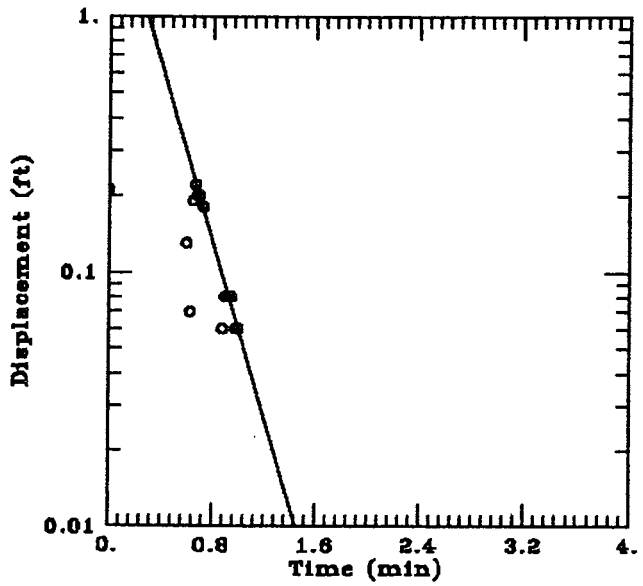
TEST DATA:
H0 = 0.79 ft
rc = 0.08 ft
rw = 0.33 ft
L = 5. ft
b = 21.2 ft
H = 21.2 ft

SITE: GENERAL MOTORS, PONTIAC MI. WEST YARD
WELL: DW-18, INJECTION
TIME OF SLUG INJ/WITH = 12:56:05 MILITARY TIME
STATIC WATER LEVEL = 17.14 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 158
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	12:55:05	17.14	-1.00	-0.001	0.00	0.00
01/18/93	12:56:05	17.17	0.00	0.000	-0.03	-0.03
01/18/93	12:56:05	17.17	0.00	0.000	-0.03	-0.03
01/18/93	12:56:05	17.15	0.01	0.000	-0.01	-0.01
01/18/93	12:56:06	17.15	0.01	0.000	-0.01	-0.01
01/18/93	12:56:06	17.15	0.01	0.000	-0.01	-0.01
01/18/93	12:56:06	17.01	0.02	0.000	0.13	0.13
01/18/93	12:56:06	16.99	0.02	0.000	0.15	0.15
01/18/93	12:56:06	16.89	0.02	0.000	0.25	0.25
01/18/93	12:56:07	16.71	0.03	0.000	0.43	0.43
01/18/93	12:56:07	16.67	0.03	0.000	0.47	0.47
01/18/93	12:56:07	16.51	0.03	0.000	0.63	0.63
01/18/93	12:56:07	16.61	0.04	0.000	0.53	0.53
01/18/93	12:56:07	16.30	0.04	0.000	0.84	0.84
01/18/93	12:56:08	15.75	0.04	0.000	1.39	1.39
01/18/93	12:56:08	16.43	0.05	0.000	0.71	0.71
01/18/93	12:56:08	16.61	0.05	0.000	0.53	0.53
01/18/93	12:56:08	16.48	0.05	0.000	0.66	0.66
01/18/93	12:56:08	16.24	0.06	0.000	0.90	0.90
01/18/93	12:56:09	16.13	0.06	0.000	1.01	1.01
01/18/93	12:56:09	16.01	0.06	0.000	1.13	1.13
01/18/93	12:56:09	16.61	0.07	0.000	0.53	0.53
01/18/93	12:56:09	16.54	0.07	0.000	0.60	0.60
01/18/93	12:56:09	16.48	0.07	0.000	0.66	0.66
01/18/93	12:56:10	16.30	0.08	0.000	0.84	0.84
01/18/93	12:56:10	16.26	0.08	0.000	0.88	0.88
01/18/93	12:56:10	16.64	0.08	0.000	0.50	0.50
01/18/93	12:56:10	16.75	0.09	0.000	0.39	0.39
01/18/93	12:56:10	16.72	0.09	0.000	0.42	0.42
01/18/93	12:56:11	16.64	0.09	0.000	0.50	0.50
01/18/93	12:56:11	16.71	0.10	0.000	0.43	0.43
01/18/93	12:56:11	16.65	0.10	0.000	0.49	0.49
01/18/93	12:56:11	16.66	0.10	0.000	0.48	0.48
01/18/93	12:56:11	16.68	0.11	0.000	0.46	0.46
01/18/93	12:56:12	16.69	0.11	0.000	0.45	0.45
01/18/93	12:56:12	16.70	0.11	0.000	0.44	0.44
01/18/93	12:56:12	16.72	0.12	0.000	0.42	0.42


GMWY, DW-20, WITHDRAWAL
K = 0.02677 ft/min
y0 = 2.264 ft
Displacement (ft)
1.
0.1
0.01
0.
0.4
0.8
1.2
1.6
2.
Time (min)

GMWY, DW-22, INJECTION



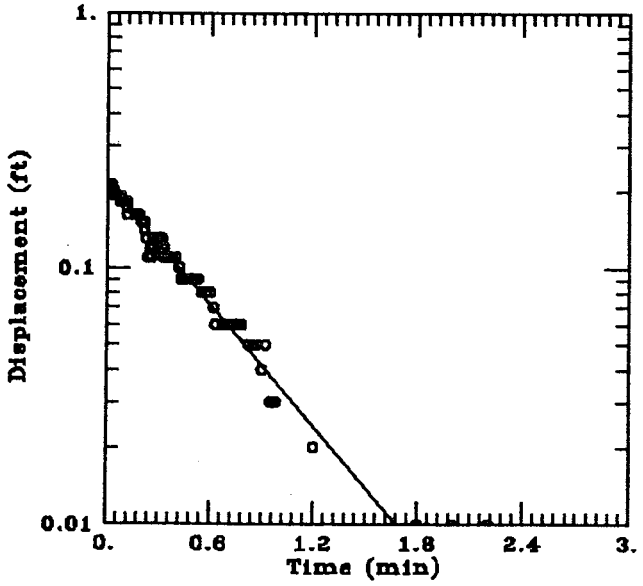
DATA SET:
C:\GMWY\PRT\AQT
02/01/96

AQUIFER TYP
Unconfined
SOLUTION ME
Bouwer-Rice

ESTIMATED P
K = 0.006292 f
y0 = 3.235 ft

TEST DATA:
H0 = 0.21 ft
rc = 0.08 ft
rw = 0.33 ft
L = 5. ft
b = 12.01 ft
H = 12.01 ft

GMWY, DW-22, WITHDRAWAL



DATA SET:
C:\GMWY\PRT\AQT
02/01/96

AQUIFER TYP
Unconfined
SOLUTION ME
Bouwer-Rice

ESTIMATED P
K = 0.002879 f
y0 = 0.2134 ft

TEST DATA:
H0 = 0.21 ft
rc = 0.08 ft
rw = 0.33 ft
L = 5. ft
b = 12.01 ft
H = 12.01 ft

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-22, INJECTION
TIME OF SLUG INJ/WITH = 16:48:01 MILITARY TIME
STATIC WATER LEVEL = 23.92 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 162
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	16:47:01	23.92	-1.00	-0.001	0.00	0.00
01/18/93	16:48:01	23.93	0.00	0.000	-0.01	-0.01
01/18/93	16:48:01	23.93	0.00	0.000	-0.01	-0.01
01/18/93	16:48:01	23.93	0.01	0.000	-0.01	-0.01
01/18/93	16:48:02	23.93	0.01	0.000	-0.01	-0.01
01/18/93	16:48:02	23.93	0.01	0.000	-0.01	-0.01
01/18/93	16:48:02	23.93	0.02	0.000	-0.01	-0.01
01/18/93	16:48:02	23.93	0.02	0.000	-0.01	-0.01
01/18/93	16:48:02	23.93	0.02	0.000	-0.01	-0.01
01/18/93	16:48:03	23.93	0.03	0.000	-0.01	-0.01
01/18/93	16:48:03	23.93	0.03	0.000	-0.01	-0.01
01/18/93	16:48:03	23.93	0.03	0.000	-0.01	-0.01
01/18/93	16:48:03	23.93	0.04	0.000	-0.01	-0.01
01/18/93	16:48:03	23.93	0.04	0.000	-0.01	-0.01
01/18/93	16:48:04	23.93	0.04	0.000	-0.01	-0.01
01/18/93	16:48:04	23.93	0.05	0.000	-0.01	-0.01
01/18/93	16:48:04	23.93	0.05	0.000	-0.01	-0.01
01/18/93	16:48:04	23.93	0.05	0.000	-0.01	-0.01
01/18/93	16:48:04	23.93	0.06	0.000	-0.01	-0.01
01/18/93	16:48:05	23.93	0.06	0.000	-0.01	-0.01
01/18/93	16:48:05	23.93	0.06	0.000	-0.01	-0.01
01/18/93	16:48:05	23.93	0.07	0.000	-0.01	-0.01
01/18/93	16:48:05	23.93	0.07	0.000	-0.01	-0.01
01/18/93	16:48:05	23.93	0.07	0.000	-0.01	-0.01
01/18/93	16:48:06	23.93	0.08	0.000	-0.01	-0.01
01/18/93	16:48:06	23.93	0.08	0.000	-0.01	-0.01
01/18/93	16:48:06	23.93	0.08	0.000	-0.01	-0.01
01/18/93	16:48:06	23.93	0.09	0.000	-0.01	-0.01
01/18/93	16:48:06	23.93	0.09	0.000	-0.01	-0.01
01/18/93	16:48:07	23.93	0.09	0.000	-0.01	-0.01
01/18/93	16:48:07	23.93	0.10	0.000	-0.01	-0.01
01/18/93	16:48:07	23.93	0.10	0.000	-0.01	-0.01
01/18/93	16:48:07	23.93	0.10	0.000	-0.01	-0.01
01/18/93	16:48:07	23.93	0.11	0.000	-0.01	-0.01
01/18/93	16:48:08	23.93	0.11	0.000	-0.01	-0.01
01/18/93	16:48:08	23.93	0.11	0.000	-0.01	-0.01
01/18/93	16:48:08	23.93	0.12	0.000	-0.01	-0.01

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-22, INJECTION
TIME OF SLUG INJ/WITH = 16:48:01 MILITARY TIME
STATIC WATER LEVEL = 23.92 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 162
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	16:48:08	23.93	0.12	0.000	-0.01	-0.01
01/18/93	16:48:08	23.93	0.12	0.000	-0.01	-0.01
01/18/93	16:48:09	23.93	0.13	0.000	-0.01	-0.01
01/18/93	16:48:09	23.93	0.13	0.000	-0.01	-0.01
01/18/93	16:48:09	23.93	0.13	0.000	-0.01	-0.01
01/18/93	16:48:09	23.93	0.14	0.000	-0.01	-0.01
01/18/93	16:48:09	23.93	0.14	0.000	-0.01	-0.01
01/18/93	16:48:10	23.93	0.14	0.000	-0.01	-0.01
01/18/93	16:48:10	23.93	0.15	0.000	-0.01	-0.01
01/18/93	16:48:10	23.93	0.15	0.000	-0.01	-0.01
01/18/93	16:48:10	23.93	0.15	0.000	-0.01	-0.01
01/18/93	16:48:10	23.93	0.16	0.000	-0.01	-0.01
01/18/93	16:48:11	23.93	0.16	0.000	-0.01	-0.01
01/18/93	16:48:11	23.93	0.16	0.000	-0.01	-0.01
01/18/93	16:48:11	23.93	0.17	0.000	-0.01	-0.01
01/18/93	16:48:11	23.93	0.17	0.000	-0.01	-0.01
01/18/93	16:48:11	23.93	0.17	0.000	-0.01	-0.01
01/18/93	16:48:12	23.93	0.18	0.000	-0.01	-0.01
01/18/93	16:48:12	23.93	0.18	0.000	-0.01	-0.01
01/18/93	16:48:12	23.93	0.18	0.000	-0.01	-0.01
01/18/93	16:48:12	23.93	0.19	0.000	-0.01	-0.01
01/18/93	16:48:12	23.93	0.19	0.000	-0.01	-0.01
01/18/93	16:48:13	23.93	0.19	0.000	-0.01	-0.01
01/18/93	16:48:13	23.93	0.20	0.000	-0.01	-0.01
01/18/93	16:48:13	23.93	0.20	0.000	-0.01	-0.01
01/18/93	16:48:13	23.93	0.20	0.000	-0.01	-0.01
01/18/93	16:48:13	23.93	0.21	0.000	-0.01	-0.01
01/18/93	16:48:14	23.93	0.21	0.000	-0.01	-0.01
01/18/93	16:48:14	23.93	0.21	0.000	-0.01	-0.01
01/18/93	16:48:14	23.93	0.22	0.000	-0.01	-0.01
01/18/93	16:48:14	23.93	0.22	0.000	-0.01	-0.01
01/18/93	16:48:14	23.93	0.22	0.000	-0.01	-0.01
01/18/93	16:48:15	23.93	0.23	0.000	-0.01	-0.01
01/18/93	16:48:15	23.93	0.23	0.000	-0.01	-0.01
01/18/93	16:48:15	23.93	0.23	0.000	-0.01	-0.01
01/18/93	16:48:15	23.93	0.24	0.000	-0.01	-0.01
01/18/93	16:48:15	23.93	0.24	0.000	-0.01	-0.01

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-22, INJECTION
TIME OF SLUG INJ/WITH = 16:48:01 MILITARY TIME
STATIC WATER LEVEL = 23.92 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 162
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	16:48:16	23.93	0.24	0.000	-0.01	-0.01
01/18/93	16:48:16	23.93	0.25	0.000	-0.01	-0.01
01/18/93	16:48:16	23.93	0.25	0.000	-0.01	-0.01
01/18/93	16:48:16	23.93	0.25	0.000	-0.01	-0.01
01/18/93	16:48:16	23.93	0.26	0.000	-0.01	-0.01
01/18/93	16:48:17	23.93	0.26	0.000	-0.01	-0.01
01/18/93	16:48:17	23.93	0.26	0.000	-0.01	-0.01
01/18/93	16:48:17	23.93	0.27	0.000	-0.01	-0.01
01/18/93	16:48:17	23.93	0.27	0.000	-0.01	-0.01
01/18/93	16:48:17	23.93	0.27	0.000	-0.01	-0.01
01/18/93	16:48:18	23.93	0.28	0.000	-0.01	-0.01
01/18/93	16:48:18	23.93	0.28	0.000	-0.01	-0.01
01/18/93	16:48:18	23.93	0.28	0.000	-0.01	-0.01
01/18/93	16:48:18	23.93	0.29	0.000	-0.01	-0.01
01/18/93	16:48:18	23.93	0.29	0.000	-0.01	-0.01
01/18/93	16:48:19	23.93	0.29	0.000	-0.01	-0.01
01/18/93	16:48:19	23.93	0.30	0.000	-0.01	-0.01
01/18/93	16:48:19	23.93	0.30	0.000	-0.01	-0.01
01/18/93	16:48:19	23.93	0.30	0.000	-0.01	-0.01
01/18/93	16:48:19	23.93	0.31	0.000	-0.01	-0.01
01/18/93	16:48:20	23.93	0.31	0.000	-0.01	-0.01
01/18/93	16:48:20	23.93	0.31	0.000	-0.01	-0.01
01/18/93	16:48:20	23.93	0.32	0.000	-0.01	-0.01
01/18/93	16:48:20	23.93	0.32	0.000	-0.01	-0.01
01/18/93	16:48:20	23.93	0.32	0.000	-0.01	-0.01
01/18/93	16:48:21	23.93	0.33	0.000	-0.01	-0.01
01/18/93	16:48:21	23.93	0.33	0.000	-0.01	-0.01
01/18/93	16:48:21	23.93	0.33	0.000	-0.01	-0.01
01/18/93	16:48:22	23.93	0.35	0.000	-0.01	-0.01
01/18/93	16:48:23	23.93	0.37	0.000	-0.01	-0.01
01/18/93	16:48:24	23.93	0.38	0.000	-0.01	-0.01
01/18/93	16:48:25	23.93	0.40	0.000	-0.01	-0.01
01/18/93	16:48:26	23.93	0.42	0.000	-0.01	-0.01
01/18/93	16:48:27	23.93	0.43	0.000	-0.01	-0.01
01/18/93	16:48:28	23.93	0.45	0.000	-0.01	-0.01
01/18/93	16:48:29	23.93	0.47	0.000	-0.01	-0.01
01/18/93	16:48:30	23.93	0.48	0.000	-0.01	-0.01

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-22, INJECTION
TIME OF SLUG INJ/WITH = 16:48:01 MILITARY TIME
STATIC WATER LEVEL = 23.92 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 162
INJECTION/WITHDRAWAL (1/2): 1

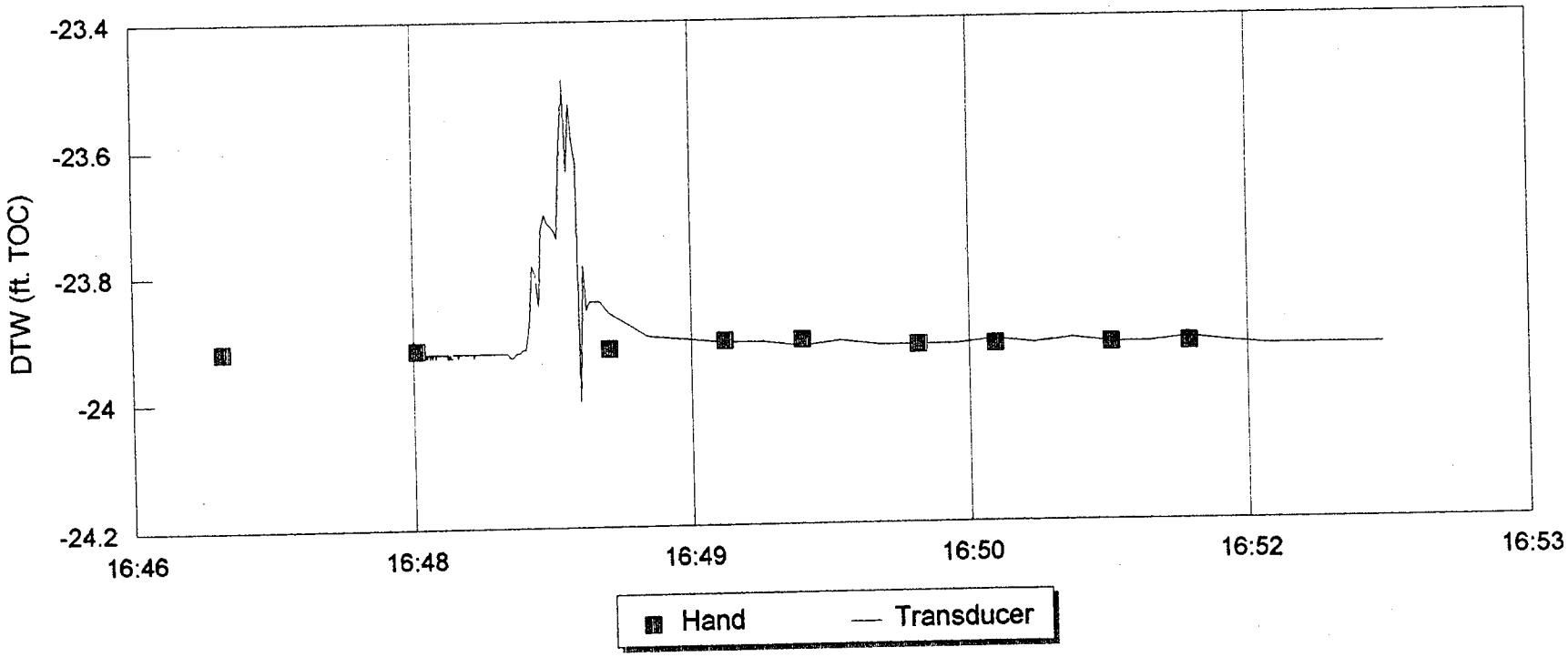
DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	16:48:31	23.93	0.50	0.000	-0.01	-0.01
01/18/93	16:48:32	23.93	0.52	0.000	-0.01	-0.01
01/18/93	16:48:33	23.93	0.53	0.000	-0.01	-0.01
01/18/93	16:48:34	23.92	0.55	0.000	0.00	0.00
01/18/93	16:48:35	23.92	0.57	0.000	0.00	0.00
01/18/93	16:48:36	23.88	0.58	0.000	0.04	0.04
01/18/93	16:48:37	23.79	0.60	0.000	0.13	0.13
01/18/93	16:48:38	23.80	0.62	0.000	0.12	0.12
01/18/93	16:48:39	23.85	0.63	0.000	0.07	0.07
01/18/93	16:48:40	23.73	0.65	0.000	0.19	0.19
01/18/93	16:48:41	23.71	0.67	0.000	0.22	0.22
01/18/93	16:48:42	23.72	0.68	0.000	0.20	0.20
01/18/93	16:48:43	23.72	0.70	0.000	0.20	0.20
01/18/93	16:48:44	23.73	0.72	0.000	0.19	0.19
01/18/93	16:48:45	23.74	0.73	0.001	0.18	0.18
01/18/93	16:48:46	23.57	0.75	0.001	0.35	0.35
01/18/93	16:48:47	23.49	0.77	0.001	0.43	0.43
01/18/93	16:48:48	23.64	0.78	0.001	0.28	0.28
01/18/93	16:48:49	23.53	0.80	0.001	0.39	0.39
01/18/93	16:48:50	23.59	0.82	0.001	0.33	0.33
01/18/93	16:48:51	23.62	0.83	0.001	0.30	0.30
01/18/93	16:48:52	24.00	0.85	0.001	-0.08	-0.08
01/18/93	16:48:53	23.79	0.87	0.001	0.13	0.13
01/18/93	16:48:54	23.86	0.88	0.001	0.06	0.06
01/18/93	16:48:55	23.84	0.90	0.001	0.08	0.08
01/18/93	16:48:56	23.84	0.92	0.001	0.08	0.08
01/18/93	16:48:57	23.84	0.93	0.001	0.08	0.08
01/18/93	16:48:58	23.84	0.95	0.001	0.08	0.08
01/18/93	16:48:59	23.85	0.97	0.001	0.07	0.07
01/18/93	16:49:00	23.86	0.98	0.001	0.06	0.06
01/18/93	16:49:01	23.86	1.00	0.001	0.06	0.06
01/18/93	16:49:13	23.90	1.20	0.001	0.02	0.02
01/18/93	16:49:25	23.91	1.40	0.001	0.01	0.01
01/18/93	16:49:37	23.91	1.60	0.001	0.01	0.01
01/18/93	16:49:49	23.91	1.80	0.001	0.01	0.01
01/18/93	16:50:01	23.92	2.00	0.001	0.00	0.00
01/18/93	16:50:13	23.91	2.20	0.002	0.01	0.01

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-22, INJECTION
TIME OF SLUG INJ/WITH = 16:48:01 MILITARY TIME
STATIC WATER LEVEL = 23.92 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 162
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	16:50:25	23.92	2.40	0.002	0.00	0.00
01/18/93	16:50:37	23.92	2.60	0.002	0.00	0.00
01/18/93	16:50:49	23.92	2.80	0.002	0.00	0.00
01/18/93	16:51:01	23.91	3.00	0.002	0.01	0.01
01/18/93	16:51:13	23.92	3.20	0.002	0.00	0.00
01/18/93	16:51:25	23.91	3.40	0.002	0.01	0.01
01/18/93	16:51:37	23.92	3.60	0.003	0.00	0.00
01/18/93	16:51:49	23.92	3.80	0.003	0.00	0.00
01/18/93	16:52:01	23.91	4.00	0.003	0.01	0.01
01/18/93	16:52:13	23.92	4.20	0.003	0.00	0.00
01/18/93	16:52:25	23.93	4.40	0.003	-0.01	-0.01
01/18/93	16:52:37	23.93	4.60	0.003	-0.01	-0.01
01/18/93	16:52:49	23.93	4.80	0.003	-0.01	-0.01
01/18/93	16:53:01	23.93	5.00	0.003	-0.01	-0.01

AQUIFER TEST QA PLOT

GM-WEST YARD, DW-22, INJECTION



SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-22, WITHDRAWAL
TIME OF SLUG INJ/WITH = 16:56:01 MILITARY TIME
STATIC WATER LEVEL = 23.92 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 161
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	16:55:01	23.92	-1.00	-0.001	0.00	0.00
01/18/93	16:56:01	23.97	0.00	0.000	0.05	0.05
01/18/93	16:56:01	24.06	0.00	0.000	0.14	0.14
01/18/93	16:56:01	24.03	0.01	0.000	0.11	0.11
01/18/93	16:56:02	24.18	0.01	0.000	0.26	0.26
01/18/93	16:56:02	24.12	0.01	0.000	0.20	0.20
01/18/93	16:56:02	24.13	0.02	0.000	0.21	0.21
01/18/93	16:56:02	24.13	0.02	0.000	0.21	0.21
01/18/93	16:56:02	24.13	0.02	0.000	0.21	0.21
01/18/93	16:56:03	24.13	0.03	0.000	0.21	0.21
01/18/93	16:56:03	24.12	0.03	0.000	0.20	0.20
01/18/93	16:56:03	24.13	0.03	0.000	0.21	0.21
01/18/93	16:56:03	24.12	0.04	0.000	0.20	0.20
01/18/93	16:56:03	24.12	0.04	0.000	0.20	0.20
01/18/93	16:56:04	24.12	0.04	0.000	0.19	0.19
01/18/93	16:56:04	24.12	0.05	0.000	0.19	0.19
01/18/93	16:56:04	24.12	0.05	0.000	0.19	0.19
01/18/93	16:56:04	24.12	0.05	0.000	0.19	0.19
01/18/93	16:56:04	24.11	0.06	0.000	0.19	0.19
01/18/93	16:56:05	24.12	0.06	0.000	0.19	0.19
01/18/93	16:56:05	24.11	0.06	0.000	0.19	0.19
01/18/93	16:56:05	24.11	0.07	0.000	0.19	0.19
01/18/93	16:56:05	24.12	0.07	0.000	0.19	0.19
01/18/93	16:56:05	24.11	0.07	0.000	0.19	0.19
01/18/93	16:56:06	24.11	0.08	0.000	0.19	0.19
01/18/93	16:56:06	24.10	0.08	0.000	0.18	0.18
01/18/93	16:56:06	24.10	0.08	0.000	0.18	0.18
01/18/93	16:56:06	24.10	0.09	0.000	0.18	0.18
01/18/93	16:56:06	24.10	0.09	0.000	0.18	0.18
01/18/93	16:56:07	24.10	0.09	0.000	0.18	0.18
01/18/93	16:56:07	24.10	0.10	0.000	0.18	0.18
01/18/93	16:56:07	24.10	0.10	0.000	0.18	0.18
01/18/93	16:56:07	24.10	0.10	0.000	0.18	0.18
01/18/93	16:56:07	24.10	0.11	0.000	0.18	0.18
01/18/93	16:56:08	24.09	0.11	0.000	0.17	0.17
01/18/93	16:56:08	24.10	0.11	0.000	0.18	0.18
01/18/93	16:56:08	24.10	0.12	0.000	0.18	0.18

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-22, WITHDRAWAL
TIME OF SLUG INJ/WITH = 16:56:01 MILITARY TIME
STATIC WATER LEVEL = 23.92 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 161
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	16:56:08	24.09	0.12	0.000	0.17	0.17
01/18/93	16:56:08	24.08	0.12	0.000	0.16	0.16
01/18/93	16:56:09	23.98	0.13	0.000	0.06	0.06
01/18/93	16:56:09	24.01	0.13	0.000	0.09	0.09
01/18/93	16:56:09	24.00	0.13	0.000	0.08	0.08
01/18/93	16:56:09	24.00	0.14	0.000	0.08	0.08
01/18/93	16:56:09	23.98	0.14	0.000	0.06	0.06
01/18/93	16:56:10	23.98	0.14	0.000	0.06	0.06
01/18/93	16:56:10	24.01	0.15	0.000	0.09	0.09
01/18/93	16:56:10	24.01	0.15	0.000	0.09	0.09
01/18/93	16:56:10	24.03	0.15	0.000	0.11	0.11
01/18/93	16:56:10	24.07	0.16	0.000	0.15	0.15
01/18/93	16:56:11	24.08	0.16	0.000	0.16	0.16
01/18/93	16:56:11	24.08	0.16	0.000	0.16	0.16
01/18/93	16:56:11	24.09	0.17	0.000	0.17	0.17
01/18/93	16:56:11	24.08	0.17	0.000	0.16	0.16
01/18/93	16:56:11	24.08	0.17	0.000	0.16	0.16
01/18/93	16:56:12	24.08	0.18	0.000	0.16	0.16
01/18/93	16:56:12	24.08	0.18	0.000	0.16	0.16
01/18/93	16:56:12	24.08	0.18	0.000	0.16	0.16
01/18/93	16:56:12	24.08	0.19	0.000	0.16	0.16
01/18/93	16:56:12	24.08	0.19	0.000	0.16	0.16
01/18/93	16:56:13	24.08	0.19	0.000	0.16	0.16
01/18/93	16:56:13	24.07	0.20	0.000	0.15	0.15
01/18/93	16:56:13	24.08	0.20	0.000	0.16	0.16
01/18/93	16:56:13	24.07	0.20	0.000	0.15	0.15
01/18/93	16:56:13	24.07	0.21	0.000	0.15	0.15
01/18/93	16:56:14	24.07	0.21	0.000	0.15	0.15
01/18/93	16:56:14	24.07	0.21	0.000	0.15	0.15
01/18/93	16:56:14	24.07	0.22	0.000	0.15	0.15
01/18/93	16:56:14	24.07	0.22	0.000	0.15	0.15
01/18/93	16:56:14	24.06	0.22	0.000	0.14	0.14
01/18/93	16:56:15	24.05	0.23	0.000	0.13	0.13
01/18/93	16:56:15	24.05	0.23	0.000	0.13	0.13
01/18/93	16:56:15	24.05	0.23	0.000	0.13	0.13
01/18/93	16:56:15	24.03	0.24	0.000	0.11	0.11
01/18/93	16:56:15	24.03	0.24	0.000	0.11	0.11

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-22, WITHDRAWAL
TIME OF SLUG INJ/WITH = 16:56:01 MILITARY TIME
STATIC WATER LEVEL = 23.92 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 161
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	16:56:16	24.03	0.24	0.000	0.11	0.11
01/18/93	16:56:16	24.04	0.25	0.000	0.12	0.12
01/18/93	16:56:16	24.04	0.25	0.000	0.12	0.12
01/18/93	16:56:16	24.03	0.25	0.000	0.11	0.11
01/18/93	16:56:16	24.03	0.26	0.000	0.11	0.11
01/18/93	16:56:17	24.04	0.26	0.000	0.12	0.12
01/18/93	16:56:17	24.05	0.26	0.000	0.13	0.13
01/18/93	16:56:17	24.04	0.27	0.000	0.12	0.12
01/18/93	16:56:17	24.05	0.27	0.000	0.13	0.13
01/18/93	16:56:17	24.05	0.27	0.000	0.13	0.13
01/18/93	16:56:18	24.05	0.28	0.000	0.13	0.13
01/18/93	16:56:18	24.05	0.28	0.000	0.13	0.13
01/18/93	16:56:18	24.05	0.28	0.000	0.13	0.13
01/18/93	16:56:18	24.05	0.29	0.000	0.13	0.13
01/18/93	16:56:18	24.05	0.29	0.000	0.13	0.13
01/18/93	16:56:19	24.05	0.29	0.000	0.13	0.13
01/18/93	16:56:19	24.05	0.30	0.000	0.13	0.13
01/18/93	16:56:19	24.05	0.30	0.000	0.13	0.13
01/18/93	16:56:19	24.05	0.30	0.000	0.13	0.13
01/18/93	16:56:19	24.05	0.31	0.000	0.13	0.13
01/18/93	16:56:20	24.05	0.31	0.000	0.13	0.13
01/18/93	16:56:20	24.05	0.31	0.000	0.13	0.13
01/18/93	16:56:20	24.05	0.32	0.000	0.13	0.13
01/18/93	16:56:20	24.05	0.32	0.000	0.13	0.13
01/18/93	16:56:20	24.04	0.32	0.000	0.12	0.12
01/18/93	16:56:21	24.04	0.33	0.000	0.12	0.12
01/18/93	16:56:21	24.04	0.33	0.000	0.12	0.12
01/18/93	16:56:21	24.03	0.33	0.000	0.11	0.11
01/18/93	16:56:22	24.03	0.35	0.000	0.11	0.11
01/18/93	16:56:23	24.03	0.37	0.000	0.11	0.11
01/18/93	16:56:24	24.03	0.38	0.000	0.11	0.11
01/18/93	16:56:25	24.03	0.40	0.000	0.11	0.11
01/18/93	16:56:26	24.02	0.42	0.000	0.10	0.10
01/18/93	16:56:27	24.01	0.43	0.000	0.09	0.09
01/18/93	16:56:28	24.01	0.45	0.000	0.09	0.09
01/18/93	16:56:29	24.01	0.47	0.000	0.09	0.09
01/18/93	16:56:30	24.01	0.48	0.000	0.09	0.09

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-22, WITHDRAWAL
TIME OF SLUG INJ/WITH = 16:56:01 MILITARY TIME
STATIC WATER LEVEL = 23.92 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 161
INJECTION/WITHDRAWAL (1/2): 2

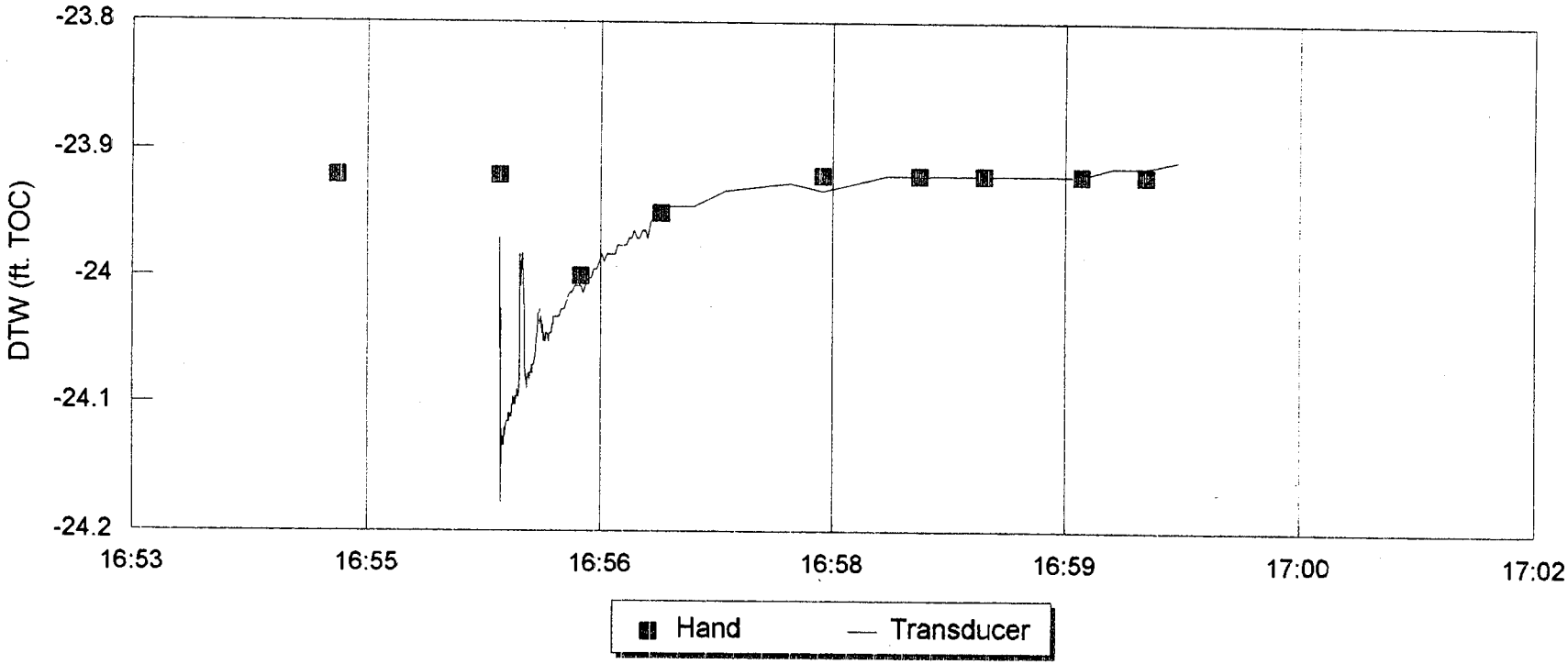
DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	16:56:31	24.01	0.50	0.000	0.09	0.09
01/18/93	16:56:32	24.01	0.52	0.000	0.09	0.09
01/18/93	16:56:33	24.01	0.53	0.000	0.09	0.09
01/18/93	16:56:34	24.00	0.55	0.000	0.08	0.08
01/18/93	16:56:35	24.00	0.57	0.000	0.08	0.08
01/18/93	16:56:36	24.00	0.58	0.000	0.08	0.08
01/18/93	16:56:37	24.00	0.60	0.000	0.08	0.08
01/18/93	16:56:38	23.99	0.62	0.000	0.07	0.07
01/18/93	16:56:39	23.98	0.63	0.000	0.06	0.06
01/18/93	16:56:40	23.99	0.65	0.000	0.07	0.07
01/18/93	16:56:41	23.98	0.67	0.000	0.06	0.06
01/18/93	16:56:42	23.98	0.68	0.000	0.06	0.06
01/18/93	16:56:43	23.98	0.70	0.000	0.06	0.06
01/18/93	16:56:44	23.98	0.72	0.000	0.06	0.06
01/18/93	16:56:45	23.98	0.73	0.001	0.06	0.06
01/18/93	16:56:46	23.98	0.75	0.001	0.06	0.06
01/18/93	16:56:47	23.98	0.77	0.001	0.06	0.06
01/18/93	16:56:48	23.98	0.78	0.001	0.06	0.06
01/18/93	16:56:49	23.97	0.80	0.001	0.05	0.05
01/18/93	16:56:50	23.97	0.82	0.001	0.05	0.05
01/18/93	16:56:51	23.96	0.83	0.001	0.04	0.04
01/18/93	16:56:52	23.97	0.85	0.001	0.05	0.05
01/18/93	16:56:53	23.97	0.87	0.001	0.05	0.05
01/18/93	16:56:54	23.96	0.88	0.001	0.04	0.04
01/18/93	16:56:55	23.96	0.90	0.001	0.04	0.04
01/18/93	16:56:56	23.97	0.92	0.001	0.05	0.05
01/18/93	16:56:57	23.96	0.93	0.001	0.04	0.04
01/18/93	16:56:58	23.95	0.95	0.001	0.03	0.03
01/18/93	16:56:59	23.95	0.97	0.001	0.03	0.03
01/18/93	16:57:00	23.95	0.98	0.001	0.03	0.03
01/18/93	16:57:01	23.95	1.00	0.001	0.02	0.02
01/18/93	16:57:13	23.95	1.20	0.001	0.02	0.02
01/18/93	16:57:25	23.93	1.40	0.001	0.01	0.01
01/18/93	16:57:49	23.93	1.80	0.001	0.01	0.01
01/18/93	16:58:01	23.93	2.00	0.001	0.01	0.01
01/18/93	16:58:13	23.93	2.20	0.002	0.01	0.01
01/18/93	16:58:25	23.92	2.40	0.002	0.00	0.00

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-22, WITHDRAWAL
TIME OF SLUG INJ/WITH = 16:56:01 MILITARY TIME
STATIC WATER LEVEL = 23.92 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 161
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	16:58:37	23.92	2.60	0.002	0.00	0.00
01/18/93	16:58:49	23.92	2.80	0.002	0.00	0.00
01/18/93	16:59:01	23.92	3.00	0.002	0.00	0.00
01/18/93	16:59:13	23.92	3.20	0.002	0.00	0.00
01/18/93	16:59:37	23.92	3.60	0.003	0.00	0.00
01/18/93	16:59:49	23.91	3.80	0.003	-0.01	-0.01
01/18/93	17:00:01	23.91	4.00	0.003	-0.01	-0.01
01/18/93	17:00:13	23.91	4.20	0.003	-0.01	-0.01
01/18/93	17:00:25	23.91	4.40	0.003	-0.01	-0.01
01/18/93	17:00:37	23.91	4.60	0.003	-0.01	-0.01
01/18/93	17:00:49	23.91	4.80	0.003	-0.01	-0.01
01/18/93	17:01:01	24.50	5.00	0.003	0.58	0.58
01/18/93	17:01:13	27.25	5.20	0.004	3.33	3.33

AQUIFER TEST QA PLOT

GM-WEST YARD, DW-22, WITHDRAWAL



APPENDIX B.2

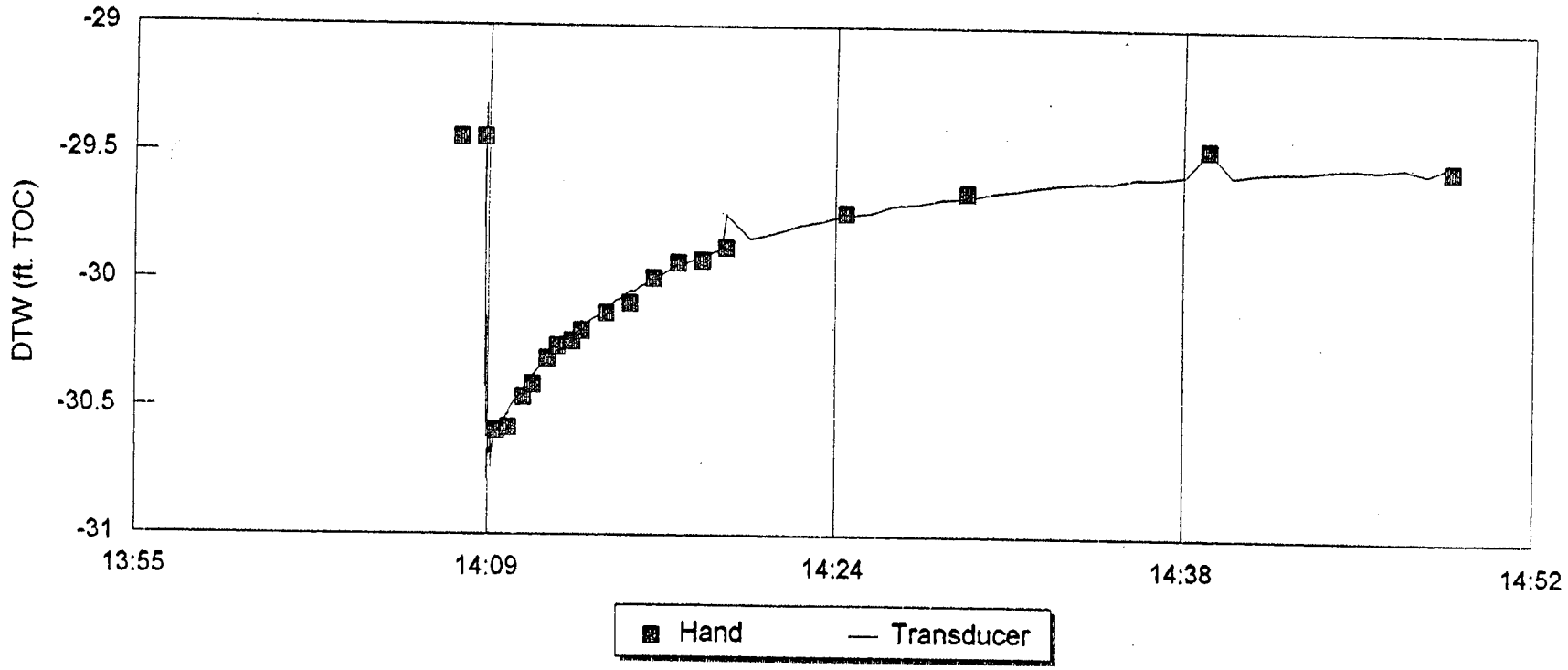
PARSONS ES TESTS 1996

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-20, INJECTION
TIME OF SLUG INJ/WITH = 15:25:48 MILITARY TIME
STATIC WATER LEVEL = 25.32 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 163
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	15:24:48	25.32	-1.00	-0.001	0.00	0.00
01/18/93	15:25:48	25.28	0.00	0.000	0.04	0.04
01/18/93	15:25:48	25.28	0.00	0.000	0.04	0.04
01/18/93	15:25:48	25.28	0.01	0.000	0.04	0.04
01/18/93	15:25:49	25.28	0.01	0.000	0.04	0.04
01/18/93	15:25:49	25.28	0.01	0.000	0.04	0.04
01/18/93	15:25:49	25.28	0.02	0.000	0.04	0.04
01/18/93	15:25:49	25.28	0.02	0.000	0.04	0.04
01/18/93	15:25:49	25.28	0.02	0.000	0.04	0.04
01/18/93	15:25:50	25.28	0.03	0.000	0.04	0.04
01/18/93	15:25:50	25.28	0.03	0.000	0.04	0.04
01/18/93	15:25:50	25.28	0.03	0.000	0.04	0.04
01/18/93	15:25:50	25.28	0.04	0.000	0.04	0.04
01/18/93	15:25:50	25.29	0.04	0.000	0.03	0.03
01/18/93	15:25:51	25.28	0.04	0.000	0.04	0.04
01/18/93	15:25:51	25.28	0.05	0.000	0.04	0.04
01/18/93	15:25:51	25.28	0.05	0.000	0.04	0.04
01/18/93	15:25:51	25.28	0.05	0.000	0.04	0.04
01/18/93	15:25:51	25.29	0.06	0.000	0.03	0.03
01/18/93	15:25:52	25.29	0.06	0.000	0.03	0.03
01/18/93	15:25:52	25.28	0.06	0.000	0.04	0.04
01/18/93	15:25:52	25.29	0.07	0.000	0.03	0.03
01/18/93	15:25:52	25.29	0.07	0.000	0.03	0.03
01/18/93	15:25:52	25.28	0.07	0.000	0.04	0.04
01/18/93	15:25:53	25.28	0.08	0.000	0.04	0.04
01/18/93	15:25:53	25.28	0.08	0.000	0.04	0.04
01/18/93	15:25:53	25.28	0.08	0.000	0.04	0.04
01/18/93	15:25:53	25.28	0.09	0.000	0.04	0.04
01/18/93	15:25:53	25.28	0.09	0.000	0.04	0.04
01/18/93	15:25:54	25.28	0.09	0.000	0.04	0.04
01/18/93	15:25:54	25.28	0.10	0.000	0.04	0.04
01/18/93	15:25:54	25.28	0.10	0.000	0.04	0.04
01/18/93	15:25:54	25.28	0.10	0.000	0.04	0.04
01/18/93	15:25:54	25.28	0.11	0.000	0.04	0.04
01/18/93	15:25:55	25.24	0.11	0.000	0.08	0.08
01/18/93	15:25:55	25.13	0.11	0.000	0.19	0.19
01/18/93	15:25:55	24.94	0.12	0.000	0.38	0.38

AQUIFER TEST QA PLOT

GM-WEST YARD, DW-19, WITHDRAWAL



SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-19, WITHDRAWAL
TIME OF SLUG INJ/WITH = 14:09:27 MILITARY TIME
STATIC WATER LEVEL = 29.44 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 217
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	14:11:51	30.34	2.40	0.002	0.90	0.90
01/18/93	14:12:03	30.30	2.60	0.002	0.86	0.86
01/18/93	14:12:15	30.30	2.80	0.002	0.86	0.86
01/18/93	14:12:27	30.28	3.00	0.002	0.84	0.84
01/18/93	14:12:39	30.26	3.20	0.002	0.82	0.82
01/18/93	14:12:51	30.24	3.40	0.002	0.80	0.80
01/18/93	14:13:03	30.22	3.60	0.003	0.78	0.78
01/18/93	14:13:15	30.20	3.80	0.003	0.76	0.76
01/18/93	14:13:27	30.16	4.00	0.003	0.72	0.72
01/18/93	14:13:39	30.18	4.20	0.003	0.73	0.73
01/18/93	14:13:51	30.16	4.40	0.003	0.72	0.72
01/18/93	14:14:03	30.14	4.60	0.003	0.70	0.70
01/18/93	14:14:15	30.13	4.80	0.003	0.69	0.69
01/18/93	14:14:27	30.11	5.00	0.003	0.67	0.67
01/18/93	14:14:39	30.10	5.20	0.004	0.66	0.66
01/18/93	14:14:51	30.08	5.40	0.004	0.64	0.64
01/18/93	14:15:03	30.07	5.60	0.004	0.63	0.63
01/18/93	14:15:15	30.06	5.80	0.004	0.61	0.61
01/18/93	14:15:27	30.04	6.00	0.004	0.60	0.60
01/18/93	14:15:39	30.04	6.20	0.004	0.60	0.60
01/18/93	14:15:51	30.02	6.40	0.004	0.58	0.58
01/18/93	14:16:03	30.02	6.60	0.005	0.58	0.58
01/18/93	14:16:15	30.00	6.80	0.005	0.56	0.56
01/18/93	14:16:27	30.00	7.00	0.005	0.56	0.56
01/18/93	14:16:39	29.99	7.20	0.005	0.55	0.55
01/18/93	14:16:51	29.97	7.40	0.005	0.53	0.53
01/18/93	14:17:03	29.96	7.60	0.005	0.52	0.52
01/18/93	14:17:15	29.96	7.80	0.005	0.52	0.52
01/18/93	14:17:27	29.95	8.00	0.006	0.51	0.51
01/18/93	14:17:39	29.94	8.20	0.006	0.50	0.50
01/18/93	14:17:51	29.93	8.40	0.006	0.49	0.49
01/18/93	14:18:03	29.92	8.60	0.006	0.48	0.48
01/18/93	14:18:15	29.91	8.80	0.006	0.47	0.47
01/18/93	14:18:27	29.90	9.00	0.006	0.46	0.46
01/18/93	14:18:39	29.90	9.20	0.006	0.46	0.46
01/18/93	14:18:51	29.89	9.40	0.007	0.45	0.45
01/18/93	14:19:03	29.88	9.60	0.007	0.44	0.44

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-19, WITHDRAWAL
TIME OF SLUG INJ/WITH = 14:09:27 MILITARY TIME
STATIC WATER LEVEL = 29.44 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 217
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	14:09:42	30.68	0.24	0.000	1.24	1.24
01/18/93	14:09:42	30.66	0.25	0.000	1.22	1.22
01/18/93	14:09:42	30.67	0.25	0.000	1.23	1.23
01/18/93	14:09:42	30.66	0.25	0.000	1.22	1.22
01/18/93	14:09:42	30.66	0.26	0.000	1.22	1.22
01/18/93	14:09:43	30.68	0.26	0.000	1.24	1.24
01/18/93	14:09:43	30.68	0.26	0.000	1.24	1.24
01/18/93	14:09:43	30.68	0.27	0.000	1.24	1.24
01/18/93	14:09:43	30.65	0.27	0.000	1.21	1.21
01/18/93	14:09:43	30.63	0.27	0.000	1.18	1.18
01/18/93	14:09:44	30.71	0.28	0.000	1.27	1.27
01/18/93	14:09:44	30.68	0.28	0.000	1.24	1.24
01/18/93	14:09:44	30.68	0.28	0.000	1.24	1.24
01/18/93	14:09:44	30.67	0.29	0.000	1.23	1.23
01/18/93	14:09:44	30.74	0.29	0.000	1.30	1.30
01/18/93	14:09:45	30.69	0.29	0.000	1.25	1.25
01/18/93	14:09:45	30.67	0.30	0.000	1.23	1.23
01/18/93	14:09:45	30.65	0.30	0.000	1.21	1.21
01/18/93	14:09:45	30.68	0.30	0.000	1.24	1.24
01/18/93	14:09:45	30.68	0.31	0.000	1.24	1.24
01/18/93	14:09:46	30.68	0.31	0.000	1.24	1.24
01/18/93	14:09:46	30.69	0.31	0.000	1.25	1.25
01/18/93	14:09:46	30.70	0.32	0.000	1.25	1.25
01/18/93	14:09:46	30.71	0.32	0.000	1.27	1.27
01/18/93	14:09:46	30.70	0.32	0.000	1.25	1.25
01/18/93	14:09:47	30.66	0.33	0.000	1.22	1.22
01/18/93	14:09:47	30.67	0.33	0.000	1.23	1.23
01/18/93	14:09:47	30.68	0.33	0.000	1.24	1.24
01/18/93	14:09:48	30.64	0.35	0.000	1.20	1.20
01/18/93	14:09:49	30.64	0.37	0.000	1.20	1.20
01/18/93	14:09:50	30.63	0.38	0.000	1.18	1.18
01/18/93	14:09:51	30.63	0.40	0.000	1.18	1.18
01/18/93	14:09:52	30.63	0.42	0.000	1.18	1.18
01/18/93	14:09:53	30.63	0.43	0.000	1.18	1.18
01/18/93	14:09:54	30.62	0.45	0.000	1.18	1.18
01/18/93	14:09:55	30.61	0.47	0.000	1.17	1.17
01/18/93	14:09:56	30.61	0.48	0.000	1.17	1.17

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-19, WITHDRAWAL
TIME OF SLUG INJ/WITH = 14:09:27 MILITARY TIME
STATIC WATER LEVEL = 29.44 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 217
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	14:08:27	29.44	-1.00	-0.001	0.00	0.00
01/18/93	14:09:27	29.43	0.00	0.000	-0.01	-0.01
01/18/93	14:09:27	29.43	0.00	0.000	-0.01	-0.01
01/18/93	14:09:27	29.44	0.01	0.000	0.00	0.00
01/18/93	14:09:28	29.44	0.01	0.000	0.00	0.00
01/18/93	14:09:28	29.45	0.01	0.000	0.01	0.01
01/18/93	14:09:28	29.43	0.02	0.000	-0.01	-0.01
01/18/93	14:09:28	29.43	0.02	0.000	-0.01	-0.01
01/18/93	14:09:28	29.44	0.02	0.000	0.00	0.00
01/18/93	14:09:29	29.58	0.03	0.000	0.14	0.14
01/18/93	14:09:29	29.80	0.03	0.000	0.35	0.35
01/18/93	14:09:29	29.77	0.03	0.000	0.33	0.33
01/18/93	14:09:29	29.66	0.04	0.000	0.22	0.22
01/18/93	14:09:29	29.95	0.04	0.000	0.51	0.51
01/18/93	14:09:30	30.09	0.04	0.000	0.65	0.65
01/18/93	14:09:30	29.41	0.05	0.000	-0.03	-0.03
01/18/93	14:09:30	29.31	0.05	0.000	-0.13	-0.13
01/18/93	14:09:30	29.50	0.05	0.000	0.06	0.06
01/18/93	14:09:30	29.87	0.06	0.000	0.43	0.43
01/18/93	14:09:31	30.03	0.06	0.000	0.59	0.59
01/18/93	14:09:31	30.41	0.06	0.000	0.97	0.97
01/18/93	14:09:31	30.43	0.07	0.000	0.99	0.99
01/18/93	14:09:31	30.14	0.07	0.000	0.70	0.70
01/18/93	14:09:31	30.26	0.07	0.000	0.82	0.82
01/18/93	14:09:32	30.51	0.08	0.000	1.07	1.07
01/18/93	14:09:32	30.73	0.08	0.000	1.29	1.29
01/18/93	14:09:32	30.85	0.08	0.000	1.41	1.41
01/18/93	14:09:32	30.86	0.09	0.000	1.42	1.42
01/18/93	14:09:32	30.77	0.09	0.000	1.32	1.32
01/18/93	14:09:33	30.67	0.09	0.000	1.23	1.23
01/18/93	14:09:33	30.66	0.10	0.000	1.22	1.22
01/18/93	14:09:33	30.72	0.10	0.000	1.28	1.28
01/18/93	14:09:33	30.78	0.10	0.000	1.34	1.34
01/18/93	14:09:33	30.76	0.11	0.000	1.32	1.32
01/18/93	14:09:34	30.71	0.11	0.000	1.27	1.27
01/18/93	14:09:34	30.66	0.11	0.000	1.22	1.22
01/18/93	14:09:34	30.69	0.12	0.000	1.25	1.25

SITE: GENERAL MOTORS, PONTIAC, MI., WEST YARD
WELL: DW-19, INJECTION
TIME OF SLUG INJ/WITH = 13:19:23 MILITARY TIME
STATIC WATER LEVEL = 29.51 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 218
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	13:29:11	29.08	9.80	0.007	0.43	0.43
01/18/93	13:29:23	29.08	10.00	0.007	0.43	0.43
01/18/93	13:30:23	29.12	11.00	0.008	0.39	0.39
01/18/93	13:31:23	29.14	12.00	0.008	0.37	0.37
01/18/93	13:32:23	29.18	13.00	0.009	0.33	0.33
01/18/93	13:33:23	29.21	14.00	0.010	0.30	0.30
01/18/93	13:34:23	29.23	15.00	0.010	0.28	0.28
01/18/93	13:35:23	29.21	16.00	0.011	0.30	0.30
01/18/93	13:36:23	29.27	17.00	0.012	0.24	0.24
01/18/93	13:37:23	29.29	18.00	0.012	0.22	0.22
01/18/93	13:38:23	29.30	19.00	0.013	0.21	0.21
01/18/93	13:39:23	29.32	20.00	0.014	0.19	0.19
01/18/93	13:40:23	29.33	21.00	0.015	0.18	0.18
01/18/93	13:41:23	29.34	22.00	0.015	0.17	0.17
01/18/93	13:42:23	29.35	23.00	0.016	0.16	0.16
01/18/93	13:43:23	29.36	24.00	0.017	0.15	0.15
01/18/93	13:44:23	29.37	25.00	0.017	0.15	0.15
01/18/93	13:45:23	29.38	26.00	0.018	0.13	0.13
01/18/93	13:46:23	29.38	27.00	0.019	0.13	0.13
01/18/93	13:47:23	29.39	28.00	0.019	0.12	0.12
01/18/93	13:48:23	29.39	29.00	0.020	0.12	0.12
01/18/93	13:49:23	29.38	30.00	0.021	0.13	0.13
01/18/93	13:50:23	29.40	31.00	0.022	0.11	0.11
01/18/93	13:51:23	29.41	32.00	0.022	0.10	0.10
01/18/93	13:52:23	29.38	33.00	0.023	0.13	0.13
01/18/93	13:53:23	29.42	34.00	0.024	0.09	0.09
01/18/93	13:54:23	29.42	35.00	0.024	0.09	0.09
01/18/93	13:55:23	29.45	36.00	0.025	0.06	0.06
01/18/93	13:56:23	29.43	37.00	0.026	0.08	0.08
01/18/93	13:57:23	29.45	38.00	0.026	0.06	0.06
01/18/93	13:58:23	29.45	39.00	0.027	0.06	0.06
01/18/93	13:59:23	29.45	40.00	0.028	0.06	0.06
01/18/93	14:00:23	29.45	41.00	0.028	0.06	0.06

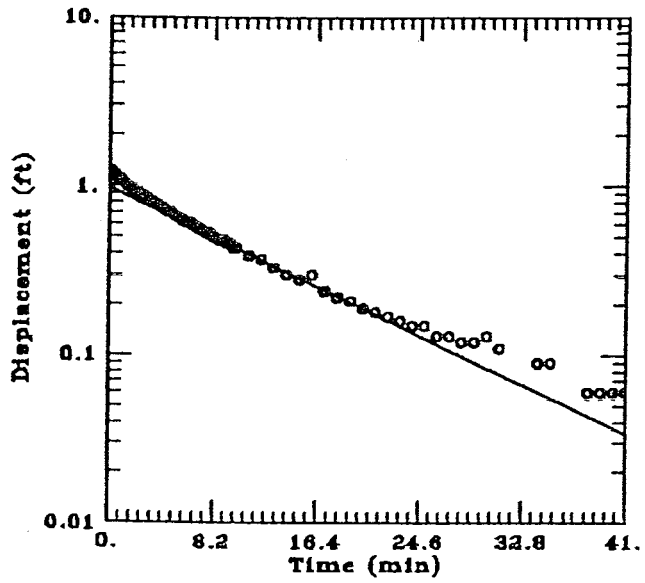
SITE: GENERAL MOTORS, PONTIAC, MI., WEST YARD
WELL: DW-19, INJECTION
TIME OF SLUG INJ/WITH = 13:19:23 MILITARY TIME
STATIC WATER LEVEL = 29.51 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 218
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	13:19:53	28.36	0.50	0.000	1.15	1.15
01/18/93	13:19:54	28.36	0.52	0.000	1.15	1.15
01/18/93	13:19:55	28.37	0.53	0.000	1.14	1.14
01/18/93	13:19:56	28.37	0.55	0.000	1.14	1.14
01/18/93	13:19:57	28.37	0.57	0.000	1.14	1.14
01/18/93	13:19:58	28.38	0.58	0.000	1.14	1.14
01/18/93	13:19:59	28.38	0.60	0.000	1.14	1.14
01/18/93	13:20:00	28.30	0.62	0.000	1.21	1.21
01/18/93	13:20:01	28.41	0.63	0.000	1.10	1.10
01/18/93	13:20:02	28.35	0.65	0.000	1.16	1.16
01/18/93	13:20:03	28.38	0.67	0.000	1.14	1.14
01/18/93	13:20:04	28.40	0.68	0.000	1.11	1.11
01/18/93	13:20:05	28.40	0.70	0.000	1.11	1.11
01/18/93	13:20:06	28.40	0.72	0.000	1.11	1.11
01/18/93	13:20:07	28.39	0.73	0.001	1.12	1.12
01/18/93	13:20:08	28.36	0.75	0.001	1.15	1.15
01/18/93	13:20:09	28.42	0.77	0.001	1.09	1.09
01/18/93	13:20:10	28.41	0.78	0.001	1.10	1.10
01/18/93	13:20:11	28.40	0.80	0.001	1.11	1.11
01/18/93	13:20:12	28.42	0.82	0.001	1.09	1.09
01/18/93	13:20:13	28.41	0.83	0.001	1.10	1.10
01/18/93	13:20:14	28.42	0.85	0.001	1.09	1.09
01/18/93	13:20:15	28.42	0.87	0.001	1.09	1.09
01/18/93	13:20:16	28.42	0.88	0.001	1.09	1.09
01/18/93	13:20:17	28.43	0.90	0.001	1.08	1.08
01/18/93	13:20:18	28.43	0.92	0.001	1.08	1.08
01/18/93	13:20:19	28.43	0.93	0.001	1.08	1.08
01/18/93	13:20:20	28.43	0.95	0.001	1.08	1.08
01/18/93	13:20:21	28.43	0.97	0.001	1.08	1.08
01/18/93	13:20:22	28.43	0.98	0.001	1.08	1.08
01/18/93	13:20:23	28.45	1.00	0.001	1.07	1.07
01/18/93	13:20:35	28.48	1.20	0.001	1.03	1.03
01/18/93	13:20:47	28.51	1.40	0.001	1.00	1.00
01/18/93	13:20:59	28.53	1.60	0.001	0.98	0.98
01/18/93	13:21:11	28.55	1.80	0.001	0.96	0.96
01/18/93	13:21:23	28.59	2.00	0.001	0.92	0.92
01/18/93	13:21:35	28.59	2.20	0.002	0.92	0.92

SITE: GENERAL MOTORS, PONTIAC, MI., WEST YARD
WELL: DW-19, INJECTION
TIME OF SLUG INJ/WITH = 13:19:23 MILITARY TIME
STATIC WATER LEVEL = 29.51 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 218
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	13:19:30	27.89	0.12	0.000	1.62	1.62
01/18/93	13:19:30	27.87	0.12	0.000	1.64	1.64
01/18/93	13:19:31	28.26	0.13	0.000	1.25	1.25
01/18/93	13:19:31	28.57	0.13	0.000	0.94	0.94
01/18/93	13:19:31	28.66	0.13	0.000	0.85	0.85
01/18/93	13:19:31	28.62	0.14	0.000	0.89	0.89
01/18/93	13:19:31	28.31	0.14	0.000	1.20	1.20
01/18/93	13:19:32	28.05	0.14	0.000	1.47	1.47
01/18/93	13:19:32	28.00	0.15	0.000	1.51	1.51
01/18/93	13:19:32	28.17	0.15	0.000	1.34	1.34
01/18/93	13:19:32	28.33	0.15	0.000	1.18	1.18
01/18/93	13:19:32	28.38	0.16	0.000	1.14	1.14
01/18/93	13:19:33	28.47	0.16	0.000	1.04	1.04
01/18/93	13:19:33	28.39	0.16	0.000	1.12	1.12
01/18/93	13:19:33	28.26	0.17	0.000	1.25	1.25
01/18/93	13:19:33	28.18	0.17	0.000	1.33	1.33
01/18/93	13:19:33	28.19	0.17	0.000	1.32	1.32
01/18/93	13:19:34	28.26	0.18	0.000	1.25	1.25
01/18/93	13:19:34	28.34	0.18	0.000	1.17	1.17
01/18/93	13:19:34	28.34	0.18	0.000	1.17	1.17
01/18/93	13:19:34	28.35	0.19	0.000	1.16	1.16
01/18/93	13:19:34	28.30	0.19	0.000	1.21	1.21
01/18/93	13:19:35	28.26	0.19	0.000	1.25	1.25
01/18/93	13:19:35	28.26	0.20	0.000	1.25	1.25
01/18/93	13:19:35	28.27	0.20	0.000	1.24	1.24
01/18/93	13:19:35	28.31	0.20	0.000	1.20	1.20
01/18/93	13:19:35	28.33	0.21	0.000	1.18	1.18
01/18/93	13:19:36	28.33	0.21	0.000	1.18	1.18
01/18/93	13:19:36	28.30	0.21	0.000	1.21	1.21
01/18/93	13:19:36	28.29	0.22	0.000	1.22	1.22
01/18/93	13:19:36	28.29	0.22	0.000	1.22	1.22
01/18/93	13:19:36	28.30	0.22	0.000	1.21	1.21
01/18/93	13:19:37	28.31	0.23	0.000	1.20	1.20
01/18/93	13:19:37	28.31	0.23	0.000	1.20	1.20
01/18/93	13:19:37	28.31	0.23	0.000	1.20	1.20
01/18/93	13:19:37	28.31	0.24	0.000	1.20	1.20
01/18/93	13:19:37	28.31	0.24	0.000	1.20	1.20

GMWY, DW-19, INJECTION



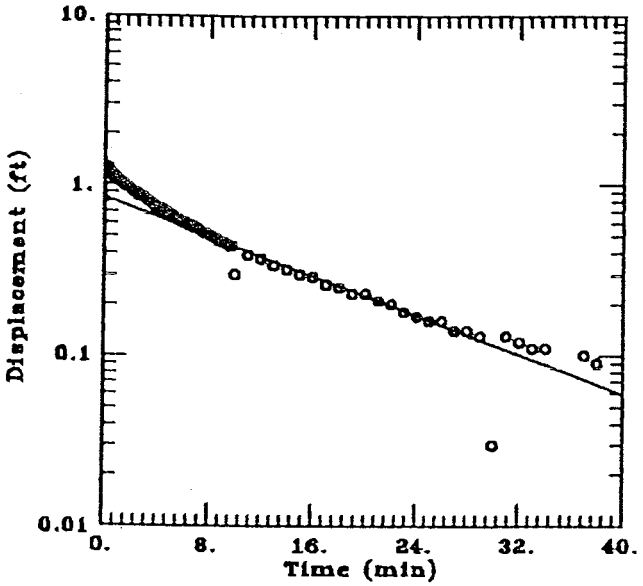
DATA SET:
C:\GMWY\PRT\AQT
02/01/96

AQUIFER TYP
Unconfined
SOLUTION ME
Bouwer-Rice

ESTIMATED P
K = 0.0001228
y0 = 0.9658 ft

TEST DATA:
H0 = 1.22 ft
rc = 0.08 ft
rw = 0.33 ft
L = 5. ft
b = 9.49 ft
H = 9.49 ft

GMWY, DW-19, WITHDRAWAL



DATA SET:
C:\GMWY\PRT\AQT
02/01/96

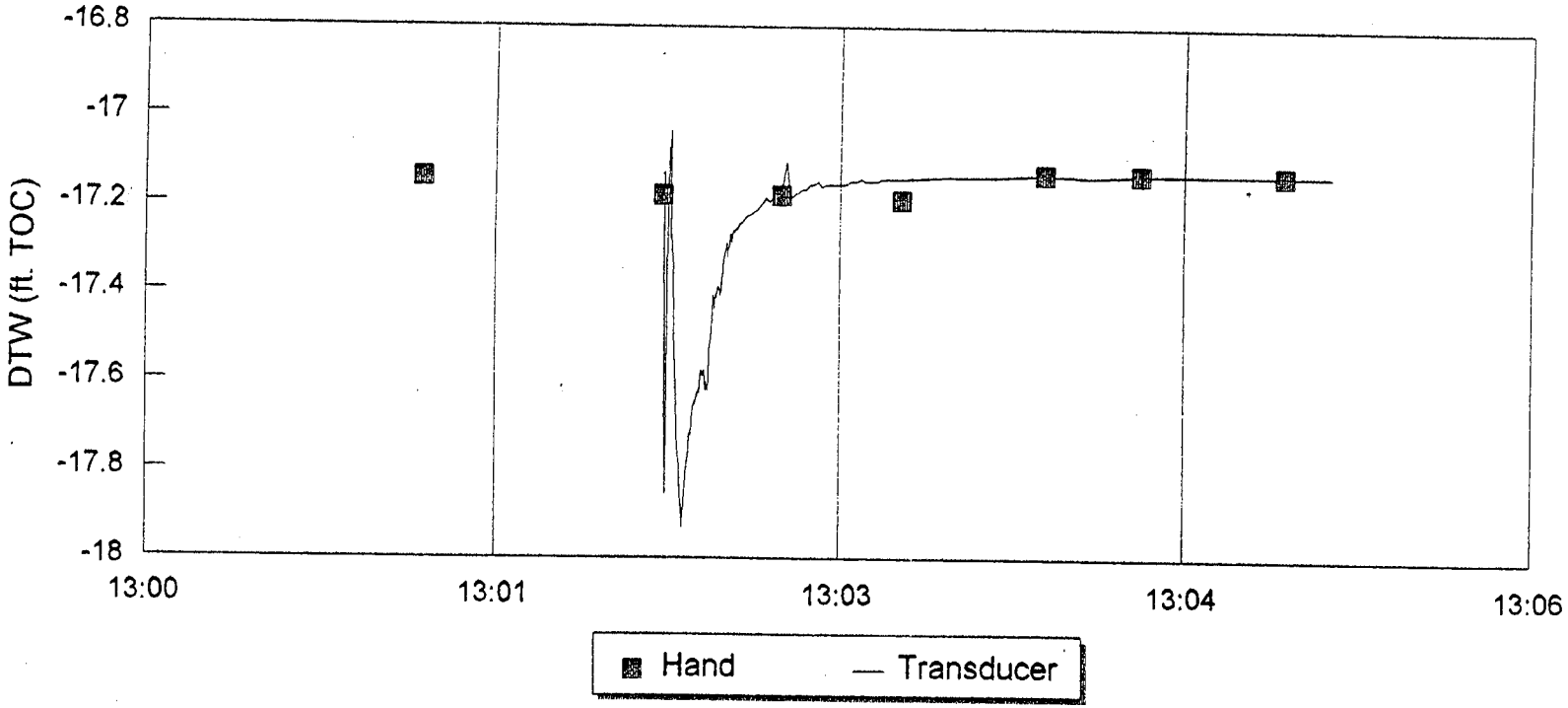
AQUIFER TYP
Unconfined
SOLUTION ME
Bouwer-Rice

ESTIMATED P
K = 4.5761E-05
y0 = 0.8399 ft

TEST DATA:
H0 = 1.27 ft
rc = 0.08 ft
rw = 0.33 ft
L = 5. ft
b = 9.49 ft
H = 9.49 ft

AQUIFER TEST QA PLOT

GM-WEST YARD, DW-18, WITHDRAWAL

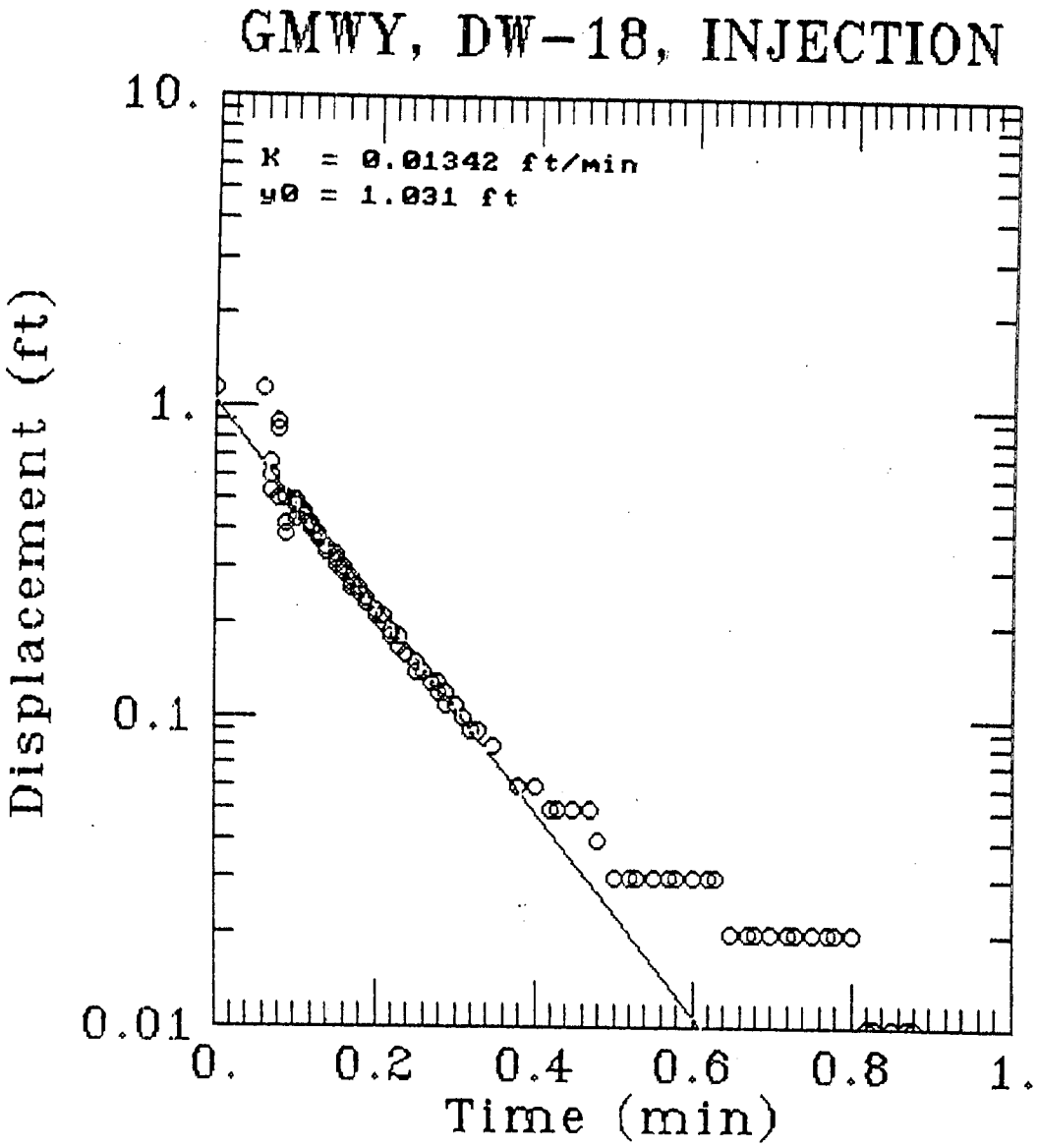


SITE: GENERAL MOTORS, PONTIAC, MI. WEST YARD
WELL: DW-18, WITHDRAWAL
TIME OF SLUG INJ/WITH = 13:02:37 MILITARY TIME
STATIC WATER LEVEL = 17.14 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 151
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	13:03:07	17.17	0.50	0.000	0.03	0.03
01/18/93	13:03:08	17.10	0.52	0.000	-0.04	-0.04
01/18/93	13:03:09	17.19	0.53	0.000	0.05	0.05
01/18/93	13:03:10	17.18	0.55	0.000	0.04	0.04
01/18/93	13:03:11	17.17	0.57	0.000	0.03	0.03
01/18/93	13:03:12	17.17	0.58	0.000	0.03	0.03
01/18/93	13:03:13	17.17	0.60	0.000	0.03	0.03
01/18/93	13:03:14	17.16	0.62	0.000	0.02	0.02
01/18/93	13:03:15	17.16	0.63	0.000	0.02	0.02
01/18/93	13:03:16	17.15	0.65	0.000	0.01	0.01
01/18/93	13:03:17	17.16	0.67	0.000	0.02	0.02
01/18/93	13:03:18	17.16	0.68	0.000	0.02	0.02
01/18/93	13:03:19	17.16	0.70	0.000	0.02	0.02
01/18/93	13:03:20	17.16	0.72	0.000	0.02	0.02
01/18/93	13:03:21	17.16	0.73	0.001	0.02	0.02
01/18/93	13:03:22	17.16	0.75	0.001	0.02	0.02
01/18/93	13:03:23	17.16	0.77	0.001	0.02	0.02
01/18/93	13:03:24	17.15	0.78	0.001	0.01	0.01
01/18/93	13:03:25	17.15	0.80	0.001	0.01	0.01
01/18/93	13:03:26	17.15	0.82	0.001	0.01	0.01
01/18/93	13:03:27	17.14	0.83	0.001	0.00	0.00
01/18/93	13:03:28	17.15	0.85	0.001	0.01	0.01
01/18/93	13:03:29	17.15	0.87	0.001	0.01	0.01
01/18/93	13:03:30	17.15	0.88	0.001	0.01	0.01
01/18/93	13:03:31	17.15	0.90	0.001	0.01	0.01
01/18/93	13:03:32	17.14	0.92	0.001	0.00	0.00
01/18/93	13:03:33	17.14	0.93	0.001	0.00	0.00
01/18/93	13:03:34	17.14	0.95	0.001	0.00	0.00
01/18/93	13:03:35	17.14	0.97	0.001	0.00	0.00
01/18/93	13:03:36	17.14	0.98	0.001	0.00	0.00
01/18/93	13:03:37	17.14	1.00	0.001	0.00	0.00
01/18/93	13:03:49	17.14	1.20	0.001	-0.00	-0.00
01/18/93	13:04:01	17.14	1.40	0.001	-0.00	-0.00
01/18/93	13:04:13	17.13	1.60	0.001	-0.01	-0.01
01/18/93	13:04:25	17.14	1.80	0.001	-0.00	-0.00
01/18/93	13:04:37	17.13	2.00	0.001	-0.01	-0.01
01/18/93	13:04:49	17.13	2.20	0.002	-0.01	-0.01

SITE: GENERAL MOTORS, PONTIAC, MI. WEST YARD
WELL: DW-18, WITHDRAWAL
TIME OF SLUG INJ/WITH = 13:02:37 MILITARY TIME
STATIC WATER LEVEL = 17.14 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 151
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	13:02:44	17.72	0.12	0.000	0.58	0.58
01/18/93	13:02:44	17.69	0.12	0.000	0.55	0.55
01/18/93	13:02:45	17.67	0.13	0.000	0.53	0.53
01/18/93	13:02:45	17.65	0.13	0.000	0.51	0.51
01/18/93	13:02:45	17.65	0.13	0.000	0.51	0.51
01/18/93	13:02:45	17.65	0.14	0.000	0.51	0.51
01/18/93	13:02:45	17.64	0.14	0.000	0.50	0.50
01/18/93	13:02:46	17.63	0.14	0.000	0.49	0.49
01/18/93	13:02:46	17.63	0.15	0.000	0.49	0.49
01/18/93	13:02:46	17.62	0.15	0.000	0.48	0.48
01/18/93	13:02:46	17.63	0.15	0.000	0.49	0.49
01/18/93	13:02:46	17.61	0.16	0.000	0.47	0.47
01/18/93	13:02:47	17.59	0.16	0.000	0.45	0.45
01/18/93	13:02:47	17.58	0.16	0.000	0.44	0.44
01/18/93	13:02:47	17.59	0.17	0.000	0.45	0.45
01/18/93	13:02:47	17.59	0.17	0.000	0.45	0.45
01/18/93	13:02:47	17.58	0.17	0.000	0.44	0.44
01/18/93	13:02:48	17.58	0.18	0.000	0.44	0.44
01/18/93	13:02:48	17.62	0.18	0.000	0.48	0.48
01/18/93	13:02:48	17.60	0.18	0.000	0.46	0.46
01/18/93	13:02:48	17.62	0.19	0.000	0.48	0.48
01/18/93	13:02:48	17.62	0.19	0.000	0.48	0.48
01/18/93	13:02:49	17.60	0.19	0.000	0.46	0.46
01/18/93	13:02:49	17.53	0.20	0.000	0.39	0.39
01/18/93	13:02:49	17.52	0.20	0.000	0.38	0.38
01/18/93	13:02:49	17.50	0.20	0.000	0.36	0.36
01/18/93	13:02:49	17.48	0.21	0.000	0.34	0.34
01/18/93	13:02:50	17.45	0.21	0.000	0.31	0.31
01/18/93	13:02:50	17.41	0.21	0.000	0.27	0.27
01/18/93	13:02:50	17.44	0.22	0.000	0.30	0.30
01/18/93	13:02:50	17.42	0.22	0.000	0.28	0.28
01/18/93	13:02:50	17.41	0.22	0.000	0.27	0.27
01/18/93	13:02:51	17.41	0.23	0.000	0.27	0.27
01/18/93	13:02:51	17.39	0.23	0.000	0.25	0.25
01/18/93	13:02:51	17.39	0.23	0.000	0.25	0.25
01/18/93	13:02:51	17.39	0.24	0.000	0.25	0.25
01/18/93	13:02:51	17.40	0.24	0.000	0.26	0.26

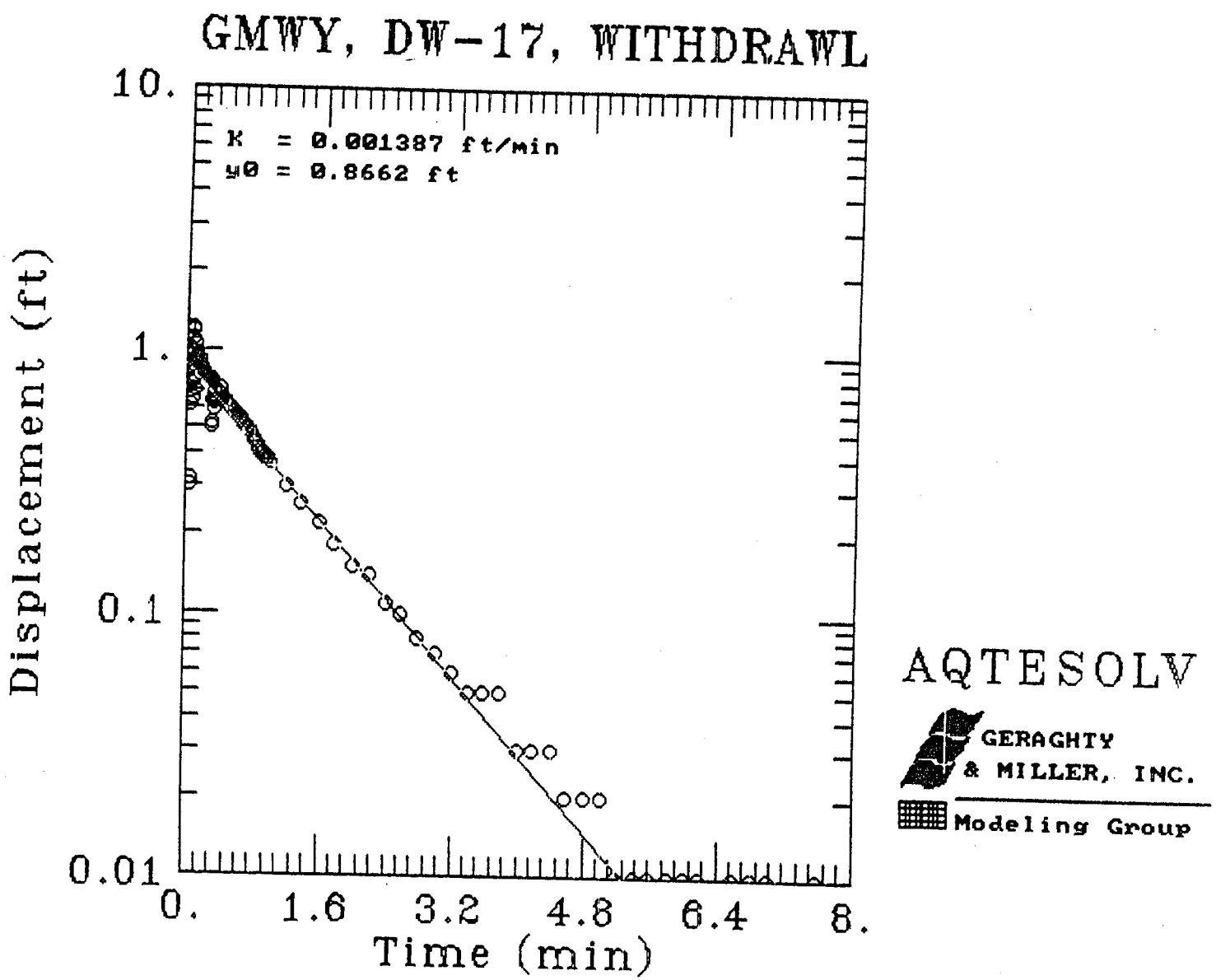

GMWY, DW-18, INJECTION
K = 0.01342 ft/min
y0 = 1.031 ft
Displacement (ft)
10.
1.
0.1
0.01
0.
0.2
0.4
0.6
0.8
1.
Time (min)

SITE: GENERAL MOTORS, PONTIAC MI. WEST YARD
WELL: DW-18, INJECTION
TIME OF SLUG INJ/WITH = 12:56:05 MILITARY TIME
STATIC WATER LEVEL = 17.14 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 158
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	12:58:29	17.13	2.40	0.002	0.01	0.01
01/18/93	12:58:41	17.15	2.60	0.002	-0.01	-0.01
01/18/93	12:58:53	17.14	2.80	0.002	0.00	0.00
01/18/93	12:59:05	17.14	3.00	0.002	0.00	0.00
01/18/93	12:59:17	17.13	3.20	0.002	0.01	0.01
01/18/93	12:59:29	17.14	3.40	0.002	0.00	0.00
01/18/93	12:59:41	17.14	3.60	0.003	0.00	0.00
01/18/93	12:59:53	17.14	3.80	0.003	0.00	0.00
01/18/93	13:00:05	17.15	4.00	0.003	-0.01	-0.01
01/18/93	13:00:17	17.14	4.20	0.003	0.00	0.00

SITE: GENERAL MOTORS, PONTIAC MI. WEST YARD
WELL: DW-18, INJECTION
TIME OF SLUG INJ/WITH = 12:56:05 MILITARY TIME
STATIC WATER LEVEL = 17.14 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 158
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	12:56:20	16.98	0.24	0.000	0.16	0.16
01/18/93	12:56:20	16.99	0.25	0.000	0.15	0.15
01/18/93	12:56:20	16.99	0.25	0.000	0.15	0.15
01/18/93	12:56:20	17.00	0.25	0.000	0.14	0.14
01/18/93	12:56:20	17.00	0.26	0.000	0.14	0.14
01/18/93	12:56:21	17.00	0.26	0.000	0.14	0.14
01/18/93	12:56:21	17.00	0.26	0.000	0.14	0.14
01/18/93	12:56:21	17.01	0.27	0.000	0.13	0.13
01/18/93	12:56:21	17.01	0.27	0.000	0.13	0.13
01/18/93	12:56:21	17.01	0.27	0.000	0.13	0.13
01/18/93	12:56:22	17.01	0.28	0.000	0.13	0.13
01/18/93	12:56:22	17.01	0.28	0.000	0.13	0.13
01/18/93	12:56:22	17.02	0.28	0.000	0.12	0.12
01/18/93	12:56:22	17.02	0.29	0.000	0.12	0.12
01/18/93	12:56:22	17.03	0.29	0.000	0.11	0.11
01/18/93	12:56:23	17.03	0.29	0.000	0.11	0.11
01/18/93	12:56:23	17.03	0.30	0.000	0.11	0.11
01/18/93	12:56:23	17.03	0.30	0.000	0.11	0.11
01/18/93	12:56:23	17.03	0.30	0.000	0.11	0.11
01/18/93	12:56:23	17.04	0.31	0.000	0.10	0.10
01/18/93	12:56:24	17.04	0.31	0.000	0.10	0.10
01/18/93	12:56:24	17.04	0.31	0.000	0.10	0.10
01/18/93	12:56:24	17.05	0.32	0.000	0.09	0.09
01/18/93	12:56:24	17.05	0.32	0.000	0.09	0.09
01/18/93	12:56:24	17.05	0.32	0.000	0.09	0.09
01/18/93	12:56:25	17.05	0.33	0.000	0.09	0.09
01/18/93	12:56:25	17.05	0.33	0.000	0.09	0.09
01/18/93	12:56:25	17.05	0.33	0.000	0.09	0.09
01/18/93	12:56:26	17.06	0.35	0.000	0.08	0.08
01/18/93	12:56:27	17.03	0.37	0.000	0.11	0.11
01/18/93	12:56:28	17.08	0.38	0.000	0.06	0.06
01/18/93	12:56:29	17.08	0.40	0.000	0.06	0.06
01/18/93	12:56:30	17.09	0.42	0.000	0.05	0.05
01/18/93	12:56:31	17.10	0.43	0.000	0.05	0.05
01/18/93	12:56:32	17.10	0.45	0.000	0.05	0.05
01/18/93	12:56:33	17.10	0.47	0.000	0.05	0.05
01/18/93	12:56:34	17.10	0.48	0.000	0.04	0.04


GMWY, DW-17, WITHDRAWL
K = 0.001387 ft/min
y0 = 0.8662 ft
Displacement (ft)
10.
1.
0.1
0.01
0.
1.6
3.2
4.8
6.4
8.
Time (min)
AQTESOLV
GERAGHTY
& MILLER, INC.
Modeling Group

SITE: GENERAL MOTORS, PONTIAC, MI. WEST YARD
WELL: DW-17, WITHDRAWAL
TIME OF SLUG INJ/WITH = 11:31:08 MILITARY TIME
STATIC WATER LEVEL = 7.49 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 176
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	11:33:32	7.60	2.40	0.002	0.11	0.11
01/18/93	11:33:44	7.59	2.60	0.002	0.10	0.10
01/18/93	11:33:56	7.57	2.80	0.002	0.08	0.08
01/18/93	11:34:08	7.56	3.00	0.002	0.07	0.07
01/18/93	11:34:20	7.55	3.20	0.002	0.06	0.06
01/18/93	11:34:32	7.54	3.40	0.002	0.05	0.05
01/18/93	11:34:44	7.54	3.60	0.003	0.05	0.05
01/18/93	11:34:56	7.54	3.80	0.003	0.05	0.05
01/18/93	11:35:08	7.52	4.00	0.003	0.03	0.03
01/18/93	11:35:20	7.52	4.20	0.003	0.03	0.03
01/18/93	11:35:32	7.52	4.40	0.003	0.03	0.03
01/18/93	11:35:44	7.51	4.60	0.003	0.02	0.02
01/18/93	11:35:56	7.51	4.80	0.003	0.02	0.02
01/18/93	11:36:08	7.51	5.00	0.003	0.02	0.02
01/18/93	11:36:20	7.50	5.20	0.004	0.01	0.01
01/18/93	11:36:32	7.50	5.40	0.004	0.01	0.01
01/18/93	11:36:44	7.50	5.60	0.004	0.01	0.01
01/18/93	11:36:56	7.50	5.80	0.004	0.01	0.01
01/18/93	11:37:08	7.50	6.00	0.004	0.01	0.01
01/18/93	11:37:20	7.50	6.20	0.004	0.01	0.01
01/18/93	11:37:32	7.49	6.40	0.004	0.00	0.00
01/18/93	11:37:44	7.50	6.60	0.005	0.01	0.01
01/18/93	11:37:56	7.50	6.80	0.005	0.01	0.01
01/18/93	11:38:08	7.50	7.00	0.005	0.01	0.01
01/18/93	11:38:20	7.49	7.20	0.005	0.00	0.00
01/18/93	11:38:32	7.49	7.40	0.005	0.00	0.00
01/18/93	11:38:44	7.50	7.60	0.005	0.01	0.01
01/18/93	11:38:56	7.49	7.80	0.005	-0.01	-0.01

SITE: GENERAL MOTORS, PONTIAC, MI. WEST YARD
WELL: DW-17, WITHDRAWAL
TIME OF SLUG INJ/WITH = 11:31:08 MILITARY TIME
STATIC WATER LEVEL = 7.49 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 176
INJECTION/WITHDRAWAL (1/2): 2

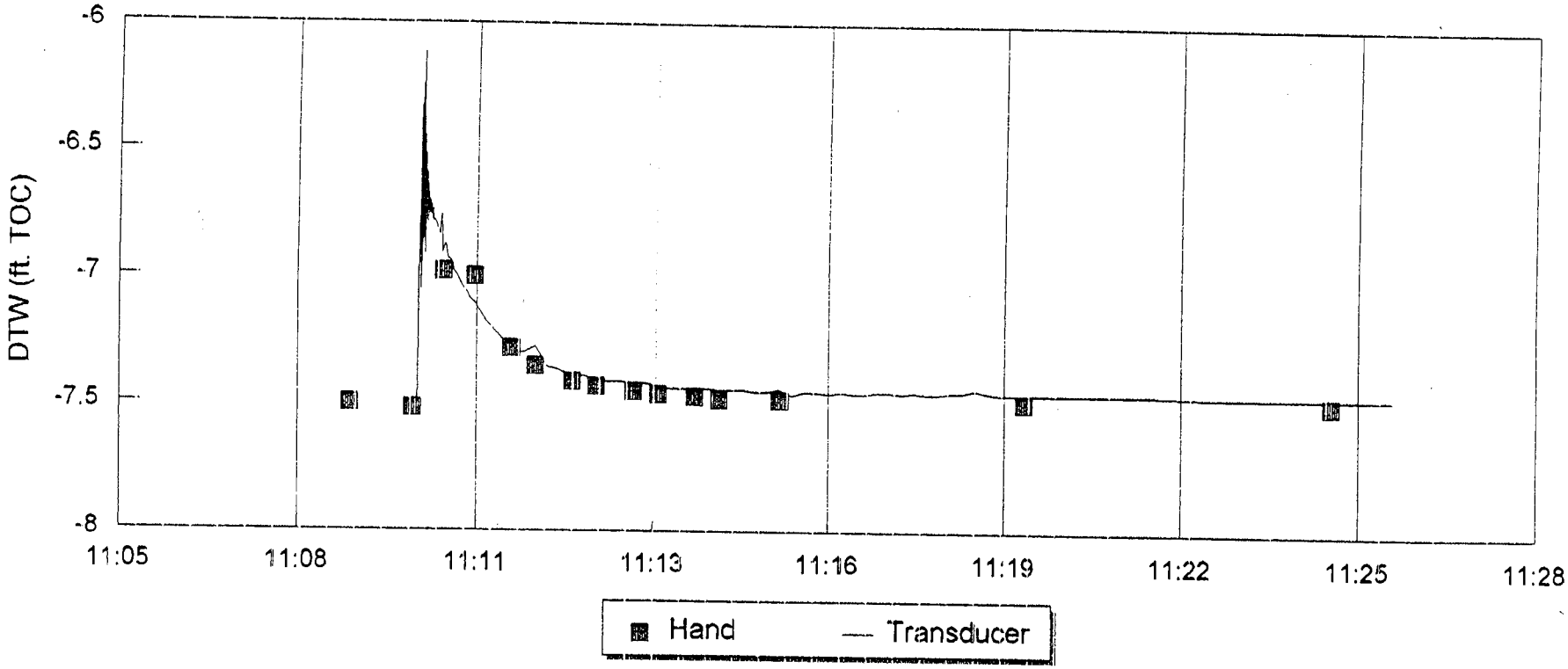
DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	11:31:23	8.27	0.24	0.000	0.78	0.78
01/18/93	11:31:23	8.27	0.25	0.000	0.78	0.78
01/18/93	11:31:23	8.27	0.25	0.000	0.78	0.78
01/18/93	11:31:23	8.26	0.25	0.000	0.77	0.77
01/18/93	11:31:23	8.26	0.26	0.000	0.77	0.77
01/18/93	11:31:24	8.26	0.26	0.000	0.77	0.77
01/18/93	11:31:24	8.25	0.26	0.000	0.76	0.76
01/18/93	11:31:24	8.25	0.27	0.000	0.76	0.76
01/18/93	11:31:24	8.25	0.27	0.000	0.76	0.76
01/18/93	11:31:24	8.25	0.27	0.000	0.76	0.76
01/18/93	11:31:25	8.25	0.28	0.000	0.76	0.76
01/18/93	11:31:25	8.24	0.28	0.000	0.75	0.75
01/18/93	11:31:25	8.24	0.28	0.000	0.75	0.75
01/18/93	11:31:25	8.24	0.29	0.000	0.75	0.75
01/18/93	11:31:25	8.24	0.29	0.000	0.75	0.75
01/18/93	11:31:26	8.24	0.29	0.000	0.75	0.75
01/18/93	11:31:26	8.23	0.30	0.000	0.74	0.74
01/18/93	11:31:26	8.23	0.30	0.000	0.74	0.74
01/18/93	11:31:26	8.23	0.30	0.000	0.74	0.74
01/18/93	11:31:26	8.22	0.31	0.000	0.73	0.73
01/18/93	11:31:27	8.22	0.31	0.000	0.73	0.73
01/18/93	11:31:27	8.00	0.31	0.000	0.50	0.50
01/18/93	11:31:27	8.01	0.32	0.000	0.52	0.52
01/18/93	11:31:27	8.25	0.32	0.000	0.76	0.76
01/18/93	11:31:27	8.12	0.32	0.000	0.63	0.63
01/18/93	11:31:28	8.08	0.33	0.000	0.59	0.59
01/18/93	11:31:28	8.13	0.33	0.000	0.64	0.64
01/18/93	11:31:28	8.17	0.33	0.000	0.68	0.68
01/18/93	11:31:29	8.11	0.35	0.000	0.62	0.62
01/18/93	11:31:30	8.12	0.37	0.000	0.63	0.63
01/18/93	11:31:31	8.17	0.38	0.000	0.68	0.68
01/18/93	11:31:32	8.20	0.40	0.000	0.71	0.71
01/18/93	11:31:33	8.16	0.42	0.000	0.67	0.67
01/18/93	11:31:34	8.12	0.43	0.000	0.63	0.63
01/18/93	11:31:35	8.12	0.45	0.000	0.63	0.63
01/18/93	11:31:36	8.13	0.47	0.000	0.64	0.64
01/18/93	11:31:37	8.11	0.48	0.000	0.62	0.62

SITE: GENERAL MOTORS, PONTIAC, MI. WEST YARD
WELL: DW-17, WITHDRAWAL
TIME OF SLUG INJ/WITH = 11:31:08 MILITARY TIME
STATIC WATER LEVEL = 7.49 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 176
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	11:30:08	7.49	-1.00	-0.001	0.00	0.00
01/18/93	11:31:08	7.45	0.00	0.000	-0.04	-0.04
01/18/93	11:31:08	7.45	0.00	0.000	-0.04	-0.04
01/18/93	11:31:08	7.45	0.01	0.000	-0.04	-0.04
01/18/93	11:31:09	7.45	0.01	0.000	-0.04	-0.04
01/18/93	11:31:09	7.50	0.01	0.000	0.01	0.01
01/18/93	11:31:09	7.60	0.02	0.000	0.11	0.11
01/18/93	11:31:09	7.69	0.02	0.000	0.20	0.20
01/18/93	11:31:09	7.60	0.02	0.000	0.11	0.11
01/18/93	11:31:10	7.83	0.03	0.000	0.34	0.34
01/18/93	11:31:10	8.10	0.03	0.000	0.61	0.61
01/18/93	11:31:10	7.85	0.03	0.000	0.36	0.36
01/18/93	11:31:10	7.47	0.04	0.000	-0.02	-0.02
01/18/93	11:31:10	7.42	0.04	0.000	-0.07	-0.07
01/18/93	11:31:11	7.64	0.04	0.000	0.15	0.15
01/18/93	11:31:11	7.88	0.05	0.000	0.39	0.39
01/18/93	11:31:11	8.02	0.05	0.000	0.53	0.53
01/18/93	11:31:11	7.47	0.05	0.000	-0.02	-0.02
01/18/93	11:31:11	7.11	0.06	0.000	-0.38	-0.38
01/18/93	11:31:12	7.79	0.06	0.000	0.30	0.30
01/18/93	11:31:12	8.49	0.06	0.000	1.00	1.00
01/18/93	11:31:12	8.22	0.07	0.000	0.73	0.73
01/18/93	11:31:12	7.81	0.07	0.000	0.32	0.32
01/18/93	11:31:12	8.10	0.07	0.000	0.61	0.61
01/18/93	11:31:13	8.66	0.08	0.000	1.17	1.17
01/18/93	11:31:13	8.69	0.08	0.000	1.20	1.20
01/18/93	11:31:13	8.24	0.08	0.000	0.75	0.75
01/18/93	11:31:13	8.13	0.09	0.000	0.64	0.64
01/18/93	11:31:13	8.47	0.09	0.000	0.98	0.98
01/18/93	11:31:14	8.59	0.09	0.000	1.10	1.10
01/18/93	11:31:14	8.33	0.10	0.000	0.84	0.84
01/18/93	11:31:14	8.19	0.10	0.000	0.70	0.70
01/18/93	11:31:14	8.38	0.10	0.000	0.89	0.89
01/18/93	11:31:14	8.52	0.11	0.000	1.03	1.03
01/18/93	11:31:15	8.38	0.11	0.000	0.89	0.89
01/18/93	11:31:15	8.25	0.11	0.000	0.76	0.76
01/18/93	11:31:15	8.39	0.12	0.000	0.90	0.90

AQUIFER TEST QA PLOT

GM-WEST YARD, DW-17, INJECTION



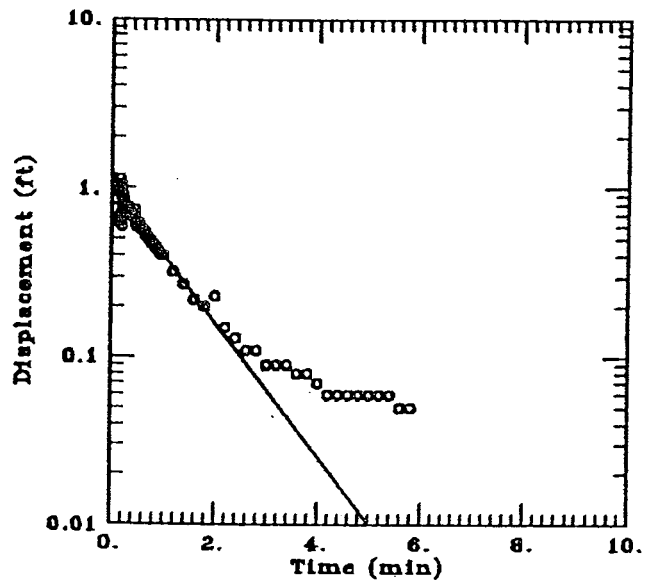
SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-17, INJECTION
TIME OF SLUG INJ/WITH = 11:10:00 MILITARY TIME
STATIC WATER LEVEL = 7.50 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 192
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	11:10:32	6.88	0.53	0.000	0.62	0.62
01/18/93	11:10:33	6.90	0.55	0.000	0.61	0.61
01/18/93	11:10:34	6.93	0.56	0.000	0.57	0.57
01/18/93	11:10:35	6.93	0.58	0.000	0.57	0.57
01/18/93	11:10:36	6.93	0.60	0.000	0.57	0.57
01/18/93	11:10:37	6.94	0.61	0.000	0.56	0.56
01/18/93	11:10:38	6.95	0.63	0.000	0.55	0.55
01/18/93	11:10:39	6.95	0.65	0.000	0.55	0.55
01/18/93	11:10:40	6.98	0.66	0.000	0.52	0.52
01/18/93	11:10:41	6.99	0.68	0.000	0.51	0.51
01/18/93	11:10:42	6.99	0.70	0.000	0.51	0.51
01/18/93	11:10:43	7.00	0.71	0.000	0.50	0.50
01/18/93	11:10:44	7.00	0.73	0.001	0.50	0.50
01/18/93	11:10:45	7.01	0.75	0.001	0.49	0.49
01/18/93	11:10:46	7.02	0.76	0.001	0.48	0.48
01/18/93	11:10:47	7.03	0.78	0.001	0.47	0.47
01/18/93	11:10:48	7.03	0.80	0.001	0.47	0.47
01/18/93	11:10:49	7.04	0.81	0.001	0.46	0.46
01/18/93	11:10:50	7.05	0.83	0.001	0.45	0.45
01/18/93	11:10:51	7.05	0.85	0.001	0.45	0.45
01/18/93	11:10:52	7.06	0.86	0.001	0.44	0.44
01/18/93	11:10:53	7.07	0.88	0.001	0.43	0.43
01/18/93	11:10:54	7.07	0.90	0.001	0.43	0.43
01/18/93	11:10:55	7.08	0.91	0.001	0.42	0.42
01/18/93	11:10:56	7.09	0.93	0.001	0.41	0.41
01/18/93	11:10:57	7.09	0.95	0.001	0.41	0.41
01/18/93	11:10:58	7.10	0.96	0.001	0.40	0.40
01/18/93	11:10:59	7.10	0.98	0.001	0.40	0.40
01/18/93	11:11:00	7.10	1.00	0.001	0.40	0.40
01/18/93	11:11:12	7.18	1.20	0.001	0.32	0.32
01/18/93	11:11:24	7.23	1.40	0.001	0.27	0.27
01/18/93	11:11:36	7.29	1.60	0.001	0.22	0.22
01/18/93	11:11:48	7.30	1.80	0.001	0.20	0.20
01/18/93	11:12:00	7.27	2.00	0.001	0.23	0.23
01/18/93	11:12:12	7.36	2.20	0.002	0.14	0.14
01/18/93	11:12:24	7.37	2.40	0.002	0.13	0.13
01/18/93	11:12:36	7.39	2.60	0.002	0.11	0.11

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-17, INJECTION
TIME OF SLUG INJ/WITH = 11:10:00 MILITARY TIME
STATIC WATER LEVEL = 7.50 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 192
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/18/93	11:10:07	6.44	0.12	0.000	1.06	1.06
01/18/93	11:10:08	6.33	0.12	0.000	1.17	1.17
01/18/93	11:10:08	6.79	0.13	0.000	0.71	0.71
01/18/93	11:10:08	7.05	0.13	0.000	0.45	0.45
01/18/93	11:10:08	6.67	0.13	0.000	0.83	0.83
01/18/93	11:10:08	6.32	0.14	0.000	1.19	1.19
01/18/93	11:10:09	6.25	0.14	0.000	1.25	1.25
01/18/93	11:10:09	6.54	0.14	0.000	0.96	0.96
01/18/93	11:10:09	7.00	0.15	0.000	0.50	0.50
01/18/93	11:10:09	6.90	0.15	0.000	0.61	0.61
01/18/93	11:10:09	6.40	0.15	0.000	1.10	1.10
01/18/93	11:10:10	6.11	0.16	0.000	1.39	1.39
01/18/93	11:10:10	6.50	0.16	0.000	1.00	1.00
01/18/93	11:10:10	6.88	0.16	0.000	0.62	0.62
01/18/93	11:10:10	6.84	0.17	0.000	0.66	0.66
01/18/93	11:10:10	6.55	0.17	0.000	0.95	0.95
01/18/93	11:10:11	6.37	0.17	0.000	1.13	1.13
01/18/93	11:10:11	6.54	0.18	0.000	0.96	0.96
01/18/93	11:10:11	6.83	0.18	0.000	0.67	0.67
01/18/93	11:10:11	6.87	0.18	0.000	0.63	0.63
01/18/93	11:10:11	6.58	0.19	0.000	0.92	0.92
01/18/93	11:10:12	6.45	0.19	0.000	1.05	1.05
01/18/93	11:10:12	6.61	0.19	0.000	0.90	0.90
01/18/93	11:10:12	6.91	0.20	0.000	0.59	0.59
01/18/93	11:10:12	6.80	0.20	0.000	0.70	0.70
01/18/93	11:10:12	6.55	0.20	0.000	0.95	0.95
01/18/93	11:10:13	6.52	0.21	0.000	0.98	0.98
01/18/93	11:10:13	6.67	0.21	0.000	0.83	0.83
01/18/93	11:10:13	6.84	0.21	0.000	0.66	0.66
01/18/93	11:10:13	6.72	0.22	0.000	0.78	0.78
01/18/93	11:10:13	6.59	0.22	0.000	0.91	0.91
01/18/93	11:10:14	6.60	0.22	0.000	0.90	0.90
01/18/93	11:10:14	6.71	0.23	0.000	0.79	0.79
01/18/93	11:10:14	6.79	0.23	0.000	0.71	0.71
01/18/93	11:10:14	6.73	0.23	0.000	0.77	0.77
01/18/93	11:10:14	6.64	0.24	0.000	0.86	0.86
01/18/93	11:10:15	6.64	0.24	0.000	0.86	0.86

GM-WEST YARD, DW-17, INJECTION



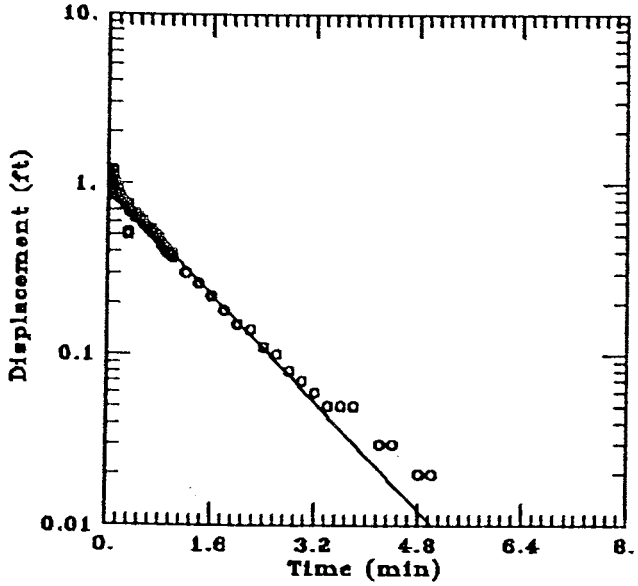
DATA SET:
C:\GMWY\PRT\AQT
02/01/96

AQUIFER TYP
Unconfined
SOLUTION ME
Bouwer-Rice

ESTIMATED P
K = 0.00151 ft
y0 = 0.9956 ft

TEST DATA:
H0 = 1.13 ft
rc = 0.083 ft
rw = 0.33 ft
L = 5. ft
b = 10.29 ft
H = 10.29 ft

GMWY, DW-17, WITHDRAWL



DATA SET:
C:\GMWY\PRT\AQT
02/01/96

AQUIFER TYP
Unconfined
SOLUTION ME
Bouwer-Rice

ESTIMATED P
K = 0.001476 f
y0 = 0.9499 ft

TEST DATA:
H0 = 1.2 ft
rc = 0.083 ft
rw = 0.33 ft
L = 5. ft
b = 9.8 ft
H = 9.8 ft

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-16, WITHDRAWAL
TIME OF SLUG INJ/WITH = 12:14:25 MILITARY TIME
STATIC WATER LEVEL = 7.26 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 269
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	13:37:25	8.15	83.00	0.058	0.89	0.89
01/19/93	13:38:25	8.15	84.00	0.058	0.89	0.89
01/19/93	13:39:25	8.15	85.00	0.059	0.89	0.89
01/19/93	13:40:25	8.15	86.00	0.060	0.89	0.89
01/19/93	13:41:25	8.14	87.00	0.060	0.88	0.88
01/19/93	13:42:25	8.14	88.00	0.061	0.88	0.88
01/19/93	13:43:25	8.13	89.00	0.062	0.87	0.87
01/19/93	13:44:25	8.12	90.00	0.063	0.86	0.86
01/19/93	13:45:25	8.10	91.00	0.063	0.84	0.84
01/19/93	13:46:25	8.10	92.00	0.064	0.84	0.84

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-16, WITHDRAWAL
TIME OF SLUG INJ/WITH = 12:14:25 MILITARY TIME
STATIC WATER LEVEL = 7.26 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 269
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	12:24:13	8.51	9.80	0.007	1.25	1.25
01/19/93	12:24:25	8.50	10.00	0.007	1.23	1.23
01/19/93	12:25:25	8.50	11.00	0.008	1.24	1.24
01/19/93	12:26:25	8.51	12.00	0.008	1.25	1.25
01/19/93	12:27:25	8.50	13.00	0.009	1.23	1.23
01/19/93	12:28:25	8.49	14.00	0.010	1.23	1.23
01/19/93	12:29:25	8.48	15.00	0.010	1.22	1.22
01/19/93	12:30:25	8.48	16.00	0.011	1.22	1.22
01/19/93	12:31:25	8.47	17.00	0.012	1.21	1.21
01/19/93	12:32:25	8.46	18.00	0.012	1.20	1.20
01/19/93	12:33:25	8.46	19.00	0.013	1.20	1.20
01/19/93	12:34:25	8.44	20.00	0.014	1.18	1.18
01/19/93	12:35:25	8.44	21.00	0.015	1.18	1.18
01/19/93	12:36:25	8.44	22.00	0.015	1.18	1.18
01/19/93	12:37:25	8.43	23.00	0.016	1.17	1.17
01/19/93	12:38:25	8.43	24.00	0.017	1.17	1.17
01/19/93	12:39:25	8.41	25.00	0.017	1.15	1.15
01/19/93	12:40:25	8.41	26.00	0.018	1.15	1.15
01/19/93	12:41:25	8.41	27.00	0.019	1.15	1.15
01/19/93	12:42:25	8.41	28.00	0.019	1.15	1.15
01/19/93	12:43:25	8.40	29.00	0.020	1.14	1.14
01/19/93	12:44:25	8.39	30.00	0.021	1.13	1.13
01/19/93	12:45:25	8.38	31.00	0.022	1.11	1.11
01/19/93	12:46:25	8.38	32.00	0.022	1.11	1.11
01/19/93	12:47:25	8.36	33.00	0.023	1.10	1.10
01/19/93	12:48:25	8.36	34.00	0.024	1.10	1.10
01/19/93	12:49:25	8.36	35.00	0.024	1.10	1.10
01/19/93	12:50:25	8.35	36.00	0.025	1.09	1.09
01/19/93	12:51:25	8.34	37.00	0.026	1.08	1.08
01/19/93	12:52:25	8.34	38.00	0.026	1.08	1.08
01/19/93	12:53:25	8.33	39.00	0.027	1.07	1.07
01/19/93	12:54:25	8.33	40.00	0.028	1.06	1.06
01/19/93	12:55:25	8.33	41.00	0.028	1.06	1.06
01/19/93	12:56:25	8.32	42.00	0.029	1.06	1.06
01/19/93	12:57:25	8.32	43.00	0.030	1.06	1.06
01/19/93	12:58:25	8.32	44.00	0.031	1.06	1.06
01/19/93	12:59:25	8.31	45.00	0.031	1.05	1.05

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-16, WITHDRAWAL
TIME OF SLUG INJ/WITH = 12:14:25 MILITARY TIME
STATIC WATER LEVEL = 7.26 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 269
INJECTION/WITHDRAWAL (1/2): 2

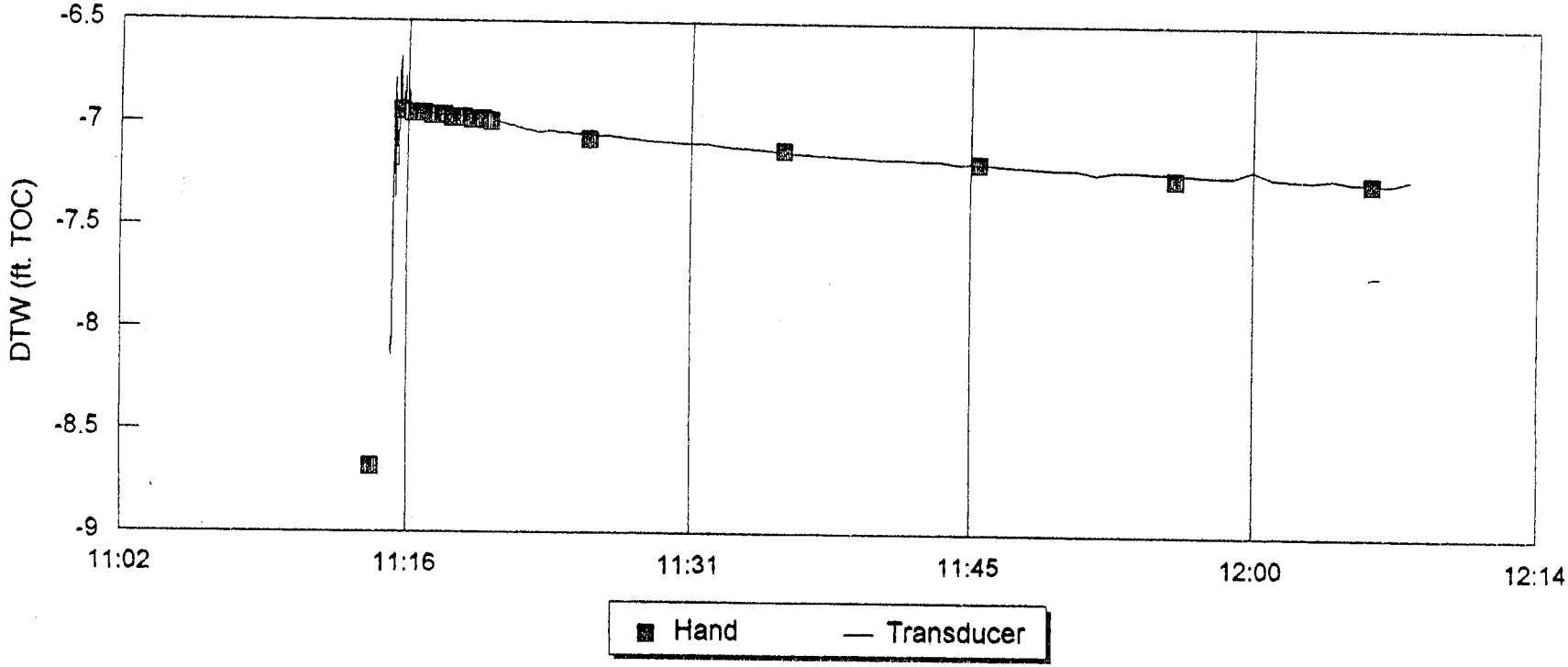
DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	12:14:55	8.60	0.50	0.000	1.34	1.34
01/19/93	12:14:56	8.60	0.52	0.000	1.34	1.34
01/19/93	12:14:57	8.60	0.53	0.000	1.34	1.34
01/19/93	12:14:58	8.60	0.55	0.000	1.34	1.34
01/19/93	12:14:59	8.59	0.57	0.000	1.33	1.33
01/19/93	12:15:00	8.44	0.58	0.000	1.18	1.18
01/19/93	12:15:01	8.61	0.60	0.000	1.35	1.35
01/19/93	12:15:02	8.60	0.62	0.000	1.34	1.34
01/19/93	12:15:03	8.61	0.63	0.000	1.35	1.35
01/19/93	12:15:04	8.60	0.65	0.000	1.34	1.34
01/19/93	12:15:05	8.60	0.67	0.000	1.34	1.34
01/19/93	12:15:06	8.60	0.68	0.000	1.34	1.34
01/19/93	12:15:07	8.60	0.70	0.000	1.34	1.34
01/19/93	12:15:08	8.60	0.72	0.000	1.34	1.34
01/19/93	12:15:09	8.60	0.73	0.001	1.34	1.34
01/19/93	12:15:10	8.60	0.75	0.001	1.34	1.34
01/19/93	12:15:11	8.60	0.77	0.001	1.34	1.34
01/19/93	12:15:12	8.60	0.78	0.001	1.34	1.34
01/19/93	12:15:13	8.60	0.80	0.001	1.34	1.34
01/19/93	12:15:14	8.60	0.82	0.001	1.34	1.34
01/19/93	12:15:15	8.59	0.83	0.001	1.33	1.33
01/19/93	12:15:16	8.59	0.85	0.001	1.33	1.33
01/19/93	12:15:17	8.60	0.87	0.001	1.34	1.34
01/19/93	12:15:18	8.59	0.88	0.001	1.33	1.33
01/19/93	12:15:19	8.59	0.90	0.001	1.33	1.33
01/19/93	12:15:20	8.59	0.92	0.001	1.33	1.33
01/19/93	12:15:21	8.59	0.93	0.001	1.33	1.33
01/19/93	12:15:22	8.59	0.95	0.001	1.33	1.33
01/19/93	12:15:23	8.59	0.97	0.001	1.33	1.33
01/19/93	12:15:24	8.59	0.98	0.001	1.33	1.33
01/19/93	12:15:25	8.59	1.00	0.001	1.33	1.33
01/19/93	12:15:37	8.58	1.20	0.001	1.32	1.32
01/19/93	12:15:49	8.59	1.40	0.001	1.33	1.33
01/19/93	12:16:01	8.58	1.60	0.001	1.32	1.32
01/19/93	12:16:13	8.58	1.80	0.001	1.32	1.32
01/19/93	12:16:25	8.58	2.00	0.001	1.32	1.32
01/19/93	12:16:37	8.58	2.20	0.002	1.32	1.32

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-16, WITHDRAWAL
TIME OF SLUG INJ/WITH = 12:14:25 MILITARY TIME
STATIC WATER LEVEL = 7.26 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 269
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	12:14:32	9.17	0.12	0.000	1.91	1.91
01/19/93	12:14:32	9.19	0.12	0.000	1.93	1.93
01/19/93	12:14:33	9.15	0.13	0.000	1.89	1.89
01/19/93	12:14:33	9.19	0.13	0.000	1.93	1.93
01/19/93	12:14:33	9.07	0.13	0.000	1.81	1.81
01/19/93	12:14:33	9.13	0.14	0.000	1.86	1.86
01/19/93	12:14:33	9.11	0.14	0.000	1.85	1.85
01/19/93	12:14:34	9.13	0.14	0.000	1.86	1.86
01/19/93	12:14:34	9.07	0.15	0.000	1.81	1.81
01/19/93	12:14:34	9.04	0.15	0.000	1.78	1.78
01/19/93	12:14:34	9.07	0.15	0.000	1.81	1.81
01/19/93	12:14:34	9.01	0.16	0.000	1.75	1.75
01/19/93	12:14:35	9.09	0.16	0.000	1.83	1.83
01/19/93	12:14:35	9.09	0.16	0.000	1.83	1.83
01/19/93	12:14:35	9.12	0.17	0.000	1.86	1.86
01/19/93	12:14:35	9.01	0.17	0.000	1.75	1.75
01/19/93	12:14:35	9.11	0.17	0.000	1.85	1.85
01/19/93	12:14:36	9.10	0.18	0.000	1.84	1.84
01/19/93	12:14:36	9.09	0.18	0.000	1.83	1.83
01/19/93	12:14:36	9.16	0.18	0.000	1.90	1.90
01/19/93	12:14:36	9.15	0.19	0.000	1.89	1.89
01/19/93	12:14:36	9.19	0.19	0.000	1.93	1.93
01/19/93	12:14:37	9.50	0.19	0.000	2.24	2.24
01/19/93	12:14:37	9.19	0.20	0.000	1.93	1.93
01/19/93	12:14:37	9.31	0.20	0.000	2.05	2.05
01/19/93	12:14:37	9.39	0.20	0.000	2.13	2.13
01/19/93	12:14:37	9.43	0.21	0.000	2.17	2.17
01/19/93	12:14:38	9.52	0.21	0.000	2.26	2.26
01/19/93	12:14:38	9.55	0.21	0.000	2.29	2.29
01/19/93	12:14:38	9.53	0.22	0.000	2.27	2.27
01/19/93	12:14:38	9.57	0.22	0.000	2.31	2.31
01/19/93	12:14:38	9.55	0.22	0.000	2.29	2.29
01/19/93	12:14:39	9.47	0.23	0.000	2.21	2.21
01/19/93	12:14:39	9.61	0.23	0.000	2.35	2.35
01/19/93	12:14:39	9.58	0.23	0.000	2.32	2.32
01/19/93	12:14:39	9.47	0.24	0.000	2.21	2.21
01/19/93	12:14:39	9.45	0.24	0.000	2.19	2.19

AQUIFER TEST QA PLOT

GM-WEST YARD, DW-16, INJECTION



SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-16, INJECTION
TIME OF SLUG INJ/WITH = 11:16:00 MILITARY TIME
STATIC WATER LEVEL = 8.68 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 229
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	11:25:48	7.05	9.80	0.007	1.64	1.64
01/19/93	11:26:00	7.05	10.00	0.007	1.63	1.63
01/19/93	11:27:00	7.05	11.00	0.008	1.63	1.63
01/19/93	11:28:00	7.06	12.00	0.008	1.62	1.62
01/19/93	11:29:00	7.08	13.00	0.009	1.60	1.60
01/19/93	11:30:00	7.08	14.00	0.010	1.60	1.60
01/19/93	11:31:00	7.09	15.00	0.010	1.59	1.59
01/19/93	11:32:00	7.09	16.00	0.011	1.59	1.59
01/19/93	11:33:00	7.10	17.00	0.012	1.58	1.58
01/19/93	11:34:00	7.11	18.00	0.012	1.57	1.57
01/19/93	11:35:00	7.12	19.00	0.013	1.57	1.57
01/19/93	11:36:00	7.13	20.00	0.014	1.55	1.55
01/19/93	11:37:00	7.13	21.00	0.015	1.55	1.55
01/19/93	11:38:00	7.14	22.00	0.015	1.54	1.54
01/19/93	11:39:00	7.15	23.00	0.016	1.53	1.53
01/19/93	11:40:00	7.15	24.00	0.017	1.53	1.53
01/19/93	11:41:00	7.16	25.00	0.017	1.52	1.52
01/19/93	11:42:00	7.16	26.00	0.018	1.52	1.52
01/19/93	11:43:00	7.17	27.00	0.019	1.52	1.52
01/19/93	11:44:00	7.17	28.00	0.019	1.52	1.52
01/19/93	11:45:00	7.18	29.00	0.020	1.50	1.50
01/19/93	11:46:00	7.17	30.00	0.021	1.51	1.51
01/19/93	11:47:00	7.18	31.00	0.022	1.50	1.50
01/19/93	11:48:00	7.19	32.00	0.022	1.49	1.49
01/19/93	11:49:00	7.20	33.00	0.023	1.48	1.48
01/19/93	11:50:00	7.20	34.00	0.024	1.48	1.48
01/19/93	11:51:00	7.20	35.00	0.024	1.48	1.48
01/19/93	11:52:00	7.22	36.00	0.025	1.46	1.46
01/19/93	11:53:00	7.21	37.00	0.026	1.47	1.47
01/19/93	11:54:00	7.21	38.00	0.026	1.47	1.47
01/19/93	11:55:00	7.22	39.00	0.027	1.47	1.47
01/19/93	11:56:00	7.22	40.00	0.028	1.47	1.47
01/19/93	11:57:00	7.22	41.00	0.028	1.46	1.46
01/19/93	11:58:00	7.23	42.00	0.029	1.45	1.45
01/19/93	11:59:00	7.23	43.00	0.030	1.45	1.45
01/19/93	12:00:00	7.20	44.00	0.031	1.48	1.48
01/19/93	12:01:00	7.23	45.00	0.031	1.45	1.45

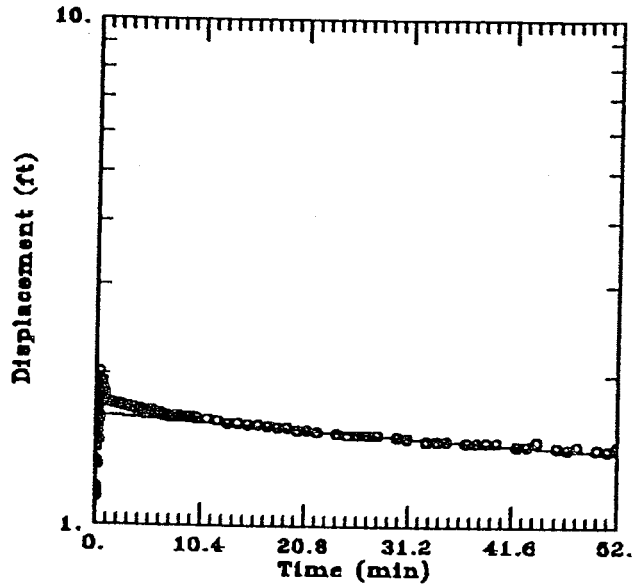
SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-16, INJECTION
TIME OF SLUG INJ/WITH = 11:16:00 MILITARY TIME
STATIC WATER LEVEL = 8.68 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 229
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	11:16:30	6.90	0.50	0.000	1.78	1.78
01/19/93	11:16:31	6.90	0.52	0.000	1.78	1.78
01/19/93	11:16:32	6.90	0.53	0.000	1.78	1.78
01/19/93	11:16:33	6.91	0.55	0.000	1.77	1.77
01/19/93	11:16:34	6.91	0.57	0.000	1.77	1.77
01/19/93	11:16:35	6.85	0.58	0.000	1.83	1.83
01/19/93	11:16:36	6.91	0.60	0.000	1.77	1.77
01/19/93	11:16:37	6.86	0.62	0.000	1.82	1.82
01/19/93	11:16:38	6.93	0.63	0.000	1.75	1.75
01/19/93	11:16:39	6.75	0.65	0.000	1.93	1.93
01/19/93	11:16:40	6.79	0.67	0.000	1.89	1.89
01/19/93	11:16:41	6.89	0.68	0.000	1.79	1.79
01/19/93	11:16:42	6.91	0.70	0.000	1.77	1.77
01/19/93	11:16:43	6.91	0.72	0.000	1.77	1.77
01/19/93	11:16:44	6.91	0.73	0.001	1.77	1.77
01/19/93	11:16:45	6.91	0.75	0.001	1.77	1.77
01/19/93	11:16:46	6.91	0.77	0.001	1.77	1.77
01/19/93	11:16:47	6.91	0.78	0.001	1.77	1.77
01/19/93	11:16:48	6.91	0.80	0.001	1.77	1.77
01/19/93	11:16:49	6.91	0.82	0.001	1.77	1.77
01/19/93	11:16:50	6.89	0.83	0.001	1.79	1.79
01/19/93	11:16:51	6.84	0.85	0.001	1.84	1.84
01/19/93	11:16:52	6.87	0.87	0.001	1.81	1.81
01/19/93	11:16:53	6.92	0.88	0.001	1.76	1.76
01/19/93	11:16:54	6.92	0.90	0.001	1.76	1.76
01/19/93	11:16:55	6.90	0.92	0.001	1.78	1.78
01/19/93	11:16:56	6.91	0.93	0.001	1.77	1.77
01/19/93	11:16:57	6.92	0.95	0.001	1.76	1.76
01/19/93	11:16:58	6.91	0.97	0.001	1.77	1.77
01/19/93	11:16:59	6.92	0.98	0.001	1.76	1.76
01/19/93	11:17:00	6.91	1.00	0.001	1.77	1.77
01/19/93	11:17:12	6.93	1.20	0.001	1.75	1.75
01/19/93	11:17:24	6.93	1.40	0.001	1.75	1.75
01/19/93	11:17:36	6.93	1.60	0.001	1.75	1.75
01/19/93	11:17:48	6.94	1.80	0.001	1.74	1.74
01/19/93	11:18:00	6.94	2.00	0.001	1.74	1.74
01/19/93	11:18:12	6.94	2.20	0.002	1.74	1.74

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: DW-16, INJECTION
TIME OF SLUG INJ/WITH = 11:16:00 MILITARY TIME
STATIC WATER LEVEL = 8.68 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 229
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	11:16:07	7.19	0.12	0.000	1.49	1.49
01/19/93	11:16:07	7.12	0.12	0.000	1.57	1.57
01/19/93	11:16:08	7.15	0.13	0.000	1.53	1.53
01/19/93	11:16:08	7.06	0.13	0.000	1.62	1.62
01/19/93	11:16:08	6.96	0.13	0.000	1.72	1.72
01/19/93	11:16:08	7.03	0.14	0.000	1.65	1.65
01/19/93	11:16:08	7.00	0.14	0.000	1.68	1.68
01/19/93	11:16:09	7.07	0.14	0.000	1.61	1.61
01/19/93	11:16:09	6.96	0.15	0.000	1.72	1.72
01/19/93	11:16:09	6.94	0.15	0.000	1.74	1.74
01/19/93	11:16:09	7.13	0.15	0.000	1.55	1.55
01/19/93	11:16:09	7.10	0.16	0.000	1.58	1.58
01/19/93	11:16:10	6.88	0.16	0.000	1.81	1.81
01/19/93	11:16:10	6.94	0.16	0.000	1.74	1.74
01/19/93	11:16:10	7.13	0.17	0.000	1.55	1.55
01/19/93	11:16:10	7.10	0.17	0.000	1.58	1.58
01/19/93	11:16:10	7.25	0.17	0.000	1.43	1.43
01/19/93	11:16:11	6.78	0.18	0.000	1.90	1.90
01/19/93	11:16:11	7.25	0.18	0.000	1.43	1.43
01/19/93	11:16:11	6.94	0.18	0.000	1.74	1.74
01/19/93	11:16:11	7.22	0.19	0.000	1.47	1.47
01/19/93	11:16:11	7.15	0.19	0.000	1.53	1.53
01/19/93	11:16:12	7.00	0.19	0.000	1.68	1.68
01/19/93	11:16:12	7.03	0.20	0.000	1.65	1.65
01/19/93	11:16:12	7.14	0.20	0.000	1.54	1.54
01/19/93	11:16:12	7.09	0.20	0.000	1.59	1.59
01/19/93	11:16:12	7.06	0.21	0.000	1.62	1.62
01/19/93	11:16:13	7.08	0.21	0.000	1.60	1.60
01/19/93	11:16:13	6.99	0.21	0.000	1.69	1.69
01/19/93	11:16:13	7.00	0.22	0.000	1.68	1.68
01/19/93	11:16:13	7.05	0.22	0.000	1.64	1.64
01/19/93	11:16:13	7.01	0.22	0.000	1.67	1.67
01/19/93	11:16:14	6.89	0.23	0.000	1.79	1.79
01/19/93	11:16:14	7.36	0.23	0.000	1.32	1.32
01/19/93	11:16:14	6.89	0.23	0.000	1.79	1.79
01/19/93	11:16:14	7.00	0.24	0.000	1.69	1.69
01/19/93	11:16:14	7.33	0.24	0.000	1.35	1.35

GMWY, DW-16, INJECTION



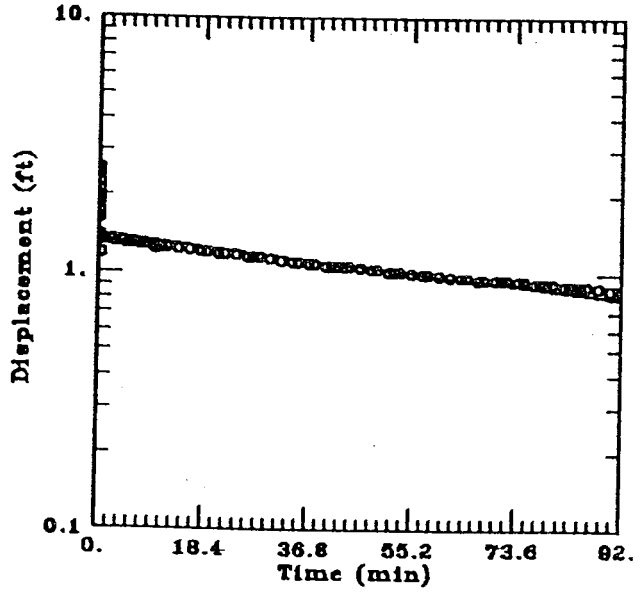
DATA SET:
C:\GMWY\PRT\AQT
02/01/96

AQUIFER TYP
Unconfined
SOLUTION ME
Bouwer-Rice

ESTIMATED P
K = 5.2622E-06
y0 = 1.659 ft

TEST DATA:
H0 = 1.8 ft
rc = 0.08 ft
rw = 0.33 ft
L = 5. ft
b = 13.67 ft
H = 13.67 ft

GMWY, DW-16, WITHDRAWAL



DATA SET:
C:\GMWY\PRT\AQT
02/01/96

AQUIFER TYP
Unconfined
SOLUTION ME
Bouwer-Rice

ESTIMATED P
K = 1.0089E-05
y0 = 1.403 ft

TEST DATA:
H0 = 2.53 ft
rc = 0.08 ft
rw = 0.33 ft
L = 5. ft
b = 15.09 ft
H = 15.09 ft

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW-12, WITHDRAWAL
TIME OF SLUG INJ/WITH = 15:08:37 MILITARY TIME
STATIC WATER LEVEL = 20.58 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 164
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	15:11:01	20.57	2.40	0.002	-0.01	-0.01
01/19/93	15:11:13	20.57	2.60	0.002	-0.01	-0.01
01/19/93	15:11:25	20.58	2.80	0.002	-0.00	-0.00
01/19/93	15:11:37	20.57	3.00	0.002	-0.01	-0.01
01/19/93	15:11:49	20.57	3.20	0.002	-0.01	-0.01
01/19/93	15:12:01	20.57	3.40	0.002	-0.01	-0.01
01/19/93	15:12:13	20.57	3.60	0.003	-0.01	-0.01
01/19/93	15:12:25	20.57	3.80	0.003	-0.01	-0.01
01/19/93	15:12:37	20.57	4.00	0.003	-0.01	-0.01
01/19/93	15:12:49	20.56	4.20	0.003	-0.02	-0.02
01/19/93	15:13:01	20.56	4.40	0.003	-0.02	-0.02
01/19/93	15:13:13	20.56	4.60	0.003	-0.02	-0.02
01/19/93	15:13:25	20.56	4.80	0.003	-0.02	-0.02
01/19/93	15:13:37	20.56	5.00	0.003	-0.02	-0.02
01/19/93	15:13:49	20.56	5.20	0.004	-0.02	-0.02
01/19/93	15:14:01	20.56	5.40	0.004	-0.02	-0.02

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW-12, WITHDRAWAL
TIME OF SLUG INJ/WITH = 15:08:37 MILITARY TIME
STATIC WATER LEVEL = 20.58 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 164
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	15:08:52	20.90	0.24	0.000	0.32	0.32
01/19/93	15:08:52	20.90	0.25	0.000	0.32	0.32
01/19/93	15:08:52	20.90	0.25	0.000	0.32	0.32
01/19/93	15:08:52	20.89	0.25	0.000	0.31	0.31
01/19/93	15:08:52	20.89	0.26	0.000	0.31	0.31
01/19/93	15:08:53	20.89	0.26	0.000	0.31	0.31
01/19/93	15:08:53	20.89	0.26	0.000	0.31	0.31
01/19/93	15:08:53	20.88	0.27	0.000	0.30	0.30
01/19/93	15:08:53	20.87	0.27	0.000	0.29	0.29
01/19/93	15:08:53	20.87	0.27	0.000	0.29	0.29
01/19/93	15:08:54	20.87	0.28	0.000	0.29	0.29
01/19/93	15:08:54	20.87	0.28	0.000	0.29	0.29
01/19/93	15:08:54	20.87	0.28	0.000	0.29	0.29
01/19/93	15:08:54	20.86	0.29	0.000	0.28	0.28
01/19/93	15:08:54	20.86	0.29	0.000	0.28	0.28
01/19/93	15:08:55	20.85	0.29	0.000	0.27	0.27
01/19/93	15:08:55	20.85	0.30	0.000	0.27	0.27
01/19/93	15:08:55	20.85	0.30	0.000	0.27	0.27
01/19/93	15:08:55	20.85	0.30	0.000	0.27	0.27
01/19/93	15:08:55	20.84	0.31	0.000	0.26	0.26
01/19/93	15:08:56	20.84	0.31	0.000	0.26	0.26
01/19/93	15:08:56	20.83	0.31	0.000	0.25	0.25
01/19/93	15:08:56	20.83	0.32	0.000	0.25	0.25
01/19/93	15:08:56	20.83	0.32	0.000	0.25	0.25
01/19/93	15:08:56	20.83	0.32	0.000	0.25	0.25
01/19/93	15:08:57	20.83	0.33	0.000	0.25	0.25
01/19/93	15:08:57	20.82	0.33	0.000	0.24	0.24
01/19/93	15:08:57	20.82	0.33	0.000	0.24	0.24
01/19/93	15:08:58	20.81	0.35	0.000	0.23	0.23
01/19/93	15:08:59	20.80	0.37	0.000	0.22	0.22
01/19/93	15:09:00	20.78	0.38	0.000	0.20	0.20
01/19/93	15:09:01	20.77	0.40	0.000	0.19	0.19
01/19/93	15:09:02	20.77	0.42	0.000	0.18	0.18
01/19/93	15:09:03	20.75	0.43	0.000	0.17	0.17
01/19/93	15:09:04	20.75	0.45	0.000	0.17	0.17
01/19/93	15:09:05	20.73	0.47	0.000	0.15	0.15
01/19/93	15:09:06	20.73	0.48	0.000	0.15	0.15

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW-12, WITHDRAWAL
TIME OF SLUG INJ/WITH = 15:08:37 MILITARY TIME
STATIC WATER LEVEL = 20.58 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 164
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	15:07:37	20.58	-1.00	-0.001	0.00	0.00
01/19/93	15:08:37	20.55	0.00	0.000	-0.03	-0.03
01/19/93	15:08:37	20.55	0.00	0.000	-0.03	-0.03
01/19/93	15:08:37	20.58	0.01	0.000	0.00	0.00
01/19/93	15:08:38	20.93	0.01	0.000	0.35	0.35
01/19/93	15:08:38	21.08	0.01	0.000	0.50	0.50
01/19/93	15:08:38	20.27	0.02	0.000	-0.31	-0.31
01/19/93	15:08:38	21.16	0.02	0.000	0.58	0.58
01/19/93	15:08:38	21.14	0.02	0.000	0.56	0.56
01/19/93	15:08:39	20.51	0.03	0.000	-0.07	-0.07
01/19/93	15:08:39	20.34	0.03	0.000	-0.24	-0.24
01/19/93	15:08:39	21.27	0.03	0.000	0.69	0.69
01/19/93	15:08:39	20.74	0.04	0.000	0.16	0.16
01/19/93	15:08:39	20.17	0.04	0.000	-0.41	-0.41
01/19/93	15:08:40	21.07	0.04	0.000	0.49	0.49
01/19/93	15:08:40	21.26	0.05	0.000	0.68	0.68
01/19/93	15:08:40	20.89	0.05	0.000	0.31	0.31
01/19/93	15:08:40	20.38	0.05	0.000	-0.20	-0.20
01/19/93	15:08:40	20.53	0.06	0.000	-0.05	-0.05
01/19/93	15:08:41	20.61	0.06	0.000	0.03	0.03
01/19/93	15:08:41	20.47	0.06	0.000	-0.11	-0.11
01/19/93	15:08:41	20.90	0.07	0.000	0.32	0.32
01/19/93	15:08:41	20.70	0.07	0.000	0.12	0.12
01/19/93	15:08:41	20.72	0.07	0.000	0.14	0.14
01/19/93	15:08:42	21.00	0.08	0.000	0.42	0.42
01/19/93	15:08:42	21.02	0.08	0.000	0.44	0.44
01/19/93	15:08:42	20.87	0.08	0.000	0.29	0.29
01/19/93	15:08:42	21.04	0.09	0.000	0.46	0.46
01/19/93	15:08:42	21.07	0.09	0.000	0.49	0.49
01/19/93	15:08:43	21.21	0.09	0.000	0.63	0.63
01/19/93	15:08:43	21.27	0.10	0.000	0.69	0.69
01/19/93	15:08:43	21.20	0.10	0.000	0.62	0.62
01/19/93	15:08:43	21.17	0.10	0.000	0.59	0.59
01/19/93	15:08:43	21.16	0.11	0.000	0.58	0.58
01/19/93	15:08:44	21.15	0.11	0.000	0.57	0.57
01/19/93	15:08:44	21.13	0.11	0.000	0.55	0.55
01/19/93	15:08:44	21.12	0.12	0.000	0.54	0.54

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW-12, INJECTION
TIME OF SLUG INJ/WITH = 14:48:19 MILITARY TIME
STATIC WATER LEVEL = 20.57 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 187
INJECTION/WITHDRAWAL (1/2): 1

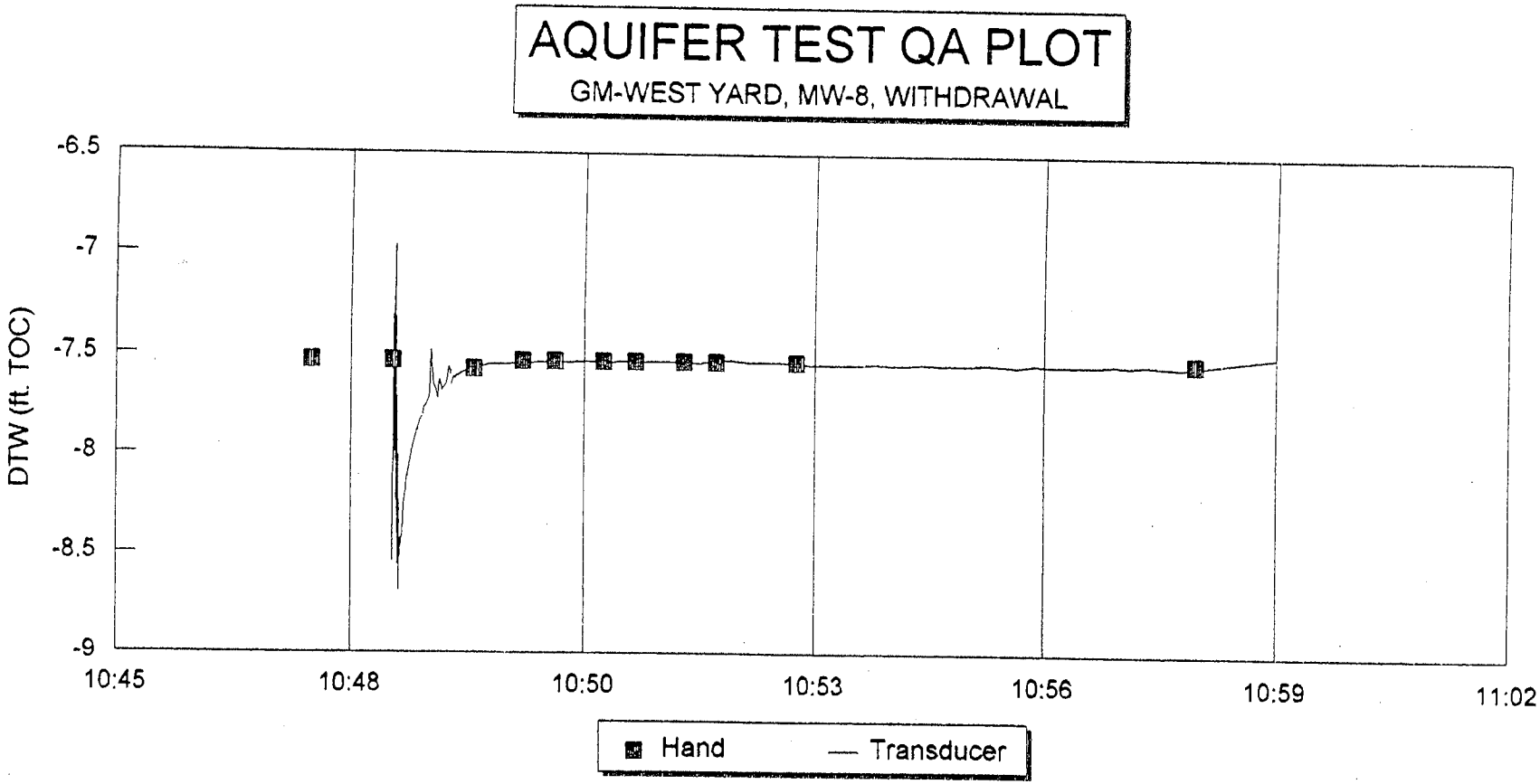
DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	14:50:43	20.51	2.40	0.002	0.06	0.06
01/19/93	14:50:55	20.50	2.60	0.002	0.07	0.07
01/19/93	14:51:07	20.53	2.80	0.002	0.04	0.04
01/19/93	14:51:19	20.53	3.00	0.002	0.04	0.04
01/19/93	14:51:31	20.53	3.20	0.002	0.04	0.04
01/19/93	14:51:43	20.53	3.40	0.002	0.04	0.04
01/19/93	14:51:55	20.53	3.60	0.003	0.04	0.04
01/19/93	14:52:07	20.53	3.80	0.003	0.04	0.04
01/19/93	14:52:19	20.53	4.00	0.003	0.04	0.04
01/19/93	14:52:31	20.54	4.20	0.003	0.03	0.03
01/19/93	14:52:43	20.54	4.40	0.003	0.03	0.03
01/19/93	14:52:55	20.54	4.60	0.003	0.03	0.03
01/19/93	14:53:07	20.54	4.80	0.003	0.03	0.03
01/19/93	14:53:19	20.54	5.00	0.003	0.03	0.03
01/19/93	14:53:31	20.54	5.20	0.004	0.03	0.03
01/19/93	14:53:43	20.54	5.40	0.004	0.03	0.03

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW-12, INJECTION
TIME OF SLUG INJ/WITH = 14:48:19 MILITARY TIME
STATIC WATER LEVEL = 20.57 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 187
INJECTION/WITHDRAWAL (1/2): 1

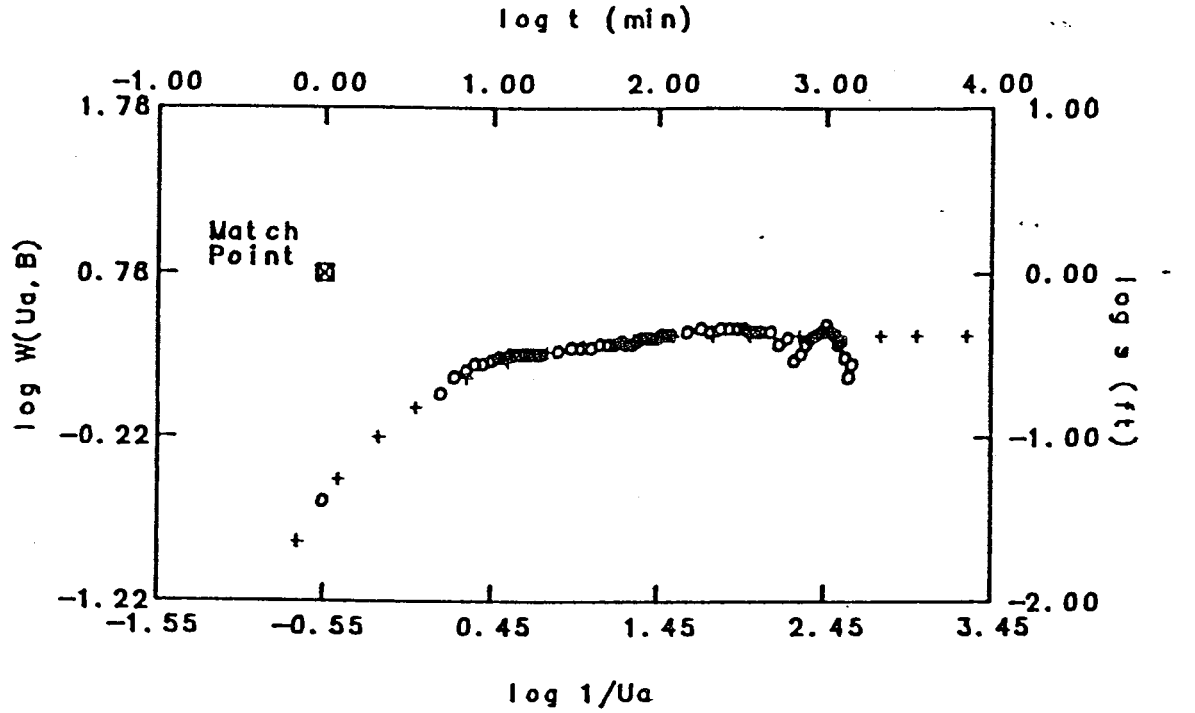
DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	14:48:34	20.10	0.24	0.000	0.47	0.47
01/19/93	14:48:34	20.11	0.25	0.000	0.47	0.47
01/19/93	14:48:34	20.11	0.25	0.000	0.47	0.47
01/19/93	14:48:34	20.11	0.25	0.000	0.46	0.46
01/19/93	14:48:34	20.11	0.26	0.000	0.46	0.46
01/19/93	14:48:35	20.12	0.26	0.000	0.45	0.45
01/19/93	14:48:35	20.12	0.26	0.000	0.45	0.45
01/19/93	14:48:35	20.12	0.27	0.000	0.45	0.45
01/19/93	14:48:35	20.12	0.27	0.000	0.45	0.45
01/19/93	14:48:35	20.13	0.27	0.000	0.44	0.44
01/19/93	14:48:36	20.13	0.28	0.000	0.44	0.44
01/19/93	14:48:36	20.14	0.28	0.000	0.43	0.43
01/19/93	14:48:36	20.14	0.28	0.000	0.43	0.43
01/19/93	14:48:36	20.14	0.29	0.000	0.43	0.43
01/19/93	14:48:36	20.14	0.29	0.000	0.43	0.43
01/19/93	14:48:37	20.14	0.29	0.000	0.43	0.43
01/19/93	14:48:37	20.15	0.30	0.000	0.42	0.42
01/19/93	14:48:37	20.15	0.30	0.000	0.42	0.42
01/19/93	14:48:37	20.15	0.30	0.000	0.42	0.42
01/19/93	14:48:37	20.09	0.31	0.000	0.48	0.48
01/19/93	14:48:38	20.36	0.31	0.000	0.21	0.21
01/19/93	14:48:38	20.21	0.31	0.000	0.36	0.36
01/19/93	14:48:38	20.16	0.32	0.000	0.41	0.41
01/19/93	14:48:38	20.16	0.32	0.000	0.41	0.41
01/19/93	14:48:38	19.82	0.32	0.000	0.75	0.75
01/19/93	14:48:39	19.82	0.33	0.000	0.75	0.75
01/19/93	14:48:39	20.34	0.33	0.000	0.23	0.23
01/19/93	14:48:39	20.19	0.33	0.000	0.38	0.38
01/19/93	14:48:40	20.18	0.35	0.000	0.39	0.39
01/19/93	14:48:41	20.19	0.37	0.000	0.38	0.38
01/19/93	14:48:42	20.21	0.38	0.000	0.36	0.36
01/19/93	14:48:43	20.14	0.40	0.000	0.43	0.43
01/19/93	14:48:44	20.31	0.42	0.000	0.26	0.26
01/19/93	14:48:45	20.23	0.43	0.000	0.35	0.35
01/19/93	14:48:46	20.23	0.45	0.000	0.35	0.35
01/19/93	14:48:47	20.19	0.47	0.000	0.38	0.38
01/19/93	14:48:48	20.24	0.48	0.000	0.33	0.33

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW-12, INJECTION
TIME OF SLUG INJ/WITH = 14:48:19 MILITARY TIME
STATIC WATER LEVEL = 20.57 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 187
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	14:47:19	20.57	-1.00	-0.001	0.00	0.00
01/19/93	14:48:19	20.54	0.00	0.000	0.03	0.03
01/19/93	14:48:19	20.54	0.00	0.000	0.03	0.03
01/19/93	14:48:19	20.54	0.01	0.000	0.03	0.03
01/19/93	14:48:20	20.53	0.01	0.000	0.04	0.04
01/19/93	14:48:20	20.53	0.01	0.000	0.04	0.04
01/19/93	14:48:20	20.56	0.02	0.000	0.01	0.01
01/19/93	14:48:20	20.52	0.02	0.000	0.05	0.05
01/19/93	14:48:20	20.52	0.02	0.000	0.05	0.05
01/19/93	14:48:21	20.52	0.03	0.000	0.05	0.05
01/19/93	14:48:21	20.52	0.03	0.000	0.05	0.05
01/19/93	14:48:21	20.52	0.03	0.000	0.05	0.05
01/19/93	14:48:21	20.52	0.04	0.000	0.05	0.05
01/19/93	14:48:21	20.52	0.04	0.000	0.05	0.05
01/19/93	14:48:22	20.52	0.04	0.000	0.05	0.05
01/19/93	14:48:22	20.52	0.05	0.000	0.05	0.05
01/19/93	14:48:22	20.52	0.05	0.000	0.05	0.05
01/19/93	14:48:22	20.53	0.05	0.000	0.04	0.04
01/19/93	14:48:22	20.53	0.06	0.000	0.04	0.04
01/19/93	14:48:23	20.53	0.06	0.000	0.04	0.04
01/19/93	14:48:23	20.53	0.06	0.000	0.04	0.04
01/19/93	14:48:23	20.53	0.07	0.000	0.04	0.04
01/19/93	14:48:23	20.53	0.07	0.000	0.04	0.04
01/19/93	14:48:23	20.53	0.07	0.000	0.04	0.04
01/19/93	14:48:24	20.53	0.08	0.000	0.04	0.04
01/19/93	14:48:24	20.53	0.08	0.000	0.04	0.04
01/19/93	14:48:24	20.52	0.08	0.000	0.05	0.05
01/19/93	14:48:24	20.53	0.09	0.000	0.04	0.04
01/19/93	14:48:24	20.53	0.09	0.000	0.04	0.04
01/19/93	14:48:25	20.53	0.09	0.000	0.04	0.04
01/19/93	14:48:25	20.53	0.10	0.000	0.04	0.04
01/19/93	14:48:25	20.53	0.10	0.000	0.04	0.04
01/19/93	14:48:25	20.34	0.10	0.000	0.23	0.23
01/19/93	14:48:25	20.23	0.11	0.000	0.34	0.34
01/19/93	14:48:26	20.17	0.11	0.000	0.40	0.40
01/19/93	14:48:26	20.12	0.11	0.000	0.45	0.45
01/19/93	14:48:26	19.95	0.12	0.000	0.62	0.62


AQUIFER TEST QA PLOT
GM-WEST YARD, MW-8, WITHDRAWAL
DTW (ft. TOC)
-6.5
-7
-7.5
-8
-8.5
-9
10:45
10:48
10:50
10:53
10:56
10:59
11:02
Hand
Transducer

CPC PONTIAC, OB. WELL SV2



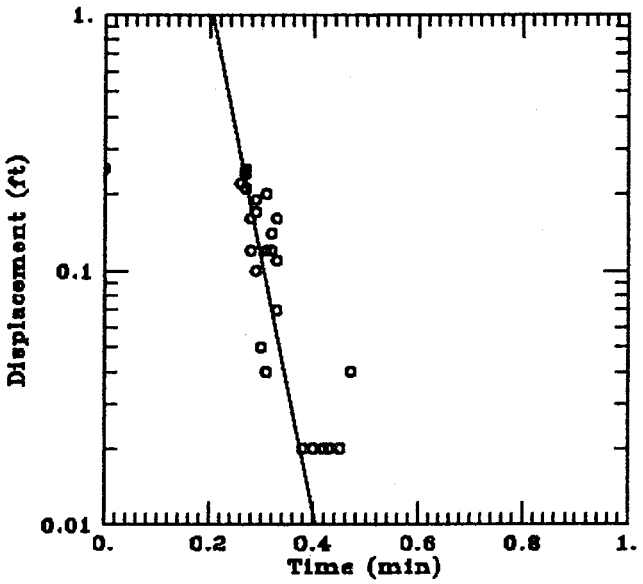
o – Data
+ – Type Curve
Unconf. Elastic: beta = 0.03

MATCH POINT			SOLUTION		
t	=	1.000E+0000	Transmissivity	=	1.036E+0003 gpd/ft
s	=	1.000E+0000	Hydraulic. Cond.	=	9.414E+0001 gpd/sq ft
1/Ua	=	2.818E-0001	Storativity	=	1.516E-0003
W(Ua,B)	=	6.026E-0001			

WELL INFORMATION		
WELL IDENTIFICATION	:	SV2
DATE OF AQUIFER TEST	:	08/31/91
AQUIFER THICKNESS (b)	:	1.100E+0001 ft
DISCHARGE RATE (Q)	:	1.500E+0000 gpm
PUMPING WELL RADIUS (r)	:	8.300E-0002 ft
DISTANCE OF OBS. WELL FROM PUMPING WELL (d)	:	1.500E+0001 ft

GROUNDWATER TECHNOLOGY, INC.

GMWY, MW-7, INJECTION



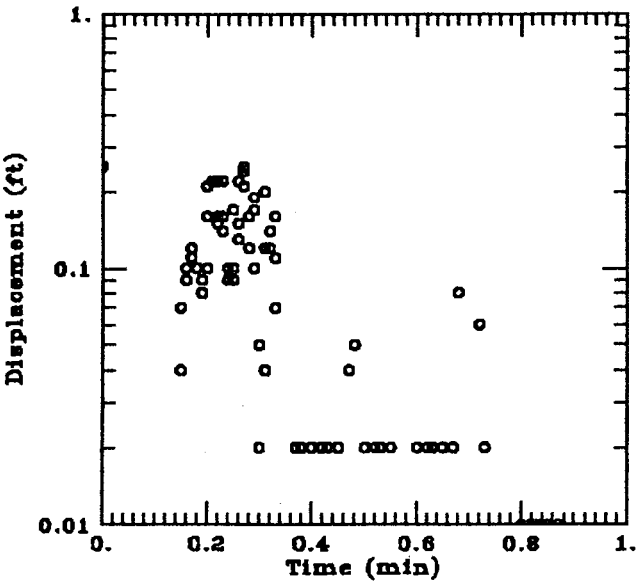
DATA SET:
c:\GMWY\PRT\7IN
01/31/96

AQUIFER TYP
Unconfined
SOLUTION ME
Bouwer-Rice

ESTIMATED P
K = 0.01888 ft
y0 = 119.7 ft

TEST DATA:
H0 = 0.25 ft
rc = 0.08 ft
rw = 0.33 ft
L = 10. ft
b = 9.41 ft
H = 9.41 ft

GMWY, MW-7, WITHDRAWAL



DATA SET:
c:\gmwy\prt\aqt
02/01/96

AQUIFER TYP
Unconfined
SOLUTION ME
Bouwer-Rice

ESTIMATED P
K = 0.003248 f
y0 = 0.01 ft

TEST DATA:
H0 = 0.25 ft
rc = 0.08 ft
rw = 0.33 ft
L = 10. ft
b = 10.41 ft
H = 10.41 ft

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW-7, INJECTION
TIME OF SLUG INJ/WITH = 14:03:56 MILITARY TIME
STATIC WATER LEVEL = 20.59 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 163
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	14:02:56	20.59	-1.00	-0.001	0.00	0.00
01/19/93	14:03:56	20.61	0.00	0.000	-0.02	-0.02
01/19/93	14:03:56	20.61	0.00	0.000	-0.02	-0.02
01/19/93	14:03:56	20.61	0.01	0.000	-0.02	-0.02
01/19/93	14:03:57	20.61	0.01	0.000	-0.02	-0.02
01/19/93	14:03:57	20.61	0.01	0.000	-0.02	-0.02
01/19/93	14:03:57	20.61	0.02	0.000	-0.02	-0.02
01/19/93	14:03:57	20.61	0.02	0.000	-0.02	-0.02
01/19/93	14:03:57	20.62	0.02	0.000	-0.03	-0.03
01/19/93	14:03:58	20.61	0.03	0.000	-0.02	-0.02
01/19/93	14:03:58	20.61	0.03	0.000	-0.02	-0.02
01/19/93	14:03:58	20.61	0.03	0.000	-0.02	-0.02
01/19/93	14:03:58	20.61	0.04	0.000	-0.02	-0.02
01/19/93	14:03:58	20.61	0.04	0.000	-0.02	-0.02
01/19/93	14:03:59	20.61	0.04	0.000	-0.02	-0.02
01/19/93	14:03:59	20.62	0.05	0.000	-0.03	-0.03
01/19/93	14:03:59	20.62	0.05	0.000	-0.03	-0.03
01/19/93	14:03:59	20.62	0.05	0.000	-0.03	-0.03
01/19/93	14:03:59	20.61	0.06	0.000	-0.02	-0.02
01/19/93	14:04:00	20.62	0.06	0.000	-0.03	-0.03
01/19/93	14:04:00	20.61	0.06	0.000	-0.02	-0.02
01/19/93	14:04:00	20.62	0.07	0.000	-0.03	-0.03
01/19/93	14:04:00	20.62	0.07	0.000	-0.03	-0.03
01/19/93	14:04:00	20.61	0.07	0.000	-0.02	-0.02
01/19/93	14:04:01	20.61	0.08	0.000	-0.02	-0.02
01/19/93	14:04:01	20.61	0.08	0.000	-0.02	-0.02
01/19/93	14:04:01	20.61	0.08	0.000	-0.02	-0.02
01/19/93	14:04:01	20.60	0.09	0.000	-0.01	-0.01
01/19/93	14:04:01	20.61	0.09	0.000	-0.02	-0.02
01/19/93	14:04:02	20.61	0.09	0.000	-0.02	-0.02
01/19/93	14:04:02	20.61	0.10	0.000	-0.02	-0.02
01/19/93	14:04:02	20.61	0.10	0.000	-0.02	-0.02
01/19/93	14:04:02	20.61	0.10	0.000	-0.02	-0.02
01/19/93	14:04:02	20.62	0.11	0.000	-0.03	-0.03
01/19/93	14:04:03	20.62	0.11	0.000	-0.03	-0.03
01/19/93	14:04:03	20.62	0.11	0.000	-0.03	-0.03
01/19/93	14:04:03	20.62	0.12	0.000	-0.03	-0.03

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW-7, INJECTION
TIME OF SLUG INJ/WITH = 14:03:56 MILITARY TIME
STATIC WATER LEVEL = 20.59 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 163
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	14:04:03	20.62	0.12	0.000	-0.03	-0.03
01/19/93	14:04:03	20.62	0.12	0.000	-0.03	-0.03
01/19/93	14:04:04	20.62	0.13	0.000	-0.03	-0.03
01/19/93	14:04:04	20.62	0.13	0.000	-0.03	-0.03
01/19/93	14:04:04	20.62	0.13	0.000	-0.03	-0.03
01/19/93	14:04:04	20.61	0.14	0.000	-0.02	-0.02
01/19/93	14:04:04	20.61	0.14	0.000	-0.02	-0.02
01/19/93	14:04:05	20.61	0.14	0.000	-0.02	-0.02
01/19/93	14:04:05	20.59	0.15	0.000	0.00	0.00
01/19/93	14:04:05	20.55	0.15	0.000	0.04	0.04
01/19/93	14:04:05	20.52	0.15	0.000	0.07	0.07
01/19/93	14:04:05	20.50	0.16	0.000	0.09	0.09
01/19/93	14:04:06	20.50	0.16	0.000	0.09	0.09
01/19/93	14:04:06	20.49	0.16	0.000	0.10	0.10
01/19/93	14:04:06	20.48	0.17	0.000	0.11	0.11
01/19/93	14:04:06	20.47	0.17	0.000	0.12	0.12
01/19/93	14:04:06	20.47	0.17	0.000	0.12	0.12
01/19/93	14:04:07	20.49	0.18	0.000	0.10	0.10
01/19/93	14:04:07	20.49	0.18	0.000	0.10	0.10
01/19/93	14:04:07	20.49	0.18	0.000	0.10	0.10
01/19/93	14:04:07	20.51	0.19	0.000	0.08	0.08
01/19/93	14:04:07	20.50	0.19	0.000	0.09	0.09
01/19/93	14:04:08	20.50	0.19	0.000	0.09	0.09
01/19/93	14:04:08	20.49	0.20	0.000	0.10	0.10
01/19/93	14:04:08	20.43	0.20	0.000	0.16	0.16
01/19/93	14:04:08	20.38	0.20	0.000	0.21	0.21
01/19/93	14:04:08	20.37	0.21	0.000	0.22	0.22
01/19/93	14:04:09	20.37	0.21	0.000	0.22	0.22
01/19/93	14:04:09	20.37	0.21	0.000	0.22	0.22
01/19/93	14:04:09	20.37	0.22	0.000	0.22	0.22
01/19/93	14:04:09	20.43	0.22	0.000	0.16	0.16
01/19/93	14:04:09	20.44	0.22	0.000	0.15	0.15
01/19/93	14:04:10	20.45	0.23	0.000	0.14	0.14
01/19/93	14:04:10	20.43	0.23	0.000	0.16	0.16
01/19/93	14:04:10	20.37	0.23	0.000	0.22	0.22
01/19/93	14:04:10	20.49	0.24	0.000	0.10	0.10
01/19/93	14:04:10	20.50	0.24	0.000	0.09	0.09

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW-7, INJECTION
TIME OF SLUG INJ/WITH = 14:03:56 MILITARY TIME
STATIC WATER LEVEL = 20.59 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 163
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	14:04:11	20.50	0.24	0.000	0.09	0.09
01/19/93	14:04:11	20.50	0.25	0.000	0.09	0.09
01/19/93	14:04:11	20.49	0.25	0.000	0.10	0.10
01/19/93	14:04:11	20.42	0.25	0.000	0.17	0.17
01/19/93	14:04:11	20.46	0.26	0.000	0.13	0.13
01/19/93	14:04:12	20.44	0.26	0.000	0.15	0.15
01/19/93	14:04:12	20.37	0.26	0.000	0.22	0.22
01/19/93	14:04:12	20.34	0.27	0.000	0.25	0.25
01/19/93	14:04:12	20.35	0.27	0.000	0.24	0.24
01/19/93	14:04:12	20.38	0.27	0.000	0.21	0.21
01/19/93	14:04:13	20.43	0.28	0.000	0.16	0.16
01/19/93	14:04:13	20.47	0.28	0.000	0.12	0.12
01/19/93	14:04:13	20.43	0.28	0.000	0.16	0.16
01/19/93	14:04:13	20.40	0.29	0.000	0.19	0.19
01/19/93	14:04:13	20.42	0.29	0.000	0.17	0.17
01/19/93	14:04:14	20.49	0.29	0.000	0.10	0.10
01/19/93	14:04:14	20.54	0.30	0.000	0.05	0.05
01/19/93	14:04:14	20.54	0.30	0.000	0.05	0.05
01/19/93	14:04:14	20.57	0.30	0.000	0.02	0.02
01/19/93	14:04:14	20.55	0.31	0.000	0.04	0.04
01/19/93	14:04:15	20.47	0.31	0.000	0.12	0.12
01/19/93	14:04:15	20.39	0.31	0.000	0.20	0.20
01/19/93	14:04:15	20.47	0.32	0.000	0.12	0.12
01/19/93	14:04:15	20.47	0.32	0.000	0.12	0.12
01/19/93	14:04:15	20.45	0.32	0.000	0.14	0.14
01/19/93	14:04:16	20.43	0.33	0.000	0.16	0.16
01/19/93	14:04:16	20.52	0.33	0.000	0.07	0.07
01/19/93	14:04:16	20.48	0.33	0.000	0.11	0.11
01/19/93	14:04:17	20.64	0.35	0.000	-0.05	-0.05
01/19/93	14:04:18	20.57	0.37	0.000	0.02	0.02
01/19/93	14:04:19	20.57	0.38	0.000	0.02	0.02
01/19/93	14:04:20	20.57	0.40	0.000	0.02	0.02
01/19/93	14:04:21	20.57	0.42	0.000	0.02	0.02
01/19/93	14:04:22	20.57	0.43	0.000	0.02	0.02
01/19/93	14:04:23	20.57	0.45	0.000	0.02	0.02
01/19/93	14:04:24	20.55	0.47	0.000	0.04	0.04
01/19/93	14:04:25	20.54	0.48	0.000	0.05	0.05

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW-7, INJECTION
TIME OF SLUG INJ/WITH = 14:03:56 MILITARY TIME
STATIC WATER LEVEL = 20.59 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 163
INJECTION/WITHDRAWAL (1/2): 1

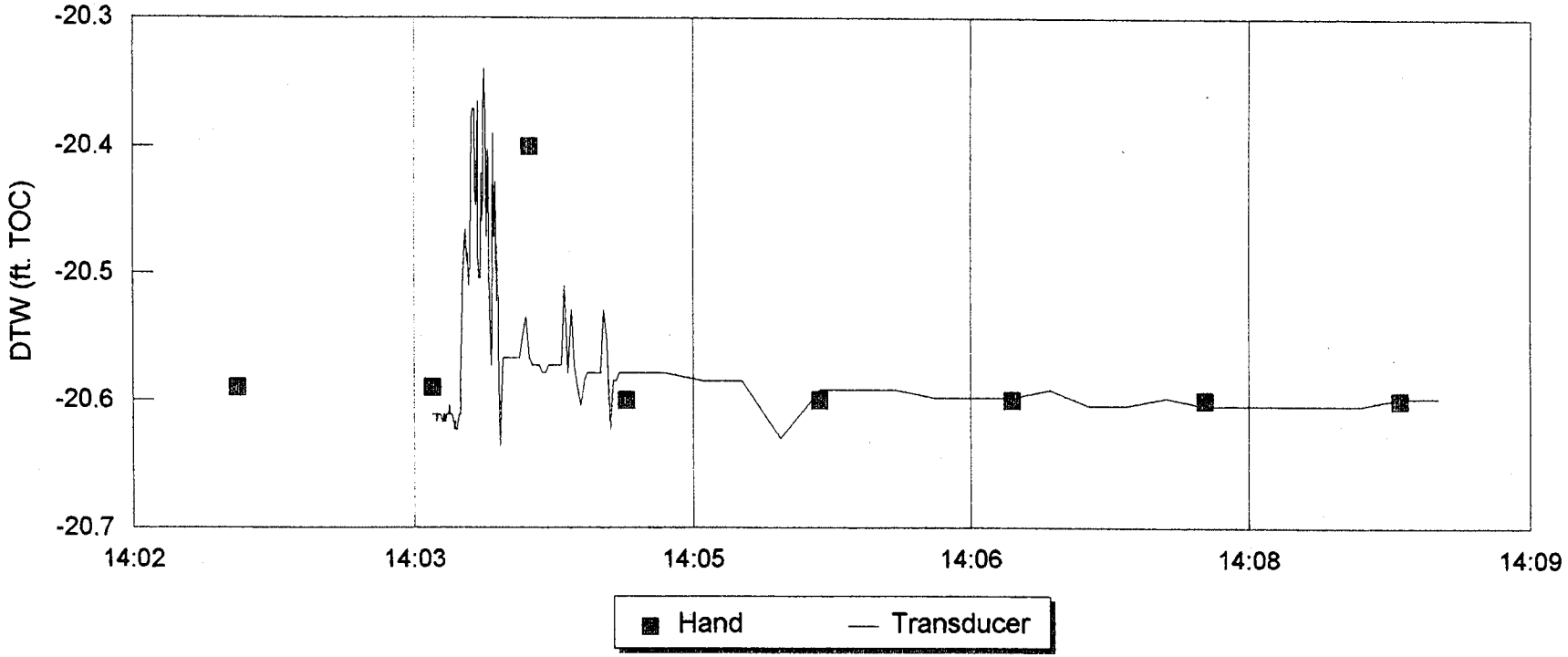
DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	14:04:26	20.57	0.50	0.000	0.02	0.02
01/19/93	14:04:27	20.57	0.52	0.000	0.02	0.02
01/19/93	14:04:28	20.57	0.53	0.000	0.02	0.02
01/19/93	14:04:29	20.57	0.55	0.000	0.02	0.02
01/19/93	14:04:30	20.58	0.57	0.000	0.01	0.01
01/19/93	14:04:31	20.58	0.58	0.000	0.01	0.01
01/19/93	14:04:32	20.57	0.60	0.000	0.02	0.02
01/19/93	14:04:33	20.57	0.62	0.000	0.02	0.02
01/19/93	14:04:34	20.57	0.63	0.000	0.02	0.02
01/19/93	14:04:35	20.57	0.65	0.000	0.02	0.02
01/19/93	14:04:36	20.57	0.67	0.000	0.02	0.02
01/19/93	14:04:37	20.51	0.68	0.000	0.08	0.08
01/19/93	14:04:38	20.58	0.70	0.000	0.01	0.01
01/19/93	14:04:39	20.53	0.72	0.000	0.06	0.06
01/19/93	14:04:40	20.57	0.73	0.001	0.02	0.02
01/19/93	14:04:41	20.59	0.75	0.001	-0.00	-0.00
01/19/93	14:04:42	20.60	0.77	0.001	-0.01	-0.01
01/19/93	14:04:43	20.59	0.78	0.001	0.00	0.00
01/19/93	14:04:44	20.58	0.80	0.001	0.01	0.01
01/19/93	14:04:45	20.58	0.82	0.001	0.01	0.01
01/19/93	14:04:46	20.58	0.83	0.001	0.01	0.01
01/19/93	14:04:47	20.58	0.85	0.001	0.01	0.01
01/19/93	14:04:48	20.58	0.87	0.001	0.01	0.01
01/19/93	14:04:49	20.53	0.88	0.001	0.06	0.06
01/19/93	14:04:50	20.55	0.90	0.001	0.04	0.04
01/19/93	14:04:51	20.62	0.92	0.001	-0.03	-0.03
01/19/93	14:04:52	20.59	0.93	0.001	0.00	0.00
01/19/93	14:04:53	20.59	0.95	0.001	0.00	0.00
01/19/93	14:04:54	20.58	0.97	0.001	0.01	0.01
01/19/93	14:04:55	20.58	0.98	0.001	0.01	0.01
01/19/93	14:04:56	20.58	1.00	0.001	0.01	0.01
01/19/93	14:05:08	20.58	1.20	0.001	0.01	0.01
01/19/93	14:05:20	20.59	1.40	0.001	0.00	0.00
01/19/93	14:05:32	20.59	1.60	0.001	0.00	0.00
01/19/93	14:05:44	20.63	1.80	0.001	-0.04	-0.04
01/19/93	14:05:56	20.59	2.00	0.001	-0.00	-0.00
01/19/93	14:06:08	20.59	2.20	0.002	-0.00	-0.00

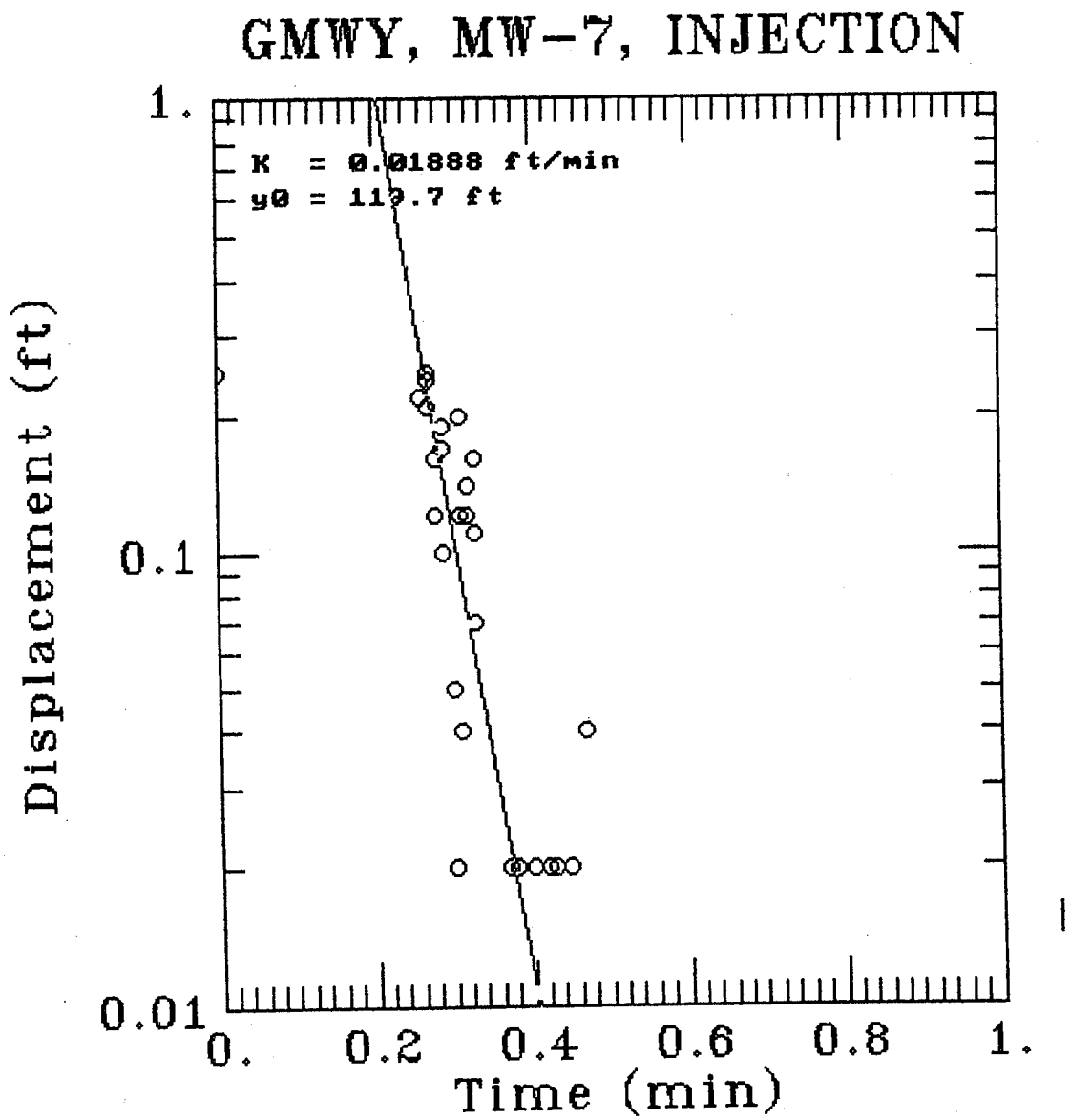
SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW-7, INJECTION
TIME OF SLUG INJ/WITH = 14:03:56 MILITARY TIME
STATIC WATER LEVEL = 20.59 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 163
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	14:06:20	20.59	2.40	0.002	-0.00	-0.00
01/19/93	14:06:32	20.60	2.60	0.002	-0.01	-0.01
01/19/93	14:06:44	20.60	2.80	0.002	-0.01	-0.01
01/19/93	14:06:56	20.60	3.00	0.002	-0.01	-0.01
01/19/93	14:07:08	20.59	3.20	0.002	-0.00	-0.00
01/19/93	14:07:20	20.60	3.40	0.002	-0.01	-0.01
01/19/93	14:07:32	20.60	3.60	0.003	-0.01	-0.01
01/19/93	14:07:44	20.60	3.80	0.003	-0.01	-0.01
01/19/93	14:07:56	20.60	4.00	0.003	-0.01	-0.01
01/19/93	14:08:08	20.60	4.20	0.003	-0.01	-0.01
01/19/93	14:08:20	20.60	4.40	0.003	-0.01	-0.01
01/19/93	14:08:32	20.60	4.60	0.003	-0.01	-0.01
01/19/93	14:08:44	20.60	4.80	0.003	-0.01	-0.01
01/19/93	14:08:56	20.60	5.00	0.003	-0.01	-0.01
01/19/93	14:09:08	20.60	5.20	0.004	-0.01	-0.01

AQUIFER TEST QA PLOT

GM-WEST YARD, MW7, INJECTION




GMWY, MW-7, INJECTION
K = 0.01888 ft/min
y0 = 119.7 ft
Displacement (ft)
1.
0.1
0.01
0.
0.2
0.4
0.6
0.8
1.
Time (min)

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW7, WITHDRAWAL
TIME OF SLUG INJ/WITH = 14:10:44 MILITARY TIME
STATIC WATER LEVEL = 20.60 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 163
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	14:09:44	20.60	-1.00	-0.001	0.00	0.00
01/19/93	14:10:44	20.59	0.00	0.000	-0.01	-0.01
01/19/93	14:10:44	20.59	0.00	0.000	-0.01	-0.01
01/19/93	14:10:44	20.59	0.01	0.000	-0.01	-0.01
01/19/93	14:10:45	20.59	0.01	0.000	-0.01	-0.01
01/19/93	14:10:45	20.59	0.01	0.000	-0.01	-0.01
01/19/93	14:10:45	20.59	0.02	0.000	-0.01	-0.01
01/19/93	14:10:45	20.59	0.02	0.000	-0.01	-0.01
01/19/93	14:10:45	20.59	0.02	0.000	-0.01	-0.01
01/19/93	14:10:46	20.59	0.03	0.000	-0.01	-0.01
01/19/93	14:10:46	20.59	0.03	0.000	-0.01	-0.01
01/19/93	14:10:46	20.57	0.03	0.000	-0.03	-0.03
01/19/93	14:10:46	20.66	0.04	0.000	0.06	0.06
01/19/93	14:10:46	20.78	0.04	0.000	0.18	0.18
01/19/93	14:10:47	20.48	0.04	0.000	-0.12	-0.12
01/19/93	14:10:47	20.60	0.05	0.000	0.00	0.00
01/19/93	14:10:47	20.49	0.05	0.000	-0.11	-0.11
01/19/93	14:10:47	20.49	0.05	0.000	-0.11	-0.11
01/19/93	14:10:47	20.61	0.06	0.000	0.01	0.01
01/19/93	14:10:48	20.95	0.06	0.000	0.35	0.35
01/19/93	14:10:48	20.93	0.06	0.000	0.33	0.33
01/19/93	14:10:48	20.80	0.07	0.000	0.20	0.20
01/19/93	14:10:48	20.97	0.07	0.000	0.36	0.36
01/19/93	14:10:48	20.86	0.07	0.000	0.26	0.26
01/19/93	14:10:49	20.92	0.08	0.000	0.32	0.32
01/19/93	14:10:49	20.91	0.08	0.000	0.31	0.31
01/19/93	14:10:49	20.99	0.08	0.000	0.39	0.39
01/19/93	14:10:49	21.00	0.09	0.000	0.40	0.40
01/19/93	14:10:49	20.86	0.09	0.000	0.26	0.26
01/19/93	14:10:50	20.63	0.09	0.000	0.02	0.02
01/19/93	14:10:50	20.81	0.10	0.000	0.21	0.21
01/19/93	14:10:50	20.93	0.10	0.000	0.33	0.33
01/19/93	14:10:50	20.51	0.10	0.000	-0.09	-0.09
01/19/93	14:10:50	20.65	0.11	0.000	0.05	0.05
01/19/93	14:10:51	20.52	0.11	0.000	-0.08	-0.08
01/19/93	14:10:51	20.73	0.11	0.000	0.13	0.13
01/19/93	14:10:51	20.90	0.12	0.000	0.30	0.30

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW7, WITHDRAWAL
TIME OF SLUG INJ/WITH = 14:10:44 MILITARY TIME
STATIC WATER LEVEL = 20.60 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 163
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	14:10:51	20.99	0.12	0.000	0.39	0.39
01/19/93	14:10:51	20.94	0.12	0.000	0.34	0.34
01/19/93	14:10:52	20.83	0.13	0.000	0.23	0.23
01/19/93	14:10:52	20.74	0.13	0.000	0.14	0.14
01/19/93	14:10:52	20.68	0.13	0.000	0.07	0.07
01/19/93	14:10:52	20.66	0.14	0.000	0.06	0.06
01/19/93	14:10:52	20.67	0.14	0.000	0.07	0.07
01/19/93	14:10:53	20.67	0.14	0.000	0.07	0.07
01/19/93	14:10:53	20.67	0.15	0.000	0.07	0.07
01/19/93	14:10:53	20.66	0.15	0.000	0.06	0.06
01/19/93	14:10:53	20.64	0.15	0.000	0.04	0.04
01/19/93	14:10:53	20.63	0.16	0.000	0.03	0.03
01/19/93	14:10:54	20.63	0.16	0.000	0.02	0.02
01/19/93	14:10:54	20.61	0.16	0.000	0.01	0.01
01/19/93	14:10:54	20.61	0.17	0.000	0.01	0.01
01/19/93	14:10:54	20.61	0.17	0.000	0.01	0.01
01/19/93	14:10:54	20.64	0.17	0.000	0.04	0.04
01/19/93	14:10:55	20.63	0.18	0.000	0.02	0.02
01/19/93	14:10:55	20.63	0.18	0.000	0.02	0.02
01/19/93	14:10:55	20.62	0.18	0.000	0.02	0.02
01/19/93	14:10:55	20.61	0.19	0.000	0.01	0.01
01/19/93	14:10:55	20.61	0.19	0.000	0.01	0.01
01/19/93	14:10:56	20.61	0.19	0.000	0.01	0.01
01/19/93	14:10:56	20.62	0.20	0.000	0.02	0.02
01/19/93	14:10:56	20.62	0.20	0.000	0.02	0.02
01/19/93	14:10:56	20.61	0.20	0.000	0.01	0.01
01/19/93	14:10:56	20.61	0.21	0.000	0.01	0.01
01/19/93	14:10:57	20.61	0.21	0.000	0.01	0.01
01/19/93	14:10:57	20.61	0.21	0.000	0.01	0.01
01/19/93	14:10:57	20.61	0.22	0.000	0.01	0.01
01/19/93	14:10:57	20.61	0.22	0.000	0.01	0.01
01/19/93	14:10:57	20.61	0.22	0.000	0.01	0.01
01/19/93	14:10:58	20.61	0.23	0.000	0.01	0.01
01/19/93	14:10:58	20.61	0.23	0.000	0.01	0.01
01/19/93	14:10:58	20.61	0.23	0.000	0.01	0.01
01/19/93	14:10:58	20.60	0.24	0.000	0.00	0.00
01/19/93	14:10:58	20.59	0.24	0.000	-0.01	-0.01

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW7, WITHDRAWAL
TIME OF SLUG INJ/WITH = 14:10:44 MILITARY TIME
STATIC WATER LEVEL = 20.60 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 163
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	14:10:59	20.59	0.24	0.000	-0.01	-0.01
01/19/93	14:10:59	20.74	0.25	0.000	0.14	0.14
01/19/93	14:10:59	21.09	0.25	0.000	0.48	0.48
01/19/93	14:10:59	21.11	0.25	0.000	0.51	0.51
01/19/93	14:10:59	21.10	0.26	0.000	0.50	0.50
01/19/93	14:11:00	21.09	0.26	0.000	0.49	0.49
01/19/93	14:11:00	21.10	0.26	0.000	0.50	0.50
01/19/93	14:11:00	21.10	0.27	0.000	0.50	0.50
01/19/93	14:11:00	21.05	0.27	0.000	0.45	0.45
01/19/93	14:11:00	21.05	0.27	0.000	0.45	0.45
01/19/93	14:11:01	21.05	0.28	0.000	0.45	0.45
01/19/93	14:11:01	21.04	0.28	0.000	0.44	0.44
01/19/93	14:11:01	21.02	0.28	0.000	0.42	0.42
01/19/93	14:11:01	20.97	0.29	0.000	0.37	0.37
01/19/93	14:11:01	20.88	0.29	0.000	0.28	0.28
01/19/93	14:11:02	20.89	0.29	0.000	0.29	0.29
01/19/93	14:11:02	21.02	0.30	0.000	0.41	0.41
01/19/93	14:11:02	21.05	0.30	0.000	0.45	0.45
01/19/93	14:11:02	21.12	0.30	0.000	0.52	0.52
01/19/93	14:11:02	21.14	0.31	0.000	0.53	0.53
01/19/93	14:11:03	21.10	0.31	0.000	0.50	0.50
01/19/93	14:11:03	21.10	0.31	0.000	0.50	0.50
01/19/93	14:11:03	21.09	0.32	0.000	0.48	0.48
01/19/93	14:11:03	21.10	0.32	0.000	0.50	0.50
01/19/93	14:11:03	21.12	0.32	0.000	0.52	0.52
01/19/93	14:11:04	21.17	0.33	0.000	0.57	0.57
01/19/93	14:11:04	21.17	0.33	0.000	0.57	0.57
01/19/93	14:11:04	21.17	0.33	0.000	0.57	0.57
01/19/93	14:11:05	21.38	0.35	0.000	0.77	0.77
01/19/93	14:11:06	21.20	0.37	0.000	0.60	0.60
01/19/93	14:11:07	20.49	0.38	0.000	-0.11	-0.11
01/19/93	14:11:08	20.49	0.40	0.000	-0.11	-0.11
01/19/93	14:11:09	20.49	0.42	0.000	-0.11	-0.11
01/19/93	14:11:10	20.48	0.43	0.000	-0.12	-0.12
01/19/93	14:11:11	20.48	0.45	0.000	-0.12	-0.12
01/19/93	14:11:12	20.48	0.47	0.000	-0.12	-0.12
01/19/93	14:11:13	20.48	0.48	0.000	-0.12	-0.12

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW7, WITHDRAWAL
TIME OF SLUG INJ/WITH = 14:10:44 MILITARY TIME
STATIC WATER LEVEL = 20.60 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 163
INJECTION/WITHDRAWAL (1/2): 2

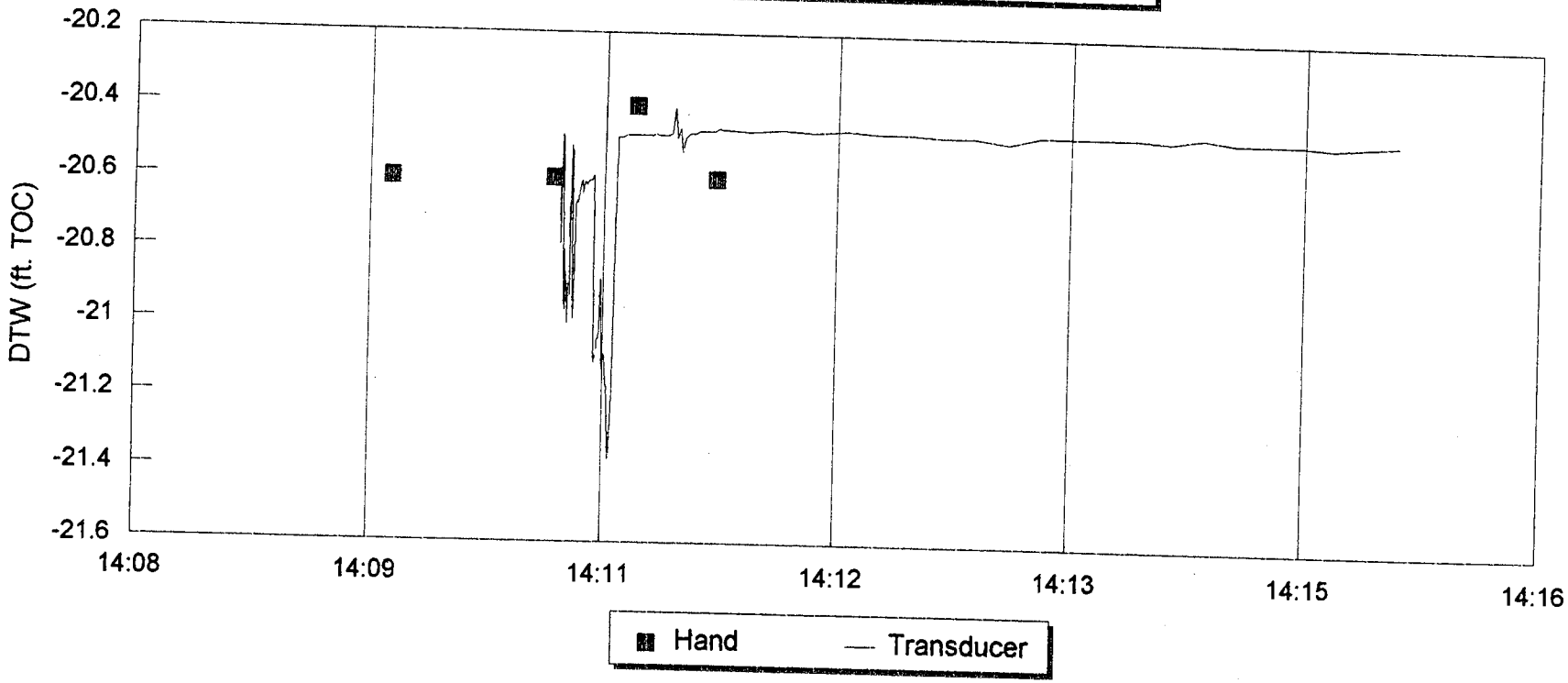
DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	14:11:14	20.48	0.50	0.000	-0.12	-0.12
01/19/93	14:11:15	20.48	0.52	0.000	-0.12	-0.12
01/19/93	14:11:16	20.48	0.53	0.000	-0.12	-0.12
01/19/93	14:11:17	20.48	0.55	0.000	-0.12	-0.12
01/19/93	14:11:18	20.48	0.57	0.000	-0.12	-0.12
01/19/93	14:11:19	20.48	0.58	0.000	-0.12	-0.12
01/19/93	14:11:20	20.48	0.60	0.000	-0.12	-0.12
01/19/93	14:11:21	20.47	0.62	0.000	-0.13	-0.13
01/19/93	14:11:22	20.48	0.63	0.000	-0.12	-0.12
01/19/93	14:11:23	20.48	0.65	0.000	-0.12	-0.12
01/19/93	14:11:24	20.48	0.67	0.000	-0.12	-0.12
01/19/93	14:11:25	20.48	0.68	0.000	-0.12	-0.12
01/19/93	14:11:26	20.48	0.70	0.000	-0.12	-0.12
01/19/93	14:11:27	20.47	0.72	0.000	-0.13	-0.13
01/19/93	14:11:28	20.40	0.73	0.001	-0.20	-0.20
01/19/93	14:11:29	20.49	0.75	0.001	-0.11	-0.11
01/19/93	14:11:30	20.46	0.77	0.001	-0.14	-0.14
01/19/93	14:11:31	20.52	0.78	0.001	-0.08	-0.08
01/19/93	14:11:32	20.49	0.80	0.001	-0.11	-0.11
01/19/93	14:11:33	20.48	0.82	0.001	-0.12	-0.12
01/19/93	14:11:34	20.47	0.83	0.001	-0.13	-0.13
01/19/93	14:11:35	20.47	0.85	0.001	-0.13	-0.13
01/19/93	14:11:36	20.47	0.87	0.001	-0.13	-0.13
01/19/93	14:11:37	20.47	0.88	0.001	-0.13	-0.13
01/19/93	14:11:38	20.47	0.90	0.001	-0.13	-0.13
01/19/93	14:11:39	20.47	0.92	0.001	-0.13	-0.13
01/19/93	14:11:40	20.47	0.93	0.001	-0.13	-0.13
01/19/93	14:11:41	20.47	0.95	0.001	-0.13	-0.13
01/19/93	14:11:42	20.47	0.97	0.001	-0.13	-0.13
01/19/93	14:11:43	20.47	0.98	0.001	-0.13	-0.13
01/19/93	14:11:44	20.46	1.00	0.001	-0.14	-0.14
01/19/93	14:11:56	20.47	1.20	0.001	-0.13	-0.13
01/19/93	14:12:08	20.46	1.40	0.001	-0.14	-0.14
01/19/93	14:12:20	20.47	1.60	0.001	-0.13	-0.13
01/19/93	14:12:32	20.46	1.80	0.001	-0.14	-0.14
01/19/93	14:12:44	20.47	2.00	0.001	-0.13	-0.13
01/19/93	14:12:56	20.47	2.20	0.002	-0.13	-0.13

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW7, WITHDRAWAL
TIME OF SLUG INJ/WITH = 14:10:44 MILITARY TIME
STATIC WATER LEVEL = 20.60 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 163
INJECTION/WITHDRAWAL (1/2): 2

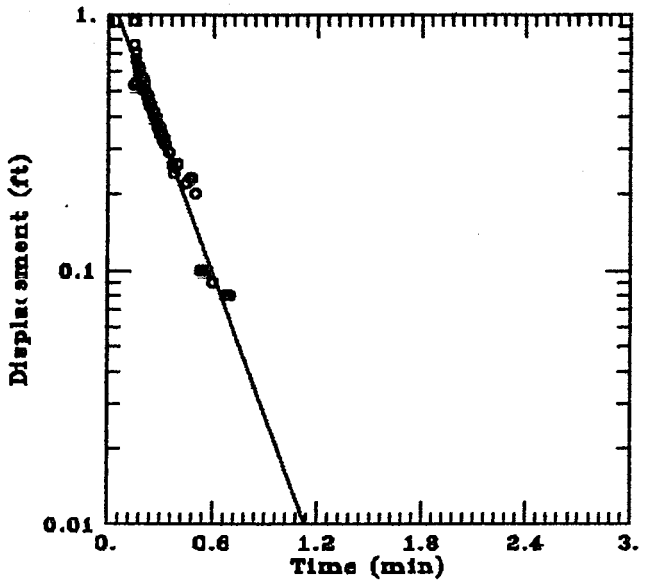
DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	14:13:08	20.47	2.40	0.002	-0.13	-0.13
01/19/93	14:13:20	20.47	2.60	0.002	-0.13	-0.13
01/19/93	14:13:32	20.49	2.80	0.002	-0.11	-0.11
01/19/93	14:13:44	20.47	3.00	0.002	-0.13	-0.13
01/19/93	14:13:56	20.47	3.20	0.002	-0.13	-0.13
01/19/93	14:14:08	20.47	3.40	0.002	-0.13	-0.13
01/19/93	14:14:20	20.47	3.60	0.003	-0.13	-0.13
01/19/93	14:14:32	20.47	3.80	0.003	-0.13	-0.13
01/19/93	14:14:44	20.46	4.00	0.003	-0.14	-0.14
01/19/93	14:14:56	20.47	4.20	0.003	-0.13	-0.13
01/19/93	14:15:08	20.47	4.40	0.003	-0.13	-0.13
01/19/93	14:15:20	20.47	4.60	0.003	-0.13	-0.13
01/19/93	14:15:32	20.48	4.80	0.003	-0.12	-0.12
01/19/93	14:15:44	20.47	5.00	0.003	-0.13	-0.13
01/19/93	14:15:56	20.47	5.20	0.004	-0.13	-0.13

AQUIFER TEST QA PLOT

GM-WEST YARD, MW7, WITHDRAWAL



GMWY, MW-8, INJECTION



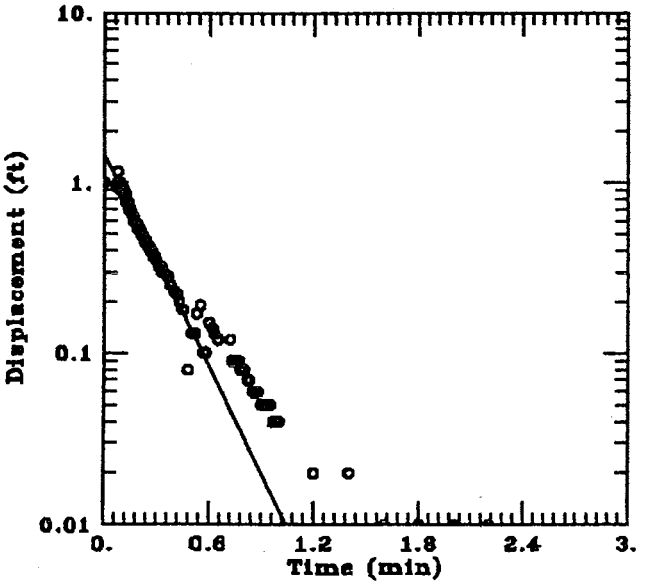
DATA SET:
C:\GMWY\PRT\AQT
02/01/96

AQUIFER TYP
Unconfined
SOLUTION ME
Bouwer-Rice

ESTIMATED P
K = 0.00378 ft
y0 = 1.283 ft

TEST DATA:
H0 = 0.84 ft
rc = 0.08 ft
rw = 0.33 ft
L = 10. ft
b = 13.47 ft
H = 13.47 ft

GMWY, MW-8, WITHDRAWAL



DATA SET:
C:\GMWY\PRT\AQT
02/01/96

AQUIFER TYP
Unconfined
SOLUTION ME
Bouwer-Rice

ESTIMATED P
K = 0.003843 f
y0 = 1.458 ft

TEST DATA:
H0 = 1. ft
rc = 0.08 ft
rw = 0.33 ft
L = 10. ft
b = 13.47 ft
H = 12.47 ft

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW-8, INJECTION
TIME OF SLUG INJ/WITH = 10:22:26 MILITARY TIME
STATIC WATER LEVEL = 7.53 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 194
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	10:21:26	7.53	-1.00	-0.001	0.00	0.00
01/19/93	10:22:26	7.56	0.00	0.000	-0.02	-0.02
01/19/93	10:22:26	7.54	0.00	0.000	-0.01	-0.01
01/19/93	10:22:26	7.54	0.01	0.000	-0.01	-0.01
01/19/93	10:22:27	7.55	0.01	0.000	-0.02	-0.02
01/19/93	10:22:27	7.54	0.01	0.000	-0.01	-0.01
01/19/93	10:22:27	7.54	0.02	0.000	-0.01	-0.01
01/19/93	10:22:27	7.56	0.02	0.000	-0.02	-0.02
01/19/93	10:22:27	7.49	0.02	0.000	0.04	0.04
01/19/93	10:22:28	7.41	0.03	0.000	0.12	0.12
01/19/93	10:22:28	7.35	0.03	0.000	0.18	0.18
01/19/93	10:22:28	7.34	0.03	0.000	0.19	0.19
01/19/93	10:22:28	7.31	0.04	0.000	0.22	0.22
01/19/93	10:22:28	7.14	0.04	0.000	0.39	0.39
01/19/93	10:22:29	7.09	0.04	0.000	0.44	0.44
01/19/93	10:22:29	7.35	0.05	0.000	0.18	0.18
01/19/93	10:22:29	7.12	0.05	0.000	0.41	0.41
01/19/93	10:22:29	6.84	0.05	0.000	0.69	0.69
01/19/93	10:22:29	6.93	0.06	0.000	0.60	0.60
01/19/93	10:22:30	7.17	0.06	0.000	0.36	0.36
01/19/93	10:22:30	6.73	0.06	0.000	0.81	0.81
01/19/93	10:22:30	6.88	0.07	0.000	0.65	0.65
01/19/93	10:22:30	6.93	0.07	0.000	0.60	0.60
01/19/93	10:22:30	6.75	0.07	0.000	0.78	0.78
01/19/93	10:22:31	6.88	0.08	0.000	0.65	0.65
01/19/93	10:22:31	6.61	0.08	0.000	0.92	0.92
01/19/93	10:22:31	6.36	0.08	0.000	1.17	1.17
01/19/93	10:22:31	6.98	0.09	0.000	0.55	0.55
01/19/93	10:22:31	6.66	0.09	0.000	0.88	0.88
01/19/93	10:22:32	6.14	0.09	0.000	1.39	1.39
01/19/93	10:22:32	6.43	0.10	0.000	1.10	1.10
01/19/93	10:22:32	6.88	0.10	0.000	0.65	0.65
01/19/93	10:22:32	6.51	0.10	0.000	1.02	1.02
01/19/93	10:22:32	6.11	0.11	0.000	1.42	1.42
01/19/93	10:22:33	6.18	0.11	0.000	1.35	1.35
01/19/93	10:22:33	6.86	0.11	0.000	0.67	0.67
01/19/93	10:22:33	7.30	0.12	0.000	0.24	0.24

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW-8, INJECTION
TIME OF SLUG INJ/WITH = 10:22:26 MILITARY TIME
STATIC WATER LEVEL = 7.53 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 194
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	10:22:33	6.67	0.12	0.000	0.86	0.86
01/19/93	10:22:33	5.94	0.12	0.000	1.59	1.59
01/19/93	10:22:34	6.19	0.13	0.000	1.34	1.34
01/19/93	10:22:34	6.77	0.13	0.000	0.76	0.76
01/19/93	10:22:34	7.00	0.13	0.000	0.53	0.53
01/19/93	10:22:34	7.30	0.14	0.000	0.23	0.23
01/19/93	10:22:34	7.18	0.14	0.000	0.35	0.35
01/19/93	10:22:35	6.79	0.14	0.000	0.74	0.74
01/19/93	10:22:35	6.59	0.15	0.000	0.94	0.94
01/19/93	10:22:35	6.78	0.15	0.000	0.76	0.76
01/19/93	10:22:35	7.00	0.15	0.000	0.53	0.53
01/19/93	10:22:35	6.99	0.16	0.000	0.54	0.54
01/19/93	10:22:36	6.86	0.16	0.000	0.67	0.67
01/19/93	10:22:36	6.82	0.16	0.000	0.71	0.71
01/19/93	10:22:36	6.90	0.17	0.000	0.63	0.63
01/19/93	10:22:36	6.96	0.17	0.000	0.57	0.57
01/19/93	10:22:36	6.95	0.17	0.000	0.58	0.58
01/19/93	10:22:37	6.92	0.18	0.000	0.61	0.61
01/19/93	10:22:37	6.92	0.18	0.000	0.61	0.61
01/19/93	10:22:37	6.95	0.18	0.000	0.58	0.58
01/19/93	10:22:37	6.98	0.19	0.000	0.55	0.55
01/19/93	10:22:37	6.98	0.19	0.000	0.55	0.55
01/19/93	10:22:38	6.97	0.19	0.000	0.56	0.56
01/19/93	10:22:38	6.97	0.20	0.000	0.56	0.56
01/19/93	10:22:38	7.00	0.20	0.000	0.53	0.53
01/19/93	10:22:38	7.02	0.20	0.000	0.51	0.51
01/19/93	10:22:38	7.01	0.21	0.000	0.52	0.52
01/19/93	10:22:39	7.00	0.21	0.000	0.53	0.53
01/19/93	10:22:39	7.02	0.21	0.000	0.51	0.51
01/19/93	10:22:39	7.05	0.22	0.000	0.48	0.48
01/19/93	10:22:39	7.05	0.22	0.000	0.48	0.48
01/19/93	10:22:39	7.04	0.22	0.000	0.49	0.49
01/19/93	10:22:40	7.05	0.23	0.000	0.48	0.48
01/19/93	10:22:40	7.06	0.23	0.000	0.47	0.47
01/19/93	10:22:40	7.07	0.23	0.000	0.46	0.46
01/19/93	10:22:40	7.08	0.24	0.000	0.45	0.45
01/19/93	10:22:40	7.08	0.24	0.000	0.45	0.45

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW-8, INJECTION
TIME OF SLUG INJ/WITH = 10:22:26 MILITARY TIME
STATIC WATER LEVEL = 7.53 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 194
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	10:22:41	7.09	0.24	0.000	0.44	0.44
01/19/93	10:22:41	7.09	0.25	0.000	0.44	0.44
01/19/93	10:22:41	7.10	0.25	0.000	0.43	0.43
01/19/93	10:22:41	7.11	0.25	0.000	0.43	0.43
01/19/93	10:22:41	7.11	0.26	0.000	0.42	0.42
01/19/93	10:22:42	7.11	0.26	0.000	0.42	0.42
01/19/93	10:22:42	7.12	0.26	0.000	0.41	0.41
01/19/93	10:22:42	7.13	0.27	0.000	0.40	0.40
01/19/93	10:22:42	7.13	0.27	0.000	0.40	0.40
01/19/93	10:22:42	7.14	0.27	0.000	0.39	0.39
01/19/93	10:22:43	7.14	0.28	0.000	0.39	0.39
01/19/93	10:22:43	7.15	0.28	0.000	0.38	0.38
01/19/93	10:22:43	7.16	0.28	0.000	0.37	0.37
01/19/93	10:22:43	7.16	0.29	0.000	0.37	0.37
01/19/93	10:22:43	7.16	0.29	0.000	0.37	0.37
01/19/93	10:22:44	7.17	0.29	0.000	0.36	0.36
01/19/93	10:22:44	7.18	0.30	0.000	0.36	0.36
01/19/93	10:22:44	7.18	0.30	0.000	0.36	0.36
01/19/93	10:22:44	7.19	0.30	0.000	0.34	0.34
01/19/93	10:22:44	7.19	0.31	0.000	0.34	0.34
01/19/93	10:22:45	7.19	0.31	0.000	0.34	0.34
01/19/93	10:22:45	7.20	0.31	0.000	0.33	0.33
01/19/93	10:22:45	7.20	0.32	0.000	0.33	0.33
01/19/93	10:22:45	7.21	0.32	0.000	0.32	0.32
01/19/93	10:22:45	7.21	0.32	0.000	0.32	0.32
01/19/93	10:22:46	7.22	0.33	0.000	0.31	0.31
01/19/93	10:22:46	7.22	0.33	0.000	0.31	0.31
01/19/93	10:22:46	7.22	0.33	0.000	0.31	0.31
01/19/93	10:22:47	7.24	0.35	0.000	0.29	0.29
01/19/93	10:22:48	7.27	0.37	0.000	0.26	0.26
01/19/93	10:22:49	7.29	0.38	0.000	0.24	0.24
01/19/93	10:22:50	7.27	0.40	0.000	0.26	0.26
01/19/93	10:22:51	7.13	0.42	0.000	0.40	0.40
01/19/93	10:22:52	7.23	0.43	0.000	0.30	0.30
01/19/93	10:22:53	7.31	0.45	0.000	0.22	0.22
01/19/93	10:22:54	7.30	0.47	0.000	0.23	0.23
01/19/93	10:22:55	7.30	0.48	0.000	0.23	0.23

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW-8, INJECTION
TIME OF SLUG INJ/WITH = 10:22:26 MILITARY TIME
STATIC WATER LEVEL = 7.53 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 194
INJECTION/WITHDRAWAL (1/2): 1

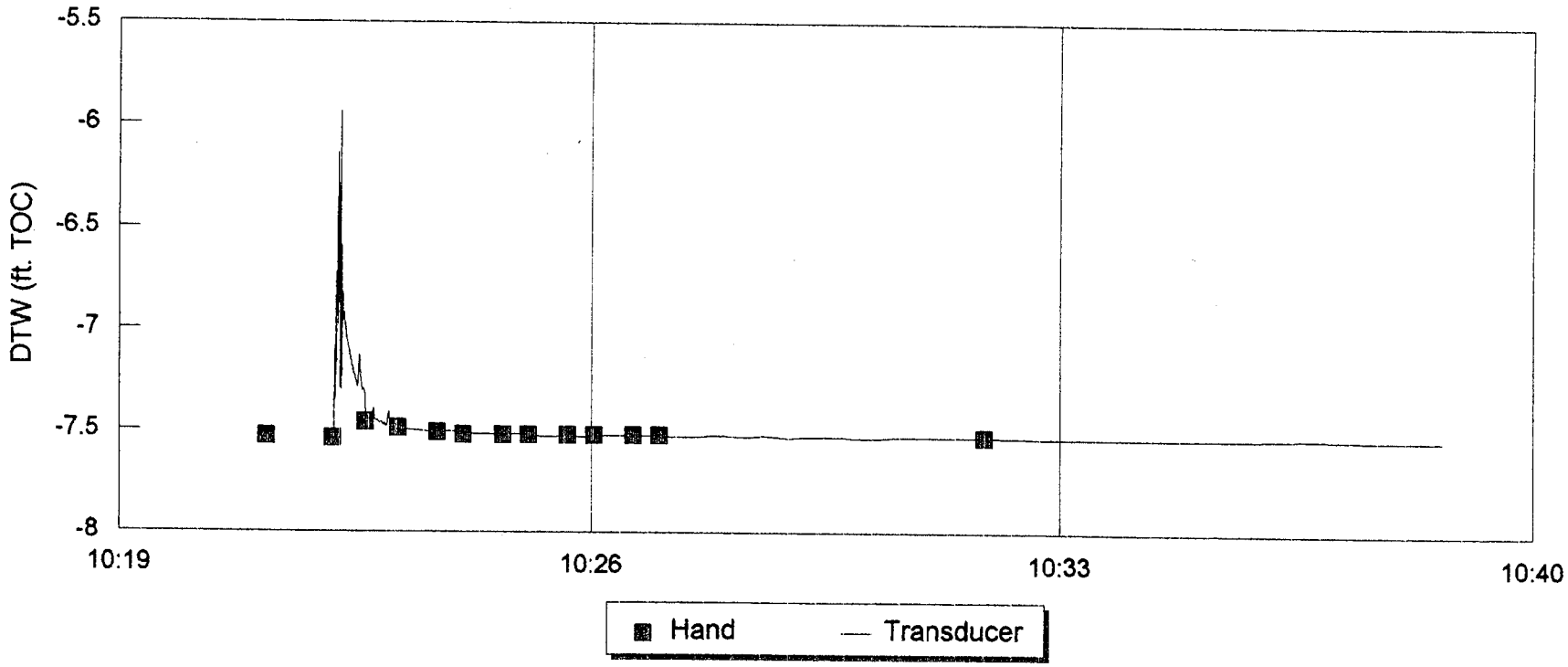
DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	10:22:56	7.33	0.50	0.000	0.20	0.20
01/19/93	10:22:57	7.47	0.52	0.000	0.06	0.06
01/19/93	10:22:58	7.43	0.53	0.000	0.10	0.10
01/19/93	10:22:59	7.43	0.55	0.000	0.10	0.10
01/19/93	10:23:00	7.44	0.57	0.000	0.10	0.10
01/19/93	10:23:01	7.44	0.58	0.000	0.09	0.09
01/19/93	10:23:02	7.44	0.60	0.000	0.09	0.09
01/19/93	10:23:03	7.42	0.62	0.000	0.11	0.11
01/19/93	10:23:04	7.40	0.63	0.000	0.13	0.13
01/19/93	10:23:05	7.45	0.65	0.000	0.08	0.08
01/19/93	10:23:06	7.45	0.67	0.000	0.08	0.08
01/19/93	10:23:07	7.45	0.68	0.000	0.08	0.08
01/19/93	10:23:08	7.45	0.70	0.000	0.08	0.08
01/19/93	10:23:09	7.47	0.72	0.000	0.06	0.06
01/19/93	10:23:10	7.46	0.73	0.001	0.07	0.07
01/19/93	10:23:11	7.46	0.75	0.001	0.07	0.07
01/19/93	10:23:12	7.47	0.77	0.001	0.06	0.06
01/19/93	10:23:13	7.47	0.78	0.001	0.06	0.06
01/19/93	10:23:14	7.47	0.80	0.001	0.06	0.06
01/19/93	10:23:15	7.48	0.82	0.001	0.05	0.05
01/19/93	10:23:16	7.48	0.83	0.001	0.05	0.05
01/19/93	10:23:17	7.44	0.85	0.001	0.10	0.10
01/19/93	10:23:18	7.41	0.87	0.001	0.12	0.12
01/19/93	10:23:19	7.49	0.88	0.001	0.05	0.05
01/19/93	10:23:20	7.49	0.90	0.001	0.04	0.04
01/19/93	10:23:21	7.49	0.92	0.001	0.05	0.05
01/19/93	10:23:22	7.49	0.93	0.001	0.04	0.04
01/19/93	10:23:23	7.50	0.95	0.001	0.03	0.03
01/19/93	10:23:24	7.49	0.97	0.001	0.04	0.04
01/19/93	10:23:25	7.49	0.98	0.001	0.04	0.04
01/19/93	10:23:26	7.49	1.00	0.001	0.04	0.04
01/19/93	10:23:38	7.50	1.20	0.001	0.03	0.03
01/19/93	10:23:50	7.50	1.40	0.001	0.03	0.03
01/19/93	10:24:02	7.51	1.60	0.001	0.02	0.02
01/19/93	10:24:14	7.50	1.80	0.001	0.03	0.03
01/19/93	10:24:26	7.51	2.00	0.001	0.02	0.02
01/19/93	10:24:38	7.52	2.20	0.002	0.01	0.01

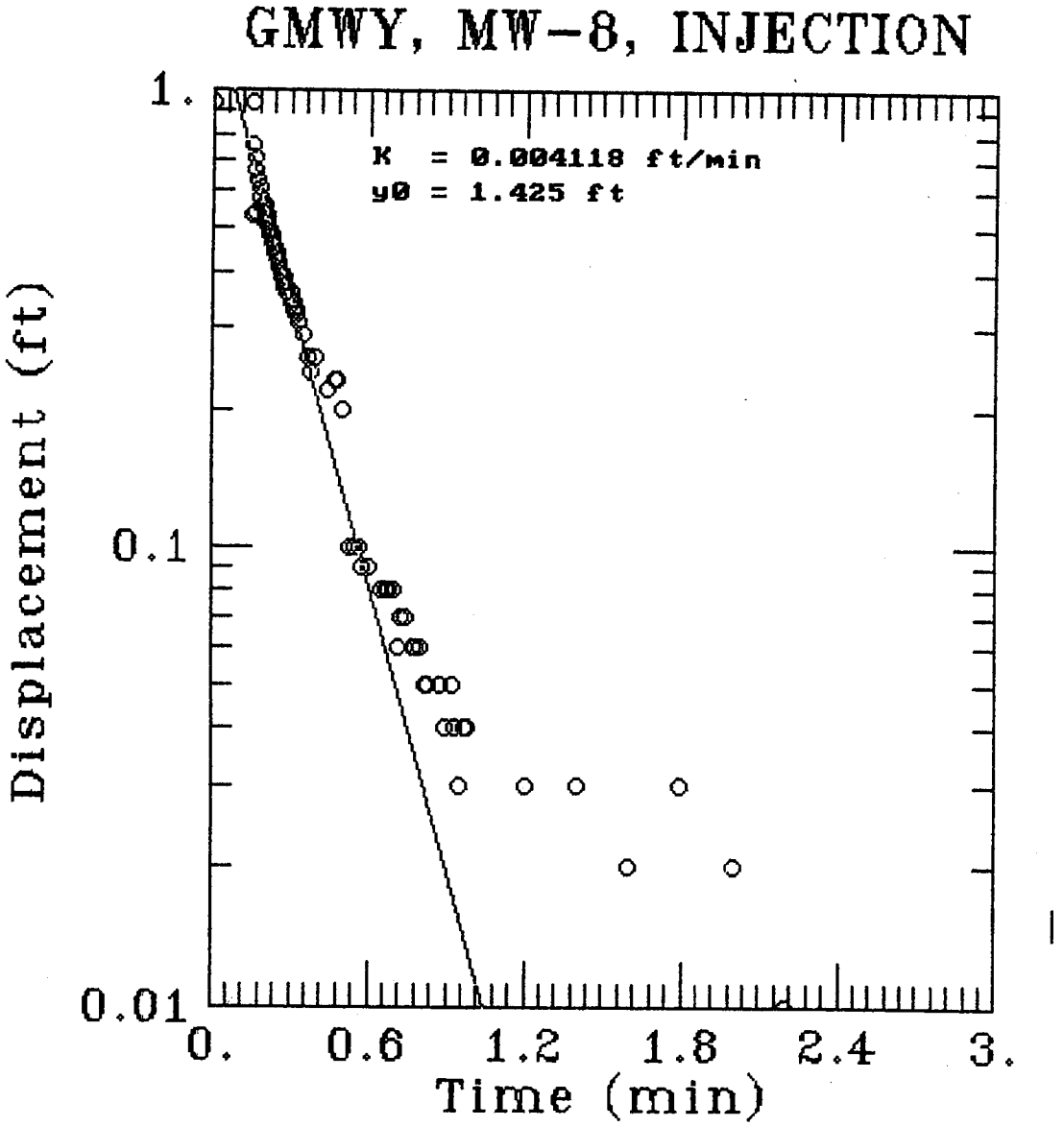
SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW-8, INJECTION
TIME OF SLUG INJ/WITH = 10:22:26 MILITARY TIME
STATIC WATER LEVEL = 7.53 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 194
INJECTION/WITHDRAWAL (1/2): 1

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	10:24:50	7.52	2.40	0.002	0.01	0.01
01/19/93	10:25:02	7.52	2.60	0.002	0.01	0.01
01/19/93	10:25:14	7.52	2.80	0.002	0.01	0.01
01/19/93	10:25:26	7.52	3.00	0.002	0.01	0.01
01/19/93	10:25:38	7.53	3.20	0.002	0.00	0.00
01/19/93	10:25:50	7.53	3.40	0.002	0.00	0.00
01/19/93	10:26:02	7.52	3.60	0.003	0.01	0.01
01/19/93	10:26:14	7.53	3.80	0.003	0.00	0.00
01/19/93	10:26:26	7.53	4.00	0.003	0.00	0.00
01/19/93	10:26:38	7.52	4.20	0.003	0.01	0.01
01/19/93	10:26:50	7.52	4.40	0.003	0.01	0.01
01/19/93	10:27:02	7.52	4.60	0.003	0.01	0.01
01/19/93	10:27:14	7.52	4.80	0.003	0.01	0.01
01/19/93	10:27:26	7.52	5.00	0.003	0.01	0.01
01/19/93	10:27:38	7.53	5.20	0.004	0.00	0.00
01/19/93	10:27:50	7.53	5.40	0.004	0.00	0.00

AQUIFER TEST QA PLOT

GM-WEST YARD, MW-8, INJECTION




GMWY, MW-8, INJECTION
K = 0.004118 ft/min
y0 = 1.425 ft
Displacement (ft)
1.
0.1
0.01
0.
0.6
1.2
1.8
2.4
3.
Time (min)

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW-8, WITHDRAWAL
TIME OF SLUG INJ/WITH = 10:48:31 MILITARY TIME
STATIC WATER LEVEL = 7.53 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 188
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	10:47:31	7.53	-1.00	-0.001	0.00	0.00
01/19/93	10:48:31	8.19	0.00	0.000	0.66	0.66
01/19/93	10:48:31	8.54	0.00	0.000	1.01	1.01
01/19/93	10:48:31	7.65	0.01	0.000	0.12	0.12
01/19/93	10:48:32	6.97	0.01	0.000	-0.57	-0.57
01/19/93	10:48:32	7.33	0.01	0.000	-0.20	-0.20
01/19/93	10:48:32	7.99	0.02	0.000	0.46	0.46
01/19/93	10:48:32	7.76	0.02	0.000	0.23	0.23
01/19/93	10:48:32	7.38	0.02	0.000	-0.15	-0.15
01/19/93	10:48:33	7.98	0.03	0.000	0.45	0.45
01/19/93	10:48:33	7.88	0.03	0.000	0.35	0.35
01/19/93	10:48:33	7.19	0.03	0.000	-0.34	-0.34
01/19/93	10:48:33	7.85	0.04	0.000	0.32	0.32
01/19/93	10:48:33	8.23	0.04	0.000	0.70	0.70
01/19/93	10:48:34	7.64	0.04	0.000	0.11	0.11
01/19/93	10:48:34	7.32	0.05	0.000	-0.21	-0.21
01/19/93	10:48:34	8.18	0.05	0.000	0.65	0.65
01/19/93	10:48:34	8.40	0.05	0.000	0.87	0.87
01/19/93	10:48:34	7.71	0.06	0.000	0.18	0.18
01/19/93	10:48:35	8.00	0.06	0.000	0.47	0.47
01/19/93	10:48:35	8.56	0.06	0.000	1.03	1.03
01/19/93	10:48:35	8.40	0.07	0.000	0.87	0.87
01/19/93	10:48:35	8.01	0.07	0.000	0.47	0.47
01/19/93	10:48:35	8.47	0.07	0.000	0.94	0.94
01/19/93	10:48:36	8.69	0.08	0.000	1.16	1.16
01/19/93	10:48:36	8.54	0.08	0.000	1.01	1.01
01/19/93	10:48:36	8.49	0.08	0.000	0.96	0.96
01/19/93	10:48:36	8.53	0.09	0.000	1.00	1.00
01/19/93	10:48:36	8.52	0.09	0.000	0.99	0.99
01/19/93	10:48:37	8.45	0.09	0.000	0.92	0.92
01/19/93	10:48:37	8.43	0.10	0.000	0.90	0.90
01/19/93	10:48:37	8.47	0.10	0.000	0.94	0.94
01/19/93	10:48:37	8.47	0.10	0.000	0.94	0.94
01/19/93	10:48:37	8.43	0.11	0.000	0.90	0.90
01/19/93	10:48:38	8.44	0.11	0.000	0.91	0.91
01/19/93	10:48:38	8.44	0.11	0.000	0.91	0.91
01/19/93	10:48:38	8.40	0.12	0.000	0.87	0.87

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW-8, WITHDRAWAL
TIME OF SLUG INJ/WITH = 10:48:31 MILITARY TIME
STATIC WATER LEVEL = 7.53 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 188
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	10:48:38	8.39	0.12	0.000	0.86	0.86
01/19/93	10:48:38	8.37	0.12	0.000	0.84	0.84
01/19/93	10:48:39	8.37	0.13	0.000	0.84	0.84
01/19/93	10:48:39	8.30	0.13	0.000	0.77	0.77
01/19/93	10:48:39	8.29	0.13	0.000	0.76	0.76
01/19/93	10:48:39	8.30	0.14	0.000	0.77	0.77
01/19/93	10:48:39	8.27	0.14	0.000	0.74	0.74
01/19/93	10:48:40	8.23	0.14	0.000	0.70	0.70
01/19/93	10:48:40	8.23	0.15	0.000	0.70	0.70
01/19/93	10:48:40	8.21	0.15	0.000	0.68	0.68
01/19/93	10:48:40	8.21	0.15	0.000	0.68	0.68
01/19/93	10:48:40	8.20	0.16	0.000	0.66	0.66
01/19/93	10:48:41	8.20	0.16	0.000	0.66	0.66
01/19/93	10:48:41	8.19	0.16	0.000	0.66	0.66
01/19/93	10:48:41	8.16	0.17	0.000	0.63	0.63
01/19/93	10:48:41	8.15	0.17	0.000	0.62	0.62
01/19/93	10:48:41	8.13	0.17	0.000	0.59	0.59
01/19/93	10:48:42	8.11	0.18	0.000	0.58	0.58
01/19/93	10:48:42	8.11	0.18	0.000	0.58	0.58
01/19/93	10:48:42	8.12	0.18	0.000	0.59	0.59
01/19/93	10:48:42	8.10	0.19	0.000	0.57	0.57
01/19/93	10:48:42	8.08	0.19	0.000	0.54	0.54
01/19/93	10:48:43	8.09	0.19	0.000	0.56	0.56
01/19/93	10:48:43	8.08	0.20	0.000	0.54	0.54
01/19/93	10:48:43	8.06	0.20	0.000	0.53	0.53
01/19/93	10:48:43	8.06	0.20	0.000	0.53	0.53
01/19/93	10:48:43	8.05	0.21	0.000	0.52	0.52
01/19/93	10:48:44	8.04	0.21	0.000	0.51	0.51
01/19/93	10:48:44	8.04	0.21	0.000	0.51	0.51
01/19/93	10:48:44	8.02	0.22	0.000	0.49	0.49
01/19/93	10:48:44	8.02	0.22	0.000	0.49	0.49
01/19/93	10:48:44	8.02	0.22	0.000	0.49	0.49
01/19/93	10:48:45	8.01	0.23	0.000	0.47	0.47
01/19/93	10:48:45	8.00	0.23	0.000	0.47	0.47
01/19/93	10:48:45	7.99	0.23	0.000	0.46	0.46
01/19/93	10:48:45	7.99	0.24	0.000	0.46	0.46
01/19/93	10:48:45	7.98	0.24	0.000	0.45	0.45

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW-8, WITHDRAWAL
TIME OF SLUG INJ/WITH = 10:48:31 MILITARY TIME
STATIC WATER LEVEL = 7.53 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 188
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	10:48:46	7.97	0.24	0.000	0.44	0.44
01/19/93	10:48:46	7.96	0.25	0.000	0.43	0.43
01/19/93	10:48:46	7.96	0.25	0.000	0.43	0.43
01/19/93	10:48:46	7.95	0.25	0.000	0.42	0.42
01/19/93	10:48:46	7.95	0.26	0.000	0.42	0.42
01/19/93	10:48:47	7.95	0.26	0.000	0.42	0.42
01/19/93	10:48:47	7.94	0.26	0.000	0.41	0.41
01/19/93	10:48:47	7.93	0.27	0.000	0.40	0.40
01/19/93	10:48:47	7.92	0.27	0.000	0.39	0.39
01/19/93	10:48:47	7.92	0.27	0.000	0.39	0.39
01/19/93	10:48:48	7.92	0.28	0.000	0.39	0.39
01/19/93	10:48:48	7.92	0.28	0.000	0.39	0.39
01/19/93	10:48:48	7.90	0.28	0.000	0.37	0.37
01/19/93	10:48:48	7.90	0.29	0.000	0.37	0.37
01/19/93	10:48:48	7.89	0.29	0.000	0.36	0.36
01/19/93	10:48:49	7.89	0.29	0.000	0.36	0.36
01/19/93	10:48:49	7.88	0.30	0.000	0.35	0.35
01/19/93	10:48:49	7.88	0.30	0.000	0.35	0.35
01/19/93	10:48:49	7.88	0.30	0.000	0.35	0.35
01/19/93	10:48:49	7.87	0.31	0.000	0.33	0.33
01/19/93	10:48:50	7.87	0.31	0.000	0.33	0.33
01/19/93	10:48:50	7.86	0.31	0.000	0.33	0.33
01/19/93	10:48:50	7.85	0.32	0.000	0.32	0.32
01/19/93	10:48:50	7.85	0.32	0.000	0.32	0.32
01/19/93	10:48:50	7.85	0.32	0.000	0.32	0.32
01/19/93	10:48:51	7.85	0.33	0.000	0.32	0.32
01/19/93	10:48:51	7.84	0.33	0.000	0.31	0.31
01/19/93	10:48:51	7.83	0.33	0.000	0.30	0.30
01/19/93	10:48:52	7.82	0.35	0.000	0.29	0.29
01/19/93	10:48:53	7.81	0.37	0.000	0.28	0.28
01/19/93	10:48:54	7.78	0.38	0.000	0.25	0.25
01/19/93	10:48:55	7.76	0.40	0.000	0.23	0.23
01/19/93	10:48:56	7.75	0.42	0.000	0.22	0.22
01/19/93	10:48:57	7.73	0.43	0.000	0.20	0.20
01/19/93	10:48:58	7.71	0.45	0.000	0.18	0.18
01/19/93	10:48:59	7.48	0.47	0.000	-0.05	-0.05
01/19/93	10:49:00	7.61	0.48	0.000	0.08	0.08

SITE: GENERAL MOTORS, PONTIAC MI., WEST YARD
WELL: MW-8, WITHDRAWAL
TIME OF SLUG INJ/WITH = 10:48:31 MILITARY TIME
STATIC WATER LEVEL = 7.53 FEET BELOW MEASURING POINT
TREND = (- = rising) FEET PER MINUTE
NO. OF DTW READINGS = 188
INJECTION/WITHDRAWAL (1/2): 2

DATE	TIME (24 HOUR)	DTW (FT)	t (MINS)	t (DAYS)	RESIDUAL IH/DD (FT)	CORRECTED IH/DD (FT)
01/19/93	10:49:01	7.66	0.50	0.000	0.13	0.13
01/19/93	10:49:02	7.66	0.52	0.000	0.13	0.13
01/19/93	10:49:03	7.70	0.53	0.000	0.17	0.17
01/19/93	10:49:04	7.72	0.55	0.000	0.19	0.19
01/19/93	10:49:05	7.63	0.57	0.000	0.10	0.10
01/19/93	10:49:06	7.63	0.58	0.000	0.10	0.10
01/19/93	10:49:07	7.68	0.60	0.000	0.15	0.15
01/19/93	10:49:08	7.67	0.62	0.000	0.14	0.14
01/19/93	10:49:09	7.66	0.63	0.000	0.13	0.13
01/19/93	10:49:10	7.65	0.65	0.000	0.12	0.12
01/19/93	10:49:11	7.63	0.67	0.000	0.10	0.10
01/19/93	10:49:12	7.56	0.68	0.000	0.03	0.03
01/19/93	10:49:13	7.59	0.70	0.000	0.06	0.06
01/19/93	10:49:14	7.65	0.72	0.000	0.12	0.12
01/19/93	10:49:15	7.62	0.73	0.001	0.09	0.09
01/19/93	10:49:16	7.62	0.75	0.001	0.09	0.09
01/19/93	10:49:17	7.62	0.77	0.001	0.09	0.09
01/19/93	10:49:18	7.61	0.78	0.001	0.08	0.08
01/19/93	10:49:19	7.61	0.80	0.001	0.08	0.08
01/19/93	10:49:20	7.60	0.82	0.001	0.07	0.07
01/19/93	10:49:21	7.60	0.83	0.001	0.07	0.07
01/19/93	10:49:22	7.59	0.85	0.001	0.06	0.06
01/19/93	10:49:23	7.59	0.87	0.001	0.06	0.06
01/19/93	10:49:24	7.59	0.88	0.001	0.06	0.06
01/19/93	10:49:25	7.58	0.90	0.001	0.05	0.05
01/19/93	10:49:26	7.58	0.92	0.001	0.05	0.05
01/19/93	10:49:27	7.58	0.93	0.001	0.05	0.05
01/19/93	10:49:28	7.58	0.95	0.001	0.05	0.05
01/19/93	10:49:29	7.57	0.97	0.001	0.04	0.04
01/19/93	10:49:30	7.57	0.98	0.001	0.04	0.04
01/19/93	10:49:31	7.57	1.00	0.001	0.04	0.04
01/19/93	10:49:43	7.55	1.20	0.001	0.02	0.02
01/19/93	10:49:55	7.55	1.40	0.001	0.02	0.02
01/19/93	10:50:07	7.54	1.60	0.001	0.01	0.01
01/19/93	10:50:19	7.54	1.80	0.001	0.01	0.01
01/19/93	10:50:31	7.54	2.00	0.001	0.01	0.01
01/19/93	10:50:43	7.54	2.20	0.002	0.01	0.01

APPENDIX C

GEOTECHNICAL DATA

GEOTECH RESULTS
GM PONTIAC
WEST YARD
1995 - 1996
COPY #1

SCHLEEDE HAMPTON ASSOCIATES INC

CONSULTING ENGINEERS

• CIVIL • GEOTECHNICAL • ENVIRONMENTAL • CONSULTANTS •

SCHLEEDE
HAMPTON
ASSOCIATES INC
CONSULTING ENGINEERS

February 20, 1996

Mr. David Lomas
Parsons Engineerng Science
30800 Telegraph Suite 3858
Bingham Farms, Michigan 48025

Regarding: Geotechnical Laboratory Test Results
General Motors Pontiac Foundry West Yard Project
SHA Project No. 35277

Dear Mr. Lomas:

We have completed the geotechnical laboratory tests requested on nine shelby tube samples which were picked up from your office. All of the samples were tested to determine hydraulic permeability (ASTM D 5084). Individual tube logs and test results are being transmitted with this letter.

If you have any questions regarding this information, please contact us at your convenience.

Sincerely,
Schleede-Hampton Associates, Inc.

James Berry, P.E.
Project Manager

2254 COLE STREET
BIRMINGHAM, MICHIGAN 48009
810-540-3044 • FAX: 810-540-3282

SCHLEEDE-HAMPTON ASSOCIATES, INC.

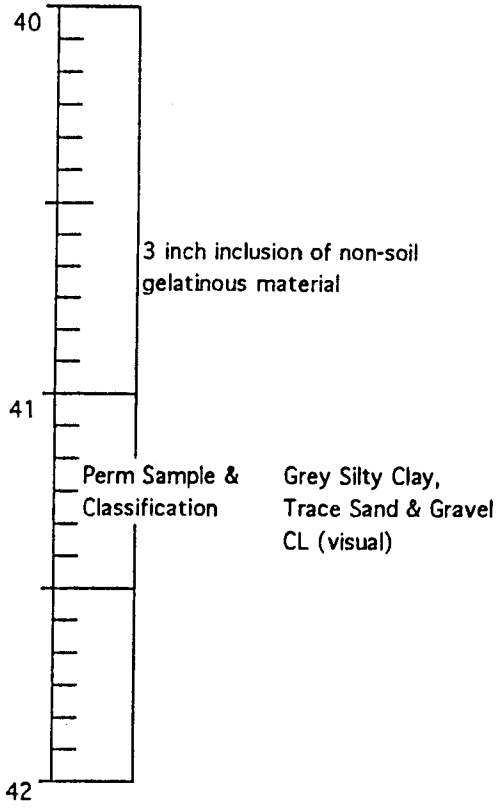
• CONSULTING ENGINEERS

LABORATORY LOG OF SHELBY TUBES

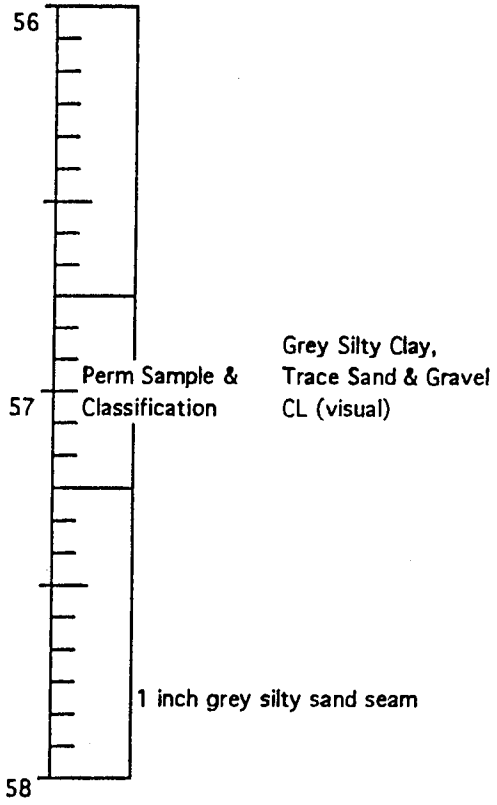
PROJECT NAME: GM WEST YARD
CLIENT: PARSONS ENGINEERING SCIENCE
PROJECT LOCATION: Pontiac, Michigan

PROJECT NO. 35277
DATE: February 1996

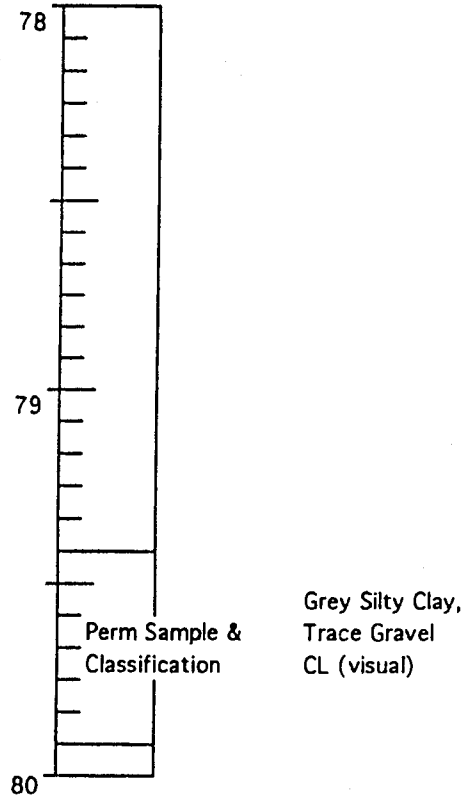
BORING NO.	SBGT 3	SAMPLE NO.	-
DEPTH, ft	40 - 42	RECOVERY, in	18



BORING NO.	SBGT 3	SAMPLE NO.	-
DEPTH, ft	56 - 58	RECOVERY, ir	18



BORING NO.	SBGT 3	SAMPLE NO.	-
DEPTH, ft	78-80	RECOVERY, ir	20



LEGEND

MC = TEST SAMPLE INTERVAL

CL = CLASSIFICATION TEST
Mc = MOISTURE CONTENT
DD = DENSITY DETERMINATION
P = PERMEABILITY SAMPLE
Gs = SPECIFIC GRAVITY

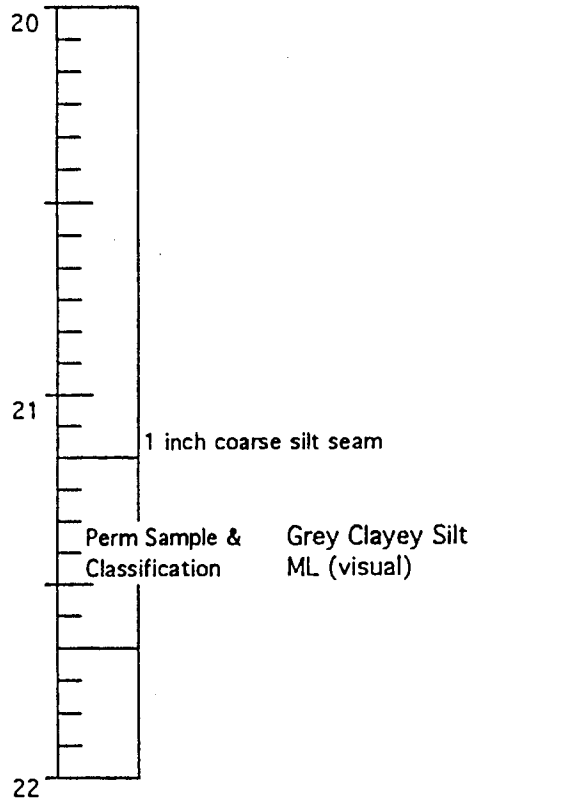
SCHLEEDE-HAMPTON ASSOCIATES, INC. • CONSULTING ENGINEERS

LABORATORY LOG OF SHELBY TUBES

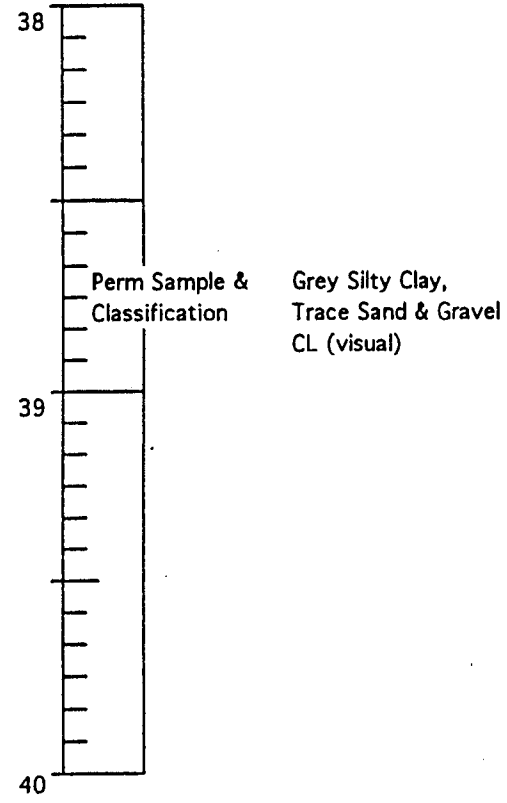
PROJECT NAME: GM WEST YARD
CLIENT: PARSONS ENGINEERING SCIENCE
PROJECT LOCATION: Pontiac, Michigan

PROJECT NO. 35277
DATE: February 1996

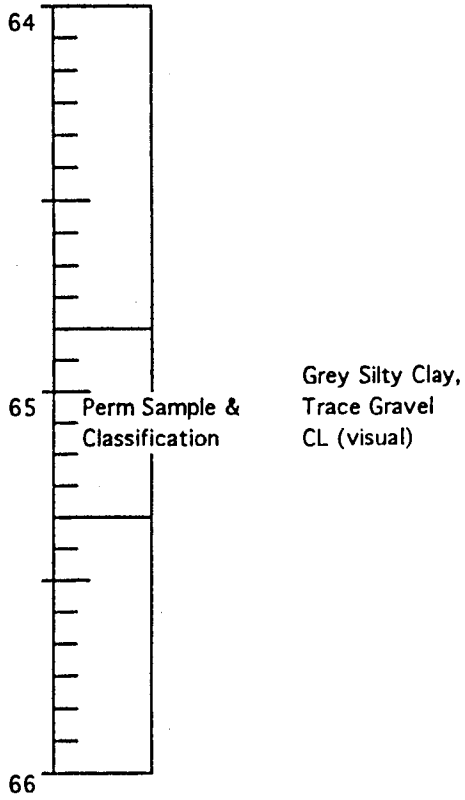
BORING NO.	SBGT 2	SAMPLE NO.	-
DEPTH, ft	20 - 22	RECOVERY, in	13



BORING NO.	SBGT 2	SAMPLE NO.	-
DEPTH, ft	38 - 40	RECOVERY, ir	24



BORING NO.	SBGT 2	SAMPLE NO.	-
DEPTH, ft	64-66	RECOVERY, ir	18



LEGEND

MC = TEST SAMPLE INTERVAL

CL = CLASSIFICATION TEST
Mc = MOISTURE CONTENT
DD = DENSITY DETERMINATION
P = PERMEABILITY SAMPLE
Gs = SPECIFIC GRAVITY

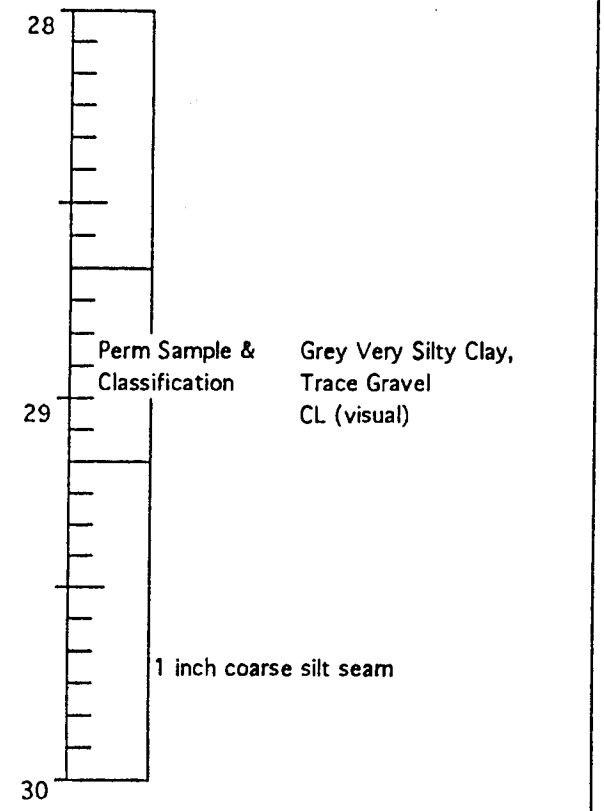
SCHLEEDE-HAMPTON ASSOCIATES, INC. • CONSULTING ENGINEERS

LABORATORY LOG OF SHELBY TUBES

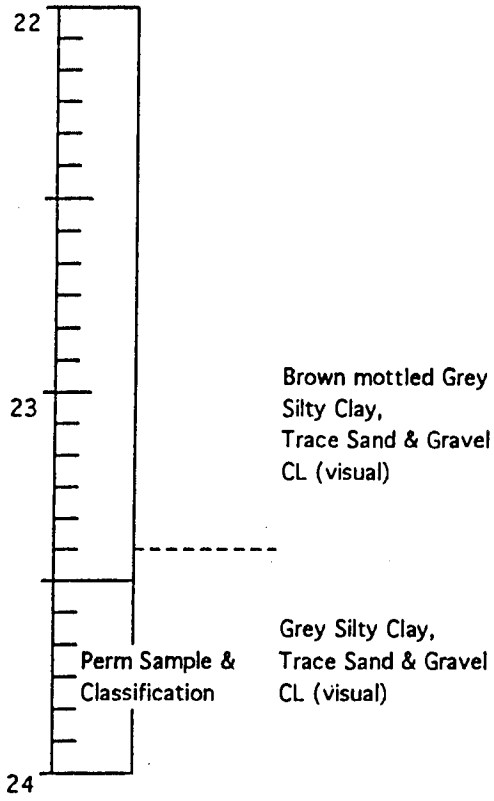
PROJECT NAME: GM WEST YARD
CLIENT: PARSONS ENGINEERING SCIENCE
PROJECT LOCATION: Pontiac, Michigan

PROJECT NO. 35277
DATE: February 1996

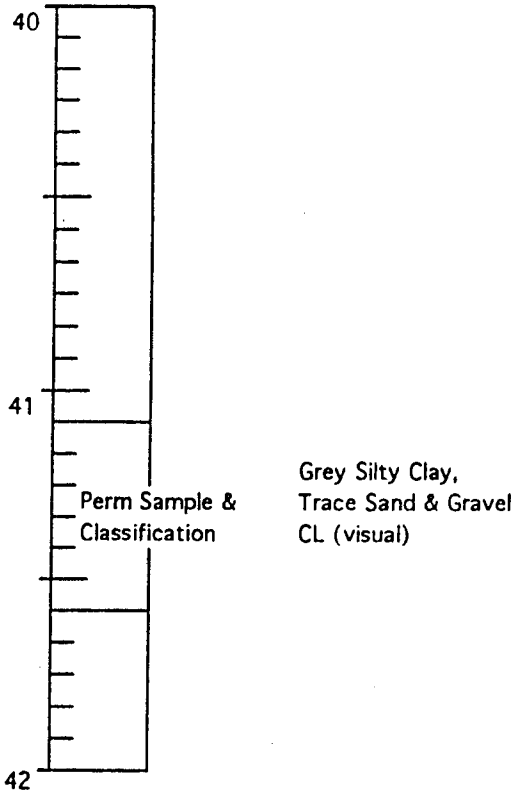
BORING NO.	SBGT 1	SAMPLE NO.	-
DEPTH, ft	28 - 30	RECOVERY, in	22



BORING NO.	SBGT 4	SAMPLE NO.	-
DEPTH, ft	22 - 24	RECOVERY, ir	19



BORING NO.	SBGT 4	SAMPLE NO.	-
DEPTH, ft	40-42	RECOVERY, ir	22



LEGEND

MC = TEST SAMPLE INTERVAL

CL = CLASSIFICATION TEST
Mc = MOISTURE CONTENT
DD = DENSITY DETERMINATION
P = PERMEABILITY SAMPLE
Gs = SPECIFIC GRAVITY

SCHLEEDE-HAMPTON ASSOCIATES, INC. • CONSULTING ENGINEERS

REPORT OF PERMEABILITY TESTING

PROJECT NAME	WEST YARD STUDY		
SAMPLE NO.	SBGT1, 29 FT.	REPORT NO:	1
CLASSIFICATION	GREY VERY SILTY CLAY, tr. Sd. & Gr. (CL/ML vis.)	DATE:	Feb-96
SAMPLE TYPE	UNDISTURBED	PROJECT NO:	35277

METHOD OF TEST ASTM D-5084-90

Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

PERMEANT LIQUID	Tap Water	TOTAL BACK PRESSURE	30 psi
TEMPERATURE, °C	19	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.43 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	18.4

	PERMEABILITY, k (cm/sec)	Δt (hours)	Ratio of inflow to outflow
TEST INTERVAL 1	2.68E-08	24.00	1.24
TEST INTERVAL 2	2.31E-08	24.00	1.14
TEST INTERVAL 3	2.72E-08	24.00	1.09
TEST INTERVAL 4	2.49E-08	24.00	1.11
AVERAGE k	2.55E-08		
k 20	2.62E-08		

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	2.88	2.85
LENGTH, in	6.00	6.00
VOLUME, cu in	39.09	38.28
WEIGHT, gm	1449.2	1436.3
UNIT WEIGHT, pcf	141.1	142.8
MOIST. CONTENT, %	12.5	11.5
DRY DENSITY, pcf	125.4	128.1
DEGREE OF SATUR, %	98	98

SCHLEEDE-HAMPTON ASSOCIATES, INC. • CONSULTING ENGINEERS

REPORT OF PERMEABILITY TESTING

PROJECT NAME	WEST YARD STUDY		
SAMPLE NO.	SBGT2, 21 FT.	REPORT NO:	2
CLASSIFICATION	GREY CLAYEY SILT (ML visual)	DATE:	Jan-96
SAMPLE TYPE	UNDISTURBED	PROJECT NO:	35277

METHOD OF TEST ASTM D-5084-90

Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

PERMEANT LIQUID	Tap Water	TOTAL BACK PRESSURE	30 psi
TEMPERATURE, °C	19	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.43 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	24.9

	PERMEABILITY, k (cm/sec)	Δt (hours)	Ratio of inflow to outflow
TEST INTERVAL 1	1.43E-07	24.00	1.09
TEST INTERVAL 2	1.34E-07	24.00	1.04
TEST INTERVAL 3	1.22E-07	24.00	1.17
TEST INTERVAL 4	1.33E-07	24.00	0.98
AVERAGE k	1.33E-07		
k 20	1.37E-07		

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	2.85	2.82
LENGTH, in	4.50	4.45
VOLUME, cu in	28.71	27.79
WEIGHT, gm	955.0	956.6
UNIT WEIGHT, pcf	126.6	131.0
MOIST. CONTENT, %	19.8	20.0
DRY DENSITY, pcf	105.7	109.2
DEGREE OF SATUR, %	90	99

SCHLEEDE-HAMPTON ASSOCIATES, INC. • CONSULTING ENGINEERS

REPORT OF PERMEABILITY TESTING

PROJECT NAME	WEST YARD STUDY		
SAMPLE NO.	SBGT2, 38 1/2 FT.	REPORT NO:	3
CLASSIFICATION	GREY SILTY CLAY (CL) trace Sd. & Gr. (CL visual)	DATE:	Jan-96
SAMPLE TYPE	UNDISTURBED	PROJECT NO:	35277

METHOD OF TEST ASTM D-5084-90

Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

PERMEANT LIQUID	Tap Water	TOTAL BACK PRESSURE	30 psi
TEMPERATURE, °C	19	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.43 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	18.3

	PERMEABILITY, k (cm/sec)	Δt (hours)	Ratio of inflow to outflow
TEST INTERVAL 1	3.95E-08	24.00	1.13
TEST INTERVAL 2	4.14E-08	24.00	1.14
TEST INTERVAL 3	3.87E-08	24.00	1.07
TEST INTERVAL 4	3.94E-08	24.00	1.00
AVERAGE k	3.97E-08		
k 20	4.09E-08		

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	2.88	2.85
LENGTH, in	6.10	6.05
VOLUME, cu in	39.74	38.60
WEIGHT, gm	1415.8	1397.5
UNIT WEIGHT, pcf	135.6	137.8
MOIST. CONTENT, %	16.3	14.8
DRY DENSITY, pcf	116.6	120.0
DEGREE OF SATUR, %	99	99

SCHLEEDE-HAMPTON ASSOCIATES, INC. • CONSULTING ENGINEERS

REPORT OF PERMEABILITY TESTING

PROJECT NAME	WEST YARD STUDY		
SAMPLE NO.	SBGT2, 65 FT.	REPORT NO:	4
CLASSIFICATION	GREY SILTY CLAY trace Gravel (CL visual)	DATE:	Jan-96
SAMPLE TYPE	UNDISTURBED	PROJECT NO:	35277

METHOD OF TEST ASTM D-5084-90

Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

PERMEANT LIQUID	Tap Water	TOTAL BACK PRESSURE	30 psi
TEMPERATURE, °C	19	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.43 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	18.3

	PERMEABILITY, k (cm/sec)	Δt (hours)	Ratio of inflow to outflow
TEST INTERVAL 1	2.75E-08	24.00	1.00
TEST INTERVAL 2	2.93E-08	24.00	1.05
TEST INTERVAL 3	2.89E-08	24.00	1.16
TEST INTERVAL 4	2.53E-08	24.00	1.00

AVERAGE k	2.78E-08
k 20	2.86E-08

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	2.88	2.87
LENGTH, in	6.10	6.05
VOLUME, cu in	39.74	39.14
WEIGHT, gm	1435.0	1426.3
UNIT WEIGHT, pcf	137.4	138.7
MOIST. CONTENT, %	15.0	14.3
DRY DENSITY, pcf	119.5	121.3
DEGREE OF SATUR, %	99	99

SCHLEEDE-HAMPTON ASSOCIATES, INC. • CONSULTING ENGINEERS

REPORT OF PERMEABILITY TESTING

PROJECT NAME	WEST YARD STUDY		
SAMPLE NO.	SBGT3, 41 FT.	REPORT NO:	5
CLASSIFICATION	GREY SILTY CLAY, trace Sand & Gr. (CL visual)	DATE:	Feb-96
SAMPLE TYPE	UNDISTURBED	PROJECT NO:	35277

METHOD OF TEST ASTM D-5084-90

Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

PERMEANT LIQUID	Tap Water	TOTAL BACK PRESSURE	30 psi
TEMPERATURE, °C	19	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.43 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	22.4

	PERMEABILITY, k (cm/sec)	Δt (hours)	Ratio of inflow to outflow
TEST INTERVAL 1	1.68E-08	24.00	1.11
TEST INTERVAL 2	1.81E-08	24.00	1.00
TEST INTERVAL 3	1.51E-08	24.00	1.11
TEST INTERVAL 4	1.69E-08	24.00	1.15

AVERAGE k	1.67E-08
k 20	1.72E-08

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	2.88	2.86
LENGTH, in	4.95	4.95
VOLUME, cu in	32.25	31.80
WEIGHT, gm	1170.6	1163.5
UNIT WEIGHT, pcf	138.2	139.3
MOIST. CONTENT, %	14.8	14.1
DRY DENSITY, pcf	120.4	122.0
DEGREE OF SATUR, %	100	100

SCHLEEDE-HAMPTON ASSOCIATES, INC. • CONSULTING ENGINEERS

REPORT OF PERMEABILITY TESTING

PROJECT NAME	WEST YARD STUDY		
SAMPLE NO.	SBGT3, 57 FT.	REPORT NO:	6
CLASSIFICATION	GREY SILTY CLAY, trace Sand and Gr. (CL visual)	DATE:	Feb-96
SAMPLE TYPE	UNDISTURBED	PROJECT NO:	35277

METHOD OF TEST ASTM D-5084-90

Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

PERMEANT LIQUID	Tap Water	TOTAL BACK PRESSURE	30 psi
TEMPERATURE, °C	19	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.43 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	18.4

	PERMEABILITY, k (cm/sec)	Δt (hours)	Ratio of inflow to outflow
TEST INTERVAL 1	1.61E-08	24.00	1.00
TEST INTERVAL 2	1.18E-08	24.00	1.20
TEST INTERVAL 3	1.39E-08	24.00	1.20
TEST INTERVAL 4	1.10E-08	24.00	1.14

AVERAGE k	1.32E-08
k 20	1.36E-08

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	2.88	2.86
LENGTH, in	6.00	6.00
VOLUME, cu in	39.09	38.55
WEIGHT, gm	1420.0	1408.9
UNIT WEIGHT, pcf	138.3	139.1
MOIST. CONTENT, %	14.8	13.9
DRY DENSITY, pcf	120.4	122.1
DEGREE OF SATUR, %	100	99

SCHLEEDE-HAMPTON ASSOCIATES, INC. • CONSULTING ENGINEERS

REPORT OF PERMEABILITY TESTING

PROJECT NAME	WEST YARD STUDY		
SAMPLE NO.	SBGT3, 79.5 FT.	REPORT NO:	7
CLASSIFICATION	GREY SILTY CLAY, trace Gravel (CL visual)	DATE:	Feb-96
SAMPLE TYPE	UNDISTURBED	PROJECT NO:	35277

METHOD OF TEST ASTM D-5084-90

Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

PERMEANT LIQUID	Tap Water	TOTAL BACK PRESSURE	30 psi
TEMPERATURE, °C	19	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.43 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	22.6

	PERMEABILITY, k (cm/sec)	Δt (hours)	Ratio of inflow to outflow
TEST INTERVAL 1	1.43E-08	24.00	1.17
TEST INTERVAL 2	1.62E-08	24.00	1.17
TEST INTERVAL 3	1.44E-08	24.00	1.14
TEST INTERVAL 4	1.34E-08	24.00	1.00
AVERAGE k	1.46E-08		
k 20	1.50E-08		

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	2.88	2.86
LENGTH, in	4.90	4.90
VOLUME, cu in	31.92	31.48
WEIGHT, gm	1215.0	1208.4
UNIT WEIGHT, pcf	144.9	146.1
MOIST. CONTENT, %	10.5	9.9
DRY DENSITY, pcf	131.1	132.9
DEGREE OF SATUR, %	99	100

SCHLEEDE-HAMPTON ASSOCIATES, INC. • CONSULTING ENGINEERS

REPORT OF PERMEABILITY TESTING

PROJECT NAME	WEST YARD STUDY		
SAMPLE NO.	SBGT4, 23 1/2 FT.	REPORT NO:	8
CLASSIFICATION	GREY SILTY CLAY, trace Sand and Gr. (CL visual)	DATE:	Jan-96
SAMPLE TYPE	UNDISTURBED	PROJECT NO:	35277

METHOD OF TEST ASTM D-5084-90

Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

PERMEANT LIQUID	Tap Water	TOTAL BACK PRESSURE	30 psi
TEMPERATURE, °C	19	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.43 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	22.7

	PERMEABILITY, k (cm/sec)	Δt (hours)	Ratio of inflow to outflow
TEST INTERVAL 1	2.61E-08	24.00	1.00
TEST INTERVAL 2	2.54E-08	24.00	1.09
TEST INTERVAL 3	2.86E-08	24.00	1.08
TEST INTERVAL 4	2.47E-08	24.00	1.00
AVERAGE k	2.62E-08		
k 20	2.70E-08		

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	2.88	2.86
LENGTH, in	4.90	4.88
VOLUME, cu in	31.92	31.35
WEIGHT, gm	1110.0	1102.5
UNIT WEIGHT, pcf	132.4	133.8
MOIST. CONTENT, %	18.1	17.3
DRY DENSITY, pcf	112.1	114.1
DEGREE OF SATUR, %	97	98

SCHLEEDE-HAMPTON ASSOCIATES, INC. • CONSULTING ENGINEERS

REPORT OF PERMEABILITY TESTING

PROJECT NAME	WEST YARD STUDY		
SAMPLE NO.	SBGT4, 41 FT.	REPORT NO:	9
CLASSIFICATION	GREY SILTY CLAY, trace Sand and Gr. (CL visual)	DATE:	Feb-96
SAMPLE TYPE	UNDISTURBED	PROJECT NO:	35277

METHOD OF TEST ASTM D-5084-90

Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

PERMEANT LIQUID	Tap Water	TOTAL BACK PRESSURE	30 psi
TEMPERATURE, °C	19	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.43 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	23.6

	PERMEABILITY, k (cm/sec)	Δt (hours)	Ratio of inflow to outflow
TEST INTERVAL 1	1.16E-08	24.00	1.20
TEST INTERVAL 2	1.19E-08	24.00	1.12
TEST INTERVAL 3	1.20E-08	24.00	1.17
TEST INTERVAL 4	1.30E-08	24.00	1.00

AVERAGE k	1.21E-08
k 20	1.25E-08

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	2.88	2.85
LENGTH, in	4.75	4.70
VOLUME, cu in	30.94	29.98
WEIGHT, gm	1097.2	1083.1
UNIT WEIGHT, pcf	135.0	137.5
MOIST. CONTENT, %	16.5	15.0
DRY DENSITY, pcf	115.8	119.6
DEGREE OF SATUR, %	98	99

ENGINEERING SCIENCE

0935

30800 Telegraph Road - Suite 3858, Bingham Farms, Michigan 48025 (313) 433-2700
FAX (313) 433-0835

Chain-Of Custody Record

PROJECT NUMBER	PROJECT NAME/LOCATION
727249/05000	GMW4

SAMPLER(S) NAME (Please Print) Brian Reeser

(Signature) Brian Reeser

PRESERVATIVES: Wax/Sand

ANALYSES REQUESTED: Reactivity, Corrosivity, and Ignitability; EPTOX Met.+Cu&Zn; PNA ( ); BTEX ( ); MTBE ( ); Pb, Cd, Cr; TCLP 4 Pesticides 1 PCB

STATION NUMBER	DATE MMDDYY	MILITARY TIME	COMP	GRAB	STATION ID	MATRIX	CONTAINERS NO.	TYPE	SIZE	Reactivity, Corrosivity, and Ignitability	EPTOX Met.+Cu&Zn	PNA ( )	BTEX ( )	MTBE ( )	Pb, Cd, Cr	TCLP 4 Pesticides 1 PCB	REMARKS
727249	11/28/95	1545		X	SBGT2(20-22)/1545	Soil	1	Metal	2" x 5'						X		
	11/29/95	1000		X	SBGT2(38-40)/1000										X		
	11/29/95	1510		X	SBGT2(64-66)/1510										X		
	12/4/95	1330		X	SBGT4(22-24)/1330										X		
	12/7/95	0930		X	SBGT4(40-42)/0930										X		
	12/4/95	1405		X	SBGT3(40-42)/1405										X		
	12/4/95	1630		X	SBGT3(56-58)/1630										X		
	12/5/95	1035		X	SBGT3(78-80)/1035										X		
☆	12/5/95	1300		X	SBGTL(28-30)/1300	↑	↓	↓							X		

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Brian E Reeser	1/2/96 0915	Gary Vaught	1-29-96 950
Relinquished by: (Signature) Gem	Date / Time	Received by: (Signature)	Date / Time
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time

AIRBILL #: ——— COOLER #: ———

LABORATORY: Schleede Hampton

ATTN.: James Berry

PLEASE SEND REPORT AND ORIGINAL COC TO: Dave Lomas

TAT EXPECTED:

...ribution Original Accompanies Shipment. White Copy returned ... Report.

... retained by laboratory. Pink retained by sender

APPENDIX D

PARSONS ES WELL DEVELOPMENT RECORDS
PARSONS ES WELL DEVELOPMENT AND SAMPLE RECORDS

WELL DEVELOPMENT LOG

Site Name *GM-WEST YARD* Well *MW-16*

Date *Jan-16-96*

Samplers *J.S.POULSEN* StartTime *1539*
B.E.REESER

Total Well Depth (TOC)	*12.7* feet
Initial Static Water Level (TOC)	*7.68* feet
Well Diameter	*2.0* inches

Development Data

Method *WATTERA*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *12.65* - *7.68* x *0.16*

= *0.8* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Total Volume of Water Removed *25* gallons

Total Time (minutes)	Volume Removed	pH	Temp. (F)	Conduct. (uS/cm)	Turbidity (NTU)	Comments
	5	*7.76*	*44.1*	*2980*	*>200*	
	10	*6.65*	*44.0*	*3130*	*>200*	
	15	*6.42*	*43.5*	*2970*	*>200*	
	20	*6.60*	*43.9*	*3200*	*>200*	
	25	*7.02*	*44*	*3000*	*130*	

Comments:

WELL DEVELOPMENT LOG

Site Name *GM-WEST YARD* Well *DW-16*

Date *Jan-17-96*

Samplers *J.S.POULSEN* StartTime *1539*
B.E.REESER

Total Well Depth (TOC)	*22.3* feet
Initial Static Water Level (TOC)	*7.92* feet
Well Diameter	*2.0* inches

Development Data

Method *WATTERA*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *22.32* - *7.92* x *0.16*

= *2.3* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Total Volume of Water Removed *2.5* gallons

Total Time (minutes)	Volume Removed	pH	Temp. (F)	Conduct. (uS/cm)	Turbidity (NTU)	Comments

Comments:

WELL DEVELOPMENT LOG

Site Name *GM-WEST YARD* Well *MW-17*

Date *Jan-16-96*

Samplers *J.S.POULSEN* StartTime *0825*
B.E.REESER

Total Well Depth (TOC)	*11.1* feet
Initial Static Water Level (TOC)	*7.52* feet
Well Diameter	*2.0* inches

Development Data

Method *WATTERA*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *11.1* - *7.52* x *0.16*

= *0.6* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Total Volume of Water Removed *20* gallons

Total Time (minutes)	Volume Removed	pH	Temp. (F)	Conduct. (uS/cm)	Turbidity (NTU)	Comments
	5	*4.90*	*40.3*	*1254*	*>200*	
	10	*6.45*	*45.1*	*1324*	*>200*	
	15	*6.94*	*47.5*	*1395*	*>200*	
	20	*6.75*	*52.0*	*1475*	*76*	

Comments:

WELL DEVELOPMENT LOG

Site Name *GM-WEST YARD* Well *DW-17*

Date *Jan-16-96*

Samplers *J.S.POULSEN* StartTime *1000*

B.E.REESER

Total Well Depth (TOC)	*17.2* feet
Initial Static Water Level (TOC)	*7.62* feet
Well Diameter	*2.0* inches

Development Data

Method *WATTERA*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *17.2* - *7.62* x *0.16*

= *1.5* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Total Volume of Water Removed *15* gallons

Total Time (minutes)	Volume Removed	pH	Temp. (F)	Conduct. (uS/cm)	Turbidity (NTU)	Comments
	5	*5.96*	*44.0*	*1755*	*>200*	
	10	*3.30*	*57.4*	*2110*	*>200*	
	15	*3.57*	*52.8*	*1832*	*31*	

Comments:

WELL DEVELOPMENT LOG

Site Name *GM-WEST YARD* Well *MW-18*

Date *Jan-16-96*

Samplers *J.S.POULSEN* StartTime *0825*
B.E.REESER

Total Well Depth (TOC)	*19.7* feet
Initial Static Water Level (TOC)	*16.46* feet
Well Diameter	*2.0* inches

Development Data

Method *WATTERA*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *19.7* - *16.46* x *0.16*

= *0.5* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Total Volume of Water Removed *25* gallons

Total Time (minutes)	Volume Removed	pH	Temp. (F)	Conduct. (uS/cm)	Turbidity (NTU)	Comments
	5	*3.75*	*53.0*	*1326*	*>200*	
	10	*4.29*	*59.0*	*1501*	*>200*	
	15	*4.25*	*57.0*	*1472*	*63*	
	20	*5.13*	*51.0*	*1510*	*71*	
	25	*4.46*	*51*	*1390*	*42*	

Comments:

WELL DEVELOPMENT LOG

Site Name *GM-WEST YARD* Well *DW-18*

Date *Jan-16-96*

Samplers *J.S.POULSEN* StartTime *1100*

B.E.REESER

Total Well Depth (TOC)	*39.6* feet
Initial Static Water Level (TOC)	*17.24* feet
Well Diameter	*2.0* inches

Development Data

Method *WATTERA*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *39.6* - *17.24* x *0.16*

= *3.6* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Total Volume of Water Removed *30* gallons

Total Time (minutes)	Volume Removed	pH	Temp. (F)	Conduct. (uS/cm)	Turbidity (NTU)	Comments
	5	*4.69*	*54.0*	*4520*	*>200*	
	10	*5.25*	*53.0*	*6380*	*>200*	
	15	*4.83*	*51.0*	*5860*	*>200*	
	20	*5.25*	*50.0*	*6210*	*>200*	
	25	*4.71*	*51*	*6400*	*>200*	
	30	*5.62*	*51*	*6120*	*>200*	

Comments:

WELL DEVELOPMENT LOG

Site Name *GM-WEST YARD* Well *MW-19*

Samplers *J.S.POULSEN* Date *Jan-16-96*
B.E.REESER StartTime *1500*

Total Well Depth (TOC)	*31.0* feet
Initial Static Water Level (TOC)	*28.21* feet
Well Diameter	*2.0* inches

Development Data

Method *WATTERA*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *31* - *28.21* x *0.16*

= *0.4* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Total Volume of Water Removed *8* gallons

Total Time (minutes)	Volume Removed	pH	Temp. (F)	Conduct. (uS/cm)	Turbidity (NTU)	Comments
	5	*5.87*	*47.0*	*2800*	*158*	
	8	*6.26*	*42.1*	*1726*	*142*	

Comments:

WELL DEVELOPMENT LOG

Site Name *GM-WEST YARD* Well *DW-19*

Date *Jan-16-96*

Samplers *J.S.POULSEN* StartTime *0825*

B.E.REESER

Total Well Depth (TOC)	*41.0* feet
Initial Static Water Level (TOC)	*29.73* feet
Well Diameter	*2.0* inches

Development Data

Method *WATTERA*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *41* - *29.73* x *0.16*

= *1.8* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Total Volume of Water Removed *13* gallons

Total Time (minutes)	Volume Removed	pH	Temp. (F)	Conduct. (uS/cm)	Turbidity (NTU)	Comments
	5	*4.04*	*42.0*	*1394*	*120*	
	10	*5.30*	*41.1*	*>10,000*	*>200*	
	13	*4.74*	*41.7*	*>10,000*	*130*	

Comments:

WELL DEVELOPMENT LOG

Site Name *GM-WEST YARD* Well *MW-20*

Date *Jan-16-96*

Samplers *J.S.POULSEN* StartTime *1315*

B.E.REESER

Total Well Depth (TOC)	*28.9* feet
Initial Static Water Level (TOC)	*25.98* feet
Well Diameter	*2.0* inches

Development Data

Method *WATTERA*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *28.85* - *25.98* x *0.16*

= *0.5* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Total Volume of Water Removed *10* gallons

Total Time (minutes)	Volume Removed	pH	Temp. (F)	Conduct. (uS/cm)	Turbidity (NTU)	Comments
	5	*4.13*	*51.6*	*1100*	*>200*	
	10	*7.12*	*53.4*	*1175*	*>200*	

Comments:

WELL DEVELOPMENT LOG

Site Name *GM-WEST YARD* Well *DW-20*

Date *Jan-17-96*

Samplers *J.S.POULSEN* StartTime *1315*
B.E.REESER

Total Well Depth (TOC)	*45.6* feet
Initial Static Water Level (TOC)	*25.4* feet
Well Diameter	*2.0* inches

Development Data

Method *WATTERA*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *45.63* - *25.4* x *0.16*

= *3.2* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Total Volume of Water Removed *25* gallons

Total Time (minutes)	Volume Removed	pH	Temp. (F)	Conduct. (uS/cm)	Turbidity (NTU)	Comments
	5	*5.61*	*51.6*	*4100*	*>200*	
	10	*5.40*	*53.0*	*6090*	*>200*	
	15	*7.11*	*51.0*	*6180*	*>200*	
	20	*7.10*	*51.6*	*6410*	*>200*	
	25	*7.11*	*50*	*6260*	*>200*	

Comments:

WELL DEVELOPMENT LOG

Site Name *GM-WEST YARD* Well *DW-21*

Date *Jan-16-96*

Samplers *J.S.POULSEN* StartTime *0825*
B.E.REESER

Total Well Depth (TOC)	*21.9* feet
Initial Static Water Level (TOC)	*18.98* feet
Well Diameter	*2.0* inches

Development Data

Method *WATTERA*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *21.85* - *18.98* x *0.16*

= *0.5* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Total Volume of Water Removed *5* gallons

Total Time (minutes)	Volume Removed	pH	Temp. (F)	Conduct. (uS/cm)	Turbidity (NTU)	Comments
	2.5	*4.72*	*52.0*	*>10,000*	*>202*	
	5	*5.32*	*54.0*	*1802*	*>200*	

Comments:

WELL DEVELOPMENT LOG

Site Name *GM-WEST YARD* Well *MW-22*

Date *Jan-17-95*

Samplers *J.S.POULSEN* StartTime *1045*
B.E.REESER

Total Well Depth (TOC)	*28.2* feet
Initial Static Water Level (TOC)	*24.02* feet
Well Diameter	*2.0* inches

Development Data

Method *WATTERA*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *28.2* - *24.02* x *0.16*

= *0.7* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Total Volume of Water Removed *9.5* gallons

Total Time (minutes)	Volume Removed	pH	Temp. (F)	Conduct. (uS/cm)	Turbidity (NTU)	Comments
	5	*2.95*	*47.9*	*1905*	*>200*	
	9.5	*2.68*	*50.9*	*1936*	*>200*	

Comments:

WELL DEVELOPMENT LOG

Site Name *GM-WEST YARD* Well *DW-22*

Date *Jan-17-96*

Samplers *J.S.POULSEN* StartTime *1000*
B.E.REESER

Total Well Depth (TOC)	*38.2* feet
Initial Static Water Level (TOC)	*24.16* feet
Well Diameter	*2.0* inches

Development Data

Method *WATTERA*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *38.2* - *24.16* x *0.16*

= *2.2* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Total Volume of Water Removed *30* gallons

Total Time (minutes)	Volume Removed	pH	Temp. (F)	Conduct. (uS/cm)	Turbidity (NTU)	Comments
	5	*4.70*	*49.0*	*9070*	*>200*	
	10	*3.30*	*50.3*	*>10,000*	*>200*	
	15	*3.00*	*51.0*	*11,090*	*>200*	
	20	*5.90*	*50.0*	*10,400*	*>200*	
	30	*6.92*	*49.4*	*10,370*	-	

Comments:

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *DW-16*

Date *18-Jan-96*

Samplers *J.S. Poulsen* Time *1500*

D.J. Lipp

Total Well Depth (TOC)	*22.3*
Initial Static Water Level (TOC)	*7.92*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *22.32* - *7.92* x *0.16*

= *2.3* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *2.5* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
VOCs	*(3) 40ml vials*	*HCl*	*8260*
SVOC	*(2) 1L amber*	*-*	*8270*
PCBs Pesticides	*(2) 1L amber*	*-*	*8080*
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*
Cyanide	*(1) 500ml HDPE*	*NAOH*	*9012*

Field Parameters

pH	*6.95*
Temp. (F)	*53*
Spec. Cond.(us/cm)	*8500*
Turbidity (NTU)	*150*

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *DW-17*

Date *16-Jan-96*

Samplers *J.S. Poulsen* Time *1100*

D.J. Lipp

Total Well Depth (TOC)	*17.2*
Initial Static Water Level (TOC)	*7.62*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *17.2* - *7.62* x *0.16*

= *1.5* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *15* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
VOCs	*(3) 40ml vials*	*HCl*	*8260*
SVOC	*(2) 1L amber*	*-*	*8270*
PCBs/Pesticides	*(2) 1L amber*	*-*	*8080*
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*
Cyanide	*(1) 500ml HDPE*	*NaOH*	*9012*
Herbicides	*(2) 1L amber*	*-*	*8150*
OPP	*(2) 1L amber*	*-*	
Sulfides	*(1) 1L HDPE*	*NaOH, ZnAc*	*9030A*
Dioxins	*(2) 1L amber*	*-*	*8290*

Field Parameters

pH	*3.57*
Temp. (F)	*52.8*
Spec. Cond.(us/cm)	*1832*
Turbidity (NTU)	*31*

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *DW-18*

Date *16-Jan-96*

Samplers *J.S. Poulsen* Time *1300*

D.J. Lipp

Total Well Depth (TOC)	*39.6*
Initial Static Water Level (TOC)	*17.24*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *39.6* - *17.24* x *0.16*

= *3.6* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *30* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
VOCs	*(3) 40ml vials*	*HCl*	*8260*
SVOC	*(2) 1L amber*	*-*	*8270*
PCBs Pesticides	*(2) 1L amber*	*-*	*8080*
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*
Cyanide	*(1) 500ml HDPE*	*NaOH*	*9012*

Field Parameters

pH	*5.62*
Temp. (F)	*51*
Spec. Cond.(us/cm)	*6120*
Turbidity (NTU)	*>200*

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *DW-19*

Date *16-Jan-96*

Samplers *J.S. Poulsen* Time *1600*

D.J. Lipp

Total Well Depth (TOC)	*41.0*
Initial Static Water Level (TOC)	*29.73*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *41* - *29.73* x *0.16*

= *1.8* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *13* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
VOCs	*(3) 40ml vials*	*HCl*	*8260*
SVOC	*(2) 1L amber*	*-*	*8270*
PCBs Pesticides	*(2) 1L amber*	*-*	*8080*
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*
Cyanide	*(1) 500ml HDPE*	*NaOH*	*9012*

Field Parameters

pH	*4.74*
Temp. (F)	*41.7*
Spec. Cond.(us/cm)	*>10,000*
Turbidity (NTU)	*130*

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *DW-20*

Date *18-Jan-96*

Samplers *J.S. Poulsen* Time *0830*

D.J. Lipp

Total Well Depth (TOC)	*45.6*
Initial Static Water Level (TOC)	*25.40*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *45.63* - *25.4* x *0.16*

= *3.2* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *25* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
VOCs	*(3) 40ml vials*	*HCl*	*8260*
SVOC	*(2) 1L amber*	*-*	*8270*
PCBs/ Pesticides	*(2) 1L amber*	*-*	*8080*
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*
Cyanide	*(1) 500ml HDPE*	*NaOH*	*9012*
Herbicides	*(2) 1L amber*	*-*	*8150*
OPP	*(2) 1L amber*	*-*	
Sulfides	*(1) 1L HDPE*	*NaOH, Zn-AC*	*9030A*
Dioxins	*(2) 1L amber*	*-*	*8290*

Field Parameters

pH	*7.11*
Temp. (F)	*50*
Spec. Cond.(us/cm)	*6260*
Turbidity (NTU)	*>200*

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *DW-21*

Date *16-Jan-96*

Samplers *J.S. Poulsen* Time *1640*

D.J. Lipp

Total Well Depth (TOC)	*21.9*
Initial Static Water Level (TOC)	*18.98*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *21.85* - *18.98* x *0.16*

= *0.5* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *5* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
VOCs	*(3) 40ml vials*	*HCl*	*8260*
SVOC	*(2) 1L amber*	*-*	*8270*
PCBs /Pesticides	*(2) 1L amber*	*-*	*8080*
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*
Cyanide	*(1) 500ml HDPE*	*NaOH*	*9012*

Field Parameters

pH	*5.32*
Temp. (F)	*54*
Spec. Cond.(us/cm)	*1802*
Turbidity (NTU)	*>200*

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *DW-22*

Date *17-Jan-96*

Samplers *J.S. Poulsen* Time *1120*

D.J. Lipp

Total Well Depth (TOC)	*38.2*
Initial Static Water Level (TOC)	*24.16*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *38.2* - *24.16* x *0.16*

= *2.2* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *30* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
VOCs	*(3) 40ml vials*	*HCl*	*8260*
SVOC	*(2) 1L amber*	*-*	*8270*
PCBs Pesticides	*(2) 1L amber*	*-*	*8080*
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*
Cyanide	*(1) 500ml HDPE*	*NaOH*	*9012*
Herbicides	*(2) 1L amber*	*-*	*8150*
OPP	*(2) 1L amber*	*-*	
Sulfides	*(1) 1L HDPE*	*NaOH, Zn-AC*	*9030A*
Dioxins	*(2) 1L amber*	*-*	*8290*

Field Parameters

pH	*6.92*
Temp. (F)	*49.4*
Spec. Cond.(us/cm)	*10,370*
Turbidity (NTU)	*-*

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name: *GM-Pontiac, West Yard* Well: *MW-5*

Date: *18-Jan-96*

Samplers: *J.S. Poulsen*, *D.J. Lipp* Time: *1400*

Total Well Depth (TOC)	*27.3*
Initial Static Water Level (TOC)	*20.86*
Well Diameter (inches)	*2.0*

Purging Data

Method: *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *27.25* - *20.86* x *0.16*

= *1.0* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed: *5* gallons

Sampling Data

Method: *Wattera*

Parameters	Bottle	Pres.	Method
VOCs	*(3) 40ml vials*	*HCl*	*8260*
SVOC	*(2) 1L amber*	*-*	*8270*
PCBs Pesticides	*(2) 1L amber*	*-*	*8080*
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*
Cyanide	*(1) 500ml HDPE*	*NaOH*	*9012*

Field Parameters

pH	*5.78*
Temp. (F)	*47.4*
Spec. Cond.(us/cm)	*4810*
Turbidity (NTU)	*75*

Comments:

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *MW-7*

Date *17-Jan-96*

Samplers *J.S. Poulsen* Time *1700*

D.J. Lipp

Total Well Depth (TOC)	*21.1*
Initial Static Water Level (TOC)	*20.75*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *21.1* - *20.75* x *0.16*

= *0.1* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *5* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
VOCs	*(3) 40ml vials*	*HCl*	*8260*
SVOC	*(2) 1L amber*	*-*	*8270*
PCBs Pesticides	*(2) 1L amber*	*-*	*8080*
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*
Cyanide	*(1) 500ml HDPE*	*NaOH*	*9012*

Field Parameters

pH	*6.22*
Temp. (F)	*53*
Spec. Cond.(us/cm)	*7050*
Turbidity (NTU)	*>200*

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *MW-16*

Date *17-Jan-96*

Samplers *J.S. Poulsen* Time *1640*

D.J. Lipp

Total Well Depth (TOC)	*12.7*
Initial Static Water Level (TOC)	*7.63*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *12.65* - *7.63* x *0.16*

= *0.8* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *25* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
VOCs	*(3) 40ml vials*	*HCl*	*8260*
SVOC	*(2) 1L amber*		*8270*
PCB/Pesticides	*(2) 1L amber*		*8080*
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*
Cyanide	*(1) 500ml HDPE*	*NaOH*	*9012*

Field Parameters

pH	*7.02*
Temp. (F)	*44*
Spec. Cond.(us/cm)	*3000*
Turbidity (NTU)	*130*

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *MW-17*

Date *16-Jan-96*

Samplers *J.S. Poulsen* Time *1115*

D.J. Lipp

Total Well Depth (TOC)	*11.1*
Initial Static Water Level (TOC)	*7.52*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *11.1* - *7.52* x *0.16*

= *0.6* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *20* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
VOCs	*(3) 40ml vials*	*HCl*	*8260*
SVOC	*(2) 1L amber*	*-*	*8270*
PCBs/ Pesticides	*(2) 1L amber*	*-*	*8080*
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*
Cyanide	*(1) 500ml HDPE*	*NaOH*	*9012*
Herbicides	*(2) 1L amber*	*-*	*8150*
OPP	*(2) 1L amber*	*-*	
Sulfides	*(1) 1L HDPE*	*NaOH, ZnAC*	*9030A*
Dioxins	*(2) 1L amber*	*-*	*8290*

Field Parameters

pH	*6.75*
Temp. (F)	*52*
Spec. Cond.(us/cm)	*1475*
Turbidity (NTU)	*76*

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *MW-18*

Date *16-Jan-96*

Samplers *J.S. Poulsen* Time *1245*

D.J. Lipp

Total Well Depth (TOC)	*19.7*
Initial Static Water Level (TOC)	*16.46*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *19.7* - *16.46* x *0.16*

= *0.5* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	.4

Volume of Water Removed *25* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
VOCs	*(3) 40ml vials*	*HCl*	*8260*
SVOC	*(2) 1L amber*	*-*	*8270*
PCBs Pesticides	*(2) 1L amber*	*-*	*8080*
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*
Cyanide	*(1) 500ml HDPE*	*NaOH*	*9012*

Field Parameters

pH	*4.46*
Temp. (F)	*51*
Spec. Cond.(us/cm)	*1390*
Turbidity (NTU)	*42*

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name: *GM-Pontiac, West Yard* Well: *MW-19*

Date: *16-Jan-96*

Samplers: *J.S. Poulsen* Time: *1615*

D.J. Lipp

Total Well Depth (TOC)	*31.0*
Initial Static Water Level (TOC)	*28.21*
Well Diameter (inches)	*2.0*

Purging Data

Method: *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *31* - *28.21* x *0.16*

= *0.4* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed: *8* gallons

Sampling Data

Method: *Wattera*

Parameters	Bottle	Pres.	Method
VOCs	*(3) 40ml vials*	*HCl*	*8260*
SVOC	*(2) 1L amber*	*-*	*8270*
PCBs /Pesticides	*(2) 1L amber*	*-*	*8080*
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*
Cyanide	*(1) 500ml HDPE*	*NaOH*	*9012*

Field Parameters

pH	*6.26*
Temp. (F)	*42.1*
Spec. Cond.(us/cm)	*1726*
Turbidity (NTU)	*142*

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *MW-20*

Date *18-Jan-96*

Samplers *J.S. Poulsen* Time *0915*

D.J. Lipp

Total Well Depth (TOC)	*28.9*
Initial Static Water Level (TOC)	*25.98*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *28.85* - *25.98* x *0.16*

= *0.5* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *10* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
VOCs	*(3) 40ml vials*	*HCl*	*8260*
SVOC	*(2) 1L amber*	*-*	*8270*
PCBs Pesticides	*(2) 1L amber*	*-*	*8080*
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*
Cyanide	*(1) 500ml HDPE*	*NaOH*	*9012*
Herbicides	*(2) 1L amber*	*-*	*8150*
OPP	*(2) 1L amber*	*-*	
Sulfides	*(1) 1L HDPE*	*NaOH, Zn-AC*	*9030A*
Dioxins	*(2) 1L amber*	*-*	*8290*

Field Parameters

pH	*7.12*
Temp. (F)	*53.4*
Spec. Cond.(us/cm)	*1175*
Turbidity (NTU)	*>200*

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *MW-22*

Date *17-Jan-96*

Samplers *J.S. Poulsen* Time *1010*

D.J. Lipp

Total Well Depth (TOC)	*28.2*
Initial Static Water Level (TOC)	*24.02*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *28.2* - *24.02* x *0.16*

= *0.7* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *30* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
VOCs	*(3) 40ml vials*	*HCl*	*8260*
SVOC	*(2) 1L amber*	*-*	*8270*
PCBs Pesticides	*(2) 1L amber*	*-*	*8080*
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*
Cyanide	*(1) 500ml HDPE*	*NaOH*	*9012*
Herbicides	*(2) 1L amber*	*-*	*8150*
OPP	*(2) 1L amber*	*-*	
Sulfides	*(1) 1L HDPE*	*NaOH,Zn-AC*	*9030A*
Dioxins	*(2) 1L amber*	*-*	*8290*

Field Parameters

pH	*2.68*
Temp. (F)	*50.9*
Spec. Cond.(us/cm)	*1,936*
Turbidity (NTU)	*>200*

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *MW-5*

Date *13-Feb-96*

Samplers *J.S. Poulsen* Time *1645*

D.J. Lipp

Total Well Depth (TOC)	*27.3*
Initial Static Water Level (TOC)	*20.97*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *27.25* - *20.97* x *0.16*

= *1.0* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *5* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*

Field Parameters

pH	*7.86*
Temp. (F)	*60.1*
Spec. Cond.(us/cm)	*5840*
Turbidity (NTU)	

Comments:

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *DW-16*

Date *2/14/96*

Samplers *J.S. Poulsen* Time *1005*

D.J. Lipp

Total Well Depth (TOC)	*22.3*
Initial Static Water Level (TOC)	*7.72*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *22.32* - *7.72* x *0.16*

= *2.3* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *2.5* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*

Field Parameters

pH	*6.9*
Temp. (F)	*47.2*
Spec. Cond.(us/cm)	*7900*
Turbidity (NTU)	

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *DW-17*

Samplers *J.S. Poulsen* Date *2/13/96*
D.J. Lipp Time *0900*

Total Well Depth (TOC)	*17.2*
Initial Static Water Level (TOC)	*7.67*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *17.2* - *7.67* x *0.16*

= *1.5* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *5* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*

Field Parameters

pH	*7.2*
Temp. (F)	*44.5*
Spec. Cond.(us/cm)	*1406*
Turbidity (NTU)	

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *DW-20*

Date *2/13/96*

Samplers *J.S. Poulsen* Time *1415*

D.J. Lipp

Total Well Depth (TOC)	*45.6*
Initial Static Water Level (TOC)	*25.45*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *45.63* - *25.45* x *0.16*

= *3.2* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *10* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
VOCs	*(3) 40ml vials*	*HCl*	*8260*
SVOC	*(2) 1L amber*	*-*	*8270*
PCBs/ Pesticides	*(2) 1L amber*	*-*	*8080*
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*
Sulfides	*(1) 1L HDPE*	*NaOH, Zn-AC*	*9030A*

Field Parameters

pH	*7.78*
Temp. (F)	*49.8*
Spec. Cond.(us/cm)	*6000*
Turbidity (NTU)	

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *DW-21*

Date *2/13/96*

Samplers *J.S. Poulsen* Time *1145*

D.J. Lipp

Total Well Depth (TOC)	*21.9*
Initial Static Water Level (TOC)	*19.86*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *21.85* - *19.86* x *0.16*

= *0.3* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *1.9* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*
SVOC	*(2) 1L amber*	*-*	*8270*
PCBs /Pesticides	*(2) 1L amber*	*-*	*8080*

Field Parameters

pH	*7.6*
Temp. (F)	*47*
Spec. Cond.(us/cm)	*1777*
Turbidity (NTU)	

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *DW-22*

Date *2/13/96*

Samplers *J.S. Poulsen* Time *1100*

D.J. Lipp

Total Well Depth (TOC)	*38.2*
Initial Static Water Level (TOC)	*24.40*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *38.2* - *24.4* x *0.16*

= *2.2* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *7.5* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*

Field Parameters

pH	*7.04*
Temp. (F)	*62*
Spec. Cond.(us/cm)	*9,680*
Turbidity (NTU)	

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *MW-5*

Date *13-Feb-96*

Samplers *J.S. Poulsen* Time *1645*

D.J. Lipp

Total Well Depth (TOC)	*27.3*
Initial Static Water Level (TOC)	*20.97*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *27.25* - *20.97* x *0.16*

= *1.0* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *5* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*

Field Parameters

pH	*7.86*
Temp. (F)	*60.1*
Spec. Cond.(us/cm)	*5840*
Turbidity (NTU)	

Comments:

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *MW-16*

Date *2/14/96*

Samplers *J.S. Poulsen* Time *0915*

D.J. Lipp

Total Well Depth (TOC)	*12.7*
Initial Static Water Level (TOC)	*7.83*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *12.65* - *7.83* x *0.16*

= *0.8* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *3* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*

Field Parameters

pH	*8.3*
Temp. (F)	*41.9*
Spec. Cond.(us/cm)	*2980*
Turbidity (NTU)	

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *MW-17*

Date *13-Feb-96*

Samplers *J.S. Poulsen* Time *0910*

D.J. Lipp

Total Well Depth (TOC)	*11.1*
Initial Static Water Level (TOC)	*7.45*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *11.1* - *7.45* x *0.16*

= *0.6* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *2.5* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*

Field Parameters

pH	*8.5*
Temp. (F)	*39.7*
Spec. Cond.(us/cm)	*1185*
Turbidity (NTU)	

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *MW-18*

Date *2/13/96*

Samplers *J.S. Poulsen* Time *0945*

D.J. Lipp

Total Well Depth (TOC)	*19.7*
Initial Static Water Level (TOC)	*17.40*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *19.7* - *17.4* x *0.16*

= *0.4* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *1.6* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*

Field Parameters

pH	*6.4*
Temp. (F)	*48.2*
Spec. Cond.(us/cm)	*1080*
Turbidity (NTU)	

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *MW-20*

Date *2/13/96*

Samplers *J.S. Poulsen* Time *1530*

D.J. Lipp

Total Well Depth (TOC)	*28.9*
Initial Static Water Level (TOC)	*26.34*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *28.85* - *26.34* x *0.16*

= *0.4* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *1.5* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
VOCs	*(3) 40ml vials*	*HCl*	*8260*
SVOC	*(2) 1L amber*	*-*	*8270*
PCBs Pesticides	*(2) 1L amber*	*-*	*8080*
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*
Cyanide	*(1) 500ml HDPE*	*NaOH*	*9012*
Sulfides	*(1) 1L HDPE*	*NaOH, Zn-AC*	*9030A*

Field Parameters

pH	*8.65*
Temp. (F)	*52.7*
Spec. Cond.(us/cm)	*1736*
Turbidity (NTU)	

Comments:

PARSONS ENGINEERING SCIENCE, INC.

WELL SAMPLING RECORD

Site Name *GM-Pontiac, West Yard* Well *MW-22*

Date *2/13/96*

Samplers *J.S. Poulsen* Time *1110*

D.J. Lipp

Total Well Depth (TOC)	*28.2*
Initial Static Water Level (TOC)	*24.40*
Well Diameter (inches)	*2.0*

Purging Data

Method *Waterra*

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot

= *28.2* - *24.4* x *0.16*

= *0.6* gallons

Casing Volumes (gal/ft.):					
2-inch	0.16	4-inch	0.64	8-inch	2.5
3-inch	0.36	6-inch	1.4	10 inch	4

Volume of Water Removed *2.5* gallons

Sampling Data

Method *Wattera*

Parameters	Bottle	Pres.	Method
VOCs	*(3) 40ml vials*	*HCl*	*8260*
Metals	*(1) 1L HDPE*	*HNO3*	*6010/7000*
Sulfides	*(1) 1L HDPE*	*NaOH,Zn-AC*	*9030A*

Field Parameters

pH	*7.2*
Temp. (F)	*44.1*
Spec. Cond.(us/cm)	*14*
Turbidity (NTU)	

Comments:

PARSONS ENGINEERING SCIENCE, INC.

APPENDIX E

LABORATORY DATA AND CHAINS OF CUSTODY

E.1 Dames & Moore, 1988 - 1989
E.2 Groundwater Technology, Inc. 1989 - 1991
E.3 Parsons ES 1996

APPENDIX E.1

DAMES & MOORE, 1988 - 1989

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334-4747

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: Bill Ward

August 24, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158-14

PROGRAM: Background Samples

Date Received: 7-26-88

ALD Number:	41709	41710	41711	41712	41713	Detection Limit
Client I.D.:	BK-4-1	BK-4-2	BK-4-3	BK-4-4	BK-4-5	
Arsenic, As, mg/kg	4.6	11	3.3	4.4	3.6	0.4
Barium, Ba, mg/kg	100	270	140	200	150	1.8
Cadmium, Cd, mg/kg	4.1	ND	ND	ND	ND	0.8
Chromium, Cr, mg/kg	48	210	52	100	47	0.7
Copper, Cu, mg/kg	84	100	58	94	44	0.9
Lead, Pb, mg/kg	23	40	28	19	24	2
Mercury, Hg, mg/kg	0.04	ND	0.05	0.02	0.02	0.02
Selenium, Se, mg/kg	ND	ND	ND	ND	ND	0.4
Silver, Ag, mg/kg	ND	1.2	1.5	1.6	0.9	0.9
Zinc, Zn, mg/kg	94	51	35	17	16	0.8
Benzene, mg/kg	ND	ND	ND	ND	ND	2
Toluene, mg/kg	ND	3	ND	ND	ND	2
Xylenes, mg/kg	ND	10	ND	ND	ND	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	ND	ND	0.3
Methylene Chloride, mg/kg	ND	ND	ND	ND	ND	2
MEK, mg/kg	ND	ND	ND	ND	ND	50
1-Butanol, mg/kg	ND	ND	ND	ND	ND	500

ND - Not detected at the detection level listed.

cpc2k

Susan K. Scott
Laboratory Supervi

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334-4...

Dames & Moore
Attn: Bill Ward

August 24, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: N00299-158-14

PROGRAM: Background Samples

Date Received: 7-25-88

ALD Number:	41669	41670	41671	41672	41673	41677	Detection Limit
Client I.D.:	BK-3-1	BK-3-2	BK-3-3	BK-3-4	BK-3-5	Duplicate	
Arsenic, As, mg/kg	3.2	9.8	1.4	3.2	1.9	2.8	0.4
Barium, Ba, mg/kg	88	18	8.9	18	17	21	1.8
Cadmium, Cd, mg/kg	ND	ND	ND	ND	ND	ND	0.8
Chromium, Cr, mg/kg	35	13	4.5	13	14	13	0.7
Copper, Cu, mg/kg	27	9.1	3.9	29	27	17	0.9
Lead, Pb, mg/kg	14	8.8	2.5	3.2	ND	2.9	2
Mercury, Hg, mg/kg	0.04	ND	ND	0.22	0.09	0.08	0.02
Selenium, Se, mg/kg	ND	ND	ND	ND	ND	ND	0.4
Silver, Ag, mg/kg	ND	ND	ND	ND	ND	ND	0.9
Zinc, Zn, mg/kg	19	8.3	6.6	20	11	11	0.8
Benzene, mg/kg	ND	ND	ND	ND	ND	ND	2
Toluene, mg/kg	ND	ND	ND	ND	ND	ND	2
Xylenes, mg/kg	ND	ND	ND	ND	ND	ND	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	ND	ND	ND	0.3
Methylene Chloride, mg/kg	3	ND	ND	ND	ND	3	2
MEK, mg/kg	ND	ND	ND	ND	ND	ND	50
1-Butanol, mg/kg	ND	ND	ND	ND	ND	ND	500

ND - Not detected at the detection limit listed.

cpc/8L

Susan K. Scott
Laboratory Supervisor

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334-4747

Dames & Moore
Attn: Bill Ward

August 24, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: N00299-158-14

PROGRAM: Background Samples

Date Received: 7-25-88

ALD Number:	41660	41661	41662	41663	41664	41665	Detection Limit
Client I.D.:	Dup	BK-2-1	BK-2-2	BK-2-3	BK-2-4	BK-2-5	
Arsenic, As, mg/kg	3.5	3.2	3.5	4.3	1.8	3.6	0.4
Barium, Ba, mg/kg	14	40	22	27	14	32	1.8
Cadmium, Cd, mg/kg	ND	ND	ND	ND	ND	ND	0.8
Chromium, Cr, mg/kg	13	22	36	32	7.7	30	0.7
Copper, Cu, mg/kg	14	25	18	33	9.8	35	0.9
Lead, Pb, mg/kg	10	19	9.4	3.9	4.7	18	2
Mercury, Hg, mg/kg	ND	ND	0.02	0.11	ND	ND	0.02
Selenium, Se, mg/kg	ND	ND	ND	ND	ND	ND	0.4
Silver, Ag, mg/kg	ND	ND	ND	ND	ND	ND	0.9
Zinc, Zn, mg/kg	11	38	20	10	8.3	16	0.8
Benzene, mg/kg	ND	ND	ND	ND	ND	ND	2
Toluene, mg/kg	ND	ND	ND	ND	ND	ND	2
Xylenes, mg/kg	ND	ND	ND	ND	ND	ND	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	ND	ND	ND	0.3
Methylene Chloride, mg/kg	6	9	6	ND	3	ND	2
MEK, mg/kg	ND	ND	ND	ND	ND	ND	50
1-Butanol, mg/kg	ND	ND	ND	ND	ND	ND	500

ND - Not detected at the detection limit listed.

cpc/7L

Susan K. Scott
Laboratory Supervisor

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334-4. .

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: Bill Ward

August 24, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: N00299-158-14

PROGRAM: Background Samples

Date Received: 7-25-88

ALD Number:	41652	41653	41654	41655	41656	Detection Limit
Client I.D.:	BK-1-1	BK-1-2	BK-1-3	BK-1-4	BK-1-5	
Arsenic, As, mg/kg	5.5	4.8	4.5	6.0	3.5	0.4
Barium, Ba, mg/kg	42	89	73	37	22	1.8
Cadmium, Cd, mg/kg	0.8	ND	ND	ND	ND	0.8
Chromium, Cr, mg/kg	19	33	39	13	18	0.7
Copper, Cu, mg/kg	28	28	38	15	21	0.9
Lead, Pb, mg/kg	71	22	26	28	7.4	2
Mercury, Hg, mg/kg	0.06	0.11	0.03	0.03	ND	0.02
Selenium, Se, mg/kg	ND	0.9	ND	ND	ND	0.4
Silver, Ag, mg/kg	ND	ND	ND	ND	ND	0.9
Zinc, Zn, mg/kg	320	77	74	23	17	0.8
Benzene, mg/kg	NR	ND	ND	ND	ND	2
Toluene, mg/kg	NR	2	4	ND	ND	2
Xylenes, mg/kg	NR	ND	ND	ND	ND	2
1,1,1-Trichloroethane, mg/kg	NR	ND	ND	ND	ND	0.3
Methylene Chloride, mg/kg	NR	ND	ND	ND	ND	2
MEK, mg/kg	NR	ND	ND	ND	ND	50
1-Butanol, mg/kg	NR	ND	ND	ND	ND	500

ND - Not detected at the detection limit listed.
NR - Not Requested

Susan K. Scott
Laboratory Supervisor

Burmah

VOLATILE ORGANIC ANALYSIS BY GAS CHROMATOGRAPHY

These compounds were included in the volatile organic analysis. Unless noted in the body of the report, they were not detected. The method detection level is 10 ug/wipe.

Bromodichloromethane
Bromoform
Bromomethane
Carbon Tetrachloride
Chlorobenzene
Chloroethane
2-Chloroethylvinyl ether
Chloroform
Chloromethane
Dibromochloromethane
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Dichlorodifluoromethane
1,1 Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethene
trans-1,2-Dichloroethene
1,2-Dichloropropane
cis-1,3-Dichloropropene
trans-1,3-Dichloropropene
Methylene Chloride
1,1,2,2-Tetrachloroethane
Tetrachloroethene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
Trichlorofluoromethane
Vinyl Chloride
Benzene
Ethyl Benzene
Toluene
Xylenes
Styrene
Acetone
MEK
MIBK
Petroleum Distillates

Cpc/6L

Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue
Pontiac, Michigan 48058

313/334-4..

Dames & Moore
Attn: Bill Ward

August 24, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158-14

Date Received: 7-28-88

	Project Detection Limits As Received
Lead, Pb, mg/kg	2
Benzene, mg/kg	2
Toluene, mg/kg	2
Xylenes, mg/kg	2
1,1,1-Trichloroethane, mg/kg	0.3
Methylene Chloride, mg/kg	2
MEK, mg/kg	50
1-Butanol, mg/kg	500

cpc5k

Susan K. Scott
Laboratory Supervisor

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334-474.

Dames & Moore
Attn: Bill Ward

August 22, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158

PROGRAM: Soil Samples Beneath Pad

Date Received: 7-29-88

ALD Number:	41978	41979	41986	41987	41990	41994	41995	Detection Limit
Client I.D.:	P-9-1	P-9-2	P-10-1	P-10-2	P-12-1	Dup. VII	Dup. VIII	
Physical Description:	All 100% Soils							
Lead, Pb, mg/kg	18	42	50	34	5.6	7.3	14	2
Benzene, mg/kg	ND	ND	ND	ND	ND	ND	ND	2
Toluene, mg/kg	5	28	19	ND	5	16	20	2
Xylenes, mg/kg	ND	13	63	ND	36	39	100	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	ND	ND	ND	ND	0.3
Methylene Chloride, mg/kg	5	ND	8	68	16	11	12	2
MEK, mg/kg	ND	ND	ND	ND	ND	ND	ND	50
1-Butanol, mg/kg	ND	ND	ND	ND	NI	ND	ND	500

ND - None Detected

cpc/5a

Susan K. Scott
Laboratory Supervisor

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334-4...

Dames & Moore
Attn: Bill Ward

August 22, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158

PROGRAM: Soil Samples Beneath Pad

Date Received: 7-28-88

ALD Number:	41898	41902	41903	41910	41911	Detection Limit
Client I.D.:	P-8-2	P-11-1	P-11-2	Dup. V	Dup. VI	
Physical Description:	All 100% Soils					
Lead, Pb, mg/kg	4.4	12	60	1800	130	2
Benzene, mg/kg	ND	ND	ND	ND	ND	2
Toluene, mg/kg	ND	ND	ND	ND	ND	2
Xylenes, mg/kg	ND	ND	ND	ND	ND	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	ND	ND	0.3
Methylene Chloride, mg/kg	3	ND	ND	4	ND	2
MEK, mg/kg	ND	ND	ND	ND	ND	50
1-Butanol, mg/kg	ND	ND	ND	ND	ND	500

ND - None Detected

cpc/4a

Susan K. Scott
Laboratory Supervisor

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334-4741

Dames & Moore
Attn: Bill Ward

August 22, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158

PROGRAM: Soil Samples Beneath Pad

Date Received: 7-28-88

ALD Number:	41881	41882	41889	41890	41897	Detection Limit
Client I.D.:	P-5-1	P-5-2	P-7-1	P-7-2	P-8-1	
Physical Description:	All 100% Soils					
Lead, Pb, mg/kg	100	170	29	5.7	5.5	2
Benzene, mg/kg	ND	ND	ND	ND	ND	2
Toluene, mg/kg	ND	ND	8	3	ND	2
Xylenes, mg/kg	ND	ND	32	16	ND	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	ND	ND	0.3
Methylene Chloride, mg/kg	ND	13	ND	ND	4	2
MEK, mg/kg	ND	ND	ND	ND	ND	50
1-Butanol, mg/kg	ND	ND	ND	ND	ND	500

ND - None Detected

cpc/3a

Susan K. Scott
Laboratory Supervisor

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334-474.

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: Bill Ward

August 24, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158-14

PROGRAM: Soil Samples Beneath Pad

Date Received: 7-27-88

ALD Number:	41787	41788	41795	41796	41803	41804	41810	Detection Limit
Client I.D.:	P-3-1	P-3-2	P-4-1	P-4-2	P-6-1	P-6-2	Dup.IV	
Physical Description:	All 100% Soils							
Lead, Pb, mg/kg	3.1	61	67	9.4	2.0	22	4.5	2
Benzene, mg/kg	ND	ND	ND	ND	ND	ND	ND	2
Toluene, mg/kg	ND	ND	ND	ND	ND	ND	ND	2
Xylenes, mg/kg	ND	ND	ND	ND	ND	ND	ND	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	ND	ND	ND	ND	0.3
Methylene Chloride, mg/kg	ND	ND	44	34	3	4	4	2
MEK, mg/kg	ND	ND	ND	ND	ND	ND	ND	50
1-Butanol, mg/kg	ND	ND	ND	ND	ND	ND	ND	500

ND - Not detected at the detection level listed.

cpc/1k

Susan K. Scott
Laboratory Supervisc

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334-474

August 24, 1988

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: Bill Ward

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158-14

PROGRAM: Soil Sample Beneath Pad

Date Received: 8-10-88

ALD Number:	41730	
Client I.D.:	Duplicate III	Detection Limit
Lead, Pb, mg/kg	24	2
Benzene, mg/kg	ND	2
Toluene,mg/kg	ND	2
Xylenes, mg/kg	ND	2
1,1,1-Trichloroethane, mg/kg	ND	0.3
Methylene Chloride, mg/kg	ND	2
MEK, mg/kg	ND	50
1-Butanol, mg/kg	ND	500

cpc6k

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334-47

Dames & Moore
Attn: Bill Ward

August 24, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158-14

PROGRAM: Soil Samples Beneath Pad

Date Received: 7-26-88

ALD Number:	41714	41715	41722	41723	Detection Limit
Client I.D.:	P-1-1	P-1-2	P-2-1	P-2-2	
Lead, Pb, mg/kg	5.7	52	93	72	2
Benzene, mg/kg	ND	ND	3	5	2
Toluene, mg/kg	ND	ND	100	140	2
Xylenes, mg/kg	ND	ND	140	120	2
1,1,1-Trichloroethane, mg/kg	ND	ND	240	300	0.3
Methylene Chloride, mg/kg	ND	5	16	18	2
MEK, mg/kg	ND	ND	ND	ND	50
1-Butanol, mg/kg	ND	ND	ND	ND	500

ND - Not detected at the detection level listed.

Susan K. Scott
Laboratory Supervisor

cpc/3k

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: Bill Ward

September 7, 1988

Follow-up Report

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158-14

PROGRAM: Soil Samples Beneath Pad

Date Received: 7-26-88

ALD Number:	41718	41719	41720	41721	Detection Limit
Client I.D.:	P-1-5	P-1-6	P-1-7	P-1-8	
Physical Description:	All 100% Soils				
Lead, Pb, mg/kg	5.5	3.2	2.9	ND	2
Benzene, mg/kg	ND	ND	ND	ND	2
Toluene, mg/kg	ND	ND	ND	ND	2
Xylenes, mg/kg	ND	ND	ND	ND	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	ND	0.3
Methylene Chloride, mg/kg	ND	5	ND	ND	2
MEK, mg/kg	88	97	68	70	50
1-Butanol, mg/kg	ND	ND	ND	ND	500

DAMES & MOORE
SEP 12 1988

ND - Not detected at the detection level listed.

cc: Dale Gossiaux

cpc/lr

Susan K. Scott
Laboratory Supervisor

B-68

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334-

Dames & Moore
Attn: Bill Ward

September 7, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158-14

PROGRAM: Soil Samples Beneath Pad

Date Received: 7-26-88

ALD Number:	41726	41727	41728	41729	Detection Limit
Client I.D.:	P-2-5	P-2-6	P-2-7	P-2-8	
Physical Description:	All 100% Soils				
Lead, Pb, mg/kg	350	ND	10	ND	2
Benzene, mg/kg	4	7	2	2	2
Toluene, mg/kg	110	290	ND	ND	2
Xylenes, mg/kg	75	130	ND	ND	2
1,1,1-Trichloroethane, mg/kg	33	410	ND	ND	0.3
Methylene Chloride, mg/kg	3	14	3	2	2
MEK, mg/kg	66	530	100	110	50
1-Butanol, mg/kg	ND	ND	ND	ND	500

ND - Not detected at the detection level listed.

cpc/2r

Susan K. Scott
Laboratory Supervisor

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334

Dames & Moore
Attn: Bill Ward

September 7, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158-14

PROGRAM: Soil Samples Beneath Pad

Date Received: 7-27-88

ALD Number:	41791	41792	41793	41794	Detection Limit
Client I.D.:	P-3-5	P-3-6	P-3-7	P-3-8	
Physical Description:	All 100% Soils				
Lead, Pb, mg/kg	590	7.9	2.4	3.2	2
Benzene, mg/kg	ND	ND	ND	ND	2
Toluene, mg/kg	ND	ND	ND	ND	2
Xylenes, mg/kg	ND	ND	ND	ND	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	ND	0.3
Methylene Chloride, mg/kg	4	ND	3	2	2
MEK, mg/kg	110	62	80	110	50
1-Butanol, mg/kg	ND	ND	ND	ND	500

ND - Not detected at the detection level listed.

cpc/3r

Susan K. Scott
Laboratory Supervisor

B-70

Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue
Pontiac, Michigan 48058

313/334-[illegible]47

Dames & Moore
Attn: Bill Ward

September 7, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158-14

PROGRAM: Soil Samples Beneath Pad

Date Received: 7-27-88

ALD Number:	41799	41800	41801	41802	Detection Limit
Client I.D.:	P-4-5	P-4-6	P-4-7	P-4-8	
Physical Description:	All 100% Soils				
Lead, Pb, mg/kg	18	7.7	7.0	ND	2
Benzene, mg/kg	ND	ND	ND	2	2
Toluene, mg/kg	ND	ND	ND	2	2
Xylenes, mg/kg	ND	ND	ND	ND	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	0.3	0.3
Methylene Chloride, mg/kg	ND	ND	ND	3	2
MEK, mg/kg	65	95	65	120	50
1-Butanol, mg/kg	ND	ND	ND	ND	500

ND - Not detected at the detection level listed.

cpc/4r

Susan K. Scott
Laboratory Supervisor

B-71

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334-47

Dames & Moore
Attn: Bill Ward

August 22, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158

PROGRAM: Soil Samples Beneath Pad

Date Received: 7-29-88

ALD Number:	41978	41979	41986	41987	41990	41994	41995	Detection Limit
Client I.D.:	P-9-1	P-9-2	P-10-1	P-10-2	P-12-1	Dup. VII	Dup. VIII	
Physical Description:	All 100% Soils							
Lead, Pb, mg/kg	18	42	50	34	5.6	7.3	14	2
Benzene, mg/kg	ND	ND	ND	ND	ND	ND	ND	2
Toluene, mg/kg	5	28	19	ND	5	16	20	2
Xylenes, mg/kg	ND	13	63	ND	36	39	100	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	ND	ND	ND	ND	0.3
Methylene Chloride, mg/kg	5	ND	8	68	16	11	12	2
MEK, mg/kg	ND	ND	ND	ND	ND	ND	ND	50
1-Butanol, mg/kg	ND	ND	ND	ND	ND	ND	ND	500

ND - None Detected

cpc/5a

Susan K. Scott
Laboratory Supervisor

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334-[illegible]7

Dames & Moore
Attn: Bill Ward

September 7, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158-14

PROGRAM: Soil Samples Beneath Pad

Date Received: 7-27-88

ALD Number:	41806	41807	41808	41809	Detection Limit
Client I.D.:	P-6-5	P-6-6	P-6-7	P-6-8	
Physical Description:	All 100% Soils				
Lead, Pb, mg/kg	5.9	19	3.1	2.7	2
Benzene, mg/kg	ND	2	2	ND	2
Toluene, mg/kg	ND	ND	ND	ND	2
Xylenes, mg/kg	ND	ND	ND	ND	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	ND	0.3
Methylene Chloride, mg/kg	3	ND	6	6	2
MEK, mg/kg	75	65	90	60	50
1-Butanol, mg/kg	ND	ND	ND	ND	500

ND - Not detected at the detection level listed.

cpc/5r

Susan K. Scott
Laboratory Supervisor

Burman Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/33- 7

Dames & Moore
Attn: Bill Ward

September 7, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158-14

PROGRAM: Soil Samples Beneath Pad

Date Received: 7-28-88

ALD Number:	41893	41894	41895	41896	Detection Limit
Client I.D.:	P-7-3	P-7-6	P-7-7	P-7-8	
Physical Description:	All 100% Soils				
Lead, Pb, mg/kg	2.9	38	ND	4.6	2
Benzene, mg/kg	ND	ND	ND	ND	2
Toluene, mg/kg	ND	ND	ND	ND	2
Xylenes, mg/kg	ND	ND	ND	ND	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	ND	0.3
Methylene Chloride, mg/kg	ND	ND	18	ND	2
MEK, mg/kg	76	90	55	ND	50
1-Butanol, mg/kg	ND	ND	ND	ND	500

ND - Not detected at the detection level listed.

cpc/7r

Susan K. Scott
Laboratory Supervisor

R-73

...ytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334-4.47

Dames & Moore
Attn: Bill Ward

September 7, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158-14

PROGRAM: Soil Samples Beneath Pad

Date Received: 7-28-88

ALD Number:	41906	41907	41908	41909	Detection Limit
Client I.D.:	P-11-5	P-11-6	P-11-7	P-11-8	
Physical Description:	All 100% Soils				
Lead, Pb, mg/kg	7.1	6.5	ND	6.5	2
Benzene, mg/kg	ND	ND	ND	ND	2
Toluene, mg/kg	ND	ND	ND	ND	2
Xylenes, mg/kg	ND	ND	ND	ND	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	ND	0.3
Methylene Chloride, mg/kg	4	3	5	4	2
MEK, mg/kg	83	ND	120	ND	50
1-Butanol, mg/kg	ND	ND	ND	ND	500

ND - Not detected at the detection level listed.

cpc/9r

Susan K. Scott
Laboratory Supervisor

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334-4

Dames & Moore
Attn: Bill Ward

September 7, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158-14

PROGRAM: Soil Samples Beneath Pad

Date Received: 7-29-88

ALD Number:	41982	41983	41984	41985	Detection Limit
Client I.D.:	P-9-5	P-9-6	P-9-7	P-9-8	
Physical Description:	All 100% Soils				
Lead, Pb, mg/kg	180	26	3.1	3.9	2
Benzene, mg/kg	18	5	4	3	2
Toluene, mg/kg	220	230	2	ND	2
Xylenes, mg/kg	600	360	24	ND	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	ND	0.3
Methylene Chloride, mg/kg	78	ND	4	ND	2
MEK, mg/kg	770	150	180	97	50
1-Butanol, mg/kg	ND	ND	ND	ND	500

ND - Not detected at the detection level listed.

cpc/10r

Susan K. Scott
Laboratory Supervisor

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: Lynn Craig

December 22, 1988

Job#: 00299-164

PROJECT: CPC - PHASE II

PROGRAM: Soil Analyses

Date Received: 11-15-88

Samples Dated: 11-7-88

ALD Number:	48435	48436	48437	48438	48439	48440	Detection Limits
Client I.D.:	MW-1-5	MW-1-10	MW-1-15	MW-1-20	MW-1-25	MW-1-30	
Physical Description:	100% Brown Clay	100% Brown Clay	100% Brown Clay	100% Gray Clay	100% Brown Clay	100% Brown Clay	
Lead, Pb, mg/kg	7.4	5.0	4.8	4.0	64	ND	2
Benzene, mg/kg	ND	ND	ND	ND	ND	ND	2
Toluene, mg/kg	ND	ND	ND	ND	ND	ND	2
Xylenes, mg/kg	ND	ND	ND	ND	ND	5	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	ND	ND	ND	2
Methylene Chloride, mg/kg	35	3	3	7	3	30	2
MEK, mg/kg	ND	ND	ND	ND	ND	ND	50
1-Butanol, mg/kg	ND	ND	ND	ND	ND	ND	500

ND - None Detected.

cpc/1r

Dames & Moore
Attn: Lynn Craig

December 22, 1988

PROJECT: CPC - PHASE II

PROGRAM: Soil Analyses

Date Received: 11-15-88

Samples Dated: 11/9-10/88

ALD Number:	48441	48442	48443	48444	48445	48446	Detection Limits
Client I.D.:	MW-2-5	MW-2-10	MW-2-20	MW-2-25	MW-3-5	MW-3-10	
Physical Description:	100% Brown Soil	100% Brown Clay	100% Gray Clay	100% Brown Soil	100% Brown Soil	100% Brown Soil	
Lead, Pb, mg/kg	3.8	4.3	2.2	ND	4.4	3.3	2
Benzene, mg/kg	ND	ND	ND	ND	ND	ND	2
Toluene, mg/kg	ND	ND	ND	ND	ND	15	2
Xylenes, mg/kg	ND	ND	ND	ND	ND	35	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	ND	ND	ND	2
Methylene Chloride, mg/kg	ND	ND	ND	3	10	5	2
MEK, mg/kg	ND	ND	ND	ND	ND	ND	50
1-Butanol, mg/kg	ND	ND	ND	ND	ND	ND	500

ND - None Detected.

cpc/2r

Burman Technical Services, Inc.
Analytical Laboratories Division
406 Auburn Avenue
Pontiac, Michigan 48058
313/... 47

DAMES & MOORE
DEC 30 1988

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: Lynn Craig

December 29, 1988

PROJECT: CPC - PHASE II

PROGRAM: Soil Analyses

Date Received: 11-15-88

Samples Dated: 11/9-10/88

ALD Number:	48447	48448	48449	Detection Limits
Client I.D.:	MW-3-20	MW-3-25	Duplicate I	
Physical Description:	100% Brown Clay	100% Brown Soil	100% Brown Clay	
Lead, Pb, mg/kg	3.0	ND	2.8	2
Benzene, mg/kg	ND	ND	ND	2
Toluene, mg/kg	ND	ND	ND	2
Xylenes, mg/kg	ND	ND	ND	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	2
Methylene Chloride, mg/kg	ND	ND	ND	2
MEK, mg/kg	ND	ND	ND	50
1-Butanol, mg/kg	ND	ND	ND	500

ND - None Detected.

cpc/3r

Christopher P. Peck
Laboratory Manager

B-78

Dames & Moore
Attn: Lynn Craig

December 22, 1988

PROJECT: CPC - PHASE II

PROGRAM: Soil Analyses

Date Received: 11-15-88

Samples Dated: 11-10-88

ALD Number:	48450	48451	Detection Limits
Client I.D.:	MW-2-15	MW-3-15	

B-79

TCLP - Zero Headspace Extraction:

Benzene, ug/l	ND	ND	2
Toluene, ug/l	ND	10	2
Xylenes, ug/l	ND	4	2
1,1,1-Trichloroethane, ug/l	ND	ND	2
Methylene Chloride, ug/l	4	4	2
MEK, ug/l	ND	50	50
1-Butanol, ug/l	ND	ND	500

ND - None Detected.

6 grams of each sample was individually leached into 120 mls of extraction fluid number one, (pH 4.93), for 18 hours under zero headspace conditions.

cpc/4r

Dames & Moore
Attn: Lynn Craig

December 22, 1988

PROJECT: CPC - PHASE II

PROGRAM: Soil Analyses

Date Received: 11-15-88

Samples Dated: 11-10-88

			Detection Limits
ALD Number:	48450	48451	
Client I.D.:	MW-2-15	MW-3-15	
Physical Description:	100% Tan Soil	100% Dk. Gray Clay	
TCLP - Leachate:			
Lead, Pb, mg/l	ND	ND	2

ND - None Detected.

48450: 50 grams of sample was leached into 100 mls of extraction fluid number 2, (pH 2.90). After 18 hours of leaching, final pH was 6.0.

48451: 50 grams of sample was leached into 100 mls of extraction fluid number 1, (pH 4.92). After 18 hours of leaching, final pH was 6.1.

cpc/5r

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: Lynn Craig

December 20, 1988

PROJECT: CPC - PHASE II

PROGRAM: Soil Analyses

Date Received: 11-28-88

ALD Number:	49121	49122	49123	49124	49125	Detection Limits
Client I.D.:	MW-4-5	MW-4-10	MW-4-15	MW-4-20	MW-4-25	
Physical Description:	100% Dk. Brown Soil	100% Brown Clay	100% Brown Clay	100% Brown Clay	100% Brown Clay	
Lead, Pb, mg/kg	28	10	4.8	4.7	10	2
Benzene, mg/kg	ND	ND	ND	ND	ND	2
Toluene, mg/kg	8	ND	ND	ND	ND	2
Xylenes, mg/kg	40	ND	ND	ND	ND	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	ND	ND	2
Methylene Chloride, mg/kg	ND	ND	ND	ND	ND	2
MEK, mg/kg	ND	ND	ND	ND	ND	50
1-Butanol, mg/kg	ND	ND	ND	ND	ND	500

cpc/1r

Christopher P. Jett
Laboratory Manager

Burmah
Burmah Technical Services, Inc.
Analytical Laboratories Division
406 Auburn Avenue
Pontiac, Michigan 48058
313/334-4

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: Lynn Craig

December 20, 1988

PROJECT: CPC - PHASE II

PROGRAM: Soil Analyses

Date Received: 11-29-88

Samples Dated: 11-29-88

ALD Number:	49126	49127	49128	49129	49130	
Client I.D.:	MW-5-5	MW-5-10	MW-5-15	MW-5-20	MW-5-25	
Physical Description:	100% Black/ Brown Soil	100% Black Soil	100% Black Soil	100% Black Clay	100% Brown Soil	
						Detection Limits
Lead, Pb, mg/kg	ND	5.8	27	4.0	ND	2
Benzene, mg/kg	ND	ND	20	ND	ND	2
Toluene, mg/kg	ND	ND	10	ND	ND	2
Xylenes, mg/kg	5	ND	6	4	ND	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	ND	ND	2
Methylene Chloride, mg/kg	ND	ND	ND	ND	ND	2
MEK, mg/kg	ND	ND	ND	ND	ND	50
1-Butanol, mg/kg	ND	ND	ND	ND	ND	500

cpc/2r

Christopher P. Jack
Laboratory Manager

Burmah

Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue
Pontiac, Michigan 48058

313-334-4747

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: Lynn Craig

March 6, 1989

DAMES & MOORE
1989

Date Received: 11-18-88

ALD Number:	48722
Client I.D.:	MW-1 11-18-88
Lead, Pb, mg/l	<0.05
Benzene, ug/l	<2
Toluene, ug/l	<2
Xylenes, ug/l	<2
1-Butanol, ug/l	<500
Methyl Ethyl Ketone, ug/l	<50
Methylene Chloride, ug/l	<2
1,1,1-Trichloroethene, ug/l	<2

Orig. Date: 12/13/88

Misc/lr

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: Lynn Craig

December 21, 1988

PROJECT: CPC - PHASE II

PROGRAM: Water Analyses

Date Received: 11-17-88

Samples Dated: 11-17-88

ALD Number:	48573	48574	
Client I.D.:	MW-2	MW-3	
			Detection Limits
Lead, Pb, mg/l	ND	0.11	0.05
Benzene, ug/l	4	9	2
Toluene, ug/l	ND	20	2
Xylenes, ug/l	3	ND	2
1,1,1-Trichloroethane, ug/l	ND	ND	2
Methylene Chloride, ug/l	ND	ND	2
MEK, ug/l	ND	ND	50
1-Butanol, ug/l	ND	ND	500

cpc/3r

Christopher P. Frank
Laboratory Manager

Burmah

Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue
Pontiac, Michigan 48058

313-334-4747

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: Lynn Craig

December 21, 1988

PROGRAM: CPC PHASE II

Date Received: 11-21-88
ALD Number: 48818
Client I.D.: MW-3A

Aluminum, Al, mg/l	0.86
Arsenic, As, mg/l	0.009
Barium, Ba, mg/l	0.10
Cadmium, Cd, mg/l	<0.01
Calcium, Ca, mg/l	63
Chromium, Cr, mg/l	<0.02
Copper, Cu, mg/l	<0.02
Iron, Fe, mg/l	3.6
Magnesium, Mg, mg/l	10
Mercury, Hg, mg/l	<0.0005
Nickel, Ni, mg/l	0.03
Silver, Ag, mg/l	<0.02
Zinc, Zn, mg/l	0.07

Christopher P. Gale
Laboratory Manager

cpc.II/1a

DAMES & MOORE
1989

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: Lynn Craig

January 5, 1989

Amended Report

PROJECT: CPC - PHASE II

PROGRAM: Water Analyses

Date Received: 12-1-88

Samples Dated: 12-1-88

ALD Number:	49220	49221	Detection Limits
Client I.D.:	MW-4	MW-5	
Physical Description:			
Lead, Pb, mg/l	ND	ND	0.05
Benzene, ug/l	ND	ND	2
Toluene, ug/l	ND	ND	2
Xylenes, ug/l	ND	3	2
1,1,1-Trichloroethane, ug/l	ND	ND	2
Methylene Chloride, ug/l	ND	ND	2
MEK, ug/l	ND	ND	50
1-Butanol, ug/l	ND	ND	500

Orig. Date: 12-21-88

cpc/4r

Christopher P. Grek
Laboratory Manager

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334-4

DAMES & MOORE
AUG 23 1988

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: Bill Ward

August 22, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158

PROGRAM: Concrete Core Samples

Date Received: 7-27-88

ALD Number:	41842	41843	41844	41845	41846	41847	Detection Limit
Client I.D.:	#1	#2	#3	#4	#5	#6	
Physical Description:	All 100% Concrete Chunks						
Lead, Pb, mg/kg	2.5	ND	3.5	4.7	4.5	3.0	2
Benzene, mg/kg	ND	ND	ND	ND	ND	ND	2
Toluene, mg/kg	ND	ND	ND	ND	ND	ND	2
Xylenes, mg/kg	ND	ND	ND	ND	ND	ND	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	ND	ND	ND	0.3
Methylene Chloride, mg/kg	ND	ND	ND	ND	ND	ND	2
MEK, mg/kg	ND	ND	ND	ND	ND	ND	50
1-Butanol, mg/kg	ND	ND	ND	ND	ND	ND	500

ND - None Detected

cpc/la

Susan K. Scott
Laboratory Supervisor

R-87

Burman Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334-

Dames & Moore
Attn: Bill Ward

August 22, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158

PROGRAM: Concrete Core Samples

Date Received: 7-28-88

ALD Number:	41848	41849	41850	41851	41852	41853	Detection Limit
Client I.D.:	#7	#8	#9	#10	#11	#12	
Physical Description:	All 100% Concrete Chunks						
Lead, Pb, mg/kg	2.4	ND	ND	4.9	3.9	4.3	2
Benzene, mg/kg	ND	ND	ND	ND	ND	ND	2
Toluene, mg/kg	ND	ND	ND	ND	ND	ND	2
Xylenes, mg/kg	ND	ND	ND	ND	ND	ND	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	ND	ND	ND	0.3
Methylene Chloride, mg/kg	ND	ND	ND	ND	ND	5	2
MEK, mg/kg	ND	ND	ND	ND	ND	ND	50
1-Butanol, mg/kg	ND	ND	ND	ND	ND	ND	500

ND - None Detected

cpc/2a

Susan K. Scott
Laboratory Supervisor

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334-4

Dames & Moore
Attn: Bill Ward

August 24, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158-14

PROGRAM: Concrete Fissure

Date Received: 7-28-88

ALD Number:	41871
Client I.D.:	#2
Lead, Pb, mg/kg (1)	24
Benzene, ug/cm² (2)	<0.2
Toluene, ug/cm² (2)	3.6
Xylenes, ug/cm² (2)	1.9
1,1,1-Trichloroethane, ug/cm² (2)	0.3
Methylene Chloride, ug/cm² (2)	2.2
MEK, ug/cm² (2)	<0.2
1-Butanol, ug/cm² (2)	<0.2

(1) As received, for entire sample
(2) Analysis of surface of concrete fissure to 1/4" depth

Susan K. Scott
Laboratory Supervisor

cpc4k

Burmah

Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue
Pontiac, Michigan 48058

313-334-4747

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: William Ward

July 12, 1988

PROGRAM: CPC PONTIAC

Date Received: 7-11-88

ALD Number:	40826	40827
Client I.D.:	BKGD 7-11-88	W-1 7-11-88
Total Lead, Pb, mg/wipe	<0.05	0.20
Volatile Organic Analysis, ug/wipe	ND	ND

ND - No Compounds Detected.

Please see attached sheet for additional notes, detection limits, and complete listing of compounds included in the volatile organic analysis.

Cpc/1L

Susan K. Scott

Laboratory Supervisor

Burmah

Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue
Pontiac, Michigan 48058

313-334-4747

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: William Ward

July 14, 1988

PROGRAM: CPC - PONTIAC

Date Received: 7-13-88

ALD Number:	40954	40955
Client I.D.:	W-2	W-2A
Lead, Pb, mg/wipe	ND	ND

ND - None Detected. Method detection level - 0.05 mg/wipe.

Q/3c

Susan K. Scott
Laboratory Supervisor

Burmah

Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue
Pontiac, Michigan 48058

313-334-4747

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: William Ward

July 26, 1988

PROGRAM: CPC - PONTIAC

Date Received: 7-14-88

ALD Number:	41006	41007
Client I.D.:	W-3 7-14-88	W-3A 7-14-88
Lead, Pb, mg/wipe	ND	ND

ND - None Detected. Method detection level - 0.05 mg/wipe.

Q/7L

Susan K. Scott
Laboratory Supervisor

Burmah

Dames & Moore
Attn: William Ward

July 26, 1988

PROGRAM: CPC - PONTIAC

Date Received: 7-14-88

ALD Number:	41008	41009
Client I.D.:	W-4 7-14-88	W-4A 7-14-88
Lead, Pb, mg/wipe	ND	ND

ND - None Detected. Method detection level - 0.05 mg/wipe.

Q/8L

Susan K. Scott
Laboratory Supervisor

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313-334-4747

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: William Ward

July 21, 1988

DAMES & MOORE
JUL 25 1988

PROGRAM: CPC PONTIAC

Date Received: 7-14-88

ALD Number:	41013	41015
Client I.D.:	5-A 7-14-88	6-A 7-14-88
Total Lead, Pb, mg/wipe	0.10	ND

ND - None Detected. Method detection level - 0.05 mg/wipe.

Cpc/4L

Susan K. Scott
Laboratory Supervisor

Burmah

Dames & Moore
Attn: William Ward

July 21, 1988

PROGRAM: CPC PONTIAC

Date Received: 7-14-88

ALD Number:	41014	41016
Client I.D.:	5-B 7-14-88	6-B 7-14-88
Volatile Organic Analysis, ug/wipe	ND	ND

ND - None Detected. Method detection level - 10 ug/wipe.

Please see attached sheet for additional notes, detection limits, and complete listing of compounds included in the volatile organic analysis.

Susan K. Scott
Laboratory Supervisor

Cpc/5L

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334-4741

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: Bill Ward

August 24, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158-14

PROGRAM: Wipe Sample

Date Received: 7-20-88

ALD Numbers:	41308
Client I.D.:	Y-1 7-20-88

As Received:

Lead, Pb, mg/wipe	ND

ND-Not detected at the detection level of 0.05 mg/wipe.

cpc/7k

Susan K. Scott
Laboratory Supervisor

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334-47

August 24, 1988

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: Bill Ward

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158-14

PROGRAM: Wipe Sample

Date Received: 7-20-88

ALD Numbers:	41309
Client I.D.:	Y-1b
B-97	7-20-88
Volatile Organic Analysis, ug/wipe	ND

ND-No Compounds Detected.

Please see attached sheet for additional notes, detection limits, and complete listing of compounds included in the volatile organic analysis.

cpc/8k

Susan K. Scott
Laboratory Supervisor

Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue
Pontiac, Michigan 48058

313/334-

Dames & Moore
Attn: Bill Ward

August 22, 1988

PROJECT: CPC PONTIAC - PAD CLOSURE

Job#: 00299-158

PROGRAM: Soil Samples Beneath Pad

Date Received: 7-28-88

ALD Number:	41898	41902	41903	41910	41911	Detection Limit
Client I.D.:	P-8-2	P-11-1	P-11-2	Dup. V	Dup. VI	
Physical Description:	All 100% Soils					
Lead, Pb, mg/kg	4.4	12	60	1800	130	2
Benzene, mg/kg	ND	ND	ND	ND	ND	2
Toluene, mg/kg	ND	ND	ND	ND	ND	2
Xylenes, mg/kg	ND	ND	ND	ND	ND	2
1,1,1-Trichloroethane, mg/kg	ND	ND	ND	ND	ND	0.3
Methylene Chloride, mg/kg	3	ND	ND	4	ND	2
MEK, mg/kg	ND	ND	ND	ND	ND	50
1-Butanol, mg/kg	ND	ND	ND	ND	ND	500

ND - None Detected

cpc/4a

Susan K. Scott
Laboratory Supervisor

Burmah

Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue
Pontiac, Michigan 48058

313-334-4747

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: William Ward

July 25, 1988

PROGRAM: CPC - PONTIAC

Date Received: 7-19-88

ALD Number:	41169	41170	
Client I.D.:	R-1 7-19-88	R-2 7-19-88	
			Detection Limits
Lead, Pb, mg/l	ND	ND	2
Xylenes, ug/l	39	ND	2
Methylene Chloride, ug/l	ND	ND	2
1-Butanol, ug/	ND	ND	500
Benzene, ug/l	ND	ND	2
1,1,1-Trichloroethane, ug/l	ND	ND	0.3
MEK, ug/l	ND	ND	50
Toluene, ug/l	12	ND	2

ND - None Detected.

Cpc/9L

Susan K. Scott
Laboratory Supervisor

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313-334-4747

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: William Ward

July 27, 1988

PROGRAM: CPC - PONTIAC

Date Received: 7-19-88

ALD Number:	41171
Client I.D.:	EW-1 7-19-88
Lead, Pb, mg/wipe	ND

ND - None Detected. Detection Level is 0.05 mg/wipe.

Cpc/10r

Susan K. Scott
Laboratory Supervisor

Burmah

August 1, 1988

Dames & Moore
Attn: William Ward

PROGRAM: CPC - PONTIAC

Date Received: 7-19-88

ALD Number:	41172
Client I.D.:	EW-2 7-19-88

Xylenes, ug/wipe	ND
Methylene Chloride, ug/wipe	16
1-Butanol, ug/wipe	ND
Benzene, ug/wipe	ND
1,1,1-Trichloroethane, ug/wipe	ND
MEK, ug/wipe	ND
Toluene, ug/wipe	ND

ND - None Detected. Detection Level is 10 ug/wipe.

Cpc/11L

Susan K. Scott
Laboratory Supervisor

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313-334-4747

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: William Ward

August 8, 1988

PROGRAM: CPC - PONTIAC

Date Received: 7-25-88

ALD Number:	41621	41622	41623	
Client I.D.: Rinsate	Sewer 7-25-88	Pad 7-25-88	H.W. Bldg 7-25-88	Detection Limits
Lead, Pb, mg/l	0.07	<0.05	<0.05	0.05
Benzene, ug/l	14	<2	<2	2
1-Butanol, ug/l	<500	<500	<500	500
MEK, ug/l	<50	<5	<5	5
Methylene Chloride, ug/l	70	4	4	2
1,1,1-Trichloroethane, ug/l	210	1	<0.3	0.03
Toluene, ug/l	1400	22	2	2
Xylenes, ug/l	160	14	<2	2

DAMES & MOORE
AUG 12 1988

Cpc/3L

Susan K. Scott
Laboratory Supervisor

Duplicate

DAMES & MOORE CHAIN-OF-CUSTODY RECORD

Sample Source & Client: DAMES + MOORE, Pontiac MI

Field Personnel (Signature): Lynn Craig

Project Title: CPC

Job No. 06299-158-14

Date	Time	Sample I.D. No.	Sample Type	No. of Containers	Sampling Site	Remarks
7/25/88		BK-1-1 X	SOIL	2	BACKGROUND	BLUE DOT ⇒ VOLATILES
		" - 2 X				PLAIN ⇒ Pb
		" - 3 X				*No VOA sample for BK-1-1
		" - 4 X				
		" - 5 X				
		" - 6				
		" - 7				
		" - 8				
		DUPLICATE X				
		BK-2-1 X				
		" - 2 X				
		" - 3 X				
		" - 4 X				
		" - 5 X				
		" - 6				XX HOLD REMAINING SAMPLES

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
L Craig			M.G. Hyer	7/25							
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

DAMES & MOORE CHAIN-OF-CUSTODY RECORD

Sample Source & Client: DAMES + MOORE, Pontiac MI

Project Title: CPC

Job No. 00299-158

Field Personnel (Signature): J. Craig

Date	Time	Sample I.D. No.	Sample Type	No. of Containers	Sampling Site	Remarks
7/25/88		BK-2-7	SOIL	2	BKGD	BLUE DOT ⇒ VOLATILES
		" -8				PLAIN ⇒ Pb
		BK-3-1X				
		" -2X				
		" -3X				
		" -4 Y				
		" -5 X				
		" -6				
		" -7				
		" -8				*No Pb sample for BK-3-8
		DUPLICATE X				
						XX HOLD REMAINING SAMPLES

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
J. Craig			M.C. Hyp	7/25							
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

DAMES & MOORE CHAIN-OF-CUSTODY RECORD

Sample Source & Client: DAMES + MOORE, Pontiac MI

Field Personnel (Signature): L. Craig

Project Title: CPC

Job No. 00299-158-14

Date	Time	Sample I.D. No.	Sample Type	No. of Containers	Sampling Site	Remarks
7/26/88		BK-4-1	SOIL	2	BKGD	Blue Hdpe 1-gal Volatiles
		" - 2		2		
		" - 3		2		I Background
		" - 4		2		
		" - 5		2		
		P-1-1"		2	SECTION 1	
		P-1-2		2	"	Soil Samples
		P-2-1		2	SECTION 2	beneath pad
		P-2-2		2	"	
						* Hold remaining
						Samples

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
L. Craig	7/26/88			7/26/88							
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

DAMES & MOORE CHAIN-OF-CUSTODY RECORD

Sample Source & Client: DAMES + MOORE, Pontiac MI

Project Title: CPC

Job No. 00249-158-14

Field Personnel (Signature): Lynn Craig

Date	Time	Sample I.D. No.	Sample Type	No. of Containers	Sampling Site	Remarks
7/27/88		P-3-1	SOIL	2		For Samples beneath Concrete pad
		P-3-2		2		
		P-4-1		2		
		P-4-2		2		
		P-6-1		2		
		P-6-2		2		
		DUPLICATE*		2		
		* HOLD REMAINING SAMPLES				

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
L Craig	7/27/88	4:05	M. G. Hyp	7/27/88							
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

DAMES & MOORE CHAIN-OF-CUSTODY RECORD

Sample Source & Client: DAMES + MOORE

Field Personnel (Signature): Lynn Craig

Project Title: CPC

Job No.: 00299-158

Date	Time	Sample I.D. No.	Sample Type	No. of Containers	Sampling Site	Remarks
7/29/88		P-9-1	SOIL	2		Soil Samples beneath pad
		P-9-2				
		P-10-1				
		P-10-2				
		P-12-1				
		DUP. VII				
		DUP. VIII				

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
L Craig	7/29/88		M.G. Hoyer	7/29							
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

DAMES & MOORE CHAIN-OF-CUSTODY RECORD

Sample Source & Client: DAMES + MOORE, Paramus NJ

Project Title: CPC

Job No.: 00299-158

Field Personnel (Signature): Tyson Craig

Date	Time	Sample I.D. No.	Sample Type	No. of Containers	Sampling Site	Remarks
7/28/88		P-5-1	Soil	2	H.W. Pad	Soil samples beneath pad
		" - 2				
		P-7-1				
		P-7-2				
		P-11-1				
		P-11-2				
		P-8-1				
		P-8-2				
		DUPLICATE II				* Hold remaining samples
		DUPLICATE VI				

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
T. Craig			M. A. Flynn	7/28/88							
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

Burmah

Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue, Pontiac, Michigan 58 ☐
700 S. Flower St., Burbank, CA 91502 ☐
☐

CHAIN OF CUSTODY

Client: DAMES & MOORE

Address: _____

_____

_____

Contact person: LYNN

Phone # _____

PO # _____

Project: PAD CLOSURE CPC PONTIAC

Special Handling Request

☐ Rush SURCHARGE MAY APPLY

☐ Verbal

☐ Other

Sample ID	Date	Time	Grab	Comp	No. of Containers	Waste Type	Preservation	Analysis request
CORE #1								
CORE #2								
CORE #3								
CORE #4								
CORE #5								
CORE #6								

B-108

Collected by: SCHLEEDE - HAMPTON AREA 7/27

Received by: Date Time

Received by: Date Time

Received for laboratory by: M. C. Hyp Date 8/27 Time

Final disposition:

Delivery by: ANDREW Date Time

Relinquished by: Date Time

Relinquished by: Date Time

Comments (Precautions/hazards)

AL-6

Burmah
Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue, Pontiac, Michigan 48056 ☐
700 S. Flower St., Burbank, CA 91502 ☐
☐

CHAIN OF CUSTODY

Client: Dames & Moore
Address: _____

Contact person: Lynn
Phone # _____
PO # _____
Project: _____

Special Handling Request
☐ Rush SURCHARGE MAY APPLY
☐ Verbal
☐ Other

Sample ID	Date	Time	Grab	Comp	No. of Containers	Waste Type	Preservation	Analysis request
7	7/28							
8								
9								
10								
11								
12								

Collected by: J IWANICKI 7/27/88 8:00-3:00
Received by: Date Time
Received by: Date Time
Received for laboratory by: M.A. Hyp Date 7/28 Time
Final disposition:

Delivery by: J IWANICKI Date 7/28/88 Time 11:00
Relinquished by: Date Time
Relinquished by: Date Time
Comments (Precautions/hazards)

AL-6

DAMES & MOORE CHAIN-OF-CUSTODY RECORD

Sample Source & Client: DAMES + MOORE

Field Personnel (Signature): Lynn Craig

Project Title: CRC - Pontiac

Job No.:

Date	Time	Sample I.D. No.	Sample Type	No. of Containers	Sampling Site	Remarks
7/11/88		BKGD	WIPE	2	WALL NEAR PAD	Pb, Volatiles
7/11/88		W-1	WIPE	2	Center of S. End of Pad	Pb, Volatiles

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Lynn Craig	7/11/88		M. G. Hyn	7/11							
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

Burmah

Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue, Pontiac, Michigan 48058 ☐
700 S. Flower St., Burbank, CA 91502 ☐
☐

CHAIN OF CUSTODY

Client: DAMES + MOORE
Address: _____

Contact person: L. Craig B. Ward
Phone # 489-0770
PO # _____
Project: CPC - Pontiac

Special Handling Request
☐ Rush SURCHARGE MAY APPLY
☐ Verbal
☐ Other

Sample ID	Date	Time	Grab	Comp	No. of Containers	Waste Type	Preservation	Analysis request
W-2					1	Wipe		Pb (D.I.)
W-2A					1	"		Pb (Nitric)

B-111

Collected by: Lynn Craig 7/13/88 5:00 pm
Delivery by: Lynn Craig Date 7/13/88 Time

Received by: Kenneth Lewis Date 7/13/88 Time 5:00 pm
Relinquished by: Date Time

Received by: Date Time
Relinquished by: Date Time

Received for laboratory by: M. La Hyge Date 7/13 Time
Final disposition:

Comments (Precautions/hazards)
Sample location sketch on back (over)

AL-6

Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue, Pontiac, Michigan 48
700 S. Flower St., Burbank, CA 91502

CHAIN OF CUSTODY

Client: Dames & Moore
Address:

Contact person: L. Craig or B. Ward
Phone # 489-0770
PO #
Project: CPC-Pontiac

Special Handling Request
☑ Rush SURCHARGE MAY APPLY
☐ Verbal
☐ Other

Sample ID	Date	Time	Grab	Comp	No. of Containers	Waste Type	Preservation	Analysis request
W-3	7/14/88	1515	✓		1		DI	VOA Samples of Concrete
W-3a	"	1515	✓		1		HNO_3	" " " "
W-4	"	"	✓		1		DI	" " " "
W-4a	"	"	✓		1		HNO_3	" " " "

Collected by: (WARD) 14 July 1988 1515

Delivery by: Date 14 July 1988 Time 1550

Received by: Date Time

Relinquished by: Date Time

Received by: Date Time

Relinquished by: Date Time

Received for laboratory by: M.G. Hogan Date 7/14 Time

Final disposition:

Comments (Precautions/hazards)
[redacted] VOA

AL-6

Burmah
Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue, Pontiac, Michigan 48058 ☐
700 S. Flower St., Burbank, CA 91502 ☐
☐

CHAIN OF CUSTODY

Client: Parsons - Monroe
Address:

Contact person: Tom Craig / Bill Ward
Phone # 489-0770
PO #
Project:

Special Handling Request
☐ Rush SURCHARGE MAY APPLY
☐ Verbal
☐ Other

Sample ID	Date	Time	Grab	Comp	No. of Containers	Waste Type	Preservation	Analysis request
W-5a	7/14/88	1610	✓		1		HNO_3	- Pb Benzene Levels
W-5b	"	"	✓		1		CH_3OH	Lead Scan
W-6a	"	"	✓		1		HNO_3	- Pb
W-6b	"	"	✓		1		CH_3OH	- Lead Scan " "

Collected by: W. WARD — 1/4 Safety Office — 1610 hrs

Delivery by: Shipment — 1/4 Safety Office — 1610 hrs

Received by:	Date	Time	Relinquished by:	Date	Time
Received by:	Date	Time	Relinquished by:	Date	Time
Received for laboratory by: Eric G. Hyppa	Date 7/14	Time	Comments (Precautions/hazards)		
Final disposition:			W-5 -- Center of Slab Located 20' N of ~~Access~~ N Bldg wall @ Center of wall		
			W-6 -- Top of wall @ Salvage Dock, ~2" Dia of Last hand rail post		
			x-ing road		

AL-6

Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue, Pontiac, Michigan 48
700 S. Flower St., Burbank, CA 9150

CHAIN OF CUSTODY

nt: Dames & Moore
ress:

Contact person: L. Craig / B. Ward
Phone # 489-6770
PO #
Project: CPC-Pontiac

Special Handling Request
☒ Rush SURCHARGE MAY APPLY
☐ Verbal
☐ Other

Sample ID	Date	Time	Grab	Comp	No. of Containers	Waste Type	Preservation	Analysis request
...ple Y-1	7/20/88	1715	✓		1	Wipe	DI Extract	Lead-Gas Receiv
...ple Y-1b	"	"	✓		1	"	Methanol	VOA scan

...ded by: L. Ward 20 July 88 1715
...eived by: Date Time
...eived by: Date Time
...eived for laboratory by: Karen Mottin Date 7/20/88 Time 17:35
...al disposition:

Delivery by: L. Ward Date 20 July 88 Time 1735
Relinquished by: Date Time
Relinquished by: Date Time

Comments (Precautions/hazards)

Could we please have results by noon tomorrow?
I thank you very much!

AL-6

Burmah

Burmah Technical Services, Inc.
Analytical Laboratories Division

5 Days

408 Auburn Avenue, Pontiac, Michigan 48058 ☐
700 S. Flower St., Burbank, CA 91502 ☐
☐

CHAIN OF CUSTODY

Client: DAMES + MOORE
Address:

Contact person: L Gray / B. Ward
Phone # 489-0700
PO #
Project: CRC - Pontiac

Special Handling Request
☐ Rush SURCHARGE MAY APPLY
☐ Verbal
☐ Other

AL# 41171

	Date	Time	Grab	Comp	No. of Containers	Waste Type	Preservation	Analysis request
EW-1	7/19/88		✓		1	Wipe	DI	Pb] Equipment
EW-2	"		✓		1	"		VOC] Wipe samples

AL# 41172

Collected by: L Gray 7/19/88
Delivery by: L Gray 7/19/88

Received by: Date Time
Relinquished by: Date Time

Received by: Date Time
Relinquished by: Date Time

Received for laboratory by: M.C. Hyp Date 7/19 Time
Final disposition:

Comments (Precautions/hazards)

AL-6

Burmah
Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue, Pontiac, Michigan 48
700 S. Flower St., Burbank, CA 91502

CHAIN OF CUSTODY

Client: DAMES & MOORE
Address:

Contact person: B. Ward / L. Craig
Phone # 485-0726
PO #
Project: CPC

Special Handling Request
- ☐ Rush SURCHARGE MAY APPLY
- ☐ Verbal
- ☐ Other

Sample ID	Date	Time	Grab	Comp	No. of Containers	Waste Type	Preservation	Analysis request
SEWER	7/25/88		✓		1	H_2O	N/A	VOA
"	"		✓		1	"	HNO_3	Pb
PAD	"		✓		1	"	N/A	VOA
"	"		✓		1	"	HNO_3	Pb
H.W. BLDG	"		✓		1	"	N/A	VOA
"	✓		✓		1	"	HNO_3	Pb

Collected by: L Craig — Date: 7/25/88 — Time:
Received by: — Date: — Time:
Received by: — Date: — Time:
Received for laboratory by: M. G. Hyp — Date: 7/25 — Time:
Final disposition:

Delivery by: L Craig — Date: 7/25/88 — Time:
Relinquished by: — Date: — Time:
Relinquished by: — Date: — Time:
Comments (Precautions/hazards)

AL-6

Burmah **Burmah Technical Services, Inc.**
Analytical Laboratories Division

ASAP

408 Auburn Avenue, Pontiac, Michigan 48058 ☒
700 S. Flower St., Burbank, CA 91502 ☐
☐

CHAIN OF CUSTODY

Client: DAMES + MOORE
Address:

Contact person: L Craig / B. Ward
Phone # 489-0790
PO #
Project: GPC Pontiac

Special Handling Request
☐ Rush (CHARGE MAY APPLY)
☐ Verbal
☐ Other

AL# 41169

	Date	Time	Grab	Comp	No. of Containers	Waste Type	Preservation	Analysis request
R-1	7/19/88		✓		2	H_2O	N/A	VOC
R-1	"		✓		1	"	HNO_3	Pb
R-2	"		✓		2	"	N/A	VOC
R-2	"		✓		1	"	HNO_3	Pb
AL# 41170								

Rinsate Samples

R-117

Collected by: L Craig 7/19/88
Received by: Date Time
Received by: Date Time
Received for laboratory by: M. G. Hoppe Date 7/19 Time
Final disposition:

Delivery by: L Craig Date Time
Relinquished by: Date Time
Relinquished by: Date Time
Comments (Precautions/hazards)

AL-6

Burmah

Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue, Pontiac, Michigan 58 ☐
700 S. Flower St., Burbank, CA 9[illegible]02 ☐
☐

CHAIN OF CUSTODY

Client: Dames + Moore
Address:

Contact person: Lynn Craig
Phone # 485-0770
PO #
Project: CPC - Phase II

Special Handling Request
☐ Rush
☐ Verbal SURCHARGE MAY APPLY
☐ Other

Sample ID	Date	Time	Grab	Comp	No. of Containers	Waste Type	Preservation	Analysis request
MW-4	12/1/88				3	H_2O		Lead, Benzene, Toluene, Xylene, T-Butanol MEK, Meth. Chloride, 1,1,1-Trichloroethane
MW-5	"				3	H_2O		

Collected by: Lynn Craig 12/1/88

Received by: Date Time

Received by: Date Time

Received for laboratory by: Date Time

Final disposition:

Delivery by: Date Time

Relinquished by: Date Time

Relinquished by: Date Time

Comments (Precautions/hazards)

AL-6

Burmah
Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue, Pontiac, Michigan 48[illegible]
700 S. Flower St., Burbank, CA 91502

CHAIN OF CUSTODY

Client: DAMES + MOORE
Address: 34405 W 12 Mile Rd
Farmington Hills, MI

Contact person: LYNN CRAIG
Phone # 489-0770
PO #
Project: CPC - Phase II

Special Handling Request
- ☐ Rush SURCHARGE MAY APPLY
- ☐ Verbal
- ☐ Other

Sample ID	Date	Time	Grab	Comp	No. of Containers	Waste Type	Preservation	Analysis request
MW-2	11/17/88				3	H_2O		Total lead, Benzene, Toluene, Xylene, 1-Butanol, MEK, Methylene Chloride, 1,1,1-Trichloroethane
MW-3	"				3	H_2O		

Collected by: Lynn Craig 11/17/88
Received by: Steve Cermak Date 11/17/88 Time
Received by: Date Time
Received for laboratory by Date Time
Final disposition:

Delivery by: Date Time
Relinquished by: Date Time
Relinquished by: Date Time
Comments (Precautions/hazards)

AL-6

Burmah
Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue, Pontiac, Michigan 48058 ☐
700 S. Flower St., Burbank, CA 91502 ☐
☐

CHAIN OF CUSTODY

Client: Dames + Moore
Address: _____

Contact person: Lynn Craig
Phone # _____
PO # _____
Project: _____

Special Handling Request
☐ Rush SURCHARGE MAY APPLY
☐ Verbal
☐ Other

Sample ID	Date	Time	Grab	Comp	No. of Containers	Waste Type	Preservation	Analysis request
MW-3	11/18/88				2	H_2O		Lead, Benzene, Toluene, Xylene, ~~1-Butanol, MEK, Methylene~~ Chloride, 1,1,1-Trichloroethe...

Collected by: Lynn Craig 11/18/88
Received by: Date Time
Received by: Date Time
Received for laboratory by: M. G. Boyd Date 11/18/88 Time
Final disposition:

Delivery by: Date Time
Relinquished by: Date Time
Relinquished by: Date Time
Comments (Precautions/hazards)

AL-6

Burmah
Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue, Pontiac, Michigan 48058 ☐
700 S. Flower St., Burbank, CA 91502 ☐
☐

CHAIN OF CUSTODY

Client: Dames + Moore
Address:

Contact person: L. Craig
Phone # 489-0770
PO #
Project: CPC - Phase II

Special Handling Request
☐ Rush SURCHARGE MAY APPLY
☐ Verbal
☐ Other

Sample ID	Date	Time	Grab	Comp	No. of Containers	Waste Type	Preservation	Analysis request
MW-3A	11/21/08		✓		1	H_2O		Ca, Fe, Mg, Cr-Total, Cu, Ni, Al, As, Ba, Cd, Hg, Ag, Zn. All metals are to be run as total metals

Collected by: Lynn Craig 11/21/08
Received by: Date Time
Received by: Date Time
Received for laboratory by: Date Time
Final disposition:

Delivery by: Date Time
Relinquished by: Date Time
Relinquished by: Date Time
Comments (Precautions/hazards)

R-121

AL-6

No.

CHAIN OF CUSTODY RECORD

Project No.: [illegible] | Project Name: [illegible] Phase II

Samplers: (signature) [signature]

Sta No.	Date	Time	Comp	Grab	Station Location	Number of Containers	Remarks
MW-1-S	11/6		✓		MW-1	2	
MW-1-M	"		✓		↓	2	
MW-1-MS	"		✓			2	
MW-1-MD	"		✓			2	
MW-1-D	"		✓			2	
MW-1-DS	"		✓			2	

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
[signature]	11/7/88		
Relinquished by: (signature)	Date/Time	Received for Laboratory by: (signature)	Date/Time
		[signature]	11/7 4:00

Remarks: HOLD SAMPLES UNTIL FURTHER NOTICE ↑LV

Distribution: Original accompanies shipment; Copy to: Field Files

Dames & Moore

NO

CHAIN OF CUSTODY RECORD

Project No.: 87220.21

Project Name: [illegible]

Samples: (signature)

Sta. No.	Date	Time	Comp	Grab	Station Location	Number of Containers	Remarks
MW-2-5				✓		1	[illegible] ORTHER
MW-2-10				✓		2	NOTICE
MW-2-15				✓		2	
MW-2-20				✓		2	
MW-2-25				✓		2	
DUPLICATE I				✓		2	

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time	Remarks:
Lynn Craig	11/9/88 4:00pm			
Relinquished by: (signature)	Date/Time	Received for Laboratory by: (signature)	Date/Time	
			11/9 4:00	

Distribution: Original accompanies shipment; Copy to: Field Files

Dames & Moo

NO.

CHAIN OF CUSTODY RECORD

Project No.: 00299-164 | Project Name: CPC Phase II

Samplers: (signature)

Sta. No	Date	Time	Comp	Grab	Station Location	Number of Containers	Remarks
MW-3-5						2	
MW-3-10						2	HOLD UNTIL FURTHER
MW-3-15						2	NOTICE -
MW-3-20						2	
MW-3-25						2	PLEASE REFRIGERATE

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
[signature]	11/.../88 | 5:10pm		
Relinquished by: (signature)	Date/Time	Received for Laboratory by: (signature)	Date/Time
		[signature]	11/10 | 5:10

Remarks:

Distribution: Original accompanies shipment; Copy to: Field Files

Dames & Moore

Burmah

Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue, Pontiac, Michigan 48[illegible] ☐
700 S. Flower St., Burbank, CA 91502 ☐
☐

CHAIN OF CUSTODY

lient: Dames + Moore
ddress:

Contact person: LYNN CRAIG
Phone # 489-0770
PO #
Project: CPC - Phase II

Special Handling Request
☐ Rush SURCHARGE MAY APPLY
☐ Verbal
☐ Other

Sample ID	Date	Time	Grab	Comp	No. of Containers	Waste Type	Preservation	Analysis request
IW-4-5	11/28/88		✓		2	Soil		Lead, Benzene, Xylene, Toluene, MEK, 1-Butanol, Methylene chloride, 1,1,1 Trichloroethane
IW-4-10	"		✓		2	"		
IW-4-15	"		✓		2	"		
IW-4-20	"		✓		2	"		
IW-4-25	"		✓		2	"		

ollected by: Lynn Craig 11/28/88
eceived by: Date Time
eceived by: Date Time
eceived for laboratory by: Date Time
M G. Hyg 11/28/88
inal disposition:

Delivery by: Date Time
Relinquished by: Date Time
Relinquished by: Date Time
Comments (Precautions/hazards)

AL-6

Burmah

Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue, Pontiac, Michigan 4[illegible] ☐
700 S. Flower St., Burbank, CA 9[illegible]2 ☐
☐

CHAIN OF CUSTODY

Client: Dames + Moore
Address:

Contact person: Lynn Craig
Phone # 489-0770
PO #
Project: CPC Phase II

Special Handling Request
☐ Rush **SURCHARGE MAY APPLY**
☐ Verbal
☐ Other

Sample ID	Date	Time	Grab	Comp	No. of Containers	Waste Type	Preservation	Analysis request
MW-5-5	11/29/88				2	Soil		Lead, Benzene, Xylene, Toluene, 1-Butanol, MEK, Meth. Chloride, 111 Trichloro Ethane
MW-5-10	"				2	"		
MW-5-15	"				2	"		
MW-5-20	"				2	"		
MW-5-25	"				2	"		

Collected by: Lynn Craig 11/29/88

Received by: Date Time

Received by: Date Time

Received for laboratory by: M. G. Higgs Date 11/29 Time

Final disposition:

Delivery by: Date Time

Relinquished by: Date Time

Relinquished by: Date Time

Comments (Precautions/hazards)

AL-6

Burmah Technical Services, Inc.
Analytical Laboratories Division

408 Auburn Avenue
Pontiac, Michigan 48058

313/334-4747

DAMES & MOORE

APR 24 1989

Dames & Moore
34405 West Twelve Mile Road
Farmington Hills, MI 48331
Attn: Lynn Craig

April 20, 1989

PROJECT: CPC PONTIAC

PROGRAM: Monitoring Wells

Date Received: 3-13-89

Samples Dated: 3-13-89

ALD Number:	53373	53374	53375	53376	53377	
Client I.D.:	MW-1 10:35	MW-2 2:55	MW-3 12:59	MW-4 12:15	MW-5 2:05	
						Detection Limit
Lead, Pb, mg/l	BDL	BDL	BDL	BDL	BDL	0.05
Benzene, ug/l	25	BDL	65	15	BDL	2
Toluene, ug/l	BDL	BDL	140	BDL	BDL	2
Xylenes, ug/l	BDL	BDL	15	BDL	BDL	2
1,1,1-Trichloroethane, ug/l	BDL	BDL	BDL	BDL	BDL	2
Methylene Chloride, ug/l	BDL	BDL	BDL	BDL	BDL	2
MEK, ug/l	BDL	BDL	BDL	BDL	BDL	50
1-Butanol, ug/l	BDL	BDL	BDL	BDL	BDL	500

BDL - Below Detection Levels

cpc/2c

Burmah Technical Services, Inc.
Analytical Laboratories Division
408 Auburn Avenue
Pontiac, Michigan 48058
313/334-4747

Dames & Moore
Attn: Lynn Craig

April 20, 1989

PROJECT: CPC PONTIAC

PROGRAM: Monitoring Wells

Date Received: 3-13-89

Samples Dated: 3-13-89

ALD Number:	53378	53379	53380	53381	53382	
Client I.D.:	MW-6 4:55	MW-7 4:25	MW-8 3:45	WB 3:50	Dup 1 2:50	
						Detection Limit
Lead, Pb, mg/l	BDL	0.06	BDL	BDL	BDL	0.05
Benzene, ug/l	BDL	BDL	BDL	BDL	BDL	2
Toluene, ug/l	BDL	BDL	BDL	BDL	BDL	2
Xylenes, ug/l	BDL	BDL	BDL	BDL	BDL	2
1,1,1-Trichloroethane, ug/l	BDL	BDL	3	BDL	BDL	2
Methylene Chloride, ug/l	BDL	BDL	BDL	BDL	BDL	2
MEK, ug/l	BDL	BDL	BDL	BDL	BDL	50
1-Butanol, ug/l	BDL	BDL	BDL	BDL	BDL	500

BDL - Below Detection Levels

cpc/3c

Laboratory Manager

WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: DAMES & MOORE
LAB #: 4073-12984
MATRIX: LIQUID

DATE RECEIVED: 3/17/89
DATE EXTRACTED: NA
DATE ANALYZED: 3/27/89

SAMPLE ID: MW-3 3-13-89

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

PARAMETER	RESULT (ug/l)	DETECTION LIMIT
Benzene	72	5
Toluene	99	5
Xylenes	5	5
Methylene chloride	ND	5
1,1,1-Trichloroethane	ND	5
2-Butanone (MEK)	ND	50

NOTE: ND (None Detected)
J (Detected, but below quantitation limit; quantitation suspect)

WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: DAMES & MOORE
LAB #: 4073-12984
MATRIX: LIQUID

DATE RECEIVED: 3/17/89
DATE EXTRACTED: NA
DATE ANALYZED: 3/27/89

SAMPLE ID: MW-3 3-13-89

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

PARAMETER	RESULT (ug/l)	DETECTION LIMIT
1-Butanol	ND	800

NOTE: ND (None Detected)
J (Detected, but below quantitation limit; quantitation suspect)

WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY : DAMES & MOORE
LAB #: 4073-12984
MATRIX : LIQUID

DATE RECEIVED: 3/17/89

SAMPLE ID : MW-3 3-13-89

METALS ANALYTICAL REPORT
SELECTED LIST

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Lead	3/21- 3/22/89	ND	0.05	mg/l

NOTE: ND (None Detected)

APPENDIX E.2

GROUNDWATER TECHNOLOGY, INC.
1989 - 1991

NATIONAL ENVIRONMENTAL TESTING, INC.

NET Midwest, Inc.
Pontiac Division
398 Auburn Avenue
Pontiac, MI 48058
Tel: (313) 253-0440
Fax: (313) 334-8486

Formerly: Burmah Technical Services, Inc.

ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

03-30-90

Sample No.: 70580

Sample Description: MW-1

cc: Valory Strausser, Larry Aspland

Date Taken: 03-14-90 1400

Date Received: 03-14-90

n-butyl alcohol(butanol)	<10	mg/L

NATIONAL ENVIRONMENTAL TESTING, INC.

NET Midwest, Inc.
Pontiac Division
398 Auburn Avenue
Pontiac, MI 48058
Tel: (313) 253-0440
Fax: (313) 334-8486

Formerly: Burmah Technical Services, Inc.

ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

03-30-90

Sample No.: 70581

Sample Description: MW-2

cc: Valory Strausser, Larry Aspland

Date Taken: 03-14-90 1415

Date Received: 03-14-90

n-butyl alcohol(butanol)	<10	mg/L

NATIONAL ENVIRONMENTAL TESTING, INC.

NET Midwest, Inc.
Pontiac Division
398 Auburn Avenue
Pontiac, MI 48058
Tel: (313) 253-0440
Fax: (313) 334-8486

Formerly: Burmah Technical Services, Inc.

ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

03-30-90

Sample No.: 70582

Sample Description: MW-3

cc: Valory Strausser, Larry Aspland

Date Taken: 03-14-90 1330

Date Received: 03-14-90

n-butyl alcohol(butanol)	<10	mg/L

NATIONAL ENVIRONMENTAL TESTING, INC.

NET Midwest, Inc.
Pontiac Division
398 Auburn Avenue
Pontiac, MI 48058
Tel: (313) 253-0440
Fax: (313) 334-8486

Formerly: Burmah Technical Services, Inc.

ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

03-30-90

Sample No.: 70583

Sample Description: MW-4

cc: Valory Strausser, Larry Aspland

Date Taken: 03-14-90 1410

Date Received: 03-14-90

n-butyl alcohol(butanol)	<10	mg/L

NATIONAL ENVIRONMENTAL TESTING, INC.

NET Midwest, Inc.
Pontiac Division
398 Auburn Avenue
Pontiac, MI 48058
Tel: (313) 253-0440
Fax: (313) 334-8486

Formerly: Burmah Technical Services, Inc.

ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

03-30-90

Sample No.: 70584

Sample Description: MW-5

cc: Valory Strausser, Larry Aspland

Date Taken: 03-14-90 1345

Date Received: 03-14-90

n-butyl alcohol(butanol)	<10	mg/L

NATIONAL ENVIRONMENTAL TESTING, INC.

NET Midwest, Inc.
Pontiac Division
398 Auburn Avenue
Pontiac, MI 48058
Tel: (313) 253-0440
Fax: (313) 334-8486

Formerly: Burmah Technical Services, Inc.

ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

03-30-90

Sample No.: 70585

Sample Description: MW-7

cc: Valory Strausser, Larry Aspland

Date Taken: 03-14-90 1445

Date Received: 03-14-90

n-butyl alcohol(butanol)	<10	mg/L

NATIONAL ENVIRONMENTAL TESTING, INC.

NET Midwest, Inc.
Pontiac Division
398 Auburn Avenue
Pontiac, MI 48058
Tel: (313) 253-0440
Fax: (313) 334-8486

Formerly: Burmah Technical Services, Inc.

ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

03-30-90

Sample No.: 70586

Sample Description: MW-8

cc: Valory Strausser, Larry Aspland

Date Taken: 03-14-90 1430

Date Received: 03-14-90

n-butyl alcohol(butanol)	<10	mg/L

NATIONAL ENVIRONMENTAL TESTING, INC.

NET Midwest, Inc.
Pontiac Division
398 Auburn Avenue
Pontiac, MI 48058
Tel: (313) 253-0440
Fax: (313) 334-8486

Formerly: Burmah Technical Services, Inc.

ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

03-30-90

Sample No.: 70587

Sample Description: Rinse Blank

cc: Valory Strausser, Larry Aspland

Date Taken: 03-14-90

Date Received: 03-14-90

n-butyl alcohol(butanol)	<10	mg/L

Christopher P. Jock
Divisional Manager

NET NATIONAL ENVIRONMENTAL TESTING, INC.

NET Midwest, Inc.
Pontiac Division
398 Auburn Avenue
Pontiac, MI 48058
Tel: (313) 253-0440
Fax: (313) 334-8486

Formerly: Burmah Technical Services, Inc.

ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

03-30-90

Sample No.: 70459

Sample Description: MW-1

cc: Valory Strausser, Larry Aspland ✓

Date Taken: 03-13-90 1300

Date Received: 03-13-90

Lead	<0.05	mg/L
Methylene chloride	<2	ug/L
Methyl ethyl ketone	<25	ug/L
1,1,1-Trichloroethane	<2	ug/L
METHOD 602		
Benzene	<2	ug/L
Ethyl benzene	<2	ug/L
Toluene	3	ug/L
Xylenes, Total	<2	ug/L

NATIONAL ENVIRONMENTAL TESTING, INC.

NET Midwest, Inc.
Pontiac Division
398 Auburn Avenue
Pontiac, MI 48058
Tel: (313) 253-0440
Fax: (313) 334-8486

Formerly: Burmah Technical Services, Inc.

ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

03-30-90

Sample No.: 70460

Sample Description: MW-3

cc: Valory Strausser, Larry Aspland

Date Taken: 03-13-90 1315

Date Received: 03-13-90

Lead	<0.05	mg/L
Methylene chloride	<2	ug/L
Methyl ethyl ketone	<25	ug/L
1,1,1-Trichloroethane	<2	ug/L
METHOD 602		
Benzene	110	ug/L
Ethyl benzene	8	ug/L
Toluene	375	ug/L
Xylenes, Total	40	ug/L

NATIONAL ENVIRONMENTAL TESTING, INC.

NET Midwest, Inc.
Pontiac Division
398 Auburn Avenue
Pontiac, MI 48058
Tel: (313) 253-0440
Fax: (313) 334-8486

Formerly: Burmah Technical Services, Inc.

ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

03-30-90

Sample No.: 70461

Sample Description: MW-5

cc: Valory Strausser, Larry Aspland

Date Taken: 03-13-90 1330

Date Received: 03-13-90

Lead	<0.05	mg/L
Methylene chloride	<2	ug/L
Methyl ethyl ketone	<25	ug/L
1,1,1-Trichloroethane	<2	ug/L
METHOD 602		
Benzene	<2	ug/L
Ethyl benzene	<2	ug/L
Toluene	5	ug/L
Xylenes, Total	<2	ug/L

NATIONAL ENVIRONMENTAL TESTING, INC.

NET Midwest, Inc.
Pontiac Division
398 Auburn Avenue
Pontiac, MI 48058
Tel: (313) 253-0440
Fax: (313) 334-8486

Formerly: Burmah Technical Services, Inc.

ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

03-30-90

Sample No.: 70462

Sample Description: Rinse Blank

cc: Valory Strausser, Larry Aspland

Date Taken: 03-13-90 1345

Date Received: 03-13-90

Lead	<0.05	mg/l
Methylene chloride	<2	ug/L
Methyl ethyl ketone	<25	ug/L
1,1,1-Trichloroethane	<2	ug/L
METHOD 602		
Benzene	<2	ug/L
Ethyl benzene	<2	ug/L
Toluene	<2	ug/L
Xylenes, Total	<2	ug/L

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Tel: (313) 253-0440
Fax: (313) 334-8486

Formerly: Burmah Technical Services, Inc.

ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

03-30-90

Sample No.: 70449

Sample Description: MW-2

cc: Valory Strausser, Larry Aspland

Date Taken: 03-12-90 1315

Date Received: 03-12-90

Lead	<0.05	mg/L
Methylene chloride	<2	ug/L
Methyl ethyl ketone	<25	ug/L
1,1,1-Trichloroethane	<2	ug/L
METHOD 602		
Benzene	<2	ug/L
Ethyl benzene	<2	ug/L
Toluene	<2	ug/L
Xylenes, Total	8	ug/L

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ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

03-30-90

Sample No.: 70450

Sample Description: MW-4

cc: Val Strausser, Larry Aspland

Date Taken: 03-12-90 1300

Date Received: 03-12-90

Lead	<0.05	mg/L
Methylene chloride	<2	ug/L
Methyl ethyl ketone	<25	ug/L
1,1,1-Trichloroethane	<2	ug/L
METHOD 602		
Benzene	50	ug/L
Ethyl benzene	<2	ug/L
Toluene	<2	ug/L
Xylenes, Total	2	ug/L

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ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

03-30-90

Sample No.: 70452

Sample Description: MW-7

cc: Valory Strausser, Larry Aspland

Date Taken: 03-12-90 1345

Date Received: 03-12-90

Lead	<0.05	mg/L
Methylene chloride	<2	ug/L
Methyl ethyl ketone	<25	ug/L
1,1,1-Trichloroethane	<2	ug/L
METHOD 602		
Benzene	<2	ug/L
Ethyl benzene	<2	ug/L
Toluene	3	ug/L
Xylenes, Total	<2	ug/L

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ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

03-30-90

Sample No.: 70453

Sample Description: MW-8

cc: Valory Strausser, Larry Aspland

Date Taken: 03-12-90 1330

Date Received: 03-12-90

Lead	<0.05	mg/L
Methylene chloride	<2	ug/L
Methyl ethyl ketone	<25	ug/L
1,1,1-Trichloroethane	<2	ug/L
METHOD 602		
Benzene	2	ug/L
Ethyl benzene	<2	ug/L
Toluene	3	ug/L
Xylenes, Total	10	ug/L

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ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

03-30-90

Sample No.: 70457

Sample Description: Rinse Blank

cc: Valory Strausser, Larry Aspland

Date Taken: 03-12-90 1400

Date Received: 03-12-90

Lead	<0.05	mg/L
Methylene chloride	<2	ug/L
Methyl ethyl ketone	<25	ug/L
1,1,1-Trichloroethane	<2	ug/L
METHOD 8020		
Benzene	<2	ug/L
Ethyl benzene	<2	ug/L
Toluene	<2	ug/L
Xylenes, Total	<2	ug/L

Christopher P. Jock
Divisional Manager

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ANALYTICAL REPORT

Dale G. Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

03-29-90

Sample No.: 70782

Page 1

Sample Description: #345 MW-6 Drum Storage Pad

Program: Groundwater Monitoring
cc: Valory Strausser

Date Taken: 03-19-90 1030

Date Received: 03-19-90

	Results	Detection Limits	Units
Benzene	4	4	ug/L
n-butyl alcohol(butanol)	<1000	1000	ug/L
Methylene chloride	<4	4	ug/L
Methyl ethyl ketone	<25	25	ug/L
Toluene	27	4	ug/L
1,1,1-Trichloroethane	<4	4	ug/L
Xylenes, Total	14	4	ug/L

Christopher P. Jock
Divisional Manager

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ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

03-29-90

Sample No.: 70781

Page 1

Sample Description: #346 MW-#6 Drum Storage Pad

Program: Groundwater Monitoring
cc: Valory Strausser

Date Taken: 03-19-90 1030

Date Received: 03-19-90

	Results	Detection Limit	Units
Lead	<0.05	0.05	mg/L

Christopher P. Jock
Divisional Manager

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ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

04-09-90

Sample No.: 70591

Page 1

Sample Description: SP-1 5.0'-6.5'

cc: Valory Strausser, Larry Aspland

Date Taken: 03-14-90 1030

Date Received: 03-14-90

n-butyl alcohol(butanol)	<10	mg/Kg
Methylene chloride	<4	mg/Kg
Methyl ethyl ketone	<25	mg/Kg
1,1,1-Trichloroethane	25	mg/Kg
METHOD 8020		
Benzene	<4	mg/Kg
Ethyl benzene	38	mg/Kg
Toluene	230	mg/Kg
Xylenes, Total	200	mg/Kg

Christopher P. Jock
Divisional Manager

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ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

04-09-90

Sample No.: 70592

Sample Description: SP-1 10.0'-11.5'

cc: Valory Strausser, Larry Aspland

Date Taken: 03-14-90 1045

Date Received: 03-14-90

n-butyl alcohol(butanol)	<10	mg/Kg
Methylene chloride	<6	mg/Kg
Methyl ethyl ketone	<25	mg/Kg
1,1,1-Trichloroethane	15	mg/Kg
METHOD 8020		
Benzene	<6	mg/Kg
Ethyl benzene	15	mg/Kg
Toluene	80	mg/Kg
Xylenes, Total	100	mg/Kg

Christopher P. Jock
Divisional Manager

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ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

04-09-90

Sample No.: 70593

Sample Description: SP-1 15.0'-16.5'

cc: Valory Strausser, Larry Aspland

Date Taken: 03-14-90 1050

Date Received: 03-14-90

n-butyl alcohol(butanol)	<10	mg/Kg
Methylene chloride	<4	mg/Kg
Methyl ethyl ketone	<25	mg/Kg
1,1,1-Trichloroethane	35	mg/Kg
METHOD 8020		
Benzene	<4	mg/Kg
Ethyl benzene	10	mg/Kg
Toluene	55	mg/Kg
Xylenes, Total	45	mg/Kg

Christopher P. Jock
Divisional Manager

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ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

04-09-90

Sample No.: 70594

Sample Description: SP-1 20.0'-21.5'

cc: Valory Strausser, Larry Aspland

Date Taken: 03-14-90 1100

Date Received: 03-14-90

n-butyl alcohol(butanol)	<10	mg/Kg
Methylene chloride	<2	mg/Kg
Methyl ethyl ketone	<25	mg/Kg
1,1,1-Trichloroethane	2	mg/Kg
METHOD 8020		
Benzene	<2	mg/Kg
Ethyl benzene	<2	mg/Kg
Toluene	6	mg/Kg
Xylenes, Total	6	mg/Kg

Christopher P. Jock
Divisional Manager

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ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

04-09-90

Sample No.: 70595

Sample Description: SP-2 5.0'-6.5'

cc: Valory Strausser, Larry Aspland

Date Taken: 03-14-90

Date Received: 03-14-90

n-butyl alcohol(butanol)	<10	mg/Kg
Methylene chloride	<8	mg/Kg
Methyl ethyl ketone	<25	mg/Kg
1,1,1-Trichloroethane	<8	mg/Kg
METHOD 8020		
Benzene	<8	mg/Kg
Ethyl benzene	25	mg/Kg
Toluene	40	mg/Kg
Xylenes, Total	120	mg/Kg

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ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

04-09-90

Sample No.: 70596

Sample Description: SP-2 10.0'-11.5'

cc: Valory Strausser, Larry Aspland

Date Taken: 03-14-90

Date Received: 03-14-90

n-butyl alcohol(butanol)	<10.	mg/Kg
Methylene chloride	<4.	mg/Kg
Methyl ethyl ketone	<25.	mg/Kg
1,1,1-Trichloroethane	<4.	mg/Kg
METHOD 8020		
Benzene	<4.	mg/Kg
Ethyl benzene	17.	mg/Kg
Toluene	15.	mg/Kg
Xylenes, Total	60.	mg/Kg

Christopher P. Jock
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ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

04-09-90

Sample No.: 70597

Sample Description: SP-2 15.0'-16.5'

cc: Valory Strausser, Larry Aspland

Date Taken: 03-14-90

Date Received: 03-14-90

n-butyl alcohol(butanol)	<10.	mg/Kg
Methylene chloride	<2.	mg/Kg
Methyl ethyl ketone	<25.	mg/Kg
1,1,1-Trichloroethane	<2.	mg/Kg
METHOD 8020		
Benzene	<2.	mg/Kg
Ethyl benzene	3.	mg/Kg
Toluene	<2.	mg/Kg
Xylenes, Total	9.	mg/Kg

Christopher P. Jock
Divisional Manager

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ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

04-09-90

Sample No.: 70598

Sample Description: SP-2 20.0'-21.5'

cc: Valory Strausser, Larry Aspland

Date Taken: 03-14-90

Date Received: 03-14-90

n-butyl alcohol(butanol)	<10.	mg/Kg
Methylene chloride	<8	mg/Kg
Methyl ethyl ketone	<25.	mg/Kg
1,1,1-Trichloroethane	<8.	mg/Kg
METHOD 8020		
Benzene	<8.	mg/Kg
Ethyl benzene	85.	mg/Kg
Toluene	150.	mg/Kg
Xylenes, Total	300.	mg/Kg

Christopher P. Jock
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ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

04-09-90

Sample No.: 70972

Sample Description: SP-1 Composite (#70591-94)

cc: Valory Strausser, Larry Aspland

Date Taken: 03-22-90 0845

Date Received: 03-22-90

ASTM - Lead	<0.05	mg/L
EP Tox - Lead	0.21	mg/L

Christopher P. Jock
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ANALYTICAL REPORT

Dale Gossiaux
GMC CPC GRP-PONTIAC OPS
One Pontiac Plaza
Pontiac MI 48058

04-09-90

Sample No.: 70973

Sample Description: SP-2 Composite (#70595-598)

cc: Valory Strausser, Larry Aspland

Date Taken: 03-22-90 0845

Date Received: 03-22-90

ASTM - Lead	<0.05	mg/L
EP Tox - Lead	0.17	mg/L

Christopher P. Jock
Divisional Manager

CPC - PONTIAC, G.M.C.
ENVIRONMENTAL ENGINEERING

COLLECTOR'S SAMPLE NO. 350
LABORATORY SAMPLE NO. _____

CHAIN OF CUSTODY AND ANALYSIS REQUEST FORM

Department No. _____ Process No. _____

Pontiac Waste Code _____

Location of Sampling: Plant No. ____, Floor No. ____, Bay No. ____

General Area Description: Drum Storage Pad

Collector's Name: Dale Hoosiani, Telephone No. (313) 857-2287

Date Sampled: April 9, 1990 Time Sampled: _____ am/pm

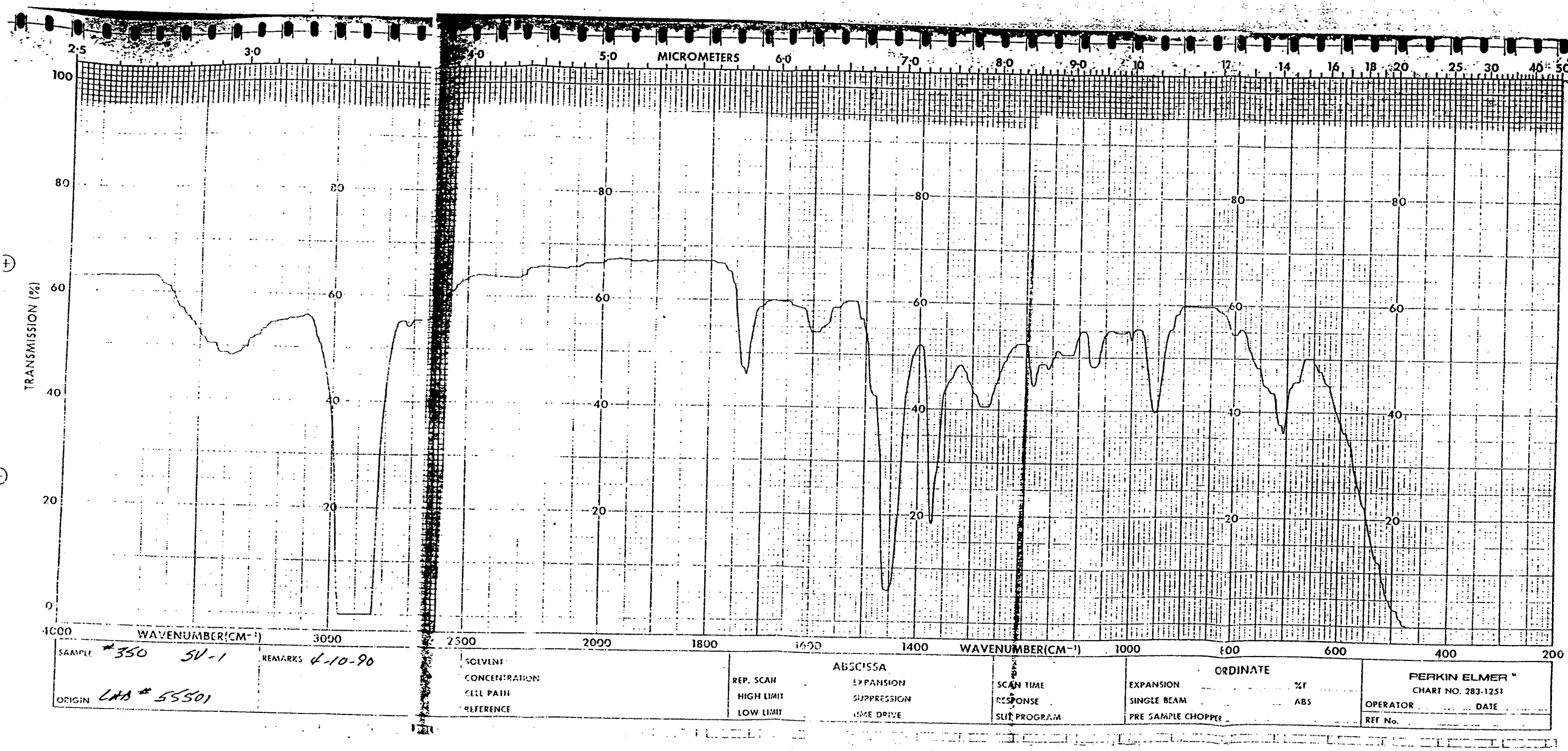
Type of Process Producing Waste: Ground water monitoring well

Field Information: Taken from SV-1, with teflon bailer.

Chain of Possession:

	Signature	Title	Organization or Dept.	Date Received	Date Relinquised
1)	Dale Hoosiani	Sr Envr. Eng'r	Envr. Eng'g	4/9/90	4/9/90
2)	Max McAvoy	Chemist	Mfg. Lab.	4/9/90	4/10/90
3)					
4)					
5)					
6)					
7)					
8)					

REQUESTED ANALYSIS ON REVERSE SIDE OF FORM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18
20
25
30
40
50
100
80
60
40
20
0
TRANSMISSION (%)
4000
WAVENUMBER(CM⁻¹)
3000
2500
2000
1800
1600
1400
WAVENUMBER(CM⁻¹)
1000
800
600
400
200
SAMPLE #350 SV-1
REMARKS 4-10-90
ORIGIN LAB # 55501
SOLVENT
CONCENTRATION
CELL PATH
REFERENCE
ABSCISSA
REP. SCAN
HIGH LIMIT
LOW LIMIT
EXPANSION
SUPPRESSION
TIME DRIVE
SCAN TIME
RESPONSE
SLIT PROGRAM
ORDINATE
EXPANSION
%T
SINGLE BEAM
ABS
PRE SAMPLE CHOPPER
PERKIN ELMER
CHART NO. 283-1251
OPERATOR
DATE
REF No.

CPC - PONTIAC, G.M.C.
ENVIRONMENTAL ENGINEERING

COLLECTOR'S SAMPLE NO. ~~2.357~~
LABORATORY SAMPLE NO. _____

CHAIN OF CUSTODY AND ANALYSIS REQUEST FORM

Department No. _____ Process No. _____

Pontiac Waste Code _____

Location of Sampling: Plant No. ____, Floor No. ____, Bay No. ____

General Area Description: Drum Storage Pad

Collector's Name: Dale Gorniak, Telephone No. (313) 857-2257

Date Sampled: April 9, 1990 Time Sampled: _____ am/pm

Type of Process Producing Waste: Ground water monitoring well

Field Information: Taken from MW-6, with teflon baiter.

Chain of Possession:

	Signature	Title	Organization or Dept.	Date Received	Date Relinquised
1)	Dale Gorniak	Sr Env Eng'r	Env. Eng'g	4/9/90	4/9/90
2)	Max Mahony	Chemist	Mfg. Lab.	4/9/90	4/10/90
3)					
4)					
5)					
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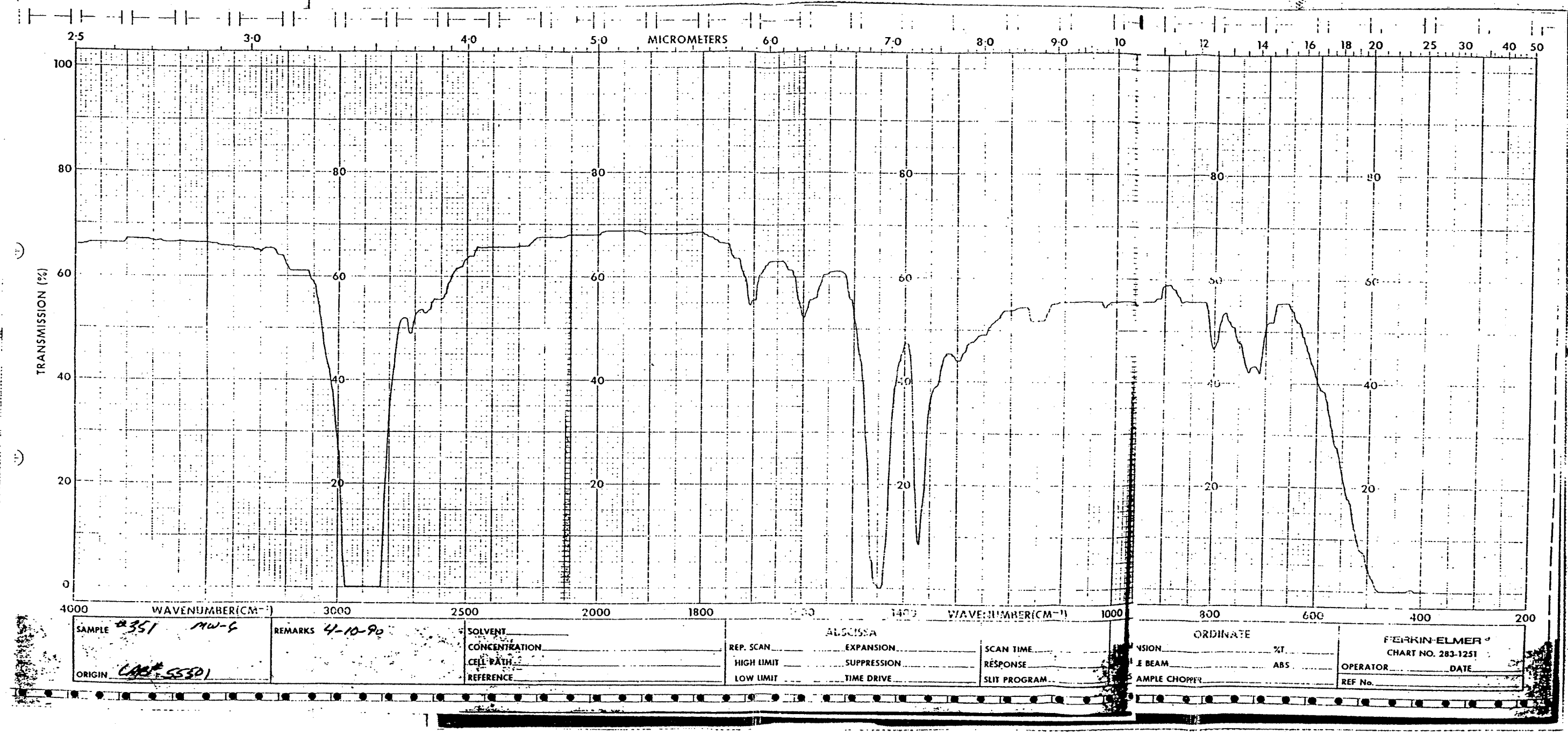
8)					

REQUESTED ANALYSIS ON REVERSE SIDE OF FORM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12
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16
18
20
25
30
40
50
TRANSMISSION (%)
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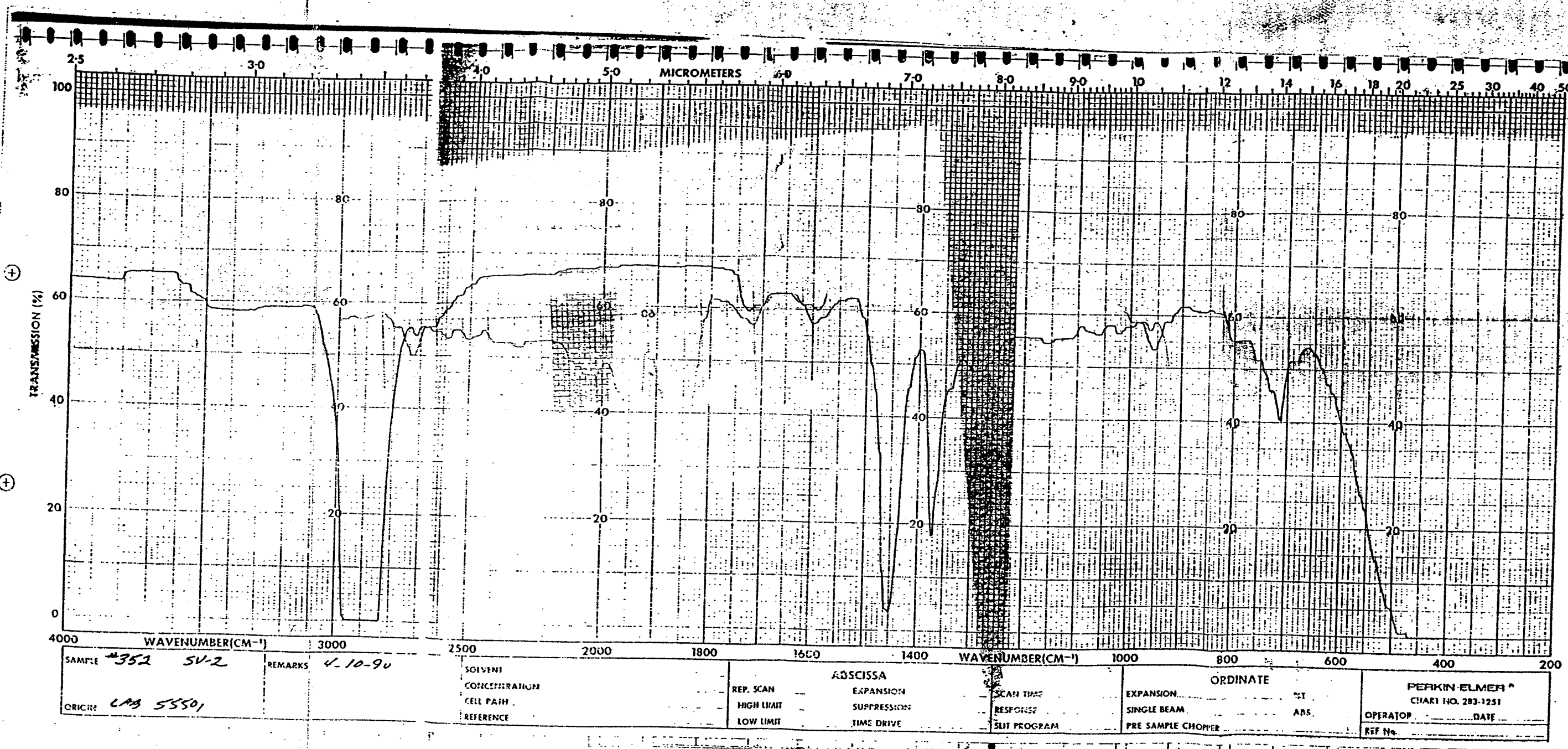
80
60
40
20
0
4000
WAVENUMBER(CM⁻¹)
3000
2500
2000
1800
1400
WAVENUMBER(CM⁻¹)
1000
800
600
400
200
SAMPLE #351 MW-6
ORIGIN CMB# 55301
REMARKS 4-10-90
SOLVENT
CONCENTRATION
CELL PATH
REFERENCE
ABSCISSA
REP. SCAN
EXPANSION
HIGH LIMIT
SUPPRESSION
LOW LIMIT
TIME DRIVE
SCAN TIME
RESPONSE
SLIT PROGRAM
ORDINATE
%T
ABS
PERKIN-ELMER
CHART NO. 283-1251
OPERATOR
DATE
REF No.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10
12
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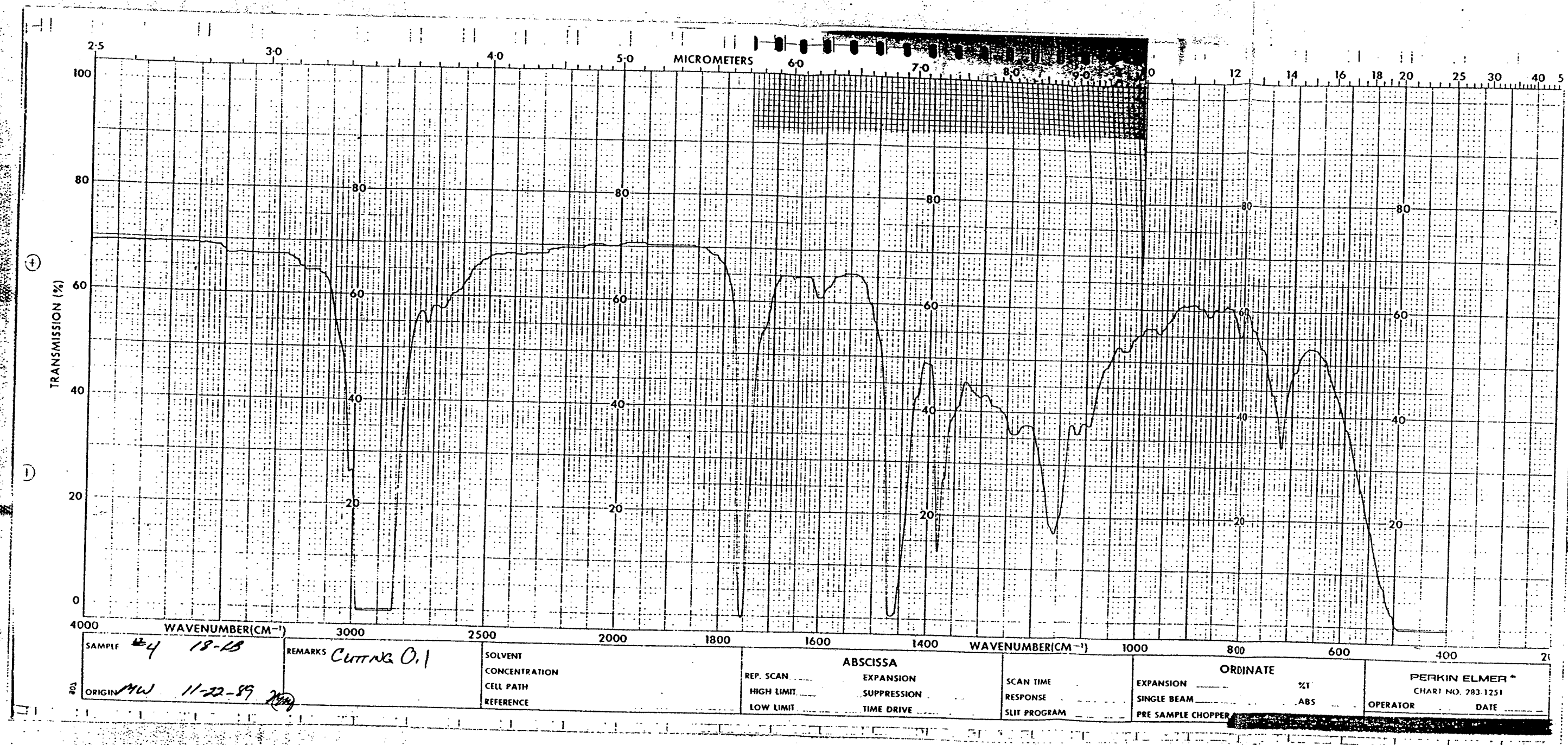
18
20
25
30
40
50
TRANSMISSION (%)
100
80
60
40
20
0
4000
WAVENUMBER(CM⁻¹)
3000
2500
2000
1800
1600
1400
WAVENUMBER(CM⁻¹)
1000
800
600
400
200
SAMPLE #352 SV-2
REMARKS 4-10-90
ORIGIN LAB 5550
SOLVENT
CONCENTRATION
CELL PATH
REFERENCE
ABSCISSA
REP. SCAN
HIGH LIMIT
LOW LIMIT
EXPANSION
SUPPRESSION
TIME DRIVE
SCAN TIME
RESPONSE
SLIT PROGRAM
ORDINATE
EXPANSION
%T
SINGLE BEAM
ABS.
PRE SAMPLE CHOPPER
PERKIN-ELMER
CHART NO. 283-1251
OPERATOR
DATE
REF No.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8·0
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10
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18
20
25
30
40
5
100
80
60
40
20
0
TRANSMISSION (%)
4000
WAVENUMBER(CM⁻¹)
3000
2500
2000
1800
1600
1400
WAVENUMBER(CM⁻¹)
1000
800
600
400
SAMPLE #4 18-18
ORIGIN MW 11-22-89
REMARKS CUTTING 0.1
SOLVENT
CONCENTRATION
CELL PATH
REFERENCE
ABSCISSA
REP. SCAN
EXPANSION
HIGH LIMIT
SUPPRESSION
LOW LIMIT
TIME DRIVE
SCAN TIME
RESPONSE
SLIT PROGRAM
ORDINATE
EXPANSION
%T
SINGLE BEAM
ABS
PRE SAMPLE CHOPPER
PERKIN ELMER
CHART NO. 283-1251
OPERATOR
DATE

CPC - PONTIAC, G.M.C.
ENVIRONMENTAL ENGINEERING

COLLECTOR'S SAMPLE NO. 352
LABORATORY SAMPLE NO. _____

CHAIN OF CUSTODY AND ANALYSIS REQUEST FORM

Department No. _____ Process No. _____

Pontiac Waste Code _____

Location of Sampling: Plant No. ____, Floor No. ____, Bay No. ____

General Area Description: Drum Storage Pad

Collector's Name: Dale Hoosiaux, Telephone No. (313) 857-2287

Date Sampled: April 9, 1990 Time Sampled: _____ am/pm

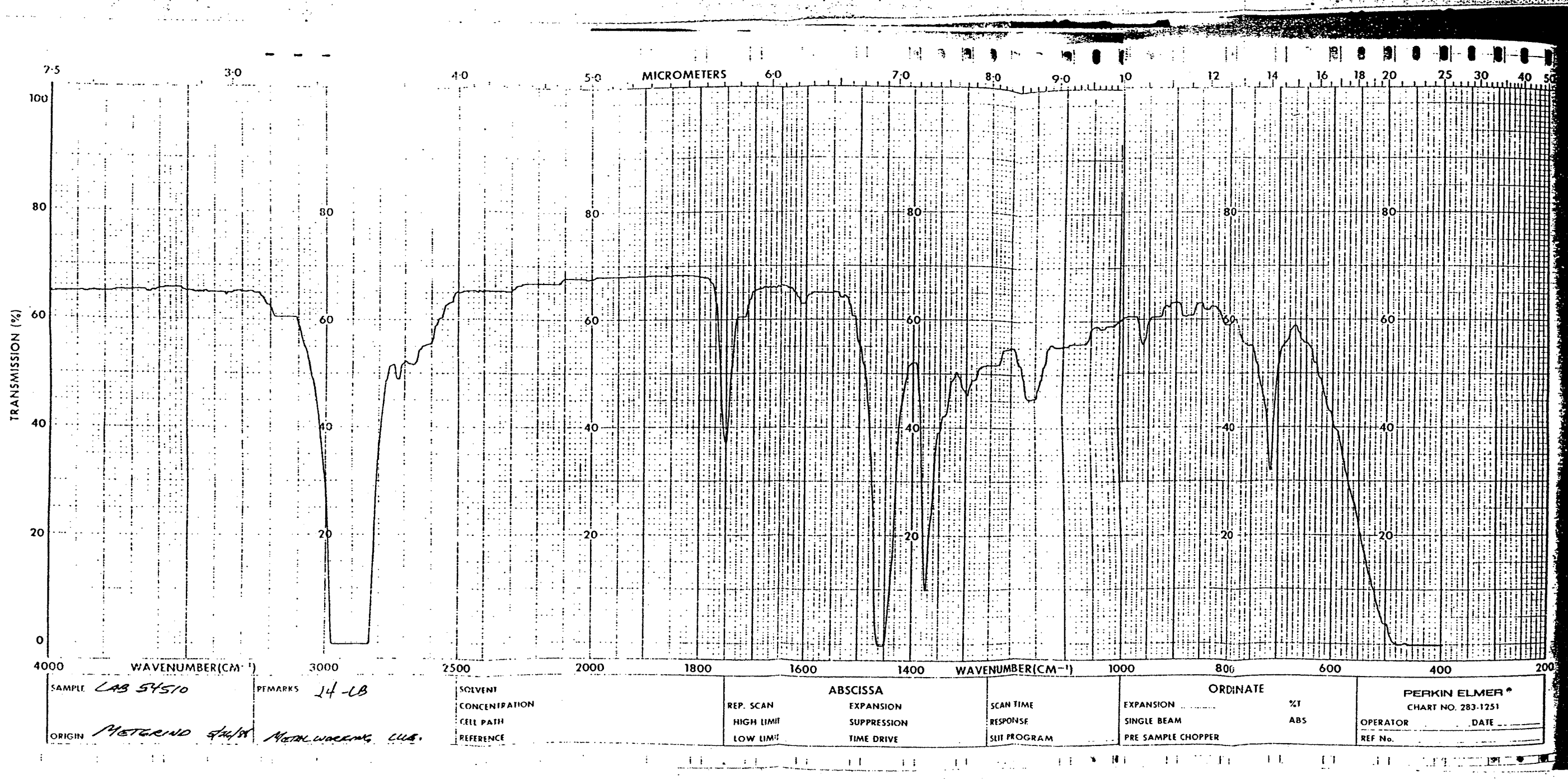
Type of Process Producing Waste: Ground water monitoring well

Field Information: Taken from SV-2, with teflon bailer.

Chain of Possession:

	Signature	Title	Organization or Dept.	Date Received	Date Relinquised
1)	Dale Hoosiaux	Sr. Env. Engr.	Env. Engg	4/9/90	4/9/90
2)	Mark Mahony	Chemist	Mfg Lab.	4/9/90	4/10/90
3)					
4)					
5)					
6)					
7)					
8)					

REQUESTED ANALYSIS ON REVERSE SIDE OF FORM


7·5
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16
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20
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40
50
100
80
60
40
20
0
TRANSMISSION (%)
4000
WAVENUMBER(CM⁻¹)
3000
2500
2000
1800
1600
1400
WAVENUMBER(CM⁻¹)
1000
800
600
400
200
SAMPLE LAB 54510
ORIGIN MOTGRIND 4/24/84
REMARKS 14-LB
MOTOR WARRING LABS.
SOLVENT
CONCENTRATION
CELL PATH
REFERENCE
ABSCISSA
REP. SCAN
EXPANSION
HIGH LIMIT
SUPPRESSION
LOW LIMIT
TIME DRIVE
SCAN TIME
RESPONSE
SLIT PROGRAM
ORDINATE
EXPANSION
%T
SINGLE BEAM
ABS
PRE SAMPLE CHOPPER
PERKIN ELMER
CHART NO. 283-1251
OPERATOR
DATE
REF No.

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27191
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 10/03/90 TIME: 12:40 PM
DATE RECEIVED: 10/04/90 TIME: 11:30 AM
DATE COMPLETED: 11/08/90
SCHEDULED COMPLETION: 10/25/90
ANALYST: PT,SAT
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 15

	MW-1	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	49480					
BENZENE	<0.001	10/16/90	PT	8240	0.001	mg/l
1-BUTANOL	<0.50	10/16/90	PT	8240	0.50	mg/l
METHYLENE CHLORIDE	<0.005	10/16/90	PT	8240	0.005	mg/l
METHYL ETHYL KETONE	<0.05	10/16/90	PT	8240	0.05	mg/l
TOLUENE	<0.001	10/16/90	PT	8240	0.001	mg/l
111-TRICHLOROETHANE	<0.002	10/16/90	PT	8240	0.002	mg/l
XYLENE	<0.005	10/16/90	PT	8240	0.005	mg/l
LEAD,TOTAL	<0.05	10/26/90	SAT	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------					

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27191
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 10/03/90 TIME: 1:15 PM
DATE RECEIVED: 10/04/90 TIME: 11:30 AM
DATE COMPLETED: 11/08/90
SCHEDULED COMPLETION: 10/25/90
ANALYST: PT,SAT
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 16

	MW-2	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	49481					
BENZENE	<0.001	10/16/90	PT	8240	0.001	mg/l
1-BUTANOL	<0.50	10/16/90	PT	8240	0.50	mg/l
METHYLENE CHLORIDE	<0.005	10/16/90	PT	8240	0.005	mg/l
METHYL ETHYL KETONE	<0.05	10/16/90	PT	8240	0.05	mg/l
TOLUENE	<0.001	10/16/90	PT	8240	0.001	mg/l
111-TRICHLOROETHANE	<0.002	10/16/90	PT	8240	0.002	mg/l
XYLENE	<0.005	10/16/90	PT	8240	0.005	mg/l
LEAD,TOTAL	<0.05	10/26/90	SAT	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------					

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27191
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 10/03/90 TIME: 2:35 PM
DATE RECEIVED: 10/04/90 TIME: 11:30 AM
DATE COMPLETED: 11/08/90
SCHEDULED COMPLETION: 10/25/90
ANALYST: PT,SAT
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 17

	MW-3	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	49482					
BENZENE	0.11	10/16/90	PT	8240	0.005	mg/l
1-BUTANOL	3.9	10/16/90	PT	8240	2.5	mg/l
METHYLENE CHLORIDE	<0.025	10/16/90	PT	8240	0.025	mg/l
METHYL ETHYL KETONE	<0.25	10/16/90	PT	8240	0.25	mg/l
TOLUENE	0.60	10/16/90	PT	8240	0.005	mg/l
111-TRICHLOROETHANE	<0.010	10/16/90	PT	8240	0.010	mg/l
XYLENE	0.031	10/16/90	PT	8240	0.025	mg/l
LEAD,TOTAL	<0.05	10/26/90	SAT	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------					

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27191
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 10/03/90 TIME: 2:00 PM
DATE RECEIVED: 10/04/90 TIME: 11:30 AM
DATE COMPLETED: 11/08/90
SCHEDULED COMPLETION: 10/25/90
ANALYST: PT,SAT
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 18

	MW-4	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	49483					
BENZENE	0.035	10/16/90	PT	8240	0.001	mg/l
1-BUTANOL	<0.50	10/16/90	PT	8240	0.50	mg/l
METHYLENE CHLORIDE	<0.005	10/16/90	PT	8240	0.005	mg/l
METHYL ETHYL KETONE	<0.050	10/16/90	PT	8240	0.050	mg/l
TOLUENE	0.001	10/16/90	PT	8240	0.001	mg/l
111-TRICHLOROETHANE	<0.002	10/16/90	PT	8240	0.002	mg/l
XYLENE	<0.005	10/16/90	PT	8240	0.005	mg/l
LEAD,TOTAL	<0.05	10/26/90	SAT	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------					

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27191
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 10/03/90 TIME: 2:50 PM
DATE RECEIVED: 10/04/90 TIME: 11:30 AM
DATE COMPLETED: 11/08/90
SCHEDULED COMPLETION: 10/25/90
ANALYST: PT,SAT
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 19

	MW-5	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	49484					
BENZENE	0.003	10/16/90	PT	8240	0.001	mg/l
1-BUTANOL	<0.50	10/16/90	PT	8240	0.50	mg/l
METHYLENE CHLORIDE	<0.005	10/16/90	PT	8240	0.005	mg/l
METHYL ETHYL KETONE	<0.050	10/16/90	PT	8240	0.050	mg/l
TOLUENE	<0.001	10/16/90	PT	8240	0.001	mg/l
111-TRICHLOROETHANE	<0.002	10/16/90	PT	8240	0.002	mg/l
XYLENE	<0.005	10/16/90	PT	8240	0.005	mg/l
LEAD,TOTAL	<0.05	10/26/90	SAT	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------					

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27191
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 10/03/90 TIME: 1:25 PM
DATE RECEIVED: 10/04/90 TIME: 11:30 AM
DATE COMPLETED: 11/08/90
SCHEDULED COMPLETION: 10/25/90
ANALYST: PT,SAT
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 20

	MW-6	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	49485					
BENZENE	<0.001	10/16/90	PT	8240	0.001	mg/l
1-BUTANOL	<0.50	10/16/90	PT	8240	0.50	mg/l
METHYLENE CHLORIDE	<0.005	10/16/90	PT	8240	0.005	mg/l
METHYL ETHYL KETONE	<0.050	10/16/90	PT	8240	0.05	mg/l
TOLUENE	0.002	10/16/90	PT	8240	0.001	mg/l
111-TRICHLOROETHANE	<0.002	10/16/90	PT	8240	0.002	mg/l
XYLENE	<0.005	10/16/90	PT	8240	0.005	mg/l
LEAD,TOTAL	<0.05	10/26/90	SAT	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------					

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27191
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 10/03/90 TIME: 1:55 PM
DATE RECEIVED: 10/04/90 TIME: 11:30 AM
DATE COMPLETED: 11/08/90
SCHEDULED COMPLETION: 10/25/90
ANALYST: PT,SAT
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 21

	MW-7	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	49486					
BENZENE	0.003	10/16/90	PT	8240	0.001	mg/l
1-BUTANOL	<0.50	10/16/90	PT	8240	0.50	mg/l
METHYLENE CHLORIDE	<0.005	10/16/90	PT	8240	0.005	mg/l
METHYL ETHYL KETONE	<0.050	10/16/90	PT	8240	0.050	mg/l
TOLUENE	<0.001	10/16/90	PT	8240	0.001	mg/l
111-TRICHLOROETHANE	<0.002	10/16/90	PT	8240	0.002	mg/l
XYLENE	<0.005	10/16/90	PT	8240	0.005	mg/l
LEAD,TOTAL	<0.05	10/26/90	SAT	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT ----------						

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27191
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 10/03/90 TIME: 2:15 PM
DATE RECEIVED: 10/04/90 TIME: 11:30 AM
DATE COMPLETED: 11/08/90
SCHEDULED COMPLETION: 10/25/90
ANALYST: PT,SAT
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 22

	MW-8	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	49487					
BENZENE	0.004	10/16/90	PT	8240	0.001	mg/l
1-BUTANOL	<0.50	10/16/90	PT	8240	0.50	mg/l
METHYLENE CHLORIDE	<0.005	10/16/90	PT	8240	0.005	mg/l
METHYL ETHYL KETONE	<0.050	10/16/90	PT	8240	0.050	mg/l
TOLUENE	<0.001	10/16/90	PT	8240	0.001	mg/l
111-TRICHLOROETHANE	<0.002	10/16/90	PT	8240	0.002	mg/l
XYLENE	<0.005	10/16/90	PT	8240	0.005	mg/l
LEAD,TOTAL	<0.05	10/26/90	SAT	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------					

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27191
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 10/03/90 TIME: 1:00 PM
DATE RECEIVED: 10/04/90 TIME: 11:30 AM
DATE COMPLETED: 11/08/90
SCHEDULED COMPLETION: 10/25/90
ANALYST: PT,SAT
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 23

	MW-9	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	49488					
BENZENE	<0.050	10/17/90	PT	8240	0.050	mg/l
1-BUTANOL	<25	10/17/90	PT	8240	25	mg/l
METHYLENE CHLORIDE	<0.25	10/17/90	PT	8240	0.25	mg/l
METHYL ETHYL KETONE	12	10/17/90	PT	8240	2.5	mg/l
TOLUENE	0.24	10/17/90	PT	8240	0.05	mg/l
111-TRICHLOROETHANE	<0.10	10/17/90	PT	8240	0.10	mg/l
XYLENE	<0.25	10/17/90	PT	8240	0.25	mg/l
LEAD,TOTAL	0.07	10/26/90	SAT	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------					

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27191
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 10/03/90 TIME: 1:25 PM
DATE RECEIVED: 10/04/90 TIME: 11:30 AM
DATE COMPLETED: 11/08/90
SCHEDULED COMPLETION: 10/25/90
ANALYST: PT,SAT
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 24

	MW-10	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	49489					
BENZENE	<0.001	10/17/90	PT	8240	0.001	mg/l
1-BUTANOL	<0.50	10/17/90	PT	8240	0.50	mg/l
METHYLENE CHLORIDE	<0.005	10/17/90	PT	8240	0.005	mg/l
METHYL ETHYL KETONE	<0.050	10/17/90	PT	8240	0.050	mg/l
TOLUENE	<0.001	10/17/90	PT	8240	0.001	mg/l
111-TRICHLOROETHANE	<0.002	10/17/90	PT	8240	0.002	mg/l
XYLENE	<0.005	10/17/90	PT	8240	0.005	mg/l
LEAD,TOTAL	0.05	10/26/90	SAT	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------					

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27191
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 10/03/90 TIME: 2:53 PM
DATE RECEIVED: 10/04/90 TIME: 11:30 AM
DATE COMPLETED: 11/08/90
SCHEDULED COMPLETION: 10/25/90
ANALYST: PT,SAT
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 25

	MW-11	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	49490					
BENZENE	<0.005	10/17/90	PT	8240	0.005	mg/l
1-BUTANOL	<2.5	10/17/90	PT	8240	2.5	mg/l
METHYLENE CHLORIDE	<0.025	10/17/90	PT	8240	0.025	mg/l
METHYL ETHYL KETONE	<0.25	10/17/90	PT	8240	0.25	mg/l
TOLUENE	0.010	10/17/90	PT	8240	0.005	mg/l
111-TRICHLOROETHANE	<0.010	10/17/90	PT	8240	0.010	mg/l
XYLENE	0.094	10/17/90	PT	8240	0.025	mg/l
LEAD,TOTAL	0.09	10/26/90	SAT	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------					

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27191
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 10/03/90 TIME: 2:45 PM
DATE RECEIVED: 10/04/90 TIME: 11:30 AM
DATE COMPLETED: 11/08/90
SCHEDULED COMPLETION: 10/25/90
ANALYST: PT,SAT
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 26

	MW-12	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	49491					
BENZENE	0.07	10/17/90	PT	8240	0.05	mg/l
1-BUTANOL	<25	10/17/90	PT	8240	25	mg/l
METHYLENE CHLORIDE	<0.25	10/17/90	PT	8240	0.25	mg/l
METHYL ETHYL KETONE	<2.5	10/17/90	PT	8240	2.5	mg/l
TOLUENE	0.77	10/17/90	PT	8240	0.05	mg/l
111-TRICHLOROETHANE	<0.10	10/17/90	PT	8240	0.10	mg/l
XYLENE	1.1	10/17/90	PT	8240	0.25	mg/l
LEAD,TOTAL	0.12	10/26/90	SAT	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------					

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27191
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 10/03/90 TIME: 1:10 PM
DATE RECEIVED: 10/04/90 TIME: 11:30 AM
DATE COMPLETED: 11/08/90
SCHEDULED COMPLETION: 10/25/90
ANALYST: PT,SAT
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 27

	SV-1	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	49492					
BENZENE	<0.10	10/17/90	PT	8240	0.10	mg/l
1-BUTANOL	<50	10/17/90	PT	8240	50	mg/l
METHYLENE CHLORIDE	<0.50	10/17/90	PT	8240	0.50	mg/l
METHYL ETHYL KETONE	<5.0	10/17/90	PT	8240	5.0	mg/l
TOLUENE	0.60	10/17/90	PT	8240	0.10	mg/l
111-TRICHLOROETHANE	4.2	10/17/90	PT	8240	0.20	mg/l
XYLENE	<0.5	10/17/90	PT	8240	0.50	mg/l
LEAD,TOTAL	<0.05	10/26/90	SAT	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------					

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27191
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 10/03/90 TIME: 2:20 PM
DATE RECEIVED: 10/04/90 TIME: 11:30 AM
DATE COMPLETED: 11/08/90
SCHEDULED COMPLETION: 10/25/90
ANALYST: PT,SAT
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 28

	SV-2	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	49493					
BENZENE	0.22	10/17/90	PT	8240	0.10	mg/l
1-BUTANOL	250	10/17/90	PT	8240	50	mg/l
METHYLENE CHLORIDE	<0.5	10/17/90	PT	8240	0.5	mg/l
METHYL ETHYL KETONE	<5.0	10/17/90	PT	8240	5.0	mg/l
TOLUENE	5.1	10/17/90	PT	8240	0.10	mg/l
111-TRICHLOROETHANE	0.4	10/17/90	PT	8240	0.2	mg/l
XYLENE	12	10/17/90	PT	8240	0.50	mg/l
LEAD,TOTAL	0.14	10/26/90	SAT	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------					

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

Recovery Well

CLIENT: CPC-PONTIAC
PROJECT NO.: 26884
LOCATION: FORMER DRUM STORAGE PAD
SAMPLED BY: JAMES M. WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 03/26/91 TIME: 9:30 AM
DATE RECEIVED: 03/28/91 TIME: 8:00 AM
DATE COMPLETED: 04/23/91
SCHEDULED COMPLETION: 04/18/91
ANALYST: AD,PT,DJ
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 39

	393	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	61380					
BENZENE	<0.01	4/1/91	AD	8240	0.01	mg/l
1-BUTANOL	<5.0	4/1/91	AD	8240	5.0	mg/l
METHYLENE CHLORIDE	<0.05	4/1/91	AD	8240	0.05	mg/l
METHYL ETHYL KETONE	0.78	4/1/91	AD	8240	0.50	mg/l
TOLUENE	0.070	4/1/91	AD	8240	0.01	mg/l
111-TRICHLOROETHANE	0.29	4/1/91	AD	8240	0.02	mg/l
XYLENE	0.11	4/1/91	AD	8240	0.05	mg/l
LEAD,TOTAL	<0.05	4/5/91	DJ	239.1	0.05	mg/l

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 9:19 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 09/03/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: PT,JTW
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 11

	MW 1	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71161					
BENZENE	<0.001	8/22/91	PT	8240	0.001	mg/l
1-BUTANOL	<0.50	8/22/91	PT	8240	0.50	mg/l
METHYLENE CHLORIDE	<0.005	8/22/91	PT	8240	0.005	mg/l
METHYL ETHYL KETONE	<0.050	8/22/91	PT	8240	0.050	mg/l
TOLUENE	<0.001	8/22/91	PT	8240	0.001	mg/l
111-TRICHLOROETHANE	0.005	8/22/91	PT	8240	0.002	mg/l
XYLENE	<0.005	8/22/91	PT	8240	0.005	mg/l
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------	----------	----------	----------	---	----

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 9:19 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 08/29/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: JTW
QUALITY CONTROL REVIEW BY: CS
WORKSHEET NO: 12

	MW 1 FILTERED	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71162					
BENZENE	----------	----------	----------	----------	---	----
1-BUTANOL	----------	----------	----------	----------	---	----
METHYLENE CHLORIDE	----------	----------	----------	----------	---	----
METHYL ETHYL KETONE	----------	----------	----------	----------	---	----
TOLUENE	----------	----------	----------	----------	---	----
111-TRICHLOROETHANE	----------	----------	----------	----------	---	----
XYLENE	----------	----------	----------	----------	---	----
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------	----------	----------	----------	---	----

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 9:37 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 09/03/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: PT,JTW
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 13

	MW 2	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71163					
BENZENE	<0.001	8/22/91	PT	8240	0.001	mg/l
1-BUTANOL	<0.50	8/22/91	PT	8240	0.50	mg/l
METHYLENE CHLORIDE	<0.005	8/22/91	PT	8240	0.005	mg/l
METHYL ETHYL KETONE	<0.050	8/22/91	PT	8240	0.050	mg/l
TOLUENE	<0.001	8/22/91	PT	8240	0.001	mg/l
111-TRICHLOROETHANE	<0.002	8/22/91	PT	8240	0.002	mg/l
XYLENE	<0.005	8/22/91	PT	8240	0.005	mg/l
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	---	---	---	---	---	---

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME:
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 08/29/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: JTW
QUALITY CONTROL REVIEW BY: CS
WORKSHEET NO: 14

	MW 2 FILTERED	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71164					
BENZENE	----------	----------	----------	----------	---	----
1-BUTANOL	----------	----------	----------	----------	---	----
METHYLENE CHLORIDE	----------	----------	----------	----------	---	----
METHYL ETHYL KETONE	----------	----------	----------	----------	---	----
TOLUENE	----------	----------	----------	----------	---	----
111-TRICHLOROETHANE	----------	----------	----------	----------	---	----
XYLENE	----------	----------	----------	----------	---	----
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------	----------	----------	----------	---	----

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 8:11 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 09/03/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: PT,JTW
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 15

	MW 3	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71165					
BENZENE	0.14	8/22/91	PT	8240	0.01	mg/l
1-BUTANOL	<5.0	8/22/91	PT	8240	5.0	mg/l
METHYLENE CHLORIDE	<0.05	8/22/91	PT	8240	0.05	mg/l
METHYL ETHYL KETONE	<0.50	8/22/91	PT	8240	0.50	mg/l
TOLUENE	0.67	8/22/91	PT	8240	0.01	mg/l
111-TRICHLOROETHANE	<0.02	8/22/91	PT	8240	0.02	mg/l
XYLENE	0.06	8/22/91	PT	8240	0.05	mg/l
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	---	---	---	---	---	---

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 8:11 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 08/29/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: JTW
QUALITY CONTROL REVIEW BY: CS
WORKSHEET NO: 16

	MW 3 FILTERED	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71166					
BENZENE	----------	----------	----------	----------	---	----
1-BUTANOL	----------	----------	----------	----------	---	----
METHYLENE CHLORIDE	----------	----------	----------	----------	---	----
METHYL ETHYL KETONE	----------	----------	----------	----------	---	----
TOLUENE	----------	----------	----------	----------	---	----
111-TRICHLOROETHANE	----------	----------	----------	----------	---	----
XYLENE	----------	----------	----------	----------	---	----
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------	----------	----------	----------	---	----

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 7:55 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 09/03/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: PT,JTW
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 17

	MW 4	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71167					
BENZENE	0.042	8/22/91	PT	8240	0.001	mg/l
1-BUTANOL	<0.50	8/22/91	PT	8240	0.50	mg/l
METHYLENE CHLORIDE	<0.005	8/22/91	PT	8240	0.005	mg/l
METHYL ETHYL KETONE	<0.050	8/22/91	PT	8240	0.050	mg/l
TOLUENE	0.001	8/22/91	PT	8240	0.001	mg/l
111-TRICHLOROETHANE	<0.002	8/22/91	PT	8240	0.002	mg/l
XYLENE	<0.005	8/22/91	PT	8240	0.005	mg/l
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------	----------	----------	----------	---	---

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME:
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 08/29/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: JTW
QUALITY CONTROL REVIEW BY: CS
WORKSHEET NO: 18

	MW 4 FILTERED	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71168					
BENZENE	----------	----------	----------	----------	---	----
1-BUTANOL	----------	----------	----------	----------	---	----
METHYLENE CHLORIDE	----------	----------	----------	----------	---	----
METHYL ETHYL KETONE	----------	----------	----------	----------	---	----
TOLUENE	----------	----------	----------	----------	---	----
111-TRICHLOROETHANE	----------	----------	----------	----------	---	----
XYLENE	----------	----------	----------	----------	---	----
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------	----------	----------	----------	---	----

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 8:35 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 09/03/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: PT,JTW
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 19

	MW 5	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71169					
BENZENE	0.003	8/22/91	PT	8240	0.001	mg/l
1-BUTANOL	<0.50	8/22/91	PT	8240	0.50	mg/l
METHYLENE CHLORIDE	<0.005	8/22/91	PT	8240	0.005	mg/l
METHYL ETHYL KETONE	<0.050	8/22/91	PT	8240	0.050	mg/l
TOLUENE	<0.001	8/22/91	PT	8240	0.001	mg/l
111-TRICHLOROETHANE	<0.002	8/22/91	PT	8240	0.002	mg/l
XYLENE	<0.005	8/22/91	PT	8240	0.005	mg/l
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------	----------	----------	----------	---	----

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 8:35 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 08/29/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: JIW
QUALITY CONTROL REVIEW BY: CS
WORKSHEET NO: 20

	MW 5 FILTERED	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71170					
BENZENE	----------	----------	----------	----------	---	----
1-BUTANOL	----------	----------	----------	----------	---	----
METHYLENE CHLORIDE	----------	----------	----------	----------	---	----
METHYL ETHYL KETONE	----------	----------	----------	----------	---	----
TOLUENE	----------	----------	----------	----------	---	----
111-TRICHLOROETHANE	----------	----------	----------	----------	---	----
XYLENE	----------	----------	----------	----------	---	----
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------	----------	----------	----------	---	----

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 9:23 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 09/03/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: JK,JTW
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 21

	MW 6	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71171					
BENZENE	<0.005	8/22/91	JK	8240	0.005	mg/l
1-BUTANOL	<2.5	8/22/91	JK	8240	2.5	mg/l
METHYLENE CHLORIDE	<0.025	8/22/91	JK	8240	0.025	mg/l
METHYL ETHYL KETONE	<0.25	8/22/91	JK	8240	0.25	mg/l
TOLUENE	<0.005	8/22/91	JK	8240	0.005	mg/l
111-TRICHLOROETHANE	<0.01	8/22/91	JK	8240	0.01	mg/l
XYLENE	<0.025	8/22/91	JK	8240	0.025	mg/l
LEAD,TOTAL	<0.05	8/27/91	GR	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	---	---	---	---	---	---

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CFC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME:
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 08/29/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: JTW
QUALITY CONTROL REVIEW BY: CS
WORKSHEET NO: 22

	MW 6 FILTERED	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71172					
BENZENE	----------	----------	----------	----------	---	---
1-BUTANOL	----------	----------	----------	----------	---	---
METHYLENE CHLORIDE	----------	----------	----------	----------	---	---
METHYL ETHYL KETONE	----------	----------	----------	----------	---	---
TOLUENE	----------	----------	----------	----------	---	---
111-TRICHLOROETHANE	----------	----------	----------	----------	---	---
XYLENE	----------	----------	----------	----------	---	---
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------	----------	----------	----------	---	---

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 9:02 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 09/03/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: JK,JTW
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 23

	MW 7	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71173					
BENZENE	0.007	8/22/91	JK	8240	0.001	mg/l
1-BUTANOL	<0.50	8/22/91	JK	8240	0.50	mg/l
METHYLENE CHLORIDE	<0.005	8/22/91	JK	8240	0.005	mg/l
METHYL ETHYL KETONE	<0.050	8/22/91	JK	8240	0.050	mg/l
TOLUENE	<0.001	8/22/91	JK	8240	0.001	mg/l
111-TRICHLOROETHANE	<0.002	8/22/91	JK	8240	0.002	mg/l
XYLENE	<0.005	8/22/91	JK	8240	0.005	mg/l
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------	----------	----------	----------	---	----

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 9:02 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 08/29/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: JTW
QUALITY CONTROL REVIEW BY: CS
WORKSHEET NO: 24

	MW 7 FILTERED	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71174					
BENZENE	----------	----------	----------	----------	---	---
1-BUTANOL	----------	----------	----------	----------	---	---
METHYLENE CHLORIDE	----------	----------	----------	----------	---	---
METHYL ETHYL KETONE	----------	----------	----------	----------	---	---
TOLUENE	----------	----------	----------	----------	---	---
111-TRICHLOROETHANE	----------	----------	----------	----------	---	---
XYLENE	----------	----------	----------	----------	---	---
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------	----------	----------	----------	---	---

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 10:04 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 09/03/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: PT,JTW
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 25

	MW 9	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71175					
BENZENE	0.04	8/23/91	PT	8240	0.005	mg/l
1-BUTANOL	<2.5	8/23/91	PT	8240	2.5	mg/l
METHYLENE CHLORIDE	<0.025	8/23/91	PT	8240	0.025	mg/l
METHYL ETHYL KETONE	0.31	8/23/91	PT	8240	0.25	mg/l
TOLUENE	0.12	8/23/91	PT	8240	0.005	mg/l
111-TRICHLOROETHANE	<0.01	8/23/91	PT	8240	0.01	mg/l
XYLENE	<0.025	8/23/91	PT	8240	0.025	mg/l
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------	----------	----------	----------	---	----

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 10:04 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 08/29/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: JTW
QUALITY CONTROL REVIEW BY: CS
WORKSHEET NO: 26

	MW 9 FILTERED	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71176					
BENZENE	----------	----------	----------	----------	---	---
1-BUTANOL	----------	----------	----------	----------	---	---
METHYLENE CHLORIDE	----------	----------	----------	----------	---	---
METHYL ETHYL KETONE	----------	----------	----------	----------	---	---
TOLUENE	----------	----------	----------	----------	---	---
111-TRICHLOROETHANE	----------	----------	----------	----------	---	---
XYLENE	----------	----------	----------	----------	---	---
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------	----------	----------	----------	---	---

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 9:48 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 09/03/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: JK,JTW
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 27

	MW 10	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71177					
BENZENE	<0.001	8/22/91	JK	8240	0.001	mg/l
1-BUTANOL	<0.50	8/22/91	JK	8240	0.50	mg/l
METHYLENE CHLORIDE	<0.005	8/22/91	JK	8240	0.005	mg/l
METHYL ETHYL KETONE	<0.050	8/22/91	JK	8240	0.050	mg/l
TOLUENE	<0.001	8/22/91	JK	8240	0.001	mg/l
111-TRICHLOROETHANE	<0.002	8/22/91	JK	8240	0.002	mg/l
XYLENE	<0.005	8/22/91	JK	8240	0.005	mg/l
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	---	---	---	---	---	---

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 9:48 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 08/29/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: JTW
QUALITY CONTROL REVIEW BY: CS
WORKSHEET NO: 28

	MW 10 FILTERED	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71178					
BENZENE	----------	----------	----------	----------	---	---
1-BUTANOL	----------	----------	----------	----------	---	---
METHYLENE CHLORIDE	----------	----------	----------	----------	---	---
METHYL ETHYL KETONE	----------	----------	----------	----------	---	---
TOLUENE	----------	----------	----------	----------	---	---
111-TRICHLOROETHANE	----------	----------	----------	----------	---	---
XYLENE	----------	----------	----------	----------	---	---
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------	----------	----------	----------	---	---

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 8:40 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 09/03/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: PT,GR
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 29

	MW 12	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71179					
BENZENE	0.08	8/23/91	PT	8240	0.01	mg/l
1-BUTANOL	<5.0	8/23/91	PT	8240	5.0	mg/l
METHYLENE CHLORIDE	<0.05	8/23/91	PT	8240	0.05	mg/l
METHYL ETHYL KETONE	<0.50	8/23/91	PT	8240	0.50	mg/l
TOLUENE	0.79	8/23/91	PT	8240	0.01	mg/l
111-TRICHLOROETHANE	<0.02	8/23/91	PT	8240	0.02	mg/l
XYLENE	2.5	8/23/91	PT	8240	0.05	mg/l
LEAD,TOTAL	0.40	8/27/91	GR	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	---	---	---	---	---	---

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 8:40 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 08/29/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: JTW
QUALITY CONTROL REVIEW BY: CS
WORKSHEET NO: 30

	MW 12 FILTERED	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71180					
BENZENE	----------	----------	----------	----------	---	---
1-BUTANOL	----------	----------	----------	----------	---	---
METHYLENE CHLORIDE	----------	----------	----------	----------	---	---
METHYL ETHYL KETONE	----------	----------	----------	----------	---	---
TOLUENE	----------	----------	----------	----------	---	---
111-TRICHLOROETHANE	----------	----------	----------	----------	---	---
XYLENE	----------	----------	----------	----------	---	---
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------	----------	----------	----------	---	---

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 10:12 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 09/03/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: PT,JTW
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 31

	SV 1	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71181					
BENZENE	0.013	8/23/91	PT	8240	0.005	mg/l
1-BUTANOL	<2.5	8/23/91	PT	8240	2.5	mg/l
METHYLENE CHLORIDE	<0.025	8/23/91	PT	8240	0.025	mg/l
METHYL ETHYL KETONE	<0.25	8/23/91	PT	8240	0.25	mg/l
TOLUENE	0.36	8/23/91	PT	8240	0.005	mg/l
111-TRICHLOROETHANE	2.7	8/23/91	PT	8240	0.1	mg/l
XYLENE	0.24	8/23/91	PT	8240	0.025	mg/l
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------	----------	----------	----------	---	----

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 10:12 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 08/29/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: JTW
QUALITY CONTROL REVIEW BY: CS
WORKSHEET NO: 32

	SV 1 FILTERED	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71182					
BENZENE	----------	----------	----------	----------	---	----
1-BUTANOL	----------	----------	----------	----------	---	----
METHYLENE CHLORIDE	----------	----------	----------	----------	---	----
METHYL ETHYL KETONE	----------	----------	----------	----------	---	----
TOLUENE	----------	----------	----------	----------	---	----
111-TRICHLOROETHANE	----------	----------	----------	----------	---	----
XYLENE	----------	----------	----------	----------	---	----
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------	----------	----------	----------	---	----

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 8:20 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 09/03/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: PT,GR
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 33

	SV 2	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71183					
BENZENE	0.30	8/23/91	PT	8240	0.05	mg/l
1-BUTANOL	<25	8/23/91	PT	8240	25	mg/l
METHYLENE CHLORIDE	<0.25	8/23/91	PT	8240	0.25	mg/l
METHYL ETHYL KETONE	<2.5	8/23/91	PT	8240	2.5	mg/l
TOLUENE	3.4	8/23/91	PT	8240	0.05	mg/l
111-TRICHLOROETHANE	<0.1	8/23/91	PT	8240	0.1	mg/l
XYLENE	4.9	8/23/91	PT	8240	0.25	mg/l
LEAD,TOTAL	0.41	8/27/91	GR	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------	----------	----------	----------	---	----

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 8:20 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 08/29/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: JTW
QUALITY CONTROL REVIEW BY: CS
WORKSHEET NO: 34

	SV 2 FILTERED	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71184					
BENZENE	----------	----------	----------	----------	---	---
1-BUTANOL	----------	----------	----------	----------	---	---
METHYLENE CHLORIDE	----------	----------	----------	----------	---	---
METHYL ETHYL KETONE	----------	----------	----------	----------	---	---
TOLUENE	----------	----------	----------	----------	---	---
111-TRICHLOROETHANE	----------	----------	----------	----------	---	---
XYLENE	----------	----------	----------	----------	---	---
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------	----------	----------	----------	---	---

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 9:28 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 09/03/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: MSD,JK,JTW
QUALITY CONTROL REVIEW BY: RDW,CS,BJD
WORKSHEET NO: 35

	RECOVERY WELL	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71185					
BENZENE	0.004	8/23/91	JK	8240	0.001	mg/l
1-BUTANOL	<0.50	8/23/91	JK	8240	0.50	mg/l
METHYLENE CHLORIDE	<0.01	8/23/91	JK	8240	0.01	mg/l
METHYL ETHYL KETONE	<0.050	8/23/91	JK	8240	0.050	mg/l
TOLUENE	0.024	8/23/91	JK	8240	0.001	mg/l
111-TRICHLOROETHANE	0.098	8/23/91	JK	8240	0.002	mg/l
XYLENE	0.066	8/23/91	JK	8240	0.005	mg/l
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	4.4	8/26/91	MSD	413.2	1.0	mg/l

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

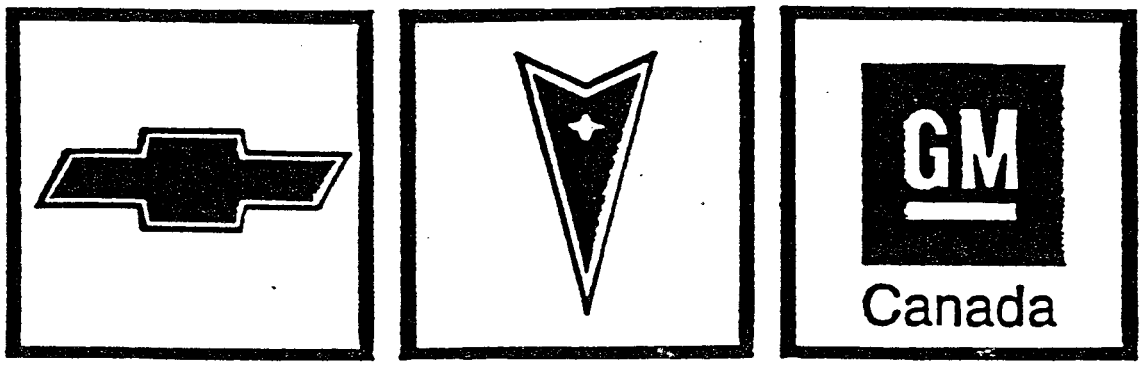
CLIENT: CPC-PONTIAC
PROJECT NO.: 27278
LOCATION: PAD WELLS
SAMPLED BY: JAMES WOOSTER
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/14/91 TIME: 9:28 AM
DATE RECEIVED: 08/15/91 TIME: 7:30 AM
DATE COMPLETED: 08/29/91
SCHEDULED COMPLETION: 09/02/91
ANALYST: JTW
QUALITY CONTROL REVIEW BY: CS
WORKSHEET NO: 36

	RECOVERY WELL FILT.	DATE ANALYZED	ANALYST	METHOD NUMBER	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71186					
BENZENE	----------	----------	----------	----------	---	----
1-BUTANOL	----------	----------	----------	----------	---	----
METHYLENE CHLORIDE	----------	----------	----------	----------	---	----
METHYL ETHYL KETONE	----------	----------	----------	----------	---	----
TOLUENE	----------	----------	----------	----------	---	----
111-TRICHLOROETHANE	----------	----------	----------	----------	---	----
XYLENE	----------	----------	----------	----------	---	----
LEAD,TOTAL	<0.05	8/23/91	JW	239.1	0.05	mg/l
GREASE&OIL/FREON-EXT	----------	----------	----------	----------	---	----

GM-CPC-PONTIAC
METHOD NARRATIVE

Parameter	Analytical Method Used	Date Analyzed	Analyst Initials
Benzene	8240	9/5-6/91	JK
Toluene	8240	9/5-6/91	JK
Xylene	8240	9/5-6/91	JK
Methyl Ethyl Ketone	8240	9/5-6/91	JK
1-Butanol	8240	9/5-6/91	JK
1,1,1-Trichloroethane	8240	9/5-6/91	JK
Methylene Chloride	8240	9/5-6/91	JK
Lead, Total	7420	9/5/91	JW
% Solids	209A	8/29/91	CMB



GENERAL MOTORS CORPORATION
CPC PONTIAC FACILITY

SOIL ANALYSIS

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 26884
LOCATION:
SAMPLED BY:
DESCRIPTION: SOIL ANALYSIS

DATE SAMPLED: 08/23/91 TIME:
DATE RECEIVED: 08/26/91 TIME: 12:30 PM
DATE COMPLETED: 09/10/91
SCHEDULED COMPLETION: 09/05/91
ANALYST: CMB,JW,JK,PT
QUALITY CONTROL REVIEW BY: CS,RDW
WORKSHEET NO: 50

	MW 13 SS1	MW 13 SS2	MW 13 SS3	MW 13 SS4	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71972	71973	71974	71975		
BENZENE	0.43	0.3	0.09	0.19	varies	mg/kg
TOLUENE	33	13	3.3	4.1	varies	mg/kg
XYLENE	41	26	9.8	15	varies	mg/kg
METHYL ETHYL KETONE	<1.2	<6.3	<1.1	<1.3	varies	mg/kg
1-BUTANOL	<12	<63	<11	<13	varies	mg/kg
111-TRICHLOROETHANE	<0.05	<0.3	<0.04	<0.05	varies	mg/kg
METHYLENE CHLORIDE	<0.1	<0.6	<0.1	<0.1	varies	mg/kg
LEAD,TOTAL	51	232	98	254	1.0	mg/kg
% SOLIDS	81	80	89	80	0.01	%
TIME SAMPLED:	10:00 AM	10:10 AM	10:20 AM	10:30 AM		

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 26884
LOCATION:
SAMPLED BY:
DESCRIPTION: SOIL ANALYSIS

DATE SAMPLED: 08/23/91 TIME:
DATE RECEIVED: 08/26/91 TIME: 12:30 PM
DATE COMPLETED: 09/10/91
SCHEDULED COMPLETION: 09/05/91
ANALYST: CMB,JW,JK,PT
QUALITY CONTROL REVIEW BY: CS,RDW
WORKSHEET NO: 51

	MW 13 SS5	MW 13 SS6	MW 13 SS7	MW 14 SS1	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71976	71977	71978	71979		
BENZENE	0.05	0.1	0.07	0.2	varies	mg/kg
TOLUENE	0.07	0.06	0.06	11	varies	mg/kg
XYLENE	1.2	3.0	1.4	18	varies	mg/kg
METHYL ETHYL KETONE	<0.62	<1.2	<1.2	<1.1	varies	mg/kg
1-BUTANOL	<6.1	<12	<12	<11	varies	mg/kg
111-TRICHLOROETHANE	<0.02	<0.05	<0.05	9.4	varies	mg/kg
METHYLENE CHLORIDE	<0.06	<0.1	<0.1	<0.1	varies	mg/kg
LEAD,TOTAL	3.8	9.7	12	26	1.0	mg/kg
% SOLIDS	82	82	81	89	0.01	%
TIME SAMPLED:	10:45 AM	11:00 AM	11:15 AM	12:45 PM		

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 26884
LOCATION:
SAMPLED BY:
DESCRIPTION: SOIL ANALYSIS

DATE SAMPLED: 08/23/91 TIME:
DATE RECEIVED: 08/26/91 TIME: 12:30 PM
DATE COMPLETED: 09/10/91
SCHEDULED COMPLETION: 09/05/91
ANALYST: CMB,JW,JK,PT
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 52

	MW 14 SS2	MW 14 SS3	MW 14 SS4	MW 14 SS5	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71980	71981	71982	71983		
BENZENE	0.2	0.2	<2	<0.06	varies	mg/kg
TOLUENE	16	30	20	6.5	varies	mg/kg
XYLENE	22	42	20	9.8	varies	mg/kg
METHYL ETHYL KETONE	1.7	<2.8	<120	4.4	varies	mg/kg
1-BUTANOL	<11	<28	<1,200	<29	varies	mg/kg
111-TRICHLOROETHANE	3.8	3.8	<5	<0.1	varies	mg/kg
METHYLENE CHLORIDE	<0.1	<0.3	<10	<0.3	varies	mg/kg
LEAD,TOTAL	33	23	9.0	8.6	1.0	mg/kg
% SOLIDS	89	90	86	87	0.01	%
TIME SAMPLED:	1:10 PM	1:30 PM	1:45 PM	2:00 PM		

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 26884
LOCATION:
SAMPLED BY:
DESCRIPTION: SOIL ANALYSIS

DATE SAMPLED: 08/23/91 TIME: 2:30 PM
DATE RECEIVED: 08/26/91 TIME: 12:30 PM
DATE COMPLETED: 09/10/91
SCHEDULED COMPLETION: 09/05/91
ANALYST: CMB,JW,JK,PT
QUALITY CONTROL REVIEW BY: RDW,CS
WORKSHEET NO: 53

	MW 14 SS6	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	71984		
BENZENE	<3	3	mg/kg
TOLUENE	20	3	mg/kg
XYLENE	30	15	mg/kg
METHYL ETHYL KETONE	<150	150	mg/kg
1-BUTANOL	<1,500	1,500	mg/kg
111-TRICHLOROETHANE	<6	6	mg/kg
METHYLENE CHLORIDE	<20	20	mg/kg
LEAD,TOTAL	6.4	1.0	mg/kg
% SOLIDS	82	0.01	%

GENERAL MOTORS CORPORATION

CPC PONTIAC FACILITY

WATER ANALYSIS

GM-CPC-PONTIAC
METHOD NARRATIVE

Parameter	Analytical Method Used	Date Analyzed	Analyst Initials
Benzene	8240	9/3 - 4/91	JK, PT
Toluene	8240	9/3 - 4/91	JK, PT
Xylene	8240	9/3 - 4/91	JK, PT
Methyl Ethyl Ketone	8240	9/3 - 4/91	JK, PT
1-Butanol	8240	9/3 - 4/91	JK, PT
1,1,1-Trichloroethane	8240	9/3 - 4/91	JK, PT
Methylene Chloride	8240	9/3 - 4/91	JK, PT

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 26884
LOCATION: RCRA PAD
SAMPLED BY:
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/23/91 TIME:
DATE RECEIVED: 08/26/91 TIME: 12:30 PM
DATE COMPLETED: 09/09/91
SCHEDULED COMPLETION: 09/13/91
ANALYST: PT,JK
QUALITY CONTROL REVIEW BY: RW
WORKSHEET NO: 27

	MW 1	MW 2	MW 3	MW 4	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	72027	72028	72029	72030		
BENZENE	<1	<1	76	11	varies	ug/l
TOLUENE	<1	<1	1,200	<1	varies	ug/l
XYLENE	<1	<1	4,300	<1	varies	ug/l
METHYL ETHYL KETONE	<5	<5	<2,500	<5	varies	ug/l
1-BUTANOL	<500	<500	<25,000	<500	varies	ug/l
111-TRICHLOROETHANE	<1	<1	<100	<1	varies	ug/l
METHYLENE CHLORIDE	<1	<1	<250	<1	varies	ug/l

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 26884
LOCATION: RCRA PAD
SAMPLED BY:
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/23/91 TIME:
DATE RECEIVED: 08/26/91 TIME: 12:30 PM
DATE COMPLETED: 09/09/91
SCHEDULED COMPLETION: 09/13/91
ANALYST: PT,JK
QUALITY CONTROL REVIEW BY: RW
WORKSHEET NO: 28

	MW 5	MW 6	MW 7	MW 8	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	72031	72032	72033	72034		
BENZENE	<1	<1	<1	3	1	ug/l
TOLUENE	<1	<1	<1	<1	1	ug/l
XYLENE	<1	<1	<1	<1	1	ug/l
METHYL ETHYL KETONE	<5	<5	<5	<5	5	ug/l
1-BUTANOL	<500	<500	<500	<500	500	ug/l
111-TRICHLOROETHANE	<1	<1	<1	<1	1	ug/l
METHYLENE CHLORIDE	<1	<1	<1	<1	1	ug/l

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 26884
LOCATION: RCRA PAD
SAMPLED BY:
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/23/91 TIME:
DATE RECEIVED: 08/26/91 TIME: 12:30 PM
DATE COMPLETED: 09/09/91
SCHEDULED COMPLETION: 09/13/91
ANALYST: PT,JK
QUALITY CONTROL REVIEW BY: RW
WORKSHEET NO: 29

	MW 9	MW 10	MW 12	SV 1	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	72035	72036	72037	72038		
BENZENE	22	<1	140	220	varies	ug/l
TOLUENE	66	<1	640	3,400	varies	ug/l
XYLENE	1	<1	74	750	varies	ug/l
METHYL ETHYL KETONE	820	<5	73	<2,500	varies	ug/l
1-BUTANOL	<500	<500	<2,500	<250,000	varies	ug/l
111-TRICHLOROETHANE	<1	<1	<5	42,000	varies	ug/l
METHYLENE CHLORIDE	4	<1	<5	<500	varies	ug/l

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

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DATE SAMPLED: 08/23/91 TIME:
DATE RECEIVED: 08/26/91 TIME: 12:30 PM
DATE COMPLETED: 09/09/91
SCHEDULED COMPLETION: 09/13/91
ANALYST: PT,JK
QUALITY CONTROL REVIEW BY: RW
WORKSHEET NO: 30

	SV 2	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	72039		
BENZENE	440	50	ug/l
TOLUENE	5,000	50	ug/l
XYLENE	6,900	50	ug/l
METHYL ETHYL KETONE	<2,500	2,500	ug/l
1-BUTANOL	<25,000	25,000	ug/l
111-TRICHLOROETHANE	<100	100	ug/l
METHYLENE CHLORIDE	<250	250	ug/l

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 26884
LOCATION: RCRA PAD
SAMPLED BY:
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/25/91 TIME:
DATE RECEIVED: 08/27/91 TIME: 10:30 AM
DATE COMPLETED: 09/03/91
SCHEDULED COMPLETION: 09/13/91
ANALYST: KV,DJ,GR
QUALITY CONTROL REVIEW BY: CS
WORKSHEET NO: 54

	MW 1	MW 2	MW 3	MW 4	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	72013	72014	72015	72016		
LEAD,TOTAL	<1.0	<1.0	<1.0	<1.0	1.0	ug/l
TIME SAMPLED:	2:20 PM	2:35 PM	1:30 PM	1:00 PM		

ALL SAMPLES WERE FILTERED IN FIELD.

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 26884
LOCATION: RCRA PAD
SAMPLED BY:
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/25/91 TIME:
DATE RECEIVED: 08/27/91 TIME: 10:30 AM
DATE COMPLETED: 09/03/91
SCHEDULED COMPLETION: 09/13/91
ANALYST: DJ,GR,KV
QUALITY CONTROL REVIEW BY: CS
WORKSHEET NO: 55

	MW 5	MW 6	MW 7	MW 8	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	72017	72018	72019	72020		
LEAD,TOTAL	<1.0	<1.0	<1.0	<1.0	1.0	ug/l
TIME SAMPLED:	2:10 PM	3:00 PM	1:05 PM	3:10 PM		

ALL SAMPLES WERE FILTERED IN FIELD.

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 26884
LOCATION: RCRA PAD
SAMPLED BY:
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/25/91 TIME:
DATE RECEIVED: 08/27/91 TIME: 10:30 AM
DATE COMPLETED: 09/03/91
SCHEDULED COMPLETION: 09/13/91
ANALYST: DJ,GR,KV
QUALITY CONTROL REVIEW BY: CS
WORKSHEET NO: 56

	MW 9	MW 10	MW 12	MW 13	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	72021	72022	72023	72024		
LEAD,TOTAL	<1.0	<1.0	<1.0	<1.0	1.0	ug/l
TIME SAMPLED:	2:50 PM	2:40 PM	1:35 PM	1:05 PM		

ALL SAMPLES WERE FILTERED IN FIELD.

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 26884
LOCATION: RCRA PAD
SAMPLED BY:
DESCRIPTION: WATER ANALYSIS

DATE SAMPLED: 08/25/91 TIME:
DATE RECEIVED: 08/27/91 TIME: 10:30 AM
DATE COMPLETED: 09/03/91
SCHEDULED COMPLETION: 09/13/91
ANALYST: DJ,KV,GR
QUALITY CONTROL REVIEW BY: CS
WORKSHEET NO: 57

	SV 1	SV 2	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	72025	72026		
LEAD,TOTAL	<1.0	<1.0	1.0	ug/l
TIME SAMPLED:	2:52 PM	1:10 PM		

ALL SAMPLES WERE FILTERED IN FIELD.

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 26884
LOCATION:
SAMPLED BY: C.C.E.
DESCRIPTION: SOIL ANALYSIS

DATE SAMPLED: 08/27/91 TIME:
DATE RECEIVED: 08/29/91 TIME: 7:30 AM
DATE COMPLETED: 09/11/91
SCHEDULED COMPLETION: 09/09/91
ANALYST: CMB,RR,JK
QUALITY CONTROL REVIEW BY: RW,CS
WORKSHEET NO: 77

	RW1 SS1	RW1 SS2	RW1 SS3	RW1 SS4	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	72185	72186	72187	72188		
BENZENE	0.04	<0.006	<0.01	<0.01	varies	mg/kg
TOLUENE	0.85	0.03	0.07	0.01	varies	mg/kg
XYLENE	0.05	0.03	0.08	<0.01	varies	mg/kg
METHYL ETHYL KETONE	2.3	<1.1	<0.57	<0.60	varies	mg/kg
1-BUTANOL	<11	<2.9	<5.7	<6.0	varies	mg/kg
111-TRICHLOROETHANE	<0.04	0.01	0.06	<0.02	varies	mg/kg
METHYLENE CHLORIDE	<0.11	<0.03	<0.06	<0.06	varies	mg/kg
LEAD,TOTAL	251	33	58	5.5	1.0	mg/kg
% SOLIDS	90	87	87	83	0.01	%
TIME SAMPLED:	10:25 AM	10:55 AM	11:05 AM	11:15 AM		

ALL RESULTS ARE CALCULATED ON A "DRY WEIGHT" BASIS.

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: CPC-PONTIAC
PROJECT NO.: 26884
LOCATION:
SAMPLED BY: C.C.E.
DESCRIPTION: SOIL ANALYSIS

DATE SAMPLED: 08/27/91 TIME:
DATE RECEIVED: 08/29/91 TIME: 7:30 AM
DATE COMPLETED: 09/11/91
SCHEDULED COMPLETION: 09/09/91
ANALYST: CMB,RR,JK
QUALITY CONTROL REVIEW BY: RW,CS
WORKSHEET NO: 78

	RW1 SS5	RW1 SS6	RW1 SS7	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	72189	72190	72191		
BENZENE	0.03	0.29	0.28	varies	mg/kg
TOLUENE	1.5	6.1	3.6	varies	mg/kg
XYLENE	3.0	11	3.3	varies	mg/kg
METHYL ETHYL KETONE	1.2	18	29	varies	mg/kg
1-BUTANOL	<6.1	<130	<120	varies	mg/kg
111-TRICHLOROETHANE	1.5	6.2	3.8	varies	mg/kg
METHYLENE CHLORIDE	<0.06	<1.3	<1.2	varies	mg/kg
LEAD,TOTAL	8.2	7.4	7.7	1.0	mg/kg
% SOLIDS	82	79	81	0.01	%
TIME SAMPLED:	11:20 AM	11:25 AM	11:30 AM		

ALL RESULTS ARE CALCULATED ON A "DRY WEIGHT" BASIS.

APPENDIX E.3

PARSONS ES 1996

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	MW5 A6A190124-002 QUANTERRA A6A190124 WATER 1/18/96	MW5 A6B150157-012 QUANTERRA A6B150157 WATER 2/13/96	MW7 A6A180129-003 QUANTERRA A6A180129 WATER 1/17/96	MW57 A6A180129-005 QUANTERRA A6A180129 WATER 1/17/96	MW7 A6B150157-015 QUANTERRA A6B150157 WATER 2/14/96
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	UG/L	100 U	NA	6.6 J	5.6 J	NA
75-05-8	Acetonitrile	UG/L	NA	NA	NA	NA	NA
107-02-8	Acrolein	UG/L	NA	NA	NA	NA	NA
107-13-1	Acrylonitrile	UG/L	NA	NA	NA	NA	NA
71-43-2	Benzene	UG/L	1.1 J	NA	17	15	13
75-27-4	Bromodichloromethane	UG/L	1 U	NA	1 U	1 U	NA
75-25-2	Bromoform	UG/L	1 U	NA	1 U	1 U	NA
74-83-9	Bromomethane	UG/L	1 U	NA	1 U	1 U	NA
75-15-0	Carbon disulfide	UG/L	50 U	NA	50 U	50 U	NA
56-23-5	Carbon tetrachloride	UG/L	1 U	NA	1 U	1 U	NA
108-90-7	Chlorobenzene	UG/L	1 U	NA	1 U	1 U	NA
126-99-8	Chloroprene	UG/L	NA	NA	NA	NA	NA
124-48-1	Dibromochloromethane	UG/L	1 U	NA	1 U	1 U	NA
96-12-8	1,2-Dibromo-3-chloropropane	UG/L	NA	NA	NA	NA	NA
75-00-3	Chloroethane	UG/L	24	NA	1.6	1.6	NA
67-66-3	Chloroform	UG/L	1 U	NA	1 U	1 U	NA
74-87-3	Chloromethane	UG/L	1 U	NA	1 U	1 U	NA
107-05-1	Allyl chloride	UG/L	NA	NA	NA	NA	NA
74-95-3	Dibromomethane	UG/L	NA	NA	NA	NA	NA
95-50-1	1,2-Dichlorobenzene	UG/L	1 U	NA	1 U	1 U	NA
541-73-1	1,3-Dichlorobenzene	UG/L	1 U	NA	1 U	1 U	NA
106-46-7	1,4-Dichlorobenzene	UG/L	1 U	NA	1 U	1 U	NA
110-57-6	trans-1,4-Dichloro-2-butene	UG/L	NA	NA	NA	NA	NA
75-71-8	Dichlorodifluoromethane	UG/L	NA	NA	NA	NA	NA
75-34-3	1,1-Dichloroethane	UG/L	4.5	NA	11	12	NA
107-06-2	1,2-Dichloroethane	UG/L	1.3	NA	1 U	1 U	NA
75-35-4	1,1-Dichloroethene	UG/L	1 U	NA	1 U	1 U	NA
156-59-2	cis-1,2-Dichloroethene	UG/L	1 U	NA	7.8	7.9	NA
156-60-5	trans-1,2-Dichloroethene	UG/L	1 U	NA	1 U	1 U	NA
78-87-5	1,2-Dichloropropane	UG/L	1 U	NA	1 U	1 U	NA
10061-01-5	cis-1,3-Dichloropropene	UG/L	1 U	NA	1 U	1 U	NA
10061-02-6	trans-1,3-Dichloropropene	UG/L	1 U	NA	1 U	1 U	NA
123-91-1	1,4-Dioxane	UG/L	NA	NA	NA	NA	NA
100-41-4	Ethylbenzene	UG/L	1 U	NA	1 U	1 U	NA
97-63-2	Ethyl methacrylate	UG/L	NA	NA	NA	NA	NA
75-69-4	Trichlorofluoromethane	UG/L	NA	NA	NA	NA	NA
591-78-6	2-Hexanone	UG/L	50 U	NA	50 U	50 U	NA
74-88-4	Iodomethane	UG/L	NA	NA	NA	NA	NA
78-83-1	Isobutyl alcohol	UG/L	NA	NA	NA	NA	NA
126-98-7	Methacrylonitrile	UG/L	NA	NA	NA	NA	NA
75-09-2	Methylene chloride	UG/L	5 U	NA	5 U	5 U	NA
80-62-6	Methyl methacrylate	UG/L	NA	NA	NA	NA	NA
107-12-0	Propionitrile	UG/L	NA	NA	NA	NA	NA
100-42-5	Styrene	UG/L	1 U	NA	1 U	1 U	NA
630-20-6	1,1,1,2-Tetrachloroethane	UG/L	NA	NA	NA	NA	NA
79-34-5	1,1,2,2-Tetrachloroethane	UG/L	1 U	NA	1 U	1 U	NA
127-18-4	Tetrachloroethene	UG/L	1 U	NA	1 U	1 U	NA
108-88-3	Toluene	UG/L	1 U	NA	1 U	1 U	NA
71-55-6	1,1,1-Trichloroethane	UG/L	1 U	NA	1 U	1 U	NA
79-00-5	1,1,2-Trichloroethane	UG/L	1 U	NA	1 U	1 U	NA
79-01-6	Trichloroethene	UG/L	1 U	NA	1 U	1 U	NA
96-18-4	1,2,3-Trichloropropane	UG/L	NA	NA	NA	NA	NA
108-05-4	Vinyl acetate	UG/L	NA	NA	NA	NA	NA
75-01-4	Vinyl chloride	UG/L	1 U	NA	12	12	13
1330-20-7	Xylenes (total)	UG/L	3 U	NA	3 U	3 U	NA
106-93-4	1,2-Dibromoethane (EDB)	UG/L	NA	NA	NA	NA	NA
78-93-3	2-Butanone (MEK)	UG/L	50 U	NA	50 U	50 U	NA
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/L	50 U	NA	50 U	50 U	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	MW5 A6A190124-002 QUANTERRA A6A190124 WATER 1/18/96	MW5 A6B150157-012 QUANTERRA A6B150157 WATER 2/13/96	MW7 A6A180129-003 QUANTERRA A6A180129 WATER 1/17/96	MW57 A6A180129-005 QUANTERRA A6A180129 WATER 1/17/96	MW7 A6B150157-015 QUANTERRA A6B150157 WATER 2/14/96
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
92-67-1	4-Aminobiphenyl	UG/L	NA	NA	NA	NA	NA
60-11-7	p-Dimethylaminoazobenzene	UG/L	NA	NA	NA	NA	NA
57-97-6	7,12-Dimethylbenz(a)anthracene	UG/L	NA	NA	NA	NA	NA
1888-71-7	Hexachloropropene	UG/L	NA	NA	NA	NA	NA
62-44-2	Phenacetin	UG/L	NA	NA	NA	NA	NA
23950-58-5	Pronamide	UG/L	NA	NA	NA	NA	NA
122-09-8	a,a-Dimethylphenethylamine	UG/L	NA	NA	NA	NA	NA
2303-16-4	Diallate	UG/L	NA	NA	NA	NA	NA
510-15-6	Chlorobenzilate	UG/L	NA	NA	NA	NA	NA
83-32-9	Acenaphthene	UG/L	5 U	NA	5 U	5 U	NA
208-96-8	Acenaphthylene	UG/L	5 U	NA	5 U	5 U	NA
98-86-2	Acetophenone	UG/L	NA	NA	NA	NA	NA
53-96-3	2-Acetylaminofluorene	UG/L	NA	NA	NA	NA	NA
62-53-3	Aniline	UG/L	NA	NA	NA	NA	NA
120-12-7	Anthracene	UG/L	5 U	NA	5 U	5 U	NA
56-55-3	Benzo(a)anthracene	UG/L	5 U	NA	5 U	5 U	NA
205-99-2	Benzo(b)fluoranthene	UG/L	5 U	NA	5 U	5 U	NA
207-08-9	Benzo(k)fluoranthene	UG/L	5 U	NA	5 U	5 U	NA
191-24-2	Benzo(ghi)perylene	UG/L	5 U	NA	5 U	5 U	NA
50-32-8	Benzo(a)pyrene	UG/L	5 U	NA	5 U	5 U	NA
100-51-6	Benzyl alcohol	UG/L	NA	NA	NA	NA	NA
111-91-1	bis(2-Chloroethoxy)methane	UG/L	5 U	NA	5 U	5 U	NA
111-44-4	bis(2-Chloroethyl) ether	UG/L	5 U	NA	5 U	5 U	NA
117-81-7	bis(2-Ethylhexyl) phthalate	UG/L	3.7 J	NA	16	0.92 J	50 U
101-55-3	4-Bromophenyl phenyl ether	UG/L	5 U	NA	5 U	5 U	NA
85-68-7	Butyl benzyl phthalate	UG/L	5 U	NA	5 U	5 U	NA
106-47-8	4-Chloroaniline	UG/L	20 U	NA	20 U	20 U	NA
59-50-7	4-Chloro-3-methylphenol	UG/L	5 U	NA	5 U	5 U	NA
91-58-7	2-Chloronaphthalene	UG/L	5 U	NA	5 U	5 U	NA
95-57-8	2-Chlorophenol	UG/L	5 U	NA	5 U	5 U	NA
7005-72-3	4-Chlorophenyl phenyl ether	UG/L	5 U	NA	5 U	5 U	NA
218-01-9	Chrysene	UG/L	5 U	NA	5 U	5 U	NA
53-70-3	Dibenz(a,h)anthracene	UG/L	5 U	NA	5 U	5 U	NA
132-64-9	Dibenzofuran	UG/L	5 U	NA	5 U	5 U	NA
84-74-2	Di-n-butyl phthalate	UG/L	5 U	NA	5 U	5 U	NA
91-94-1	3,3'-Dichlorobenzidine	UG/L	20 U	NA	20 U	20 U	NA
120-83-2	2,4-Dichlorophenol	UG/L	5 U	NA	5 U	5 U	NA
87-65-0	2,6-Dichlorophenol	UG/L	NA	NA	NA	NA	NA
84-66-2	Diethyl phthalate	UG/L	5 U	NA	5 U	5 U	NA
119-93-7	3,3'-Dimethylbenzidine	UG/L	NA	NA	NA	NA	NA
105-67-9	2,4-Dimethylphenol	UG/L	5 U	NA	5 U	2.8 J	NA
131-11-3	Dimethyl phthalate	UG/L	5 U	NA	5 U	5 U	NA
117-84-0	Di-n-octyl phthalate	UG/L	5 U	NA	5 U	5 U	NA
99-65-0	1,3-Dinitrobenzene	UG/L	NA	NA	NA	NA	NA
534-52-1	4,6-Dinitro-2-methylphenol	UG/L	20 U	NA	20 U	20 U	NA
51-28-5	2,4-Dinitrophenol	UG/L	20 U	NA	20 U	20 U	NA
121-14-2	2,4-Dinitrotoluene	UG/L	5 U	NA	5 U	5 U	NA
606-20-2	2,6-Dinitrotoluene	UG/L	5 U	NA	5 U	5 U	NA
122-39-4	Diphenylamine	UG/L	NA	NA	NA	NA	NA
62-50-0	Ethyl methanesulfonate	UG/L	NA	NA	NA	NA	NA
206-44-0	Fluoranthene	UG/L	5 U	NA	5 U	5 U	NA
86-73-7	Fluorene	UG/L	5 U	NA	5 U	5 U	NA
118-74-1	Hexachlorobenzene	UG/L	5 U	NA	5 U	5 U	NA
87-68-3	Hexachlorobutadiene	UG/L	5 U	NA	5 U	5 U	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	MW5 A6A190124-002 QUANTERRA A6A190124 WATER 1/18/96	MW5 A6B150157-012 QUANTERRA A6B150157 WATER 2/13/96	MW7 A6A180129-003 QUANTERRA A6A180129 WATER 1/17/96	MW57 A6A180129-005 QUANTERRA A6A180129 WATER 1/17/96	MW7 A6B150157-015 QUANTERRA A6B150157 WATER 2/14/96
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES CONT'D						
77-47-4	Hexachlorocyclopentadiene	UG/L	5 U	NA	5 U	5 U	NA
67-72-1	Hexachloroethane	UG/L	5 U	NA	5 U	5 U	NA
193-39-5	Indeno(1,2,3-cd)pyrene	UG/L	5 U	NA	5 U	5 U	NA
78-59-1	Isophorone	UG/L	5 U	NA	5 U	5 U	NA
120-58-1	Isosafrole	UG/L	NA	NA	NA	NA	NA
91-80-5	Methapyrilene	UG/L	NA	NA	NA	NA	NA
95-53-4	o-Toluidine	UG/L	NA	NA	NA	NA	NA
56-49-5	3-Methylcholanthrene	UG/L	NA	NA	NA	NA	NA
66-27-3	Methyl methanesulfonate	UG/L	NA	NA	NA	NA	NA
91-57-6	2-Methylnaphthalene	UG/L	5 U	NA	5 U	5 U	NA
95-48-7	2-Methylphenol	UG/L	5 U	NA	5 U	5 U	NA
108-39-4	3-Methylphenol	UG/L	NA	NA	NA	NA	NA
106-44-5	4-Methylphenol	UG/L	5 U	NA	5 U	5 U	NA
91-20-3	Naphthalene	UG/L	5 U	NA	5 U	5 U	NA
130-15-4	1,4-Naphthoquinone	UG/L	NA	NA	NA	NA	NA
134-32-7	1-Naphthylamine	UG/L	NA	NA	NA	NA	NA
91-59-8	2-Naphthylamine	UG/L	NA	NA	NA	NA	NA
88-74-4	2-Nitroaniline	UG/L	20 U	NA	20 U	20 U	NA
99-09-2	3-Nitroaniline	UG/L	20 U	NA	20 U	20 U	NA
100-01-6	4-Nitroaniline	UG/L	20 U	NA	20 U	20 U	NA
98-95-3	Nitrobenzene	UG/L	5 U	NA	5 U	5 U	NA
88-75-5	2-Nitrophenol	UG/L	5 U	NA	5 U	5 U	NA
100-02-7	4-Nitrophenol	UG/L	20 U	NA	20 U	20 U	NA
56-57-5	4-Nitroquinoline-1-oxide	UG/L	NA	NA	NA	NA	NA
924-16-3	N-Nitrosodi-n-butylamine	UG/L	NA	NA	NA	NA	NA
55-18-5	N-Nitrosodiethylamine	UG/L	NA	NA	NA	NA	NA
62-75-9	N-Nitrosodimethylamine	UG/L	NA	NA	NA	NA	NA
621-64-7	N-Nitrosodi-n-propylamine	UG/L	5 U	NA	5 U	5 U	NA
86-30-6	N-Nitrosodiphenylamine	UG/L	5 U	NA	5 U	5 U	NA
10595-95-6	N-Nitrosomethylethylamine	UG/L	NA	NA	NA	NA	NA
59-89-2	N-Nitrosomorpholine	UG/L	NA	NA	NA	NA	NA
100-75-4	N-Nitrosopiperidine	UG/L	NA	NA	NA	NA	NA
930-55-2	N-Nitrosopyrrolidine	UG/L	NA	NA	NA	NA	NA
99-55-8	5-Nitro-o-toluidine	UG/L	NA	NA	NA	NA	NA
608-93-5	Pentachlorobenzene	UG/L	NA	NA	NA	NA	NA
76-01-7	Pentachloroethane	UG/L	NA	NA	NA	NA	NA
82-68-8	Pentachloronitrobenzene	UG/L	NA	NA	NA	NA	NA
87-86-5	Pentachlorophenol	UG/L	25 U	NA	25 U	25 U	NA
85-01-8	Phenanthrene	UG/L	5 U	NA	5 U	5 U	NA
108-95-2	Phenol	UG/L	5 U	NA	5 U	5 U	NA
106-50-3	p-Phenylene diamine	UG/L	NA	NA	NA	NA	NA
109-06-8	2-Picoline	UG/L	NA	NA	NA	NA	NA
129-00-0	Pyrene	UG/L	5 U	NA	5 U	5 U	NA
110-86-1	Pyridine	UG/L	NA	NA	NA	NA	NA
94-59-7	Safrole	UG/L	NA	NA	NA	NA	NA
95-94-3	1,2,4,5-Tetrachlorobenzene	UG/L	NA	NA	NA	NA	NA
58-90-2	2,3,4,6-Tetrachlorophenol	UG/L	NA	NA	NA	NA	NA
120-82-1	1,2,4-Trichlorobenzene	UG/L	5 U	NA	5 U	5 U	NA
95-95-4	2,4,5-Trichlorophenol	UG/L	50 U	NA	50 U	50 U	NA
88-06-2	2,4,6-Trichlorophenol	UG/L	5 U	NA	5 U	5 U	NA
99-35-4	1,3,5-Trinitrobenzene	UG/L	NA	NA	NA	NA	NA
86-74-8	Carbazole	UG/L	10 U	NA	10 U	10 U	NA
108-60-1	bis(2-Chloroisopropyl) ether	UG/L	5 U	NA	5 U	5 U	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	MW5 A6A190124-002 QUANTERRA A6A190124 WATER 1/18/96	MW5 A6B150157-012 QUANTERRA A6B150157 WATER 2/13/96	MW7 A6A180129-003 QUANTERRA A6A180129 WATER 1/17/96	MW57 A6A180129-005 QUANTERRA A6A180129 WATER 1/17/96	MW7 A6B150157-015 QUANTERRA A6B150157 WATER 2/14/96
CAS NO.	COMPOUND	UNITS:					
	PESTICIDES/PCBs						
309-00-2	Aldrin	UG/L	0.52 U*	NA	0.2 U*	0.2 U*	NA
319-84-6	alpha-BHC	UG/L	0.01 U	NA	0.01 U	0.01 U	NA
319-85-7	beta-BHC	UG/L	0.01 U	NA	0.01 U	0.01 U	NA
319-86-8	delta-BHC	UG/L	0.01 U	NA	0.01 U	0.01 U	NA
58-89-9	gamma-BHC (Lindane)	UG/L	0.01 U	NA	0.01 U	0.01 U	NA
5103-71-9	alpha-Chlordane	UG/L	0.01 U	NA	0.01 U	0.01 U	NA
5103-74-2	gamma-Chlordane	UG/L	0.01 U	NA	0.01 U	0.01 U	NA
72-54-8	4,4'-DDD	UG/L	0.02 U	NA	0.02 U	0.02 U	NA
72-55-9	4,4'-DDE	UG/L	0.02 U	NA	0.02 U	0.02 U	NA
50-29-3	4,4'-DDT	UG/L	0.02 U	NA	0.02 U	0.02 U	NA
60-57-1	Dieldrin	UG/L	0.02 U	NA	0.02 U	0.02 U	NA
959-98-8	Endosulfan I	UG/L	0.05 U	NA	0.05 U	0.05 U	NA
33213-65-9	Endosulfan II	UG/L	0.05 U	NA	0.05 U	0.05 U	NA
1031-07-8	Endosulfan sulfate	UG/L	0.05 U	NA	0.05 U	0.05 U	NA
72-20-8	Endrin	UG/L	0.02 U	NA	0.02 U	0.02 U	NA
7421-93-4	Endrin aldehyde	UG/L	0.02 U	NA	0.02 U	0.02 U	NA
76-44-8	Heptachlor	UG/L	0.01 U	NA	0.01 U	0.01 U	NA
1024-57-3	Heptachlor epoxide	UG/L	0.01 U	NA	0.01 U	0.01 U	NA
465-73-6	Isodrin	UG/L	NA	NA	NA	NA	NA
143-50-0	Kepone	UG/L	NA	NA	NA	NA	NA
72-43-5	Methoxychlor	UG/L	0.5 U	NA	0.5 U	0.5 U	NA
12674-11-2	Aroclor 1016	UG/L	0.1 U	NA	0.1 U	0.1 U	NA
11104-28-2	Aroclor 1221	UG/L	0.1 U	NA	0.1 U	0.1 U	NA
11141-16-5	Aroclor 1232	UG/L	0.1 U	NA	0.1 U	0.1 U	NA
53469-21-9	Aroclor 1242	UG/L	0.1 U	NA	0.1 U	0.1 U	NA
12672-29-6	Aroclor 1248	UG/L	0.1 U	NA	0.1 U	0.1 U	NA
11097-69-1	Aroclor 1254	UG/L	0.2 U	NA	0.2 U	0.2 U	NA
11096-82-5	Aroclor 1260	UG/L	0.2 U	NA	0.2 U	0.2 U	NA
8001-35-2	Toxaphene	UG/L	1 U	NA	1 U	1 U	NA
53494-70-5	Endrin ketone	UG/L	0.02 U	NA	0.02 U	0.02 U	NA
	HERBICIDES						
297-97-2	Thionazin	UG/L	NA	NA	NA	NA	NA
60-51-5	Dimethoate	UG/L	NA	NA	NA	NA	NA
298-04-4	Disulfoton	UG/L	NA	NA	NA	NA	NA
52-85-7	Famphur	UG/L	NA	NA	NA	NA	NA
298-00-0	Methyl parathion	UG/L	NA	NA	NA	NA	NA
56-38-2	Parathion	UG/L	NA	NA	NA	NA	NA
298-02-2	Phorate	UG/L	NA	NA	NA	NA	NA
3689-24-5	Tetraethyldithiopyrophosphate	UG/L	NA	NA	NA	NA	NA
126-68-1	O,O,O-Triethyl phosphorothioate	UG/L	NA	NA	NA	NA	NA
94-75-7	2,4-D	UG/L	NA	NA	NA	NA	NA
88-85-7	Dinoseb	UG/L	NA	NA	NA	NA	NA
93-76-5	2,4,5-T	UG/L	NA	NA	NA	NA	NA
93-72-1	2,4,5-TP (Silvex)	UG/L	NA	NA	NA	NA	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	MW5 A6A190124-002 QUANTERRA A6A190124 WATER 1/18/96	MW5 A6B150157-012 QUANTERRA A6B150157 WATER 2/13/96	MW7 A6A180129-003 QUANTERRA A6A180129 WATER 1/17/96	MW57 A6A180129-005 QUANTERRA A6A180129 WATER 1/17/96	MW7 A6B150157-015 QUANTERRA A6B150157 WATER 2/14/96
CAS NO.	COMPOUND	UNITS:					
	INORGANICS						
7440-47-3	Chromium -DISS	UG/L	5 U	NA	5 U	5 U	NA
7439-92-1	Lead -DISS	UG/L	3 U	NA	3 U	3 U	NA
7440-36-0	Antimony -DISS	UG/L	5 U	NA	5 U	5 U	NA
7782-49-2	Selenium -DISS	UG/L	5 U	NA	5 U	5 U	NA
7429-90-5	Aluminum -DISS	UG/L	199	156	148	515	105
7440-39-3	Barium -DISS	UG/L	229	NA	398	396	NA
7440-41-7	Beryllium -DISS	UG/L	3 U	NA	3 U	3 U	NA
7440-70-2	Calcium -DISS	UG/L	75500	73300	82100	82900	74800
7440-48-4	Cobalt -DISS	UG/L	50 U	NA	50 U	50 U	NA
7440-50-8	Copper -DISS	UG/L	25 U	NA	25 U	25 U	NA
7439-89-6	Iron -DISS	UG/L	2930	2320	5340	5550	4670
7440-09-7	Potassium -DISS	UG/L	24600	16900	30900	30400	24300
7439-95-4	Magnesium -DISS	UG/L	29200	NA	25300	25300	NA
7439-96-5	Manganese -DISS	UG/L	115	104	101	105	90
7440-23-5	Sodium -DISS	UG/L	763000	662000	1370000	1250000	1010000
7440-02-0	Nickel -DISS	UG/L	50 U	NA	50 U	50 U	NA
7440-31-5	Tin -DISS	UG/L	NA	NA	NA	NA	NA
7440-62-2	Vanadium -DISS	UG/L	20 U	NA	20 U	20 U	NA
7440-66-6	Zinc -DISS	UG/L	20 U	NA	20 U	26	NA
7440-38-2	Arsenic -DISS	UG/L	5.1	NA	5.4	5.2	NA
7440-43-9	Cadmium -DISS	UG/L	0.5 U	NA	0.5 U	0.5 U	NA
7439-97-6	Mercury -DISS	UG/L	0.2 U	NA	0.2 U	0.2 U	NA
7440-22-4	Silver -DISS	UG/L	0.5 U	NA	0.5 U	0.5 U	NA
7440-28-0	Thallium -DISS	UG/L	32 U*	4 U	40 U*	32 U*	4 U
18496-25-8	Sulfide	MG/L	NA	NA	NA	NA	NA
57-12-5	Cyanide	UG/L	21	NA	20 U	20 U	NA
	DIOXINS						
DIOXIN1	TCDFs(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN2	2,3,7,8-TCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN3	PeCDFS(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN4	1,2,3,7,8-PeCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN5	2,3,4,7,8-PeCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN6	HxCDFs(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN7	1,2,3,4,7,8-HxCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN8	1,2,3,6,7,8-HxCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN9	2,3,4,6,7,8-HxCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN10	1,2,3,7,8,9-HxCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN11	HpCDFs(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN12	1,2,3,4,6,7,8-HpCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN13	1,2,3,4,7,8,9-HpCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN14	OCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN15	TCDDs(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN16	2,3,7,8-TCDD	PG/L	NA	NA	NA	NA	NA
DIOXIN17	PeCDDs(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN18	1,2,3,7,8-PeCDD	PG/L	NA	NA	NA	NA	NA
DIOXIN19	HxCDDs(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN20	1,2,3,4,7,8-HxCDD	PG/L	NA	NA	NA	NA	NA
DIOXIN21	1,2,3,6,7,8-HxCDD	PG/L	NA	NA	NA	NA	NA
DIOXIN22	1,2,3,7,8,9-HxCDD	PG/L	NA	NA	NA	NA	NA
DIOXIN23	HpCDDs(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN24	1,2,3,4,6,7,8-HpCDD	PG/L	NA	NA	NA	NA	NA
DIOXIN25	OCDD	PG/L	NA	NA	NA	NA	NA
TDIOXINS	TOTAL TEFs	PG/L	NA	NA	NA	NA	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	MW8 A6C080138-001 QUANTERRA C08138 WATER 3/01/96	MW16 A6A180129-004 QUANTERRA A6A180129 WATER 1/17/96	MW16 A6B150157-013 QUANTERRA A6B150157 WATER 2/14/96	DW16 A6A190124-001 QUANTERRA A6A190124 WATER 1/18/96	DW16 A6B150157-014 QUANTERRA A6B150157 WATER 2/14/96
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	UG/L	7.2 J	100 U	NA	7.7 J	NA
75-05-8	Acetonitrile	UG/L	NA	NA	NA	NA	NA
107-02-8	Acrolein	UG/L	NA	NA	NA	NA	NA
107-13-1	Acrylonitrile	UG/L	NA	NA	NA	NA	NA
71-43-2	Benzene	UG/L	1.4 J	1.5 J	NA	5 U	NA
75-27-4	Bromodichloromethane	UG/L	1 U	1 U	NA	1 U	NA
75-25-2	Bromoform	UG/L	1 U	1 U	NA	1 U	NA
74-83-9	Bromomethane	UG/L	1 U	1 U	NA	1 U	NA
75-15-0	Carbon disulfide	UG/L	50 U	50 U	NA	50 U	NA
56-23-5	Carbon tetrachloride	UG/L	1 U	1 U	NA	1 U	NA
108-90-7	Chlorobenzene	UG/L	1 U	1 U	NA	1 U	NA
126-99-8	Chloroprene	UG/L	NA	NA	NA	NA	NA
124-48-1	Dibromochloromethane	UG/L	1 U	1 U	NA	1 U	NA
96-12-8	1,2-Dibromo-3-chloropropane	UG/L	NA	NA	NA	NA	NA
75-00-3	Chloroethane	UG/L	2	11	NA	3.9	NA
67-66-3	Chloroform	UG/L	1 U	1 U	NA	1 U	NA
74-87-3	Chloromethane	UG/L	1 U	1 U	NA	1 U	NA
107-05-1	Allyl chloride	UG/L	NA	NA	NA	NA	NA
74-95-3	Dibromomethane	UG/L	NA	NA	NA	NA	NA
95-50-1	1,2-Dichlorobenzene	UG/L	1 U	1 U	NA	1 U	NA
541-73-1	1,3-Dichlorobenzene	UG/L	1 U	1 U	NA	1 U	NA
106-46-7	1,4-Dichlorobenzene	UG/L	1 U	1 U	NA	1 U	NA
110-57-6	trans-1,4-Dichloro-2-butene	UG/L	NA	NA	NA	NA	NA
75-71-8	Dichlorodifluoromethane	UG/L	NA	NA	NA	NA	NA
75-34-3	1,1-Dichloroethane	UG/L	1.3	2.4	NA	1.1	NA
107-06-2	1,2-Dichloroethane	UG/L	1.4	1 U	NA	1 U	NA
75-35-4	1,1-Dichloroethene	UG/L	1 U	1 U	NA	1 U	NA
156-59-2	cis-1,2-Dichloroethene	UG/L	2.5	1 U	NA	1.5	NA
156-60-5	trans-1,2-Dichloroethene	UG/L	1 U	1 U	NA	1 U	NA
78-87-5	1,2-Dichloropropane	UG/L	1 U	1 U	NA	1 U	NA
10061-01-5	cis-1,3-Dichloropropene	UG/L	1 U	1 U	NA	1 U	NA
10061-02-6	trans-1,3-Dichloropropene	UG/L	1 U	1 U	NA	1 U	NA
123-91-1	1,4-Dioxane	UG/L	NA	NA	NA	NA	NA
100-41-4	Ethylbenzene	UG/L	1 U	1 U	NA	1 U	NA
97-63-2	Ethyl methacrylate	UG/L	NA	NA	NA	NA	NA
75-69-4	Trichlorofluoromethane	UG/L	NA	NA	NA	NA	NA
591-78-6	2-Hexanone	UG/L	50 U	50 U	NA	50 U	NA
74-88-4	Iodomethane	UG/L	NA	NA	NA	NA	NA
78-83-1	Isobutyl alcohol	UG/L	NA	NA	NA	NA	NA
126-98-7	Methacrylonitrile	UG/L	NA	NA	NA	NA	NA
75-09-2	Methylene chloride	UG/L	5 U	5 U	NA	5 U	NA
80-62-6	Methyl methacrylate	UG/L	NA	NA	NA	NA	NA
107-12-0	Propionitrile	UG/L	NA	NA	NA	NA	NA
100-42-5	Styrene	UG/L	1 U	1 U	NA	1 U	NA
630-20-6	1,1,1,2-Tetrachloroethane	UG/L	NA	NA	NA	NA	NA
79-34-5	1,1,2,2-Tetrachloroethane	UG/L	1 U	1 U	NA	1 U	NA
127-18-4	Tetrachloroethene	UG/L	1 U	1 U	NA	1 U	NA
108-88-3	Toluene	UG/L	1 U	1 U	NA	1 U	NA
71-55-6	1,1,1-Trichloroethane	UG/L	1 U	1 U	NA	1 U	NA
79-00-5	1,1,2-Trichloroethane	UG/L	1 U	1 U	NA	1 U	NA
79-01-6	Trichloroethene	UG/L	1 U	1 U	NA	1 U	NA
96-18-4	1,2,3-Trichloropropane	UG/L	NA	NA	NA	NA	NA
108-05-4	Vinyl acetate	UG/L	NA	NA	NA	NA	NA
75-01-4	Vinyl chloride	UG/L	9.1	1 U	NA	1 U	NA
1330-20-7	Xylenes (total)	UG/L	3 U	3 U	NA	3 U	NA
106-93-4	1,2-Dibromoethane (EDB)	UG/L	NA	NA	NA	NA	NA
78-93-3	2-Butanone (MEK)	UG/L	50 U	50 U	NA	50 U	NA
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/L	50 U	50 U	NA	50 U	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	MW8 A6C080138-001 QUANTERRA C08138 WATER 3/01/96	MW16 A6A180129-004 QUANTERRA A6A180129 WATER 1/17/96	MW16 A6B150157-013 QUANTERRA A6B150157 WATER 2/14/96	DW16 A6A190124-001 QUANTERRA A6A190124 WATER 1/18/96	DW16 A6B150157-014 QUANTERRA A6B150157 WATER 2/14/96
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
92-67-1	4-Aminobiphenyl	UG/L	NA	NA	NA	NA	NA
60-11-7	p-Dimethylaminoazobenzene	UG/L	NA	NA	NA	NA	NA
57-97-6	7,12-Dimethylbenz(a)anthracene	UG/L	NA	NA	NA	NA	NA
1888-71-7	Hexachloropropene	UG/L	NA	NA	NA	NA	NA
62-44-2	Phenacetin	UG/L	NA	NA	NA	NA	NA
23950-58-5	Pronamide	UG/L	NA	NA	NA	NA	NA
122-09-8	a,a-Dimethylphenethylamine	UG/L	NA	NA	NA	NA	NA
2303-16-4	Diallate	UG/L	NA	NA	NA	NA	NA
510-15-6	Chlorobenzilate	UG/L	NA	NA	NA	NA	NA
83-32-9	Acenaphthene	UG/L	20 U	5 U	NA	5 U	NA
208-96-8	Acenaphthylene	UG/L	20 U	5 U	NA	5 U	NA
98-86-2	Acetophenone	UG/L	NA	NA	NA	NA	NA
53-96-3	2-Acetylaminofluorene	UG/L	NA	NA	NA	NA	NA
62-53-3	Aniline	UG/L	NA	NA	NA	NA	NA
120-12-7	Anthracene	UG/L	20 U	5 U	NA	5 U	NA
56-55-3	Benzo(a)anthracene	UG/L	20 U	5 U	NA	5 U	NA
205-99-2	Benzo(b)fluoranthene	UG/L	20 U	5 U	NA	5 U	NA
207-08-9	Benzo(k)fluoranthene	UG/L	20 U	5 U	NA	5 U	NA
191-24-2	Benzo(ghi)perylene	UG/L	20 U	5 U	NA	5 U	NA
50-32-8	Benzo(a)pyrene	UG/L	20 U	5 U	NA	5 U	NA
100-51-6	Benzyl alcohol	UG/L	NA	NA	NA	NA	NA
111-91-1	bis(2-Chloroethoxy)methane	UG/L	20 U	5 U	NA	5 U	NA
111-44-4	bis(2-Chloroethyl) ether	UG/L	20 U	5 U	NA	5 U	NA
117-81-7	bis(2-Ethylhexyl) phthalate	UG/L	20 U	5 U	NA	4.7 J	NA
101-55-3	4-Bromophenyl phenyl ether	UG/L	20 U	5 U	NA	5 U	NA
85-68-7	Butyl benzyl phthalate	UG/L	20 U	5 U	NA	5 U	NA
106-47-8	4-Chloroaniline	UG/L	80 U	20 U	NA	20 U	NA
59-50-7	4-Chloro-3-methylphenol	UG/L	20 U	5 U	NA	5 U	NA
91-58-7	2-Chloronaphthalene	UG/L	20 U	5 U	NA	5 U	NA
95-57-8	2-Chlorophenol	UG/L	20 U	5 U	NA	5 U	NA
7005-72-3	4-Chlorophenyl phenyl ether	UG/L	20 U	5 U	NA	5 U	NA
218-01-9	Chrysene	UG/L	20 U	5 U	NA	5 U	NA
53-70-3	Dibenz(a,h)anthracene	UG/L	20 U	5 U	NA	5 U	NA
132-64-9	Dibenzofuran	UG/L	20 U	5 U	NA	5 U	NA
84-74-2	Di-n-butyl phthalate	UG/L	20 U	5 U	NA	5 U	NA
91-94-1	3,3'-Dichlorobenzidine	UG/L	80 U	20 U	NA	20 U	NA
120-83-2	2,4-Dichlorophenol	UG/L	20 U	5 U	NA	5 U	NA
87-65-0	2,6-Dichlorophenol	UG/L	NA	NA	NA	NA	NA
84-66-2	Diethyl phthalate	UG/L	20 U	5 U	NA	5 U	NA
119-93-7	3,3'-Dimethylbenzidine	UG/L	NA	NA	NA	NA	NA
105-67-9	2,4-Dimethylphenol	UG/L	20 U	5 U	NA	5 U	NA
131-11-3	Dimethyl phthalate	UG/L	20 U	5 U	NA	5 U	NA
117-84-0	Di-n-octyl phthalate	UG/L	20 U	5 U	NA	5 U	NA
99-65-0	1,3-Dinitrobenzene	UG/L	NA	NA	NA	NA	NA
534-52-1	4,6-Dinitro-2-methylphenol	UG/L	80 U	20 U	NA	20 U	NA
51-28-5	2,4-Dinitrophenol	UG/L	80 U	20 U	NA	20 U	NA
121-14-2	2,4-Dinitrotoluene	UG/L	20 U	5 U	NA	5 U	NA
606-20-2	2,6-Dinitrotoluene	UG/L	20 U	5 U	NA	5 U	NA
122-39-4	Diphenylamine	UG/L	NA	NA	NA	NA	NA
62-50-0	Ethyl methanesulfonate	UG/L	NA	NA	NA	NA	NA
206-44-0	Fluoranthene	UG/L	20 U	5 U	NA	5 U	NA
86-73-7	Fluorene	UG/L	20 U	5 U	NA	5 U	NA
118-74-1	Hexachlorobenzene	UG/L	20 U	5 U	NA	5 U	NA
87-68-3	Hexachlorobutadiene	UG/L	20 U	5 U	NA	5 U	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	MW8 A6C080138-001 QUANTERRA C08138 WATER 3/01/96	MW16 A6A180129-004 QUANTERRA A6A180129 WATER 1/17/96	MW16 A6B150157-013 QUANTERRA A6B150157 WATER 2/14/96	DW16 A6A190124-001 QUANTERRA A6A190124 WATER 1/18/96	DW16 A6B150157-014 QUANTERRA A6B150157 WATER 2/14/96
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES CONT'D						
77-47-4	Hexachlorocyclopentadiene	UG/L	20 U	5 U	NA	5 U	NA
67-72-1	Hexachloroethane	UG/L	20 U	5 U	NA	5 U	NA
193-39-5	Indeno(1,2,3-cd)pyrene	UG/L	20 U	5 U	NA	5 U	NA
78-59-1	Isophorone	UG/L	20 U	5 U	NA	5 U	NA
120-58-1	Isosafrole	UG/L	NA	NA	NA	NA	NA
91-80-5	Methapyrilene	UG/L	NA	NA	NA	NA	NA
95-53-4	o-Toluidine	UG/L	NA	NA	NA	NA	NA
56-49-5	3-Methylcholanthrene	UG/L	NA	NA	NA	NA	NA
66-27-3	Methyl methanesulfonate	UG/L	NA	NA	NA	NA	NA
91-57-6	2-Methylnaphthalene	UG/L	20 U	5 U	NA	5 U	NA
95-48-7	2-Methylphenol	UG/L	20 U	5 U	NA	5 U	NA
108-39-4	3-Methylphenol	UG/L	NA	NA	NA	NA	NA
106-44-5	4-Methylphenol	UG/L	20 U	5 U	NA	5 U	NA
91-20-3	Naphthalene	UG/L	20 U	5 U	NA	5 U	NA
130-15-4	1,4-Naphthoquinone	UG/L	NA	NA	NA	NA	NA
134-32-7	1-Naphthylamine	UG/L	NA	NA	NA	NA	NA
91-59-8	2-Naphthylamine	UG/L	NA	NA	NA	NA	NA
88-74-4	2-Nitroaniline	UG/L	80 U	20 U	NA	20 U	NA
99-09-2	3-Nitroaniline	UG/L	80 U	20 U	NA	20 U	NA
100-01-6	4-Nitroaniline	UG/L	80 U	20 U	NA	20 U	NA
98-95-3	Nitrobenzene	UG/L	20 U	5 U	NA	5 U	NA
88-75-5	2-Nitrophenol	UG/L	20 U	5 U	NA	5 U	NA
100-02-7	4-Nitrophenol	UG/L	80 U	20 U	NA	20 U	NA
56-57-5	4-Nitroquinoline-1-oxide	UG/L	NA	NA	NA	NA	NA
924-16-3	N-Nitrosodi-n-butylamine	UG/L	NA	NA	NA	NA	NA
55-18-5	N-Nitrosodiethylamine	UG/L	NA	NA	NA	NA	NA
62-75-9	N-Nitrosodimethylamine	UG/L	NA	NA	NA	NA	NA
621-64-7	N-Nitrosodi-n-propylamine	UG/L	20 U	5 U	NA	5 U	NA
86-30-6	N-Nitrosodiphenylamine	UG/L	20 U	5 U	NA	5 U	NA
10595-95-6	N-Nitrosomethylethylamine	UG/L	NA	NA	NA	NA	NA
59-89-2	N-Nitrosomorpholine	UG/L	NA	NA	NA	NA	NA
100-75-4	N-Nitrosopiperidine	UG/L	NA	NA	NA	NA	NA
930-55-2	N-Nitrosopyrrolidine	UG/L	NA	NA	NA	NA	NA
99-55-8	5-Nitro-o-toluidine	UG/L	NA	NA	NA	NA	NA
608-93-5	Pentachlorobenzene	UG/L	NA	NA	NA	NA	NA
76-01-7	Pentachloroethane	UG/L	NA	NA	NA	NA	NA
82-68-8	Pentachloronitrobenzene	UG/L	NA	NA	NA	NA	NA
87-86-5	Pentachlorophenol	UG/L	100 U	25 U	NA	25 U	NA
85-01-8	Phenanthrene	UG/L	20 U	5 U	NA	5 U	NA
108-95-2	Phenol	UG/L	20 U	5 U	NA	5 U	NA
106-50-3	p-Phenylene diamine	UG/L	NA	NA	NA	NA	NA
109-06-8	2-Picoline	UG/L	NA	NA	NA	NA	NA
129-00-0	Pyrene	UG/L	20 U	5 U	NA	5 U	NA
110-86-1	Pyridine	UG/L	NA	NA	NA	NA	NA
94-59-7	Safrole	UG/L	NA	NA	NA	NA	NA
95-94-3	1,2,4,5-Tetrachlorobenzene	UG/L	NA	NA	NA	NA	NA
58-90-2	2,3,4,6-Tetrachlorophenol	UG/L	NA	NA	NA	NA	NA
120-82-1	1,2,4-Trichlorobenzene	UG/L	20 U	5 U	NA	5 U	NA
95-95-4	2,4,5-Trichlorophenol	UG/L	200 U	50 U	NA	50 U	NA
88-06-2	2,4,6-Trichlorophenol	UG/L	20 U	5 U	NA	5 U	NA
99-35-4	1,3,5-Trinitrobenzene	UG/L	NA	NA	NA	NA	NA
86-74-8	Carbazole	UG/L	40 U	10 U	NA	10 U	NA
108-60-1	bis(2-Chloroisopropyl) ether	UG/L	20 U	5 U	NA	5 U	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	MW8 A6C080138-001 QUANTERRA C08138 WATER 3/01/96	MW16 A6A180129-004 QUANTERRA A6A180129 WATER 1/17/96	MW16 A6B150157-013 QUANTERRA A6B150157 WATER 2/14/96	DW16 A6A190124-001 QUANTERRA A6A190124 WATER 1/18/96	DW16 A6B150157-014 QUANTERRA A6B150157 WATER 2/14/96
CAS NO.	COMPOUND	UNITS:					
	PESTICIDES/PCBs						
309-00-2	Aldrin	UG/L	0.01 U	1 U*	NA	0.5 U	NA
319-84-6	alpha-BHC	UG/L	0.01 U	0.01 U	NA	0.01 U	NA
319-85-7	beta-BHC	UG/L	0.01 U	0.01 U	NA	0.01 U	NA
319-86-8	delta-BHC	UG/L	0.01 U	0.01 U	NA	0.01 U	NA
58-89-9	gamma-BHC (Lindane)	UG/L	0.01 U	0.01 U	NA	0.01 U	NA
5103-71-9	alpha-Chlordane	UG/L	0.01 U	0.01 U	NA	0.01 U	NA
5103-74-2	gamma-Chlordane	UG/L	0.01 U	0.01 U	NA	0.01 U	NA
72-54-8	4,4'-DDD	UG/L	0.02 U	0.02 U	NA	0.02 U	NA
72-55-9	4,4'-DDE	UG/L	0.02 U	0.02 U	NA	0.02 U	NA
50-29-3	4,4'-DDT	UG/L	0.02 U	0.02 U	NA	0.02 U	NA
60-57-1	Dieldrin	UG/L	0.02 U	0.02 U	NA	0.02 U	NA
959-98-8	Endosulfan I	UG/L	0.05 U	0.05 U	NA	0.05 U	NA
33213-65-9	Endosulfan II	UG/L	0.05 U	0.05 U	NA	0.05 U	NA
1031-07-8	Endosulfan sulfate	UG/L	0.05 U	0.05 U	NA	0.05 U	NA
72-20-8	Endrin	UG/L	0.02 U	0.02 U	NA	0.02 U	NA
7421-93-4	Endrin aldehyde	UG/L	0.02 U	0.02 U	NA	0.02 U	NA
76-44-8	Heptachlor	UG/L	0.01 U	0.01 U	NA	0.01 U	NA
1024-57-3	Heptachlor epoxide	UG/L	0.01 U	0.01 U	NA	0.01 U	NA
465-73-6	Isodrin	UG/L	NA	NA	NA	NA	NA
143-50-0	Kepone	UG/L	NA	NA	NA	NA	NA
72-43-5	Methoxychlor	UG/L	0.5 U	0.5 U	NA	0.5 U	NA
12674-11-2	Aroclor 1016	UG/L	0.02 U	0.1 U	NA	0.1 U	NA
11104-28-2	Aroclor 1221	UG/L	0.16 *	0.1 U	NA	0.1 U	NA
11141-16-5	Aroclor 1232	UG/L	0.02 U	0.1 U	NA	0.1 U	NA
53469-21-9	Aroclor 1242	UG/L	0.02 U	0.1 U	NA	0.1 U	NA
12672-29-6	Aroclor 1248	UG/L	0.02 U	0.1 U	NA	0.1 U	NA
11097-69-1	Aroclor 1254	UG/L	0.02 U	0.2 U	NA	0.2 U	NA
11096-82-5	Aroclor 1260	UG/L	0.02 U	0.2 U	NA	0.2 U	NA
8001-35-2	Toxaphene	UG/L	1 U	1 U	NA	1 U	NA
53494-70-5	Endrin ketone	UG/L	0.02 U	0.02 U	NA	0.02 U	NA
	HERBICIDES						
297-97-2	Thionazin	UG/L	NA	NA	NA	NA	NA
60-51-5	Dimethoate	UG/L	NA	NA	NA	NA	NA
298-04-4	Disulfoton	UG/L	NA	NA	NA	NA	NA
52-85-7	Famphur	UG/L	NA	NA	NA	NA	NA
298-00-0	Methyl parathion	UG/L	NA	NA	NA	NA	NA
56-38-2	Parathion	UG/L	NA	NA	NA	NA	NA
298-02-2	Phorate	UG/L	NA	NA	NA	NA	NA
3689-24-5	Tetraethyldithiopyrophosphate	UG/L	NA	NA	NA	NA	NA
126-68-1	O,O,O-Triethyl phosphorothioate	UG/L	NA	NA	NA	NA	NA
94-75-7	2,4-D	UG/L	NA	NA	NA	NA	NA
88-85-7	Dinoseb	UG/L	NA	NA	NA	NA	NA
93-76-5	2,4,5-T	UG/L	NA	NA	NA	NA	NA
93-72-1	2,4,5-TP (Silvex)	UG/L	NA	NA	NA	NA	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	MW8 A6C080138-001 QUANTERRA C08138 WATER 3/01/96	MW16 A6A180129-004 QUANTERRA A6A180129 WATER 1/17/96	MW16 A6B150157-013 QUANTERRA A6B150157 WATER 2/14/96	DW16 A6A190124-001 QUANTERRA A6A190124 WATER 1/18/96	DW16 A6B150157-014 QUANTERRA A6B150157 WATER 2/14/96
CAS NO.	COMPOUND	UNITS:					
	INORGANICS						
7440-47-3	Chromium -DISS	UG/L	5 U	5 U	NA	5 U	NA
7439-92-1	Lead -DISS	UG/L	3 U	3 U	NA	3 U	NA
7440-36-0	Antimony -DISS	UG/L	5 U	5 U	NA	5 U	NA
7782-49-2	Selenium -DISS	UG/L	5 U	5 U	NA	5 U	NA
7429-90-5	Aluminum -DISS	UG/L	100 U	100 U	NA	100 U	NA
7440-39-3	Barium -DISS	UG/L	200 U	200 U	NA	622	NA
7440-41-7	Beryllium -DISS	UG/L	3 U	3 U	NA	3 U	NA
7440-70-2	Calcium -DISS	UG/L	88400	98200	104000	161000	194000
7440-48-4	Cobalt -DISS	UG/L	50 U	50 U	NA	50 U	NA
7440-50-8	Copper -DISS	UG/L	25 U	25 U	NA	25 U	NA
7439-89-6	Iron -DISS	UG/L	248	4220	4480	100	NA
7440-09-7	Potassium -DISS	UG/L	20400	5000 U	NA	22000	27800
7439-95-4	Magnesium -DISS	UG/L	25500	30400	NA	64100	NA
7439-96-5	Manganese -DISS	UG/L	203	130	135	196	201
7440-23-5	Sodium -DISS	UG/L	944000	461000	396000	1490000	1440000
7440-02-0	Nickel -DISS	UG/L	50 U	50 U	NA	104	50 U
7440-31-5	Tin -DISS	UG/L	NA	NA	NA	NA	NA
7440-62-2	Vanadium -DISS	UG/L	20 U	20 U	NA	20 U	NA
7440-66-6	Zinc -DISS	UG/L	20 U	20 U	NA	20 U	NA
7440-38-2	Arsenic -DISS	UG/L	5 U	5 U	NA	5 U	NA
7440-43-9	Cadmium -DISS	UG/L	0.5 U	0.5 U	NA	0.5 U	NA
7439-97-6	Mercury -DISS	UG/L	0.2 U	0.2 U	NA	0.2 U	NA
7440-22-4	Silver -DISS	UG/L	0.5 U	0.5 U	NA	0.5 U	NA
7440-28-0	Thallium -DISS	UG/L	8 U *	4 U*	2 U	32 U*	4 U
18496-25-8	Sulfide	MG/L	NA	NA	NA	NA	NA
57-12-5	Cyanide	UG/L	20 U	25	NA	20 U	NA
	DIOXINS						
DIOXIN1	TCDFs(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN2	2,3,7,8-TCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN3	PeCDFS(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN4	1,2,3,7,8-PeCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN5	2,3,4,7,8-PeCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN6	HxCDFs(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN7	1,2,3,4,7,8-HxCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN8	1,2,3,6,7,8-HxCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN9	2,3,4,6,7,8-HxCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN10	1,2,3,7,8,9-HxCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN11	HpCDFs(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN12	1,2,3,4,6,7,8-HpCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN13	1,2,3,4,7,8,9-HpCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN14	OCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN15	TCDDs(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN16	2,3,7,8-TCDD	PG/L	NA	NA	NA	NA	NA
DIOXIN17	PeCDDs(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN18	1,2,3,7,8-PeCDD	PG/L	NA	NA	NA	NA	NA
DIOXIN19	HxCDDs(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN20	1,2,3,4,7,8-HxCDD	PG/L	NA	NA	NA	NA	NA
DIOXIN21	1,2,3,6,7,8-HxCDD	PG/L	NA	NA	NA	NA	NA
DIOXIN22	1,2,3,7,8,9-HxCDD	PG/L	NA	NA	NA	NA	NA
DIOXIN23	HpCDDs(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN24	1,2,3,4,6,7,8-HpCDD	PG/L	NA	NA	NA	NA	NA
DIOXIN25	OCDD	PG/L	NA	NA	NA	NA	NA
TDIOXINS	TOTAL TEFs	PG/L	NA	NA	NA	NA	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	MW17 A6A170141-001 QUANTERRA A6A170141 WATER 1/16/96	GWMW17 GWMW17 085883 WATER 1/16/96	MW17 A6B150157-001 QUANTERRA A6B150157 WATER 2/13/96	DW17 A6A170141-002 QUANTERRA A6A170141 WATER 1/16/96	GWDW17 GWDW17 085883 WATER 1/16/96
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	UG/L	4 J	NA	NA	4.2 J	NA
75-05-8	Acetonitrile	UG/L	50 U	NA	NA	50 U	NA
107-02-8	Acrolein	UG/L	10 U	NA	NA	10 U	NA
107-13-1	Acrylonitrile	UG/L	10 U	NA	NA	10 U	NA
71-43-2	Benzene	UG/L	5 U	NA	NA	5 U	NA
75-27-4	Bromodichloromethane	UG/L	1 U	NA	NA	1 U	NA
75-25-2	Bromoform	UG/L	1 U	NA	NA	1 U	NA
74-83-9	Bromomethane	UG/L	1 U	NA	NA	1 U	NA
75-15-0	Carbon disulfide	UG/L	50 U	NA	NA	50 U	NA
56-23-5	Carbon tetrachloride	UG/L	1 U	NA	NA	1 U	NA
108-90-7	Chlorobenzene	UG/L	1 U	NA	NA	1 U	NA
126-99-8	Chloroprene	UG/L	1 U	NA	NA	1 U	NA
124-48-1	Dibromochloromethane	UG/L	1 U	NA	NA	1 U	NA
96-12-8	1,2-Dibromo-3-chloropropane	UG/L	2 U	NA	NA	2 U	NA
75-00-3	Chloroethane	UG/L	1 U	NA	NA	1 U	NA
67-66-3	Chloroform	UG/L	1 U	NA	NA	1 U	NA
74-87-3	Chloromethane	UG/L	1 U	NA	NA	1 U	NA
107-05-1	Allyl chloride	UG/L	2 U	NA	NA	2 U	NA
74-95-3	Dibromomethane	UG/L	5 U	NA	NA	5 U	NA
95-50-1	1,2-Dichlorobenzene	UG/L	1 U	NA	NA	1 U	NA
541-73-1	1,3-Dichlorobenzene	UG/L	1 U	NA	NA	1 U	NA
106-46-7	1,4-Dichlorobenzene	UG/L	1 U	NA	NA	1 U	NA
110-57-6	trans-1,4-Dichloro-2-butene	UG/L	1 U	NA	NA	1 U	NA
75-71-8	Dichlorodifluoromethane	UG/L	1 U	NA	NA	1 U	NA
75-34-3	1,1-Dichloroethane	UG/L	1 U	NA	NA	1 U	NA
107-06-2	1,2-Dichloroethane	UG/L	1 U	NA	NA	1 U	NA
75-35-4	1,1-Dichloroethene	UG/L	1 U	NA	NA	1 U	NA
156-59-2	cis-1,2-Dichloroethene	UG/L	1 U	NA	NA	1 U	NA
156-60-5	trans-1,2-Dichloroethene	UG/L	1 U	NA	NA	1 U	NA
78-87-5	1,2-Dichloropropane	UG/L	1 U	NA	NA	1 U	NA
10061-01-5	cis-1,3-Dichloropropene	UG/L	1 U	NA	NA	1 U	NA
10061-02-6	trans-1,3-Dichloropropene	UG/L	1 U	NA	NA	1 U	NA
123-91-1	1,4-Dioxane	UG/L	200 U	NA	NA	200 U	NA
100-41-4	Ethylbenzene	UG/L	1 U	NA	NA	1 U	NA
97-63-2	Ethyl methacrylate	UG/L	1 U	NA	NA	1 U	NA
75-69-4	Trichlorofluoromethane	UG/L	1 U	NA	NA	1 U	NA
591-78-6	2-Hexanone	UG/L	50 U	NA	NA	50 U	NA
74-88-4	Iodomethane	UG/L	1 U	NA	NA	1 U	NA
78-83-1	Isobutyl alcohol	UG/L	1000 U	NA	NA	1000 U	NA
126-98-7	Methacrylonitrile	UG/L	10 U	NA	NA	10 U	NA
75-09-2	Methylene chloride	UG/L	5 U	NA	NA	5 U	NA
80-62-6	Methyl methacrylate	UG/L	5 U	NA	NA	5 U	NA
107-12-0	Propionitrile	UG/L	4 U	NA	NA	4 U	NA
100-42-5	Styrene	UG/L	1 U	NA	NA	1 U	NA
630-20-6	1,1,1,2-Tetrachloroethane	UG/L	1 U	NA	NA	1 U	NA
79-34-5	1,1,2,2-Tetrachloroethane	UG/L	1 U	NA	NA	1 U	NA
127-18-4	Tetrachloroethene	UG/L	1 U	NA	NA	1 U	NA
108-88-3	Toluene	UG/L	1 U	NA	NA	1 U	NA
71-55-6	1,1,1-Trichloroethane	UG/L	1 U	NA	NA	1 U	NA
79-00-5	1,1,2-Trichloroethane	UG/L	1 U	NA	NA	1 U	NA
79-01-6	Trichloroethene	UG/L	1 U	NA	NA	1 U	NA
96-18-4	1,2,3-Trichloropropane	UG/L	1 U	NA	NA	1 U	NA
108-05-4	Vinyl acetate	UG/L	50 U	NA	NA	50 U	NA
75-01-4	Vinyl chloride	UG/L	1 U	NA	NA	1 U	NA
1330-20-7	Xylenes (total)	UG/L	3 U	NA	NA	3 U	NA
106-93-4	1,2-Dibromoethane (EDB)	UG/L	1 U	NA	NA	1 U	NA
78-93-3	2-Butanone (MEK)	UG/L	50 U	NA	NA	50 U	NA
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/L	50 U	NA	NA	50 U	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	MW17 A6A170141-001 QUANTERRA A6A170141 WATER 1/16/96	GWMW17 GWMW17 085883 WATER 1/16/96	MW17 A6B150157-001 QUANTERRA A6B150157 WATER 2/13/96	DW17 A6A170141-002 QUANTERRA A6A170141 WATER 1/16/96	GWDW17 GWDW17 085883 WATER 1/16/96
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
92-67-1	4-Aminobiphenyl	UG/L	50 U	NA	NA	50 U	NA
60-11-7	p-Dimethylaminoazobenzene	UG/L	20 U	NA	NA	20 U	NA
57-97-6	7,12-Dimethylbenz(a)anthracene	UG/L	20 U	NA	NA	20 U	NA
1888-71-7	Hexachloropropene	UG/L	100 U	NA	NA	100 U	NA
62-44-2	Phenacetin	UG/L	20 U	NA	NA	20 U	NA
23950-58-5	Pronamide	UG/L	20 U	NA	NA	20 U	NA
122-09-8	a,a-Dimethylphenethylamine	UG/L	50 U	NA	NA	50 U	NA
2303-16-4	Diallate	UG/L	5 U	NA	NA	5 U	NA
510-15-6	Chlorobenzilate	UG/L	10 U	NA	NA	10 U	NA
83-32-9	Acenaphthene	UG/L	5 U	NA	NA	5 U	NA
208-96-8	Acenaphthylene	UG/L	5 U	NA	NA	5 U	NA
98-86-2	Acetophenone	UG/L	10 U	NA	NA	10 U	NA
53-96-3	2-Acetylaminofluorene	UG/L	100 U	NA	NA	100 U	NA
62-53-3	Aniline	UG/L	20 U	NA	NA	20 U	NA
120-12-7	Anthracene	UG/L	5 U	NA	NA	5 U	NA
56-55-3	Benzo(a)anthracene	UG/L	5 U	NA	NA	5 U	NA
205-99-2	Benzo(b)fluoranthene	UG/L	5 U	NA	NA	5 U	NA
207-08-9	Benzo(k)fluoranthene	UG/L	5 U	NA	NA	5 U	NA
191-24-2	Benzo(ghi)perylene	UG/L	5 U	NA	NA	5 U	NA
50-32-8	Benzo(a)pyrene	UG/L	5 U	NA	NA	5 U	NA
100-51-6	Benzyl alcohol	UG/L	50 U	NA	NA	50 U	NA
111-91-1	bis(2-Chloroethoxy)methane	UG/L	5 U	NA	NA	5 U	NA
111-44-4	bis(2-Chloroethyl) ether	UG/L	5 U	NA	NA	5 U	NA
117-81-7	bis(2-Ethylhexyl) phthalate	UG/L	5 U	NA	NA	5 U	NA
101-55-3	4-Bromophenyl phenyl ether	UG/L	5 U	NA	NA	5 U	NA
85-68-7	Butyl benzyl phthalate	UG/L	5 U	NA	NA	5 U	NA
106-47-8	4-Chloroaniline	UG/L	20 U	NA	NA	20 U	NA
59-50-7	4-Chloro-3-methylphenol	UG/L	5 U	NA	NA	5 U	NA
91-58-7	2-Chloronaphthalene	UG/L	5 U	NA	NA	5 U	NA
95-57-8	2-Chlorophenol	UG/L	5 U	NA	NA	5 U	NA
7005-72-3	4-Chlorophenyl phenyl ether	UG/L	5 U	NA	NA	5 U	NA
218-01-9	Chrysene	UG/L	5 U	NA	NA	5 U	NA
53-70-3	Dibenz(a,h)anthracene	UG/L	5 U	NA	NA	5 U	NA
132-64-9	Dibenzofuran	UG/L	5 U	NA	NA	5 U	NA
84-74-2	Di-n-butyl phthalate	UG/L	5 U	NA	NA	5 U	NA
91-94-1	3,3'-Dichlorobenzidine	UG/L	20 U	NA	NA	20 U	NA
120-83-2	2,4-Dichlorophenol	UG/L	5 U	NA	NA	5 U	NA
87-65-0	2,6-Dichlorophenol	UG/L	5 U	NA	NA	5 U	NA
84-66-2	Diethyl phthalate	UG/L	5 U	NA	NA	5 U	NA
119-93-7	3,3'-Dimethylbenzidine	UG/L	10 U	NA	NA	10 U	NA
105-67-9	2,4-Dimethylphenol	UG/L	5 U	NA	NA	5 U	NA
131-11-3	Dimethyl phthalate	UG/L	5 U	NA	NA	5 U	NA
117-84-0	Di-n-octyl phthalate	UG/L	5 U	NA	NA	5 U	NA
99-65-0	1,3-Dinitrobenzene	UG/L	5 U	NA	NA	5 U	NA
534-52-1	4,6-Dinitro-2-methylphenol	UG/L	20 U	NA	NA	20 U	NA
51-28-5	2,4-Dinitrophenol	UG/L	20 U	NA	NA	20 U	NA
121-14-2	2,4-Dinitrotoluene	UG/L	5 U	NA	NA	5 U	NA
606-20-2	2,6-Dinitrotoluene	UG/L	5 U	NA	NA	5 U	NA
122-39-4	Diphenylamine	UG/L	5 U	NA	NA	5 U	NA
62-50-0	Ethyl methanesulfonate	UG/L	10 U	NA	NA	10 U	NA
206-44-0	Fluoranthene	UG/L	5 U	NA	NA	5 U	NA
86-73-7	Fluorene	UG/L	5 U	NA	NA	5 U	NA
118-74-1	Hexachlorobenzene	UG/L	5 U	NA	NA	5 U	NA
87-68-3	Hexachlorobutadiene	UG/L	5 U	NA	NA	5 U	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	MW17 A6A170141-001 QUANTERRA A6A170141 WATER 1/16/96	GWMW17 GWMW17 085883 WATER 1/16/96	MW17 A6B150157-001 QUANTERRA A6B150157 WATER 2/13/96	DW17 A6A170141-002 QUANTERRA A6A170141 WATER 1/16/96	GWDW17 GWDW17 085883 WATER 1/16/96
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES CONT'D						
77-47-4	Hexachlorocyclopentadiene	UG/L	5 U	NA	NA	5 U	NA
67-72-1	Hexachloroethane	UG/L	5 U	NA	NA	5 U	NA
193-39-5	Indeno(1,2,3-cd)pyrene	UG/L	5 U	NA	NA	5 U	NA
78-59-1	Isophorone	UG/L	5 U	NA	NA	5 U	NA
120-58-1	Isosafrole	UG/L	20 U	NA	NA	20 U	NA
91-80-5	Methapyrilene	UG/L	50 U	NA	NA	50 U	NA
95-53-4	o-Toluidine	UG/L	20 U	NA	NA	20 U	NA
56-49-5	3-Methylcholanthrene	UG/L	20 U	NA	NA	20 U	NA
66-27-3	Methyl methanesulfonate	UG/L	10 U	NA	NA	10 U	NA
91-57-6	2-Methylnaphthalene	UG/L	1.7 J	NA	NA	2.1 J	NA
95-48-7	2-Methylphenol	UG/L	5 U	NA	NA	5 U	NA
108-39-4	3-Methylphenol	UG/L	1.2 J	NA	NA	0.99 J	NA
106-44-5	4-Methylphenol	UG/L	1.3 J	NA	NA	1.1 J	NA
91-20-3	Naphthalene	UG/L	1.9 J	NA	NA	1.4 J	NA
130-15-4	1,4-Naphthoquinone	UG/L	50 U	NA	NA	50 U	NA
134-32-7	1-Naphthylamine	UG/L	10 U	NA	NA	10 U	NA
91-59-8	2-Naphthylamine	UG/L	10 U	NA	NA	10 U	NA
88-74-4	2-Nitroaniline	UG/L	20 U	NA	NA	20 U	NA
99-09-2	3-Nitroaniline	UG/L	20 U	NA	NA	20 U	NA
100-01-6	4-Nitroaniline	UG/L	20 U	NA	NA	20 U	NA
98-95-3	Nitrobenzene	UG/L	5 U	NA	NA	5 U	NA
88-75-5	2-Nitrophenol	UG/L	5 U	NA	NA	5 U	NA
100-02-7	4-Nitrophenol	UG/L	20 U	NA	NA	20 U	NA
56-57-5	4-Nitroquinoline-1-oxide	UG/L	100 U	NA	NA	100 U	NA
924-16-3	N-Nitrosodi-n-butylamine	UG/L	10 U	NA	NA	10 U	NA
55-18-5	N-Nitrosodiethylamine	UG/L	10 U	NA	NA	10 U	NA
62-75-9	N-Nitrosodimethylamine	UG/L	5 U	NA	NA	5 U	NA
621-64-7	N-Nitrosodi-n-propylamine	UG/L	5 U	NA	NA	5 U	NA
86-30-6	N-Nitrosodiphenylamine	UG/L	5 U	NA	NA	5 U	NA
10595-95-6	N-Nitrosomethylethylamine	UG/L	10 U	NA	NA	10 U	NA
59-89-2	N-Nitrosomorpholine	UG/L	10 U	NA	NA	10 U	NA
100-75-4	N-Nitrosopiperidine	UG/L	10 U	NA	NA	10 U	NA
930-55-2	N-Nitrosopyrrolidine	UG/L	10 U	NA	NA	10 U	NA
99-55-8	5-Nitro-o-toluidine	UG/L	20 U	NA	NA	20 U	NA
608-93-5	Pentachlorobenzene	UG/L	5 U	NA	NA	5 U	NA
76-01-7	Pentachloroethane	UG/L	10 U	NA	NA	10 U	NA
82-68-8	Pentachloronitrobenzene	UG/L	50 U	NA	NA	50 U	NA
87-86-5	Pentachlorophenol	UG/L	25 U	NA	NA	25 U	NA
85-01-8	Phenanthrene	UG/L	0.62 J	NA	NA	0.99 J	NA
108-95-2	Phenol	UG/L	5 U	NA	NA	5 U	NA
106-50-3	p-Phenylene diamine	UG/L	100 U	NA	NA	100 U	NA
109-06-8	2-Picoline	UG/L	20 U	NA	NA	20 U	NA
129-00-0	Pyrene	UG/L	5 U	NA	NA	5 U	NA
110-86-1	Pyridine	UG/L	20 U	NA	NA	20 U	NA
94-59-7	Safrole	UG/L	20 U	NA	NA	20 U	NA
95-94-3	1,2,4,5-Tetrachlorobenzene	UG/L	5 U	NA	NA	5 U	NA
58-90-2	2,3,4,6-Tetrachlorophenol	UG/L	50 U	NA	NA	50 U	NA
120-82-1	1,2,4-Trichlorobenzene	UG/L	5 U	NA	NA	5 U	NA
95-95-4	2,4,5-Trichlorophenol	UG/L	50 U	NA	NA	50 U	NA
88-06-2	2,4,6-Trichlorophenol	UG/L	5 U	NA	NA	5 U	NA
99-35-4	1,3,5-Trinitrobenzene	UG/L	50 U	NA	NA	50 U	NA
86-74-8	Carbazole	UG/L	10 U	NA	NA	10 U	NA
108-60-1	bis(2-Chloroisopropyl) ether	UG/L	5 U	NA	NA	5 U	NA

GM WEST YARD
PONTIAC, MICHIGAN
GROUNDWATER ANALYTICAL DATA

CAS NO.	COMPOUND	SAMPLE ID:	MW17	GWMW17	MW17	DW17	GWDW17
		LAB ID:	A6A170141-001	GWMW17	A6B150157-001	A6A170141-002	GWDW17
		SOURCE:	QUANTERRA		QUANTERRA	QUANTERRA	
		SDG:	A6A170141	085883	A6B150157	A6A170141	085883
		MATRIX:	WATER	WATER	WATER	WATER	WATER
		SAMPLED:	1/16/96	1/16/96	2/13/96	1/16/96	1/16/96
		UNITS:					
	PESTICIDES/PCBs						
309-00-2	Aldrin	UG/L	0.53 U*	NA	NA	0.5 U*	NA
319-84-6	alpha-BHC	UG/L	0.01 U	NA	NA	0.01 U	NA
319-85-7	beta-BHC	UG/L	0.01 U	NA	NA	0.01 U	NA
319-86-8	delta-BHC	UG/L	0.01 U	NA	NA	0.01 U	NA
58-89-9	gamma-BHC (Lindane)	UG/L	0.01 U	NA	NA	0.01 U	NA
5103-71-9	alpha-Chlordane	UG/L	0.01 U	NA	NA	0.01 U	NA
5103-74-2	gamma-Chlordane	UG/L	0.01 U	NA	NA	0.01 U	NA
72-54-8	4,4'-DDD	UG/L	0.02 U	NA	NA	0.02 U	NA
72-55-9	4,4'-DDE	UG/L	0.02 U	NA	NA	0.02 U	NA
50-29-3	4,4'-DDT	UG/L	0.02 U	NA	NA	0.02 U	NA
60-57-1	Dieldrin	UG/L	0.02 U	NA	NA	0.02 U	NA
959-98-8	Endosulfan I	UG/L	0.05 U	NA	NA	0.05 U	NA
33213-65-9	Endosulfan II	UG/L	0.05 U	NA	NA	0.05 U	NA
1031-07-8	Endosulfan sulfate	UG/L	0.05 U	NA	NA	0.05 U	NA
72-20-8	Endrin	UG/L	0.02 U	NA	NA	0.02 U	NA
7421-93-4	Endrin aldehyde	UG/L	0.02 U	NA	NA	0.02 U	NA
76-44-8	Heptachlor	UG/L	0.01 U	NA	NA	0.01 U	NA
1024-57-3	Heptachlor epoxide	UG/L	0.01 U	NA	NA	0.01 U	NA
465-73-6	Isodrin	UG/L	0.1 U	NA	NA	0.1 U	NA
143-50-0	Kepone	UG/L	1 U	NA	NA	1 U	NA
72-43-5	Methoxychlor	UG/L	0.5 U	NA	NA	0.5 U	NA
12674-11-2	Aroclor 1016	UG/L	0.1 U	NA	NA	0.1 U	NA
11104-28-2	Aroclor 1221	UG/L	0.1 U	NA	NA	0.1 U	NA
11141-16-5	Aroclor 1232	UG/L	0.1 U	NA	NA	0.1 U	NA
53469-21-9	Aroclor 1242	UG/L	0.1 U	NA	NA	0.1 U	NA
12672-29-6	Aroclor 1248	UG/L	0.1 U	NA	NA	0.1 U	NA
11097-69-1	Aroclor 1254	UG/L	0.2 U	NA	NA	0.2 U	NA
11096-82-5	Aroclor 1260	UG/L	0.2 U	NA	NA	0.2 U	NA
8001-35-2	Toxaphene	UG/L	1 U	NA	NA	1 U	NA
53494-70-5	Endrin ketone	UG/L	0.02 U	NA	NA	0.02 U	NA
	HERBICIDES						
297-97-2	Thionazin	UG/L	1 U	NA	NA	1.6 U	NA
60-51-5	Dimethoate	UG/L	1 U	NA	NA	1.6 U	NA
298-04-4	Disulfoton	UG/L	1 U	NA	NA	1.6 U	NA
52-85-7	Famphur	UG/L	1 U	NA	NA	1.6 U	NA
298-00-0	Methyl parathion	UG/L	1 U	NA	NA	1.6 U	NA
56-38-2	Parathion	UG/L	1 U	NA	NA	1.6 U	NA
298-02-2	Phorate	UG/L	1 U	NA	NA	1.6 U	NA
3689-24-5	Tetraethyldithiopyrophosphate	UG/L	1 U	NA	NA	1.6 U	NA
126-68-1	O,O,O-Triethyl phosphorothioate	UG/L	1 U	NA	NA	1.6 U	NA
94-75-7	2,4-D	UG/L	10 U	NA	NA	10 U	NA
88-85-7	Dinoseb	UG/L	1 U	NA	NA	1 U	NA
93-76-5	2,4,5-T	UG/L	1 U	NA	NA	1 U	NA
93-72-1	2,4,5-TP (Silvex)	UG/L	1 U	NA	NA	1 U	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	MW17 A6A170141-001 QUANTERRA A6A170141 WATER 1/16/96	GWMW17 GWMW17 085883 WATER 1/16/96	MW17 A6B150157-001 QUANTERRA A6B150157 WATER 2/13/96	DW17 A6A170141-002 QUANTERRA A6A170141 WATER 1/16/96	GWDW17 GWDW17 085883 WATER 1/16/96
CAS NO.	COMPOUND	UNITS:					
	INORGANICS						
7440-47-3	Chromium -DISS	UG/L	5 U	NA	NA	5 U	NA
7439-92-1	Lead -DISS	UG/L	3 U	NA	NA	3 U	NA
7440-36-0	Antimony -DISS	UG/L	5 U	NA	NA	5 U	NA
7782-49-2	Selenium -DISS	UG/L	5 U	NA	NA	5 U	NA
7429-90-5	Aluminum -DISS	UG/L	100 U	NA	NA	100 U	NA
7440-39-3	Barium -DISS	UG/L	200 U	NA	NA	200 U	NA
7440-41-7	Beryllium -DISS	UG/L	3 U	NA	NA	3 U	NA
7440-70-2	Calcium -DISS	UG/L	53600	NA	51500	60700	NA
7440-48-4	Cobalt -DISS	UG/L	50 U	NA	NA	50 U	NA
7440-50-8	Copper -DISS	UG/L	25 U	NA	NA	25 U	NA
7439-89-6	Iron -DISS	UG/L	2550	NA	6400	7550	NA
7440-09-7	Potassium -DISS	UG/L	23200	NA	23300	28000	NA
7439-95-4	Magnesium -DISS	UG/L	31700	NA	NA	29900	NA
7439-96-5	Manganese -DISS	UG/L	271	NA	293	366	NA
7440-23-5	Sodium -DISS	UG/L	172000	NA	183000	236000	NA
7440-02-0	Nickel -DISS	UG/L	50 U	NA	NA	50 U	NA
7440-31-5	Tin -DISS	UG/L	100 U	NA	NA	100 U	NA
7440-62-2	Vanadium -DISS	UG/L	20 U	NA	NA	20 U	NA
7440-66-6	Zinc -DISS	UG/L	20 U	NA	NA	20 U	NA
7440-38-2	Arsenic -DISS	UG/L	5 U	NA	NA	5 U	NA
7440-43-9	Cadmium -DISS	UG/L	0.5 U	NA	NA	0.5 U	NA
7439-97-6	Mercury -DISS	UG/L	0.2 U	NA	NA	0.2 U	NA
7440-22-4	Silver -DISS	UG/L	0.5 U	NA	NA	0.5 U	NA
7440-28-0	Thallium -DISS	UG/L	2 U	NA	NA	4 U*	NA
18496-25-8	Sulfide	MG/L	0.5 U	NA	NA	0.5 U	NA
57-12-5	Cyanide	UG/L	20 U	NA	NA	20 U	NA
	DIOXINS						
DIOXIN1	TCDFs(TOTAL)	PG/L	NA	53	NA	NA	17
DIOXIN2	2,3,7,8-TCDF	PG/L	NA	11 U	NA	NA	4.7 U
DIOXIN3	PeCDFS(TOTAL)	PG/L	NA	120	NA	NA	99
DIOXIN4	1,2,3,7,8-PeCDF	PG/L	NA	2.4 U	NA	NA	1.2 U
DIOXIN5	2,3,4,7,8-PeCDF	PG/L	NA	4.9 U	NA	NA	2.8 U
DIOXIN6	HxCDFs(TOTAL)	PG/L	NA	65	NA	NA	84
DIOXIN7	1,2,3,4,7,8-HxCDF	PG/L	NA	2.1 U	NA	NA	3 U
DIOXIN8	1,2,3,6,7,8-HxCDF	PG/L	NA	16 U	NA	NA	12 U
DIOXIN9	2,3,4,6,7,8-HxCDF	PG/L	NA	4.3 U	NA	NA	4.2 U
DIOXIN10	1,2,3,7,8,9-HxCDF	PG/L	NA	2.5 U	NA	NA	0.48 U
DIOXIN11	HpCDFs(TOTAL)	PG/L	NA	17 U	NA	NA	55
DIOXIN12	1,2,3,4,6,7,8-HpCDF	PG/L	NA	15 U	NA	NA	55
DIOXIN13	1,2,3,4,7,8,9-HpCDF	PG/L	NA	3.2 U	NA	NA	2.6 U
DIOXIN14	OCDF	PG/L	NA	18 U	NA	NA	130
DIOXIN15	TCDDs(TOTAL)	PG/L	NA	3 U	NA	NA	2.5 U
DIOXIN16	2,3,7,8-TCDD	PG/L	NA	2.3 U	NA	NA	1.9 U
DIOXIN17	PeCDDs(TOTAL)	PG/L	NA	22 U	NA	NA	22 U
DIOXIN18	1,2,3,7,8-PeCDD	PG/L	NA	3.4 U	NA	NA	0.95 U
DIOXIN19	HxCDDs(TOTAL)	PG/L	NA	47	NA	NA	21 U
DIOXIN20	1,2,3,4,7,8-HxCDD	PG/L	NA	3.4 U	NA	NA	0.7 U
DIOXIN21	1,2,3,6,7,8-HxCDD	PG/L	NA	13 U	NA	NA	9.5 U
DIOXIN22	1,2,3,7,8,9-HxCDD	PG/L	NA	8 U	NA	NA	2.8 U
DIOXIN23	HpCDDs(TOTAL)	PG/L	NA	20 U	NA	NA	270
DIOXIN24	1,2,3,4,6,7,8-HpCDD	PG/L	NA	20 U	NA	NA	150
DIOXIN25	OCDD	PG/L	NA	130	NA	NA	2300
TDIOXINS	TOTAL TEFs	PG/L	NA	0.13	NA	NA	4.48

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DW17 A6B150157-002 QUANTERRA A6B150157 WATER 2/13/96	MW18 A6A170141-003 QUANTERRA A6A170141 WATER 1/16/96	MW18 A6B150157-003 QUANTERRA A6B150157 WATER 2/13/96	DW18 A6A170141-004 QUANTERRA A6A170141 WATER 1/16/96	MW19 A6A170141-005 QUANTERRA A6A170141 WATER 1/16/96
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	UG/L	NA	100 U	NA	8.4 J	100 U
75-05-8	Acetonitrile	UG/L	NA	NA	NA	NA	NA
107-02-8	Acrolein	UG/L	NA	NA	NA	NA	NA
107-13-1	Acrylonitrile	UG/L	NA	NA	NA	NA	NA
71-43-2	Benzene	UG/L	NA	5 U	NA	5 U	5 U
75-27-4	Bromodichloromethane	UG/L	NA	1 U	NA	1 U	1 U
75-25-2	Bromoform	UG/L	NA	1 U	NA	1 U	1 U
74-83-9	Bromomethane	UG/L	NA	1 U	NA	1 U	1 U
75-15-0	Carbon disulfide	UG/L	NA	50 U	NA	50 U	50 U
56-23-5	Carbon tetrachloride	UG/L	NA	1 U	NA	1 U	1 U
108-90-7	Chlorobenzene	UG/L	NA	1 U	NA	1 U	1 U
126-99-8	Chloroprene	UG/L	NA	NA	NA	NA	NA
124-48-1	Dibromochloromethane	UG/L	NA	1 U	NA	1 U	1 U
96-12-8	1,2-Dibromo-3-chloropropane	UG/L	NA	NA	NA	NA	NA
75-00-3	Chloroethane	UG/L	NA	1 U	NA	4.5	1 U
67-66-3	Chloroform	UG/L	NA	1 U	NA	1 U	1 U
74-87-3	Chloromethane	UG/L	NA	1 U	NA	1 U	1 U
107-05-1	Allyl chloride	UG/L	NA	NA	NA	NA	NA
74-95-3	Dibromomethane	UG/L	NA	NA	NA	NA	NA
95-50-1	1,2-Dichlorobenzene	UG/L	NA	1 U	NA	1 U	1 U
541-73-1	1,3-Dichlorobenzene	UG/L	NA	1 U	NA	1 U	1 U
106-46-7	1,4-Dichlorobenzene	UG/L	NA	1 U	NA	1 U	1 U
110-57-6	trans-1,4-Dichloro-2-butene	UG/L	NA	NA	NA	NA	NA
75-71-8	Dichlorodifluoromethane	UG/L	NA	NA	NA	NA	NA
75-34-3	1,1-Dichloroethane	UG/L	NA	1 U	NA	1 U	1 U
107-06-2	1,2-Dichloroethane	UG/L	NA	1 U	NA	1 U	1 U
75-35-4	1,1-Dichloroethene	UG/L	NA	1 U	NA	1 U	1 U
156-59-2	cis-1,2-Dichloroethene	UG/L	NA	1 U	NA	1 U	1 U
156-60-5	trans-1,2-Dichloroethene	UG/L	NA	1 U	NA	1 U	1 U
78-87-5	1,2-Dichloropropane	UG/L	NA	1 U	NA	1 U	1 U
10061-01-5	cis-1,3-Dichloropropene	UG/L	NA	1 U	NA	1 U	1 U
10061-02-6	trans-1,3-Dichloropropene	UG/L	NA	1 U	NA	1 U	1 U
123-91-1	1,4-Dioxane	UG/L	NA	NA	NA	NA	NA
100-41-4	Ethylbenzene	UG/L	NA	1 U	NA	1 U	1 U
97-63-2	Ethyl methacrylate	UG/L	NA	NA	NA	NA	NA
75-69-4	Trichlorofluoromethane	UG/L	NA	NA	NA	NA	NA
591-78-6	2-Hexanone	UG/L	NA	50 U	NA	50 U	50 U
74-88-4	Iodomethane	UG/L	NA	NA	NA	NA	NA
78-83-1	Isobutyl alcohol	UG/L	NA	NA	NA	NA	NA
126-98-7	Methacrylonitrile	UG/L	NA	NA	NA	NA	NA
75-09-2	Methylene chloride	UG/L	NA	5 U	NA	5 U	5 U
80-62-6	Methyl methacrylate	UG/L	NA	NA	NA	NA	NA
107-12-0	Propionitrile	UG/L	NA	NA	NA	NA	NA
100-42-5	Styrene	UG/L	NA	1 U	NA	1 U	1 U
630-20-6	1,1,1,2-Tetrachloroethane	UG/L	NA	NA	NA	NA	NA
79-34-5	1,1,2,2-Tetrachloroethane	UG/L	NA	1 U	NA	1 U	1 U
127-18-4	Tetrachloroethene	UG/L	NA	1 U	NA	1 U	1 U
108-88-3	Toluene	UG/L	NA	1 U	NA	1 U	1 U
71-55-6	1,1,1-Trichloroethane	UG/L	NA	1 U	NA	1 U	1 U
79-00-5	1,1,2-Trichloroethane	UG/L	NA	1 U	NA	1 U	1 U
79-01-6	Trichloroethene	UG/L	NA	1 U	NA	1 U	1 U
96-18-4	1,2,3-Trichloropropane	UG/L	NA	NA	NA	NA	NA
108-05-4	Vinyl acetate	UG/L	NA	NA	NA	NA	NA
75-01-4	Vinyl chloride	UG/L	NA	1 U	NA	1 U	1 U
1330-20-7	Xylenes (total)	UG/L	NA	3 U	NA	3 U	3 U
106-93-4	1,2-Dibromoethane (EDB)	UG/L	NA	NA	NA	NA	NA
78-93-3	2-Butanone (MEK)	UG/L	NA	50 U	NA	50 U	50 U
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/L	NA	50 U	NA	50 U	50 U

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DW17 A6B150157-002 QUANTERRA A6B150157 WATER 2/13/96	MW18 A6A170141-003 QUANTERRA A6A170141 WATER 1/16/96	MW18 A6B150157-003 QUANTERRA A6B150157 WATER 2/13/96	DW18 A6A170141-004 QUANTERRA A6A170141 WATER 1/16/96	MW19 A6A170141-005 QUANTERRA A6A170141 WATER 1/16/96
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
92-67-1	4-Aminobiphenyl	UG/L	NA	NA	NA	NA	NA
60-11-7	p-Dimethylaminoazobenzene	UG/L	NA	NA	NA	NA	NA
57-97-6	7,12-Dimethylbenz(a)anthracene	UG/L	NA	NA	NA	NA	NA
1888-71-7	Hexachloropropene	UG/L	NA	NA	NA	NA	NA
62-44-2	Phenacetin	UG/L	NA	NA	NA	NA	NA
23950-58-5	Pronamide	UG/L	NA	NA	NA	NA	NA
122-09-8	a,a-Dimethylphenethylamine	UG/L	NA	NA	NA	NA	NA
2303-16-4	Diallate	UG/L	NA	NA	NA	NA	NA
510-15-6	Chlorobenzilate	UG/L	NA	NA	NA	NA	NA
83-32-9	Acenaphthene	UG/L	NA	5 U	NA	5 U	5 U
208-96-8	Acenaphthylene	UG/L	NA	5 U	NA	5 U	5 U
98-86-2	Acetophenone	UG/L	NA	NA	NA	NA	NA
53-96-3	2-Acetylaminofluorene	UG/L	NA	NA	NA	NA	NA
62-53-3	Aniline	UG/L	NA	NA	NA	NA	NA
120-12-7	Anthracene	UG/L	NA	5 U	NA	5 U	5 U
56-55-3	Benzo(a)anthracene	UG/L	NA	5 U	NA	5 U	5 U
205-99-2	Benzo(b)fluoranthene	UG/L	NA	5 U	NA	5 U	5 U
207-08-9	Benzo(k)fluoranthene	UG/L	NA	5 U	NA	5 U	5 U
191-24-2	Benzo(ghi)perylene	UG/L	NA	5 U	NA	5 U	5 U
50-32-8	Benzo(a)pyrene	UG/L	NA	5 U	NA	5 U	5 U
100-51-6	Benzyl alcohol	UG/L	NA	NA	NA	NA	NA
111-91-1	bis(2-Chloroethoxy)methane	UG/L	NA	5 U	NA	5 U	5 U
111-44-4	bis(2-Chloroethyl) ether	UG/L	NA	5 U	NA	5 U	5 U
117-81-7	bis(2-Ethylhexyl) phthalate	UG/L	NA	5 U	NA	5 U	5 U
101-55-3	4-Bromophenyl phenyl ether	UG/L	NA	5 U	NA	5 U	5 U
85-68-7	Butyl benzyl phthalate	UG/L	NA	5 U	NA	5 U	5 U
106-47-8	4-Chloroaniline	UG/L	NA	20 U	NA	20 U	20 U
59-50-7	4-Chloro-3-methylphenol	UG/L	NA	5 U	NA	5 U	5 U
91-58-7	2-Chloronaphthalene	UG/L	NA	5 U	NA	5 U	5 U
95-57-8	2-Chlorophenol	UG/L	NA	5 U	NA	5 U	5 U
7005-72-3	4-Chlorophenyl phenyl ether	UG/L	NA	5 U	NA	5 U	5 U
218-01-9	Chrysene	UG/L	NA	5 U	NA	5 U	5 U
53-70-3	Dibenz(a,h)anthracene	UG/L	NA	5 U	NA	5 U	5 U
132-64-9	Dibenzofuran	UG/L	NA	5 U	NA	5 U	5 U
84-74-2	Di-n-butyl phthalate	UG/L	NA	5 U	NA	5 U	5 U
91-94-1	3,3'-Dichlorobenzidine	UG/L	NA	20 U	NA	20 U	20 U
120-83-2	2,4-Dichlorophenol	UG/L	NA	5 U	NA	5 U	5 U
87-65-0	2,6-Dichlorophenol	UG/L	NA	NA	NA	NA	NA
84-66-2	Diethyl phthalate	UG/L	NA	5 U	NA	5 U	5 U
119-93-7	3,3'-Dimethylbenzidine	UG/L	NA	NA	NA	NA	NA
105-67-9	2,4-Dimethylphenol	UG/L	NA	5 U	NA	5 U	5 U
131-11-3	Dimethyl phthalate	UG/L	NA	5 U	NA	5 U	5 U
117-84-0	Di-n-octyl phthalate	UG/L	NA	5 U	NA	5 U	5 U
99-65-0	1,3-Dinitrobenzene	UG/L	NA	NA	NA	NA	NA
534-52-1	4,6-Dinitro-2-methylphenol	UG/L	NA	20 U	NA	20 U	20 U
51-28-5	2,4-Dinitrophenol	UG/L	NA	20 U	NA	20 U	20 U
121-14-2	2,4-Dinitrotoluene	UG/L	NA	5 U	NA	5 U	5 U
606-20-2	2,6-Dinitrotoluene	UG/L	NA	5 U	NA	5 U	5 U
122-39-4	Diphenylamine	UG/L	NA	NA	NA	NA	NA
62-50-0	Ethyl methanesulfonate	UG/L	NA	NA	NA	NA	NA
206-44-0	Fluoranthene	UG/L	NA	5 U	NA	5 U	5 U
86-73-7	Fluorene	UG/L	NA	5 U	NA	5 U	5 U
118-74-1	Hexachlorobenzene	UG/L	NA	5 U	NA	5 U	5 U
87-68-3	Hexachlorobutadiene	UG/L	NA	5 U	NA	5 U	5 U

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DW17 A6B150157-002 QUANTERRA A6B150157 WATER 2/13/96	MW18 A6A170141-003 QUANTERRA A6A170141 WATER 1/16/96	MW18 A6B150157-003 QUANTERRA A6B150157 WATER 2/13/96	DW18 A6A170141-004 QUANTERRA A6A170141 WATER 1/16/96	MW19 A6A170141-005 QUANTERRA A6A170141 WATER 1/16/96
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES CONT'D						
77-47-4	Hexachlorocyclopentadiene	UG/L	NA	5 U	NA	5 U	5 U
67-72-1	Hexachloroethane	UG/L	NA	5 U	NA	5 U	5 U
193-39-5	Indeno(1,2,3-cd)pyrene	UG/L	NA	5 U	NA	5 U	5 U
78-59-1	Isophorone	UG/L	NA	5 U	NA	5 U	5 U
120-58-1	Isosafrole	UG/L	NA	NA	NA	NA	NA
91-80-5	Methapyrilene	UG/L	NA	NA	NA	NA	NA
95-53-4	o-Toluidine	UG/L	NA	NA	NA	NA	NA
56-49-5	3-Methylcholanthrene	UG/L	NA	NA	NA	NA	NA
66-27-3	Methyl methanesulfonate	UG/L	NA	NA	NA	NA	NA
91-57-6	2-Methylnaphthalene	UG/L	NA	5 U	NA	5 U	5 U
95-48-7	2-Methylphenol	UG/L	NA	5 U	NA	5 U	5 U
108-39-4	3-Methylphenol	UG/L	NA	NA	NA	NA	NA
106-44-5	4-Methylphenol	UG/L	NA	5 U	NA	5 U	5 U
91-20-3	Naphthalene	UG/L	NA	0.58 J	NA	5 U	5 U
130-15-4	1,4-Naphthoquinone	UG/L	NA	NA	NA	NA	NA
134-32-7	1-Naphthylamine	UG/L	NA	NA	NA	NA	NA
91-59-8	2-Naphthylamine	UG/L	NA	NA	NA	NA	NA
88-74-4	2-Nitroaniline	UG/L	NA	20 U	NA	20 U	20 U
99-09-2	3-Nitroaniline	UG/L	NA	20 U	NA	20 U	20 U
100-01-6	4-Nitroaniline	UG/L	NA	20 U	NA	20 U	20 U
98-95-3	Nitrobenzene	UG/L	NA	5 U	NA	5 U	5 U
88-75-5	2-Nitrophenol	UG/L	NA	5 U	NA	5 U	5 U
100-02-7	4-Nitrophenol	UG/L	NA	20 U	NA	20 U	20 U
56-57-5	4-Nitroquinoline-1-oxide	UG/L	NA	NA	NA	NA	NA
924-16-3	N-Nitrosodi-n-butylamine	UG/L	NA	NA	NA	NA	NA
55-18-5	N-Nitrosodiethylamine	UG/L	NA	NA	NA	NA	NA
62-75-9	N-Nitrosodimethylamine	UG/L	NA	NA	NA	NA	NA
621-64-7	N-Nitrosodi-n-propylamine	UG/L	NA	5 U	NA	5 U	5 U
86-30-6	N-Nitrosodiphenylamine	UG/L	NA	5 U	NA	5 U	5 U
10595-95-6	N-Nitrosomethylethylamine	UG/L	NA	NA	NA	NA	NA
59-89-2	N-Nitrosomorpholine	UG/L	NA	NA	NA	NA	NA
100-75-4	N-Nitrosopiperidine	UG/L	NA	NA	NA	NA	NA
930-55-2	N-Nitrosopyrrolidine	UG/L	NA	NA	NA	NA	NA
99-55-8	5-Nitro-o-toluidine	UG/L	NA	NA	NA	NA	NA
608-93-5	Pentachlorobenzene	UG/L	NA	NA	NA	NA	NA
76-01-7	Pentachloroethane	UG/L	NA	NA	NA	NA	NA
82-68-8	Pentachloronitrobenzene	UG/L	NA	NA	NA	NA	NA
87-86-5	Pentachlorophenol	UG/L	NA	25 U	NA	25 U	25 U
85-01-8	Phenanthrene	UG/L	NA	0.64 J	NA	5 U	5 U
108-95-2	Phenol	UG/L	NA	5 U	NA	5 U	5 U
106-50-3	p-Phenylene diamine	UG/L	NA	NA	NA	NA	NA
109-06-8	2-Picoline	UG/L	NA	NA	NA	NA	NA
129-00-0	Pyrene	UG/L	NA	5 U	NA	5 U	5 U
110-86-1	Pyridine	UG/L	NA	NA	NA	NA	NA
94-59-7	Safrole	UG/L	NA	NA	NA	NA	NA
95-94-3	1,2,4,5-Tetrachlorobenzene	UG/L	NA	NA	NA	NA	NA
58-90-2	2,3,4,6-Tetrachlorophenol	UG/L	NA	NA	NA	NA	NA
120-82-1	1,2,4-Trichlorobenzene	UG/L	NA	5 U	NA	5 U	5 U
95-95-4	2,4,5-Trichlorophenol	UG/L	NA	50 U	NA	50 U	50 U
88-06-2	2,4,6-Trichlorophenol	UG/L	NA	5 U	NA	5 U	5 U
99-35-4	1,3,5-Trinitrobenzene	UG/L	NA	NA	NA	NA	NA
86-74-8	Carbazole	UG/L	NA	10 U	NA	10 U	10 U
108-60-1	bis(2-Chloroisopropyl) ether	UG/L	NA	5 U	NA	5 U	5 U

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DW17 A6B150157-002 QUANTERRA A6B150157 WATER 2/13/96	MW18 A6A170141-003 QUANTERRA A6A170141 WATER 1/16/96	MW18 A6B150157-003 QUANTERRA A6B150157 WATER 2/13/96	DW18 A6A170141-004 QUANTERRA A6A170141 WATER 1/16/96	MW19 A6A170141-005 QUANTERRA A6A170141 WATER 1/16/96
CAS NO.	COMPOUND	UNITS:					
	PESTICIDES/PCBs						
309-00-2	Aldrin	UG/L	NA	0.01 U	NA	0.5 U*	0.01 U
319-84-6	alpha-BHC	UG/L	NA	0.01 U	NA	0.01 U	0.01 U
319-85-7	beta-BHC	UG/L	NA	0.01 U	NA	0.01 U	0.01 U
319-86-8	delta-BHC	UG/L	NA	0.01 U	NA	0.01 U	0.01 U
58-89-9	gamma-BHC (Lindane)	UG/L	NA	0.01 U	NA	0.01 U	0.01 U
5103-71-9	alpha-Chlordane	UG/L	NA	0.01 U	NA	0.01 U	0.01 U
5103-74-2	gamma-Chlordane	UG/L	NA	0.01 U	NA	0.01 U	0.01 U
72-54-8	4,4'-DDD	UG/L	NA	0.02 U	NA	0.02 U	0.02 U
72-55-9	4,4'-DDE	UG/L	NA	0.02 U	NA	0.02 U	0.02 U
50-29-3	4,4'-DDT	UG/L	NA	0.02 U	NA	0.02 U	0.02 U
60-57-1	Dieldrin	UG/L	NA	0.02 U	NA	0.02 U	0.02 U
959-98-8	Endosulfan I	UG/L	NA	0.05 U	NA	0.05 U	0.05 U
33213-65-9	Endosulfan II	UG/L	NA	0.05 U	NA	0.05 U	0.05 U
1031-07-8	Endosulfan sulfate	UG/L	NA	0.05 U	NA	0.05 U	0.05 U
72-20-8	Endrin	UG/L	NA	0.02 U	NA	0.02 U	0.02 U
7421-93-4	Endrin aldehyde	UG/L	NA	0.02 U	NA	0.02 U	0.02 U
76-44-8	Heptachlor	UG/L	NA	0.01 U	NA	0.01 U	0.01 U
1024-57-3	Heptachlor epoxide	UG/L	NA	0.01 U	NA	0.01 U	0.01 U
465-73-6	Isodrin	UG/L	NA	NA	NA	NA	NA
143-50-0	Kepone	UG/L	NA	NA	NA	NA	NA
72-43-5	Methoxychlor	UG/L	NA	0.5 U	NA	0.5 U	0.5 U
12674-11-2	Aroclor 1016	UG/L	NA	0.1 U	NA	0.1 U	0.1 U
11104-28-2	Aroclor 1221	UG/L	NA	0.1 U	NA	0.1 U	0.1 U
11141-16-5	Aroclor 1232	UG/L	NA	0.1 U	NA	0.1 U	0.1 U
53469-21-9	Aroclor 1242	UG/L	NA	0.1 U	NA	0.1 U	0.1 U
12672-29-6	Aroclor 1248	UG/L	NA	0.1 U	NA	0.1 U	0.1 U
11097-69-1	Aroclor 1254	UG/L	NA	0.2 U	NA	0.2 U	0.2 U
11096-82-5	Aroclor 1260	UG/L	NA	0.2 U	NA	0.2 U	0.2 U
8001-35-2	Toxaphene	UG/L	NA	1 U	NA	1 U	1 U
53494-70-5	Endrin ketone	UG/L	NA	0.02 U	NA	0.02 U	0.02 U
	HERBICIDES						
297-97-2	Thionazin	UG/L	NA	NA	NA	NA	NA
60-51-5	Dimethoate	UG/L	NA	NA	NA	NA	NA
298-04-4	Disulfoton	UG/L	NA	NA	NA	NA	NA
52-85-7	Famphur	UG/L	NA	NA	NA	NA	NA
298-00-0	Methyl parathion	UG/L	NA	NA	NA	NA	NA
56-38-2	Parathion	UG/L	NA	NA	NA	NA	NA
298-02-2	Phorate	UG/L	NA	NA	NA	NA	NA
3689-24-5	Tetraethyldithiopyrophosphate	UG/L	NA	NA	NA	NA	NA
126-68-1	O,O,O-Triethyl phosphorothioate	UG/L	NA	NA	NA	NA	NA
94-75-7	2,4-D	UG/L	NA	NA	NA	NA	NA
88-85-7	Dinoseb	UG/L	NA	NA	NA	NA	NA
93-76-5	2,4,5-T	UG/L	NA	NA	NA	NA	NA
93-72-1	2,4,5-TP (Silvex)	UG/L	NA	NA	NA	NA	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DW17 A6B150157-002 QUANTERRA A6B150157 WATER 2/13/96	MW18 A6A170141-003 QUANTERRA A6A170141 WATER 1/16/96	MW18 A6B150157-003 QUANTERRA A6B150157 WATER 2/13/96	DW18 A6A170141-004 QUANTERRA A6A170141 WATER 1/16/96	MW19 A6A170141-005 QUANTERRA A6A170141 WATER 1/16/96
CAS NO.	COMPOUND	UNITS:					
	INORGANICS						
7440-47-3	Chromium -DISS	UG/L	NA	5 U	NA	5 U	5 U
7439-92-1	Lead -DISS	UG/L	NA	3 U	NA	3 U	5.1
7440-36-0	Antimony -DISS	UG/L	NA	5 U	NA	5 U	5 U
7782-49-2	Selenium -DISS	UG/L	NA	5 U	NA	5 U	5 U
7429-90-5	Aluminum -DISS	UG/L	NA	100 U	NA	536	138
7440-39-3	Barium -DISS	UG/L	NA	200 U	NA	278	200 U
7440-41-7	Beryllium -DISS	UG/L	NA	3 U	NA	3 U	3 U
7440-70-2	Calcium -DISS	UG/L	60600	115000	109000	57400	92600
7440-48-4	Cobalt -DISS	UG/L	NA	50 U	NA	50 U	50 U
7440-50-8	Copper -DISS	UG/L	NA	25 U	NA	25 U	25 U
7439-89-6	Iron -DISS	UG/L	6710	16700	15900	5200	56200
7440-09-7	Potassium -DISS	UG/L	26700	19300	17800	12800	20300
7439-95-4	Magnesium -DISS	UG/L	NA	37400	NA	21700	29700
7439-96-5	Manganese -DISS	UG/L	320	505	474	36	342
7440-23-5	Sodium -DISS	UG/L	212000	77800	NA	1170000	109000
7440-02-0	Nickel -DISS	UG/L	NA	50 U	NA	50 U	50 U
7440-31-5	Tin -DISS	UG/L	NA	NA	NA	NA	NA
7440-62-2	Vanadium -DISS	UG/L	NA	20 U	NA	20 U	20 U
7440-66-6	Zinc -DISS	UG/L	NA	84	NA	20 U	20 U
7440-38-2	Arsenic -DISS	UG/L	NA	5.5	NA	5 U	5.8
7440-43-9	Cadmium -DISS	UG/L	NA	0.5 U	NA	0.5 U	0.5 U
7439-97-6	Mercury -DISS	UG/L	NA	0.2 U	NA	0.2 U	0.2 U
7440-22-4	Silver -DISS	UG/L	NA	0.5 U	NA	0.5 U	0.5 U
7440-28-0	Thallium -DISS	UG/L	2 U	2 U	NA	32 U*	2 U
18496-25-8	Sulfide	MG/L	NA	NA	NA	NA	NA
57-12-5	Cyanide	UG/L	NA	20 U	NA	20 U	20 U
	DIOXINS						
DIOXIN1	TCDFs(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN2	2,3,7,8-TCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN3	PeCDFS(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN4	1,2,3,7,8-PeCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN5	2,3,4,7,8-PeCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN6	HxCDFs(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN7	1,2,3,4,7,8-HxCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN8	1,2,3,6,7,8-HxCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN9	2,3,4,6,7,8-HxCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN10	1,2,3,7,8,9-HxCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN11	HpCDFs(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN12	1,2,3,4,6,7,8-HpCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN13	1,2,3,4,7,8,9-HpCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN14	OCDF	PG/L	NA	NA	NA	NA	NA
DIOXIN15	TCDDs(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN16	2,3,7,8-TCDD	PG/L	NA	NA	NA	NA	NA
DIOXIN17	PeCDDs(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN18	1,2,3,7,8-PeCDD	PG/L	NA	NA	NA	NA	NA
DIOXIN19	HxCDDs(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN20	1,2,3,4,7,8-HxCDD	PG/L	NA	NA	NA	NA	NA
DIOXIN21	1,2,3,6,7,8-HxCDD	PG/L	NA	NA	NA	NA	NA
DIOXIN22	1,2,3,7,8,9-HxCDD	PG/L	NA	NA	NA	NA	NA
DIOXIN23	HpCDDs(TOTAL)	PG/L	NA	NA	NA	NA	NA
DIOXIN24	1,2,3,4,6,7,8-HpCDD	PG/L	NA	NA	NA	NA	NA
DIOXIN25	OCDD	PG/L	NA	NA	NA	NA	NA
TDIOXINS	TOTAL TEFs	PG/L	NA	NA	NA	NA	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DW19 A6A170141-006 QUANTERRA A6A170141 WATER 1/16/96	MW20 A6A190124-005 QUANTERRA A6A190124 WATER 1/18/96	GWMW20 GWMW20 QUANTERRA 085951 WATER 1/18/96	MW20 A6B150157-008 QUANTERRA A6B150157 WATER 2/13/96	MW70 A6B150157-010 QUANTERRA A6B150157 WATER 2/13/96
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	UG/L	5.1 J	250 U	NA	NA	NA
75-05-8	Acetonitrile	UG/L	NA	120 U	NA	NA	NA
107-02-8	Acrolein	UG/L	NA	25 U	NA	NA	NA
107-13-1	Acrylonitrile	UG/L	NA	25 U	NA	NA	NA
71-43-2	Benzene	UG/L	5 U	19	NA	22	NA
75-27-4	Bromodichloromethane	UG/L	1 U	2.5 U	NA	NA	NA
75-25-2	Bromoform	UG/L	1 U	2.5 U	NA	NA	NA
74-83-9	Bromomethane	UG/L	1 U	2.5 U	NA	NA	NA
75-15-0	Carbon disulfide	UG/L	50 U	120 U	NA	NA	NA
56-23-5	Carbon tetrachloride	UG/L	1 U	2.5 U	NA	NA	NA
108-90-7	Chlorobenzene	UG/L	1 U	2.5 U	NA	NA	NA
126-99-8	Chloroprene	UG/L	NA	2.5 U	NA	NA	NA
124-48-1	Dibromochloromethane	UG/L	1 U	2.5 U	NA	NA	NA
96-12-8	1,2-Dibromo-3-chloropropane	UG/L	NA	5 U	NA	NA	NA
75-00-3	Chloroethane	UG/L	1 U	21	NA	NA	NA
67-66-3	Chloroform	UG/L	1 U	2.5 U	NA	NA	NA
74-87-3	Chloromethane	UG/L	1 U	2.5 U	NA	NA	NA
107-05-1	Allyl chloride	UG/L	NA	5 U	NA	NA	NA
74-95-3	Dibromomethane	UG/L	NA	12 U	NA	NA	NA
95-50-1	1,2-Dichlorobenzene	UG/L	1 U	2.5 U	NA	NA	NA
541-73-1	1,3-Dichlorobenzene	UG/L	1 U	2.5 U	NA	NA	NA
106-46-7	1,4-Dichlorobenzene	UG/L	1 U	2.5 U	NA	NA	NA
110-57-6	trans-1,4-Dichloro-2-butene	UG/L	NA	2.5 U	NA	NA	NA
75-71-8	Dichlorodifluoromethane	UG/L	NA	2.5 U	NA	NA	NA
75-34-3	1,1-Dichloroethane	UG/L	1 U	15	NA	NA	NA
107-06-2	1,2-Dichloroethane	UG/L	1 U	2.5 U	NA	NA	NA
75-35-4	1,1-Dichloroethene	UG/L	1 U	2.5 U	NA	NA	NA
156-59-2	cis-1,2-Dichloroethene	UG/L	1 U	3.8	NA	NA	NA
156-60-5	trans-1,2-Dichloroethene	UG/L	1 U	2.5 U	NA	NA	NA
78-87-5	1,2-Dichloropropane	UG/L	1 U	2.5 U	NA	NA	NA
10061-01-5	cis-1,3-Dichloropropene	UG/L	1 U	2.5 U	NA	NA	NA
10061-02-6	trans-1,3-Dichloropropene	UG/L	1 U	2.5 U	NA	NA	NA
123-91-1	1,4-Dioxane	UG/L	NA	500 U	NA	NA	NA
100-41-4	Ethylbenzene	UG/L	1 U	56	NA	NA	NA
97-63-2	Ethyl methacrylate	UG/L	NA	2.5 U	NA	NA	NA
75-69-4	Trichlorofluoromethane	UG/L	NA	2.5 U	NA	NA	NA
591-78-6	2-Hexanone	UG/L	50 U	120 U	NA	NA	NA
74-88-4	Iodomethane	UG/L	NA	2.5 U	NA	NA	NA
78-83-1	Isobutyl alcohol	UG/L	NA	2500 U	NA	NA	NA
126-98-7	Methacrylonitrile	UG/L	NA	25 U	NA	NA	NA
75-09-2	Methylene chloride	UG/L	5 U	12 U	NA	NA	NA
80-62-6	Methyl methacrylate	UG/L	NA	12 U	NA	NA	NA
107-12-0	Propionitrile	UG/L	NA	10 U	NA	NA	NA
100-42-5	Styrene	UG/L	1 U	2.5 U	NA	NA	NA
630-20-6	1,1,1,2-Tetrachloroethane	UG/L	NA	2.5 U	NA	NA	NA
79-34-5	1,1,2,2-Tetrachloroethane	UG/L	1 U	2.5 U	NA	NA	NA
127-18-4	Tetrachloroethene	UG/L	1 U	2.5 U	NA	NA	NA
108-88-3	Toluene	UG/L	1 U	38	NA	NA	NA
71-55-6	1,1,1-Trichloroethane	UG/L	1 U	2.5 U	NA	NA	NA
79-00-5	1,1,2-Trichloroethane	UG/L	1 U	2.5 U	NA	NA	NA
79-01-6	Trichloroethene	UG/L	1 U	2.5 U	NA	NA	NA
96-18-4	1,2,3-Trichloropropane	UG/L	NA	2.5 U	NA	NA	NA
108-05-4	Vinyl acetate	UG/L	NA	120 U	NA	NA	NA
75-01-4	Vinyl chloride	UG/L	1 U	6.4	NA	5	NA
1330-20-7	Xylenes (total)	UG/L	3 U	170	NA	NA	NA
106-93-4	1,2-Dibromoethane (EDB)	UG/L	NA	2.5 U	NA	NA	NA
78-93-3	2-Butanone (MEK)	UG/L	50 U	120 U	NA	NA	NA
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/L	50 U	120 U	NA	NA	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DW19 A6A170141-006 QUANTERRA A6A170141 WATER 1/16/96	MW20 A6A190124-005 QUANTERRA A6A190124 WATER 1/18/96	GWMW20 GWMW20 QUANTERRA 085951 WATER 1/18/96	MW20 A6B150157-008 QUANTERRA A6B150157 WATER 2/13/96	MW70 A6B150157-010 QUANTERRA A6B150157 WATER 2/13/96
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
92-67-1	4-Aminobiphenyl	UG/L	NA	500 U	NA	NA	NA
60-11-7	p-Dimethylaminoazobenzene	UG/L	NA	200 U	NA	NA	NA
57-97-6	7,12-Dimethylbenz(a)anthracene	UG/L	NA	200 U	NA	NA	NA
1888-71-7	Hexachloropropene	UG/L	NA	1000 U	NA	NA	NA
62-44-2	Phenacetin	UG/L	NA	200 U	NA	NA	NA
23950-58-5	Pronamide	UG/L	NA	200 U	NA	NA	NA
122-09-8	a,a-Dimethylphenethylamine	UG/L	NA	500 U	NA	NA	NA
2303-16-4	Diallate	UG/L	NA	50 U	NA	NA	NA
510-15-6	Chlorobenzilate	UG/L	NA	100 U	NA	NA	NA
83-32-9	Acenaphthene	UG/L	5 U	50 U	NA	NA	NA
208-96-8	Acenaphthylene	UG/L	5 U	50 U	NA	NA	NA
98-86-2	Acetophenone	UG/L	NA	100 U	NA	NA	NA
53-96-3	2-Acetylaminofluorene	UG/L	NA	1000 U	NA	NA	NA
62-53-3	Aniline	UG/L	NA	100 U	NA	NA	NA
120-12-7	Anthracene	UG/L	5 U	50 U	NA	NA	NA
56-55-3	Benzo(a)anthracene	UG/L	5 U	50 U	NA	NA	NA
205-99-2	Benzo(b)fluoranthene	UG/L	5 U	50 U	NA	NA	NA
207-08-9	Benzo(k)fluoranthene	UG/L	5 U	50 U	NA	NA	NA
191-24-2	Benzo(ghi)perylene	UG/L	5 U	50 U	NA	NA	NA
50-32-8	Benzo(a)pyrene	UG/L	5 U	50 U	NA	NA	NA
100-51-6	Benzyl alcohol	UG/L	NA	100 U	NA	NA	NA
111-91-1	bis(2-Chloroethoxy)methane	UG/L	5 U	50 U	NA	NA	NA
111-44-4	bis(2-Chloroethyl) ether	UG/L	5 U	50 U	NA	NA	NA
117-81-7	bis(2-Ethylhexyl) phthalate	UG/L	5 U	50 U	NA	NA	NA
101-55-3	4-Bromophenyl phenyl ether	UG/L	5 U	50 U	NA	NA	NA
85-68-7	Butyl benzyl phthalate	UG/L	5 U	50 U	NA	NA	NA
106-47-8	4-Chloroaniline	UG/L	20 U	100 U	NA	NA	NA
59-50-7	4-Chloro-3-methylphenol	UG/L	5 U	50 U	NA	NA	NA
91-58-7	2-Chloronaphthalene	UG/L	5 U	50 U	NA	NA	NA
95-57-8	2-Chlorophenol	UG/L	5 U	50 U	NA	NA	NA
7005-72-3	4-Chlorophenyl phenyl ether	UG/L	5 U	50 U	NA	NA	NA
218-01-9	Chrysene	UG/L	5 U	50 U	NA	NA	NA
53-70-3	Dibenz(a,h)anthracene	UG/L	5 U	50 U	NA	NA	NA
132-64-9	Dibenzofuran	UG/L	5 U	50 U	NA	NA	NA
84-74-2	Di-n-butyl phthalate	UG/L	5 U	50 U	NA	NA	NA
91-94-1	3,3'-Dichlorobenzidine	UG/L	20 U	200 U	NA	NA	NA
120-83-2	2,4-Dichlorophenol	UG/L	5 U	50 U	NA	NA	NA
87-65-0	2,6-Dichlorophenol	UG/L	NA	50 U	NA	NA	NA
84-66-2	Diethyl phthalate	UG/L	5 U	50 U	NA	NA	NA
119-93-7	3,3'-Dimethylbenzidine	UG/L	NA	100 U	NA	NA	NA
105-67-9	2,4-Dimethylphenol	UG/L	5 U	390	NA	350	NA
131-11-3	Dimethyl phthalate	UG/L	5 U	50 U	NA	NA	NA
117-84-0	Di-n-octyl phthalate	UG/L	5 U	50 U	NA	NA	NA
99-65-0	1,3-Dinitrobenzene	UG/L	NA	50 U	NA	NA	NA
534-52-1	4,6-Dinitro-2-methylphenol	UG/L	20 U	200 U	NA	NA	NA
51-28-5	2,4-Dinitrophenol	UG/L	20 U	200 U	NA	NA	NA
121-14-2	2,4-Dinitrotoluene	UG/L	5 U	50 U	NA	NA	NA
606-20-2	2,6-Dinitrotoluene	UG/L	5 U	50 U	NA	NA	NA
122-39-4	Diphenylamine	UG/L	NA	50 U	NA	NA	NA
62-50-0	Ethyl methanesulfonate	UG/L	NA	100 U	NA	NA	NA
206-44-0	Fluoranthene	UG/L	5 U	50 U	NA	NA	NA
86-73-7	Fluorene	UG/L	5 U	7.3 J	NA	NA	NA
118-74-1	Hexachlorobenzene	UG/L	5 U	50 U	NA	NA	NA
87-68-3	Hexachlorobutadiene	UG/L	5 U	50 U	NA	NA	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DW19 A6A170141-006 QUANTERRA A6A170141 WATER 1/16/96	MW20 A6A190124-005 QUANTERRA A6A190124 WATER 1/18/96	GWMW20 GWMW20 QUANTERRA 085951 WATER 1/18/96	MW20 A6B150157-008 QUANTERRA A6B150157 WATER 2/13/96	MW70 A6B150157-010 QUANTERRA A6B150157 WATER 2/13/96
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES CONT'D						
77-47-4	Hexachlorocyclopentadiene	UG/L	5 U	50 U	NA	NA	NA
67-72-1	Hexachloroethane	UG/L	5 U	50 U	NA	NA	NA
193-39-5	Indeno(1,2,3-cd)pyrene	UG/L	5 U	50 U	NA	NA	NA
78-59-1	Isophorone	UG/L	5 U	50 U	NA	NA	NA
120-58-1	Isosafrole	UG/L	NA	200 U	NA	NA	NA
91-80-5	Methapyrilene	UG/L	NA	500 U	NA	NA	NA
95-53-4	o-Toluidine	UG/L	NA	200 U	NA	NA	NA
56-49-5	3-Methylcholanthrene	UG/L	NA	200 U	NA	NA	NA
66-27-3	Methyl methanesulfonate	UG/L	NA	100 U	NA	NA	NA
91-57-6	2-Methylnaphthalene	UG/L	5 U	47 J	NA	150	NA
95-48-7	2-Methylphenol	UG/L	5 U	7.6 J	NA	NA	NA
108-39-4	3-Methylphenol	UG/L	NA	50 U	NA	NA	NA
106-44-5	4-Methylphenol	UG/L	5 U	50 U	NA	NA	NA
91-20-3	Naphthalene	UG/L	5 U	10 J	NA	NA	NA
130-15-4	1,4-Naphthoquinone	UG/L	NA	500 U	NA	NA	NA
134-32-7	1-Naphthylamine	UG/L	NA	100 U	NA	NA	NA
91-59-8	2-Naphthylamine	UG/L	NA	100 U	NA	NA	NA
88-74-4	2-Nitroaniline	UG/L	20 U	200 U	NA	NA	NA
99-09-2	3-Nitroaniline	UG/L	20 U	200 U	NA	NA	NA
100-01-6	4-Nitroaniline	UG/L	20 U	200 U	NA	NA	NA
98-95-3	Nitrobenzene	UG/L	5 U	50 U	NA	NA	NA
88-75-5	2-Nitrophenol	UG/L	5 U	50 U	NA	NA	NA
100-02-7	4-Nitrophenol	UG/L	20 U	200 U	NA	NA	NA
56-57-5	4-Nitroquinoline-1-oxide	UG/L	NA	1000 U	NA	NA	NA
924-16-3	N-Nitrosodi-n-butylamine	UG/L	NA	100 U	NA	NA	NA
55-18-5	N-Nitrosodiethylamine	UG/L	NA	100 U	NA	NA	NA
62-75-9	N-Nitrosodimethylamine	UG/L	NA	50 U	NA	NA	NA
621-64-7	N-Nitrosodi-n-propylamine	UG/L	5 U	50 U	NA	NA	NA
86-30-6	N-Nitrosodiphenylamine	UG/L	5 U	50 U	NA	NA	NA
10595-95-6	N-Nitrosomethylethylamine	UG/L	NA	100 U	NA	NA	NA
59-89-2	N-Nitrosomorpholine	UG/L	NA	100 U	NA	NA	NA
100-75-4	N-Nitrosopiperidine	UG/L	NA	100 U	NA	NA	NA
930-55-2	N-Nitrosopyrrolidine	UG/L	NA	100 U	NA	NA	NA
99-55-8	5-Nitro-o-toluidine	UG/L	NA	200 U	NA	NA	NA
608-93-5	Pentachlorobenzene	UG/L	NA	50 U	NA	NA	NA
76-01-7	Pentachloroethane	UG/L	NA	100 U	NA	NA	NA
82-68-8	Pentachloronitrobenzene	UG/L	NA	500 U	NA	NA	NA
87-86-5	Pentachlorophenol	UG/L	25 U	250 U	NA	NA	NA
85-01-8	Phenanthrene	UG/L	5 U	13 J	NA	NA	NA
108-95-2	Phenol	UG/L	5 U	50 U	NA	NA	NA
106-50-3	p-Phenylene diamine	UG/L	NA	1000 U	NA	NA	NA
109-06-8	2-Picoline	UG/L	NA	200 U	NA	NA	NA
129-00-0	Pyrene	UG/L	5 U	50 U	NA	NA	NA
110-86-1	Pyridine	UG/L	NA	200 U	NA	NA	NA
94-59-7	Safrole	UG/L	NA	200 U	NA	NA	NA
95-94-3	1,2,4,5-Tetrachlorobenzene	UG/L	NA	50 U	NA	NA	NA
58-90-2	2,3,4,6-Tetrachlorophenol	UG/L	NA	500 U	NA	NA	NA
120-82-1	1,2,4-Trichlorobenzene	UG/L	5 U	50 U	NA	NA	NA
95-95-4	2,4,5-Trichlorophenol	UG/L	50 U	100 U	NA	NA	NA
88-06-2	2,4,6-Trichlorophenol	UG/L	5 U	50 U	NA	NA	NA
99-35-4	1,3,5-Trinitrobenzene	UG/L	NA	500 U	NA	NA	NA
86-74-8	Carbazole	UG/L	10 U	100 U	NA	NA	NA
108-60-1	bis(2-Chloroisopropyl) ether	UG/L	5 U	50 U	NA	NA	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DW19 A6A170141-006 QUANTERRA A6A170141 WATER 1/16/96	MW20 A6A190124-005 QUANTERRA A6A190124 WATER 1/18/96	GWMW20 GWMW20 QUANTERRA 085951 WATER 1/18/96	MW20 A6B150157-008 QUANTERRA A6B150157 WATER 2/13/96	MW70 A6B150157-010 QUANTERRA A6B150157 WATER 2/13/96
CAS NO.	COMPOUND	UNITS:					
	PESTICIDES/PCBs						
309-00-2	Aldrin	UG/L	0.01 U	1 U	NA	NA	NA
319-84-6	alpha-BHC	UG/L	0.01 U	1 U	NA	NA	NA
319-85-7	beta-BHC	UG/L	0.01 U	1 U	NA	NA	NA
319-86-8	delta-BHC	UG/L	0.01 U	1 U	NA	NA	NA
58-89-9	gamma-BHC (Lindane)	UG/L	0.01 U	1 U	NA	NA	NA
5103-71-9	alpha-Chlordane	UG/L	0.01 U	1 U	NA	NA	NA
5103-74-2	gamma-Chlordane	UG/L	0.01 U	1 U	NA	NA	NA
72-54-8	4,4'-DDD	UG/L	0.02 U	2 U	NA	NA	NA
72-55-9	4,4'-DDE	UG/L	0.02 U	2 U	NA	NA	NA
50-29-3	4,4'-DDT	UG/L	0.02 U	2 U	NA	NA	NA
60-57-1	Dieldrin	UG/L	0.02 U	2 U	NA	NA	NA
959-98-8	Endosulfan I	UG/L	0.05 U	1 U	NA	NA	NA
33213-65-9	Endosulfan II	UG/L	0.05 U	2 U	NA	NA	NA
1031-07-8	Endosulfan sulfate	UG/L	0.05 U	2 U	NA	NA	NA
72-20-8	Endrin	UG/L	0.02 U	2 U	NA	NA	NA
7421-93-4	Endrin aldehyde	UG/L	0.02 U	2 U	NA	NA	NA
76-44-8	Heptachlor	UG/L	0.01 U	1 U	NA	NA	NA
1024-57-3	Heptachlor epoxide	UG/L	0.01 U	1 U	NA	NA	NA
465-73-6	Isodrin	UG/L	NA	1 U	NA	NA	NA
143-50-0	Kepone	UG/L	NA	16 U	NA	NA	NA
72-43-5	Methoxychlor	UG/L	0.5 U	10 U	NA	NA	NA
12674-11-2	Aroclor 1016	UG/L	0.1 U	10 U	NA	NA	NA
11104-28-2	Aroclor 1221	UG/L	0.1 U	10 U	NA	NA	NA
11141-16-5	Aroclor 1232	UG/L	0.1 U	10 U	NA	NA	NA
53469-21-9	Aroclor 1242	UG/L	0.1 U	10 U	NA	NA	NA
12672-29-6	Aroclor 1248	UG/L	0.1 U	37	NA	15	NA
11097-69-1	Aroclor 1254	UG/L	0.2 U	20 U	NA	10 U	NA
11096-82-5	Aroclor 1260	UG/L	0.2 U	20 U	NA	NA	NA
8001-35-2	Toxaphene	UG/L	1 U	50 U	NA	NA	NA
53494-70-5	Endrin ketone	UG/L	0.02 U	2 U	NA	NA	NA
	HERBICIDES						
297-97-2	Thionazin	UG/L	NA	20 U	NA	NA	NA
60-51-5	Dimethoate	UG/L	NA	20 U	NA	NA	NA
298-04-4	Disulfoton	UG/L	NA	20 U	NA	NA	NA
52-85-7	Famphur	UG/L	NA	20 U	NA	NA	NA
298-00-0	Methyl parathion	UG/L	NA	20 U	NA	NA	NA
56-38-2	Parathion	UG/L	NA	20 U	NA	NA	NA
298-02-2	Phorate	UG/L	NA	20 U	NA	NA	NA
3689-24-5	Tetraethyldithiopyrophosphate	UG/L	NA	20 U	NA	NA	NA
126-68-1	O,O,O-Triethyl phosphorothioate	UG/L	NA	20 U	NA	NA	NA
94-75-7	2,4-D	UG/L	NA	10 U	NA	NA	NA
88-85-7	Dinoseb	UG/L	NA	1 U	NA	NA	NA
93-76-5	2,4,5-T	UG/L	NA	1 U	NA	NA	NA
93-72-1	2,4,5-TP (Silvex)	UG/L	NA	1 U	NA	NA	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DW19 A6A170141-006 QUANTERRA A6A170141 WATER 1/16/96	MW20 A6A190124-005 QUANTERRA A6A190124 WATER 1/18/96	GWMW20 GWMW20 QUANTERRA 085951 WATER 1/18/96	MW20 A6B150157-008 QUANTERRA A6B150157 WATER 2/13/96	MW70 A6B150157-010 QUANTERRA A6B150157 WATER 2/13/96
CAS NO.	COMPOUND	UNITS:					
	INORGANICS						
7440-47-3	Chromium -DISS	UG/L	5 U	5 U	NA	NA	NA
7439-92-1	Lead -DISS	UG/L	3 U	3 U	NA	NA	NA
7440-36-0	Antimony -DISS	UG/L	5 U	5 U	NA	NA	NA
7782-49-2	Selenium -DISS	UG/L	5 U	5 U	NA	NA	NA
7429-90-5	Aluminum -DISS	UG/L	100 U	185	NA	708	NA
7440-39-3	Barium -DISS	UG/L	287	906	NA	NA	NA
7440-41-7	Beryllium -DISS	UG/L	3 U	3 U	NA	NA	NA
7440-70-2	Calcium -DISS	UG/L	258000	10700	NA	14000	NA
7440-48-4	Cobalt -DISS	UG/L	50 U	50 U	NA	NA	NA
7440-50-8	Copper -DISS	UG/L	25 U	25 U	NA	NA	NA
7439-89-6	Iron -DISS	UG/L	571	482	NA	2270	NA
7440-09-7	Potassium -DISS	UG/L	5000 U	25100	NA	NA	NA
7439-95-4	Magnesium -DISS	UG/L	74800	9340	NA	NA	NA
7439-96-5	Manganese -DISS	UG/L	435	28	NA	NA	NA
7440-23-5	Sodium -DISS	UG/L	128000	175000	NA	167000	NA
7440-02-0	Nickel -DISS	UG/L	50 U	50 U	NA	NA	NA
7440-31-5	Tin -DISS	UG/L	NA	100 U	NA	NA	NA
7440-62-2	Vanadium -DISS	UG/L	20 U	20 U	NA	NA	NA
7440-66-6	Zinc -DISS	UG/L	56	27	NA	NA	NA
7440-38-2	Arsenic -DISS	UG/L	5 U	5 U	NA	NA	NA
7440-43-9	Cadmium -DISS	UG/L	0.5 U	0.5 U	NA	NA	NA
7439-97-6	Mercury -DISS	UG/L	0.2 U	0.2 U	NA	NA	NA
7440-22-4	Silver -DISS	UG/L	0.5 U	1 U*	NA	NA	NA
7440-28-0	Thallium -DISS	UG/L	4 U*	2 U	NA	NA	NA
18496-25-8	Sulfide	MG/L	NA	5	NA	3	NA
57-12-5	Cyanide	UG/L	20 U	1600	NA	4500	1500
	DIOXINS						
DIOXIN1	TCDFs(TOTAL)	PG/L	NA	NA	1400	NA	NA
DIOXIN2	2,3,7,8-TCDF	PG/L	NA	NA	32	NA	NA
DIOXIN3	PeCDFS(TOTAL)	PG/L	NA	NA	1000	NA	NA
DIOXIN4	1,2,3,7,8-PeCDF	PG/L	NA	NA	53 U	NA	NA
DIOXIN5	2,3,4,7,8-PeCDF	PG/L	NA	NA	95 U	NA	NA
DIOXIN6	HxCDFs(TOTAL)	PG/L	NA	NA	5500	NA	NA
DIOXIN7	1,2,3,4,7,8-HxCDF	PG/L	NA	NA	180	NA	NA
DIOXIN8	1,2,3,6,7,8-HxCDF	PG/L	NA	NA	110	NA	NA
DIOXIN9	2,3,4,6,7,8-HxCDF	PG/L	NA	NA	190	NA	NA
DIOXIN10	1,2,3,7,8,9-HxCDF	PG/L	NA	NA	8.2 U	NA	NA
DIOXIN11	HpCDFs(TOTAL)	PG/L	NA	NA	17000	NA	NA
DIOXIN12	1,2,3,4,6,7,8-HpCDF	PG/L	NA	NA	5200	NA	NA
DIOXIN13	1,2,3,4,7,8,9-HpCDF	PG/L	NA	NA	170	NA	NA
DIOXIN14	OCDF	PG/L	NA	NA	5900	NA	NA
DIOXIN15	TCDDs(TOTAL)	PG/L	NA	NA	290	NA	NA
DIOXIN16	2,3,7,8-TCDD	PG/L	NA	NA	10	NA	NA
DIOXIN17	PeCDDs(TOTAL)	PG/L	NA	NA	170	NA	NA
DIOXIN18	1,2,3,7,8-PeCDD	PG/L	NA	NA	27 U	NA	NA
DIOXIN19	HxCDDs(TOTAL)	PG/L	NA	NA	2800	NA	NA
DIOXIN20	1,2,3,4,7,8-HxCDD	PG/L	NA	NA	22 U	NA	NA
DIOXIN21	1,2,3,6,7,8-HxCDD	PG/L	NA	NA	430	NA	NA
DIOXIN22	1,2,3,7,8,9-HxCDD	PG/L	NA	NA	180	NA	NA
DIOXIN23	HpCDDs(TOTAL)	PG/L	NA	NA	4200	NA	NA
DIOXIN24	1,2,3,4,6,7,8-HpCDD	PG/L	NA	NA	2300	NA	NA
DIOXIN25	OCDD	PG/L	NA	NA	6900	NA	NA
TDIOXINS	TOTAL TEFs	PG/L	NA	NA	211.7	NA	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DW20 A6A190124-004 QUANTERRA A6A190124 WATER 1/18/96	GWDW20 GWDW20 QUANTERRA 085951 WATER 1/18/96	DW70 A6A190124-003 QUANTERRA A6A190124 WATER 1/18/96	GWDW70 GWDW70 QUANTERRA 085951 WATER 1/18/96	DW20 A6B150157-009 QUANTERRA A6B150157 WATER 2/13/96
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	UG/L	1200 U	NA	1200 U	NA	NA
75-05-8	Acetonitrile	UG/L	620 U	NA	620 U	NA	NA
107-02-8	Acrolein	UG/L	120 U	NA	120 U	NA	NA
107-13-1	Acrylonitrile	UG/L	120 U	NA	120 U	NA	NA
71-43-2	Benzene	UG/L	62 U	NA	62 U	NA	50 U
75-27-4	Bromodichloromethane	UG/L	12 U	NA	12 U	NA	NA
75-25-2	Bromoform	UG/L	12 U	NA	12 U	NA	NA
74-83-9	Bromomethane	UG/L	12 U	NA	12 U	NA	NA
75-15-0	Carbon disulfide	UG/L	620 U	NA	620 U	NA	NA
56-23-5	Carbon tetrachloride	UG/L	12 U	NA	12 U	NA	NA
108-90-7	Chlorobenzene	UG/L	12 U	NA	12 U	NA	NA
126-99-8	Chloroprene	UG/L	12 U	NA	12 U	NA	NA
124-48-1	Dibromochloromethane	UG/L	12 U	NA	12 U	NA	NA
96-12-8	1,2-Dibromo-3-chloropropane	UG/L	25 U	NA	25 U	NA	NA
75-00-3	Chloroethane	UG/L	18	NA	18	NA	NA
67-66-3	Chloroform	UG/L	12 U	NA	12 U	NA	NA
74-87-3	Chloromethane	UG/L	12 U	NA	12 U	NA	NA
107-05-1	Allyl chloride	UG/L	25 U	NA	25 U	NA	NA
74-95-3	Dibromomethane	UG/L	62 U	NA	62 U	NA	NA
95-50-1	1,2-Dichlorobenzene	UG/L	12 U	NA	12 U	NA	NA
541-73-1	1,3-Dichlorobenzene	UG/L	12 U	NA	12 U	NA	NA
106-46-7	1,4-Dichlorobenzene	UG/L	12 U	NA	12 U	NA	NA
110-57-6	trans-1,4-Dichloro-2-butene	UG/L	12 U	NA	12 U	NA	NA
75-71-8	Dichlorodifluoromethane	UG/L	12 U	NA	12 U	NA	NA
75-34-3	1,1-Dichloroethane	UG/L	30	NA	26	NA	NA
107-06-2	1,2-Dichloroethane	UG/L	12 U	NA	12 U	NA	NA
75-35-4	1,1-Dichloroethene	UG/L	12 U	NA	12 U	NA	NA
156-59-2	cis-1,2-Dichloroethene	UG/L	84	NA	89	NA	87
156-60-5	trans-1,2-Dichloroethene	UG/L	12 U	NA	12 U	NA	NA
78-87-5	1,2-Dichloropropane	UG/L	12 U	NA	12 U	NA	NA
10061-01-5	cis-1,3-Dichloropropene	UG/L	12 U	NA	12 U	NA	NA
10061-02-6	trans-1,3-Dichloropropene	UG/L	12 U	NA	12 U	NA	NA
123-91-1	1,4-Dioxane	UG/L	2500 U	NA	2500 U	NA	NA
100-41-4	Ethylbenzene	UG/L	12 U	NA	12 U	NA	NA
97-63-2	Ethyl methacrylate	UG/L	12 U	NA	12 U	NA	NA
75-69-4	Trichlorofluoromethane	UG/L	12 U	NA	12 U	NA	NA
591-78-6	2-Hexanone	UG/L	620 U	NA	620 U	NA	NA
74-88-4	Iodomethane	UG/L	12 U	NA	12 U	NA	NA
78-83-1	Isobutyl alcohol	UG/L	12000 U	NA	12000 U	NA	NA
126-98-7	Methacrylonitrile	UG/L	120 U	NA	120 U	NA	NA
75-09-2	Methylene chloride	UG/L	62 U	NA	62 U	NA	NA
80-62-6	Methyl methacrylate	UG/L	62 U	NA	62 U	NA	NA
107-12-0	Propionitrile	UG/L	50 U	NA	50 U	NA	NA
100-42-5	Styrene	UG/L	12 U	NA	12 U	NA	NA
630-20-6	1,1,1,2-Tetrachloroethane	UG/L	12 U	NA	12 U	NA	NA
79-34-5	1,1,2,2-Tetrachloroethane	UG/L	12 U	NA	12 U	NA	NA
127-18-4	Tetrachloroethene	UG/L	12 U	NA	12 U	NA	NA
108-88-3	Toluene	UG/L	12 U	NA	12 U	NA	NA
71-55-6	1,1,1-Trichloroethane	UG/L	12 U	NA	12 U	NA	NA
79-00-5	1,1,2-Trichloroethane	UG/L	12 U	NA	12 U	NA	NA
79-01-6	Trichloroethene	UG/L	12 U	NA	12 U	NA	NA
96-18-4	1,2,3-Trichloropropane	UG/L	12 U	NA	12 U	NA	NA
108-05-4	Vinyl acetate	UG/L	620 U	NA	620 U	NA	NA
75-01-4	Vinyl chloride	UG/L	280	NA	280	NA	310
1330-20-7	Xylenes (total)	UG/L	38 U	NA	38 U	NA	NA
106-93-4	1,2-Dibromoethane (EDB)	UG/L	12 U	NA	12 U	NA	NA
78-93-3	2-Butanone (MEK)	UG/L	620 U	NA	620 U	NA	NA
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/L	620 U	NA	620 U	NA	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DW20 A6A190124-004 QUANTERRA A6A190124 WATER 1/18/96	GWDW20 GWDW20 QUANTERRA 085951 WATER 1/18/96	DW70 A6A190124-003 QUANTERRA A6A190124 WATER 1/18/96	GWDW70 GWDW70 QUANTERRA 085951 WATER 1/18/96	DW20 A6B150157-009 QUANTERRA A6B150157 WATER 2/13/96
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
92-67-I	4-Aminobiphenyl	UG/L	200 U	NA	200 U	NA	NA
60-11-7	p-Dimethylaminoazobenzene	UG/L	80 U	NA	80 U	NA	NA
57-97-6	7,12-Dimethylbenz(a)anthracene	UG/L	80 U	NA	80 U	NA	NA
1888-71-7	Hexachloropropene	UG/L	400 U	NA	400 U	NA	NA
62-44-2	Phenacetin	UG/L	80 U	NA	80 U	NA	NA
23950-58-5	Pronamide	UG/L	80 U	NA	80 U	NA	NA
122-09-8	a,a-Dimethylphenethylamine	UG/L	200 U	NA	200 U	NA	NA
2303-16-4	Diallate	UG/L	20 U	NA	20 U	NA	NA
510-15-6	Chlorobenzilate	UG/L	40 U	NA	40 U	NA	NA
83-32-9	Acenaphthene	UG/L	20 U	NA	20 U	NA	NA
208-96-8	Acenaphthylene	UG/L	20 U	NA	20 U	NA	NA
98-86-2	Acetophenone	UG/L	40 U	NA	40 U	NA	NA
53-96-3	2-Acetylaminofluorene	UG/L	400 U	NA	400 U	NA	NA
62-53-3	Aniline	UG/L	40 U	NA	40 U	NA	NA
120-12-7	Anthracene	UG/L	20 U	NA	20 U	NA	NA
56-55-3	Benzo(a)anthracene	UG/L	20 U	NA	20 U	NA	NA
205-99-2	Benzo(b)fluoranthene	UG/L	20 U	NA	20 U	NA	NA
207-08-9	Benzo(k)fluoranthene	UG/L	20 U	NA	20 U	NA	NA
191-24-2	Benzo(ghi)perylene	UG/L	20 U	NA	20 U	NA	NA
50-32-8	Benzo(a)pyrene	UG/L	20 U	NA	20 U	NA	NA
100-51-6	Benzyl alcohol	UG/L	11 J	NA	9.8 J	NA	NA
111-91-1	bis(2-Chloroethoxy)methane	UG/L	20 U	NA	20 U	NA	NA
111-44-4	bis(2-Chloroethyl) ether	UG/L	20 U	NA	20 U	NA	NA
117-81-7	bis(2-Ethylhexyl) phthalate	UG/L	20 U	NA	20 U	NA	100 U
101-55-3	4-Bromophenyl phenyl ether	UG/L	20 U	NA	20 U	NA	NA
85-68-7	Butyl benzyl phthalate	UG/L	4 J	NA	4.2 J	NA	NA
106-47-8	4-Chloroaniline	UG/L	40 U	NA	40 U	NA	NA
59-50-7	4-Chloro-3-methylphenol	UG/L	20 U	NA	20 U	NA	NA
91-58-7	2-Chloronaphthalene	UG/L	20 U	NA	20 U	NA	NA
95-57-8	2-Chlorophenol	UG/L	20 U	NA	20 U	NA	NA
7005-72-3	4-Chlorophenyl phenyl ether	UG/L	20 U	NA	20 U	NA	NA
218-01-9	Chrysene	UG/L	20 U	NA	20 U	NA	NA
53-70-3	Dibenz(a,h)anthracene	UG/L	20 U	NA	20 U	NA	NA
132-64-9	Dibenzofuran	UG/L	20 U	NA	20 U	NA	NA
84-74-2	Di-n-butyl phthalate	UG/L	20 U	NA	20 U	NA	NA
91-94-1	3,3'-Dichlorobenzidine	UG/L	80 U	NA	80 U	NA	NA
120-83-2	2,4-Dichlorophenol	UG/L	20 U	NA	20 U	NA	NA
87-65-0	2,6-Dichlorophenol	UG/L	20 U	NA	20 U	NA	NA
84-66-2	Diethyl phthalate	UG/L	20 U	NA	20 U	NA	NA
119-93-7	3,3'-Dimethylbenzidine	UG/L	40 U	NA	40 U	NA	NA
105-67-9	2,4-Dimethylphenol	UG/L	21	NA	18 J	NA	10 J
131-11-3	Dimethyl phthalate	UG/L	20 U	NA	20 U	NA	NA
117-84-0	Di-n-octyl phthalate	UG/L	20 U	NA	20 U	NA	NA
99-65-0	1,3-Dinitrobenzene	UG/L	20 U	NA	20 U	NA	NA
534-52-1	4,6-Dinitro-2-methylphenol	UG/L	80 U	NA	80 U	NA	NA
51-28-5	2,4-Dinitrophenol	UG/L	80 U	NA	80 U	NA	NA
121-14-2	2,4-Dinitrotoluene	UG/L	20 U	NA	20 U	NA	NA
606-20-2	2,6-Dinitrotoluene	UG/L	20 U	NA	20 U	NA	NA
122-39-4	Diphenylamine	UG/L	20 U	NA	20 U	NA	NA
62-50-0	Ethyl methanesulfonate	UG/L	40 U	NA	40 U	NA	NA
206-44-0	Fluoranthene	UG/L	20 U	NA	20 U	NA	NA
86-73-7	Fluorene	UG/L	20 U	NA	20 U	NA	NA
118-74-1	Hexachlorobenzene	UG/L	20 U	NA	20 U	NA	NA
87-68-3	Hexachlorobutadiene	UG/L	20 U	NA	20 U	NA	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DW20 A6A190124-004 QUANTERRA A6A190124 WATER 1/18/96	GWDW20 GWDW20 QUANTERRA 085951 WATER 1/18/96	DW70 A6A190124-003 QUANTERRA A6A190124 WATER 1/18/96	GWDW70 GWDW70 QUANTERRA 085951 WATER 1/18/96	DW20 A6B150157-009 QUANTERRA A6B150157 WATER 2/13/96
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES CONT'D						
77-47-4	Hexachlorocyclopentadiene	UG/L	20 U	NA	20 U	NA	NA
67-72-1	Hexachloroethane	UG/L	20 U	NA	20 U	NA	NA
193-39-5	Indeno(1,2,3-cd)pyrene	UG/L	20 U	NA	20 U	NA	NA
78-59-1	Isophorone	UG/L	20 U	NA	20 U	NA	NA
120-58-1	Isosafrole	UG/L	80 U	NA	80 U	NA	NA
91-80-5	Methapyrilene	UG/L	200 U	NA	200 U	NA	NA
95-53-4	o-Toluidine	UG/L	80 U	NA	80 U	NA	NA
56-49-5	3-Methylcholanthrene	UG/L	80 U	NA	80 U	NA	NA
66-27-3	Methyl methanesulfonate	UG/L	40 U	NA	40 U	NA	NA
91-57-6	2-Methylnaphthalene	UG/L	8 J	NA	7.6 J	NA	100 U
95-48-7	2-Methylphenol	UG/L	49	NA	48	NA	NA
108-39-4	3-Methylphenol	UG/L	20 U	NA	20 U	NA	NA
106-44-5	4-Methylphenol	UG/L	20 U	NA	20 U	NA	NA
91-20-3	Naphthalene	UG/L	20 U	NA	20 U	NA	NA
130-15-4	1,4-Naphthoquinone	UG/L	200 U	NA	200 U	NA	NA
134-32-7	1-Naphthylamine	UG/L	40 U	NA	40 U	NA	NA
91-59-8	2-Naphthylamine	UG/L	40 U	NA	40 U	NA	NA
88-74-4	2-Nitroaniline	UG/L	80 U	NA	80 U	NA	NA
99-09-2	3-Nitroaniline	UG/L	80 U	NA	80 U	NA	NA
100-01-6	4-Nitroaniline	UG/L	80 U	NA	80 U	NA	NA
98-95-3	Nitrobenzene	UG/L	20 U	NA	20 U	NA	NA
88-75-5	2-Nitrophenol	UG/L	20 U	NA	20 U	NA	NA
100-02-7	4-Nitrophenol	UG/L	80 U	NA	80 U	NA	NA
56-57-5	4-Nitroquinoline-1-oxide	UG/L	400 U	NA	400 U	NA	NA
924-16-3	N-Nitrosodi-n-butylamine	UG/L	40 U	NA	40 U	NA	NA
55-18-5	N-Nitrosodiethylamine	UG/L	40 U	NA	40 U	NA	NA
62-75-9	N-Nitrosodimethylamine	UG/L	20 U	NA	20 U	NA	NA
621-64-7	N-Nitrosodi-n-propylamine	UG/L	20 U	NA	20 U	NA	NA
86-30-6	N-Nitrosodiphenylamine	UG/L	20 U	NA	20 U	NA	NA
10595-95-6	N-Nitrosomethylethylamine	UG/L	40 U	NA	40 U	NA	NA
59-89-2	N-Nitrosomorpholine	UG/L	40 U	NA	40 U	NA	NA
100-75-4	N-Nitrosopiperidine	UG/L	40 U	NA	40 U	NA	NA
930-55-2	N-Nitrosopyrrolidine	UG/L	40 U	NA	40 U	NA	NA
99-55-8	5-Nitro-o-toluidine	UG/L	80 U	NA	80 U	NA	NA
608-93-5	Pentachlorobenzene	UG/L	20 U	NA	20 U	NA	NA
76-01-7	Pentachloroethane	UG/L	40 U	NA	40 U	NA	NA
82-68-8	Pentachloronitrobenzene	UG/L	200 U	NA	200 U	NA	NA
87-86-5	Pentachlorophenol	UG/L	100 U	NA	100 U	NA	NA
85-01-8	Phenanthrene	UG/L	20 U	NA	20 U	NA	NA
108-95-2	Phenol	UG/L	20 U	NA	20 U	NA	NA
106-50-3	p-Phenylene diamine	UG/L	400 U	NA	400 U	NA	NA
109-06-8	2-Picoline	UG/L	80 U	NA	80 U	NA	NA
129-00-0	Pyrene	UG/L	20 U	NA	20 U	NA	NA
110-86-1	Pyridine	UG/L	80 U	NA	80 U	NA	NA
94-59-7	Safrole	UG/L	80 U	NA	80 U	NA	NA
95-94-3	1,2,4,5-Tetrachlorobenzene	UG/L	20 U	NA	20 U	NA	NA
58-90-2	2,3,4,6-Tetrachlorophenol	UG/L	200 U	NA	200 U	NA	NA
120-82-1	1,2,4-Trichlorobenzene	UG/L	20 U	NA	20 U	NA	NA
95-95-4	2,4,5-Trichlorophenol	UG/L	50 U	NA	50 U	NA	NA
88-06-2	2,4,6-Trichlorophenol	UG/L	20 U	NA	20 U	NA	NA
99-35-4	1,3,5-Trinitrobenzene	UG/L	200 U	NA	200 U	NA	NA
86-74-8	Carbazole	UG/L	40 U	NA	40 U	NA	NA
108-60-1	bis(2-Chloroisopropyl) ether	UG/L	20 U	NA	20 U	NA	NA

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CAS NO.	COMPOUND	UNITS:					
	PESTICIDES/PCBs						
309-00-2	Aldrin	UG/L	0.5 U*	NA	1 U*	NA	NA
319-84-6	alpha-BHC	UG/L	0.01 U	NA	0.01 U	NA	NA
319-85-7	beta-BHC	UG/L	0.01 U	NA	0.01 U	NA	NA
319-86-8	delta-BHC	UG/L	0.01 U	NA	0.01 U	NA	NA
58-89-9	gamma-BHC (Lindane)	UG/L	0.01 U	NA	0.01 U	NA	NA
5103-71-9	alpha-Chlordane	UG/L	0.01 U	NA	0.01 U	NA	NA
5103-74-2	gamma-Chlordane	UG/L	0.01 U	NA	0.01 U	NA	NA
72-54-8	4,4'-DDD	UG/L	0.02 U	NA	0.02 U	NA	NA
72-55-9	4,4'-DDE	UG/L	0.02 U	NA	0.02 U	NA	NA
50-29-3	4,4'-DDT	UG/L	0.02 U	NA	0.02 U	NA	NA
60-57-1	Dieldrin	UG/L	0.02 U	NA	0.02 U	NA	NA
959-98-8	Endosulfan I	UG/L	0.05 U	NA	0.05 U	NA	NA
33213-65-9	Endosulfan II	UG/L	0.05 U	NA	0.05 U	NA	NA
1031-07-8	Endosulfan sulfate	UG/L	0.05 U	NA	0.05 U	NA	NA
72-20-8	Endrin	UG/L	0.02 U	NA	0.02 U	NA	NA
7421-93-4	Endrin aldehyde	UG/L	0.02 U	NA	0.02 U	NA	NA
76-44-8	Heptachlor	UG/L	0.01 U	NA	0.01 U	NA	NA
1024-57-3	Heptachlor epoxide	UG/L	0.01 U	NA	0.01 U	NA	NA
465-73-6	Isodrin	UG/L	0.1 U	NA	0.1 U	NA	NA
143-50-0	Kepone	UG/L	1 U	NA	1 U	NA	NA
72-43-5	Methoxychlor	UG/L	0.5 U	NA	0.5 U	NA	NA
12674-11-2	Aroclor 1016	UG/L	0.1 U	NA	0.1 U	NA	NA
11104-28-2	Aroclor 1221	UG/L	0.1 U	NA	0.1 U	NA	NA
11141-16-5	Aroclor 1232	UG/L	0.1 U	NA	0.1 U	NA	NA
53469-21-9	Aroclor 1242	UG/L	0.1 U	NA	0.1 U	NA	NA
12672-29-6	Aroclor 1248	UG/L	0.17 **	NA	0.6 **	NA	0.2 U
11097-69-1	Aroclor 1254	UG/L	0.2 U	NA	0.35	NA	0.2 U
11096-82-5	Aroclor 1260	UG/L	0.2 U	NA	0.2 U	NA	NA
8001-35-2	Toxaphene	UG/L	1 U	NA	1 U	NA	NA
53494-70-5	Endrin ketone	UG/L	0.02 U	NA	0.02 U	NA	NA
	HERBICIDES						
297-97-2	Thionazin	UG/L	1 U	NA	1 U	NA	NA
60-51-5	Dimethoate	UG/L	1 U	NA	1 U	NA	NA
298-04-4	Disulfoton	UG/L	1 U	NA	1 U	NA	NA
52-85-7	Famphur	UG/L	1 U	NA	1 U	NA	NA
298-00-0	Methyl parathion	UG/L	1 U	NA	1 U	NA	NA
56-38-2	Parathion	UG/L	1 U	NA	1 U	NA	NA
298-02-2	Phorate	UG/L	1 U	NA	1 U	NA	NA
3689-24-5	Tetraethyldithiopyrophosphate	UG/L	1 U	NA	1 U	NA	NA
126-68-1	O,O,O-Triethyl phosphorothioate	UG/L	1 U	NA	1 U	NA	NA
94-75-7	2,4-D	UG/L	10 U	NA	10 U	NA	NA
88-85-7	Dinoseb	UG/L	1 U	NA	1 U	NA	NA
93-76-5	2,4,5-T	UG/L	1 U	NA	1 U	NA	NA
93-72-1	2,4,5-TP (Silvex)	UG/L	1 U	NA	1 U	NA	NA

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CAS NO.	COMPOUND	UNITS:					
	INORGANICS						
7440-47-3	Chromium -DISS	UG/L	5 U	NA	5 U	NA	NA
7439-92-1	Lead -DISS	UG/L	3 U	NA	3 U	NA	NA
7440-36-0	Antimony -DISS	UG/L	5 U	NA	5 U	NA	NA
7782-49-2	Selenium -DISS	UG/L	5 U	NA	5 U	NA	NA
7429-90-5	Aluminum -DISS	UG/L	426	NA	565	NA	210
7440-39-3	Barium -DISS	UG/L	352	NA	336	NA	NA
7440-41-7	Beryllium -DISS	UG/L	3 U	NA	3 U	NA	NA
7440-70-2	Calcium -DISS	UG/L	50900	NA	47800	NA	48800
7440-48-4	Cobalt -DISS	UG/L	50 U	NA	50 U	NA	NA
7440-50-8	Copper -DISS	UG/L	25 U	NA	25 U	NA	NA
7439-89-6	Iron -DISS	UG/L	6070	NA	6490	NA	6310
7440-09-7	Potassium -DISS	UG/L	31700	NA	29700	NA	27600
7439-95-4	Magnesium -DISS	UG/L	28400	NA	26200	NA	NA
7439-96-5	Manganese -DISS	UG/L	139	NA	140	NA	88
7440-23-5	Sodium -DISS	UG/L	1390000	NA	1290000	NA	1180000
7440-02-0	Nickel -DISS	UG/L	50 U	NA	50 U	NA	50 U
7440-31-5	Tin -DISS	UG/L	100 U	NA	100 U	NA	NA
7440-62-2	Vanadium -DISS	UG/L	20 U	NA	20 U	NA	NA
7440-66-6	Zinc -DISS	UG/L	258	NA	41	NA	NA
7440-38-2	Arsenic -DISS	UG/L	5	NA	5.9	NA	NA
7440-43-9	Cadmium -DISS	UG/L	0.5 U	NA	0.5 U	NA	NA
7439-97-6	Mercury -DISS	UG/L	0.2 U	NA	0.2 U	NA	NA
7440-22-4	Silver -DISS	UG/L	0.5 U	NA	0.5 U	NA	NA
7440-28-0	Thallium -DISS	UG/L	4 U*	NA	32 U*	NA	4 U
18496-25-8	Sulfide	MG/L	5	NA	5	NA	0.5
57-12-5	Cyanide	UG/L	23	NA	20 U	NA	NA
	DIOXINS						
DIOXIN1	TCDFs(TOTAL)	PG/L	NA	1700	NA	720	NA
DIOXIN2	2,3,7,8-TCDF	PG/L	NA	33	NA	14	NA
DIOXIN3	PeCDFS(TOTAL)	PG/L	NA	1200	NA	270	NA
DIOXIN4	1,2,3,7,8-PeCDF	PG/L	NA	57	NA	24 U	NA
DIOXIN5	2,3,4,7,8-PeCDF	PG/L	NA	95	NA	38	NA
DIOXIN6	HxCDFs(TOTAL)	PG/L	NA	1100	NA	530	NA
DIOXIN7	1,2,3,4,7,8-HxCDF	PG/L	NA	220	NA	97	NA
DIOXIN8	1,2,3,6,7,8-HxCDF	PG/L	NA	110	NA	46	NA
DIOXIN9	2,3,4,6,7,8-HxCDF	PG/L	NA	170 U	NA	74	NA
DIOXIN10	1,2,3,7,8,9-HxCDF	PG/L	NA	11 U	NA	4.8 U	NA
DIOXIN11	HpCDFs(TOTAL)	PG/L	NA	1300	NA	510	NA
DIOXIN12	1,2,3,4,6,7,8-HpCDF	PG/L	NA	610	NA	270	NA
DIOXIN13	1,2,3,4,7,8,9-HpCDF	PG/L	NA	40	NA	19 U	NA
DIOXIN14	OCDF	PG/L	NA	390	NA	170	NA
DIOXIN15	TCDDs(TOTAL)	PG/L	NA	480	NA	210	NA
DIOXIN16	2,3,7,8-TCDD	PG/L	NA	14	NA	16	NA
DIOXIN17	PeCDDs(TOTAL)	PG/L	NA	290	NA	74	NA
DIOXIN18	1,2,3,7,8-PeCDD	PG/L	NA	35	NA	15 U	NA
DIOXIN19	HxCDDs(TOTAL)	PG/L	NA	1400	NA	620	NA
DIOXIN20	1,2,3,4,7,8-HxCDD	PG/L	NA	24 U	NA	11 U	NA
DIOXIN21	1,2,3,6,7,8-HxCDD	PG/L	NA	130	NA	58	NA
DIOXIN22	1,2,3,7,8,9-HxCDD	PG/L	NA	130	NA	55	NA
DIOXIN23	HpCDDs(TOTAL)	PG/L	NA	1600	NA	720	NA
DIOXIN24	1,2,3,4,6,7,8-HpCDD	PG/L	NA	720	NA	310	NA
DIOXIN25	OCDD	PG/L	NA	1800	NA	770	NA
TDIOXINS	TOTAL TEFs	PG/L	NA	160.04	NA	76.14	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DW21 A6A170141-007 QUANTERRA A6A170141 WATER 1/16/96	DW70 A6B150157-011 QUANTERRA A6B150157 WATER 2/13/96	DW21 A6B150157-007 QUANTERRA A6B150157 WATER 2/13/96	MW22 A6A180129-002 QUANTERRA A6A180129 WATER 1/17/96	GWMW22 GWMW22 QUANTERRA 085928 WATER 1/17/96
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	UG/L	5 J	NA	NA	5.7 J	NA
75-05-8	Acetonitrile	UG/L	NA	NA	NA	50 U	NA
107-02-8	Acrolein	UG/L	NA	NA	NA	10 U	NA
107-13-1	Acrylonitrile	UG/L	NA	NA	NA	10 U	NA
71-43-2	Benzene	UG/L	5 U	50 U	NA	1 J	NA
75-27-4	Bromodichloromethane	UG/L	1 U	NA	NA	1 U	NA
75-25-2	Bromoform	UG/L	1 U	NA	NA	1 U	NA
74-83-9	Bromomethane	UG/L	1 U	NA	NA	1 U	NA
75-15-0	Carbon disulfide	UG/L	50 U	NA	NA	50 U	NA
56-23-5	Carbon tetrachloride	UG/L	1 U	NA	NA	1 U	NA
108-90-7	Chlorobenzene	UG/L	1 U	NA	NA	1 U	NA
126-99-8	Chloroprene	UG/L	NA	NA	NA	1 U	NA
124-48-1	Dibromochloromethane	UG/L	1 U	NA	NA	1 U	NA
96-12-8	1,2-Dibromo-3-chloropropane	UG/L	NA	NA	NA	2 U	NA
75-00-3	Chloroethane	UG/L	1 U	NA	NA	1 U	NA
67-66-3	Chloroform	UG/L	1 U	NA	NA	1 U	NA
74-87-3	Chloromethane	UG/L	1 U	NA	NA	1 U	NA
107-05-1	Allyl chloride	UG/L	NA	NA	NA	2 U	NA
74-95-3	Dibromomethane	UG/L	NA	NA	NA	5 U	NA
95-50-1	1,2-Dichlorobenzene	UG/L	1 U	NA	NA	1 U	NA
541-73-1	1,3-Dichlorobenzene	UG/L	1 U	NA	NA	1 U	NA
106-46-7	1,4-Dichlorobenzene	UG/L	1 U	NA	NA	1 U	NA
110-57-6	trans-1,4-Dichloro-2-butene	UG/L	NA	NA	NA	1 U	NA
75-71-8	Dichlorodifluoromethane	UG/L	NA	NA	NA	1 U	NA
75-34-3	1,1-Dichloroethane	UG/L	1 U	NA	NA	1 U	NA
107-06-2	1,2-Dichloroethane	UG/L	1 U	NA	NA	1 U	NA
75-35-4	1,1-Dichloroethene	UG/L	1 U	NA	NA	1 U	NA
156-59-2	cis-1,2-Dichloroethene	UG/L	1 U	84	NA	1 U	NA
156-60-5	trans-1,2-Dichloroethene	UG/L	1 U	NA	NA	1 U	NA
78-87-5	1,2-Dichloropropane	UG/L	1 U	NA	NA	1 U	NA
10061-01-5	cis-1,3-Dichloropropene	UG/L	1 U	NA	NA	1 U	NA
10061-02-6	trans-1,3-Dichloropropene	UG/L	1 U	NA	NA	1 U	NA
123-91-1	1,4-Dioxane	UG/L	NA	NA	NA	200 U	NA
100-41-4	Ethylbenzene	UG/L	1 U	NA	NA	1 U	NA
97-63-2	Ethyl methacrylate	UG/L	NA	NA	NA	1 U	NA
75-69-4	Trichlorofluoromethane	UG/L	NA	NA	NA	1 U	NA
591-78-6	2-Hexanone	UG/L	50 U	NA	NA	50 U	NA
74-88-4	Iodomethane	UG/L	NA	NA	NA	1 U	NA
78-83-1	Isobutyl alcohol	UG/L	NA	NA	NA	1000 U	NA
126-98-7	Methacrylonitrile	UG/L	NA	NA	NA	10 U	NA
75-09-2	Methylene chloride	UG/L	5 U	NA	NA	5 U	NA
80-62-6	Methyl methacrylate	UG/L	NA	NA	NA	5 U	NA
107-12-0	Propionitrile	UG/L	NA	NA	NA	4 U	NA
100-42-5	Styrene	UG/L	1 U	NA	NA	1 U	NA
630-20-6	1,1,1,2-Tetrachloroethane	UG/L	NA	NA	NA	1 U	NA
79-34-5	1,1,2,2-Tetrachloroethane	UG/L	1 U	NA	NA	1 U	NA
127-18-4	Tetrachloroethene	UG/L	1 U	NA	NA	1 U	NA
108-88-3	Toluene	UG/L	1 U	NA	NA	1.1	NA
71-55-6	1,1,1-Trichloroethane	UG/L	1 U	NA	NA	1 U	NA
79-00-5	1,1,2-Trichloroethane	UG/L	1 U	NA	NA	1 U	NA
79-01-6	Trichloroethene	UG/L	1 U	NA	NA	1 U	NA
96-18-4	1,2,3-Trichloropropane	UG/L	NA	NA	NA	1 U	NA
108-05-4	Vinyl acetate	UG/L	NA	NA	NA	50 U	NA
75-01-4	Vinyl chloride	UG/L	1 U	260	NA	1 U	NA
1330-20-7	Xylenes (total)	UG/L	3 U	NA	NA	4.8	NA
106-93-4	1,2-Dibromoethane (EDB)	UG/L	NA	NA	NA	1 U	NA
78-93-3	2-Butanone (MEK)	UG/L	50 U	NA	NA	2.6 J	NA
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/L	50 U	NA	NA	50 U	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DW21 A6A170141-007 QUANTERRA A6A170141 WATER 1/16/96	DW70 A6B150157-011 QUANTERRA A6B150157 WATER 2/13/96	DW21 A6B150157-007 QUANTERRA A6B150157 WATER 2/13/96	MW22 A6A180129-002 QUANTERRA A6A180129 WATER 1/17/96	GWMW22 GWMW22 QUANTERRA 085928 WATER 1/17/96
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
92-67-1	4-Aminobiphenyl	UG/L	NA	NA	NA	50 U	NA
60-11-7	p-Dimethylaminoazobenzene	UG/L	NA	NA	NA	20 U	NA
57-97-6	7,12-Dimethylbenz(a)anthracene	UG/L	NA	NA	NA	20 U	NA
1888-71-7	Hexachloropropene	UG/L	NA	NA	NA	100 U	NA
62-44-2	Phenacetin	UG/L	NA	NA	NA	20 U	NA
23950-58-5	Pronamide	UG/L	NA	NA	NA	20 U	NA
122-09-8	a,a-Dimethylphenethylamine	UG/L	NA	NA	NA	50 U	NA
2303-16-4	Diallate	UG/L	NA	NA	NA	5 U	NA
510-15-6	Chlorobenzilate	UG/L	NA	NA	NA	10 U	NA
83-32-9	Acenaphthene	UG/L	5 U	NA	NA	5 U	NA
208-96-8	Acenaphthylene	UG/L	5 U	NA	NA	5 U	NA
98-86-2	Acetophenone	UG/L	NA	NA	NA	10 U	NA
53-96-3	2-Acetylaminofluorene	UG/L	NA	NA	NA	100 U	NA
62-53-3	Aniline	UG/L	NA	NA	NA	20 U	NA
120-12-7	Anthracene	UG/L	2.6 J	NA	NA	5 U	NA
56-55-3	Benzo(a)anthracene	UG/L	5 U	NA	NA	5 U	NA
205-99-2	Benzo(b)fluoranthene	UG/L	5 U	NA	NA	5 U	NA
207-08-9	Benzo(k)fluoranthene	UG/L	5 U	NA	NA	5 U	NA
191-24-2	Benzo(ghi)perylene	UG/L	5 U	NA	NA	5 U	NA
50-32-8	Benzo(a)pyrene	UG/L	5 U	NA	NA	5 U	NA
100-51-6	Benzyl alcohol	UG/L	NA	NA	NA	50 U	NA
111-91-1	bis(2-Chloroethoxy)methane	UG/L	5 U	NA	NA	5 U	NA
111-44-4	bis(2-Chloroethyl) ether	UG/L	5 U	NA	NA	5 U	NA
117-81-7	bis(2-Ethylhexyl) phthalate	UG/L	5 U	110 U	NA	5 U	NA
101-55-3	4-Bromophenyl phenyl ether	UG/L	5 U	NA	NA	5 U	NA
85-68-7	Butyl benzyl phthalate	UG/L	5 U	NA	NA	5 U	NA
106-47-8	4-Chloroaniline	UG/L	20 U	NA	NA	20 U	NA
59-50-7	4-Chloro-3-methylphenol	UG/L	5 U	NA	NA	5 U	NA
91-58-7	2-Chloronaphthalene	UG/L	5 U	NA	NA	5 U	NA
95-57-8	2-Chlorophenol	UG/L	5 U	NA	NA	5 U	NA
7005-72-3	4-Chlorophenyl phenyl ether	UG/L	5 U	NA	NA	5 U	NA
218-01-9	Chrysene	UG/L	0.69 J	NA	NA	5 U	NA
53-70-3	Dibenz(a,h)anthracene	UG/L	5 U	NA	NA	5 U	NA
132-64-9	Dibenzofuran	UG/L	5 U	NA	NA	5 U	NA
84-74-2	Di-n-butyl phthalate	UG/L	5 U	NA	NA	5 U	NA
91-94-1	3,3'-Dichlorobenzidine	UG/L	20 U	NA	NA	20 U	NA
120-83-2	2,4-Dichlorophenol	UG/L	5 U	NA	NA	5 U	NA
87-65-0	2,6-Dichlorophenol	UG/L	NA	NA	NA	5 U	NA
84-66-2	Diethyl phthalate	UG/L	5 U	NA	NA	5 U	NA
119-93-7	3,3'-Dimethylbenzidine	UG/L	NA	NA	NA	10 U	NA
105-67-9	2,4-Dimethylphenol	UG/L	5 U	12 J	NA	5 U	NA
131-11-3	Dimethyl phthalate	UG/L	5 U	NA	NA	5 U	NA
117-84-0	Di-n-octyl phthalate	UG/L	5 U	NA	NA	5 U	NA
99-65-0	1,3-Dinitrobenzene	UG/L	NA	NA	NA	5 U	NA
534-52-1	4,6-Dinitro-2-methylphenol	UG/L	20 U	NA	NA	20 U	NA
51-28-5	2,4-Dinitrophenol	UG/L	20 U	NA	NA	20 U	NA
121-14-2	2,4-Dinitrotoluene	UG/L	5 U	NA	NA	5 U	NA
606-20-2	2,6-Dinitrotoluene	UG/L	5 U	NA	NA	5 U	NA
122-39-4	Diphenylamine	UG/L	NA	NA	NA	5 U	NA
62-50-0	Ethyl methanesulfonate	UG/L	NA	NA	NA	10 U	NA
206-44-0	Fluoranthene	UG/L	2.7 J	NA	NA	5 U	NA
86-73-7	Fluorene	UG/L	10	NA	NA	5 U	NA
118-74-1	Hexachlorobenzene	UG/L	5 U	NA	NA	5 U	NA
87-68-3	Hexachlorobutadiene	UG/L	5 U	NA	NA	5 U	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DW21 A6A170141-007 QUANTERRA A6A170141 WATER 1/16/96	DW70 A6B150157-011 QUANTERRA A6B150157 WATER 2/13/96	DW21 A6B150157-007 QUANTERRA A6B150157 WATER 2/13/96	MW22 A6A180129-002 QUANTERRA A6A180129 WATER 1/17/96	GWMW22 GWMW22 QUANTERRA 085928 WATER 1/17/96
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES CONT'D						
77-47-4	Hexachlorocyclopentadiene	UG/L	5 U	NA	NA	5 U	NA
67-72-1	Hexachloroethane	UG/L	5 U	NA	NA	5 U	NA
193-39-5	Indeno(1,2,3-cd)pyrene	UG/L	5 U	NA	NA	5 U	NA
78-59-1	Isophorone	UG/L	5 U	NA	NA	5 U	NA
120-58-1	Isosafrole	UG/L	NA	NA	NA	20 U	NA
91-80-5	Methapyrilene	UG/L	NA	NA	NA	50 U	NA
95-53-4	o-Toluidine	UG/L	NA	NA	NA	20 U	NA
56-49-5	3-Methylcholanthrene	UG/L	NA	NA	NA	20 U	NA
66-27-3	Methyl methanesulfonate	UG/L	NA	NA	NA	10 U	NA
91-57-6	2-Methylnaphthalene	UG/L	43	110 U	22	1.9 J	NA
95-48-7	2-Methylphenol	UG/L	5 U	NA	NA	5 U	NA
108-39-4	3-Methylphenol	UG/L	NA	NA	NA	5 U	NA
106-44-5	4-Methylphenol	UG/L	5 U	NA	NA	5 U	NA
91-20-3	Naphthalene	UG/L	5 U	NA	NA	1.4 J	NA
130-15-4	1,4-Naphthoquinone	UG/L	NA	NA	NA	50 U	NA
134-32-7	1-Naphthylamine	UG/L	NA	NA	NA	10 U	NA
91-59-8	2-Naphthylamine	UG/L	NA	NA	NA	10 U	NA
88-74-4	2-Nitroaniline	UG/L	20 U	NA	NA	20 U	NA
99-09-2	3-Nitroaniline	UG/L	20 U	NA	NA	20 U	NA
100-01-6	4-Nitroaniline	UG/L	20 U	NA	NA	20 U	NA
98-95-3	Nitrobenzene	UG/L	5 U	NA	NA	5 U	NA
88-75-5	2-Nitrophenol	UG/L	5 U	NA	NA	5 U	NA
100-02-7	4-Nitrophenol	UG/L	20 U	NA	NA	20 U	NA
56-57-5	4-Nitroquinoline-1-oxide	UG/L	NA	NA	NA	100 U	NA
924-16-3	N-Nitrosodi-n-butylamine	UG/L	NA	NA	NA	10 U	NA
55-18-5	N-Nitrosodiethylamine	UG/L	NA	NA	NA	10 U	NA
62-75-9	N-Nitrosodimethylamine	UG/L	NA	NA	NA	5 U	NA
621-64-7	N-Nitrosodi-n-propylamine	UG/L	5 U	NA	NA	5 U	NA
86-30-6	N-Nitrosodiphenylamine	UG/L	5 U	NA	NA	5 U	NA
10595-95-6	N-Nitrosomethylethylamine	UG/L	NA	NA	NA	10 U	NA
59-89-2	N-Nitrosomorpholine	UG/L	NA	NA	NA	10 U	NA
100-75-4	N-Nitrosopiperidine	UG/L	NA	NA	NA	10 U	NA
930-55-2	N-Nitrosopyrrolidine	UG/L	NA	NA	NA	10 U	NA
99-55-8	5-Nitro-o-toluidine	UG/L	NA	NA	NA	20 U	NA
608-93-5	Pentachlorobenzene	UG/L	NA	NA	NA	5 U	NA
76-01-7	Pentachloroethane	UG/L	NA	NA	NA	10 U	NA
82-68-8	Pentachloronitrobenzene	UG/L	NA	NA	NA	50 U	NA
87-86-5	Pentachlorophenol	UG/L	25 U	NA	NA	25 U	NA
85-01-8	Phenanthrene	UG/L	25	NA	NA	0.71 J	NA
108-95-2	Phenol	UG/L	5 U	NA	NA	5 U	NA
106-50-3	p-Phenylene diamine	UG/L	NA	NA	NA	100 U	NA
109-06-8	2-Picoline	UG/L	NA	NA	NA	20 U	NA
129-00-0	Pyrene	UG/L	3.6 J	NA	NA	5 U	NA
110-86-1	Pyridine	UG/L	NA	NA	NA	20 U	NA
94-59-7	Safrole	UG/L	NA	NA	NA	20 U	NA
95-94-3	1,2,4,5-Tetrachlorobenzene	UG/L	NA	NA	NA	5 U	NA
58-90-2	2,3,4,6-Tetrachlorophenol	UG/L	NA	NA	NA	50 U	NA
120-82-1	1,2,4-Trichlorobenzene	UG/L	5 U	NA	NA	5 U	NA
95-95-4	2,4,5-Trichlorophenol	UG/L	50 U	NA	NA	50 U	NA
88-06-2	2,4,6-Trichlorophenol	UG/L	5 U	NA	NA	5 U	NA
99-35-4	1,3,5-Trinitrobenzene	UG/L	NA	NA	NA	50 U	NA
86-74-8	Carbazole	UG/L	10 U	NA	NA	10 U	NA
108-60-1	bis(2-Chloroisopropyl) ether	UG/L	5 U	NA	NA	5 U	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DW21 A6A170141-007 QUANTERRA A6A170141 WATER 1/16/96	DW70 A6B150157-011 QUANTERRA A6B150157 WATER 2/13/96	DW21 A6B150157-007 QUANTERRA A6B150157 WATER 2/13/96	MW22 A6A180129-002 QUANTERRA A6A180129 WATER 1/17/96	GWMW22 GWMW22 QUANTERRA 085928 WATER 1/17/96
CAS NO.	COMPOUND	UNITS:					
	PESTICIDES/PCBs						
309-00-2	Aldrin	UG/L	0.5 U*	NA	NA	0.5 U*	NA
319-84-6	alpha-BHC	UG/L	0.1 U	NA	NA	0.01 U	NA
319-85-7	beta-BHC	UG/L	0.1 U	NA	NA	0.01 U	NA
319-86-8	delta-BHC	UG/L	0.1 U	NA	NA	0.01 U	NA
58-89-9	gamma-BHC (Lindane)	UG/L	0.1 U	NA	NA	0.01 U	NA
5103-71-9	alpha-Chlordane	UG/L	0.1 U	NA	NA	0.01 U	NA
5103-74-2	gamma-Chlordane	UG/L	0.1 U	NA	NA	0.01 U	NA
72-54-8	4,4'-DDD	UG/L	0.2 U	NA	NA	0.02 U	NA
72-55-9	4,4'-DDE	UG/L	0.2 U	NA	NA	0.02 U	NA
50-29-3	4,4'-DDT	UG/L	0.2 U	NA	NA	0.02 U	NA
60-57-1	Dieldrin	UG/L	0.2 U	NA	NA	0.02 U	NA
959-98-8	Endosulfan I	UG/L	0.1 U	NA	NA	0.05 U	NA
33213-65-9	Endosulfan II	UG/L	0.2 U	NA	NA	0.05 U	NA
1031-07-8	Endosulfan sulfate	UG/L	0.2 U	NA	NA	0.05 U	NA
72-20-8	Endrin	UG/L	0.2 U	NA	NA	0.02 U	NA
7421-93-4	Endrin aldehyde	UG/L	0.2 U	NA	NA	0.02 U	NA
76-44-8	Heptachlor	UG/L	0.1 U	NA	NA	0.01 U	NA
1024-57-3	Heptachlor epoxide	UG/L	0.1 U	NA	NA	0.01 U	NA
465-73-6	Isodrin	UG/L	NA	NA	NA	0.1 U	NA
143-50-0	Kepone	UG/L	NA	NA	NA	1 U	NA
72-43-5	Methoxychlor	UG/L	1 U	NA	NA	0.5 U	NA
12674-11-2	Aroclor 1016	UG/L	1 U	NA	NA	0.1 U	NA
11104-28-2	Aroclor 1221	UG/L	1 U	NA	NA	0.1 U	NA
11141-16-5	Aroclor 1232	UG/L	1 U	NA	NA	0.1 U	NA
53469-21-9	Aroclor 1242	UG/L	1 U	NA	NA	0.1 U	NA
12672-29-6	Aroclor 1248	UG/L	3.6	0.2 U	0.61	0.11 ***	NA
11097-69-1	Aroclor 1254	UG/L	2 U	0.2 U	0.2 U	0.2 U	NA
11096-82-5	Aroclor 1260	UG/L	2 U	NA	NA	0.2 U	NA
8001-35-2	Toxaphene	UG/L	5 U	NA	NA	1 U	NA
53494-70-5	Endrin ketone	UG/L	0.2 U	NA	NA	0.02 U	NA
	HERBICIDES						
297-97-2	Thionazin	UG/L	NA	NA	NA	1.6 U	NA
60-51-5	Dimethoate	UG/L	NA	NA	NA	1.6 U	NA
298-04-4	Disulfoton	UG/L	NA	NA	NA	1.6 U	NA
52-85-7	Famphur	UG/L	NA	NA	NA	1.6 U	NA
298-00-0	Methyl parathion	UG/L	NA	NA	NA	1.6 U	NA
56-38-2	Parathion	UG/L	NA	NA	NA	1.6 U	NA
298-02-2	Phorate	UG/L	NA	NA	NA	1.6 U	NA
3689-24-5	Tetraethyldithiopyrophosphate	UG/L	NA	NA	NA	1.6 U	NA
126-68-1	O,O,O-Triethyl phosphorothioate	UG/L	NA	NA	NA	1.6 U	NA
94-75-7	2,4-D	UG/L	NA	NA	NA	10 U	NA
88-85-7	Dinoseb	UG/L	NA	NA	NA	1 U	NA
93-76-5	2,4,5-T	UG/L	NA	NA	NA	1 U	NA
93-72-1	2,4,5-TP (Silvex)	UG/L	NA	NA	NA	1 U	NA

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CAS NO.	COMPOUND	UNITS:					
	INORGANICS						
7440-47-3	Chromium -DISS	UG/L	5 U	NA	NA	5 U	NA
7439-92-1	Lead -DISS	UG/L	3 U	NA	NA	3 U	NA
7440-36-0	Antimony -DISS	UG/L	5 U	NA	NA	5 U	NA
7782-49-2	Selenium -DISS	UG/L	5 U	NA	NA	5 U	NA
7429-90-5	Aluminum -DISS	UG/L	100 U	267	NA	109	NA
7440-39-3	Barium -DISS	UG/L	206	NA	NA	312	NA
7440-41-7	Beryllium -DISS	UG/L	3 U	NA	NA	3 U	NA
7440-70-2	Calcium -DISS	UG/L	144000	43800	136000	21800	NA
7440-48-4	Cobalt -DISS	UG/L	50 U	NA	NA	50 U	NA
7440-50-8	Copper -DISS	UG/L	25 U	NA	NA	25 U	NA
7439-89-6	Iron -DISS	UG/L	13000	5810	14000	2850	NA
7440-09-7	Potassium -DISS	UG/L	5000 U	25600	NA	40700	NA
7439-95-4	Magnesium -DISS	UG/L	46000	NA	NA	10500	NA
7439-96-5	Manganese -DISS	UG/L	459	82	295	220	NA
7440-23-5	Sodium -DISS	UG/L	240000	1070000	NA	311000	NA
7440-02-0	Nickel -DISS	UG/L	50 U	50 U	NA	50 U	NA
7440-31-5	Tin -DISS	UG/L	NA	NA	NA	100 U	NA
7440-62-2	Vanadium -DISS	UG/L	20 U	NA	NA	20 U	NA
7440-66-6	Zinc -DISS	UG/L	20 U	NA	NA	20 U	NA
7440-38-2	Arsenic -DISS	UG/L	29.2	NA	NA	14.9	NA
7440-43-9	Cadmium -DISS	UG/L	0.5 U	NA	NA	0.5 U	NA
7439-97-6	Mercury -DISS	UG/L	0.2 U	NA	NA	0.2 U	NA
7440-22-4	Silver -DISS	UG/L	0.5 U	NA	NA	1 U*	NA
7440-28-0	Thallium -DISS	UG/L	2 U	4 U	NA	8 U*	NA
18496-25-8	Sulfide	MG/L	NA	0.8	NA	0.6	NA
57-12-5	Cyanide	UG/L	20 U	NA	NA	78	NA
	DIOXINS						
DIOXIN1	TCDFs(TOTAL)	PG/L	NA	NA	NA	NA	310
DIOXIN2	2,3,7,8-TCDF	PG/L	NA	NA	NA	NA	22 U
DIOXIN3	PeCDFS(TOTAL)	PG/L	NA	NA	NA	NA	280
DIOXIN4	1,2,3,7,8-PeCDF	PG/L	NA	NA	NA	NA	530 U
DIOXIN5	2,3,4,7,8-PeCDF	PG/L	NA	NA	NA	NA	14 U
DIOXIN6	HxCDFs(TOTAL)	PG/L	NA	NA	NA	NA	4600
DIOXIN7	1,2,3,4,7,8-HxCDF	PG/L	NA	NA	NA	NA	86
DIOXIN8	1,2,3,6,7,8-HxCDF	PG/L	NA	NA	NA	NA	60
DIOXIN9	2,3,4,6,7,8-HxCDF	PG/L	NA	NA	NA	NA	44 U
DIOXIN10	1,2,3,7,8,9-HxCDF	PG/L	NA	NA	NA	NA	34 U
DIOXIN11	HpCDFs(TOTAL)	PG/L	NA	NA	NA	NA	16000
DIOXIN12	1,2,3,4,6,7,8-HpCDF	PG/L	NA	NA	NA	NA	5100
DIOXIN13	1,2,3,4,7,8,9-HpCDF	PG/L	NA	NA	NA	NA	160
DIOXIN14	OCDF	PG/L	NA	NA	NA	NA	4400
DIOXIN15	TCDDs(TOTAL)	PG/L	NA	NA	NA	NA	45
DIOXIN16	2,3,7,8-TCDD	PG/L	NA	NA	NA	NA	8.6 U
DIOXIN17	PeCDDs(TOTAL)	PG/L	NA	NA	NA	NA	53 U
DIOXIN18	1,2,3,7,8-PeCDD	PG/L	NA	NA	NA	NA	4.4 U
DIOXIN19	HxCDDs(TOTAL)	PG/L	NA	NA	NA	NA	1000
DIOXIN20	1,2,3,4,7,8-HxCDD	PG/L	NA	NA	NA	NA	16 U
DIOXIN21	1,2,3,6,7,8-HxCDD	PG/L	NA	NA	NA	NA	220
DIOXIN22	1,2,3,7,8,9-HxCDD	PG/L	NA	NA	NA	NA	48
DIOXIN23	HpCDDs(TOTAL)	PG/L	NA	NA	NA	NA	3300
DIOXIN24	1,2,3,4,6,7,8-HpCDD	PG/L	NA	NA	NA	NA	1800
DIOXIN25	OCDD	PG/L	NA	NA	NA	NA	2100
TDIOXINS	TOTAL TEFs	PG/L	NA	NA	NA	NA	118.5

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	MW22 A6B150157-004 QUANTERRA A6B150157 WATER 2/13/96	DW22 A6A180129-001 QUANTERRA A6A180129 WATER 1/17/96	GWDW22 GWDW22 QUANTERRA 085928 WATER 1/17/96	DW22 A6B150157-005 QUANTERRA A6B150157 WATER 2/13/96	DW72 A6B150157-006 QUANTERRA A6B150157 WATER 2/13/96
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	UG/L	NA	100 U	NA	NA	NA
75-05-8	Acetonitrile	UG/L	NA	50 U	NA	NA	NA
107-02-8	Acrolein	UG/L	NA	10 U	NA	NA	NA
107-13-1	Acrylonitrile	UG/L	NA	10 U	NA	NA	NA
71-43-2	Benzene	UG/L	NA	5 U	NA	NA	NA
75-27-4	Bromodichloromethane	UG/L	NA	1 U	NA	NA	NA
75-25-2	Bromoform	UG/L	NA	1 U	NA	NA	NA
74-83-9	Bromomethane	UG/L	NA	1 U	NA	NA	NA
75-15-0	Carbon disulfide	UG/L	NA	50 U	NA	NA	NA
56-23-5	Carbon tetrachloride	UG/L	NA	1 U	NA	NA	NA
108-90-7	Chlorobenzene	UG/L	NA	1 U	NA	NA	NA
126-99-8	Chloroprene	UG/L	NA	1 U	NA	NA	NA
124-48-1	Dibromochloromethane	UG/L	NA	1 U	NA	NA	NA
96-12-8	1,2-Dibromo-3-chloropropane	UG/L	NA	2 U	NA	NA	NA
75-00-3	Chloroethane	UG/L	NA	1 U	NA	NA	NA
67-66-3	Chloroform	UG/L	NA	1 U	NA	NA	NA
74-87-3	Chloromethane	UG/L	NA	1 U	NA	NA	NA
107-05-1	Allyl chloride	UG/L	NA	2 U	NA	NA	NA
74-95-3	Dibromomethane	UG/L	NA	5 U	NA	NA	NA
95-50-1	1,2-Dichlorobenzene	UG/L	NA	1 U	NA	NA	NA
541-73-1	1,3-Dichlorobenzene	UG/L	NA	1 U	NA	NA	NA
106-46-7	1,4-Dichlorobenzene	UG/L	NA	1 U	NA	NA	NA
110-57-6	trans-1,4-Dichloro-2-butene	UG/L	NA	1 U	NA	NA	NA
75-71-8	Dichlorodifluoromethane	UG/L	NA	1 U	NA	NA	NA
75-34-3	1,1-Dichloroethane	UG/L	NA	1 U	NA	NA	NA
107-06-2	1,2-Dichloroethane	UG/L	NA	1 U	NA	NA	NA
75-35-4	1,1-Dichloroethene	UG/L	NA	1 U	NA	NA	NA
156-59-2	cis-1,2-Dichloroethene	UG/L	NA	1 U	NA	NA	NA
156-60-5	trans-1,2-Dichloroethene	UG/L	NA	1 U	NA	NA	NA
78-87-5	1,2-Dichloropropane	UG/L	NA	1 U	NA	NA	NA
10061-01-5	cis-1,3-Dichloropropene	UG/L	NA	1 U	NA	NA	NA
10061-02-6	trans-1,3-Dichloropropene	UG/L	NA	1 U	NA	NA	NA
123-91-1	1,4-Dioxane	UG/L	NA	200 U	NA	NA	NA
100-41-4	Ethylbenzene	UG/L	NA	1 U	NA	NA	NA
97-63-2	Ethyl methacrylate	UG/L	NA	1 U	NA	NA	NA
75-69-4	Trichlorofluoromethane	UG/L	NA	1 U	NA	NA	NA
591-78-6	2-Hexanone	UG/L	NA	50 U	NA	NA	NA
74-88-4	Iodomethane	UG/L	NA	1 U	NA	NA	NA
78-83-1	Isobutyl alcohol	UG/L	NA	1000 U	NA	NA	NA
126-98-7	Methacrylonitrile	UG/L	NA	10 U	NA	NA	NA
75-09-2	Methylene chloride	UG/L	NA	5 U	NA	NA	NA
80-62-6	Methyl methacrylate	UG/L	NA	5 U	NA	NA	NA
107-12-0	Propionitrile	UG/L	NA	4 U	NA	NA	NA
100-42-5	Styrene	UG/L	NA	1 U	NA	NA	NA
630-20-6	1,1,1,2-Tetrachloroethane	UG/L	NA	1 U	NA	NA	NA
79-34-5	1,1,2,2-Tetrachloroethane	UG/L	NA	1 U	NA	NA	NA
127-18-4	Tetrachloroethene	UG/L	NA	1 U	NA	NA	NA
108-88-3	Toluene	UG/L	NA	1 U	NA	NA	NA
71-55-6	1,1,1-Trichloroethane	UG/L	NA	1 U	NA	NA	NA
79-00-5	1,1,2-Trichloroethane	UG/L	NA	1 U	NA	NA	NA
79-01-6	Trichloroethene	UG/L	NA	1 U	NA	NA	NA
96-18-4	1,2,3-Trichloropropane	UG/L	NA	1 U	NA	NA	NA
108-05-4	Vinyl acetate	UG/L	NA	50 U	NA	NA	NA
75-01-4	Vinyl chloride	UG/L	1 U	1 U	NA	1 U	NA
1330-20-7	Xylenes (total)	UG/L	NA	3 U	NA	NA	NA
106-93-4	1,2-Dibromoethane (EDB)	UG/L	NA	1 U	NA	NA	NA
78-93-3	2-Butanone (MEK)	UG/L	NA	50 U	NA	NA	NA
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/L	NA	50 U	NA	NA	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	MW22 A6B150157-004 QUANTERRA A6B150157 WATER 2/13/96	DW22 A6A180129-001 QUANTERRA A6A180129 WATER 1/17/96	GWDW22 GWDW22 QUANTERRA 085928 WATER 1/17/96	DW22 A6B150157-005 QUANTERRA A6B150157 WATER 2/13/96	DW72 A6B150157-006 QUANTERRA A6B150157 WATER 2/13/96
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
92-67-1	4-Aminobiphenyl	UG/L	NA	50 U	NA	NA	NA
60-11-7	p-Dimethylaminoazobenzene	UG/L	NA	20 U	NA	NA	NA
57-97-6	7,12-Dimethylbenz(a)anthracene	UG/L	NA	20 U	NA	NA	NA
1888-71-7	Hexachloropropene	UG/L	NA	100 U	NA	NA	NA
62-44-2	Phenacetin	UG/L	NA	20 U	NA	NA	NA
23950-58-5	Pronamide	UG/L	NA	20 U	NA	NA	NA
122-09-8	a,a-Dimethylphenethylamine	UG/L	NA	50 U	NA	NA	NA
2303-16-4	Diallate	UG/L	NA	5 U	NA	NA	NA
510-15-6	Chlorobenzilate	UG/L	NA	10 U	NA	NA	NA
83-32-9	Acenaphthene	UG/L	NA	5 U	NA	NA	NA
208-96-8	Acenaphthylene	UG/L	NA	5 U	NA	NA	NA
98-86-2	Acetophenone	UG/L	NA	10 U	NA	NA	NA
53-96-3	2-Acetylaminofluorene	UG/L	NA	100 U	NA	NA	NA
62-53-3	Aniline	UG/L	NA	20 U	NA	NA	NA
120-12-7	Anthracene	UG/L	NA	5 U	NA	NA	NA
56-55-3	Benzo(a)anthracene	UG/L	NA	5 U	NA	NA	NA
205-99-2	Benzo(b)fluoranthene	UG/L	NA	5 U	NA	NA	NA
207-08-9	Benzo(k)fluoranthene	UG/L	NA	5 U	NA	NA	NA
191-24-2	Benzo(ghi)perylene	UG/L	NA	5 U	NA	NA	NA
50-32-8	Benzo(a)pyrene	UG/L	NA	5 U	NA	NA	NA
100-51-6	Benzyl alcohol	UG/L	NA	50 U	NA	NA	NA
111-91-1	bis(2-Chloroethoxy)methane	UG/L	NA	5 U	NA	NA	NA
111-44-4	bis(2-Chloroethyl) ether	UG/L	NA	5 U	NA	NA	NA
117-81-7	bis(2-Ethylhexyl) phthalate	UG/L	NA	5 U	NA	NA	NA
101-55-3	4-Bromophenyl phenyl ether	UG/L	NA	5 U	NA	NA	NA
85-68-7	Butyl benzyl phthalate	UG/L	NA	5 U	NA	NA	NA
106-47-8	4-Chloroaniline	UG/L	NA	20 U	NA	NA	NA
59-50-7	4-Chloro-3-methylphenol	UG/L	NA	5 U	NA	NA	NA
91-58-7	2-Chloronaphthalene	UG/L	NA	5 U	NA	NA	NA
95-57-8	2-Chlorophenol	UG/L	NA	5 U	NA	NA	NA
7005-72-3	4-Chlorophenyl phenyl ether	UG/L	NA	5 U	NA	NA	NA
218-01-9	Chrysene	UG/L	NA	5 U	NA	NA	NA
53-70-3	Dibenz(a,h)anthracene	UG/L	NA	5 U	NA	NA	NA
132-64-9	Dibenzofuran	UG/L	NA	5 U	NA	NA	NA
84-74-2	Di-n-butyl phthalate	UG/L	NA	5 U	NA	NA	NA
91-94-1	3,3'-Dichlorobenzidine	UG/L	NA	20 U	NA	NA	NA
120-83-2	2,4-Dichlorophenol	UG/L	NA	5 U	NA	NA	NA
87-65-0	2,6-Dichlorophenol	UG/L	NA	5 U	NA	NA	NA
84-66-2	Diethyl phthalate	UG/L	NA	5 U	NA	NA	NA
119-93-7	3,3'-Dimethylbenzidine	UG/L	NA	10 U	NA	NA	NA
105-67-9	2,4-Dimethylphenol	UG/L	NA	5 U	NA	NA	NA
131-11-3	Dimethyl phthalate	UG/L	NA	5 U	NA	NA	NA
117-84-0	Di-n-octyl phthalate	UG/L	NA	5 U	NA	NA	NA
99-65-0	1,3-Dinitrobenzene	UG/L	NA	5 U	NA	NA	NA
534-52-1	4,6-Dinitro-2-methylphenol	UG/L	NA	20 U	NA	NA	NA
51-28-5	2,4-Dinitrophenol	UG/L	NA	20 U	NA	NA	NA
121-14-2	2,4-Dinitrotoluene	UG/L	NA	5 U	NA	NA	NA
606-20-2	2,6-Dinitrotoluene	UG/L	NA	5 U	NA	NA	NA
122-39-4	Diphenylamine	UG/L	NA	5 U	NA	NA	NA
62-50-0	Ethyl methanesulfonate	UG/L	NA	10 U	NA	NA	NA
206-44-0	Fluoranthene	UG/L	NA	5 U	NA	NA	NA
86-73-7	Fluorene	UG/L	NA	5 U	NA	NA	NA
118-74-1	Hexachlorobenzene	UG/L	NA	5 U	NA	NA	NA
87-68-3	Hexachlorobutadiene	UG/L	NA	5 U	NA	NA	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	MW22 A6B150157-004 QUANTERRA A6B150157 WATER 2/13/96	DW22 A6A180129-001 QUANTERRA A6A180129 WATER 1/17/96	GWDW22 GWDW22 QUANTERRA 085928 WATER 1/17/96	DW22 A6B150157-005 QUANTERRA A6B150157 WATER 2/13/96	DW72 A6B150157-006 QUANTERRA A6B150157 WATER 2/13/96
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES CONT'D						
77-47-4	Hexachlorocyclopentadiene	UG/L	NA	5 U	NA	NA	NA
67-72-1	Hexachloroethane	UG/L	NA	5 U	NA	NA	NA
193-39-5	Indeno(1,2,3-cd)pyrene	UG/L	NA	5 U	NA	NA	NA
78-59-1	Isophorone	UG/L	NA	5 U	NA	NA	NA
120-58-1	Isosafrole	UG/L	NA	20 U	NA	NA	NA
91-80-5	Methapyrilene	UG/L	NA	50 U	NA	NA	NA
95-53-4	o-Toluidine	UG/L	NA	20 U	NA	NA	NA
56-49-5	3-Methylcholanthrene	UG/L	NA	20 U	NA	NA	NA
66-27-3	Methyl methanesulfonate	UG/L	NA	10 U	NA	NA	NA
91-57-6	2-Methylnaphthalene	UG/L	NA	5 U	NA	NA	NA
95-48-7	2-Methylphenol	UG/L	NA	5 U	NA	NA	NA
108-39-4	3-Methylphenol	UG/L	NA	5 U	NA	NA	NA
106-44-5	4-Methylphenol	UG/L	NA	5 U	NA	NA	NA
91-20-3	Naphthalene	UG/L	NA	5 U	NA	NA	NA
130-15-4	1,4-Naphthoquinone	UG/L	NA	50 U	NA	NA	NA
134-32-7	1-Naphthylamine	UG/L	NA	10 U	NA	NA	NA
91-59-8	2-Naphthylamine	UG/L	NA	10 U	NA	NA	NA
88-74-4	2-Nitroaniline	UG/L	NA	20 U	NA	NA	NA
99-09-2	3-Nitroaniline	UG/L	NA	20 U	NA	NA	NA
100-01-6	4-Nitroaniline	UG/L	NA	20 U	NA	NA	NA
98-95-3	Nitrobenzene	UG/L	NA	5 U	NA	NA	NA
88-75-5	2-Nitrophenol	UG/L	NA	5 U	NA	NA	NA
100-02-7	4-Nitrophenol	UG/L	NA	20 U	NA	NA	NA
56-57-5	4-Nitroquinoline-1-oxide	UG/L	NA	100 U	NA	NA	NA
924-16-3	N-Nitrosodi-n-butylamine	UG/L	NA	10 U	NA	NA	NA
55-18-5	N-Nitrosodiethylamine	UG/L	NA	10 U	NA	NA	NA
62-75-9	N-Nitrosodimethylamine	UG/L	NA	5 U	NA	NA	NA
621-64-7	N-Nitrosodi-n-propylamine	UG/L	NA	5 U	NA	NA	NA
86-30-6	N-Nitrosodiphenylamine	UG/L	NA	5 U	NA	NA	NA
10595-95-6	N-Nitrosomethylethylamine	UG/L	NA	10 U	NA	NA	NA
59-89-2	N-Nitrosomorpholine	UG/L	NA	10 U	NA	NA	NA
100-75-4	N-Nitrosopiperidine	UG/L	NA	10 U	NA	NA	NA
930-55-2	N-Nitrosopyrrolidine	UG/L	NA	10 U	NA	NA	NA
99-55-8	5-Nitro-o-toluidine	UG/L	NA	20 U	NA	NA	NA
608-93-5	Pentachlorobenzene	UG/L	NA	5 U	NA	NA	NA
76-01-7	Pentachloroethane	UG/L	NA	10 U	NA	NA	NA
82-68-8	Pentachloronitrobenzene	UG/L	NA	50 U	NA	NA	NA
87-86-5	Pentachlorophenol	UG/L	NA	25 U	NA	NA	NA
85-01-8	Phenanthrene	UG/L	NA	5 U	NA	NA	NA
108-95-2	Phenol	UG/L	NA	5 U	NA	NA	NA
106-50-3	p-Phenylene diamine	UG/L	NA	100 U	NA	NA	NA
109-06-8	2-Picoline	UG/L	NA	20 U	NA	NA	NA
129-00-0	Pyrene	UG/L	NA	5 U	NA	NA	NA
110-86-1	Pyridine	UG/L	NA	20 U	NA	NA	NA
94-59-7	Safrole	UG/L	NA	20 U	NA	NA	NA
95-94-3	1,2,4,5-Tetrachlorobenzene	UG/L	NA	5 U	NA	NA	NA
58-90-2	2,3,4,6-Tetrachlorophenol	UG/L	NA	50 U	NA	NA	NA
120-82-1	1,2,4-Trichlorobenzene	UG/L	NA	5 U	NA	NA	NA
95-95-4	2,4,5-Trichlorophenol	UG/L	NA	50 U	NA	NA	NA
88-06-2	2,4,6-Trichlorophenol	UG/L	NA	5 U	NA	NA	NA
99-35-4	1,3,5-Trinitrobenzene	UG/L	NA	50 U	NA	NA	NA
86-74-8	Carbazole	UG/L	NA	10 U	NA	NA	NA
108-60-1	bis(2-Chloroisopropyl) ether	UG/L	NA	5 U	NA	NA	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	MW22 A6B150157-004 QUANTERRA A6B150157 WATER 2/13/96	DW22 A6A180129-001 QUANTERRA A6A180129 WATER 1/17/96	GWDW22 GWDW22 QUANTERRA 085928 WATER 1/17/96	DW22 A6B150157-005 QUANTERRA A6B150157 WATER 2/13/96	DW72 A6B150157-006 QUANTERRA A6B150157 WATER 2/13/96
CAS NO.	COMPOUND	UNITS:					
	PESTICIDES/PCBs						
309-00-2	Aldrin	UG/L	NA	0.2 U*	NA	NA	NA
319-84-6	alpha-BHC	UG/L	NA	0.01 U	NA	NA	NA
319-85-7	beta-BHC	UG/L	NA	0.01 U	NA	NA	NA
319-86-8	delta-BHC	UG/L	NA	0.01 U	NA	NA	NA
58-89-9	gamma-BHC (Lindane)	UG/L	NA	0.01 U	NA	NA	NA
5103-71-9	alpha-Chlordane	UG/L	NA	0.01 U	NA	NA	NA
5103-74-2	gamma-Chlordane	UG/L	NA	0.01 U	NA	NA	NA
72-54-8	4,4'-DDD	UG/L	NA	0.02 U	NA	NA	NA
72-55-9	4,4'-DDE	UG/L	NA	0.02 U	NA	NA	NA
50-29-3	4,4'-DDT	UG/L	NA	0.02 U	NA	NA	NA
60-57-1	Dieldrin	UG/L	NA	0.02 U	NA	NA	NA
959-98-8	Endosulfan I	UG/L	NA	0.05 U	NA	NA	NA
33213-65-9	Endosulfan II	UG/L	NA	0.05 U	NA	NA	NA
1031-07-8	Endosulfan sulfate	UG/L	NA	0.05 U	NA	NA	NA
72-20-8	Endrin	UG/L	NA	0.02 U	NA	NA	NA
7421-93-4	Endrin aldehyde	UG/L	NA	0.02 U	NA	NA	NA
76-44-8	Heptachlor	UG/L	NA	0.01 U	NA	NA	NA
1024-57-3	Heptachlor epoxide	UG/L	NA	0.01 U	NA	NA	NA
465-73-6	Isodrin	UG/L	NA	0.1 U	NA	NA	NA
143-50-0	Kepone	UG/L	NA	1 U	NA	NA	NA
72-43-5	Methoxychlor	UG/L	NA	0.5 U	NA	NA	NA
12674-11-2	Aroclor 1016	UG/L	NA	0.1 U	NA	NA	NA
11104-28-2	Aroclor 1221	UG/L	NA	0.1 U	NA	NA	NA
11141-16-5	Aroclor 1232	UG/L	NA	0.1 U	NA	NA	NA
53469-21-9	Aroclor 1242	UG/L	NA	0.1 U	NA	NA	NA
12672-29-6	Aroclor 1248	UG/L	NA	0.1 U	NA	NA	NA
11097-69-1	Aroclor 1254	UG/L	NA	0.2 U	NA	NA	NA
11096-82-5	Aroclor 1260	UG/L	NA	0.2 U	NA	NA	NA
8001-35-2	Toxaphene	UG/L	NA	1 U	NA	NA	NA
53494-70-5	Endrin ketone	UG/L	NA	0.02 U	NA	NA	NA
	HERBICIDES						
297-97-2	Thionazin	UG/L	NA	1 U	NA	NA	NA
60-51-5	Dimethoate	UG/L	NA	1 U	NA	NA	NA
298-04-4	Disulfoton	UG/L	NA	1 U	NA	NA	NA
52-85-7	Famphur	UG/L	NA	1 U	NA	NA	NA
298-00-0	Methyl parathion	UG/L	NA	1 U	NA	NA	NA
56-38-2	Parathion	UG/L	NA	1 U	NA	NA	NA
298-02-2	Phorate	UG/L	NA	1 U	NA	NA	NA
3689-24-5	Tetraethyldithiopyrophosphate	UG/L	NA	1 U	NA	NA	NA
126-68-1	O,O,O-Triethyl phosphorothioate	UG/L	NA	1 U	NA	NA	NA
94-75-7	2,4-D	UG/L	NA	10 U	NA	NA	NA
88-85-7	Dinoseb	UG/L	NA	1 U	NA	NA	NA
93-76-5	2,4,5-T	UG/L	NA	1 U	NA	NA	NA
93-72-1	2,4,5-TP (Silvex)	UG/L	NA	1 U	NA	NA	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	MW22 A6B150157-004 QUANTERRA A6B150157 WATER 2/13/96	DW22 A6A180129-001 QUANTERRA A6A180129 WATER 1/17/96	GWDW22 GWDW22 QUANTERRA 085928 WATER 1/17/96	DW22 A6B150157-005 QUANTERRA A6B150157 WATER 2/13/96	DW72 A6B150157-006 QUANTERRA A6B150157 WATER 2/13/96
CAS NO.	COMPOUND	UNITS:					
	INORGANICS						
7440-47-3	Chromium -DISS	UG/L	NA	5 U	NA	NA	NA
7439-92-1	Lead -DISS	UG/L	NA	3 U	NA	NA	NA
7440-36-0	Antimony -DISS	UG/L	NA	5 U	NA	NA	NA
7782-49-2	Selenium -DISS	UG/L	NA	5 U	NA	NA	NA
7429-90-5	Aluminum -DISS	UG/L	100	100 U	NA	NA	100 U
7440-39-3	Barium -DISS	UG/L	NA	1910	NA	NA	NA
7440-41-7	Beryllium -DISS	UG/L	NA	3 U	NA	NA	NA
7440-70-2	Calcium -DISS	UG/L	23300	415000	NA	422000	425000
7440-48-4	Cobalt -DISS	UG/L	NA	50 U	NA	NA	NA
7440-50-8	Copper -DISS	UG/L	NA	25 U	NA	NA	NA
7439-89-6	Iron -DISS	UG/L	5050	13600	NA	14100	14300
7440-09-7	Potassium -DISS	UG/L	39600	38200	NA	33300	35200
7439-95-4	Magnesium -DISS	UG/L	NA	114000	NA	NA	NA
7439-96-5	Manganese -DISS	UG/L	270	2570	NA	2780	2820
7440-23-5	Sodium -DISS	UG/L	288000	1710000	NA	1680000	1780000
7440-02-0	Nickel -DISS	UG/L	NA	50 U	NA	NA	50 U
7440-31-5	Tin -DISS	UG/L	NA	100 U	NA	NA	NA
7440-62-2	Vanadium -DISS	UG/L	NA	20 U	NA	NA	NA
7440-66-6	Zinc -DISS	UG/L	NA	20 U	NA	NA	NA
7440-38-2	Arsenic -DISS	UG/L	NA	5 U	NA	NA	NA
7440-43-9	Cadmium -DISS	UG/L	NA	0.5 U	NA	NA	NA
7439-97-6	Mercury -DISS	UG/L	NA	0.2 U	NA	NA	NA
7440-22-4	Silver -DISS	UG/L	NA	0.5 U	NA	NA	NA
7440-28-0	Thallium -DISS	UG/L	4 U	8 U*	NA	4 U	8 U
18496-25-8	Sulfide	MG/L	0.5 U	0.5 U	NA	NA	NA
57-12-5	Cyanide	UG/L	NA	20 U	NA	NA	NA
	DIOXINS						
DIOXIN1	TCDFs(TOTAL)	PG/L	NA	NA	260	NA	NA
DIOXIN2	2,3,7,8-TCDF	PG/L	NA	NA	10 U	NA	NA
DIOXIN3	PeCDFS(TOTAL)	PG/L	NA	NA	30	NA	NA
DIOXIN4	1,2,3,7,8-PeCDF	PG/L	NA	NA	5.8 U	NA	NA
DIOXIN5	2,3,4,7,8-PeCDF	PG/L	NA	NA	10 U	NA	NA
DIOXIN6	HxCDFs(TOTAL)	PG/L	NA	NA	350	NA	NA
DIOXIN7	1,2,3,4,7,8-HxCDF	PG/L	NA	NA	22 U	NA	NA
DIOXIN8	1,2,3,6,7,8-HxCDF	PG/L	NA	NA	9.8 U	NA	NA
DIOXIN9	2,3,4,6,7,8-HxCDF	PG/L	NA	NA	14 U	NA	NA
DIOXIN10	1,2,3,7,8,9-HxCDF	PG/L	NA	NA	1.8 U	NA	NA
DIOXIN11	HpCDFs(TOTAL)	PG/L	NA	NA	1600	NA	NA
DIOXIN12	1,2,3,4,6,7,8-HpCDF	PG/L	NA	NA	530	NA	NA
DIOXIN13	1,2,3,4,7,8,9-HpCDF	PG/L	NA	NA	14 U	NA	NA
DIOXIN14	OCDF	PG/L	NA	NA	470	NA	NA
DIOXIN15	TCDDs(TOTAL)	PG/L	NA	NA	4.9 U	NA	NA
DIOXIN16	2,3,7,8-TCDD	PG/L	NA	NA	2.4 U	NA	NA
DIOXIN17	PeCDDs(TOTAL)	PG/L	NA	NA	25 U	NA	NA
DIOXIN18	1,2,3,7,8-PeCDD	PG/L	NA	NA	4.4 U	NA	NA
DIOXIN19	HxCDDs(TOTAL)	PG/L	NA	NA	96	NA	NA
DIOXIN20	1,2,3,4,7,8-HxCDD	PG/L	NA	NA	2.4 U	NA	NA
DIOXIN21	1,2,3,6,7,8-HxCDD	PG/L	NA	NA	23 U	NA	NA
DIOXIN22	1,2,3,7,8,9-HxCDD	PG/L	NA	NA	8.6 U	NA	NA
DIOXIN23	HpCDDs(TOTAL)	PG/L	NA	NA	380	NA	NA
DIOXIN24	1,2,3,4,6,7,8-HpCDD	PG/L	NA	NA	210	NA	NA
DIOXIN25	OCDD	PG/L	NA	NA	520	NA	NA
TDIOXINS	TOTAL TEFs	PG/L	NA	NA	8.39	NA	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	TB01 A6A170141-008 QUANTERRA A6A170141 WATER 1/16/96	TB02 A6A180129-006 QUANTERRA A6A180129 WATER 1/17/96	TB03 A6A190124-006 QUANTERRA A6A190124 WATER 1/18/96	TB06 A6B150157-016 QUANTERRA A6B150157 WATER 2/14/96
CAS NO.	COMPOUND	UNITS:				
	VOLATILES					
67-64-1	Acetone	UG/L	100 U	100 U	100 U	NA
75-05-8	Acetonitrile	UG/L	NA	NA	NA	NA
107-02-8	Acrolein	UG/L	NA	NA	NA	NA
107-13-1	Acrylonitrile	UG/L	NA	NA	NA	NA
71-43-2	Benzene	UG/L	5 U	5 U	5 U	5 U
75-27-4	Bromodichloromethane	UG/L	1 U	1 U	1 U	NA
75-25-2	Bromoform	UG/L	1 U	1 U	1 U	NA
74-83-9	Bromomethane	UG/L	1 U	1 U	1 U	NA
75-15-0	Carbon disulfide	UG/L	50 U	50 U	50 U	NA
56-23-5	Carbon tetrachloride	UG/L	1 U	1 U	1 U	NA
108-90-7	Chlorobenzene	UG/L	1 U	1 U	1 U	NA
126-99-8	Chloroprene	UG/L	NA	NA	NA	NA
124-48-1	Dibromochloromethane	UG/L	1 U	1 U	1 U	NA
96-12-8	1,2-Dibromo-3-chloropropane	UG/L	NA	NA	NA	NA
75-00-3	Chloroethane	UG/L	1 U	1 U	1 U	NA
67-66-3	Chloroform	UG/L	1 U	1 U	1 U	NA
74-87-3	Chloromethane	UG/L	1 U	1 U	1 U	NA
107-05-1	Allyl chloride	UG/L	NA	NA	NA	NA
74-95-3	Dibromomethane	UG/L	NA	NA	NA	NA
95-50-1	1,2-Dichlorobenzene	UG/L	1 U	1 U	1 U	NA
541-73-1	1,3-Dichlorobenzene	UG/L	1 U	1 U	1 U	NA
106-46-7	1,4-Dichlorobenzene	UG/L	1 U	1 U	1 U	NA
110-57-6	trans-1,4-Dichloro-2-butene	UG/L	NA	NA	NA	NA
75-71-8	Dichlorodifluoromethane	UG/L	NA	NA	NA	NA
75-34-3	1,1-Dichloroethane	UG/L	1 U	1 U	1 U	NA
107-06-2	1,2-Dichloroethane	UG/L	1 U	1 U	1 U	NA
75-35-4	1,1-Dichloroethene	UG/L	1 U	1 U	1 U	NA
156-59-2	cis-1,2-Dichloroethene	UG/L	1 U	1 U	1 U	1 U
156-60-5	trans-1,2-Dichloroethene	UG/L	1 U	1 U	1 U	NA
78-87-5	1,2-Dichloropropane	UG/L	1 U	1 U	1 U	NA
10061-01-5	cis-1,3-Dichloropropene	UG/L	1 U	1 U	1 U	NA
10061-02-6	trans-1,3-Dichloropropene	UG/L	1 U	1 U	1 U	NA
123-91-1	1,4-Dioxane	UG/L	NA	NA	NA	NA
100-41-4	Ethylbenzene	UG/L	1 U	1 U	1 U	NA
97-63-2	Ethyl methacrylate	UG/L	NA	NA	NA	NA
75-69-4	Trichlorofluoromethane	UG/L	NA	NA	NA	NA
591-78-6	2-Hexanone	UG/L	50 U	50 U	50 U	NA
74-88-4	Iodomethane	UG/L	NA	NA	NA	NA
78-83-1	Isobutyl alcohol	UG/L	NA	NA	NA	NA
126-98-7	Methacrylonitrile	UG/L	NA	NA	NA	NA
75-09-2	Methylene chloride	UG/L	5 U	5 U	1.3 J	NA
80-62-6	Methyl methacrylate	UG/L	NA	NA	NA	NA
107-12-0	Propionitrile	UG/L	NA	NA	NA	NA
100-42-5	Styrene	UG/L	1 U	1 U	1 U	NA
630-20-6	1,1,1,2-Tetrachloroethane	UG/L	NA	NA	NA	NA
79-34-5	1,1,2,2-Tetrachloroethane	UG/L	1 U	1 U	1 U	NA
127-18-4	Tetrachloroethene	UG/L	1 U	1 U	1 U	NA
108-88-3	Toluene	UG/L	1 U	1 U	1 U	NA
71-55-6	1,1,1-Trichloroethane	UG/L	1 U	1 U	1 U	NA
79-00-5	1,1,2-Trichloroethane	UG/L	1 U	1 U	1 U	NA
79-01-6	Trichloroethene	UG/L	1 U	1 U	1 U	NA
96-18-4	1,2,3-Trichloropropane	UG/L	NA	NA	NA	NA
108-05-4	Vinyl acetate	UG/L	NA	NA	NA	NA
75-01-4	Vinyl chloride	UG/L	1 U	1 U	1 U	1 U
1330-20-7	Xylenes (total)	UG/L	3 U	3 U	3 U	NA
106-93-4	1,2-Dibromoethane (EDB)	UG/L	NA	NA	NA	NA
78-93-3	2-Butanone (MEK)	UG/L	50 U	50 U	50 U	NA
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/L	50 U	50 U	50 U	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	TB01 A6A170141-008 QUANTERRA A6A170141 WATER 1/16/96	TB02 A6A180129-006 QUANTERRA A6A180129 WATER 1/17/96	TB03 A6A190124-006 QUANTERRA A6A190124 WATER 1/18/96	TB06 A6B150157-016 QUANTERRA A6B150157 WATER 2/14/96
CAS NO.	COMPOUND	UNITS:				
	SEMIVOLATILES					
92-67-1	4-Aminobiphenyl	UG/L	NA	NA	NA	NA
60-11-7	p-Dimethylaminoazobenzene	UG/L	NA	NA	NA	NA
57-97-6	7,12-Dimethylbenz(a)anthracene	UG/L	NA	NA	NA	NA
1888-71-7	Hexachloropropene	UG/L	NA	NA	NA	NA
62-44-2	Phenacetin	UG/L	NA	NA	NA	NA
23950-58-5	Pronamide	UG/L	NA	NA	NA	NA
122-09-8	a,a-Dimethylphenethylamine	UG/L	NA	NA	NA	NA
2303-16-4	Diallate	UG/L	NA	NA	NA	NA
510-15-6	Chlorobenzilate	UG/L	NA	NA	NA	NA
83-32-9	Acenaphthene	UG/L	NA	NA	NA	NA
208-96-8	Acenaphthylene	UG/L	NA	NA	NA	NA
98-86-2	Acetophenone	UG/L	NA	NA	NA	NA
53-96-3	2-Acetylaminofluorene	UG/L	NA	NA	NA	NA
62-53-3	Aniline	UG/L	NA	NA	NA	NA
120-12-7	Anthracene	UG/L	NA	NA	NA	NA
56-55-3	Benzo(a)anthracene	UG/L	NA	NA	NA	NA
205-99-2	Benzo(b)fluoranthene	UG/L	NA	NA	NA	NA
207-08-9	Benzo(k)fluoranthene	UG/L	NA	NA	NA	NA
191-24-2	Benzo(ghi)perylene	UG/L	NA	NA	NA	NA
50-32-8	Benzo(a)pyrene	UG/L	NA	NA	NA	NA
100-51-6	Benzyl alcohol	UG/L	NA	NA	NA	NA
111-91-1	bis(2-Chloroethoxy)methane	UG/L	NA	NA	NA	NA
111-44-4	bis(2-Chloroethyl) ether	UG/L	NA	NA	NA	NA
117-81-7	bis(2-Ethylhexyl) phthalate	UG/L	NA	NA	NA	NA
101-55-3	4-Bromophenyl phenyl ether	UG/L	NA	NA	NA	NA
85-68-7	Butyl benzyl phthalate	UG/L	NA	NA	NA	NA
106-47-8	4-Chloroaniline	UG/L	NA	NA	NA	NA
59-50-7	4-Chloro-3-methylphenol	UG/L	NA	NA	NA	NA
91-58-7	2-Chloronaphthalene	UG/L	NA	NA	NA	NA
95-57-8	2-Chlorophenol	UG/L	NA	NA	NA	NA
7005-72-3	4-Chlorophenyl phenyl ether	UG/L	NA	NA	NA	NA
218-01-9	Chrysene	UG/L	NA	NA	NA	NA
53-70-3	Dibenz(a,h)anthracene	UG/L	NA	NA	NA	NA
132-64-9	Dibenzofuran	UG/L	NA	NA	NA	NA
84-74-2	Di-n-butyl phthalate	UG/L	NA	NA	NA	NA
91-94-1	3,3'-Dichlorobenzidine	UG/L	NA	NA	NA	NA
120-83-2	2,4-Dichlorophenol	UG/L	NA	NA	NA	NA
87-65-0	2,6-Dichlorophenol	UG/L	NA	NA	NA	NA
84-66-2	Diethyl phthalate	UG/L	NA	NA	NA	NA
119-93-7	3,3'-Dimethylbenzidine	UG/L	NA	NA	NA	NA
105-67-9	2,4-Dimethylphenol	UG/L	NA	NA	NA	NA
131-11-3	Dimethyl phthalate	UG/L	NA	NA	NA	NA
117-84-0	Di-n-octyl phthalate	UG/L	NA	NA	NA	NA
99-65-0	1,3-Dinitrobenzene	UG/L	NA	NA	NA	NA
534-52-1	4,6-Dinitro-2-methylphenol	UG/L	NA	NA	NA	NA
51-28-5	2,4-Dinitrophenol	UG/L	NA	NA	NA	NA
121-14-2	2,4-Dinitrotoluene	UG/L	NA	NA	NA	NA
606-20-2	2,6-Dinitrotoluene	UG/L	NA	NA	NA	NA
122-39-4	Diphenylamine	UG/L	NA	NA	NA	NA
62-50-0	Ethyl methanesulfonate	UG/L	NA	NA	NA	NA
206-44-0	Fluoranthene	UG/L	NA	NA	NA	NA
86-73-7	Fluorene	UG/L	NA	NA	NA	NA
118-74-1	Hexachlorobenzene	UG/L	NA	NA	NA	NA
87-68-3	Hexachlorobutadiene	UG/L	NA	NA	NA	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	TB01 A6A170141-008 QUANTERRA A6A170141 WATER 1/16/96	TB02 A6A180129-006 QUANTERRA A6A180129 WATER 1/17/96	TB03 A6A190124-006 QUANTERRA A6A190124 WATER 1/18/96	TB06 A6B150157-016 QUANTERRA A6B150157 WATER 2/14/96
CAS NO.	COMPOUND	UNITS:				
	SEMIVOLATILES CONT'D					
77-47-4	Hexachlorocyclopentadiene	UG/L	NA	NA	NA	NA
67-72-1	Hexachloroethane	UG/L	NA	NA	NA	NA
193-39-5	Indeno(1,2,3-cd)pyrene	UG/L	NA	NA	NA	NA
78-59-1	Isophorone	UG/L	NA	NA	NA	NA
120-58-1	Isosafrole	UG/L	NA	NA	NA	NA
91-80-5	Methapyrilene	UG/L	NA	NA	NA	NA
95-53-4	o-Toluidine	UG/L	NA	NA	NA	NA
56-49-5	3-Methylcholanthrene	UG/L	NA	NA	NA	NA
66-27-3	Methyl methanesulfonate	UG/L	NA	NA	NA	NA
91-57-6	2-Methylnaphthalene	UG/L	NA	NA	NA	NA
95-48-7	2-Methylphenol	UG/L	NA	NA	NA	NA
108-39-4	3-Methylphenol	UG/L	NA	NA	NA	NA
106-44-5	4-Methylphenol	UG/L	NA	NA	NA	NA
91-20-3	Naphthalene	UG/L	NA	NA	NA	NA
130-15-4	1,4-Naphthoquinone	UG/L	NA	NA	NA	NA
134-32-7	1-Naphthylamine	UG/L	NA	NA	NA	NA
91-59-8	2-Naphthylamine	UG/L	NA	NA	NA	NA
88-74-4	2-Nitroaniline	UG/L	NA	NA	NA	NA
99-09-2	3-Nitroaniline	UG/L	NA	NA	NA	NA
100-01-6	4-Nitroaniline	UG/L	NA	NA	NA	NA
98-95-3	Nitrobenzene	UG/L	NA	NA	NA	NA
88-75-5	2-Nitrophenol	UG/L	NA	NA	NA	NA
100-02-7	4-Nitrophenol	UG/L	NA	NA	NA	NA
56-57-5	4-Nitroquinoline-1-oxide	UG/L	NA	NA	NA	NA
924-16-3	N-Nitrosodi-n-butylamine	UG/L	NA	NA	NA	NA
55-18-5	N-Nitrosodiethylamine	UG/L	NA	NA	NA	NA
62-75-9	N-Nitrosodimethylamine	UG/L	NA	NA	NA	NA
621-64-7	N-Nitrosodi-n-propylamine	UG/L	NA	NA	NA	NA
86-30-6	N-Nitrosodiphenylamine	UG/L	NA	NA	NA	NA
10595-95-6	N-Nitrosomethylethylamine	UG/L	NA	NA	NA	NA
59-89-2	N-Nitrosomorpholine	UG/L	NA	NA	NA	NA
100-75-4	N-Nitrosopiperidine	UG/L	NA	NA	NA	NA
930-55-2	N-Nitrosopyrrolidine	UG/L	NA	NA	NA	NA
99-55-8	5-Nitro-o-toluidine	UG/L	NA	NA	NA	NA
608-93-5	Pentachlorobenzene	UG/L	NA	NA	NA	NA
76-01-7	Pentachloroethane	UG/L	NA	NA	NA	NA
82-68-8	Pentachloronitrobenzene	UG/L	NA	NA	NA	NA
87-86-5	Pentachlorophenol	UG/L	NA	NA	NA	NA
85-01-8	Phenanthrene	UG/L	NA	NA	NA	NA
108-95-2	Phenol	UG/L	NA	NA	NA	NA
106-50-3	p-Phenylene diamine	UG/L	NA	NA	NA	NA
109-06-8	2-Picoline	UG/L	NA	NA	NA	NA
129-00-0	Pyrene	UG/L	NA	NA	NA	NA
110-86-1	Pyridine	UG/L	NA	NA	NA	NA
94-59-7	Safrole	UG/L	NA	NA	NA	NA
95-94-3	1,2,4,5-Tetrachlorobenzene	UG/L	NA	NA	NA	NA
58-90-2	2,3,4,6-Tetrachlorophenol	UG/L	NA	NA	NA	NA
120-82-1	1,2,4-Trichlorobenzene	UG/L	NA	NA	NA	NA
95-95-4	2,4,5-Trichlorophenol	UG/L	NA	NA	NA	NA
88-06-2	2,4,6-Trichlorophenol	UG/L	NA	NA	NA	NA
99-35-4	1,3,5-Trinitrobenzene	UG/L	NA	NA	NA	NA
86-74-8	Carbazole	UG/L	NA	NA	NA	NA
108-60-1	bis(2-Chloroisopropyl) ether	UG/L	NA	NA	NA	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID:	TB01	TB02	TB03	TB06
		LAB ID:	A6A170141-008	A6A180129-006	A6A190124-006	A6B150157-016
		SOURCE:	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA
		SDG:	A6A170141	A6A180129	A6A190124	A6B150157
		MATRIX:	WATER	WATER	WATER	WATER
		SAMPLED:	1/16/96	1/17/96	1/18/96	2/14/96
CAS NO.	COMPOUND	UNITS:				
	PESTICIDES/PCBs					
309-00-2	Aldrin	UG/L	NA	NA	NA	NA
319-84-6	alpha-BHC	UG/L	NA	NA	NA	NA
319-85-7	beta-BHC	UG/L	NA	NA	NA	NA
319-86-8	delta-BHC	UG/L	NA	NA	NA	NA
58-89-9	gamma-BHC (Lindane)	UG/L	NA	NA	NA	NA
5103-71-9	alpha-Chlordane	UG/L	NA	NA	NA	NA
5103-74-2	gamma-Chlordane	UG/L	NA	NA	NA	NA
72-54-8	4,4'-DDD	UG/L	NA	NA	NA	NA
72-55-9	4,4'-DDE	UG/L	NA	NA	NA	NA
50-29-3	4,4'-DDT	UG/L	NA	NA	NA	NA
60-57-1	Dieldrin	UG/L	NA	NA	NA	NA
959-98-8	Endosulfan I	UG/L	NA	NA	NA	NA
33213-65-9	Endosulfan II	UG/L	NA	NA	NA	NA
1031-07-8	Endosulfan sulfate	UG/L	NA	NA	NA	NA
72-20-8	Endrin	UG/L	NA	NA	NA	NA
7421-93-4	Endrin aldehyde	UG/L	NA	NA	NA	NA
76-44-8	Heptachlor	UG/L	NA	NA	NA	NA
1024-57-3	Heptachlor epoxide	UG/L	NA	NA	NA	NA
465-73-6	Isodrin	UG/L	NA	NA	NA	NA
143-50-0	Kepone	UG/L	NA	NA	NA	NA
72-43-5	Methoxychlor	UG/L	NA	NA	NA	NA
12674-11-2	Aroclor 1016	UG/L	NA	NA	NA	NA
11104-28-2	Aroclor 1221	UG/L	NA	NA	NA	NA
11141-16-5	Aroclor 1232	UG/L	NA	NA	NA	NA
53469-21-9	Aroclor 1242	UG/L	NA	NA	NA	NA
12672-29-6	Aroclor 1248	UG/L	NA	NA	NA	NA
11097-69-1	Aroclor 1254	UG/L	NA	NA	NA	NA
11096-82-5	Aroclor 1260	UG/L	NA	NA	NA	NA
8001-35-2	Toxaphene	UG/L	NA	NA	NA	NA
53494-70-5	Endrin ketone	UG/L	NA	NA	NA	NA
	HERBICIDES					
297-97-2	Thionazin	UG/L	NA	NA	NA	NA
60-51-5	Dimethoate	UG/L	NA	NA	NA	NA
298-04-4	Disulfoton	UG/L	NA	NA	NA	NA
52-85-7	Famphur	UG/L	NA	NA	NA	NA
298-00-0	Methyl parathion	UG/L	NA	NA	NA	NA
56-38-2	Parathion	UG/L	NA	NA	NA	NA
298-02-2	Phorate	UG/L	NA	NA	NA	NA
3689-24-5	Tetraethyldithiopyrophosphate	UG/L	NA	NA	NA	NA
126-68-1	O,O,O-Triethyl phosphorothioate	UG/L	NA	NA	NA	NA
94-75-7	2,4-D	UG/L	NA	NA	NA	NA
88-85-7	Dinoseb	UG/L	NA	NA	NA	NA
93-76-5	2,4,5-T	UG/L	NA	NA	NA	NA
93-72-1	2,4,5-TP (Silvex)	UG/L	NA	NA	NA	NA

GM WEST YARD PONTIAC, MICHIGAN GROUNDWATER ANALYTICAL DATA		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	TB01 A6A170141-008 QUANTERRA A6A170141 WATER 1/16/96	TB02 A6A180129-006 QUANTERRA A6A180129 WATER 1/17/96	TB03 A6A190124-006 QUANTERRA A6A190124 WATER 1/18/96	TB06 A6B150157-016 QUANTERRA A6B150157 WATER 2/14/96
CAS NO.	COMPOUND	UNITS:				
	INORGANICS					
7440-47-3	Chromium -DISS	UG/L	NA	NA	NA	NA
7439-92-1	Lead -DISS	UG/L	NA	NA	NA	NA
7440-36-0	Antimony -DISS	UG/L	NA	NA	NA	NA
7782-49-2	Selenium -DISS	UG/L	NA	NA	NA	NA
7429-90-5	Aluminum -DISS	UG/L	NA	NA	NA	NA
7440-39-3	Barium -DISS	UG/L	NA	NA	NA	NA
7440-41-7	Beryllium -DISS	UG/L	NA	NA	NA	NA
7440-70-2	Calcium -DISS	UG/L	NA	NA	NA	NA
7440-48-4	Cobalt -DISS	UG/L	NA	NA	NA	NA
7440-50-8	Copper -DISS	UG/L	NA	NA	NA	NA
7439-89-6	Iron -DISS	UG/L	NA	NA	NA	NA
7440-09-7	Potassium -DISS	UG/L	NA	NA	NA	NA
7439-95-4	Magnesium -DISS	UG/L	NA	NA	NA	NA
7439-96-5	Manganese -DISS	UG/L	NA	NA	NA	NA
7440-23-5	Sodium -DISS	UG/L	NA	NA	NA	NA
7440-02-0	Nickel -DISS	UG/L	NA	NA	NA	NA
7440-31-5	Tin -DISS	UG/L	NA	NA	NA	NA
7440-62-2	Vanadium -DISS	UG/L	NA	NA	NA	NA
7440-66-6	Zinc -DISS	UG/L	NA	NA	NA	NA
7440-38-2	Arsenic -DISS	UG/L	NA	NA	NA	NA
7440-43-9	Cadmium -DISS	UG/L	NA	NA	NA	NA
7439-97-6	Mercury -DISS	UG/L	NA	NA	NA	NA
7440-22-4	Silver -DISS	UG/L	NA	NA	NA	NA
7440-28-0	Thallium -DISS	UG/L	NA	NA	NA	NA
18496-25-8	Sulfide	MG/L	NA	NA	NA	NA
57-12-5	Cyanide	UG/L	NA	NA	NA	NA
	DIOXINS					
DIOXIN1	TCDFs(TOTAL)	PG/L	NA	NA	NA	NA
DIOXIN2	2,3,7,8-TCDF	PG/L	NA	NA	NA	NA
DIOXIN3	PeCDFS(TOTAL)	PG/L	NA	NA	NA	NA
DIOXIN4	1,2,3,7,8-PeCDF	PG/L	NA	NA	NA	NA
DIOXIN5	2,3,4,7,8-PeCDF	PG/L	NA	NA	NA	NA
DIOXIN6	HxCDFs(TOTAL)	PG/L	NA	NA	NA	NA
DIOXIN7	1,2,3,4,7,8-HxCDF	PG/L	NA	NA	NA	NA
DIOXIN8	1,2,3,6,7,8-HxCDF	PG/L	NA	NA	NA	NA
DIOXIN9	2,3,4,6,7,8-HxCDF	PG/L	NA	NA	NA	NA
DIOXIN10	1,2,3,7,8,9-HxCDF	PG/L	NA	NA	NA	NA
DIOXIN11	HpCDFs(TOTAL)	PG/L	NA	NA	NA	NA
DIOXIN12	1,2,3,4,6,7,8-HpCDF	PG/L	NA	NA	NA	NA
DIOXIN13	1,2,3,4,7,8,9-HpCDF	PG/L	NA	NA	NA	NA
DIOXIN14	OCDF	PG/L	NA	NA	NA	NA
DIOXIN15	TCDDs(TOTAL)	PG/L	NA	NA	NA	NA
DIOXIN16	2,3,7,8-TCDD	PG/L	NA	NA	NA	NA
DIOXIN17	PeCDDs(TOTAL)	PG/L	NA	NA	NA	NA
DIOXIN18	1,2,3,7,8-PeCDD	PG/L	NA	NA	NA	NA
DIOXIN19	HxCDDs(TOTAL)	PG/L	NA	NA	NA	NA
DIOXIN20	1,2,3,4,7,8-HxCDD	PG/L	NA	NA	NA	NA
DIOXIN21	1,2,3,6,7,8-HxCDD	PG/L	NA	NA	NA	NA
DIOXIN22	1,2,3,7,8,9-HxCDD	PG/L	NA	NA	NA	NA
DIOXIN23	HpCDDs(TOTAL)	PG/L	NA	NA	NA	NA
DIOXIN24	1,2,3,4,6,7,8-HpCDD	PG/L	NA	NA	NA	NA
DIOXIN25	OCDD	PG/L	NA	NA	NA	NA
TDIOXINS	TOTAL TEFs	PG/L	NA	NA	NA	NA

GM WEST YARD PONTIAC, MI SURFACE SOIL ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SSSB5 0.0-0.5' 085489-0002 QUANTERRA 085489 SOIL 12/12/95	SSTT1 0.0-0.5' 086063-0001 QUANTERRA 086063 SOIL 1/22/96	SSTT3 0.0-0.5' 086063-0002 QUANTERRA 086063 SOIL 1/22/96	SSTT4 0.0-0.5' 086063-0004 QUANTERRA 086063 SOIL 1/23/96	SSTT80 0.0-0.5' 086063-0003 QUANTERRA 086063 SOIL 1/22/96
CAS NO.	COMPOUND	UNITS:					
	DIOXINS						
DIOXIN1	TCDFs(TOTAL)	PG/G	41	130	0.29 U	230	0.78 U
DIOXIN2	2,3,7,8-TCDF	PG/G	1.3	9.3	0.29 U	14	0.78 U
DIOXIN3	PeCDFS(TOTAL)	PG/G	12	15	0.25 U	1000	1.1 U
DIOXIN4	1,2,3,7,8-PeCDF	PG/G	1.5 U	3.9 U	0.24 U	14	0.29 U
DIOXIN5	2,3,4,7,8-PeCDF	PG/G	2.4 U	4.8 U	0.19 U	30	0.25 U
DIOXIN6	HxCDFs(TOTAL)	PG/G	120	16	1.7 U	2100	25
DIOXIN7	1,2,3,4,7,8-HxCDF	PG/G	5.1 U	3.7 U	0.11 U	11	0.6 U
DIOXIN8	1,2,3,6,7,8-HxCDF	PG/G	3.1 U	2 U	0.14 U	27	0.35 U
DIOXIN9	2,3,4,6,7,8-HxCDF	PG/G	6.1	2.5 U	0.15 U	91	0.88 U
DIOXIN10	1,2,3,7,8,9-HxCDF	PG/G	1 U	0.2 U	0.2 U	12	0.11 U
DIOXIN11	HpCDFs(TOTAL)	PG/G	250	27	4.3 U	1600	72
DIOXIN12	1,2,3,4,6,7,8-HpCDF	PG/G	86	11	1.9 U	510	22
DIOXIN13	1,2,3,4,7,8,9-HpCDF	PG/G	4 U	1 U	0.63 U	8.6	0.88 U
DIOXIN14	OCDF	PG/G	52	12	2.1 U	150	24
DIOXIN15	TCDDs(TOTAL)	PG/G	5.4	3.8	0.48 U	320	0.86 U
DIOXIN16	2,3,7,8-TCDD	PG/G	1.1 U	0.64 U	0.48 U	75	0.86 U
DIOXIN17	PeCDDs(TOTAL)	PG/G	6.7 U	2.6 U	0.35 U	1200	0.51 U
DIOXIN18	1,2,3,7,8-PeCDD	PG/G	1.3 U	1.5 U	0.31 U	230	0.26 U
DIOXIN19	HxCDDs(TOTAL)	PG/G	110	120	1.2 U	14000	9.2
DIOXIN20	1,2,3,4,7,8-HxCDD	PG/G	1.8 U	1.2 U	0.12 U	140	0.075 U
DIOXIN21	1,2,3,6,7,8-HxCDD	PG/G	14	16	0.45 U	1700	2.7 U
DIOXIN22	1,2,3,7,8,9-HxCDD	PG/G	7.7	6.5	0.322 U	800	1.1 U
DIOXIN23	HpCDDs(TOTAL)	PG/G	320	99	8	18000	81
DIOXIN24	1,2,3,4,6,7,8-HpCDD	PG/G	130	43	3.3 U	6600	26
DIOXIN25	OCDD	PG/G	560	180	26	9600	140
TDIOXINS	TOTAL TEFs	PG/G	5.682	3.912	0.026	566.136	0.644

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBSB1 16-18' A5L150192-002 QUANTERRA L15192 SOIL 12/12/95	SBSB2 04-06' A5L150193-003 QUANTERRA L15193 SOIL 12/14/95	SBSB3 16-18' A5L150193-005 QUANTERRA L15193 SOIL 12/14/95	SBSB4 06-08' A5L160125-002 QUANTERRA L16125 SOIL 12/15/95	SBSB5 04-06' 085489-0004 QUANTERRA 085489 SOIL 12/12/95
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	ug/kg	59 U	58 U	16 J	55 U	
95-50-1	1,2-Dichlorobenzene	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
541-73-1	1,3-Dichlorobenzene	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
106-46-7	1,4-Dichlorobenzene	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
156-59-2	cis-1,2-Dichloroethene	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
75-05-8	Acetonitrile	ug/kg	59 U				
107-02-8	Acrolein	ug/kg	59 U				
107-13-1	Acrylonitrile	ug/kg	59 U				
71-43-2	Benzene	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
75-27-4	Bromodichloromethane	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
75-25-2	Bromoform	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
74-83-9	Bromomethane	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
75-15-0	Carbon disulfide	ug/kg	59 U	58 U	54 U	55 U	
56-23-5	Carbon tetrachloride	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
108-90-7	Chlorobenzene	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
126-99-8	Chloroprene	ug/kg	5.9 U				
124-48-1	Dibromochloromethane	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
96-12-8	1,2-Dibromo-3-chloropropane	ug/kg	12 U				
75-00-3	Chloroethane	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
67-66-3	Chloroform	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
74-87-3	Chloromethane	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
107-05-1	Allyl chloride	ug/kg	12 U				
74-95-3	Dibromomethane	ug/kg	5.9 U				
110-57-6	trans-1,4-Dichloro-2-butene	ug/kg	5.9 U				
75-71-8	Dichlorodifluoromethane	ug/kg	5.9 U				
75-34-3	1,1-Dichloroethane	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
107-06-2	1,2-Dichloroethane	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
75-35-4	1,1-Dichloroethene	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
156-60-5	trans-1,2-Dichloroethene	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
78-87-5	1,2-Dichloropropane	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
10061-01-5	cis-1,3-Dichloropropene	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
10061-02-6	trans-1,3-Dichloropropene	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
123-91-1	1,4-Dioxane	ug/kg	590 U				
100-41-4	Ethylbenzene	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
97-63-2	Ethyl methacrylate	ug/kg	5.9 U				
75-69-4	Trichlorofluoromethane	ug/kg	5.9 U				
591-78-6	2-Hexanone	ug/kg	59 U	58 U	54 U	55 U	
74-88-4	Iodomethane	ug/kg	5.9 U				
78-83-1	Isobutyl alcohol	ug/kg	2600 U				
126-98-7	Methacrylonitrile	ug/kg	24 U				
75-09-2	Methylene chloride	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
80-62-6	Methyl methacrylate	ug/kg	5.9 U				
107-12-0	Propionitrile	ug/kg	24 U				
100-42-5	Styrene	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
630-20-6	1,1,1,2-Tetrachloroethane	ug/kg	5.9 U				
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
127-18-4	Tetrachloroethene	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
108-88-3	Toluene	ug/kg	5.9 U	5.8 U	2.4 J	5.5 U	
71-55-6	1,1,1-Trichloroethane	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
79-00-5	1,1,2-Trichloroethane	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
79-01-6	Trichloroethene	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
96-18-4	1,2,3-Trichloropropane	ug/kg	5.9 U			5.5 U	
108-05-4	Vinyl acetate	ug/kg	59 U				
75-01-4	Vinyl chloride	ug/kg	5.9 U	5.8 U	5.4 U	5.5 U	
1330-20-7	Xylenes (total)	ug/kg	18 U	17 U	6.8 J	16 U	
106-93-4	1,2-Dibromoethane (EDB)	ug/kg	5.9 U				
78-93-3	2-Butanone (MEK)	ug/kg	59 U	58 U	2.9 J	55 U	
108-10-1	4-Methyl-2-pentanone (MIBK)	ug/kg	59 U	58 U	54 U	55 U	

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBSB1 16-18' A5L150192-002 QUANTERRA L15192 SOIL 12/12/95	SBSB2 04-06' A5L150193-003 QUANTERRA L15193 SOIL 12/14/95	SBSB3 16-18' A5L150193-005 QUANTERRA L15193 SOIL 12/14/95	SBSB4 06-08' A5L160125-002 QUANTERRA L16125 SOIL 12/15/95	SBSB5 04-06' 085489-0004 QUANTERRA 085489 SOIL 12/12/95
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
92-67-1	4-Aminobiphenyl	ug/kg	1000 UJ				
60-11-7	p-Dimethylaminoazobenzene	ug/kg	390 UJ				
57-97-6	7,12-Dimethylbenz(a)anthracene	ug/kg	390 UJ				
1888-71-7	Hexachloropropene	ug/kg	1900 UJ				
62-44-2	Phenacetin	ug/kg	390 UJ				
23950-58-5	Pronamide	ug/kg	390 UJ				
122-09-8	a,a-Dimethylphenethylamine	ug/kg	1000 UJ				
2303-16-4	Diallate	ug/kg	390 UJ				
510-15-6	Chlorobenzilate	ug/kg	190 UJ				
83-32-9	Acenaphthene	ug/kg	190 UJ	190 U	1800 U	180 U	
208-96-8	Acenaphthylene	ug/kg	190 UJ	190 U	1800 U	180 U	
98-86-2	Acetophenone	ug/kg	190 UJ				
53-96-3	2-Acetylaminofluorene	ug/kg	1900 UJ				
62-53-3	Aniline	ug/kg	1000 UJ				
120-12-7	Anthracene	ug/kg	190 UJ	190 U	1800 U	20 J	
56-55-3	Benzo(a)anthracene	ug/kg	190 UJ	190 U	1800 U	54 J	
205-99-2	Benzo(b)fluoranthene	ug/kg	190 UJ	190 U	1800 U	71 J	
207-08-9	Benzo(k)fluoranthene	ug/kg	190 UJ	190 U	1800 U	36 J	
191-24-2	Benzo(ghi)perylene	ug/kg	190 UJ	190 U	1800 U	28 J	
50-32-8	Benzo(a)pyrene	ug/kg	190 UJ	190 U	1800 U	41 J	
100-51-6	Benzyl alcohol	ug/kg	770 U				
111-91-1	bis(2-Chloroethoxy)methane	ug/kg	190 UJ	190 U	1800 U	180 U	
111-44-4	bis(2-Chloroethyl) ether	ug/kg	190 UJ	190 U	1800 U	180 U	
117-81-7	bis(2-Ethylhexyl) phthalate	ug/kg	24 J	190 U	1800 U	180 U	
101-55-3	4-Bromophenyl phenyl ether	ug/kg	190 UJ	190 U	1800 U	180 U	
85-68-7	Butyl benzyl phthalate	ug/kg	190 UJ	190 U	1800 U	180 U	
106-47-8	4-Chloroaniline	ug/kg	190 UJ	190 U	1800 U	180 U	
59-50-7	4-Chloro-3-methylphenol	ug/kg	190 U	190 U	1800 U	180 U	
91-58-7	2-Chloronaphthalene	ug/kg	190 UJ	190 U	1800 U	180 U	
95-57-8	2-Chlorophenol	ug/kg	190 U	190 U	1800 U	180 U	
7005-72-3	4-Chlorophenyl phenyl ether	ug/kg	190 UJ	190 U	1800 U	180 U	
218-01-9	Chrysene	ug/kg	190 UJ	190 U	1800 U	67 J	
53-70-3	Dibenz(a,h)anthracene	ug/kg	190 UJ	190 U	1800 U	180 U	
132-64-9	Dibenzofuran	ug/kg	190 UJ	190 U	1800 U	180 U	
84-74-2	Di-n-butyl phthalate	ug/kg	190 UJ	190 U	1800 U	180 U	
91-94-1	3,3'-Dichlorobenzidine	ug/kg	1200 UJ	1200 U	11000 U	1100 U	
120-83-2	2,4-Dichlorophenol	ug/kg	190 U	190 U	1800 U	180 U	
87-65-0	2,6-Dichlorophenol	ug/kg	190 U			180 U	
84-66-2	Diethyl phthalate	ug/kg	190 UJ	190 U	1800 U	180 U	
119-93-7	3,3'-Dimethylbenzidine	ug/kg	190 UJ				
105-67-9	2,4-Dimethylphenol	ug/kg	190 U	190 U	1800 U	180 U	
131-11-3	Dimethyl phthalate	ug/kg	190 UJ	190 U	1800 U	180 U	
117-84-0	Di-n-octyl phthalate	ug/kg	190 UJ	190 U	1800 U	180 U	
99-65-0	1,3-Dinitrobenzene	ug/kg	190 UJ				
534-52-1	4,6-Dinitro-2-methylphenol	ug/kg	1000 U	990 U	9200 U	930 U	
51-28-5	2,4-Dinitrophenol	ug/kg	1000 U	990 U	9200 U	930 U	
121-14-2	2,4-Dinitrotoluene	ug/kg	190 UJ	190 U	1800 U	180 U	
606-20-2	2,6-Dinitrotoluene	ug/kg	190 UJ	190 U	1800 U	180 U	
122-39-4	Diphenylamine	ug/kg	190 UJ				
62-50-0	Ethyl methanesulfonate	ug/kg	190 UJ				
206-44-0	Fluoranthene	ug/kg	190 UJ	190 U	1800 U	130 J	
86-73-7	Fluorene	ug/kg	190 UJ	190 U	1800 U	180 U	
118-74-1	Hexachlorobenzene	ug/kg	190 UJ	190 U	1800 U	180 U	
87-68-3	Hexachlorobutadiene	ug/kg	190 UJ	190 U	1800 U	180 U	

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBSB1 16-18' A5L150192-002 QUANTERRA L15192 SOIL 12/12/95	SBSB2 04-06' A5L150193-003 QUANTERRA L15193 SOIL 12/14/95	SBSB3 16-18' A5L150193-005 QUANTERRA L15193 SOIL 12/14/95	SBSB4 06-08' A5L160125-002 QUANTERRA L16125 SOIL 12/15/95	SBSB5 04-06' 085489-0004 QUANTERRA 085489 SOIL 12/12/95
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES CONT'D						
77-47-4	Hexachlorocyclopentadiene	ug/kg	190 UJ	190 U	1800 U	180 U	
67-72-1	Hexachloroethane	ug/kg	190 UJ	190 U	1800 U	180 U	
	Hexachlorophene	ug/kg				180 U	
193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	190 UJ	190 U	1800 U	27 J	
78-59-1	Isophorone	ug/kg	190 UJ	190 U	1800 U	180 U	
120-58-1	Isosafrole	ug/kg	390 UJ				
91-80-5	Methapyrilene	ug/kg	1000 UJ				
95-53-4	o-Toluidine	ug/kg	390 UJ				
56-49-5	3-Methylcholanthrene	ug/kg	390 UJ				
66-27-3	Methyl methanesulfonate	ug/kg	190 UJ				
91-57-6	2-Methylnaphthalene	ug/kg	190 UJ	190 U	1800 U	27 J	
95-48-7	2-Methylphenol	ug/kg	190 U	190 U	1800 U	180 U	
108-39-4	3-Methylphenol	ug/kg	190 U				
106-44-5	4-Methylphenol	ug/kg	190 U	190 U	1800 U	180 U	
91-20-3	Naphthalene	ug/kg	190 UJ	190 U	1800 U	22 J	
130-15-4	1,4-Naphthoquinone	ug/kg	1000 UJ				
134-32-7	1-Naphthylamine	ug/kg	190 UJ				
91-59-8	2-Naphthylamine	ug/kg	190 UJ				
88-74-4	2-Nitroaniline	ug/kg	1000 UJ	990 U	9200 U	930 U	
99-09-2	3-Nitroaniline	ug/kg	1000 UJ	990 U	9200 U	930 U	
100-01-6	4-Nitroaniline	ug/kg	1000 UJ	990 U	9200 U	930 U	
98-95-3	Nitrobenzene	ug/kg	190 UJ	190 U	1800 U	180 U	
88-75-5	2-Nitrophenol	ug/kg	190 U	190 U	1800 U	180 U	
100-02-7	4-Nitrophenol	ug/kg	1000 U	990 U	9200 U	930 U	
56-57-5	4-Nitroquinoline-1-oxide	ug/kg	1900 UJ				
924-16-3	N-Nitrosodi-n-butylamine	ug/kg	190 UJ				
55-18-5	N-Nitrosodiethylamine	ug/kg	190 UJ				
62-75-9	N-Nitrosodimethylamine	ug/kg	190 UJ				
621-64-7	N-Nitrosodi-n-propylamine	ug/kg	190 UJ	190 U	1800 U	180 U	
86-30-6	N-Nitrosodiphenylamine	ug/kg	190 UJ	190 U	1800 U	180 U	
10595-95-6	N-Nitrosomethylethylamine	ug/kg	190 UJ				
59-89-2	N-Nitrosomorpholine	ug/kg	190 UJ				
100-75-4	N-Nitrosopiperidine	ug/kg	190 UJ				
930-55-2	N-Nitrosopyrrolidine	ug/kg	190 UJ				
608-93-5	Pentachlorobenzene	ug/kg	190 UJ				
99-55-8	5-Nitro-o-toluidine	ug/kg	390 UJ				
76-01-7	Pentachloroethane	ug/kg	190 U				
82-68-8	Pentachloronitrobenzene	ug/kg	1000 UJ				
87-86-5	Pentachlorophenol	ug/kg	2000 U	2000 U	17000 U	1900 U	
85-01-8	Phenanthrene	ug/kg	190 UJ	190 U	1200 J	120 J	
108-95-2	Phenol	ug/kg	190 U	190 U	1800 U	180 U	
106-50-3	p-Phenylene diamine	ug/kg	1900 UJ				
109-06-8	2-Picoline	ug/kg	390 UJ				
129-00-0	Pyrene	ug/kg	190 UJ	190 U	1800 U	72 J	
110-86-1	Pyridine	ug/kg	390 UJ				
94-59-7	Safrole	ug/kg	390 UJ				
95-94-3	1,2,4,5-Tetrachlorobenzene	ug/kg	190 UJ				
58-90-2	2,3,4,6-Tetrachlorophenol	ug/kg	1000 U				
120-82-1	1,2,4-Trichlorobenzene	ug/kg	190 UJ	190 U	1800 U	180 U	
95-95-4	2,4,5-Trichlorophenol	ug/kg	1000 U	990 U	3600 U	930 U	
88-06-2	2,4,6-Trichlorophenol	ug/kg	190 U	190 U	1800 U	180 U	
99-35-4	1,3,5-Trinitrobenzene	ug/kg	1000 UJ				
86-74-8	Carbazole	ug/kg	190 UJ	190 U	1800 U	180 U	
108-60-1	bis(2-Chloroisopropyl) ether	ug/kg	190 UJ	190 U	1800 U	180 U	

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBSB1 16-18' A5L150192-002 QUANTERRA L15192 SOIL 12/12/95	SBSB2 04-06' A5L150193-003 QUANTERRA L15193 SOIL 12/14/95	SBSB3 16-18' A5L150193-005 QUANTERRA L15193 SOIL 12/14/95	SBSB4 06-08' A5L160125-002 QUANTERRA L16125 SOIL 12/15/95	SBSB5 04-06' 085489-0004 QUANTERRA 085489 SOIL 12/12/95
CAS NO.	COMPOUND	UNITS:					
	PESTICIDES/PCBs						
309-00-2	Aldrin	ug/kg	12 U	12 U	11 U	22 U	
319-84-6	alpha-BHC	ug/kg	12 U	12 U	11 U	22 U	
319-85-7	beta-BHC	ug/kg	12 U	12 U	11 U	22 U	
319-86-8	delta-BHC	ug/kg	12 U	12 U	11 U	22 U	
58-89-9	gamma-BHC (Lindane)	ug/kg	12 U	12 U	11 U	22 U	
5103-71-9	alpha-Chlordane	ug/kg	5.9 U	5.8 U	5.4 U	11 U	
5103-74-2	gamma-Chlordane	ug/kg	5.9 U	5.8 U	5.4 U	11 U	
72-54-8	4,4'-DDD	ug/kg	12 U	12 U	11 U	22 U	
72-55-9	4,4'-DDE	ug/kg	12 U	12 U	11 U	22 U	
50-29-3	4,4'-DDT	ug/kg	12 U	12 U	11 U	22 U	
60-57-1	Dieldrin	ug/kg	12 U	12 U	11 U	22 U	
959-98-8	Endosulfan I	ug/kg	12 U	12 U	11 U	22 U	
33213-65-9	Endosulfan II	ug/kg	12 U	12 U	11 U	22 U	
1031-07-8	Endosulfan sulfate	ug/kg	12 U	12 U	11 U	22 U	
72-20-8	Endrin	ug/kg	12 U	12 U	11 U	22 U	
7421-93-4	Endrin aldehyde	ug/kg	12 U	12 U	11 U	22 U	
76-44-8	Heptachlor	ug/kg	12 U	12 U	11 U	22 U	
1024-57-3	Heptachlor epoxide	ug/kg	12 U	12 U	11 U	22 U	
465-73-6	Isodrin	ug/kg	3.9 U				
143-50-0	Kepone	ug/kg	39 U				
72-43-5	Methoxychlor	ug/kg	30 U	29 U	27 U	55 U	
12674-11-2	Aroclor 1016	ug/kg	190 U	190 U	180 U	360 U	
11104-28-2	Aroclor 1221	ug/kg	190 U	190 U	180 U	360 U	
11141-16-5	Aroclor 1232	ug/kg	190 U	190 U	180 U	360 U	
53469-21-9	Aroclor 1242	ug/kg	190 U	190 U	180 U	360 U	
12672-29-6	Aroclor 1248	ug/kg	190 U	190 U	180 U	360 U	
11097-69-1	Aroclor 1254	ug/kg	190 U	190 U	180 U	360 U	
11096-82-5	Aroclor 1260	ug/kg	190 U	190 U	180 U	360 U	
8001-35-2	Toxaphene	ug/kg	100 U	99 U	92 U	190 U	
53494-70-5	Endrin ketone	ug/kg		12 U	11 U	22 U	
	HERBICIDES						
57-74-9	Chlordane (technical)	ug/kg					
60-51-5	Dimethoate	ug/kg	79 U				
298-04-4	Disulfoton	ug/kg	79 U				
52-85-7	Famphur	ug/kg	79 U				
298-00-0	Methyl parathion	ug/kg	79 U				
56-38-2	Parathion	ug/kg	79 U				
298-02-2	Phorate	ug/kg	79 U				
3689-24-5	Tetraethyldithiopyrophosphate	ug/kg	79 U				
297-97-2	Thionazin	ug/kg	79 U				
126-68-1	O,O,O-Triethyl phosphorothioate	ug/kg	79 U				
94-75-7	2,4-D	ug/kg	120 U				
93-76-5	2,4,5-T	ug/kg	30 U				
88-85-7	Dinoseb	ug/kg	12 U				
93-72-1	2,4,5-TP	ug/kg	30 U				

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBSB1 16-18' A5L150192-002 QUANTERRA L15192 SOIL 12/12/95	SBSB2 04-06' A5L150193-003 QUANTERRA L15193 SOIL 12/14/95	SBSB3 16-18' A5L150193-005 QUANTERRA L15193 SOIL 12/14/95	SBSB4 06-08' A5L160125-002 QUANTERRA L16125 SOIL 12/15/95	SBSB5 04-06' 085489-0004 QUANTERRA 085489 SOIL 12/12/95
CAS NO.	COMPOUND	UNITS:					
	INORGANICS						
7440-47-3	Chromium	ug/kg	3850	78200	3800	10300	
7439-92-1	Lead	ug/kg	2100	30100	2220	711	
7440-36-0	Antimony	ug/kg	295 U	1160 U	271 U	341	
7782-49-2	Selenium	ug/kg	295 U	1160 U	271 U	274 U	
7429-90-5	Aluminum	ug/kg	1660000	10800000	2070000	6580000	
7440-39-3	Barium	ug/kg	5310	61300	5090	34800	
7440-41-7	Beryllium	ug/kg	177 U	580	163	439	
7440-70-2	Calcium	ug/kg	39700000	88600000	58400000	12100000	
7440-48-4	Cobalt	ug/kg	2950 U	6730	2710 U	3070	
7440-50-8	Copper	ug/kg	4190	14000	3300	15500	
7439-89-6	Iron	ug/kg	3360000	14800000	4400000	14200000	
7440-09-7	Potassium	ug/kg	590000 U	2690000	542000 U	551000	
7439-95-4	Magnesium	ug/kg	7890000	16500000	13200000	2130000	
7439-96-5	Manganese	ug/kg	87600	335000	117000	563000	
7440-23-5	Sodium	ug/kg	244000	277000	173000	221000	
7440-02-0	Nickel	ug/kg	4250	19500	4330	13100	
7440-62-2	Vanadium	ug/kg	6910	24700	9150	14600	
7440-66-6	Zinc	ug/kg	11500	45000	13100	5370	
7440-38-2	Arsenic	ug/kg	862	5390	878	1350	
7440-43-9	Cadmium	ug/kg	57.9	62.2	49	36.8	
7439-97-6	Mercury	ug/kg	59 U	58 U	54.2 U	54.8 U	
7440-22-4	Silver	ug/kg	295 U	290 U	271 U	274 U	
7440-28-0	Thallium	ug/kg	295 U	290 U	271 U	274 U	
7440-31-5	Tin	ug/kg	11800 U				
57-12-5	Cyanide	ug/kg	300 U	290 U	270 U	270 U	
10-31-1	Solids, Percent	%	84.7	86.2	92.3	91.17	
18496-25-8	Acid-insoluble Sulfide	MG/L					
	DIOXINS						
DIOXIN1	TCDFs(TOTAL)	PG/G					170
DIOXIN2	2,3,7,8-TCDF	PG/G					11 U
DIOXIN3	PeCDFS(TOTAL)	PG/G					210
DIOXIN4	1,2,3,7,8-PeCDF	PG/G					8.8 U
DIOXIN5	2,3,4,7,8-PeCDF	PG/G					24 U
DIOXIN6	HxCDFs(TOTAL)	PG/G					4400
DIOXIN7	1,2,3,4,7,8-HxCDF	PG/G					46 U
DIOXIN8	1,2,3,6,7,8-HxCDF	PG/G					45 U
DIOXIN9	2,3,4,6,7,8-HxCDF	PG/G					51 U
DIOXIN10	1,2,3,7,8,9-HxCDF	PG/G					11 U
DIOXIN11	HpCDFs(TOTAL)	PG/G					11000
DIOXIN12	1,2,3,4,6,7,8-HpCDF	PG/G					3100
DIOXIN13	1,2,3,4,7,8,9-HpCDF	PG/G					92
DIOXIN14	OCDF	PG/G					2600
DIOXIN15	TCDDs(TOTAL)	PG/G					670
DIOXIN16	2,3,7,8-TCDD	PG/G					11 U
DIOXIN17	PeCDDs(TOTAL)	PG/G					2500
DIOXIN18	1,2,3,7,8-PeCDD	PG/G					36 U
DIOXIN19	HxCDDs(TOTAL)	PG/G					4800
DIOXIN20	1,2,3,4,7,8-HxCDD	PG/G					19 U
DIOXIN21	1,2,3,6,7,8-HxCDD	PG/G					530
DIOXIN22	1,2,3,7,8,9-HxCDD	PG/G					230
DIOXIN23	HpCDDs(TOTAL)	PG/G					5800
DIOXIN24	1,2,3,4,6,7,8-HpCDD	PG/G					2300
DIOXIN25	OCDD	PG/G					2600
TDIOXINS	TOTAL TEFs	PG/G					136.12

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBSB5 04-06' A5L150193-001 QUANTERRA L15193 SOIL 12/12/95	SBWD1 04-06' A5L190138-001 QUANTERRA L16128 SOIL 12/18/95	SBWD1 10-12' A5L190138-002 QUANTERRA L16128 SOIL 12/18/95	SBWD1 14-16' 085576-0001 QUANTERRA 085576 SOIL 12/18/95	SBWD1 14-16' A5L190138-003 QUANTERRA L16128 SOIL 12/18/95
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	ug/kg	2200 J	54 U	14 J		30 J
95-50-1	1,2-Dichlorobenzene	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
541-73-1	1,3-Dichlorobenzene	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
106-46-7	1,4-Dichlorobenzene	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
156-59-2	cis-1,2-Dichloroethene	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
75-05-8	Acetonitrile	ug/kg	14000 U				53 U
107-02-8	Acrolein	ug/kg	14000 U				53 U
107-13-1	Acrylonitrile	ug/kg	14000 U				53 U
71-43-2	Benzene	ug/kg	720 J	5.4 U	5.6 U		5.3 U
75-27-4	Bromodichloromethane	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
75-25-2	Bromoform	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
74-83-9	Bromomethane	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
75-15-0	Carbon disulfide	ug/kg	14000 U	54 U	56 U		53 U
56-23-5	Carbon tetrachloride	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
108-90-7	Chlorobenzene	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
126-99-8	Chloroprene	ug/kg	1400 U				5.3 U
124-48-1	Dibromochloromethane	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
96-12-8	1,2-Dibromo-3-chloropropane	ug/kg	2900 U				11 U
75-00-3	Chloroethane	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
67-66-3	Chloroform	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
74-87-3	Chloromethane	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
107-05-1	Allyl chloride	ug/kg	2900 U				11 U
74-95-3	Dibromomethane	ug/kg	1400 U				5.3 U
110-57-6	trans-1,4-Dichloro-2-butene	ug/kg	1400 U				5.3 U
75-71-8	Dichlorodifluoromethane	ug/kg	1400 U				5.3 U
75-34-3	1,1-Dichloroethane	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
107-06-2	1,2-Dichloroethane	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
75-35-4	1,1-Dichloroethene	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
156-60-5	trans-1,2-Dichloroethene	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
78-87-5	1,2-Dichloropropane	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
10061-01-5	cis-1,3-Dichloropropene	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
10061-02-6	trans-1,3-Dichloropropene	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
123-91-1	1,4-Dioxane	ug/kg	140000 U				530 U
100-41-4	Ethylbenzene	ug/kg	25000	5.4 U	5.6 U		5.3 U
97-63-2	Ethyl methacrylate	ug/kg	1400 U				5.3 U
75-69-4	Trichlorofluoromethane	ug/kg	1400 U				5.3 U
591-78-6	2-Hexanone	ug/kg	14000 U	54 U	56 U		53 U
74-88-4	Iodomethane	ug/kg	1400 U				5.3 U
78-83-1	Isobutyl alcohol	ug/kg	630000 U				2300 U
126-98-7	Methacrylonitrile	ug/kg	5700 U				21 U
75-09-2	Methylene chloride	ug/kg	1400 U	5.4 U	5.6 U		2.4 J
80-62-6	Methyl methacrylate	ug/kg	1400 U				5.3 U
107-12-0	Propionitrile	ug/kg	5700 U				21 U
100-42-5	Styrene	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
630-20-6	1,1,1,2-Tetrachloroethane	ug/kg	1400 U				5.3 U
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
127-18-4	Tetrachloroethene	ug/kg	1400 U	2.5 J	2.3 J		3 J
108-88-3	Toluene	ug/kg	34000	5.4 U	5.6 U		5.3 U
71-55-6	1,1,1-Trichloroethane	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
79-00-5	1,1,2-Trichloroethane	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
79-01-6	Trichloroethene	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
96-18-4	1,2,3-Trichloropropane	ug/kg	1400 U				5.3 U
108-05-4	Vinyl acetate	ug/kg	14000 U				53 U
75-01-4	Vinyl chloride	ug/kg	1400 U	5.4 U	5.6 U		5.3 U
1330-20-7	Xylenes (total)	ug/kg	150000	16 U	17 U		16 U
106-93-4	1,2-Dibromoethane (EDB)	ug/kg	1400 U				5.3 U
78-93-3	2-Butanone (MEK)	ug/kg	1600 J	54 U	2.5 J		5.5 J
108-10-1	4-Methyl-2-pentanone (MIBK)	ug/kg	14000 U	54 U	56 U		53 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBSB5 04-06' A5L150193-001 QUANTERRA L15193 SOIL 12/12/95	SBWD1 04-06' A5L190138-001 QUANTERRA L16128 SOIL 12/18/95	SBWD1 10-12' A5L190138-002 QUANTERRA L16128 SOIL 12/18/95	SBWD1 14-16' 085576-0001 QUANTERRA 085576 SOIL 12/18/95	SBWD1 14-16' A5L190138-003 QUANTERRA L16128 SOIL 12/18/95
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
92-67-1	4-Aminobiphenyl	ug/kg	160000 U				900 U
60-11-7	p-Dimethylaminoazobenzene	ug/kg	61000 U				350 U
57-97-6	7,12-Dimethylbenz(a)anthracene	ug/kg	61000 U				350 U
1888-71-7	Hexachloropropene	ug/kg	300000 U				1700 U
62-44-2	Phenacetin	ug/kg	61000 U				350 U
23950-58-5	Pronamide	ug/kg	61000 U				350 U
122-09-8	a,a-Dimethylphenethylamine	ug/kg	160000 U				900 U
2303-16-4	Diallate	ug/kg	61000 U				350 U
510-15-6	Chlorobenzilate	ug/kg	30000 U				170 U
83-32-9	Acenaphthene	ug/kg	30000 U				170 U
208-96-8	Acenaphthylene	ug/kg	30000 U				170 U
98-86-2	Acetophenone	ug/kg	30000 U				170 U
53-96-3	2-Acetylaminofluorene	ug/kg	300000 U				1700 U
62-53-3	Aniline	ug/kg	61000 U				900 U
120-12-7	Anthracene	ug/kg	30000 U				170 U
56-55-3	Benzo(a)anthracene	ug/kg	30000 U				120 J
205-99-2	Benzo(b)fluoranthene	ug/kg	30000 U				210
207-08-9	Benzo(k)fluoranthene	ug/kg	30000 U				170 U
191-24-2	Benzo(ghi)perylene	ug/kg	30000 U				42 J
50-32-8	Benzo(a)pyrene	ug/kg	30000 U				120 J
100-51-6	Benzyl alcohol	ug/kg	61000 U				690 U
111-91-1	bis(2-Chloroethoxy)methane	ug/kg	30000 U				170 U
111-44-4	bis(2-Chloroethyl) ether	ug/kg	30000 U				170 U
117-81-7	bis(2-Ethylhexyl) phthalate	ug/kg	30000 U				170 U
101-55-3	4-Bromophenyl phenyl ether	ug/kg	30000 U				170 U
85-68-7	Butyl benzyl phthalate	ug/kg	30000 U				170 U
106-47-8	4-Chloroaniline	ug/kg	30000 U				170 U
59-50-7	4-Chloro-3-methylphenol	ug/kg	30000 U				170 U
91-58-7	2-Chloronaphthalene	ug/kg	30000 U				170 U
95-57-8	2-Chlorophenol	ug/kg	30000 U				170 U
7005-72-3	4-Chlorophenyl phenyl ether	ug/kg	30000 U				170 U
218-01-9	Chrysene	ug/kg	30000 U				110 J
53-70-3	Dibenz(a,h)anthracene	ug/kg	30000 U				18 J
132-64-9	Dibenzofuran	ug/kg	30000 U				170 U
84-74-2	Di-n-butyl phthalate	ug/kg	480000				170 U
91-94-1	3,3'-Dichlorobenzidine	ug/kg	180000 U				1100 U
120-83-2	2,4-Dichlorophenol	ug/kg	30000 U				170 U
87-65-0	2,6-Dichlorophenol	ug/kg	30000 U				170 U
84-66-2	Diethyl phthalate	ug/kg	30000 U				170 U
119-93-7	3,3'-Dimethylbenzidine	ug/kg	30000 U				170 U
105-67-9	2,4-Dimethylphenol	ug/kg	30000 U				170 U
131-11-3	Dimethyl phthalate	ug/kg	30000 U				170 U
117-84-0	Di-n-octyl phthalate	ug/kg	30000 U				170 U
99-65-0	1,3-Dinitrobenzene	ug/kg	30000 U				170 U
534-52-1	4,6-Dinitro-2-methylphenol	ug/kg	160000 U				900 U
51-28-5	2,4-Dinitrophenol	ug/kg	160000 U				900 U
121-14-2	2,4-Dinitrotoluene	ug/kg	30000 U				170 U
606-20-2	2,6-Dinitrotoluene	ug/kg	30000 U				170 U
122-39-4	Diphenylamine	ug/kg	30000 U				170 U
62-50-0	Ethyl methanesulfonate	ug/kg	30000 U				170 U
206-44-0	Fluoranthene	ug/kg	30000 U				170 U
86-73-7	Fluorene	ug/kg	30000 U				170 U
118-74-1	Hexachlorobenzene	ug/kg	30000 U				170 U
87-68-3	Hexachlorobutadiene	ug/kg	30000 U				170 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBSB5 04-06' A5L150193-001 QUANTERRA L15193 SOIL 12/12/95	SBWD1 04-06' A5L190138-001 QUANTERRA L16128 SOIL 12/18/95	SBWD1 10-12' A5L190138-002 QUANTERRA L16128 SOIL 12/18/95	SBWD1 14-16' 085576-0001 QUANTERRA 085576 SOIL 12/18/95	SBWD1 14-16' A5L190138-003 QUANTERRA L16128 SOIL 12/18/95
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES CONT'D						
77-47-4	Hexachlorocyclopentadiene	ug/kg	30000 U				170 U
67-72-1	Hexachloroethane	ug/kg	30000 U				170 U
	Hexachlorophene	ug/kg					
193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	30000 U				43 J
78-59-1	Isophorone	ug/kg	30000 U				170 U
120-58-1	Isosafrole	ug/kg	61000 U				350 U
91-80-5	Methapyrilene	ug/kg	160000 U				900 U
95-53-4	o-Toluidine	ug/kg	61000 U				350 U
56-49-5	3-Methylcholanthrene	ug/kg	61000 U				350 U
66-27-3	Methyl methanesulfonate	ug/kg	30000 U				170 U
91-57-6	2-Methylnaphthalene	ug/kg	55000				320
95-48-7	2-Methylphenol	ug/kg	30000 U				34 J
108-39-4	3-Methylphenol	ug/kg	30000 U				54 J
106-44-5	4-Methylphenol	ug/kg	30000 U				54 J
91-20-3	Naphthalene	ug/kg	19000 J				170 U
130-15-4	1,4-Naphthoquinone	ug/kg	160000 U				900 U
134-32-7	1-Naphthylamine	ug/kg	30000 U				170 U
91-59-8	2-Naphthylamine	ug/kg	30000 U				170 U
88-74-4	2-Nitroaniline	ug/kg	160000 U				900 U
99-09-2	3-Nitroaniline	ug/kg	160000 U				900 U
100-01-6	4-Nitroaniline	ug/kg	160000 U				900 U
98-95-3	Nitrobenzene	ug/kg	30000 U				170 U
88-75-5	2-Nitrophenol	ug/kg	30000 U				170 U
100-02-7	4-Nitrophenol	ug/kg	160000 U				900 U
56-57-5	4-Nitroquinoline-1-oxide	ug/kg	300000 U				1700 U
924-16-3	N-Nitrosodi-n-butylamine	ug/kg	30000 U				170 U
55-18-5	N-Nitrosodiethylamine	ug/kg	30000 U				170 U
62-75-9	N-Nitrosodimethylamine	ug/kg	30000 U				170 U
621-64-7	N-Nitrosodi-n-propylamine	ug/kg	30000 U				170 U
86-30-6	N-Nitrosodiphenylamine	ug/kg	30000 U				170 U
10595-95-6	N-Nitrosomethylethylamine	ug/kg	30000 U				170 U
59-89-2	N-Nitrosomorpholine	ug/kg	30000 U				170 U
100-75-4	N-Nitrosopiperidine	ug/kg	30000 U				170 U
930-55-2	N-Nitrosopyrrolidine	ug/kg	30000 U				170 U
608-93-5	Pentachlorobenzene	ug/kg	30000 U				170 U
99-55-8	5-Nitro-o-toluidine	ug/kg	61000 U				350 U
76-01-7	Pentachloroethane	ug/kg	30000 U				170 U
82-68-8	Pentachloronitrobenzene	ug/kg	160000 U				900 U
87-86-5	Pentachlorophenol	ug/kg	290000 U				1800 U
85-01-8	Phenanthrene	ug/kg	11000 J				170 U
108-95-2	Phenol	ug/kg	30000 U				170 U
106-50-3	p-Phenylene diamine	ug/kg	300000 U				1700 U
109-06-8	2-Picoline	ug/kg	61000 U				350 U
129-00-0	Pyrene	ug/kg	30000 U				170 U
110-86-1	Pyridine	ug/kg	61000 U				350 U
94-59-7	Safrole	ug/kg	61000 U				350 U
95-94-3	1,2,4,5-Tetrachlorobenzene	ug/kg	30000 U				170 U
58-90-2	2,3,4,6-Tetrachlorophenol	ug/kg	160000 U				900 U
120-82-1	1,2,4-Trichlorobenzene	ug/kg	30000 U				170 U
95-95-4	2,4,5-Trichlorophenol	ug/kg	61000 U				900 U
88-06-2	2,4,6-Trichlorophenol	ug/kg	30000 U				170 U
99-35-4	1,3,5-Trinitrobenzene	ug/kg	160000 U				900 U
86-74-8	Carbazole	ug/kg	30000 U				170 U
108-60-1	bis(2-Chloroisopropyl) ether	ug/kg	30000 U				170 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBSB5 04-06' A5L150193-001 QUANTERRA L15193 SOIL 12/12/95	SBWD1 04-06' A5L190138-001 QUANTERRA L16128 SOIL 12/18/95	SBWD1 10-12' A5L190138-002 QUANTERRA L16128 SOIL 12/18/95	SBWD1 14-16' 085576-0001 QUANTERRA 085576 SOIL 12/18/95	SBWD1 14-16' A5L190138-003 QUANTERRA L16128 SOIL 12/18/95
CAS NO.	COMPOUND	UNITS:					
	PESTICIDES/PCBs						
309-00-2	Aldrin	ug/kg	190 U				11 U
319-84-6	alpha-BHC	ug/kg	190 U				11 U
319-85-7	beta-BHC	ug/kg	190 U				11 U
319-86-8	delta-BHC	ug/kg	190 U				11 U
58-89-9	gamma-BHC (Lindane)	ug/kg	190 U				11 U
5103-71-9	alpha-Chlordane	ug/kg	190 U				5.3 U
5103-74-2	gamma-Chlordane	ug/kg	190 U				5.3 U
72-54-8	4,4'-DDD	ug/kg	380 U				11 U
72-55-9	4,4'-DDE	ug/kg	380 U				11 U
50-29-3	4,4'-DDT	ug/kg	380 U				11 U
60-57-1	Dieldrin	ug/kg	380 U				11 U
959-98-8	Endosulfan I	ug/kg	190 U				11 U
33213-65-9	Endosulfan II	ug/kg	380 U				11 U
1031-07-8	Endosulfan sulfate	ug/kg	380 U				11 U
72-20-8	Endrin	ug/kg	380 U				11 U
7421-93-4	Endrin aldehyde	ug/kg	380 U				11 U
76-44-8	Heptachlor	ug/kg	190 U				11 U
1024-57-3	Heptachlor epoxide	ug/kg	190 U				11 U
465-73-6	Isodrin	ug/kg	190 U				3.5 U
143-50-0	Kepone	ug/kg	3100 U				35 U
72-43-5	Methoxychlor	ug/kg	1900 U				27 U
12674-11-2	Aroclor 1016	ug/kg	1900 U				170 U
11104-28-2	Aroclor 1221	ug/kg	1900 U				170 U
11141-16-5	Aroclor 1232	ug/kg	1900 U				170 U
53469-21-9	Aroclor 1242	ug/kg	1900 U				170 U
12672-29-6	Aroclor 1248	ug/kg	1900 U				170 U
11097-69-1	Aroclor 1254	ug/kg	3800 U				170 U
11096-82-5	Aroclor 1260	ug/kg	3800 U				170 U
8001-35-2	Toxaphene	ug/kg	9600 U				90 U
53494-70-5	Endrin ketone	ug/kg					11 U
	HERBICIDES						
57-74-9	Chlordane (technical)	ug/kg					
60-51-5	Dimethoate	ug/kg	23000 U				1400 U
298-04-4	Disulfoton	ug/kg	23000 U				1400 U
52-85-7	Famphur	ug/kg	23000 U				1400 U
298-00-0	Methyl parathion	ug/kg	23000 U				1400 U
56-38-2	Parathion	ug/kg	23000 U				1400 U
298-02-2	Phorate	ug/kg	23000 U				1400 U
3689-24-5	Tetraethyldithiopyrophosphate	ug/kg	23000 U				1400 U
297-97-2	Thionazin	ug/kg	23000 U				1400 U
126-68-1	O,O,O-Triethyl phosphorothioate	ug/kg	23000 U				1400 U
94-75-7	2,4-D	ug/kg	170 U*				110 U
93-76-5	2,4,5-T	ug/kg	57 U*				270 U
88-85-7	Dinoseb	ug/kg	57 U*				11 U
93-72-1	2,4,5-TP	ug/kg	29 U				27 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBSB5 04-06' A5L150193-001 QUANTERRA L15193 SOIL 12/12/95	SBWD1 04-06' A5L190138-001 QUANTERRA L16128 SOIL 12/18/95	SBWD1 10-12' A5L190138-002 QUANTERRA L16128 SOIL 12/18/95	SBWD1 14-16' 085576-0001 QUANTERRA 085576 SOIL 12/18/95	SBWD1 14-16' A5L190138-003 QUANTERRA L16128 SOIL 12/18/95
CAS NO.	COMPOUND	UNITS:					
	INORGANICS						
7440-47-3	Chromium	ug/kg	1020000				20300 J
7439-92-1	Lead	ug/kg	573000				8190
7440-36-0	Antimony	ug/kg	1740000				444 J
7782-49-2	Selenium	ug/kg	7670				316 J
7429-90-5	Aluminum	ug/kg	3910000				3600000
7440-39-3	Barium	ug/kg	1200000				26100
7440-41-7	Beryllium	ug/kg	1720 U				318 U
7440-70-2	Calcium	ug/kg	13200000				9980000 J
7440-48-4	Cobalt	ug/kg	34600				2650 U
7440-50-8	Copper	ug/kg	729000				9220
7439-89-6	Iron	ug/kg	3.76E+08				6280000
7440-09-7	Potassium	ug/kg	574000 U				530000 U
7439-95-4	Magnesium	ug/kg	975000				749000
7439-96-5	Manganese	ug/kg	3510000				936000
7440-23-5	Sodium	ug/kg	434000				546000
7440-02-0	Nickel	ug/kg	354000				7050
7440-62-2	Vanadium	ug/kg	61400				5100
7440-66-6	Zinc	ug/kg	932000				17300 J
7440-38-2	Arsenic	ug/kg	35700				1890
7440-43-9	Cadmium	ug/kg	5180				69.4
7439-97-6	Mercury	ug/kg	2230				53 U
7440-22-4	Silver	ug/kg	287 U				265 U
7440-28-0	Thallium	ug/kg	287 UJ				265 U
7440-31-5	Tin	ug/kg	51300				
57-12-5	Cyanide	ug/kg	4100				270 U
10-31-1	Solids, Percent	%	87.16	93.1	89.8		94.3
18496-25-8	Acid-insoluble Sulfide	MG/L					
	DIOXINS						
DIOXIN1	TCDFs(TOTAL)	PG/G				12	
DIOXIN2	2,3,7,8-TCDF	PG/G				1 U	
DIOXIN3	PeCDFS(TOTAL)	PG/G				4.4 U	
DIOXIN4	1,2,3,7,8-PeCDF	PG/G				0.51 U	
DIOXIN5	2,3,4,7,8-PeCDF	PG/G				1.1 U	
DIOXIN6	HxCDFs(TOTAL)	PG/G				480	
DIOXIN7	1,2,3,4,7,8-HxCDF	PG/G				6.5	
DIOXIN8	1,2,3,6,7,8-HxCDF	PG/G				4.9 U	
DIOXIN9	2,3,4,6,7,8-HxCDF	PG/G				8.9	
DIOXIN10	1,2,3,7,8,9-HxCDF	PG/G				0.41 U	
DIOXIN11	HpCDFs(TOTAL)	PG/G				2400	
DIOXIN12	1,2,3,4,6,7,8-HpCDF	PG/G				720	
DIOXIN13	1,2,3,4,7,8,9-HpCDF	PG/G				22	
DIOXIN14	OCDF	PG/G				840	
DIOXIN15	TCDDs(TOTAL)	PG/G				0.51 U	
DIOXIN16	2,3,7,8-TCDD	PG/G				0.28 U	
DIOXIN17	PeCDDs(TOTAL)	PG/G				1.7 U	
DIOXIN18	1,2,3,7,8-PeCDD	PG/G				0.3 U	
DIOXIN19	HxCDDs(TOTAL)	PG/G				39	
DIOXIN20	1,2,3,4,7,8-HxCDD	PG/G				0.82 U	
DIOXIN21	1,2,3,6,7,8-HxCDD	PG/G				14	
DIOXIN22	1,2,3,7,8,9-HxCDD	PG/G				1.2 U	
DIOXIN23	HpCDDs(TOTAL)	PG/G				260	
DIOXIN24	1,2,3,4,6,7,8-HpCDD	PG/G				210	
DIOXIN25	OCDD	PG/G				180	
TDIOXINS	TOTAL TEFs	PG/G				13.48	

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD1 20-22' A5L190138-004 QUANTERRA L16128 SOIL 12/18/95	SBWD1 24-26' A5L190138-005 QUANTERRA L16128 SOIL 12/18/95	SBWD1 30-32' A5L190138-006 QUANTERRA L16128 SOIL 12/18/95	SBWD1 34-36' A5L190138-007 QUANTERRA L16128 SOIL 12/18/95	SBWD2 04-06' A5L190138-008 QUANTERRA L16128 SOIL 12/18/95
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	ug/kg	51 J	14 J	8.9 J	9.1 J	11 J
95-50-1	1,2-Dichlorobenzene	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
541-73-1	1,3-Dichlorobenzene	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
106-46-7	1,4-Dichlorobenzene	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
156-59-2	cis-1,2-Dichloroethene	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
75-05-8	Acetonitrile	ug/kg					
107-02-8	Acrolein	ug/kg					
107-13-1	Acrylonitrile	ug/kg					
71-43-2	Benzene	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
75-27-4	Bromodichloromethane	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
75-25-2	Bromoform	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
74-83-9	Bromomethane	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
75-15-0	Carbon disulfide	ug/kg	61 U	55 U	56 U	55 U	54 U
56-23-5	Carbon tetrachloride	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
108-90-7	Chlorobenzene	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
126-99-8	Chloroprene	ug/kg					
124-48-1	Dibromochloromethane	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
96-12-8	1,2-Dibromo-3-chloropropane	ug/kg					
75-00-3	Chloroethane	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
67-66-3	Chloroform	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
74-87-3	Chloromethane	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
107-05-1	Allyl chloride	ug/kg					
74-95-3	Dibromomethane	ug/kg					
110-57-6	trans-1,4-Dichloro-2-butene	ug/kg					
75-71-8	Dichlorodifluoromethane	ug/kg					
75-34-3	1,1-Dichloroethane	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
107-06-2	1,2-Dichloroethane	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
75-35-4	1,1-Dichloroethene	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
156-60-5	trans-1,2-Dichloroethene	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
78-87-5	1,2-Dichloropropane	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
10061-01-5	cis-1,3-Dichloropropene	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
10061-02-6	trans-1,3-Dichloropropene	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
123-91-1	1,4-Dioxane	ug/kg					
100-41-4	Ethylbenzene	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
97-63-2	Ethyl methacrylate	ug/kg					
75-69-4	Trichlorofluoromethane	ug/kg					
591-78-6	2-Hexanone	ug/kg	61 U	55 U	56 U	55 U	54 U
74-88-4	Iodomethane	ug/kg					
78-83-1	Isobutyl alcohol	ug/kg					
126-98-7	Methacrylonitrile	ug/kg					
75-09-2	Methylene chloride	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
80-62-6	Methyl methacrylate	ug/kg					
107-12-0	Propionitrile	ug/kg					
100-42-5	Styrene	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
630-20-6	1,1,1,2-Tetrachloroethane	ug/kg					
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
127-18-4	Tetrachloroethene	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
108-88-3	Toluene	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
71-55-6	1,1,1-Trichloroethane	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
79-00-5	1,1,2-Trichloroethane	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
79-01-6	Trichloroethene	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
96-18-4	1,2,3-Trichloropropane	ug/kg					
108-05-4	Vinyl acetate	ug/kg					
75-01-4	Vinyl chloride	ug/kg	6.1 U	5.5 U	5.6 U	5.5 U	5.4 U
1330-20-7	Xylenes (total)	ug/kg	18 U	17 U	17 U	16 U	16 U
106-93-4	1,2-Dibromoethane (EDB)	ug/kg					
78-93-3	2-Butanone (MEK)	ug/kg	10 J	55 U	56 U	55 U	2.2 J
108-10-1	4-Methyl-2-pentanone (MIBK)	ug/kg	61 U	55 U	56 U	55 U	54 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD1 20-22' A5L190138-004 QUANTERRA L16128 SOIL 12/18/95	SBWD1 24-26' A5L190138-005 QUANTERRA L16128 SOIL 12/18/95	SBWD1 30-32' A5L190138-006 QUANTERRA L16128 SOIL 12/18/95	SBWD1 34-36' A5L190138-007 QUANTERRA L16128 SOIL 12/18/95	SBWD2 04-06' A5L190138-008 QUANTERRA L16128 SOIL 12/18/95
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
92-67-1	4-Aminobiphenyl	ug/kg					
60-11-7	p-Dimethylaminoazobenzene	ug/kg					
57-97-6	7,12-Dimethylbenz(a)anthracene	ug/kg					
1888-71-7	Hexachloropropene	ug/kg					
62-44-2	Phenacetin	ug/kg					
23950-58-5	Pronamide	ug/kg					
122-09-8	a,a-Dimethylphenethylamine	ug/kg					
2303-16-4	Diallate	ug/kg					
510-15-6	Chlorobenzilate	ug/kg					
83-32-9	Acenaphthene	ug/kg					
208-96-8	Acenaphthylene	ug/kg					
98-86-2	Acetophenone	ug/kg					
53-96-3	2-Acetylaminofluorene	ug/kg					
62-53-3	Aniline	ug/kg					
120-12-7	Anthracene	ug/kg					
56-55-3	Benzo(a)anthracene	ug/kg					
205-99-2	Benzo(b)fluoranthene	ug/kg					
207-08-9	Benzo(k)fluoranthene	ug/kg					
191-24-2	Benzo(ghi)perylene	ug/kg					
50-32-8	Benzo(a)pyrene	ug/kg					
100-51-6	Benzyl alcohol	ug/kg					
111-91-1	bis(2-Chloroethoxy)methane	ug/kg					
111-44-4	bis(2-Chloroethyl) ether	ug/kg					
117-81-7	bis(2-Ethylhexyl) phthalate	ug/kg					
101-55-3	4-Bromophenyl phenyl ether	ug/kg					
85-68-7	Butyl benzyl phthalate	ug/kg					
106-47-8	4-Chloroaniline	ug/kg					
59-50-7	4-Chloro-3-methylphenol	ug/kg					
91-58-7	2-Chloronaphthalene	ug/kg					
95-57-8	2-Chlorophenol	ug/kg					
7005-72-3	4-Chlorophenyl phenyl ether	ug/kg					
218-01-9	Chrysene	ug/kg					
53-70-3	Dibenz(a,h)anthracene	ug/kg					
132-64-9	Dibenzofuran	ug/kg					
84-74-2	Di-n-butyl phthalate	ug/kg					
91-94-1	3,3'-Dichlorobenzidine	ug/kg					
120-83-2	2,4-Dichlorophenol	ug/kg					
87-65-0	2,6-Dichlorophenol	ug/kg					
84-66-2	Diethyl phthalate	ug/kg					
119-93-7	3,3'-Dimethylbenzidine	ug/kg					
105-67-9	2,4-Dimethylphenol	ug/kg					
131-11-3	Dimethyl phthalate	ug/kg					
117-84-0	Di-n-octyl phthalate	ug/kg					
99-65-0	1,3-Dinitrobenzene	ug/kg					
534-52-1	4,6-Dinitro-2-methylphenol	ug/kg					
51-28-5	2,4-Dinitrophenol	ug/kg					
121-14-2	2,4-Dinitrotoluene	ug/kg					
606-20-2	2,6-Dinitrotoluene	ug/kg					
122-39-4	Diphenylamine	ug/kg					
62-50-0	Ethyl methanesulfonate	ug/kg					
206-44-0	Fluoranthene	ug/kg					
86-73-7	Fluorene	ug/kg					
118-74-1	Hexachlorobenzene	ug/kg					
87-68-3	Hexachlorobutadiene	ug/kg					

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD1 20-22' A5L190138-004 QUANTERRA L16128 SOIL 12/18/95	SBWD1 24-26' A5L190138-005 QUANTERRA L16128 SOIL 12/18/95	SBWD1 30-32' A5L190138-006 QUANTERRA L16128 SOIL 12/18/95	SBWD1 34-36' A5L190138-007 QUANTERRA L16128 SOIL 12/18/95	SBWD2 04-06' A5L190138-008 QUANTERRA L16128 SOIL 12/18/95
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES CONT'D						
77-47-4	Hexachlorocyclopentadiene	ug/kg					
67-72-1	Hexachloroethane	ug/kg					
	Hexachlorophene	ug/kg					
193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg					
78-59-1	Isophorone	ug/kg					
120-58-1	Isosafrole	ug/kg					
91-80-5	Methapyrilene	ug/kg					
95-53-4	o-Toluidine	ug/kg					
56-49-5	3-Methylcholanthrene	ug/kg					
66-27-3	Methyl methanesulfonate	ug/kg					
91-57-6	2-Methylnaphthalene	ug/kg					
95-48-7	2-Methylphenol	ug/kg					
108-39-4	3-Methylphenol	ug/kg					
106-44-5	4-Methylphenol	ug/kg					
91-20-3	Naphthalene	ug/kg					
130-15-4	1,4-Naphthoquinone	ug/kg					
134-32-7	1-Naphthylamine	ug/kg					
91-59-8	2-Naphthylamine	ug/kg					
88-74-4	2-Nitroaniline	ug/kg					
99-09-2	3-Nitroaniline	ug/kg					
100-01-6	4-Nitroaniline	ug/kg					
98-95-3	Nitrobenzene	ug/kg					
88-75-5	2-Nitrophenol	ug/kg					
100-02-7	4-Nitrophenol	ug/kg					
56-57-5	4-Nitroquinoline-1-oxide	ug/kg					
924-16-3	N-Nitrosodi-n-butylamine	ug/kg					
55-18-5	N-Nitrosodiethylamine	ug/kg					
62-75-9	N-Nitrosodimethylamine	ug/kg					
621-64-7	N-Nitrosodi-n-propylamine	ug/kg					
86-30-6	N-Nitrosodiphenylamine	ug/kg					
10595-95-6	N-Nitrosomethylethylamine	ug/kg					
59-89-2	N-Nitrosomorpholine	ug/kg					
100-75-4	N-Nitrosopiperidine	ug/kg					
930-55-2	N-Nitrosopyrrolidine	ug/kg					
608-93-5	Pentachlorobenzene	ug/kg					
99-55-8	5-Nitro-o-toluidine	ug/kg					
76-01-7	Pentachloroethane	ug/kg					
82-68-8	Pentachloronitrobenzene	ug/kg					
87-86-5	Pentachlorophenol	ug/kg					
85-01-8	Phenanthrene	ug/kg					
108-95-2	Phenol	ug/kg					
106-50-3	p-Phenylene diamine	ug/kg					
109-06-8	2-Picoline	ug/kg					
129-00-0	Pyrene	ug/kg					
110-86-1	Pyridine	ug/kg					
94-59-7	Safrole	ug/kg					
95-94-3	1,2,4,5-Tetrachlorobenzene	ug/kg					
58-90-2	2,3,4,6-Tetrachlorophenol	ug/kg					
120-82-1	1,2,4-Trichlorobenzene	ug/kg					
95-95-4	2,4,5-Trichlorophenol	ug/kg					
88-06-2	2,4,6-Trichlorophenol	ug/kg					
99-35-4	1,3,5-Trinitrobenzene	ug/kg					
86-74-8	Carbazole	ug/kg					
108-60-1	bis(2-Chloroisopropyl) ether	ug/kg					

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID:	SBWD1	SBWD1	SBWD1	SBWD1	SBWD2
		DEPTH:	20-22'	24-26'	30-32'	34-36'	04-06'
		LAB ID:	A5L190138-004	A5L190138-005	A5L190138-006	A5L190138-007	A5L190138-008
		SOURCE:	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA
		SDG:	L16128	L16128	L16128	L16128	L16128
		MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL
		SAMPLED:	12/18/95	12/18/95	12/18/95	12/18/95	12/18/95
CAS NO.	COMPOUND	UNITS:					
	PESTICIDES/PCBs						
309-00-2	Aldrin	ug/kg					
319-84-6	alpha-BHC	ug/kg					
319-85-7	beta-BHC	ug/kg					
319-86-8	delta-BHC	ug/kg					
58-89-9	gamma-BHC (Lindane)	ug/kg					
5103-71-9	alpha-Chlordane	ug/kg					
5103-74-2	gamma-Chlordane	ug/kg					
72-54-8	4,4'-DDD	ug/kg					
72-55-9	4,4'-DDE	ug/kg					
50-29-3	4,4'-DDT	ug/kg					
60-57-1	Dieldrin	ug/kg					
959-98-8	Endosulfan I	ug/kg					
33213-65-9	Endosulfan II	ug/kg					
1031-07-8	Endosulfan sulfate	ug/kg					
72-20-8	Endrin	ug/kg					
7421-93-4	Endrin aldehyde	ug/kg					
76-44-8	Heptachlor	ug/kg					
1024-57-3	Heptachlor epoxide	ug/kg					
465-73-6	Isodrin	ug/kg					
143-50-0	Kepone	ug/kg					
72-43-5	Methoxychlor	ug/kg					
12674-11-2	Aroclor 1016	ug/kg					
11104-28-2	Aroclor 1221	ug/kg					
11141-16-5	Aroclor 1232	ug/kg					
53469-21-9	Aroclor 1242	ug/kg					
12672-29-6	Aroclor 1248	ug/kg					
11097-69-1	Aroclor 1254	ug/kg					
11096-82-5	Aroclor 1260	ug/kg					
8001-35-2	Toxaphene	ug/kg					
53494-70-5	Endrin ketone	ug/kg					
	HERBICIDES						
57-74-9	Chlordane (technical)	ug/kg					
60-51-5	Dimethoate	ug/kg					
298-04-4	Disulfoton	ug/kg					
52-85-7	Famphur	ug/kg					
298-00-0	Methyl parathion	ug/kg					
56-38-2	Parathion	ug/kg					
298-02-2	Phorate	ug/kg					
3689-24-5	Tetraethyldithiopyrophosphate	ug/kg					
297-97-2	Thionazin	ug/kg					
126-68-1	O,O,O-Triethyl phosphorothioate	ug/kg					
94-75-7	2,4-D	ug/kg					
93-76-5	2,4,5-T	ug/kg					
88-85-7	Dinoseb	ug/kg					
93-72-1	2,4,5-TP	ug/kg					

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD1 20-22' A5L190138-004 QUANTERRA L16128 SOIL 12/18/95	SBWD1 24-26' A5L190138-005 QUANTERRA L16128 SOIL 12/18/95	SBWD1 30-32' A5L190138-006 QUANTERRA L16128 SOIL 12/18/95	SBWD1 34-36' A5L190138-007 QUANTERRA L16128 SOIL 12/18/95	SBWD2 04-06' A5L190138-008 QUANTERRA L16128 SOIL 12/18/95
CAS NO.	COMPOUND	UNITS:					
	INORGANICS						
7440-47-3	Chromium	ug/kg					
7439-92-1	Lead	ug/kg					
7440-36-0	Antimony	ug/kg					
7782-49-2	Selenium	ug/kg					
7429-90-5	Aluminum	ug/kg					
7440-39-3	Barium	ug/kg					
7440-41-7	Beryllium	ug/kg					
7440-70-2	Calcium	ug/kg					
7440-48-4	Cobalt	ug/kg					
7440-50-8	Copper	ug/kg					
7439-89-6	Iron	ug/kg					
7440-09-7	Potassium	ug/kg					
7439-95-4	Magnesium	ug/kg					
7439-96-5	Manganese	ug/kg					
7440-23-5	Sodium	ug/kg					
7440-02-0	Nickel	ug/kg					
7440-62-2	Vanadium	ug/kg					
7440-66-6	Zinc	ug/kg					
7440-38-2	Arsenic	ug/kg					
7440-43-9	Cadmium	ug/kg					
7439-97-6	Mercury	ug/kg					
7440-22-4	Silver	ug/kg					
7440-28-0	Thallium	ug/kg					
7440-31-5	Tin	ug/kg					
57-12-5	Cyanide	ug/kg					
10-31-1	Solids, Percent	%	81.8	90.5	89.7	91.3	93.2
18496-25-8	Acid-insoluble Sulfide	MG/L					
	DIOXINS						
DIOXIN1	TCDFs(TOTAL)	PG/G					
DIOXIN2	2,3,7,8-TCDF	PG/G					
DIOXIN3	PeCDFS(TOTAL)	PG/G					
DIOXIN4	1,2,3,7,8-PeCDF	PG/G					
DIOXIN5	2,3,4,7,8-PeCDF	PG/G					
DIOXIN6	HxCDFs(TOTAL)	PG/G					
DIOXIN7	1,2,3,4,7,8-HxCDF	PG/G					
DIOXIN8	1,2,3,6,7,8-HxCDF	PG/G					
DIOXIN9	2,3,4,6,7,8-HxCDF	PG/G					
DIOXIN10	1,2,3,7,8,9-HxCDF	PG/G					
DIOXIN11	HpCDFs(TOTAL)	PG/G					
DIOXIN12	1,2,3,4,6,7,8-HpCDF	PG/G					
DIOXIN13	1,2,3,4,7,8,9-HpCDF	PG/G					
DIOXIN14	OCDF	PG/G					
DIOXIN15	TCDDs(TOTAL)	PG/G					
DIOXIN16	2,3,7,8-TCDD	PG/G					
DIOXIN17	PeCDDs(TOTAL)	PG/G					
DIOXIN18	1,2,3,7,8-PeCDD	PG/G					
DIOXIN19	HxCDDs(TOTAL)	PG/G					
DIOXIN20	1,2,3,4,7,8-HxCDD	PG/G					
DIOXIN21	1,2,3,6,7,8-HxCDD	PG/G					
DIOXIN22	1,2,3,7,8,9-HxCDD	PG/G					
DIOXIN23	HpCDDs(TOTAL)	PG/G					
DIOXIN24	1,2,3,4,6,7,8-HpCDD	PG/G					
DIOXIN25	OCDD	PG/G					
TDIOXINS	TOTAL TEFs	PG/G					

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD2 10-12' A5L190138-009 QUANTERRA L16128 SOIL 12/18/95	SBWD2 14-16' A5L190138-010 QUANTERRA L16128 SOIL 12/18/95	SBWD2 20-22' A5L190138-011 QUANTERRA L16128 SOIL 12/18/95	SBWD2 24-26' 085575-0001 QUANTERRA 085575 SOIL 12/18/95	SBWD2 24-26' A5L190138-012 QUANTERRA L16128 SOIL 12/18/95
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	ug/kg	99	25 J	92 U		64 U
95-50-1	1,2-Dichlorobenzene	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
541-73-1	1,3-Dichlorobenzene	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
106-46-7	1,4-Dichlorobenzene	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
156-59-2	cis-1,2-Dichloroethene	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
75-05-8	Acetonitrile	ug/kg					
107-02-8	Acrolein	ug/kg					
107-13-1	Acrylonitrile	ug/kg					
71-43-2	Benzene	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
75-27-4	Bromodichloromethane	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
75-25-2	Bromoform	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
74-83-9	Bromomethane	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
75-15-0	Carbon disulfide	ug/kg	3.9 J	62 U	61 U		64 U
56-23-5	Carbon tetrachloride	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
108-90-7	Chlorobenzene	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
126-99-8	Chloroprene	ug/kg					
124-48-1	Dibromochloromethane	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
96-12-8	1,2-Dibromo-3-chloropropane	ug/kg					
75-00-3	Chloroethane	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
67-66-3	Chloroform	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
74-87-3	Chloromethane	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
107-05-1	Allyl chloride	ug/kg					
74-95-3	Dibromomethane	ug/kg					
110-57-6	trans-1,4-Dichloro-2-butene	ug/kg					
75-71-8	Dichlorodifluoromethane	ug/kg					
75-34-3	1,1-Dichloroethane	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
107-06-2	1,2-Dichloroethane	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
75-35-4	1,1-Dichloroethene	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
156-60-5	trans-1,2-Dichloroethene	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
78-87-5	1,2-Dichloropropane	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
10061-01-5	cis-1,3-Dichloropropene	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
10061-02-6	trans-1,3-Dichloropropene	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
123-91-1	1,4-Dioxane	ug/kg					
100-41-4	Ethylbenzene	ug/kg	5.6 U	6.2 U	6.1 U		4.1 J
97-63-2	Ethyl methacrylate	ug/kg					
75-69-4	Trichlorofluoromethane	ug/kg					
591-78-6	2-Hexanone	ug/kg	2.5 J	62 U	61 U		64 U
74-88-4	Iodomethane	ug/kg					
78-83-1	Isobutyl alcohol	ug/kg					
126-98-7	Methacrylonitrile	ug/kg					
75-09-2	Methylene chloride	ug/kg	5.6 U	6.2 U	3.1 J		6.4 U
80-62-6	Methyl methacrylate	ug/kg					
107-12-0	Propionitrile	ug/kg					
100-42-5	Styrene	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
630-20-6	1,1,1,2-Tetrachloroethane	ug/kg					
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
127-18-4	Tetrachloroethene	ug/kg	5.6 U	6.2 U	7.5 J		6.4 U
108-88-3	Toluene	ug/kg	5.6 U	6.2 U	12 U		6.4 U
71-55-6	1,1,1-Trichloroethane	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
79-00-5	1,1,2-Trichloroethane	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
79-01-6	Trichloroethene	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
96-18-4	1,2,3-Trichloropropane	ug/kg					
108-05-4	Vinyl acetate	ug/kg					
75-01-4	Vinyl chloride	ug/kg	5.6 U	6.2 U	6.1 U		6.4 U
1330-20-7	Xylenes (total)	ug/kg	17 U	19 U	18 U		19 U
106-93-4	1,2-Dibromoethane (EDB)	ug/kg					
78-93-3	2-Butanone (MEK)	ug/kg	20 J	4 J	17 J		6.9 J
108-10-1	4-Methyl-2-pentanone (MIBK)	ug/kg	56 U	62 U	3 J		64 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD2 10-12' A5L190138-009 QUANTERRA L16128 SOIL 12/18/95	SBWD2 14-16' A5L190138-010 QUANTERRA L16128 SOIL 12/18/95	SBWD2 20-22' A5L190138-011 QUANTERRA L16128 SOIL 12/18/95	SBWD2 24-26' 085575-0001 QUANTERRA 085575 SOIL 12/18/95	SBWD2 24-26' A5L190138-012 QUANTERRA L16128 SOIL 12/18/95
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
92-67-1	4-Aminobiphenyl	ug/kg					
60-11-7	p-Dimethylaminoazobenzene	ug/kg					
57-97-6	7,12-Dimethylbenz(a)anthracene	ug/kg					
1888-71-7	Hexachloropropene	ug/kg					
62-44-2	Phenacetin	ug/kg					
23950-58-5	Pronamide	ug/kg					
122-09-8	a,a-Dimethylphenethylamine	ug/kg					
2303-16-4	Diallate	ug/kg					
510-15-6	Chlorobenzilate	ug/kg					
83-32-9	Acenaphthene	ug/kg					
208-96-8	Acenaphthylene	ug/kg					
98-86-2	Acetophenone	ug/kg					
53-96-3	2-Acetylaminofluorene	ug/kg					
62-53-3	Aniline	ug/kg					
120-12-7	Anthracene	ug/kg					
56-55-3	Benzo(a)anthracene	ug/kg					
205-99-2	Benzo(b)fluoranthene	ug/kg					
207-08-9	Benzo(k)fluoranthene	ug/kg					
191-24-2	Benzo(ghi)perylene	ug/kg					
50-32-8	Benzo(a)pyrene	ug/kg					
100-51-6	Benzyl alcohol	ug/kg					
111-91-1	bis(2-Chloroethoxy)methane	ug/kg					
111-44-4	bis(2-Chloroethyl) ether	ug/kg					
117-81-7	bis(2-Ethylhexyl) phthalate	ug/kg					
101-55-3	4-Bromophenyl phenyl ether	ug/kg					
85-68-7	Butyl benzyl phthalate	ug/kg					
106-47-8	4-Chloroaniline	ug/kg					
59-50-7	4-Chloro-3-methylphenol	ug/kg					
91-58-7	2-Chloronaphthalene	ug/kg					
95-57-8	2-Chlorophenol	ug/kg					
7005-72-3	4-Chlorophenyl phenyl ether	ug/kg					
218-01-9	Chrysene	ug/kg					
53-70-3	Dibenz(a,h)anthracene	ug/kg					
132-64-9	Dibenzofuran	ug/kg					
84-74-2	Di-n-butyl phthalate	ug/kg					
91-94-1	3,3'-Dichlorobenzidine	ug/kg					
120-83-2	2,4-Dichlorophenol	ug/kg					
87-65-0	2,6-Dichlorophenol	ug/kg					
84-66-2	Diethyl phthalate	ug/kg					
119-93-7	3,3'-Dimethylbenzidine	ug/kg					
105-67-9	2,4-Dimethylphenol	ug/kg					
131-11-3	Dimethyl phthalate	ug/kg					
117-84-0	Di-n-octyl phthalate	ug/kg					
99-65-0	1,3-Dinitrobenzene	ug/kg					
534-52-1	4,6-Dinitro-2-methylphenol	ug/kg					
51-28-5	2,4-Dinitrophenol	ug/kg					
121-14-2	2,4-Dinitrotoluene	ug/kg					
606-20-2	2,6-Dinitrotoluene	ug/kg					
122-39-4	Diphenylamine	ug/kg					
62-50-0	Ethyl methanesulfonate	ug/kg					
206-44-0	Fluoranthene	ug/kg					
86-73-7	Fluorene	ug/kg					
118-74-1	Hexachlorobenzene	ug/kg					
87-68-3	Hexachlorobutadiene	ug/kg					

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD2 10-12' A5L190138-009 QUANTERRA L16128 SOIL 12/18/95	SBWD2 14-16' A5L190138-010 QUANTERRA L16128 SOIL 12/18/95	SBWD2 20-22' A5L190138-011 QUANTERRA L16128 SOIL 12/18/95	SBWD2 24-26' 085575-0001 QUANTERRA 085575 SOIL 12/18/95	SBWD2 24-26' A5L190138-012 QUANTERRA L16128 SOIL 12/18/95
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES CONT'D						
77-47-4	Hexachlorocyclopentadiene	ug/kg					
67-72-1	Hexachloroethane	ug/kg					
	Hexachlorophene	ug/kg					
193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg					
78-59-1	Isophorone	ug/kg					
120-58-1	Isosafrole	ug/kg					
91-80-5	Methapyrilene	ug/kg					
95-53-4	o-Toluidine	ug/kg					
56-49-5	3-Methylcholanthrene	ug/kg					
66-27-3	Methyl methanesulfonate	ug/kg					
91-57-6	2-Methylnaphthalene	ug/kg					
95-48-7	2-Methylphenol	ug/kg					
108-39-4	3-Methylphenol	ug/kg					
106-44-5	4-Methylphenol	ug/kg					
91-20-3	Naphthalene	ug/kg					
130-15-4	1,4-Naphthoquinone	ug/kg					
134-32-7	1-Naphthylamine	ug/kg					
91-59-8	2-Naphthylamine	ug/kg					
88-74-4	2-Nitroaniline	ug/kg					
99-09-2	3-Nitroaniline	ug/kg					
100-01-6	4-Nitroaniline	ug/kg					
98-95-3	Nitrobenzene	ug/kg					
88-75-5	2-Nitrophenol	ug/kg					
100-02-7	4-Nitrophenol	ug/kg					
56-57-5	4-Nitroquinoline-1-oxide	ug/kg					
924-16-3	N-Nitrosodi-n-butylamine	ug/kg					
55-18-5	N-Nitrosodiethylamine	ug/kg					
62-75-9	N-Nitrosodimethylamine	ug/kg					
621-64-7	N-Nitrosodi-n-propylamine	ug/kg					
86-30-6	N-Nitrosodiphenylamine	ug/kg					
10595-95-6	N-Nitrosomethylethylamine	ug/kg					
59-89-2	N-Nitrosomorpholine	ug/kg					
100-75-4	N-Nitrosopiperidine	ug/kg					
930-55-2	N-Nitrosopyrrolidine	ug/kg					
608-93-5	Pentachlorobenzene	ug/kg					
99-55-8	5-Nitro-o-toluidine	ug/kg					
76-01-7	Pentachloroethane	ug/kg					
82-68-8	Pentachloronitrobenzene	ug/kg					
87-86-5	Pentachlorophenol	ug/kg					
85-01-8	Phenanthrene	ug/kg					
108-95-2	Phenol	ug/kg					
106-50-3	p-Phenylene diamine	ug/kg					
109-06-8	2-Picoline	ug/kg					
129-00-0	Pyrene	ug/kg					
110-86-1	Pyridine	ug/kg					
94-59-7	Safrole	ug/kg					
95-94-3	1,2,4,5-Tetrachlorobenzene	ug/kg					
58-90-2	2,3,4,6-Tetrachlorophenol	ug/kg					
120-82-1	1,2,4-Trichlorobenzene	ug/kg					
95-95-4	2,4,5-Trichlorophenol	ug/kg					
88-06-2	2,4,6-Trichlorophenol	ug/kg					
99-35-4	1,3,5-Trinitrobenzene	ug/kg					
86-74-8	Carbazole	ug/kg					
108-60-1	bis(2-Chloroisopropyl) ether	ug/kg					

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD2 10-12' A5L190138-009 QUANTERRA L16128 SOIL 12/18/95	SBWD2 14-16' A5L190138-010 QUANTERRA L16128 SOIL 12/18/95	SBWD2 20-22' A5L190138-011 QUANTERRA L16128 SOIL 12/18/95	SBWD2 24-26' 085575-0001 QUANTERRA 085575 SOIL 12/18/95	SBWD2 24-26' A5L190138-012 QUANTERRA L16128 SOIL 12/18/95
CAS NO.	COMPOUND	UNITS:					
	PESTICIDES/PCBs						
309-00-2	Aldrin	ug/kg					
319-84-6	alpha-BHC	ug/kg					
319-85-7	beta-BHC	ug/kg					
319-86-8	delta-BHC	ug/kg					
58-89-9	gamma-BHC (Lindane)	ug/kg					
5103-71-9	alpha-Chlordane	ug/kg					
5103-74-2	gamma-Chlordane	ug/kg					
72-54-8	4,4'-DDD	ug/kg					
72-55-9	4,4'-DDE	ug/kg					
50-29-3	4,4'-DDT	ug/kg					
60-57-1	Dieldrin	ug/kg					
959-98-8	Endosulfan I	ug/kg					
33213-65-9	Endosulfan II	ug/kg					
1031-07-8	Endosulfan sulfate	ug/kg					
72-20-8	Endrin	ug/kg					
7421-93-4	Endrin aldehyde	ug/kg					
76-44-8	Heptachlor	ug/kg					
1024-57-3	Heptachlor epoxide	ug/kg					
465-73-6	Isodrin	ug/kg					
143-50-0	Kepone	ug/kg					
72-43-5	Methoxychlor	ug/kg					
12674-11-2	Aroclor 1016	ug/kg					
11104-28-2	Aroclor 1221	ug/kg					
11141-16-5	Aroclor 1232	ug/kg					
53469-21-9	Aroclor 1242	ug/kg					
12672-29-6	Aroclor 1248	ug/kg					
11097-69-1	Aroclor 1254	ug/kg					
11096-82-5	Aroclor 1260	ug/kg					
8001-35-2	Toxaphene	ug/kg					
53494-70-5	Endrin ketone	ug/kg					
	HERBICIDES						
57-74-9	Chlordane (technical)	ug/kg					
60-51-5	Dimethoate	ug/kg					
298-04-4	Disulfoton	ug/kg					
52-85-7	Famphur	ug/kg					
298-00-0	Methyl parathion	ug/kg					
56-38-2	Parathion	ug/kg					
298-02-2	Phorate	ug/kg					
3689-24-5	Tetraethyldithiopyrophosphate	ug/kg					
297-97-2	Thionazin	ug/kg					
126-68-1	O,O,O-Triethyl phosphorothioate	ug/kg					
94-75-7	2,4-D	ug/kg					
93-76-5	2,4,5-T	ug/kg					
88-85-7	Dinoseb	ug/kg					
93-72-1	2,4,5-TP	ug/kg					

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID:	SBWD2	SBWD2	SBWD2	SBWD2	SBWD2
		DEPTH:	10-12'	14-16'	20-22'	24-26'	24-26'
		LAB ID:	A5L190138-009	A5L190138-010	A5L190138-011	085575-0001	A5L190138-012
		SOURCE:	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA
		SDG:	L16128	L16128	L16128	085575	L16128
		MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL
		SAMPLED:	12/18/95	12/18/95	12/18/95	12/18/95	12/18/95
CAS NO.	COMPOUND	UNITS:					
	INORGANICS						
7440-47-3	Chromium	ug/kg					
7439-92-1	Lead	ug/kg					
7440-36-0	Antimony	ug/kg					
7782-49-2	Selenium	ug/kg					
7429-90-5	Aluminum	ug/kg					
7440-39-3	Barium	ug/kg					
7440-41-7	Beryllium	ug/kg					
7440-70-2	Calcium	ug/kg					
7440-48-4	Cobalt	ug/kg					
7440-50-8	Copper	ug/kg					
7439-89-6	Iron	ug/kg					
7440-09-7	Potassium	ug/kg					
7439-95-4	Magnesium	ug/kg					
7439-96-5	Manganese	ug/kg					
7440-23-5	Sodium	ug/kg					
7440-02-0	Nickel	ug/kg					
7440-62-2	Vanadium	ug/kg					
7440-66-6	Zinc	ug/kg					
7440-38-2	Arsenic	ug/kg					
7440-43-9	Cadmium	ug/kg					
7439-97-6	Mercury	ug/kg					
7440-22-4	Silver	ug/kg					
7440-28-0	Thallium	ug/kg					
7440-31-5	Tin	ug/kg					
57-12-5	Cyanide	ug/kg					
10-31-1	Solids, Percent	%	89.2	80.1	81.8		77.8
18496-25-8	Acid-insoluble Sulfide	MG/L					
	DIOXINS						
DIOXIN1	TCDFs(TOTAL)	PG/G				380	
DIOXIN2	2,3,7,8-TCDF	PG/G				16	
DIOXIN3	PeCDFS(TOTAL)	PG/G				270	
DIOXIN4	1,2,3,7,8-PeCDF	PG/G				12	
DIOXIN5	2,3,4,7,8-PeCDF	PG/G				22	
DIOXIN6	HxCDFs(TOTAL)	PG/G				160	
DIOXIN7	1,2,3,4,7,8-HxCDF	PG/G				21	
DIOXIN8	1,2,3,6,7,8-HxCDF	PG/G				20	
DIOXIN9	2,3,4,6,7,8-HxCDF	PG/G				20	
DIOXIN10	1,2,3,7,8,9-HxCDF	PG/G				3.2 U	
DIOXIN11	HpCDFs(TOTAL)	PG/G				130	
DIOXIN12	1,2,3,4,6,7,8-HpCDF	PG/G				89	
DIOXIN13	1,2,3,4,7,8,9-HpCDF	PG/G				6.1	
DIOXIN14	OCDF	PG/G				34	
DIOXIN15	TCDDs(TOTAL)	PG/G				58	
DIOXIN16	2,3,7,8-TCDD	PG/G				1.3	
DIOXIN17	PeCDDs(TOTAL)	PG/G				19	
DIOXIN18	1,2,3,7,8-PeCDD	PG/G				4.1 U	
DIOXIN19	HxCDDs(TOTAL)	PG/G				110	
DIOXIN20	1,2,3,4,7,8-HxCDD	PG/G				2.8 U	
DIOXIN21	1,2,3,6,7,8-HxCDD	PG/G				11	
DIOXIN22	1,2,3,7,8,9-HxCDD	PG/G				10	
DIOXIN23	HpCDDs(TOTAL)	PG/G				130	
DIOXIN24	1,2,3,4,6,7,8-HpCDD	PG/G				61	
DIOXIN25	OCDD	PG/G				230	
TDIOXINS	TOTAL TEFs	PG/G				24.525	

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD2 24-26' A5L200158-001 QUANTERRA L16128 SOIL 12/18/95	SBWD2 30-32' A5L200158-002 QUANTERRA L16128 SOIL 12/19/95	SBWD2 34-36' A5L200158-003 QUANTERRA L16128 SOIL 12/19/95	SBWD3 24-26' 085575-0002 QUANTERRA 085575 SOIL 12/18/95	SBWD3 04-06' A5L200158-004 QUANTERRA L16128 SOIL 12/19/95
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	ug/kg	150 U	14 J	55 U		29 J
95-50-1	1,2-Dichlorobenzene	ug/kg	15 U	6 U	5.5 U		5.3 U
541-73-1	1,3-Dichlorobenzene	ug/kg	15 U	6 U	5.5 U		5.3 U
106-46-7	1,4-Dichlorobenzene	ug/kg	15 U	6 U	5.5 U		5.3 U
156-59-2	cis-1,2-Dichloroethene	ug/kg	15 U	6 U	5.5 U		5.3 U
75-05-8	Acetonitrile	ug/kg	150 U				
107-02-8	Acrolein	ug/kg	150 U				
107-13-1	Acrylonitrile	ug/kg	150 U				
71-43-2	Benzene	ug/kg	15 U	6 U	5.5 U		5.3 U
75-27-4	Bromodichloromethane	ug/kg	15 U	6 U	5.5 U		5.3 U
75-25-2	Bromoform	ug/kg	15 U	6 U	5.5 U		5.3 U
74-83-9	Bromomethane	ug/kg	15 U	6 U	5.5 U		5.3 U
75-15-0	Carbon disulfide	ug/kg	150 U	60 U	55 U		53 U
56-23-5	Carbon tetrachloride	ug/kg	15 U	6 U	5.5 U		5.3 U
108-90-7	Chlorobenzene	ug/kg	15 U	6 U	5.5 U		5.3 U
126-99-8	Chloroprene	ug/kg	15 U				
124-48-1	Dibromochloromethane	ug/kg	15 U	6 U	5.5 U		5.3 U
96-12-8	1,2-Dibromo-3-chloropropane	ug/kg		30 U			
75-00-3	Chloroethane	ug/kg	15 U	6 U	5.5 U		5.3 U
67-66-3	Chloroform	ug/kg	15 U	6 U	5.5 U		5.3 U
74-87-3	Chloromethane	ug/kg	15 U	6 U	5.5 U		5.3 U
107-05-1	Allyl chloride	ug/kg		30 U			
74-95-3	Dibromomethane	ug/kg	15 U				
110-57-6	trans-1,4-Dichloro-2-butene	ug/kg	15 U				
75-71-8	Dichlorodifluoromethane	ug/kg	15 U				
75-34-3	1,1-Dichloroethane	ug/kg	15 U	6 U	5.5 U		5.3 U
107-06-2	1,2-Dichloroethane	ug/kg	15 U	6 U	5.5 U		5.3 U
75-35-4	1,1-Dichloroethene	ug/kg	15 U	6 U	5.5 U		5.3 U
156-60-5	trans-1,2-Dichloroethene	ug/kg	15 U	6 U	5.5 U		5.3 U
78-87-5	1,2-Dichloropropane	ug/kg	15 U	6 U	5.5 U		5.3 U
10061-01-5	cis-1,3-Dichloropropene	ug/kg	15 U	6 U	5.5 U		5.3 U
10061-02-6	trans-1,3-Dichloropropene	ug/kg	15 U	6 U	5.5 U		5.3 U
123-91-1	1,4-Dioxane	ug/kg	1500 U				
100-41-4	Ethylbenzene	ug/kg	15 U	6 U	5.5 U		5.3 U
97-63-2	Ethyl methacrylate	ug/kg	15 U				
75-69-4	Trichlorofluoromethane	ug/kg	15 U				
591-78-6	2-Hexanone	ug/kg	150 U	60 U	55 U		53 U
74-88-4	Iodomethane	ug/kg	15 U				
78-83-1	Isobutyl alcohol	ug/kg	6600 U				
126-98-7	Methacrylonitrile	ug/kg	60 U				
75-09-2	Methylene chloride	ug/kg	15 U	6 U	5.5 U		5.3 U
80-62-6	Methyl methacrylate	ug/kg	15 U				
107-12-0	Propionitrile	ug/kg	60 U				
100-42-5	Styrene	ug/kg	15 U	6 U	5.5 U		5.3 U
630-20-6	1,1,1,2-Tetrachloroethane	ug/kg	15 U				
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	15 U	6 U	5.5 U		5.3 U
127-18-4	Tetrachloroethene	ug/kg	15 U	6 U	5.5 U		5.3 U
108-88-3	Toluene	ug/kg	15 U	6 U	5.5 U		5.3 U
71-55-6	1,1,1-Trichloroethane	ug/kg	15 U	6 U	5.5 U		5.3 U
79-00-5	1,1,2-Trichloroethane	ug/kg	15 U	6 U	5.5 U		5.3 U
79-01-6	Trichloroethene	ug/kg	15 U	6 U	5.5 U		5.3 U
96-18-4	1,2,3-Trichloropropane	ug/kg	15 U				
108-05-4	Vinyl acetate	ug/kg	150 U				
75-01-4	Vinyl chloride	ug/kg	15 U	6 U	5.5 U		5.3 U
1330-20-7	Xylenes (total)	ug/kg	45 U	18 U	17 U		16 U
106-93-4	1,2-Dibromoethane (EDB)	ug/kg	15 U				
78-93-3	2-Butanone (MEK)	ug/kg	6.3 J	2.4 J	55 U		5.2 J
108-10-1	4-Methyl-2-pentanone (MIBK)	ug/kg	150 U	60 U	55 U		53 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD2 24-26' A5L200158-001 QUANTERRA L16128 SOIL 12/18/95	SBWD2 30-32' A5L200158-002 QUANTERRA L16128 SOIL 12/19/95	SBWD2 34-36' A5L200158-003 QUANTERRA L16128 SOIL 12/19/95	SBWD3 24-26' 085575-0002 QUANTERRA 085575 SOIL 12/18/95	SBWD3 04-06' A5L200158-004 QUANTERRA L16128 SOIL 12/19/95
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
92-67-1	4-Aminobiphenyl	ug/kg	1000 U				
60-11-7	p-Dimethylaminoazobenzene	ug/kg	390 U				
57-97-6	7,12-Dimethylbenz(a)anthracene	ug/kg	390 U				
1888-71-7	Hexachloropropene	ug/kg	2000 U				
62-44-2	Phenacetin	ug/kg	390 U				
23950-58-5	Pronamide	ug/kg	390 U				
122-09-8	a,a-Dimethylphenethylamine	ug/kg	1000 U				
2303-16-4	Diallate	ug/kg	390 U				
510-15-6	Chlorobenzilate	ug/kg	200 U				
83-32-9	Acenaphthene	ug/kg	200 U				
208-96-8	Acenaphthylene	ug/kg	200 U				
98-86-2	Acetophenone	ug/kg	200 U				
53-96-3	2-Acetylaminofluorene	ug/kg	2000 U				
62-53-3	Aniline	ug/kg	1000 U				
120-12-7	Anthracene	ug/kg	200 U				
56-55-3	Benzo(a)anthracene	ug/kg	63 J				
205-99-2	Benzo(b)fluoranthene	ug/kg	120 J				
207-08-9	Benzo(k)fluoranthene	ug/kg	49 J				
191-24-2	Benzo(ghi)perylene	ug/kg	51 J				
50-32-8	Benzo(a)pyrene	ug/kg	93 J				
100-51-6	Benzyl alcohol	ug/kg	780 U				
111-91-1	bis(2-Chloroethoxy)methane	ug/kg	200 U				
111-44-4	bis(2-Chloroethyl) ether	ug/kg	200 U				
117-81-7	bis(2-Ethylhexyl) phthalate	ug/kg	170 J				
101-55-3	4-Bromophenyl phenyl ether	ug/kg	200 U				
85-68-7	Butyl benzyl phthalate	ug/kg	200 U				
106-47-8	4-Chloroaniline	ug/kg	200 U				
59-50-7	4-Chloro-3-methylphenol	ug/kg	200 U				
91-58-7	2-Chloronaphthalene	ug/kg	200 U				
95-57-8	2-Chlorophenol	ug/kg	200 U				
7005-72-3	4-Chlorophenyl phenyl ether	ug/kg	200 U				
218-01-9	Chrysene	ug/kg	72 J				
53-70-3	Dibenz(a,h)anthracene	ug/kg	200 U				
132-64-9	Dibenzofuran	ug/kg	200 U				
84-74-2	Di-n-butyl phthalate	ug/kg	200 U				
91-94-1	3,3'-Dichlorobenzidine	ug/kg	1200 U				
120-83-2	2,4-Dichlorophenol	ug/kg	200 U				
87-65-0	2,6-Dichlorophenol	ug/kg	200 U				
84-66-2	Diethyl phthalate	ug/kg	200 U				
119-93-7	3,3'-Dimethylbenzidine	ug/kg	200 U				
105-67-9	2,4-Dimethylphenol	ug/kg	200 U				
131-11-3	Dimethyl phthalate	ug/kg	200 U				
117-84-0	Di-n-octyl phthalate	ug/kg	200 U				
99-65-0	1,3-Dinitrobenzene	ug/kg	200 U				
534-52-1	4,6-Dinitro-2-methylphenol	ug/kg	1000 U				
51-28-5	2,4-Dinitrophenol	ug/kg	1000 U				
121-14-2	2,4-Dinitrotoluene	ug/kg	200 U				
606-20-2	2,6-Dinitrotoluene	ug/kg	200 U				
122-39-4	Diphenylamine	ug/kg	200 U				
62-50-0	Ethyl methanesulfonate	ug/kg	200 U				
206-44-0	Fluoranthene	ug/kg	97 J				
86-73-7	Fluorene	ug/kg	200				
118-74-1	Hexachlorobenzene	ug/kg	200 U				
87-68-3	Hexachlorobutadiene	ug/kg	200 U				

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD2 24-26' A5L200158-001 QUANTERRA L16128 SOIL 12/18/95	SBWD2 30-32' A5L200158-002 QUANTERRA L16128 SOIL 12/19/95	SBWD2 34-36' A5L200158-003 QUANTERRA L16128 SOIL 12/19/95	SBWD3 24-26' 085575-0002 QUANTERRA 085575 SOIL 12/18/95	SBWD3 04-06' A5L200158-004 QUANTERRA L16128 SOIL 12/19/95
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES CONT'D						
77-47-4	Hexachlorocyclopentadiene	ug/kg	200 U				
67-72-1	Hexachloroethane	ug/kg	200 U				
	Hexachlorophene	ug/kg					
193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	46 J				
78-59-1	Isophorone	ug/kg	200 U				
120-58-1	Isosafrole	ug/kg	390 U				
91-80-5	Methapyrilene	ug/kg	1000 U				
95-53-4	o-Toluidine	ug/kg	390 U				
56-49-5	3-Methylcholanthrene	ug/kg	390 U				
66-27-3	Methyl methanesulfonate	ug/kg	200 U				
91-57-6	2-Methylnaphthalene	ug/kg	150 J				
95-48-7	2-Methylphenol	ug/kg	200 U				
108-39-4	3-Methylphenol	ug/kg	200 U				
106-44-5	4-Methylphenol	ug/kg	200 U				
91-20-3	Naphthalene	ug/kg	50 J				
130-15-4	1,4-Naphthoquinone	ug/kg	1000 U				
134-32-7	1-Naphthylamine	ug/kg	200 U				
91-59-8	2-Naphthylamine	ug/kg	200 U				
88-74-4	2-Nitroaniline	ug/kg	1000 U				
99-09-2	3-Nitroaniline	ug/kg	1000 U				
100-01-6	4-Nitroaniline	ug/kg	1000 U				
98-95-3	Nitrobenzene	ug/kg	200 U				
88-75-5	2-Nitrophenol	ug/kg	200 U				
100-02-7	4-Nitrophenol	ug/kg	1000 U				
56-57-5	4-Nitroquinoline-1-oxide	ug/kg	2000 U				
924-16-3	N-Nitrosodi-n-butylamine	ug/kg	200 U				
55-18-5	N-Nitrosodiethylamine	ug/kg	200 U				
62-75-9	N-Nitrosodimethylamine	ug/kg	200 U				
621-64-7	N-Nitrosodi-n-propylamine	ug/kg	200 U				
86-30-6	N-Nitrosodiphenylamine	ug/kg	200 U				
10595-95-6	N-Nitrosomethylethylamine	ug/kg	200 U				
59-89-2	N-Nitrosomorpholine	ug/kg	200 U				
100-75-4	N-Nitrosopiperidine	ug/kg	200 U				
930-55-2	N-Nitrosopyrrolidine	ug/kg	200 U				
608-93-5	Pentachlorobenzene	ug/kg	200 U				
99-55-8	5-Nitro-o-toluidine	ug/kg	390 U				
76-01-7	Pentachloroethane	ug/kg	99 J				
82-68-8	Pentachloronitrobenzene	ug/kg	1000 U				
87-86-5	Pentachlorophenol	ug/kg	2000 U				
85-01-8	Phenanthrene	ug/kg	390				
108-95-2	Phenol	ug/kg	200 U				
106-50-3	p-Phenylene diamine	ug/kg	2000 U				
109-06-8	2-Picoline	ug/kg	390 U				
129-00-0	Pyrene	ug/kg	77 J				
110-86-1	Pyridine	ug/kg	390 U				
94-59-7	Safrole	ug/kg	390 U				
95-94-3	1,2,4,5-Tetrachlorobenzene	ug/kg	200 U				
58-90-2	2,3,4,6-Tetrachlorophenol	ug/kg	1000 U				
120-82-1	1,2,4-Trichlorobenzene	ug/kg	200 U				
95-95-4	2,4,5-Trichlorophenol	ug/kg	1000 U				
88-06-2	2,4,6-Trichlorophenol	ug/kg	200 U				
99-35-4	1,3,5-Trinitrobenzene	ug/kg	1000 U				
86-74-8	Carbazole	ug/kg	200 U				
108-60-1	bis(2-Chloroisopropyl) ether	ug/kg	200 U				

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD2 24-26' A5L200158-001 QUANTERRA L16128 SOIL 12/18/95	SBWD2 30-32' A5L200158-002 QUANTERRA L16128 SOIL 12/19/95	SBWD2 34-36' A5L200158-003 QUANTERRA L16128 SOIL 12/19/95	SBWD3 24-26' 085575-0002 QUANTERRA 085575 SOIL 12/18/95	SBWD3 04-06' A5L200158-004 QUANTERRA L16128 SOIL 12/19/95
CAS NO.	COMPOUND	UNITS:					
	PESTICIDES/PCBs						
309-00-2	Aldrin	ug/kg	40 U				
319-84-6	alpha-BHC	ug/kg	40 U				
319-85-7	beta-BHC	ug/kg	40 U				
319-86-8	delta-BHC	ug/kg	40 U				
58-89-9	gamma-BHC (Lindane)	ug/kg	40 U				
5103-71-9	alpha-Chlordane	ug/kg	40 U				
5103-74-2	gamma-Chlordane	ug/kg	40 U				
72-54-8	4,4'-DDD	ug/kg	80 U				
72-55-9	4,4'-DDE	ug/kg	80 U				
50-29-3	4,4'-DDT	ug/kg	80 U				
60-57-1	Dieldrin	ug/kg	80 U				
959-98-8	Endosulfan I	ug/kg	80 U				
33213-65-9	Endosulfan II	ug/kg	80 U				
1031-07-8	Endosulfan sulfate	ug/kg	80 U				
72-20-8	Endrin	ug/kg	80 U				
7421-93-4	Endrin aldehyde	ug/kg	80 U				
76-44-8	Heptachlor	ug/kg	40 U				
1024-57-3	Heptachlor epoxide	ug/kg	40 U				
465-73-6	Isodrin	ug/kg	40 U				
143-50-0	Kepone	ug/kg	640 U				
72-43-5	Methoxychlor	ug/kg	400 U				
12674-11-2	Aroclor 1016	ug/kg	400 U				
11104-28-2	Aroclor 1221	ug/kg	400 U				
11141-16-5	Aroclor 1232	ug/kg	400 U				
53469-21-9	Aroclor 1242	ug/kg	400 U				
12672-29-6	Aroclor 1248	ug/kg	2400				
11097-69-1	Aroclor 1254	ug/kg	800 U				
11096-82-5	Aroclor 1260	ug/kg	800 U				
8001-35-2	Toxaphene	ug/kg	2000 U				
53494-70-5	Endrin ketone	ug/kg	80 U				
	HERBICIDES						
57-74-9	Chlordane (technical)	ug/kg	200 U				
60-51-5	Dimethoate	ug/kg	1600 U				
298-04-4	Disulfoton	ug/kg	1600 U				
52-85-7	Famphur	ug/kg	1600 U				
298-00-0	Methyl parathion	ug/kg	1600 U				
56-38-2	Parathion	ug/kg	1600 U				
298-02-2	Phorate	ug/kg	1600 U				
3689-24-5	Tetraethyldithiopyrophosphate	ug/kg	1600 U				
297-97-2	Thionazin	ug/kg	1600 U				
126-68-1	O,O,O-Triethyl phosphorothioate	ug/kg	1600 U				
94-75-7	2,4-D	ug/kg	120 U				
93-76-5	2,4,5-T	ug/kg	30 U				
88-85-7	Dinoseb	ug/kg	12 U				
93-72-1	2,4,5-TP	ug/kg	30 U				

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD2 24-26' A5L200158-001 QUANTERRA L16128 SOIL 12/18/95	SBWD2 30-32' A5L200158-002 QUANTERRA L16128 SOIL 12/19/95	SBWD2 34-36' A5L200158-003 QUANTERRA L16128 SOIL 12/19/95	SBWD3 24-26' 085575-0002 QUANTERRA 085575 SOIL 12/18/95	SBWD3 04-06' A5L200158-004 QUANTERRA L16128 SOIL 12/19/95
CAS NO.	COMPOUND	UNITS:					
	INORGANICS						
7440-47-3	Chromium	ug/kg	13800				
7439-92-1	Lead	ug/kg	1300000				
7440-36-0	Antimony	ug/kg	598 U				
7782-49-2	Selenium	ug/kg	598 U				
7429-90-5	Aluminum	ug/kg	2880000				
7440-39-3	Barium	ug/kg	32200				
7440-41-7	Beryllium	ug/kg	359 U				
7440-70-2	Calcium	ug/kg	17000000				
7440-48-4	Cobalt	ug/kg	2990 U				
7440-50-8	Copper	ug/kg	19700				
7439-89-6	Iron	ug/kg	7430000				
7440-09-7	Potassium	ug/kg	598000 U				
7439-95-4	Magnesium	ug/kg	913000				
7439-96-5	Manganese	ug/kg	223000				
7440-23-5	Sodium	ug/kg	268000				
7440-02-0	Nickel	ug/kg	16300				
7440-62-2	Vanadium	ug/kg	6430				
7440-66-6	Zinc	ug/kg	9810				
7440-38-2	Arsenic	ug/kg	1780				
7440-43-9	Cadmium	ug/kg	29.9 U				
7439-97-6	Mercury	ug/kg	59.8 U				
7440-22-4	Silver	ug/kg	299 U				
7440-28-0	Thallium	ug/kg	299 U				
7440-31-5	Tin	ug/kg					
57-12-5	Cyanide	ug/kg	300 U				
10-31-1	Solids, Percent	%	83.6	83.8	90.4		94.8
18496-25-8	Acid-insoluble Sulfide	MG/L					
	DIOXINS						
DIOXIN1	TCDFs(TOTAL)	PG/G				0.26 U	
DIOXIN2	2,3,7,8-TCDF	PG/G				0.26 U	
DIOXIN3	PeCDFS(TOTAL)	PG/G				0.58 U	
DIOXIN4	1,2,3,7,8-PeCDF	PG/G				0.3 U	
DIOXIN5	2,3,4,7,8-PeCDF	PG/G				0.27 U	
DIOXIN6	HxCDFs(TOTAL)	PG/G				0.17 U	
DIOXIN7	1,2,3,4,7,8-HxCDF	PG/G				0.098 U	
DIOXIN8	1,2,3,6,7,8-HxCDF	PG/G				0.13 U	
DIOXIN9	2,3,4,6,7,8-HxCDF	PG/G				0.14 U	
DIOXIN10	1,2,3,7,8,9-HxCDF	PG/G				0.17 U	
DIOXIN11	HpCDFs(TOTAL)	PG/G				0.27 U	
DIOXIN12	1,2,3,4,6,7,8-HpCDF	PG/G				0.18 U	
DIOXIN13	1,2,3,4,7,8,9-HpCDF	PG/G				0.27 U	
DIOXIN14	OCDF	PG/G				0.35 U	
DIOXIN15	TCDDs(TOTAL)	PG/G				0.26 U	
DIOXIN16	2,3,7,8-TCDD	PG/G				0.27 U	
DIOXIN17	PeCDDs(TOTAL)	PG/G				4.7 U	
DIOXIN18	1,2,3,7,8-PeCDD	PG/G				0.48 U	
DIOXIN19	HxCDDs(TOTAL)	PG/G				0.26 U	
DIOXIN20	1,2,3,4,7,8-HxCDD	PG/G				0.25 U	
DIOXIN21	1,2,3,6,7,8-HxCDD	PG/G				0.25 U	
DIOXIN22	1,2,3,7,8,9-HxCDD	PG/G				0.26 U	
DIOXIN23	HpCDDs(TOTAL)	PG/G				0.38 U	
DIOXIN24	1,2,3,4,6,7,8-HpCDD	PG/G				0.38 U	
DIOXIN25	OCDD	PG/G				7.4 U	
TDIOXINS	TOTAL TEFs	PG/G					

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD3 10-12' A5L200142-005 QUANTERRA L20142 SOIL 12/19/95	SBWD3 14-16' A5L200142-006 QUANTERRA L20142 SOIL 12/19/95	SBWD3 20-22' A5L200142-007 QUANTERRA L20142 SOIL 12/19/95	SBWD3 24-26' A5L200142-008 QUANTERRA L20142 SOIL 12/19/95	SBWD3 30-32' A5L200142-009 QUANTERRA L20142 SOIL 12/19/95
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	ug/kg	12 J	12 J	17 J	41 J	9.8 J
95-50-1	1,2-Dichlorobenzene	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
541-73-1	1,3-Dichlorobenzene	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
106-46-7	1,4-Dichlorobenzene	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
156-59-2	cis-1,2-Dichloroethene	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
75-05-8	Acetonitrile	ug/kg				60 U	
107-02-8	Acrolein	ug/kg				60 U	
107-13-1	Acrylonitrile	ug/kg				60 U	
71-43-2	Benzene	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
75-27-4	Bromodichloromethane	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
75-25-2	Bromoform	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
74-83-9	Bromomethane	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
75-15-0	Carbon disulfide	ug/kg	52 U	53 U	52 U	60 U	59 U
56-23-5	Carbon tetrachloride	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
108-90-7	Chlorobenzene	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
126-99-8	Chloroprene	ug/kg				6 U	
124-48-1	Dibromochloromethane	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
96-12-8	1,2-Dibromo-3-chloropropane	ug/kg				12 U	
75-00-3	Chloroethane	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
67-66-3	Chloroform	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
74-87-3	Chloromethane	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
107-05-1	Allyl chloride	ug/kg				12 U	
74-95-3	Dibromomethane	ug/kg				6 U	
110-57-6	trans-1,4-Dichloro-2-butene	ug/kg				6 U	
75-71-8	Dichlorodifluoromethane	ug/kg				6 U	
75-34-3	1,1-Dichloroethane	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
107-06-2	1,2-Dichloroethane	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
75-35-4	1,1-Dichloroethene	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
156-60-5	trans-1,2-Dichloroethene	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
78-87-5	1,2-Dichloropropane	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
10061-01-5	cis-1,3-Dichloropropene	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
10061-02-6	trans-1,3-Dichloropropene	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
123-91-1	1,4-Dioxane	ug/kg				600 U	
100-41-4	Ethylbenzene	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
97-63-2	Ethyl methacrylate	ug/kg				6 U	
75-69-4	Trichlorofluoromethane	ug/kg				6 U	
591-78-6	2-Hexanone	ug/kg	52 U	53 U	52 U	60 U	59 U
74-88-4	Iodomethane	ug/kg				6 U	
78-83-1	Isobutyl alcohol	ug/kg				2600 U	
126-98-7	Methacrylonitrile	ug/kg				24 U	
75-09-2	Methylene chloride	ug/kg	5.2 U	2.5 J	5.2 U	4.4 J	5.9 U
80-62-6	Methyl methacrylate	ug/kg				6 U	
107-12-0	Propionitrile	ug/kg				24 U	
100-42-5	Styrene	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
630-20-6	1,1,1,2-Tetrachloroethane	ug/kg				6 U	
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
127-18-4	Tetrachloroethene	ug/kg	5.2 U	5.8 J	5.2 U	6 U	5.9 U
108-88-3	Toluene	ug/kg	5.2 U	15 U	5.2 U	6 U	5.9 U
71-55-6	1,1,1-Trichloroethane	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
79-00-5	1,1,2-Trichloroethane	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
79-01-6	Trichloroethene	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
96-18-4	1,2,3-Trichloropropane	ug/kg				6 U	
108-05-4	Vinyl acetate	ug/kg				60 U	
75-01-4	Vinyl chloride	ug/kg	5.2 U	5.3 U	5.2 U	6 U	5.9 U
1330-20-7	Xylenes (total)	ug/kg	16 U	12 J	16 U	18 U	18 U
106-93-4	1,2-Dibromoethane (EDB)	ug/kg				6 U	
78-93-3	2-Butanone (MEK)	ug/kg	2.7 J	3.8 J	2.4 J	6 J	2.6 J
108-10-1	4-Methyl-2-pentanone (MIBK)	ug/kg	52 U	53 U	52 U	60 U	59 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD3 10-12' A5L200142-005 QUANTERRA L20142 SOIL 12/19/95	SBWD3 14-16' A5L200142-006 QUANTERRA L20142 SOIL 12/19/95	SBWD3 20-22' A5L200142-007 QUANTERRA L20142 SOIL 12/19/95	SBWD3 24-26' A5L200142-008 QUANTERRA L20142 SOIL 12/19/95	SBWD3 30-32' A5L200142-009 QUANTERRA L20142 SOIL 12/19/95
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
92-67-1	4-Aminobiphenyl	ug/kg				1000 U	
60-11-7	p-Dimethylaminoazobenzene	ug/kg				400 U	
57-97-6	7,12-Dimethylbenz(a)anthracene	ug/kg				400 U	
1888-71-7	Hexachloropropene	ug/kg				2000 U	
62-44-2	Phenacetin	ug/kg				400 U	
23950-58-5	Pronamide	ug/kg				400 U	
122-09-8	a,a-Dimethylphenethylamine	ug/kg				1000 U	
2303-16-4	Diallate	ug/kg				400 U	
510-15-6	Chlorobenzilate	ug/kg				200 U	
83-32-9	Acenaphthene	ug/kg				200 U	
208-96-8	Acenaphthylene	ug/kg				200 U	
98-86-2	Acetophenone	ug/kg				200 U	
53-96-3	2-Acetylaminofluorene	ug/kg				2000 U	
62-53-3	Aniline	ug/kg				1000 U	
120-12-7	Anthracene	ug/kg				200 U	
56-55-3	Benzo(a)anthracene	ug/kg				200 U	
205-99-2	Benzo(b)fluoranthene	ug/kg				200 U	
207-08-9	Benzo(k)fluoranthene	ug/kg				200 U	
191-24-2	Benzo(ghi)perylene	ug/kg				200 U	
50-32-8	Benzo(a)pyrene	ug/kg				200 U	
100-51-6	Benzyl alcohol	ug/kg				780 U	
111-91-1	bis(2-Chloroethoxy)methane	ug/kg				200 U	
111-44-4	bis(2-Chloroethyl) ether	ug/kg				200 U	
117-81-7	bis(2-Ethylhexyl) phthalate	ug/kg				200 U	
101-55-3	4-Bromophenyl phenyl ether	ug/kg				200 U	
85-68-7	Butyl benzyl phthalate	ug/kg				200 U	
106-47-8	4-Chloroaniline	ug/kg				200 U	
59-50-7	4-Chloro-3-methylphenol	ug/kg				200 U	
91-58-7	2-Chloronaphthalene	ug/kg				200 U	
95-57-8	2-Chlorophenol	ug/kg				200 U	
7005-72-3	4-Chlorophenyl phenyl ether	ug/kg				200 U	
218-01-9	Chrysene	ug/kg				200 U	
53-70-3	Dibenz(a,h)anthracene	ug/kg				200 U	
132-64-9	Dibenzofuran	ug/kg				200 U	
84-74-2	Di-n-butyl phthalate	ug/kg				200 U	
91-94-1	3,3'-Dichlorobenzidine	ug/kg				1200 U	
120-83-2	2,4-Dichlorophenol	ug/kg				200 U	
87-65-0	2,6-Dichlorophenol	ug/kg				200 U	
84-66-2	Diethyl phthalate	ug/kg				200 U	
119-93-7	3,3'-Dimethylbenzidine	ug/kg				200 U	
105-67-9	2,4-Dimethylphenol	ug/kg				200 U	
131-11-3	Dimethyl phthalate	ug/kg				200 U	
117-84-0	Di-n-octyl phthalate	ug/kg				200 U	
99-65-0	1,3-Dinitrobenzene	ug/kg				200 U	
534-52-1	4,6-Dinitro-2-methylphenol	ug/kg				1000 U	
51-28-5	2,4-Dinitrophenol	ug/kg				1000 U	
121-14-2	2,4-Dinitrotoluene	ug/kg				200 U	
606-20-2	2,6-Dinitrotoluene	ug/kg				200 U	
122-39-4	Diphenylamine	ug/kg				200 U	
62-50-0	Ethyl methanesulfonate	ug/kg				200 U	
206-44-0	Fluoranthene	ug/kg				200 U	
86-73-7	Fluorene	ug/kg				200 U	
118-74-1	Hexachlorobenzene	ug/kg				200 U	
87-68-3	Hexachlorobutadiene	ug/kg				200 U	

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD3 10-12' A5L200142-005 QUANTERRA L20142 SOIL 12/19/95	SBWD3 14-16' A5L200142-006 QUANTERRA L20142 SOIL 12/19/95	SBWD3 20-22' A5L200142-007 QUANTERRA L20142 SOIL 12/19/95	SBWD3 24-26' A5L200142-008 QUANTERRA L20142 SOIL 12/19/95	SBWD3 30-32' A5L200142-009 QUANTERRA L20142 SOIL 12/19/95
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES CONT'D						
77-47-4	Hexachlorocyclopentadiene	ug/kg				200 U	
67-72-1	Hexachloroethane	ug/kg				200 U	
	Hexachlorophene	ug/kg					
193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg				200 U	
78-59-1	Isophorone	ug/kg				200 U	
120-58-1	Isosafrole	ug/kg				400 U	
91-80-5	Methapyrilene	ug/kg				1000 U	
95-53-4	o-Toluidine	ug/kg				400 U	
56-49-5	3-Methylcholanthrene	ug/kg				400 U	
66-27-3	Methyl methanesulfonate	ug/kg				200 U	
91-57-6	2-Methylnaphthalene	ug/kg				24 J	
95-48-7	2-Methylphenol	ug/kg				200 U	
108-39-4	3-Methylphenol	ug/kg				200 U	
106-44-5	4-Methylphenol	ug/kg				200 U	
91-20-3	Naphthalene	ug/kg				200 U	
130-15-4	1,4-Naphthoquinone	ug/kg				1000 U	
134-32-7	1-Naphthylamine	ug/kg				200 U	
91-59-8	2-Naphthylamine	ug/kg				200 U	
88-74-4	2-Nitroaniline	ug/kg				1000 U	
99-09-2	3-Nitroaniline	ug/kg				1000 U	
100-01-6	4-Nitroaniline	ug/kg				1000 U	
98-95-3	Nitrobenzene	ug/kg				200 U	
88-75-5	2-Nitrophenol	ug/kg				200 U	
100-02-7	4-Nitrophenol	ug/kg				1000 U	
56-57-5	4-Nitroquinoline-1-oxide	ug/kg				2000 U	
924-16-3	N-Nitrosodi-n-butylamine	ug/kg				200 U	
55-18-5	N-Nitrosodiethylamine	ug/kg				200 U	
62-75-9	N-Nitrosodimethylamine	ug/kg				200 U	
621-64-7	N-Nitrosodi-n-propylamine	ug/kg				200 U	
86-30-6	N-Nitrosodiphenylamine	ug/kg				200 U	
10595-95-6	N-Nitrosomethylethylamine	ug/kg				200 U	
59-89-2	N-Nitrosomorpholine	ug/kg				200 U	
100-75-4	N-Nitrosopiperidine	ug/kg				200 U	
930-55-2	N-Nitrosopyrrolidine	ug/kg				200 U	
608-93-5	Pentachlorobenzene	ug/kg				200 U	
99-55-8	5-Nitro-o-toluidine	ug/kg				400 U	
76-01-7	Pentachloroethane	ug/kg				200 U	
82-68-8	Pentachloronitrobenzene	ug/kg				1000 U	
87-86-5	Pentachlorophenol	ug/kg				2000 U	
85-01-8	Phenanthrene	ug/kg				23 J	
108-95-2	Phenol	ug/kg				200 U	
106-50-3	p-Phenylene diamine	ug/kg				2000 U	
109-06-8	2-Picoline	ug/kg				400 U	
129-00-0	Pyrene	ug/kg				200 U	
110-86-1	Pyridine	ug/kg				400 U	
94-59-7	Safrole	ug/kg				400 U	
95-94-3	1,2,4,5-Tetrachlorobenzene	ug/kg				200 U	
58-90-2	2,3,4,6-Tetrachlorophenol	ug/kg				1000 U	
120-82-1	1,2,4-Trichlorobenzene	ug/kg				200 U	
95-95-4	2,4,5-Trichlorophenol	ug/kg				1000 U	
88-06-2	2,4,6-Trichlorophenol	ug/kg				200 U	
99-35-4	1,3,5-Trinitrobenzene	ug/kg				1000 U	
86-74-8	Carbazole	ug/kg				200 U	
108-60-1	bis(2-Chloroisopropyl) ether	ug/kg				200 U	

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD3 10-12' A5L200142-005 QUANTERRA L20142 SOIL 12/19/95	SBWD3 14-16' A5L200142-006 QUANTERRA L20142 SOIL 12/19/95	SBWD3 20-22' A5L200142-007 QUANTERRA L20142 SOIL 12/19/95	SBWD3 24-26' A5L200142-008 QUANTERRA L20142 SOIL 12/19/95	SBWD3 30-32' A5L200142-009 QUANTERRA L20142 SOIL 12/19/95
CAS NO.	COMPOUND	UNITS:					
	PESTICIDES/PCBs						
309-00-2	Aldrin	ug/kg				12 U	
319-84-6	alpha-BHC	ug/kg				12 U	
319-85-7	beta-BHC	ug/kg				12 U	
319-86-8	delta-BHC	ug/kg				12 U	
58-89-9	gamma-BHC (Lindane)	ug/kg				12 U	
5103-71-9	alpha-Chlordane	ug/kg				6 U	
5103-74-2	gamma-Chlordane	ug/kg				6 U	
72-54-8	4,4'-DDD	ug/kg				12 U	
72-55-9	4,4'-DDE	ug/kg				12 U	
50-29-3	4,4'-DDT	ug/kg				12 U	
60-57-1	Dieldrin	ug/kg				12 U	
959-98-8	Endosulfan I	ug/kg				12 U	
33213-65-9	Endosulfan II	ug/kg				12 U	
1031-07-8	Endosulfan sulfate	ug/kg				12 U	
72-20-8	Endrin	ug/kg				12 U	
7421-93-4	Endrin aldehyde	ug/kg				12 U	
76-44-8	Heptachlor	ug/kg				12 U	
1024-57-3	Heptachlor epoxide	ug/kg				12 U	
465-73-6	Isodrin	ug/kg				4 U	
143-50-0	Kepone	ug/kg				40 U	
72-43-5	Methoxychlor	ug/kg				30 U	
12674-11-2	Aroclor 1016	ug/kg				200 U	
11104-28-2	Aroclor 1221	ug/kg				200 U	
11141-16-5	Aroclor 1232	ug/kg				200 U	
53469-21-9	Aroclor 1242	ug/kg				200 U	
12672-29-6	Aroclor 1248	ug/kg				200 U	
11097-69-1	Aroclor 1254	ug/kg				200 U	
11096-82-5	Aroclor 1260	ug/kg				200 U	
8001-35-2	Toxaphene	ug/kg				100 U	
53494-70-5	Endrin ketone	ug/kg				12 U	
	HERBICIDES						
57-74-9	Chlordane (technical)	ug/kg				15 U	
60-51-5	Dimethoate	ug/kg				160 U	
298-04-4	Disulfoton	ug/kg				160 U	
52-85-7	Famphur	ug/kg				160 U	
298-00-0	Methyl parathion	ug/kg				160 U	
56-38-2	Parathion	ug/kg				160 U	
298-02-2	Phorate	ug/kg				160 U	
3689-24-5	Tetraethyldithiopyrophosphate	ug/kg				160 U	
297-97-2	Thionazin	ug/kg				160 U	
126-68-1	O,O,O-Triethyl phosphorothioate	ug/kg				160 U	
94-75-7	2,4-D	ug/kg				120 U	
93-76-5	2,4,5-T	ug/kg				30 U	
88-85-7	Dinoseb	ug/kg				12 U	
93-72-1	2,4,5-TP	ug/kg				30 U	

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID:	SBWD3	SBWD3	SBWD3	SBWD3	SBWD3
		DEPTH:	10-12'	14-16'	20-22'	24-26'	30-32'
		LAB ID:	A5L200142-005	A5L200142-006	A5L200142-007	A5L200142-008	A5L200142-009
		SOURCE:	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA
		SDG:	L20142	L20142	L20142	L20142	L20142
		MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL
		SAMPLED:	12/19/95	12/19/95	12/19/95	12/19/95	12/19/95
CAS NO.	COMPOUND	UNITS:					
	INORGANICS						
7440-47-3	Chromium	ug/kg				10000	
7439-92-1	Lead	ug/kg				94100	
7440-36-0	Antimony	ug/kg				3600	
7782-49-2	Selenium	ug/kg				299 U	
7429-90-5	Aluminum	ug/kg				2600000	
7440-39-3	Barium	ug/kg				14600	
7440-41-7	Beryllium	ug/kg				359 U	
7440-70-2	Calcium	ug/kg				2070000	
7440-48-4	Cobalt	ug/kg				2990 U	
7440-50-8	Copper	ug/kg				6820	
7439-89-6	Iron	ug/kg				7830000	
7440-09-7	Potassium	ug/kg				599000 U	
7439-95-4	Magnesium	ug/kg				524000	
7439-96-5	Manganese	ug/kg				120000	
7440-23-5	Sodium	ug/kg				2490000	
7440-02-0	Nickel	ug/kg				21600	
7440-62-2	Vanadium	ug/kg				6350	
7440-66-6	Zinc	ug/kg				9580	
7440-38-2	Arsenic	ug/kg				2460	
7440-43-9	Cadmium	ug/kg				50.3	
7439-97-6	Mercury	ug/kg				59.9 U	
7440-22-4	Silver	ug/kg				299 U	
7440-28-0	Thallium	ug/kg				299 U	
7440-31-5	Tin	ug/kg				12000 U	
57-12-5	Cyanide	ug/kg				510	
10-31-1	Solids, Percent	%	96.7	93.6	96.4	83.5	84.5
18496-25-8	Acid-insoluble Sulfide	MG/L					
	DIOXINS						
DIOXIN1	TCDFs(TOTAL)	PG/G					
DIOXIN2	2,3,7,8-TCDF	PG/G					
DIOXIN3	PeCDFS(TOTAL)	PG/G					
DIOXIN4	1,2,3,7,8-PeCDF	PG/G					
DIOXIN5	2,3,4,7,8-PeCDF	PG/G					
DIOXIN6	HxCDFs(TOTAL)	PG/G					
DIOXIN7	1,2,3,4,7,8-HxCDF	PG/G					
DIOXIN8	1,2,3,6,7,8-HxCDF	PG/G					
DIOXIN9	2,3,4,6,7,8-HxCDF	PG/G					
DIOXIN10	1,2,3,7,8,9-HxCDF	PG/G					
DIOXIN11	HpCDFs(TOTAL)	PG/G					
DIOXIN12	1,2,3,4,6,7,8-HpCDF	PG/G					
DIOXIN13	1,2,3,4,7,8,9-HpCDF	PG/G					
DIOXIN14	OCDF	PG/G					
DIOXIN15	TCDDs(TOTAL)	PG/G					
DIOXIN16	2,3,7,8-TCDD	PG/G					
DIOXIN17	PeCDDs(TOTAL)	PG/G					
DIOXIN18	1,2,3,7,8-PeCDD	PG/G					
DIOXIN19	HxCDDs(TOTAL)	PG/G					
DIOXIN20	1,2,3,4,7,8-HxCDD	PG/G					
DIOXIN21	1,2,3,6,7,8-HxCDD	PG/G					
DIOXIN22	1,2,3,7,8,9-HxCDD	PG/G					
DIOXIN23	HpCDDs(TOTAL)	PG/G					
DIOXIN24	1,2,3,4,6,7,8-HpCDD	PG/G					
DIOXIN25	OCDD	PG/G					
TDIOXINS	TOTAL TEFs	PG/G					

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD3 34-36' A5L200142-010 QUANTERRA L20142 SOIL 12/19/95	SBWD20 40-42' 085575-0003 QUANTERRA 085575 SOIL 12/19/95	SBWD70 90-92' 085575-0004 QUANTERRA 085575 SOIL 12/19/95	SBWD22 32-34' 085575-0005 QUANTERRA 085575 SOIL 12/19/95	SBMW16 05-07' A5L210121-003 QUANTERRA L20142 SOIL 12/20/95
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	ug/kg	16 J				58 U
95-50-1	1,2-Dichlorobenzene	ug/kg	5.5 U				5.8 U
541-73-1	1,3-Dichlorobenzene	ug/kg	5.5 U				5.8 U
106-46-7	1,4-Dichlorobenzene	ug/kg	5.5 U				5.8 U
156-59-2	cis-1,2-Dichloroethene	ug/kg	5.5 U				5.8 U
75-05-8	Acetonitrile	ug/kg					
107-02-8	Acrolein	ug/kg					
107-13-1	Acrylonitrile	ug/kg					
71-43-2	Benzene	ug/kg	5.5 U				5.8 U
75-27-4	Bromodichloromethane	ug/kg	5.5 U				5.8 U
75-25-2	Bromoform	ug/kg	5.5 U				5.8 U
74-83-9	Bromomethane	ug/kg	5.5 U				5.8 U
75-15-0	Carbon disulfide	ug/kg	55 U				58 U
56-23-5	Carbon tetrachloride	ug/kg	5.5 U				5.8 U
108-90-7	Chlorobenzene	ug/kg	5.5 U				5.8 U
126-99-8	Chloroprene	ug/kg					
124-48-1	Dibromochloromethane	ug/kg	5.5 U				5.8 U
96-12-8	1,2-Dibromo-3-chloropropane	ug/kg					
75-00-3	Chloroethane	ug/kg	5.5 U				5.8 U
67-66-3	Chloroform	ug/kg	5.5 U				5.8 U
74-87-3	Chloromethane	ug/kg	5.5 U				5.8 U
107-05-1	Allyl chloride	ug/kg					
74-95-3	Dibromomethane	ug/kg					
110-57-6	trans-1,4-Dichloro-2-butene	ug/kg					
75-71-8	Dichlorodifluoromethane	ug/kg					
75-34-3	1,1-Dichloroethane	ug/kg	5.5 U				5.8 U
107-06-2	1,2-Dichloroethane	ug/kg	5.5 U				5.8 U
75-35-4	1,1-Dichloroethene	ug/kg	5.5 U				5.8 U
156-60-5	trans-1,2-Dichloroethene	ug/kg	5.5 U				5.8 U
78-87-5	1,2-Dichloropropane	ug/kg	5.5 U				5.8 U
10061-01-5	cis-1,3-Dichloropropene	ug/kg	5.5 U				5.8 U
10061-02-6	trans-1,3-Dichloropropene	ug/kg	5.5 U				5.8 U
123-91-1	1,4-Dioxane	ug/kg					
100-41-4	Ethylbenzene	ug/kg	5.5 U				5.8 U
97-63-2	Ethyl methacrylate	ug/kg					
75-69-4	Trichlorofluoromethane	ug/kg					
591-78-6	2-Hexanone	ug/kg	55 U				58 U
74-88-4	Iodomethane	ug/kg					
78-83-1	Isobutyl alcohol	ug/kg					
126-98-7	Methacrylonitrile	ug/kg					
75-09-2	Methylene chloride	ug/kg	5.5 U				3.2 J
80-62-6	Methyl methacrylate	ug/kg					
107-12-0	Propionitrile	ug/kg					
100-42-5	Styrene	ug/kg	5.5 U				5.8 U
630-20-6	1,1,1,2-Tetrachloroethane	ug/kg					
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	5.5 U				5.8 U
127-18-4	Tetrachloroethene	ug/kg	5.5 U				2.4 J
108-88-3	Toluene	ug/kg	5.5 U				5.8 U
71-55-6	1,1,1-Trichloroethane	ug/kg	5.5 U				5.8 U
79-00-5	1,1,2-Trichloroethane	ug/kg	5.5 U				5.8 U
79-01-6	Trichloroethene	ug/kg	5.5 U				5.8 U
96-18-4	1,2,3-Trichloropropane	ug/kg					
108-05-4	Vinyl acetate	ug/kg					
75-01-4	Vinyl chloride	ug/kg	5.5 U				5.8 U
1330-20-7	Xylenes (total)	ug/kg	17 U				11 U
106-93-4	1,2-Dibromoethane (EDB)	ug/kg					
78-93-3	2-Butanone (MEK)	ug/kg	3 J				58 U
108-10-1	4-Methyl-2-pentanone (MIBK)	ug/kg	55 U				58 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD3 34-36' A5L200142-010 QUANTERRA L20142 SOIL 12/19/95	SBWD20 40-42' 085575-0003 QUANTERRA 085575 SOIL 12/19/95	SBWD70 90-92' 085575-0004 QUANTERRA 085575 SOIL 12/19/95	SBWD22 32-34' 085575-0005 QUANTERRA 085575 SOIL 12/19/95	SBMW16 05-07' A5L210121-003 QUANTERRA L20142 SOIL 12/20/95
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
92-67-1	4-Aminobiphenyl	ug/kg					
60-11-7	p-Dimethylaminoazobenzene	ug/kg					
57-97-6	7,12-Dimethylbenz(a)anthracene	ug/kg					
1888-71-7	Hexachloropropene	ug/kg					
62-44-2	Phenacetin	ug/kg					
23950-58-5	Pronamide	ug/kg					
122-09-8	a,a-Dimethylphenethylamine	ug/kg					
2303-16-4	Diallate	ug/kg					
510-15-6	Chlorobenzilate	ug/kg					
83-32-9	Acenaphthene	ug/kg					190 U
208-96-8	Acenaphthylene	ug/kg					190 U
98-86-2	Acetophenone	ug/kg					
53-96-3	2-Acetylaminofluorene	ug/kg					
62-53-3	Aniline	ug/kg					
120-12-7	Anthracene	ug/kg					190 U
56-55-3	Benzo(a)anthracene	ug/kg					190 U
205-99-2	Benzo(b)fluoranthene	ug/kg					190 U
207-08-9	Benzo(k)fluoranthene	ug/kg					190 U
191-24-2	Benzo(ghi)perylene	ug/kg					190 U
50-32-8	Benzo(a)pyrene	ug/kg					190 U
100-51-6	Benzyl alcohol	ug/kg					
111-91-1	bis(2-Chloroethoxy)methane	ug/kg					190 U
111-44-4	bis(2-Chloroethyl) ether	ug/kg					190 U
117-81-7	bis(2-Ethylhexyl) phthalate	ug/kg					190 U
101-55-3	4-Bromophenyl phenyl ether	ug/kg					190 U
85-68-7	Butyl benzyl phthalate	ug/kg					190 U
106-47-8	4-Chloroaniline	ug/kg					190 U
59-50-7	4-Chloro-3-methylphenol	ug/kg					190 U
91-58-7	2-Chloronaphthalene	ug/kg					190 U
95-57-8	2-Chlorophenol	ug/kg					190 U
7005-72-3	4-Chlorophenyl phenyl ether	ug/kg					190 U
218-01-9	Chrysene	ug/kg					190 U
53-70-3	Dibenz(a,h)anthracene	ug/kg					190 U
132-64-9	Dibenzofuran	ug/kg					190 U
84-74-2	Di-n-butyl phthalate	ug/kg					190 U
91-94-1	3,3'-Dichlorobenzidine	ug/kg					1200 U
120-83-2	2,4-Dichlorophenol	ug/kg					190 U
87-65-0	2,6-Dichlorophenol	ug/kg					
84-66-2	Diethyl phthalate	ug/kg					190 U
119-93-7	3,3'-Dimethylbenzidine	ug/kg					
105-67-9	2,4-Dimethylphenol	ug/kg					190 U
131-11-3	Dimethyl phthalate	ug/kg					190 U
117-84-0	Di-n-octyl phthalate	ug/kg					190 U
99-65-0	1,3-Dinitrobenzene	ug/kg					
534-52-1	4,6-Dinitro-2-methylphenol	ug/kg					980 U
51-28-5	2,4-Dinitrophenol	ug/kg					980 U
121-14-2	2,4-Dinitrotoluene	ug/kg					190 U
606-20-2	2,6-Dinitrotoluene	ug/kg					190 U
122-39-4	Diphenylamine	ug/kg					
62-50-0	Ethyl methanesulfonate	ug/kg					
206-44-0	Fluoranthene	ug/kg					190 U
86-73-7	Fluorene	ug/kg					190 U
118-74-1	Hexachlorobenzene	ug/kg					190 U
87-68-3	Hexachlorobutadiene	ug/kg					190 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD3 34-36' A5L200142-010 QUANTERRA L20142 SOIL 12/19/95	SBWD20 40-42' 085575-0003 QUANTERRA 085575 SOIL 12/19/95	SBWD70 90-92' 085575-0004 QUANTERRA 085575 SOIL 12/19/95	SBWD22 32-34' 085575-0005 QUANTERRA 085575 SOIL 12/19/95	SBMW16 05-07' A5L210121-003 QUANTERRA L20142 SOIL 12/20/95
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES CONT'D						
77-47-4	Hexachlorocyclopentadiene	ug/kg					190 U
67-72-1	Hexachloroethane	ug/kg					190 U
	Hexachlorophene	ug/kg					
193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg					190 U
78-59-1	Isophorone	ug/kg					190 U
120-58-1	Isosafrole	ug/kg					
91-80-5	Methapyrilene	ug/kg					
95-53-4	o-Toluidine	ug/kg					
56-49-5	3-Methylcholanthrene	ug/kg					
66-27-3	Methyl methanesulfonate	ug/kg					
91-57-6	2-Methylnaphthalene	ug/kg					190 U
95-48-7	2-Methylphenol	ug/kg					190 U
108-39-4	3-Methylphenol	ug/kg					
106-44-5	4-Methylphenol	ug/kg					190 U
91-20-3	Naphthalene	ug/kg					190 U
130-15-4	1,4-Naphthoquinone	ug/kg					
134-32-7	1-Naphthylamine	ug/kg					
91-59-8	2-Naphthylamine	ug/kg					
88-74-4	2-Nitroaniline	ug/kg					980 U
99-09-2	3-Nitroaniline	ug/kg					980 U
100-01-6	4-Nitroaniline	ug/kg					980 U
98-95-3	Nitrobenzene	ug/kg					190 U
88-75-5	2-Nitrophenol	ug/kg					190 U
100-02-7	4-Nitrophenol	ug/kg					980 U
56-57-5	4-Nitroquinoline-1-oxide	ug/kg					
924-16-3	N-Nitrosodi-n-butylamine	ug/kg					
55-18-5	N-Nitrosodiethylamine	ug/kg					
62-75-9	N-Nitrosodimethylamine	ug/kg					
621-64-7	N-Nitrosodi-n-propylamine	ug/kg					190 U
86-30-6	N-Nitrosodiphenylamine	ug/kg					190 U
10595-95-6	N-Nitrosomethylethylamine	ug/kg					
59-89-2	N-Nitrosomorpholine	ug/kg					
100-75-4	N-Nitrosopiperidine	ug/kg					
930-55-2	N-Nitrosopyrrolidine	ug/kg					
608-93-5	Pentachlorobenzene	ug/kg					
99-55-8	5-Nitro-o-toluidine	ug/kg					
76-01-7	Pentachloroethane	ug/kg					
82-68-8	Pentachloronitrobenzene	ug/kg					
87-86-5	Pentachlorophenol	ug/kg					2000 U
85-01-8	Phenanthrene	ug/kg					190 U
108-95-2	Phenol	ug/kg					190 U
106-50-3	p-Phenylene diamine	ug/kg					
109-06-8	2-Picoline	ug/kg					
129-00-0	Pyrene	ug/kg					190 U
110-86-1	Pyridine	ug/kg					
94-59-7	Safrole	ug/kg					
95-94-3	1,2,4,5-Tetrachlorobenzene	ug/kg					
58-90-2	2,3,4,6-Tetrachlorophenol	ug/kg					
120-82-1	1,2,4-Trichlorobenzene	ug/kg					190 U
95-95-4	2,4,5-Trichlorophenol	ug/kg					980 U
88-06-2	2,4,6-Trichlorophenol	ug/kg					190 U
99-35-4	1,3,5-Trinitrobenzene	ug/kg					
86-74-8	Carbazole	ug/kg					190 U
108-60-1	bis(2-Chloroisopropyl) ether	ug/kg					190 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD3 34-36' A5L200142-010 QUANTERRA L20142 SOIL 12/19/95	SBWD20 40-42' 085575-0003 QUANTERRA 085575 SOIL 12/19/95	SBWD70 90-92' 085575-0004 QUANTERRA 085575 SOIL 12/19/95	SBWD22 32-34' 085575-0005 QUANTERRA 085575 SOIL 12/19/95	SBMW16 05-07' A5L210121-003 QUANTERRA L20142 SOIL 12/20/95
CAS NO.	COMPOUND	UNITS:					
	PESTICIDES/PCBs						
309-00-2	Aldrin	ug/kg					12 U
319-84-6	alpha-BHC	ug/kg					12 U
319-85-7	beta-BHC	ug/kg					12 U
319-86-8	delta-BHC	ug/kg					12 U
58-89-9	gamma-BHC (Lindane)	ug/kg					12 U
5103-71-9	alpha-Chlordane	ug/kg					5.8 U
5103-74-2	gamma-Chlordane	ug/kg					5.8 U
72-54-8	4,4'-DDD	ug/kg					12 U
72-55-9	4,4'-DDE	ug/kg					12 U
50-29-3	4,4'-DDT	ug/kg					12 U
60-57-1	Dieldrin	ug/kg					12 U
959-98-8	Endosulfan I	ug/kg					12 U
33213-65-9	Endosulfan II	ug/kg					12 U
1031-07-8	Endosulfan sulfate	ug/kg					12 U
72-20-8	Endrin	ug/kg					12 U
7421-93-4	Endrin aldehyde	ug/kg					12 U
76-44-8	Heptachlor	ug/kg					12 U
1024-57-3	Heptachlor epoxide	ug/kg					12 U
465-73-6	Isodrin	ug/kg					
143-50-0	Kepone	ug/kg					
72-43-5	Methoxychlor	ug/kg					29 U
12674-11-2	Aroclor 1016	ug/kg					190 U
11104-28-2	Aroclor 1221	ug/kg					190 U
11141-16-5	Aroclor 1232	ug/kg					190 U
53469-21-9	Aroclor 1242	ug/kg					190 U
12672-29-6	Aroclor 1248	ug/kg					190 U
11097-69-1	Aroclor 1254	ug/kg					190 U
11096-82-5	Aroclor 1260	ug/kg					190 U
8001-35-2	Toxaphene	ug/kg					98 U
53494-70-5	Endrin ketone	ug/kg					12 U
	HERBICIDES						
57-74-9	Chlordane (technical)	ug/kg					
60-51-5	Dimethoate	ug/kg					
298-04-4	Disulfoton	ug/kg					
52-85-7	Famphur	ug/kg					
298-00-0	Methyl parathion	ug/kg					
56-38-2	Parathion	ug/kg					
298-02-2	Phorate	ug/kg					
3689-24-5	Tetraethyldithiopyrophosphate	ug/kg					
297-97-2	Thionazin	ug/kg					
126-68-1	O,O,O-Triethyl phosphorothioate	ug/kg					
94-75-7	2,4-D	ug/kg					
93-76-5	2,4,5-T	ug/kg					
88-85-7	Dinoseb	ug/kg					
93-72-1	2,4,5-TP	ug/kg					

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBWD3 34-36' A5L200142-010 QUANTERRA L20142 SOIL 12/19/95	SBWD20 40-42' 085575-0003 QUANTERRA 085575 SOIL 12/19/95	SBWD70 90-92' 085575-0004 QUANTERRA 085575 SOIL 12/19/95	SBWD22 32-34' 085575-0005 QUANTERRA 085575 SOIL 12/19/95	SBMW16 05-07' A5L210121-003 QUANTERRA L20142 SOIL 12/20/95
CAS NO.	COMPOUND	UNITS:					
	INORGANICS						
7440-47-3	Chromium	ug/kg					4010
7439-92-1	Lead	ug/kg					2250
7440-36-0	Antimony	ug/kg					288 U
7782-49-2	Selenium	ug/kg					288 U
7429-90-5	Aluminum	ug/kg					1870000
7440-39-3	Barium	ug/kg					6100
7440-41-7	Beryllium	ug/kg					345 U
7440-70-2	Calcium	ug/kg					34800000
7440-48-4	Cobalt	ug/kg					2880 U
7440-50-8	Copper	ug/kg					4960
7439-89-6	Iron	ug/kg					3020000
7440-09-7	Potassium	ug/kg					576000 U
7439-95-4	Magnesium	ug/kg					7340000
7439-96-5	Manganese	ug/kg					78400
7440-23-5	Sodium	ug/kg					303000
7440-02-0	Nickel	ug/kg					5640
7440-62-2	Vanadium	ug/kg					6780
7440-66-6	Zinc	ug/kg					13000
7440-38-2	Arsenic	ug/kg					730
7440-43-9	Cadmium	ug/kg					44.9
7439-97-6	Mercury	ug/kg					57.6 U
7440-22-4	Silver	ug/kg					288 U
7440-28-0	Thallium	ug/kg					288 U
7440-31-5	Tin	ug/kg					
57-12-5	Cyanide	ug/kg					290 U
10-31-1	Solids, Percent	%	90.4				86.9
18496-25-8	Acid-insoluble Sulfide	MG/L					
	DIOXINS						
DIOXIN1	TCDFs(TOTAL)	PG/G		4.3	27	540	
DIOXIN2	2,3,7,8-TCDF	PG/G		0.53 U	0.88 U	43	
DIOXIN3	PeCDFS(TOTAL)	PG/G		3.8 U	8.9	230	
DIOXIN4	1,2,3,7,8-PeCDF	PG/G		0.59 U	1.3 U	73 U	
DIOXIN5	2,3,4,7,8-PeCDF	PG/G		0.99 U	2.1 U	35 U	
DIOXIN6	HxCDFs(TOTAL)	PG/G		1.9 U	7.3	1900	
DIOXIN7	1,2,3,4,7,8-HxCDF	PG/G		0.93 U	2.8 U	92	
DIOXIN8	1,2,3,6,7,8-HxCDF	PG/G		1.2 U	2.8 U	57 U	
DIOXIN9	2,3,4,6,7,8-HxCDF	PG/G		1.6 U	3.8 U	78	
DIOXIN10	1,2,3,7,8,9-HxCDF	PG/G		0.17 U	0.14 U	12	
DIOXIN11	HpCDFs(TOTAL)	PG/G		4.8 U	21	5000	
DIOXIN12	1,2,3,4,6,7,8-HpCDF	PG/G		4.8 U	12	1600	
DIOXIN13	1,2,3,4,7,8,9-HpCDF	PG/G		0.28 U	0.81 U	58	
DIOXIN14	OCDF	PG/G		2.9 U	5.4 U	1300	
DIOXIN15	TCDDs(TOTAL)	PG/G		1.2	7	110	
DIOXIN16	2,3,7,8-TCDD	PG/G		0.25 U	0.53 U	4.3	
DIOXIN17	PeCDDs(TOTAL)	PG/G		5.3 U	6.9 U	1700	
DIOXIN18	1,2,3,7,8-PeCDD	PG/G		0.62 U	1.3 U	16	
DIOXIN19	HxCDDs(TOTAL)	PG/G		4.3 U	21	4700	
DIOXIN20	1,2,3,4,7,8-HxCDD	PG/G		0.25 U	0.62 U	11	
DIOXIN21	1,2,3,6,7,8-HxCDD	PG/G		1.2 U	3.3 U	450	
DIOXIN22	1,2,3,7,8,9-HxCDD	PG/G		1.1 U	3.1 U	190	
DIOXIN23	HpCDDs(TOTAL)	PG/G		14	42	5800	
DIOXIN24	1,2,3,4,6,7,8-HpCDD	PG/G		6.1	17	2100	
DIOXIN25	OCDD	PG/G		17	41	1500	
TDIOXINS	TOTAL TEFs	PG/G		0.078	0.331	140.28	

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID:	SBDW16	SBMW17	SBMW17	SBMW18	SBDW18
		DEPTH:	16-18'	06-08'	10-12'	16-18'	34-36'
		LAB ID:	A5L160125-004	A5L210121-004	A5L150193-009	A5L150193-010	A5L210121-005
		SOURCE:	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA
		SDG:	L16125	L20142	L15193	L15193	L20142
		MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL
		SAMPLED:	12/15/95	12/20/95	12/14/95	12/14/95	12/20/95
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	ug/kg	2.5 J	60 U	90 U	20 J	59 U
95-50-1	1,2-Dichlorobenzene	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
541-73-1	1,3-Dichlorobenzene	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
106-46-7	1,4-Dichlorobenzene	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
156-59-2	cis-1,2-Dichloroethene	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
75-05-8	Acetonitrile	ug/kg					
107-02-8	Acrolein	ug/kg					
107-13-1	Acrylonitrile	ug/kg					
71-43-2	Benzene	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
75-27-4	Bromodichloromethane	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
75-25-2	Bromoform	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
74-83-9	Bromomethane	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
75-15-0	Carbon disulfide	ug/kg	55 U	2.6 J	90 U	59 UJ	59 U
56-23-5	Carbon tetrachloride	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
108-90-7	Chlorobenzene	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
126-99-8	Chloroprene	ug/kg					
124-48-1	Dibromochloromethane	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
96-12-8	1,2-Dibromo-3-chloropropane	ug/kg					
75-00-3	Chloroethane	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
67-66-3	Chloroform	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
74-87-3	Chloromethane	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
107-05-1	Allyl chloride	ug/kg					
74-95-3	Dibromomethane	ug/kg					
110-57-6	trans-1,4-Dichloro-2-butene	ug/kg					
75-71-8	Dichlorodifluoromethane	ug/kg					
75-34-3	1,1-Dichloroethane	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
107-06-2	1,2-Dichloroethane	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
75-35-4	1,1-Dichloroethene	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
156-60-5	trans-1,2-Dichloroethene	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
78-87-5	1,2-Dichloropropane	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
10061-01-5	cis-1,3-Dichloropropene	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
10061-02-6	trans-1,3-Dichloropropene	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
123-91-1	1,4-Dioxane	ug/kg					
100-41-4	Ethylbenzene	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
97-63-2	Ethyl methacrylate	ug/kg					
75-69-4	Trichlorofluoromethane	ug/kg					
591-78-6	2-Hexanone	ug/kg	55 U	60 U	90 U	59 UJ	59 U
74-88-4	Iodomethane	ug/kg					
78-83-1	Isobutyl alcohol	ug/kg					
126-98-7	Methacrylonitrile	ug/kg					
75-09-2	Methylene chloride	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
80-62-6	Methyl methacrylate	ug/kg					
107-12-0	Propionitrile	ug/kg					
100-42-5	Styrene	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
630-20-6	1,1,1,2-Tetrachloroethane	ug/kg					
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
127-18-4	Tetrachloroethene	ug/kg	5.5 U	2.5 J	9 U	5.9 UJ	5.9 U
108-88-3	Toluene	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
71-55-6	1,1,1-Trichloroethane	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
79-00-5	1,1,2-Trichloroethane	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
79-01-6	Trichloroethene	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
96-18-4	1,2,3-Trichloropropane	ug/kg	5.5 U				
108-05-4	Vinyl acetate	ug/kg					
75-01-4	Vinyl chloride	ug/kg	5.5 U	6 U	9 U	5.9 UJ	5.9 U
1330-20-7	Xylenes (total)	ug/kg	16 U	18 U	27 U	18 UJ	18 U
106-93-4	1,2-Dibromoethane (EDB)	ug/kg					
78-93-3	2-Butanone (MEK)	ug/kg	55 U	60 U	90 U	59 UJ	59 U
108-10-1	4-Methyl-2-pentanone (MIBK)	ug/kg	55 U	60 U	90 U	59 UJ	59 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBDW16 16-18' A5L160125-004 QUANTERRA L16125 SOIL 12/15/95	SBMW17 06-08' A5L210121-004 QUANTERRA L20142 SOIL 12/20/95	SBMW17 10-12' A5L150193-009 QUANTERRA L15193 SOIL 12/14/95	SBMW18 16-18' A5L150193-010 QUANTERRA L15193 SOIL 12/14/95	SBDW18 34-36' A5L210121-005 QUANTERRA L20142 SOIL 12/20/95
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
92-67-1	4-Aminobiphenyl	ug/kg					
60-11-7	p-Dimethylaminoazobenzene	ug/kg					
57-97-6	7,12-Dimethylbenz(a)anthracene	ug/kg					
1888-71-7	Hexachloropropene	ug/kg					
62-44-2	Phenacetin	ug/kg					
23950-58-5	Pronamide	ug/kg					
122-09-8	a,a-Dimethylphenethylamine	ug/kg					
2303-16-4	Diallate	ug/kg					
510-15-6	Chlorobenzilate	ug/kg					
83-32-9	Acenaphthene	ug/kg	180 U	33 J	300 U	38 J	190 U
208-96-8	Acenaphthylene	ug/kg	180 U	200 U	300 U	200 U	190 U
98-86-2	Acetophenone	ug/kg					
53-96-3	2-Acetylaminofluorene	ug/kg					
62-53-3	Aniline	ug/kg					
120-12-7	Anthracene	ug/kg	180 U	200 U	300 U	23 J	190 U
56-55-3	Benzo(a)anthracene	ug/kg	180 U	200 U	300 U	42 J	190 U
205-99-2	Benzo(b)fluoranthene	ug/kg	180 U	200 U	300 U	43 J	190 U
207-08-9	Benzo(k)fluoranthene	ug/kg	180 U	200 U	300 U	200 U	190 U
191-24-2	Benzo(ghi)perylene	ug/kg	180 U	200 U	300 U	21 J	190 U
50-32-8	Benzo(a)pyrene	ug/kg	180 U	200 U	300 U	25 J	190 U
100-51-6	Benzyl alcohol	ug/kg					
111-91-1	bis(2-Chloroethoxy)methane	ug/kg	180 U	200 U	300 U	200 U	190 U
111-44-4	bis(2-Chloroethyl) ether	ug/kg	180 U	200 U	300 U	200 U	190 U
117-81-7	bis(2-Ethylhexyl) phthalate	ug/kg	180 U	200 U	300 U	200 U	190 U
101-55-3	4-Bromophenyl phenyl ether	ug/kg	180 U	200 U	300 U	200 U	190 U
85-68-7	Butyl benzyl phthalate	ug/kg	180 U	200 U	300 U	200 U	190 U
106-47-8	4-Chloroaniline	ug/kg	180 U	200 U	300 U	200 U	190 U
59-50-7	4-Chloro-3-methylphenol	ug/kg	180 U	200 U	300 U	200 U	190 U
91-58-7	2-Chloronaphthalene	ug/kg	180 U	200 U	300 U	200 U	190 U
95-57-8	2-Chlorophenol	ug/kg	180 U	200 U	300 U	200 U	190 U
7005-72-3	4-Chlorophenyl phenyl ether	ug/kg	180 U	200 U	300 U	200 U	190 U
218-01-9	Chrysene	ug/kg	180 U	200 U	300 U	55 J	190 U
53-70-3	Dibenz(a,h)anthracene	ug/kg	180 U	200 U	300 U	200 U	190 U
132-64-9	Dibenzofuran	ug/kg	180 U	26 J	300 U	22 J	190 U
84-74-2	Di-n-butyl phthalate	ug/kg	180 U	200 U	300 U	200 U	190 U
91-94-1	3,3'-Dichlorobenzidine	ug/kg	1100 U	1200 U	1800 U	1200 U	1200 U
120-83-2	2,4-Dichlorophenol	ug/kg	180 U	200 U	300 U	200 U	190 U
87-65-0	2,6-Dichlorophenol	ug/kg	180 U				
84-66-2	Diethyl phthalate	ug/kg	180 U	200 U	300 U	200 U	190 U
119-93-7	3,3'-Dimethylbenzidine	ug/kg					
105-67-9	2,4-Dimethylphenol	ug/kg	180 U	200 U	300 U	200 U	190 U
131-11-3	Dimethyl phthalate	ug/kg	180 U	200 U	300 U	200 U	190 U
117-84-0	Di-n-octyl phthalate	ug/kg	180 U	200 U	300 U	200 U	190 U
99-65-0	1,3-Dinitrobenzene	ug/kg					
534-52-1	4,6-Dinitro-2-methylphenol	ug/kg	930 U	1000 U	1500 U	1000 U	1000 U
51-28-5	2,4-Dinitrophenol	ug/kg	930 U	1000 U	1500 U	1000 U	1000 U
121-14-2	2,4-Dinitrotoluene	ug/kg	180 U	200 U	300 U	200 U	190 U
606-20-2	2,6-Dinitrotoluene	ug/kg	180 U	200 U	300 U	200 U	190 U
122-39-4	Diphenylamine	ug/kg					
62-50-0	Ethyl methanesulfonate	ug/kg					
206-44-0	Fluoranthene	ug/kg	180 U	46 J	300 U	99 J	190 U
86-73-7	Fluorene	ug/kg	180 U	46 J	300 U	200 U	190 U
118-74-1	Hexachlorobenzene	ug/kg	180 U	200 U	300 U	200 U	190 U
87-68-3	Hexachlorobutadiene	ug/kg	180 U	200 U	300 U	200 U	190 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBDW16 16-18' A5L160125-004 QUANTERRA L16125 SOIL 12/15/95	SBMW17 06-08' A5L210121-004 QUANTERRA L20142 SOIL 12/20/95	SBMW17 10-12' A5L150193-009 QUANTERRA L15193 SOIL 12/14/95	SBMW18 16-18' A5L150193-010 QUANTERRA L15193 SOIL 12/14/95	SBDW18 34-36' A5L210121-005 QUANTERRA L20142 SOIL 12/20/95
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES CONT'D						
77-47-4	Hexachlorocyclopentadiene	ug/kg	180 U	200 U	300 U	200 U	190 U
67-72-1	Hexachloroethane	ug/kg	180 U	200 U	300 U	200 U	190 U
	Hexachlorophene	ug/kg	180 U				
193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	180 U	200 U	300 U	200 U	190 U
78-59-1	Isophorone	ug/kg	180 U	200 U	300 U	200 U	190 U
120-58-1	Isosafrole	ug/kg					
91-80-5	Methapyrilene	ug/kg					
95-53-4	o-Toluidine	ug/kg					
56-49-5	3-Methylcholanthrene	ug/kg					
66-27-3	Methyl methanesulfonate	ug/kg					
91-57-6	2-Methylnaphthalene	ug/kg	180 U	230	300 U	61 J	190 U
95-48-7	2-Methylphenol	ug/kg	180 U	38 J	300 U	200 U	190 U
108-39-4	3-Methylphenol	ug/kg					
106-44-5	4-Methylphenol	ug/kg	180 U	83 J	300 U	200 U	190 U
91-20-3	Naphthalene	ug/kg	180 U	210	300 U	130 J	190 U
130-15-4	1,4-Naphthoquinone	ug/kg					
134-32-7	1-Naphthylamine	ug/kg					
91-59-8	2-Naphthylamine	ug/kg					
88-74-4	2-Nitroaniline	ug/kg	930 U	1000 U	1500 U	1000 U	1000 U
99-09-2	3-Nitroaniline	ug/kg	930 U	1000 U	1500 U	1000 U	1000 U
100-01-6	4-Nitroaniline	ug/kg	930 U	1000 U	1500 U	1000 U	1000 U
98-95-3	Nitrobenzene	ug/kg	180 U	200 U	300 U	200 U	190 U
88-75-5	2-Nitrophenol	ug/kg	180 U	200 U	300 U	200 U	190 U
100-02-7	4-Nitrophenol	ug/kg	390 U	1000 U	1500 U	1000 U	1000 U
56-57-5	4-Nitroquinoline-1-oxide	ug/kg					
924-16-3	N-Nitrosodi-n-butylamine	ug/kg					
55-18-5	N-Nitrosodiethylamine	ug/kg					
62-75-9	N-Nitrosodimethylamine	ug/kg					
621-64-7	N-Nitrosodi-n-propylamine	ug/kg	180 U	200 U	300 U	200 U	190 U
86-30-6	N-Nitrosodiphenylamine	ug/kg	180 U	200 U	300 U	200 U	190 U
10595-95-6	N-Nitrosomethylethylamine	ug/kg					
59-89-2	N-Nitrosomorpholine	ug/kg					
100-75-4	N-Nitrosopiperidine	ug/kg					
930-55-2	N-Nitrosopyrrolidine	ug/kg					
608-93-5	Pentachlorobenzene	ug/kg					
99-55-8	5-Nitro-o-toluidine	ug/kg					
76-01-7	Pentachloroethane	ug/kg					
82-68-8	Pentachloronitrobenzene	ug/kg					
87-86-5	Pentachlorophenol	ug/kg	1900 U	2000 U	3100 U	2000 U	2000 U
85-01-8	Phenanthrene	ug/kg	180 U	120 J	300 U	150 J	190 U
108-95-2	Phenol	ug/kg	180 U	200 U	300 U	200 U	190 U
106-50-3	p-Phenylene diamine	ug/kg					
109-06-8	2-Picoline	ug/kg					
129-00-0	Pyrene	ug/kg	180 U	32 J	300 U	53 J	190 U
110-86-1	Pyridine	ug/kg					
94-59-7	Safrole	ug/kg					
95-94-3	1,2,4,5-Tetrachlorobenzene	ug/kg					
58-90-2	2,3,4,6-Tetrachlorophenol	ug/kg					
120-82-1	1,2,4-Trichlorobenzene	ug/kg	180 U	200 U	300 U	200 U	190 U
95-95-4	2,4,5-Trichlorophenol	ug/kg	930 U	1000 U	1500 U	1000 U	1000 U
88-06-2	2,4,6-Trichlorophenol	ug/kg	180 U	200 U	300 U	200 U	190 U
99-35-4	1,3,5-Trinitrobenzene	ug/kg					
86-74-8	Carbazole	ug/kg	180 U	200 U	300 U	200 U	190 U
108-60-1	bis(2-Chloroisopropyl) ether	ug/kg	180 U	200 U	300 U	200 U	190 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBDW16 16-18' A5L160125-004 QUANTERRA L16125 SOIL 12/15/95	SBMW17 06-08' A5L210121-004 QUANTERRA L20142 SOIL 12/20/95	SBMW17 10-12' A5L150193-009 QUANTERRA L15193 SOIL 12/14/95	SBMW18 16-18' A5L150193-010 QUANTERRA L15193 SOIL 12/14/95	SBDW18 34-36' A5L210121-005 QUANTERRA L20142 SOIL 12/20/95
CAS NO.	COMPOUND	UNITS:					
	PESTICIDES/PCBs						
309-00-2	Aldrin	ug/kg	11 U	12 U	18 U	12 U	12 U
319-84-6	alpha-BHC	ug/kg	11 U	12 U	18 U	12 U	12 U
319-85-7	beta-BHC	ug/kg	11 U	12 U	18 U	12 U	12 U
319-86-8	delta-BHC	ug/kg	11 U	12 U	18 U	12 U	12 U
58-89-9	gamma-BHC (Lindane)	ug/kg	11 U	12 U	18 U	12 U	12 U
5103-71-9	alpha-Chlordane	ug/kg	5.5 U	6 U	9 U	5.9 U	5.9 U
5103-74-2	gamma-Chlordane	ug/kg	5.5 U	6 U	9 U	5.9 U	5.9 U
72-54-8	4,4'-DDD	ug/kg	11 U	12 U	18 U	12 U	12 U
72-55-9	4,4'-DDE	ug/kg	11 U	12 U	18 U	12 U	12 U
50-29-3	4,4'-DDT	ug/kg	11 U	12 U	18 U	12 U	12 U
60-57-1	Dieldrin	ug/kg	11 U	12 U	18 U	12 U	12 U
959-98-8	Endosulfan I	ug/kg	11 U	12 U	18 U	12 U	12 U
33213-65-9	Endosulfan II	ug/kg	11 U	12 U	18 U	12 U	12 U
1031-07-8	Endosulfan sulfate	ug/kg	11 U	12 U	18 U	12 U	12 U
72-20-8	Endrin	ug/kg	11 U	12 U	18 U	12 U	12 U
7421-93-4	Endrin aldehyde	ug/kg	11 U	12 U	18 U	12 U	12 U
76-44-8	Heptachlor	ug/kg	11 U	12 U	18 U	12 U	12 U
1024-57-3	Heptachlor epoxide	ug/kg	11 U	12 U	18 U	12 U	12 U
465-73-6	Isodrin	ug/kg					
143-50-0	Kepone	ug/kg					
72-43-5	Methoxychlor	ug/kg	27 U	30 U	45 U	30 U	29 U
12674-11-2	Aroclor 1016	ug/kg	180 U	200 U	300 U	200 U	190 U
11104-28-2	Aroclor 1221	ug/kg	180 U	200 U	300 U	200 U	190 U
11141-16-5	Aroclor 1232	ug/kg	180 U	200 U	300 U	200 U	190 U
53469-21-9	Aroclor 1242	ug/kg	180 U	200 U	300 U	200 U	190 U
12672-29-6	Aroclor 1248	ug/kg	180 U	200 U	300 U	200 U	190 U
11097-69-1	Aroclor 1254	ug/kg	180 U	200 U	300 U	200 U	190 U
11096-82-5	Aroclor 1260	ug/kg	180 U	200 U	300 U	200 U	190 U
8001-35-2	Toxaphene	ug/kg	93 U	100 U	150 U	100 U	100 U
53494-70-5	Endrin ketone	ug/kg		12 U	18 U	12 U	12 U
	HERBICIDES						
57-74-9	Chlordane (technical)	ug/kg					
60-51-5	Dimethoate	ug/kg					
298-04-4	Disulfoton	ug/kg					
52-85-7	Famphur	ug/kg					
298-00-0	Methyl parathion	ug/kg					
56-38-2	Parathion	ug/kg					
298-02-2	Phorate	ug/kg					
3689-24-5	Tetraethyldithiopyrophosphate	ug/kg					
297-97-2	Thionazin	ug/kg					
126-68-1	O,O,O-Triethyl phosphorothioate	ug/kg					
94-75-7	2,4-D	ug/kg					
93-76-5	2,4,5-T	ug/kg					
88-85-7	Dinoseb	ug/kg					
93-72-1	2,4,5-TP	ug/kg					

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID:	SBDW16	SBMW17	SBMW17	SBMW18	SBDW18
		DEPTH:	16-18'	06-08'	10-12'	16-18'	34-36'
		LAB ID:	A5L160125-004	A5L210121-004	A5L150193-009	A5L150193-010	A5L210121-005
		SOURCE:	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA
		SDG:	L16125	L20142	L15193	L15193	L20142
		MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL
		SAMPLED:	12/15/95	12/20/95	12/14/95	12/14/95	12/20/95
CAS NO.	COMPOUND	UNITS:					
	INORGANICS						
7440-47-3	Chromium	ug/kg	3810	30500	1690	21400	3810
7439-92-1	Lead	ug/kg	1680	6170	900 U	113000	1800
7440-36-0	Antimony	ug/kg	275 U	664	450 U	467	294 U
7782-49-2	Selenium	ug/kg	275 U	300 U	450 U	339	294 U
7429-90-5	Aluminum	ug/kg	2580000	1600000	625000	2670000	1700000
7440-39-3	Barium	ug/kg	9070	16400	156000	20400	10200
7440-41-7	Beryllium	ug/kg	165	360 U	270 U	178	353 U
7440-70-2	Calcium	ug/kg	75400000	1230000	4.25E+08	5400000	51300000
7440-48-4	Cobalt	ug/kg	3080	3000 U	4500 U	2970 U	2940 U
7440-50-8	Copper	ug/kg	6320	55800	2790	28400	4000
7439-89-6	Iron	ug/kg	5540000	16300000	2060000	9980000	3620000
7440-09-7	Potassium	ug/kg	550000 U	600000 U	900000 U	595000 U	588000 U
7439-95-4	Magnesium	ug/kg	23900000	814000	9630000	885000	10100000
7439-96-5	Manganese	ug/kg	179000	248000	425000	227000	124000
7440-23-5	Sodium	ug/kg	464000	226000	679000	227000	336000
7440-02-0	Nickel	ug/kg	7040	33800	3060	33200	4410
7440-62-2	Vanadium	ug/kg	10500	5290	1800 U	7310	6270
7440-66-6	Zinc	ug/kg	12400	7910	3960	23000	13300
7440-38-2	Arsenic	ug/kg	2790	2430	603	1610	2150
7440-43-9	Cadmium	ug/kg	63.2	30 U	121	157	42.9
7439-97-6	Mercury	ug/kg	55 U	60 U	90 U	59.5 U	58.8 U
7440-22-4	Silver	ug/kg	275 U	300 U	450 U	297 U	294 U
7440-28-0	Thallium	ug/kg	275 U	300 U	450 UJ	297 UJ	294 U
7440-31-5	Tin	ug/kg					
57-12-5	Cyanide	ug/kg	270 U	620	450 U	300 U	1900
10-31-1	Solids, Percent	%	90.93	83.4	55.57	84.08	85.1
18496-25-8	Acid-insoluble Sulfide	MG/L					
	DIOXINS						
DIOXIN1	TCDFs(TOTAL)	PG/G					
DIOXIN2	2,3,7,8-TCDF	PG/G					
DIOXIN3	PeCDFS(TOTAL)	PG/G					
DIOXIN4	1,2,3,7,8-PeCDF	PG/G					
DIOXIN5	2,3,4,7,8-PeCDF	PG/G					
DIOXIN6	HxCDFs(TOTAL)	PG/G					
DIOXIN7	1,2,3,4,7,8-HxCDF	PG/G					
DIOXIN8	1,2,3,6,7,8-HxCDF	PG/G					
DIOXIN9	2,3,4,6,7,8-HxCDF	PG/G					
DIOXIN10	1,2,3,7,8,9-HxCDF	PG/G					
DIOXIN11	HpCDFs(TOTAL)	PG/G					
DIOXIN12	1,2,3,4,6,7,8-HpCDF	PG/G					
DIOXIN13	1,2,3,4,7,8,9-HpCDF	PG/G					
DIOXIN14	OCDF	PG/G					
DIOXIN15	TCDDs(TOTAL)	PG/G					
DIOXIN16	2,3,7,8-TCDD	PG/G					
DIOXIN17	PeCDDs(TOTAL)	PG/G					
DIOXIN18	1,2,3,7,8-PeCDD	PG/G					
DIOXIN19	HxCDDs(TOTAL)	PG/G					
DIOXIN20	1,2,3,4,7,8-HxCDD	PG/G					
DIOXIN21	1,2,3,6,7,8-HxCDD	PG/G					
DIOXIN22	1,2,3,7,8,9-HxCDD	PG/G					
DIOXIN23	HpCDDs(TOTAL)	PG/G					
DIOXIN24	1,2,3,4,6,7,8-HpCDD	PG/G					
DIOXIN25	OCDD	PG/G					
TDIOXINS	TOTAL TEFs	PG/G					

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBDW68 34-36' A5L210121-006 QUANTERRA L20142 SOIL 12/20/95	SBMW19 25-27' A5L190138-013 QUANTERRA L16128 SOIL 12/18/95	SBDW19 36-38' A5L160128-001 QUANTERRA L16128 SOIL 12/15/95	SBMW20 23-25' A5L210121-001 QUANTERRA L20142 SOIL 12/20/95	SBMW70 23-25' A5L210121-002 QUANTERRA L20142 SOIL 12/20/95
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	ug/kg	56 U	22 J	88	7000 U	310 J
95-50-1	1,2-Dichlorobenzene	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
541-73-1	1,3-Dichlorobenzene	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
106-46-7	1,4-Dichlorobenzene	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
156-59-2	cis-1,2-Dichloroethene	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
75-05-8	Acetonitrile	ug/kg					
107-02-8	Acrolein	ug/kg					
107-13-1	Acrylonitrile	ug/kg					
71-43-2	Benzene	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
75-27-4	Bromodichloromethane	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
75-25-2	Bromoform	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
74-83-9	Bromomethane	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
75-15-0	Carbon disulfide	ug/kg	56 U	60 UJ	9.6 J	7000 U	7300 U
56-23-5	Carbon tetrachloride	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
108-90-7	Chlorobenzene	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
126-99-8	Chloroprene	ug/kg					
124-48-1	Dibromochloromethane	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
96-12-8	1,2-Dibromo-3-chloropropane	ug/kg					
75-00-3	Chloroethane	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
67-66-3	Chloroform	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
74-87-3	Chloromethane	ug/kg	5.6 U	6 UJ	7.6 U	1400 U	1400 U
107-05-1	Allyl chloride	ug/kg					
74-95-3	Dibromomethane	ug/kg					
110-57-6	trans-1,4-Dichloro-2-butene	ug/kg					
75-71-8	Dichlorodifluoromethane	ug/kg					
75-34-3	1,1-Dichloroethane	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
107-06-2	1,2-Dichloroethane	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
75-35-4	1,1-Dichloroethene	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
156-60-5	trans-1,2-Dichloroethene	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
78-87-5	1,2-Dichloropropane	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
10061-01-5	cis-1,3-Dichloropropene	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
10061-02-6	trans-1,3-Dichloropropene	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
123-91-1	1,4-Dioxane	ug/kg					
100-41-4	Ethylbenzene	ug/kg	5.6 U	6 UJ	7.6 U	6100	5400
97-63-2	Ethyl methacrylate	ug/kg					
75-69-4	Trichlorofluoromethane	ug/kg					
591-78-6	2-Hexanone	ug/kg	56 U	60 UJ	76 U	7000 U	7300 U
74-88-4	Iodomethane	ug/kg					
78-83-1	Isobutyl alcohol	ug/kg					
126-98-7	Methacrylonitrile	ug/kg					
75-09-2	Methylene chloride	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
80-62-6	Methyl methacrylate	ug/kg					
107-12-0	Propionitrile	ug/kg					
100-42-5	Styrene	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
630-20-6	1,1,1,2-Tetrachloroethane	ug/kg					
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
127-18-4	Tetrachloroethene	ug/kg	5.6 U	2.9 J	7.6 U	700 U	730 U
108-88-3	Toluene	ug/kg	5.6 U	6.1 UJ	3.7 J	1500	2500
71-55-6	1,1,1-Trichloroethane	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
79-00-5	1,1,2-Trichloroethane	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
79-01-6	Trichloroethene	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
96-18-4	1,2,3-Trichloropropane	ug/kg					
108-05-4	Vinyl acetate	ug/kg					
75-01-4	Vinyl chloride	ug/kg	5.6 U	6 UJ	7.6 U	700 U	730 U
1330-20-7	Xylenes (total)	ug/kg	17 U	18 UJ	23 U	20000	17000
106-93-4	1,2-Dibromoethane (EDB)	ug/kg					
78-93-3	2-Butanone (MEK)	ug/kg	56 U	3.4 J	18 J	7000 U	1100 J
108-10-1	4-Methyl-2-pentanone (MIBK)	ug/kg	56 U	60 UJ	76 U	7000 U	7300 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID:	SBDW68	SBMW19	SBDW19	SBMW20	SBMW70
		DEPTH:	34-36'	25-27'	36-38'	23-25'	23-25'
		LAB ID:	A5L210121-006	A5L190138-013	A5L160128-001	A5L210121-001	A5L210121-002
		SOURCE:	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA
		SDG:	L20142	L16128	L16128	L20142	L20142
		MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL
		SAMPLED:	12/20/95	12/18/95	12/15/95	12/20/95	12/20/95
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
92-67-1	4-Aminobiphenyl	ug/kg					
60-11-7	p-Dimethylaminoazobenzene	ug/kg					
57-97-6	7,12-Dimethylbenz(a)anthracene	ug/kg					
1888-71-7	Hexachloropropene	ug/kg					
62-44-2	Phenacetin	ug/kg					
23950-58-5	Pronamide	ug/kg					
122-09-8	a,a-Dimethylphenethylamine	ug/kg					
2303-16-4	Diallate	ug/kg					
510-15-6	Chlorobenzilate	ug/kg					
83-32-9	Acenaphthene	ug/kg	180 U	200 U	250 U	5300 J	6500
208-96-8	Acenaphthylene	ug/kg	180 U	200 U	250 U	37000 U	3900 U
98-86-2	Acetophenone	ug/kg					
53-96-3	2-Acetylaminofluorene	ug/kg					
62-53-3	Aniline	ug/kg					
120-12-7	Anthracene	ug/kg	180 U	200 U	250 U	37000 U	3900 U
56-55-3	Benzo(a)anthracene	ug/kg	180 U	200 U	250 U	5600 J	6300
205-99-2	Benzo(b)fluoranthene	ug/kg	180 U	200 U	250 U	4200 J	8300
207-08-9	Benzo(k)fluoranthene	ug/kg	180 U	200 U	250 U	37000 U	3900 U
191-24-2	Benzo(ghi)perylene	ug/kg	180 U	200 U	250 U	37000 U	3900 U
50-32-8	Benzo(a)pyrene	ug/kg	180 U	200 U	250 U	37000 U	3900 U
100-51-6	Benzyl alcohol	ug/kg					
111-91-1	bis(2-Chloroethoxy)methane	ug/kg	180 U	200 U	250 U	37000 U	3900 U
111-44-4	bis(2-Chloroethyl) ether	ug/kg	180 U	200 U	250 U	37000 U	3900 U
117-81-7	bis(2-Ethylhexyl) phthalate	ug/kg	180 U	200 U	250 U	24000 J	35000
101-55-3	4-Bromophenyl phenyl ether	ug/kg	180 U	200 U	250 U	37000 U	3900 U
85-68-7	Butyl benzyl phthalate	ug/kg	180 U	200 U	250 U	8200 J	3900 U
106-47-8	4-Chloroaniline	ug/kg	180 U	200 U	250 U	37000 U	3900 U
59-50-7	4-Chloro-3-methylphenol	ug/kg	180 U	200 U	250 U	37000 U	3900 U
91-58-7	2-Chloronaphthalene	ug/kg	180 U	200 U	250 U	37000 U	3900 U
95-57-8	2-Chlorophenol	ug/kg	180 U	200 U	250 U	37000 U	3900 U
7005-72-3	4-Chlorophenyl phenyl ether	ug/kg	180 U	200 U	250 U	37000 U	3900 U
218-01-9	Chrysene	ug/kg	180 U	200 U	250 U	8000 J	9700
53-70-3	Dibenz(a,h)anthracene	ug/kg	180 U	200 U	250 U	37000 U	3900 U
132-64-9	Dibenzofuran	ug/kg	180 U	200 U	250 U	37000 U	4200
84-74-2	Di-n-butyl phthalate	ug/kg	180 U	200 U	250 U	37000 U	3900 U
91-94-1	3,3'-Dichlorobenzidine	ug/kg	1100 U	1200 U	1500 U	230000 U	23000 U
120-83-2	2,4-Dichlorophenol	ug/kg	180 U	200 U	250 U	37000 U	3900 U
87-65-0	2,6-Dichlorophenol	ug/kg					
84-66-2	Diethyl phthalate	ug/kg	180 U	200 U	250 U	37000 U	3900 U
119-93-7	3,3'-Dimethylbenzidine	ug/kg					
105-67-9	2,4-Dimethylphenol	ug/kg	180 U	200 U	250 U	37000 U	3900 U
131-11-3	Dimethyl phthalate	ug/kg	180 U	200 U	250 U	37000 U	3900 U
117-84-0	Di-n-octyl phthalate	ug/kg	180 U	200 U	250 U	37000 U	3900 U
99-65-0	1,3-Dinitrobenzene	ug/kg					
534-52-1	4,6-Dinitro-2-methylphenol	ug/kg	950 U	1000 U	1300 U	190000 U	20000 U
51-28-5	2,4-Dinitrophenol	ug/kg	950 U	1000 U	1300 U	190000 U	20000 U
121-14-2	2,4-Dinitrotoluene	ug/kg	180 U	200 U	250 U	37000 U	3900 U
606-20-2	2,6-Dinitrotoluene	ug/kg	180 U	200 U	250 U	37000 U	3900 U
122-39-4	Diphenylamine	ug/kg					
62-50-0	Ethyl methanesulfonate	ug/kg					
206-44-0	Fluoranthene	ug/kg	180 U	200 U	250 U	15000 J	21000
86-73-7	Fluorene	ug/kg	180 U	200 U	250 U	7500 J	9200
118-74-1	Hexachlorobenzene	ug/kg	180 U	200 U	250 U	37000 U	3900 U
87-68-3	Hexachlorobutadiene	ug/kg	180 U	200 U	250 U	37000 U	3900 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBDW68 34-36' A5L210121-006 QUANTERRA L20142 SOIL 12/20/95	SBMW19 25-27' A5L190138-013 QUANTERRA L16128 SOIL 12/18/95	SBDW19 36-38' A5L160128-001 QUANTERRA L16128 SOIL 12/15/95	SBMW20 23-25' A5L210121-001 QUANTERRA L20142 SOIL 12/20/95	SBMW70 23-25' A5L210121-002 QUANTERRA L20142 SOIL 12/20/95
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES CONT'D						
77-47-4	Hexachlorocyclopentadiene	ug/kg	180 U	200 U	250 U	37000 U	3900 U
67-72-1	Hexachloroethane	ug/kg	180 U	200 U	250 U	37000 U	3900 U
	Hexachlorophene	ug/kg					
193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	180 U	200 U	250 U	37000 U	3900 U
78-59-1	Isophorone	ug/kg	180 U	200 U	250 U	37000 U	3900 U
120-58-1	Isosafrole	ug/kg					
91-80-5	Methapyrilene	ug/kg					
95-53-4	o-Toluidine	ug/kg					
56-49-5	3-Methylcholanthrene	ug/kg					
66-27-3	Methyl methanesulfonate	ug/kg					
91-57-6	2-Methylnaphthalene	ug/kg	180 U	200 U	250 U	85000	120000
95-48-7	2-Methylphenol	ug/kg	180 U	200 U	250 U	37000 U	3900 U
108-39-4	3-Methylphenol	ug/kg					
106-44-5	4-Methylphenol	ug/kg	180 U	200 U	250 U	37000 U	3900 U
91-20-3	Naphthalene	ug/kg	180 U	200 U	250 U	12000 J	19000
130-15-4	1,4-Naphthoquinone	ug/kg					
134-32-7	1-Naphthylamine	ug/kg					
91-59-8	2-Naphthylamine	ug/kg					
88-74-4	2-Nitroaniline	ug/kg	950 U	1000 U	1300 U	190000 U	20000 U
99-09-2	3-Nitroaniline	ug/kg	950 U	1000 U	1300 U	190000 U	20000 U
100-01-6	4-Nitroaniline	ug/kg	950 U	1000 U	1300 U	190000 U	20000 U
98-95-3	Nitrobenzene	ug/kg	180 U	200 U	250 U	37000 U	3900 U
88-75-5	2-Nitrophenol	ug/kg	180 U	200 U	250 U	37000 U	3900 U
100-02-7	4-Nitrophenol	ug/kg	950 U	1000 U	1300 U	190000 U	20000 U
56-57-5	4-Nitroquinoline-1-oxide	ug/kg					
924-16-3	N-Nitrosodi-n-butylamine	ug/kg					
55-18-5	N-Nitrosodiethylamine	ug/kg					
62-75-9	N-Nitrosodimethylamine	ug/kg					
621-64-7	N-Nitrosodi-n-propylamine	ug/kg	180 U	200 U	250 U	37000 U	3900 U
86-30-6	N-Nitrosodiphenylamine	ug/kg	180 U	200 U	250 U	37000 U	3900 U
10595-95-6	N-Nitrosomethylethylamine	ug/kg					
59-89-2	N-Nitrosomorpholine	ug/kg					
100-75-4	N-Nitrosopiperidine	ug/kg					
930-55-2	N-Nitrosopyrrolidine	ug/kg					
608-93-5	Pentachlorobenzene	ug/kg					
99-55-8	5-Nitro-o-toluidine	ug/kg					
76-01-7	Pentachloroethane	ug/kg					
82-68-8	Pentachloronitrobenzene	ug/kg					
87-86-5	Pentachlorophenol	ug/kg	1900 U	2000 U	2600 U	360000 U	38000 U
85-01-8	Phenanthrene	ug/kg	180 U	200 U	250 U	21000 J	26000
108-95-2	Phenol	ug/kg	180 U	200 U	250 U	37000 U	3900 U
106-50-3	p-Phenylene diamine	ug/kg					
109-06-8	2-Picoline	ug/kg					
129-00-0	Pyrene	ug/kg	180 U	200 U	250 U	13000 J	13000
110-86-1	Pyridine	ug/kg					
94-59-7	Safrole	ug/kg					
95-94-3	1,2,4,5-Tetrachlorobenzene	ug/kg					
58-90-2	2,3,4,6-Tetrachlorophenol	ug/kg					
120-82-1	1,2,4-Trichlorobenzene	ug/kg	180 U	200 U	250 U	37000 U	3900 U
95-95-4	2,4,5-Trichlorophenol	ug/kg	950 U	1000 U	1300 U	75000 U	7700 U
88-06-2	2,4,6-Trichlorophenol	ug/kg	180 U	200 U	250 U	37000 U	3900 U
99-35-4	1,3,5-Trinitrobenzene	ug/kg					
86-74-8	Carbazole	ug/kg	180 U	200 U	250 U	37000 U	3900 U
108-60-1	bis(2-Chloroisopropyl) ether	ug/kg	180 U	200 U	250 U	37000 U	3900 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBDW68 34-36' A5L210121-006 QUANTERRA L20142 SOIL 12/20/95	SBMW19 25-27' A5L190138-013 QUANTERRA L16128 SOIL 12/18/95	SBDW19 36-38' A5L160128-001 QUANTERRA LI6128 SOIL 12/15/95	SBMW20 23-25' A5L210121-001 QUANTERRA L20142 SOIL 12/20/95	SBMW70 23-25' A5L210121-002 QUANTERRA L20142 SOIL 12/20/95
CAS NO.	COMPOUND	UNITS:					
	PESTICIDES/PCBs						
309-00-2	Aldrin	ug/kg	11 U	12 U	15 U	380 U	390 U
319-84-6	alpha-BHC	ug/kg	11 U	12 U	15 U	380 U	390 U
319-85-7	beta-BHC	ug/kg	11 U	12 U	15 U	380 U	390 U
319-86-8	delta-BHC	ug/kg	11 U	12 U	15 U	380 U	390 U
58-89-9	gamma-BHC (Lindane)	ug/kg	11 U	12 U	15 U	380 U	390 U
5103-71-9	alpha-Chlordane	ug/kg	5.6 U	6 U	7.6 U	380 U	390 U
5103-74-2	gamma-Chlordane	ug/kg	5.6 U	6 U	7.6 U	380 U	390 U
72-54-8	4,4'-DDD	ug/kg	11 U	12 U	15 U	760 U	780 U
72-55-9	4,4'-DDE	ug/kg	11 U	12 U	15 U	760 U	780 U
50-29-3	4,4'-DDT	ug/kg	11 U	12 U	15 U	760 U	780 U
60-57-1	Dieldrin	ug/kg	11 U	12 U	15 U	760 U	780 U
959-98-8	Endosulfan I	ug/kg	11 U	12 U	15 U	380 U	390 U
33213-65-9	Endosulfan II	ug/kg	11 U	12 U	15 U	760 U	780 U
1031-07-8	Endosulfan sulfate	ug/kg	11 U	12 U	15 U	760 U	780 U
72-20-8	Endrin	ug/kg	11 U	12 U	15 U	760 U	780 U
7421-93-4	Endrin aldehyde	ug/kg	11 U	12 U	15 U	760 U	780 U
76-44-8	Heptachlor	ug/kg	11 U	12 U	15 U	380 U	390 U
1024-57-3	Heptachlor epoxide	ug/kg	11 U	12 U	15 U	380 U	390 U
465-73-6	Isodrin	ug/kg					
143-50-0	Kepone	ug/kg					
72-43-5	Methoxychlor	ug/kg	28 U	30 U	38 U	3800 U	3900 U
12674-11-2	Aroclor 1016	ug/kg	180 U	200 U	250 U	3800 U	3900 U
11104-28-2	Aroclor 1221	ug/kg	180 U	200 U	250 U	3800 U	3900 U
11141-16-5	Aroclor 1232	ug/kg	180 U	200 U	250 U	3800 U	3900 U
53469-21-9	Aroclor 1242	ug/kg	180 U	200 U	250 U	3800 U	3900 U
12672-29-6	Aroclor 1248	ug/kg	180 U	200 U	250 U	27000	31000
11097-69-1	Aroclor 1254	ug/kg	180 U	200 U	250 U	11000	12000
11096-82-5	Aroclor 1260	ug/kg	180 U	200 U	250 U	7600 U	7800 U
8001-35-2	Toxaphene	ug/kg	95 U	100 U	130 U	19000 U	20000 U
53494-70-5	Endrin ketone	ug/kg	11 U	12 U	15 U	760 U	780 U
	HERBICIDES						
57-74-9	Chlordane (technical)	ug/kg					
60-51-5	Dimethoate	ug/kg					
298-04-4	Disulfoton	ug/kg					
52-85-7	Famphur	ug/kg					
298-00-0	Methyl parathion	ug/kg					
56-38-2	Parathion	ug/kg					
298-02-2	Phorate	ug/kg					
3689-24-5	Tetraethyldithiopyrophosphate	ug/kg					
297-97-2	Thionazin	ug/kg					
126-68-1	O,O,O-Triethyl phosphorothioate	ug/kg					
94-75-7	2,4-D	ug/kg					
93-76-5	2,4,5-T	ug/kg					
88-85-7	Dinoseb	ug/kg					
93-72-1	2,4,5-TP	ug/kg					

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBDW68 34-36' A5L210121-006 QUANTERRA L20142 SOIL 12/20/95	SBMW19 25-27' A5L190138-013 QUANTERRA L16128 SOIL 12/18/95	SBDW19 36-38' A5L160128-001 QUANTERRA L16128 SOIL 12/15/95	SBMW20 23-25' A5L210121-001 QUANTERRA L20142 SOIL 12/20/95	SBMW70 23-25' A5L210121-002 QUANTERRA L20142 SOIL 12/20/95
CAS NO.	COMPOUND	UNITS:					
	INORGANICS						
7440-47-3	Chromium	ug/kg	4830	4380	3550	17200	14200
7439-92-1	Lead	ug/kg	1840	70200	2260	112000	89800
7440-36-0	Antimony	ug/kg	278 U	1410	378 U	1010	971
7782-49-2	Selenium	ug/kg	278 U	301 U	378 U	386	293 U
7429-90-5	Aluminum	ug/kg	1340000	1660000	1790000	1850000	2250000
7440-39-3	Barium	ug/kg	7180	11600	60900	187000	267000
7440-41-7	Beryllium	ug/kg	334 U	362 U	453 U	340 U	352 U
7440-70-2	Calcium	ug/kg	51100000	603000 U	10100000	5030000	3430000
7440-48-4	Cobalt	ug/kg	2780 U	3010 U	3780 U	2830 U	2930 U
7440-50-8	Copper	ug/kg	4140	3200	15700	143000	126000
7439-89-6	Iron	ug/kg	3020000	4050000	10800000	10600000	8430000
7440-09-7	Potassium	ug/kg	557000 U	603000 U	756000 U	566000 U	586000 U
7439-95-4	Magnesium	ug/kg	9220000	328000	10700000	1140000	1100000
7439-96-5	Manganese	ug/kg	110000	32400	340000	252000	170000
7440-23-5	Sodium	ug/kg	324000	159000	404000	290000	371000
7440-02-0	Nickel	ug/kg	4570	4760	6950	60500	47800
7440-62-2	Vanadium	ug/kg	5610	4850	6490	4890	5760
7440-66-6	Zinc	ug/kg	14100	7900	19800	68400	73200
7440-38-2	Arsenic	ug/kg	3160	1180	8300	2890	2280
7440-43-9	Cadmium	ug/kg	43.4	30.1 U	96.7	997	984
7439-97-6	Mercury	ug/kg	55.7 U	60.3 U	75.6 U	647	1390
7440-22-4	Silver	ug/kg	278 U	301 U	378 U	283 U	293 U
7440-28-0	Thallium	ug/kg	278 U	301 U	378 UJ	283 U	293 U
7440-31-5	Tin	ug/kg					
57-12-5	Cyanide	ug/kg	280 U	300 U	380 U	1900	3500
10-31-1	Solids, Percent	%		82.9	66.2	88.3	85.3
18496-25-8	Acid-insoluble Sulfide	MG/L					
	DIOXINS						
DIOXIN1	TCDFs(TOTAL)	PG/G					
DIOXIN2	2,3,7,8-TCDF	PG/G					
DIOXIN3	PeCDFS(TOTAL)	PG/G					
DIOXIN4	1,2,3,7,8-PeCDF	PG/G					
DIOXIN5	2,3,4,7,8-PeCDF	PG/G					
DIOXIN6	HxCDFs(TOTAL)	PG/G					
DIOXIN7	1,2,3,4,7,8-HxCDF	PG/G					
DIOXIN8	1,2,3,6,7,8-HxCDF	PG/G					
DIOXIN9	2,3,4,6,7,8-HxCDF	PG/G					
DIOXIN10	1,2,3,7,8,9-HxCDF	PG/G					
DIOXIN11	HpCDFs(TOTAL)	PG/G					
DIOXIN12	1,2,3,4,6,7,8-HpCDF	PG/G					
DIOXIN13	1,2,3,4,7,8,9-HpCDF	PG/G					
DIOXIN14	OCDF	PG/G					
DIOXIN15	TCDDs(TOTAL)	PG/G					
DIOXIN16	2,3,7,8-TCDD	PG/G					
DIOXIN17	PeCDDs(TOTAL)	PG/G					
DIOXIN18	1,2,3,7,8-PeCDD	PG/G					
DIOXIN19	HxCDDs(TOTAL)	PG/G					
DIOXIN20	1,2,3,4,7,8-HxCDD	PG/G					
DIOXIN21	1,2,3,6,7,8-HxCDD	PG/G					
DIOXIN22	1,2,3,7,8,9-HxCDD	PG/G					
DIOXIN23	HpCDDs(TOTAL)	PG/G					
DIOXIN24	1,2,3,4,6,7,8-HpCDD	PG/G					
DIOXIN25	OCDD	PG/G					
TDIOXINS	TOTAL TEFs	PG/G					

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBDW20 40-42' A5L200142-011 QUANTERRA L20142 SOIL 12/19/95	SBDW70 40-42' A5L200142-012 QUANTERRA L20142 SOIL 12/19/95	SBDW21 18-20' A5L200142-014 QUANTERRA L20142 SOIL 12/19/95	SBMW22 16-18' A5L150192-005 QUANTERRA L15192 SOIL 12/12/95	SBDW22 32-34' A5L200142-015 QUANTERRA L20142 SOIL 12/19/95
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	ug/kg	12 J	11 J	290 U	210 J	11 J
95-50-1	1,2-Dichlorobenzene	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
541-73-1	1,3-Dichlorobenzene	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
106-46-7	1,4-Dichlorobenzene	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
156-59-2	cis-1,2-Dichloroethene	ug/kg	8.6	16	29 U	66 U	5.7 U
75-05-8	Acetonitrile	ug/kg	59 U	60 U			57 U
107-02-8	Acrolein	ug/kg	59 U	60 U			57 U
107-13-1	Acrylonitrile	ug/kg	59 U	60 U			57 U
71-43-2	Benzene	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
75-27-4	Bromodichloromethane	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
75-25-2	Bromoform	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
74-83-9	Bromomethane	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
75-15-0	Carbon disulfide	ug/kg	59 U	60 U	290 U	660 U	57 U
56-23-5	Carbon tetrachloride	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
108-90-7	Chlorobenzene	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
126-99-8	Chloroprene	ug/kg	5.9 U	6 U			5.7 U
124-48-1	Dibromochloromethane	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
96-12-8	1,2-Dibromo-3-chloropropane	ug/kg	12 U	12 U			11 U
75-00-3	Chloroethane	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
67-66-3	Chloroform	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
74-87-3	Chloromethane	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
107-05-1	Allyl chloride	ug/kg	12 U	12 U			11 U
74-95-3	Dibromomethane	ug/kg	5.9 U	6 U			5.7 U
110-57-6	trans-1,4-Dichloro-2-butene	ug/kg	5.9 U	6 U			5.7 U
75-71-8	Dichlorodifluoromethane	ug/kg	5.9 U	6 U			5.7 U
75-34-3	1,1-Dichloroethane	ug/kg	16	21	29 U	66 U	5.7 U
107-06-2	1,2-Dichloroethane	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
75-35-4	1,1-Dichloroethene	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
156-60-5	trans-1,2-Dichloroethene	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
78-87-5	1,2-Dichloropropane	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
10061-01-5	cis-1,3-Dichloropropene	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
10061-02-6	trans-1,3-Dichloropropene	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
123-91-1	1,4-Dioxane	ug/kg	590 U	600 U			570 U
100-41-4	Ethylbenzene	ug/kg	5.9 U	6 U	29 U	300	5.7 U
97-63-2	Ethyl methacrylate	ug/kg	5.9 U	6 U			5.7 U
75-69-4	Trichlorofluoromethane	ug/kg	5.9 U	6 U			5.7 U
591-78-6	2-Hexanone	ug/kg	59 U	60 U	290 U	660 U	57 U
74-88-4	Iodomethane	ug/kg	5.9 U	6 U			5.7 U
78-83-1	Isobutyl alcohol	ug/kg	2600 U	2600 U			2500 U
126-98-7	Methacrylonitrile	ug/kg	24 U	24 U			23 U
75-09-2	Methylene chloride	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
80-62-6	Methyl methacrylate	ug/kg	5.9 U	6 U			5.7 U
107-12-0	Propionitrile	ug/kg	24 U	24 U			23 U
100-42-5	Styrene	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
630-20-6	1,1,1,2-Tetrachloroethane	ug/kg	5.9 U	6 U			5.7 U
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
127-18-4	Tetrachloroethene	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
108-88-3	Toluene	ug/kg	5.9 U	6 U	29 U	250	5.7 U
71-55-6	1,1,1-Trichloroethane	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
79-00-5	1,1,2-Trichloroethane	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
79-01-6	Trichloroethene	ug/kg	5.9 U	6 U	29 U	66 U	5.7 U
96-18-4	1,2,3-Trichloropropane	ug/kg	5.9 U	6 U			5.7 U
108-05-4	Vinyl acetate	ug/kg	59 U	60 U			57 U
75-01-4	Vinyl chloride	ug/kg	4 J	15	29 U	66 U	5.7 U
1330-20-7	Xylenes (total)	ug/kg	18 U	18 U	88 U	2400	17 U
106-93-4	1,2-Dibromoethane (EDB)	ug/kg	5.9 U	6 U			5.7 U
78-93-3	2-Butanone (MEK)	ug/kg	2.5 J	2.8 J	290 U	58 J	57 U
108-10-1	4-Methyl-2-pentanone (MIBK)	ug/kg	59 U	60 U	290 U	660 U	57 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBDW20 40-42' A5L200142-011 QUANTERRA L20142 SOIL 12/19/95	SBDW70 40-42' A5L200142-012 QUANTERRA L20142 SOIL 12/19/95	SBDW21 18-20' A5L200142-014 QUANTERRA L20142 SOIL 12/19/95	SBMW22 16-18' A5L150192-005 QUANTERRA L15192 SOIL 12/12/95	SBDW22 32-34' A5L200142-015 QUANTERRA L20142 SOIL 12/19/95
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
92-67-1	4-Aminobiphenyl	ug/kg	1000 U	1000 U			970 U
60-11-7	p-Dimethylaminoazobenzene	ug/kg	390 U	390 U			380 U
57-97-6	7,12-Dimethylbenz(a)anthracene	ug/kg	390 U	390 U			380 U
1888-71-7	Hexachloropropene	ug/kg	1900 U	2000 U			1900 U
62-44-2	Phenacetin	ug/kg	390 U	390 U			380 U
23950-58-5	Pronamide	ug/kg	390 U	390 U			380 U
122-09-8	a,a-Dimethylphenethylamine	ug/kg	1000 U	1000 U			970 U
2303-16-4	Diallate	ug/kg	390 U	390 U			380 U
510-15-6	Chlorobenzilate	ug/kg	190 U	200 U			190 U
83-32-9	Acenaphthene	ug/kg	190 U	200 U	1900 U	35000 U	190 U
208-96-8	Acenaphthylene	ug/kg	190 U	200 U	1900 U	35000 U	190 U
98-86-2	Acetophenone	ug/kg	190 U	200 U			190 U
53-96-3	2-Acetylaminofluorene	ug/kg	1900 U	2000 U			1900 U
62-53-3	Aniline	ug/kg	1000 U	1000 U			970 U
120-12-7	Anthracene	ug/kg	190 U	200 U	310 J	4900 J	54 J
56-55-3	Benzo(a)anthracene	ug/kg	190 U	200 U	1900 U	7700 J	42 J
205-99-2	Benzo(b)fluoranthene	ug/kg	190 U	200 U	1900 U	35000 U	28 J
207-08-9	Benzo(k)fluoranthene	ug/kg	190 U	200 U	1900 U	35000 U	190 U
191-24-2	Benzo(ghi)perylene	ug/kg	190 U	200 U	1900 U	4200 J	190 U
50-32-8	Benzo(a)pyrene	ug/kg	190 U	200 U	1900 U	35000 U	190 U
100-51-6	Benzyl alcohol	ug/kg	770 U	770 U			740 U
111-91-1	bis(2-Chloroethoxy)methane	ug/kg	190 U	200 U	1900 U	35000 U	190 U
111-44-4	bis(2-Chloroethyl) ether	ug/kg	190 U	200 U	1900 U	35000 U	190 U
117-81-7	bis(2-Ethylhexyl) phthalate	ug/kg	190 U	200 U	1900 U	35000 U	190 U
101-55-3	4-Bromophenyl phenyl ether	ug/kg	190 U	200 U	1900 U	35000 U	190 U
85-68-7	Butyl benzyl phthalate	ug/kg	380	200 U	1900 U	35000 U	390
106-47-8	4-Chloroaniline	ug/kg	190 U	200 U	1900 U	35000 U	190 U
59-50-7	4-Chloro-3-methylphenol	ug/kg	190 U	200 U	1900 U	35000 U	190 U
91-58-7	2-Chloronaphthalene	ug/kg	190 U	200 U	1900 U	35000 U	190 U
95-57-8	2-Chlorophenol	ug/kg	190 U	200 U	1900 U	35000 U	190 U
7005-72-3	4-Chlorophenyl phenyl ether	ug/kg	190 U	200 U	1900 U	35000 U	190 U
218-01-9	Chrysene	ug/kg	190 U	200 U	1900 U	12000 J	47 J
53-70-3	Dibenz(a,h)anthracene	ug/kg	190 U	200 U	1900 U	35000 U	190 U
132-64-9	Dibenzofuran	ug/kg	190 U	200 U	1900 U	35000 U	190 U
84-74-2	Di-n-butyl phthalate	ug/kg	190 U	200 U	1900 U	35000 U	190 U
91-94-1	3,3'-Dichlorobenzidine	ug/kg	1200 U	1200 U	12000 U	210000 U	1100 U
120-83-2	2,4-Dichlorophenol	ug/kg	190 U	200 U	1900 U	35000 U	190 U
87-65-0	2,6-Dichlorophenol	ug/kg	190 U	200 U			190 U
84-66-2	Diethyl phthalate	ug/kg	190 U	200 U	1900 U	35000 U	190 U
119-93-7	3,3'-Dimethylbenzidine	ug/kg	190 U	200 U			190 U
105-67-9	2,4-Dimethylphenol	ug/kg	41 J	30 J	1900 U	35000 U	54 J
131-11-3	Dimethyl phthalate	ug/kg	190 U	200 U	1900 U	35000 U	190 U
117-84-0	Di-n-octyl phthalate	ug/kg	190 U	200 U	1900 U	35000 U	190 U
99-65-0	1,3-Dinitrobenzene	ug/kg	190 U	200 U			190 U
534-52-1	4,6-Dinitro-2-methylphenol	ug/kg	1000 U	1000 U	10000 U	180000 U	970 U
51-28-5	2,4-Dinitrophenol	ug/kg	1000 U	1000 U	10000 U	180000 U	970 U
121-14-2	2,4-Dinitrotoluene	ug/kg	190 U	200 U	1900 U	35000 U	190 U
606-20-2	2,6-Dinitrotoluene	ug/kg	190 U	200 U	1900 U	35000 U	190 U
122-39-4	Diphenylamine	ug/kg	190 U	200 U			190 U
62-50-0	Ethyl methanesulfonate	ug/kg	190 U	200 U			190 U
206-44-0	Fluoranthene	ug/kg	38 J	200 U	350 J	19000 J	190
86-73-7	Fluorene	ug/kg	190 U	200 U	1200 J	5400 J	54 J
118-74-1	Hexachlorobenzene	ug/kg	190 U	200 U	1900 U	35000 U	190 U
87-68-3	Hexachlorobutadiene	ug/kg	190 U	200 U	1900 U	35000 U	190 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBDW20 40-42' A5L200142-011 QUANTERRA L20142 SOIL 12/19/95	SBDW70 40-42' A5L200142-012 QUANTERRA L20142 SOIL 12/19/95	SBDW21 18-20' A5L200142-014 QUANTERRA L20142 SOIL 12/19/95	SBMW22 16-18' A5L150192-005 QUANTERRA L15192 SOIL 12/12/95	SBDW22 32-34' A5L200142-015 QUANTERRA L20142 SOIL 12/19/95
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES CONT'D						
77-47-4	Hexachlorocyclopentadiene	ug/kg	190 U	200 U	1900 U	35000 U	190 U
67-72-1	Hexachloroethane	ug/kg	190 U	200 U	1900 U	35000 U	190 U
	Hexachlorophene	ug/kg					
193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	190 U	200 U	1900 U	35000 U	190 U
78-59-1	Isophorone	ug/kg	190 U	200 U	1900 U	35000 U	190 U
120-58-1	Isosafrole	ug/kg	390 U	390 U			380 U
91-80-5	Methapyrilene	ug/kg	1000 U	1000 U			970 U
95-53-4	o-Toluidine	ug/kg	390 U	390 U			380 U
56-49-5	3-Methylcholanthrene	ug/kg	390 U	390 U			380 U
66-27-3	Methyl methanesulfonate	ug/kg	190 U	200 U			190 U
91-57-6	2-Methylnaphthalene	ug/kg	110 J	200 U	2400	19000 J	130 J
95-48-7	2-Methylphenol	ug/kg	25 J	27 J	1900 U	35000 U	190 U
108-39-4	3-Methylphenol	ug/kg	190 U	200 U			110 J
106-44-5	4-Methylphenol	ug/kg	190 U	200 U	1900 U	35000 U	110 J
91-20-3	Naphthalene	ug/kg	190 U	200 U	1900 U	7100 J	69 J
130-15-4	1,4-Naphthoquinone	ug/kg	1000 U	1000 U			970 U
134-32-7	1-Naphthylamine	ug/kg	190 U	200 U			190 U
91-59-8	2-Naphthylamine	ug/kg	190 U	200 U			190 U
88-74-4	2-Nitroaniline	ug/kg	1000 U	1000 U	10000 U	180000 U	970 U
99-09-2	3-Nitroaniline	ug/kg	1000 U	1000 U	10000 U	180000 U	970 U
100-01-6	4-Nitroaniline	ug/kg	1000 U	1000 U	10000 U	180000 U	970 U
98-95-3	Nitrobenzene	ug/kg	190 U	200 U	1900 U	35000 U	190 U
88-75-5	2-Nitrophenol	ug/kg	190 U	200 U	1900 U	35000 U	190 U
100-02-7	4-Nitrophenol	ug/kg	1000 U	1000 U	10000 U	180000 U	970 U
56-57-5	4-Nitroquinoline-1-oxide	ug/kg	1900 U	2000 U			1900 U
924-16-3	N-Nitrosodi-n-butylamine	ug/kg	190 U	200 U			190 U
55-18-5	N-Nitrosodiethylamine	ug/kg	190 U	200 U			190 U
62-75-9	N-Nitrosodimethylamine	ug/kg	190 U	200 U			190 U
621-64-7	N-Nitrosodi-n-propylamine	ug/kg	190 U	200 U	1900 U	35000 U	190 U
86-30-6	N-Nitrosodiphenylamine	ug/kg	190 U	200 U	1900 U	35000 U	190 U
10595-95-6	N-Nitrosomethylethylamine	ug/kg	190 U	200 U			190 U
59-89-2	N-Nitrosomorpholine	ug/kg	190 U	200 U			190 U
100-75-4	N-Nitrosopiperidine	ug/kg	190 U	200 U			190 U
930-55-2	N-Nitrosopyrrolidine	ug/kg	190 U	200 U			190 U
608-93-5	Pentachlorobenzene	ug/kg	190 U	200 U			190 U
99-55-8	5-Nitro-o-toluidine	ug/kg	390 U	390 U			380 U
76-01-7	Pentachloroethane	ug/kg	190 U	200 U			190 U
82-68-8	Pentachloronitrobenzene	ug/kg	1000 U	1000 U			970 U
87-86-5	Pentachlorophenol	ug/kg	2000 U	2000 U	19000 U	340000 U	1900 U
85-01-8	Phenanthrene	ug/kg	45 J	200 U	3100	25000 J	230
108-95-2	Phenol	ug/kg	190 U	200 U	1900 U	35000 U	190 U
106-50-3	p-Phenylene diamine	ug/kg	1900 U	2000 U			1900 U
109-06-8	2-Picoline	ug/kg	390 U	390 U			380 U
129-00-0	Pyrene	ug/kg	24 J	200 U	350 J	13000 J	110 J
110-86-1	Pyridine	ug/kg	390 U	390 U			380 U
94-59-7	Safrole	ug/kg	390 U	390 U			380 U
95-94-3	1,2,4,5-Tetrachlorobenzene	ug/kg	190 U	200 U			190 U
58-90-2	2,3,4,6-Tetrachlorophenol	ug/kg	1000 U	1000 U			970 U
120-82-1	1,2,4-Trichlorobenzene	ug/kg	190 U	200 U	1900 U	35000 U	190 U
95-95-4	2,4,5-Trichlorophenol	ug/kg	1000 U	1000 U	3900 U	180000 U	970 U
88-06-2	2,4,6-Trichlorophenol	ug/kg	190 U	200 U	1900 U	35000 U	190 U
99-35-4	1,3,5-Trinitrobenzene	ug/kg	1000 U	1000 U			970 U
86-74-8	Carbazole	ug/kg	190 U	200 U	1900 U	35000 U	43 J
108-60-1	bis(2-Chloroisopropyl) ether	ug/kg	190 U	200 U	1900 U	35000 U	190 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBDW20 40-42' A5L200142-011 QUANTERRA L20142 SOIL 12/19/95	SBDW70 40-42' A5L200142-012 QUANTERRA L20142 SOIL 12/19/95	SBDW21 18-20' A5L200142-014 QUANTERRA L20142 SOIL 12/19/95	SBMW22 16-18' A5L150192-005 QUANTERRA L15192 SOIL 12/12/95	SBDW22 32-34' A5L200142-015 QUANTERRA L20142 SOIL 12/19/95
CAS NO.	COMPOUND	UNITS:					
	PESTICIDES/PCBs						
309-00-2	Aldrin	ug/kg	12 U	12 U	12 U	220 R	11 U
319-84-6	alpha-BHC	ug/kg	12 U	12 U	12 U	220 R	11 U
319-85-7	beta-BHC	ug/kg	12 U	12 U	12 U	220 R	11 U
319-86-8	delta-BHC	ug/kg	12 U	12 U	12 U	220 R	11 U
58-89-9	gamma-BHC (Lindane)	ug/kg	12 U	12 U	12 U	220 R	11 U
5103-71-9	alpha-Chlordane	ug/kg	5.9 U	6 U	5.9 U	220 R	5.7 U
5103-74-2	gamma-Chlordane	ug/kg	5.9 U	6 U	5.9 U	220 R	5.7 U
72-54-8	4,4'-DDD	ug/kg	12 U	12 U	12 U	440 R	11 U
72-55-9	4,4'-DDE	ug/kg	12 U	12 U	12 U	440 R	11 U
50-29-3	4,4'-DDT	ug/kg	12 U	12 U	12 U	440 R	11 U
60-57-1	Dieldrin	ug/kg	12 U	12 U	12 U	440 R	11 U
959-98-8	Endosulfan I	ug/kg	12 U	12 U	12 U	220 R	11 U
33213-65-9	Endosulfan II	ug/kg	12 U	12 U	12 U	440 R	11 U
1031-07-8	Endosulfan sulfate	ug/kg	12 U	12 U	12 U	440 R	11 U
72-20-8	Endrin	ug/kg	12 U	12 U	12 U	440 R	11 U
7421-93-4	Endrin aldehyde	ug/kg	12 U	12 U	12 U	440 R	11 U
76-44-8	Heptachlor	ug/kg	12 U	12 U	12 U	220 R	11 U
1024-57-3	Heptachlor epoxide	ug/kg	12 U	12 U	12 U	220 R	11 U
465-73-6	Isodrin	ug/kg	3.9 U	3.9 U			3.8 U
143-50-0	Kepone	ug/kg	39 U	39 U			38 U
72-43-5	Methoxychlor	ug/kg	30 U	30 U	29 U	2200 R	29 U
12674-11-2	Aroclor 1016	ug/kg	190 U	200 U	190 U	2200 R	190 U
11104-28-2	Aroclor 1221	ug/kg	190 U	200 U	190 U	2200 R	190 U
11141-16-5	Aroclor 1232	ug/kg	190 U	200 U	190 U	2200 R	190 U
53469-21-9	Aroclor 1242	ug/kg	190 U	200 U	190 U	2200 R	190 U
12672-29-6	Aroclor 1248	ug/kg	190 U	200 U	190 U	8200 J	190 U
11097-69-1	Aroclor 1254	ug/kg	190 U	200 U	190 U	4400 R	190 U
11096-82-5	Aroclor 1260	ug/kg	190 U	200 U	190 U	4400 R	190 U
8001-35-2	Toxaphene	ug/kg	100 U	100 U	100 U	11000 R	97 U
53494-70-5	Endrin ketone	ug/kg	12 U	12 U	12 U	440 R	11 U
	HERBICIDES						
57-74-9	Chlordane (technical)	ug/kg	15 U	15 U			14 U
60-51-5	Dimethoate	ug/kg	39 U	39 U			150 U
298-04-4	Disulfoton	ug/kg	39 U	39 U			150 U
52-85-7	Famphur	ug/kg	39 U	39 U			150 U
298-00-0	Methyl parathion	ug/kg	39 U	39 U			150 U
56-38-2	Parathion	ug/kg	39 U	39 U			150 U
298-02-2	Phorate	ug/kg	39 U	39 U			150 U
3689-24-5	Tetraethyldithiopyrophosphate	ug/kg	39 U	39 U			150 U
297-97-2	Thionazin	ug/kg	39 U	39 U			150 U
126-68-1	O,O,O-Triethyl phosphorothioate	ug/kg	39 U	39 U			150 U
94-75-7	2,4-D	ug/kg	120 U	120 U			110 U
93-76-5	2,4,5-T	ug/kg	30 U	30 U			29 U
88-85-7	Dinoseb	ug/kg	12 U	12 U			11 U
93-72-1	2,4,5-TP	ug/kg	30 U	30 U			29 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBDW20 40-42' A5L200142-011 QUANTERRA L20142 SOIL 12/19/95	SBDW70 40-42' A5L200142-012 QUANTERRA L20142 SOIL 12/19/95	SBDW21 18-20' A5L200142-014 QUANTERRA L20142 SOIL 12/19/95	SBMW22 16-18' A5L150192-005 QUANTERRA L15192 SOIL 12/12/95	SBDW22 32-34' A5L200142-015 QUANTERRA L20142 SOIL 12/19/95
CAS NO.	COMPOUND	UNITS:					
	INORGANICS						
7440-47-3	Chromium	ug/kg	3260	2960	8010	207000	7990
7439-92-1	Lead	ug/kg	2270	1830	4770	1350000	8520
7440-36-0	Antimony	ug/kg	295 U	298 U	586 U*	150000	394
7782-49-2	Selenium	ug/kg	295 U	298 U	586 U*	1940	285 U
7429-90-5	Aluminum	ug/kg	1210000	1200000	4360000	8220000	2000000
7440-39-3	Barium	ug/kg	4730	4590	30900	5720000	51500
7440-41-7	Beryllium	ug/kg	354 U	357 U	352 U	1050	342 U
7440-70-2	Calcium	ug/kg	35700000	34900000	27300000	28800000	90800000
7440-48-4	Cobalt	ug/kg	2950 U	2980 U	5860	29200	4620
7440-50-8	Copper	ug/kg	6180	3740	9970	1110000	18700
7439-89-6	Iron	ug/kg	2950000	2820000	8670000	1.2E+08	7500000
7440-09-7	Potassium	ug/kg	591000 U	596000 U	586000 U	737000	571000 U
7439-95-4	Magnesium	ug/kg	7810000	7170000	13600000	4100000	15100000
7439-96-5	Manganese	ug/kg	93500	95100	192000	3900000	216000
7440-23-5	Sodium	ug/kg	406000	399000	274000	890000	368000
7440-02-0	Nickel	ug/kg	5140	4650	11300	351000	14800
7440-62-2	Vanadium	ug/kg	5100	4620	15200	37100	6250
7440-66-6	Zinc	ug/kg	10500	9590	22500	4040000	28900
7440-38-2	Arsenic	ug/kg	1580	1710	5020	20000	3360
7440-43-9	Cadmium	ug/kg	47.3	42.3	77.4	3510	114
7439-97-6	Mercury	ug/kg	59.1 U	59.6 U	58.6 U	1560	57.1 U
7440-22-4	Silver	ug/kg	295 U	298 U	293 U	2370	285 U
7440-28-0	Thallium	ug/kg	295 U	298 U	293 U	329 UJ	285 U
7440-31-5	Tin	ug/kg	11800 U	11900 U			11400 U
57-12-5	Cyanide	ug/kg	300 U	300 U	290 U	3100	290 U
10-31-1	Solids, Percent	%	84.6	84	85.3		87.6
18496-25-8	Acid-insoluble Sulfide	MG/L					
	DIOXINS						
DIOXIN1	TCDFs(TOTAL)	PG/G					
DIOXIN2	2,3,7,8-TCDF	PG/G					
DIOXIN3	PeCDFS(TOTAL)	PG/G					
DIOXIN4	1,2,3,7,8-PeCDF	PG/G					
DIOXIN5	2,3,4,7,8-PeCDF	PG/G					
DIOXIN6	HxCDFs(TOTAL)	PG/G					
DIOXIN7	1,2,3,4,7,8-HxCDF	PG/G					
DIOXIN8	1,2,3,6,7,8-HxCDF	PG/G					
DIOXIN9	2,3,4,6,7,8-HxCDF	PG/G					
DIOXIN10	1,2,3,7,8,9-HxCDF	PG/G					
DIOXIN11	HpCDFs(TOTAL)	PG/G					
DIOXIN12	1,2,3,4,6,7,8-HpCDF	PG/G					
DIOXIN13	1,2,3,4,7,8,9-HpCDF	PG/G					
DIOXIN14	OCDF	PG/G					
DIOXIN15	TCDDs(TOTAL)	PG/G					
DIOXIN16	2,3,7,8-TCDD	PG/G					
DIOXIN17	PeCDDs(TOTAL)	PG/G					
DIOXIN18	1,2,3,7,8-PeCDD	PG/G					
DIOXIN19	HxCDDs(TOTAL)	PG/G					
DIOXIN20	1,2,3,4,7,8-HxCDD	PG/G					
DIOXIN21	1,2,3,6,7,8-HxCDD	PG/G					
DIOXIN22	1,2,3,7,8,9-HxCDD	PG/G					
DIOXIN23	HpCDDs(TOTAL)	PG/G					
DIOXIN24	1,2,3,4,6,7,8-HpCDD	PG/G					
DIOXIN25	OCDD	PG/G					
TDIOXINS	TOTAL TEFs	PG/G					

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DIRB01 A5L150192-006 QUANTERRA L15192 WATER 12/12/95	DIRB02 A5L210121-007 QUANTERRA L20142 WATER 12/20/95
CAS NO.	COMPOUND	UNITS:		
	VOLATILES			
67-64-1	Acetone	ug/kg	100 U	100 U
95-50-1	1,2-Dichlorobenzene	ug/kg	1 U	1 U
541-73-1	1,3-Dichlorobenzene	ug/kg	1 U	1 U
106-46-7	1,4-Dichlorobenzene	ug/kg	1 U	1 U
156-59-2	cis-1,2-Dichloroethene	ug/kg	1 U	1 U
75-05-8	Acetonitrile	ug/kg	50 U	1 U
107-02-8	Acrolein	ug/kg	10 U	1 U
107-13-1	Acrylonitrile	ug/kg	10 U	1 U
71-43-2	Benzene	ug/kg	5 U	1 U
75-27-4	Bromodichloromethane	ug/kg	1 U	1 U
75-25-2	Bromoform	ug/kg	1 U	1 U
74-83-9	Bromomethane	ug/kg	1 U	1 U
75-15-0	Carbon disulfide	ug/kg	50 U	1.2 J
56-23-5	Carbon tetrachloride	ug/kg	1 U	1 U
108-90-7	Chlorobenzene	ug/kg	1 U	1 U
126-99-8	Chloroprene	ug/kg	1 U	1 U
124-48-1	Dibromochloromethane	ug/kg	1 U	50 U
96-12-8	1,2-Dibromo-3-chloropropane	ug/kg	2 U	1 U
75-00-3	Chloroethane	ug/kg	1 U	1 U
67-66-3	Chloroform	ug/kg	1 U	1 U
74-87-3	Chloromethane	ug/kg	1 U	1 U
107-05-1	Allyl chloride	ug/kg	2 U	
74-95-3	Dibromomethane	ug/kg	5 U	1 U
110-57-6	trans-1,4-Dichloro-2-butene	ug/kg	1 U	
75-71-8	Dichlorodifluoromethane	ug/kg	1 U	
75-34-3	1,1-Dichloroethane	ug/kg	1 U	1 U
107-06-2	1,2-Dichloroethane	ug/kg	1 U	1 U
75-35-4	1,1-Dichloroethene	ug/kg	1 U	1 U
156-60-5	trans-1,2-Dichloroethene	ug/kg	1 U	1 U
78-87-5	1,2-Dichloropropane	ug/kg	1 U	1 U
10061-01-5	cis-1,3-Dichloropropene	ug/kg	1 U	1 U
10061-02-6	trans-1,3-Dichloropropene	ug/kg	1 U	1 U
123-91-1	1,4-Dioxane	ug/kg	200 U	
100-41-4	Ethylbenzene	ug/kg	1 U	1 U
97-63-2	Ethyl methacrylate	ug/kg	1 U	
75-69-4	Trichlorofluoromethane	ug/kg	1 U	
591-78-6	2-Hexanone	ug/kg	50 U	50 U
74-88-4	Iodomethane	ug/kg	1 U	
78-83-1	Isobutyl alcohol	ug/kg	1000 U	
126-98-7	Methacrylonitrile	ug/kg	10 U	
75-09-2	Methylene chloride	ug/kg		5 U
80-62-6	Methyl methacrylate	ug/kg	5 U	
107-12-0	Propionitrile	ug/kg	4 U	
100-42-5	Styrene	ug/kg	1 U	1 U
630-20-6	1,1,1,2-Tetrachloroethane	ug/kg	1 U	
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	1 U	1 U
127-18-4	Tetrachloroethene	ug/kg	1 U	1 U
108-88-3	Toluene	ug/kg	1 U	4.6
71-55-6	1,1,1-Trichloroethane	ug/kg	1 U	1 U
79-00-5	1,1,2-Trichloroethane	ug/kg	1 U	1 U
79-01-6	Trichloroethene	ug/kg	1 U	1 U
96-18-4	1,2,3-Trichloropropane	ug/kg	1 U	
108-05-4	Vinyl acetate	ug/kg	50 U	
75-01-4	Vinyl chloride	ug/kg	1 U	1 U
1330-20-7	Xylenes (total)	ug/kg	3 U	1.8 J
106-93-4	1,2-Dibromoethane (EDB)	ug/kg	1 U	
78-93-3	2-Butanone (MEK)	ug/kg	50 U	50 U
108-10-1	4-Methyl-2-pentanone (MIBK)	ug/kg	50 U	50 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DIRB01 A5L150192-006 QUANTERRA L15192 WATER 12/12/95	DIRB02 A5L210121-007 QUANTERRA L20142 WATER 12/20/95
CAS NO.	COMPOUND	UNITS:		
	SEMIVOLATILES			
92-67-1	4-Aminobiphenyl	ug/kg	50 U	
60-11-7	p-Dimethylaminoazobenzene	ug/kg	20 U	
57-97-6	7,12-Dimethylbenz(a)anthracene	ug/kg	20 U	
1888-71-7	Hexachloropropene	ug/kg	100 U	
62-44-2	Phenacetin	ug/kg	20 U	
23950-58-5	Pronamide	ug/kg	20 U	
122-09-8	a,a-Dimethylphenethylamine	ug/kg	50 U	
2303-16-4	Diallate	ug/kg	5 U	
510-15-6	Chlorobenzilate	ug/kg	10 U	
83-32-9	Acenaphthene	ug/kg	5 U	5 U
208-96-8	Acenaphthylene	ug/kg	5 U	5 U
98-86-2	Acetophenone	ug/kg	10 U	
53-96-3	2-Acetylaminofluorene	ug/kg	100 U	
62-53-3	Aniline	ug/kg	20 U	
120-12-7	Anthracene	ug/kg	5 U	5 U
56-55-3	Benzo(a)anthracene	ug/kg	5 U	5 U
205-99-2	Benzo(b)fluoranthene	ug/kg	5 U	5 U
207-08-9	Benzo(k)fluoranthene	ug/kg	5 U	5 U
191-24-2	Benzo(ghi)perylene	ug/kg	5 U	5 U
50-32-8	Benzo(a)pyrene	ug/kg	5 U	5 U
100-51-6	Benzyl alcohol	ug/kg	50 U	
111-91-1	bis(2-Chloroethoxy)methane	ug/kg	5 U	5 U
111-44-4	bis(2-Chloroethyl) ether	ug/kg	5 U	5 U
117-81-7	bis(2-Ethylhexyl) phthalate	ug/kg	5 U	5 U
101-55-3	4-Bromophenyl phenyl ether	ug/kg	5 U	5 U
85-68-7	Butyl benzyl phthalate	ug/kg	5 U	5 U
106-47-8	4-Chloroaniline	ug/kg	20 U	20 U
59-50-7	4-Chloro-3-methylphenol	ug/kg	5 U	5 U
91-58-7	2-Chloronaphthalene	ug/kg	5 U	5 U
95-57-8	2-Chlorophenol	ug/kg	5 U	5 U
7005-72-3	4-Chlorophenyl phenyl ether	ug/kg	5 U	5 U
218-01-9	Chrysene	ug/kg	5 U	5 U
53-70-3	Dibenz(a,h)anthracene	ug/kg	5 U	5 U
132-64-9	Dibenzofuran	ug/kg	5 U	5 U
84-74-2	Di-n-butyl phthalate	ug/kg	5 U	5 U
91-94-1	3,3'-Dichlorobenzidine	ug/kg	20 U	20 U
120-83-2	2,4-Dichlorophenol	ug/kg	5 U	5 U
87-65-0	2,6-Dichlorophenol	ug/kg	5 U	
84-66-2	Diethyl phthalate	ug/kg	5 U	5 U
119-93-7	3,3'-Dimethylbenzidine	ug/kg	10 U	
105-67-9	2,4-Dimethylphenol	ug/kg	5 U	5 U
131-11-3	Dimethyl phthalate	ug/kg	5 U	5 U
117-84-0	Di-n-octyl phthalate	ug/kg	5 U	5 U
99-65-0	1,3-Dinitrobenzene	ug/kg	5 U	
534-52-1	4,6-Dinitro-2-methylphenol	ug/kg	20 U	20 U
51-28-5	2,4-Dinitrophenol	ug/kg	20 U	20 U
121-14-2	2,4-Dinitrotoluene	ug/kg	5 U	5 U
606-20-2	2,6-Dinitrotoluene	ug/kg	5 U	5 U
122-39-4	Diphenylamine	ug/kg	5 U	
62-50-0	Ethyl methanesulfonate	ug/kg	10 U	
206-44-0	Fluoranthene	ug/kg	5 U	5 U
86-73-7	Fluorene	ug/kg	5 U	5 U
118-74-1	Hexachlorobenzene	ug/kg	5 U	5 U
87-68-3	Hexachlorobutadiene	ug/kg	5 U	5 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DIRB01 A5L150192-006 QUANTERRA L15192 WATER 12/12/95	DIRB02 A5L210121-007 QUANTERRA L20142 WATER 12/20/95
CAS NO.	COMPOUND	UNITS:		
	SEMIVOLATILES CONT'D			
77-47-4	Hexachlorocyclopentadiene	ug/kg	5 U	5 U
67-72-1	Hexachloroethane	ug/kg	5 U	5 U
	Hexachlorophene	ug/kg		
193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	5 U	
78-59-1	Isophorone	ug/kg	5 U	5 U
120-58-1	Isosafrole	ug/kg	20 U	5 U
91-80-5	Methapyrilene	ug/kg	50 U	
95-53-4	o-Toluidine	ug/kg	20 U	
56-49-5	3-Methylcholanthrene	ug/kg	20 U	
66-27-3	Methyl methanesulfonate	ug/kg	10 U	
91-57-6	2-Methylnaphthalene	ug/kg	5 U	5 U
95-48-7	2-Methylphenol	ug/kg	5 U	5 U
108-39-4	3-Methylphenol	ug/kg	5 U	5 U
106-44-5	4-Methylphenol	ug/kg	5 U	5 U
91-20-3	Naphthalene	ug/kg	5 U	5 U
130-15-4	1,4-Naphthoquinone	ug/kg	50 U	5 U
134-32-7	1-Naphthylamine	ug/kg	10 U	
91-59-8	2-Naphthylamine	ug/kg	10 U	
88-74-4	2-Nitroaniline	ug/kg	20 U	20 U
99-09-2	3-Nitroaniline	ug/kg	20 U	20 U
100-01-6	4-Nitroaniline	ug/kg	20 U	20 U
98-95-3	Nitrobenzene	ug/kg	5 U	5 U
88-75-5	2-Nitrophenol	ug/kg	5 U	5 U
100-02-7	4-Nitrophenol	ug/kg	20 U	20 U
56-57-5	4-Nitroquinoline-1-oxide	ug/kg	100 U	
924-16-3	N-Nitrosodi-n-butylamine	ug/kg	10 U	
55-18-5	N-Nitrosodiethylamine	ug/kg	10 U	
62-75-9	N-Nitrosodimethylamine	ug/kg	5 U	
621-64-7	N-Nitrosodi-n-propylamine	ug/kg	5 U	5 U
86-30-6	N-Nitrosodiphenylamine	ug/kg	5 U	5 U
10595-95-6	N-Nitrosomethylethylamine	ug/kg	10 U	
59-89-2	N-Nitrosomorpholine	ug/kg	10 U	
100-75-4	N-Nitrosopiperidine	ug/kg	10 U	
930-55-2	N-Nitrosopyrrolidine	ug/kg	10 U	
608-93-5	Pentachlorobenzene	ug/kg	5 U	
99-55-8	5-Nitro-o-toluidine	ug/kg	20 U	
76-01-7	Pentachloroethane	ug/kg	10 U	
82-68-8	Pentachloronitrobenzene	ug/kg	50 U	
87-86-5	Pentachlorophenol	ug/kg	25 U	25 U
85-01-8	Phenanthrene	ug/kg	5 U	5 U
108-95-2	Phenol	ug/kg	5 U	5 U
106-50-3	p-Phenylene diamine	ug/kg	100 U	
109-06-8	2-Picoline	ug/kg	20 U	
129-00-0	Pyrene	ug/kg	5 U	5 U
110-86-1	Pyridine	ug/kg	20 U	
94-59-7	Safrole	ug/kg	20 U	
95-94-3	1,2,4,5-Tetrachlorobenzene	ug/kg	5 U	
58-90-2	2,3,4,6-Tetrachlorophenol	ug/kg	50 U	
120-82-1	1,2,4-Trichlorobenzene	ug/kg	5 U	5 U
95-95-4	2,4,5-Trichlorophenol	ug/kg	50 U	50 U
88-06-2	2,4,6-Trichlorophenol	ug/kg	5	5 U
99-35-4	1,3,5-Trinitrobenzene	ug/kg	50 U	
86-74-8	Carbazole	ug/kg	10 U	10 U
108-60-1	bis(2-Chloroisopropyl) ether	ug/kg	5 U	5 U

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DIRB01 A5L150192-006 QUANTERRA L15192 WATER 12/12/95	DIRB02 A5L210121-007 QUANTERRA L20142 WATER 12/20/95
CAS NO.	COMPOUND	UNITS:		
	PESTICIDES/PCBs			
309-00-2	Aldrin	ug/kg	0.011 U*	0.01 U
319-84-6	alpha-BHC	ug/kg	0.011 U*	0.01 U
319-85-7	beta-BHC	ug/kg	0.011 U*	0.01 U
319-86-8	delta-BHC	ug/kg	0.011 U*	0.01 U
58-89-9	gamma-BHC (Lindane)	ug/kg	0.011 U*	0.01 U
5103-71-9	alpha-Chlordane	ug/kg	0.011 U*	0.01 U
5103-74-2	gamma-Chlordane	ug/kg	0.011 U*	0.01 U
72-54-8	4,4'-DDD	ug/kg	0.023 U*	0.02 U
72-55-9	4,4'-DDE	ug/kg	0.023 U*	0.02 U
50-29-3	4,4'-DDT	ug/kg	0.023 U*	0.02 U
60-57-1	Dieldrin	ug/kg	0.023 U*	0.02 U
959-98-8	Endosulfan I	ug/kg	0.05 U	0.05 U
33213-65-9	Endosulfan II	ug/kg	0.05 U	0.05 U
1031-07-8	Endosulfan sulfate	ug/kg	0.05 U	0.05 U
72-20-8	Endrin	ug/kg	0.023 U*	0.02 U
7421-93-4	Endrin aldehyde	ug/kg	0.023 U*	0.02 U
76-44-8	Heptachlor	ug/kg	0.011 U*	0.01 U
1024-57-3	Heptachlor epoxide	ug/kg	0.011 U*	0.01 U
465-73-6	Isodrin	ug/kg	0.1 U	
143-50-0	Kepone	ug/kg	1 U	
72-43-5	Methoxychlor	ug/kg	0.5 U	0.05 U
12674-11-2	Aroclor 1016	ug/kg	0.11 U*	0.1 U
11104-28-2	Aroclor 1221	ug/kg	0.11 U*	0.1 U
11141-16-5	Aroclor 1232	ug/kg	0.11 U*	0.1 U
53469-21-9	Aroclor 1242	ug/kg	0.11 U*	0.1 U
12672-29-6	Aroclor 1248	ug/kg	0.11 U*	0.1 U
11097-69-1	Aroclor 1254	ug/kg	0.23 U*	0.2 U
11096-82-5	Aroclor 1260	ug/kg	0.23 U*	0.2 U
8001-35-2	Toxaphene	ug/kg	1 U	1 U
53494-70-5	Endrin ketone	ug/kg		0.02 U
	HERBICIDES			
57-74-9	Chlordane (technical)	ug/kg		
60-51-5	Dimethoate	ug/kg	1 U	
298-04-4	Disulfoton	ug/kg	1 U	
52-85-7	Famphur	ug/kg	1 U	
298-00-0	Methyl parathion	ug/kg	1 U	
56-38-2	Parathion	ug/kg	1 U	
298-02-2	Phorate	ug/kg	1 U	
3689-24-5	Tetraethyldithiopyrophosphate	ug/kg	1 U	
297-97-2	Thionazin	ug/kg	1 U	
126-68-1	O,O,O-Triethyl phosphorothioate	ug/kg	1 U	
94-75-7	2,4-D	ug/kg	10 U	
93-76-5	2,4,5-T	ug/kg	1 U	
88-85-7	Dinoseb	ug/kg	1 U	
93-72-1	2,4,5-TP	ug/kg	1 U	

GM WEST YARD PONTIAC, MICHIGAN SOIL BORING ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	DIRB01 A5L150192-006 QUANTERRA L15192 WATER 12/12/95	DIRB02 A5L210121-007 QUANTERRA L20142 WATER 12/20/95
CAS NO.	COMPOUND	UNITS:		
	INORGANICS			
7440-47-3	Chromium	ug/kg	5 U	
7439-92-1	Lead	ug/kg	3 U	5 U
7440-36-0	Antimony	ug/kg	5 U	3 U
7782-49-2	Selenium	ug/kg	5 U	5 U
7429-90-5	Aluminum	ug/kg	100 U	5 U
7440-39-3	Barium	ug/kg	200 U	100 U
7440-41-7	Beryllium	ug/kg	3 U	200 U
7440-70-2	Calcium	ug/kg	5000 U	3 U
7440-48-4	Cobalt	ug/kg	50 U	5000 U
7440-50-8	Copper	ug/kg	25 U	50 U
7439-89-6	Iron	ug/kg	202	25 U
7440-09-7	Potassium	ug/kg	5000 U	100 U
7439-95-4	Magnesium	ug/kg	5000 U	5000 U
7439-96-5	Manganese	ug/kg	20 U	5000 U
7440-23-5	Sodium	ug/kg	1000 U	20 U
7440-02-0	Nickel	ug/kg	50 U	1000 U
7440-62-2	Vanadium	ug/kg	20 U	
7440-66-6	Zinc	ug/kg	20 U	20 U
7440-38-2	Arsenic	ug/kg	5 U	39
7440-43-9	Cadmium	ug/kg	0.5 U	5 U
7439-97-6	Mercury	ug/kg	0.2 U	0.5 U
7440-22-4	Silver	ug/kg	0.5 U	0.2 U
7440-28-0	Thallium	ug/kg	2 U	0.5 U
7440-31-5	Tin	ug/kg	100 U	50 U
57-12-5	Cyanide	ug/kg	20 U	
10-31-1	Solids, Percent	%		
18496-25-8	Acid-insoluble Sulfide	MG/L	1 U	2 U
	DIOXINS			
DIOXIN1	TCDFs(TOTAL)	PG/G		
DIOXIN2	2,3,7,8-TCDF	PG/G		
DIOXIN3	PeCDFS(TOTAL)	PG/G		
DIOXIN4	1,2,3,7,8-PeCDF	PG/G		
DIOXIN5	2,3,4,7,8-PeCDF	PG/G		
DIOXIN6	HxCDFs(TOTAL)	PG/G		
DIOXIN7	1,2,3,4,7,8-HxCDF	PG/G		
DIOXIN8	1,2,3,6,7,8-HxCDF	PG/G		
DIOXIN9	2,3,4,6,7,8-HxCDF	PG/G		
DIOXIN10	1,2,3,7,8,9-HxCDF	PG/G		
DIOXIN11	HpCDFs(TOTAL)	PG/G		
DIOXIN12	1,2,3,4,6,7,8-HpCDF	PG/G		
DIOXIN13	1,2,3,4,7,8,9-HpCDF	PG/G		
DIOXIN14	OCDF	PG/G		
DIOXIN15	TCDDs(TOTAL)	PG/G		
DIOXIN16	2,3,7,8-TCDD	PG/G		
DIOXIN17	PeCDDs(TOTAL)	PG/G		
DIOXIN18	1,2,3,7,8-PeCDD	PG/G		
DIOXIN19	HxCDDs(TOTAL)	PG/G		
DIOXIN20	1,2,3,4,7,8-HxCDD	PG/G		
DIOXIN21	1,2,3,6,7,8-HxCDD	PG/G		
DIOXIN22	1,2,3,7,8,9-HxCDD	PG/G		
DIOXIN23	HpCDDs(TOTAL)	PG/G		
DIOXIN24	1,2,3,4,6,7,8-HpCDD	PG/G		
DIOXIN25	OCDD	PG/G		
TDIOXINS	TOTAL TEFs	PG/G		

GM WEST YARD PONTIAC, MICHIGAN TEST TRENCHES ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBTT1 10-15' A6A250126-002 QUANTERRA A6A250126 SOLID 1/22/96	SBTT2 15-15' A6A250126-004 QUANTERRA A6A250126 SOLID 1/22/96	SBTT3 05-09' A6A250126-007 QUANTERRA A6A250126 SOLID 1/23/96	SBTT4 03-10' A6A250126-009 QUANTERRA A6A250126 SOLID 1/23/96	SBTT5 03-05' A6A250126-012 QUANTERRA A6A250126 SOLID 1/23/96
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	UG/KG	4.2 J	42 J	57000 U	32 J	2.7 J
95-50-1	1,2-Dichlorobenzene	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
541-73-1	1,3-Dichlorobenzene	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
106-46-7	1,4-Dichlorobenzene	UG/KG	5.3 U	27 U	5700 U	2.7 J	5.5 U
156-59-2	cis-1,2-Dichloroethene	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
71-43-2	Benzene	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
75-27-4	Bromodichloromethane	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
75-25-2	Bromoform	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
74-83-9	Bromomethane	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
75-15-0	Carbon disulfide	UG/KG	53 U	270 U	57000 U	52 U	55 U
56-23-5	Carbon tetrachloride	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
108-90-7	Chlorobenzene	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
124-48-1	Dibromochloromethane	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
75-00-3	Chloroethane	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
67-66-3	Chloroform	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
74-87-3	Chloromethane	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
75-34-3	1,1-Dichloroethane	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
107-06-2	1,2-Dichloroethane	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
75-35-4	1,1-Dichloroethene	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
156-60-5	trans-1,2-Dichloroethene	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
78-87-5	1,2-Dichloropropane	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
10061-01-5	cis-1,3-Dichloropropene	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
10061-02-6	trans-1,3-Dichloropropene	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
100-41-4	Ethylbenzene	UG/KG	5.3 U	22 J	15000	5.2 U	5.5 U
591-78-6	2-Hexanone	UG/KG	53 U	270 U	57000 U	52 U	55 U
75-09-2	Methylene chloride	UG/KG	5.3 U	27 U	25000	5.2 U	5.5 U
100-42-5	Styrene	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
79-34-5	1,1,2,2-Tetrachloroethane	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
127-18-4	Tetrachloroethene	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
108-88-3	Toluene	UG/KG	5.3 U	36	42000	5.1 J	5.5 U
71-55-6	1,1,1-Trichloroethane	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
79-00-5	1,1,2-Trichloroethane	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
79-01-6	Trichloroethene	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
75-01-4	Vinyl chloride	UG/KG	5.3 U	27 U	5700 U	5.2 U	5.5 U
1330-20-7	Xylenes (total)	UG/KG	16 U	160	75000	7.3 J	16 U
78-93-3	2-Butanone (MEK)	UG/KG	53 U	17 J	57000 U	6.6 J	55 U
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/KG	53 U	270 U	57000 U	3.9 J	55 U

GM WEST YARD PONTIAC, MICHIGAN TEST TRENCHES ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBTT1 10-15' A6A250126-002 QUANTERRA A6A250126 SOLID 1/22/96	SBTT2 15-15' A6A250126-004 QUANTERRA A6A250126 SOLID 1/22/96	SBTT3 05-09' A6A250126-007 QUANTERRA A6A250126 SOLID 1/23/96	SBTT4 03-10' A6A250126-009 QUANTERRA A6A250126 SOLID 1/23/96	SBTT5 03-05' A6A250126-012 QUANTERRA A6A250126 SOLID 1/23/96
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
83-32-9	Acenaphthene	UG/KG	24 J	14000 U	14000 J	21000 U	57 J
208-96-8	Acenaphthylene	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
120-12-7	Anthracene	UG/KG	47 J	14000 U	11000 J	21000 U	300
56-55-3	Benzo(a)anthracene	UG/KG	480	14000 U	110000 U	21000 U	190
205-99-2	Benzo(b)fluoranthene	UG/KG	1200	14000 U	110000 U	21000 U	240
207-08-9	Benzo(k)fluoranthene	UG/KG	460	14000 U	110000 U	21000 U	77 J
191-24-2	Benzo(ghi)perylene	UG/KG	580	14000 U	110000 U	21000 U	82 J
50-32-8	Benzo(a)pyrene	UG/KG	690	14000 U	110000 U	21000 U	140 J
111-91-1	bis(2-Chloroethoxy)methane	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
111-44-4	bis(2-Chloroethyl) ether	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
117-81-7	bis(2-Ethylhexyl) phthalate	UG/KG	180 U	14000 U	32000 J	21000 U	83 J
101-55-3	4-Bromophenyl phenyl ether	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
85-68-7	Butyl benzyl phthalate	UG/KG	180 U	14000 U	1100000	3000 J	130 J
106-47-8	4-Chloroaniline	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
59-50-7	4-Chloro-3-methylphenol	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
91-58-7	2-Chloronaphthalene	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
95-57-8	2-Chlorophenol	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
7005-72-3	4-Chlorophenyl phenyl ether	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
218-01-9	Chrysene	UG/KG	730	14000 U	110000 U	21000 U	230
53-70-3	Dibenz(a,h)anthracene	UG/KG	250	14000 U	110000 U	21000 U	23 J
132-64-9	Dibenzofuran	UG/KG	48 J	14000 U	13000 J	21000 U	170 J
84-74-2	Di-n-butyl phthalate	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
91-94-1	3,3'-Dichlorobenzidine	UG/KG	1100 U	85000 U	650000 U	130000 U	1100 U
120-83-2	2,4-Dichlorophenol	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
84-66-2	Diethyl phthalate	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
105-67-9	2,4-Dimethylphenol	UG/KG	24 J	14000 U	72000 J	21000 U	150 J
131-11-3	Dimethyl phthalate	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
117-84-0	Di-n-octyl phthalate	UG/KG	180 U	14000 U	37000 J	21000 U	180 U
534-52-1	4,6-Dinitro-2-methylphenol	UG/KG	900 U	72000 U	560000 U	110000 U	930 U
51-28-5	2,4-Dinitrophenol	UG/KG	900 U	72000 U	560000 U	110000 U	930 U
121-14-2	2,4-Dinitrotoluene	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
606-20-2	2,6-Dinitrotoluene	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
206-44-0	Fluoranthene	UG/KG	320	14000 U	22000 J	21000 U	340
86-73-7	Fluorene	UG/KG	40 J	14000 U	26000 J	21000 U	91 J
118-74-1	Hexachlorobenzene	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
87-68-3	Hexachlorobutadiene	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
77-47-4	Hexachlorocyclopentadiene	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
67-72-1	Hexachloroethane	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
193-39-5	Indeno(1,2,3-cd)pyrene	UG/KG	510	14000 U	110000 U	21000 U	53 J
78-59-1	Isophorone	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
91-57-6	2-Methylnaphthalene	UG/KG	350	7200 J	34000 J	21000 U	2700
95-48-7	2-Methylphenol	UG/KG	41 J	14000 U	110000 U	21000 U	320
106-44-5	4-Methylphenol	UG/KG	45 J	14000 U	70000 J	21000 U	180
91-20-3	Naphthalene	UG/KG	190	3700 J	70000 J	21000 U	1400
88-74-4	2-Nitroaniline	UG/KG	900 U	72000 U	560000 U	110000 U	930 U
99-09-2	3-Nitroaniline	UG/KG	900 U	72000 U	560000 U	110000 U	930 U
100-01-6	4-Nitroaniline	UG/KG	900 U	72000 U	560000 U	110000 U	930 U
98-95-3	Nitrobenzene	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
88-75-5	2-Nitrophenol	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
100-02-7	4-Nitrophenol	UG/KG	900 U	72000 U	560000 U	110000 U	930 U
621-64-7	N-Nitrosodi-n-propylamine	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
86-30-6	N-Nitrosodiphenylamine	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
87-86-5	Pentachlorophenol	UG/KG	1800 U	140000 U	1000000 U	200000 U	1900 U
85-01-8	Phenanthrene	UG/KG	300	4900 J	52000 J	3100 J	600
108-95-2	Phenol	UG/KG	110 J	14000 U	140000	21000 U	900
129-00-0	Pyrene	UG/KG	310	14000 U	17000 J	21000 U	300
120-82-1	1,2,4-Trichlorobenzene	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
95-95-4	2,4,5-Trichlorophenol	UG/KG	900 U	28000 U	220000 U	41000 U	930 U

GM WEST YARD PONTIAC, MICHIGAN TEST TRENCHES ANALYTICAL DATA		SAMPLE ID:	SBTT1	SBTT2	SBTT3	SBTT4	SBTT5
		DEPTH:	10-15'	15-15'	05-09'	03-10'	03-05'
		LAB ID:	A6A250126-002	A6A250126-004	A6A250126-007	A6A250126-009	A6A250126-012
		SOURCE:	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA	QUANTERRA
		SDG:	A6A250126	A6A250126	A6A250126	A6A250126	A6A250126
		MATRIX:	SOLID	SOLID	SOLID	SOLID	SOLID
		SAMPLED:	1/22/96	1/22/96	1/23/96	1/23/96	1/23/96
CAS NO.	COMPOUND	UNITS:					
88-06-2	2,4,6-Trichlorophenol	UG/KG	180 U	14000 U	110000 U	21000 U	180 U
86-74-8	Carbazole	UG/KG	21 J	14000 U	110000 U	21000 U	110 J
108-60-1	bis(2-Chloroisopropyl) ether	UG/KG	180 U	14000 U	110000 U	21000 U	180 U

GM WEST YARD PONTIAC, MICHIGAN TEST TRENCHES ANALYTICAL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SBTT1 10-15' A6A250126-002 QUANTERRA A6A250126 SOLID 1/22/96	SBTT2 15-15' A6A250126-004 QUANTERRA A6A250126 SOLID 1/22/96	SBTT3 05-09' A6A250126-007 QUANTERRA A6A250126 SOLID 1/23/96	SBTT4 03-10' A6A250126-009 QUANTERRA A6A250126 SOLID 1/23/96	SBTT5 03-05' A6A250126-012 QUANTERRA A6A250126 SOLID 1/23/96
CAS NO.	COMPOUND	UNITS:					
	PESTICIDES/PCBs						
309-00-2	Aldrin	UG/KG	11 U	11 U	230 U	17 U	11 U
319-84-6	alpha-BHC	UG/KG	11 U	11 U	230 U	17 U	11 U
319-85-7	beta-BHC	UG/KG	11 U	11 U	230 U	17 U	11 U
319-86-8	delta-BHC	UG/KG	11 U	11 U	230 U	17 U	11 U
58-89-9	gamma-BHC (Lindane)	UG/KG	11 U	11 U	230 U	17 U	11 U
5103-71-9	alpha-Chlordane	UG/KG	5.3 U	5.3 U	230 U	17 U	5.5 U
5103-74-2	gamma-Chlordane	UG/KG	5.3 U	5.3 U	230 U	17 U	5.5 U
72-54-8	4,4'-DDD	UG/KG	11 U	11 U	460 U	35 U	11 U
72-55-9	4,4'-DDE	UG/KG	11 U	11 U	460 U	35 U	11 U
50-29-3	4,4'-DDT	UG/KG	11 U	11 U	460 U	35 U	11 U
60-57-1	Dieldrin	UG/KG	11 U	11 U	460 U	35 U	11 U
959-98-8	Endosulfan I	UG/KG	11 U	11 U	230 U	17 U	11 U
33213-65-9	Endosulfan II	UG/KG	11 U	11 U	460 U	35 U	11 U
1031-07-8	Endosulfan sulfate	UG/KG	11 U	11 U	460 U	35 U	11 U
72-20-8	Endrin	UG/KG	11 U	11 U	460 U	35 U	11 U
7421-93-4	Endrin aldehyde	UG/KG	11 U	11 U	460 U	35 U	11 U
76-44-8	Heptachlor	UG/KG	11 U	11 U	230 U	17 U	11 U
1024-57-3	Heptachlor epoxide	UG/KG	11 U	11 U	230 U	17 U	11 U
72-43-5	Methoxychlor	UG/KG	27 U	27 U	2300 U	170 U	27 U
12674-11-2	Aroclor 1016	UG/KG	180 U	180 U	2300 U	170 U	180 U
11104-28-2	Aroclor 1221	UG/KG	180 U	180 U	2300 U	170 U	180 U
11141-16-5	Aroclor 1232	UG/KG	180 U	180 U	2300 U	170 U	180 U
53469-21-9	Aroclor 1242	UG/KG	180 U	180 U	2300 U	170 U	180 U
12672-29-6	Aroclor 1248	UG/KG	180 U	180 U	13000	830	180 U
11097-69-1	Aroclor 1254	UG/KG	180 U	180 U	7400	840	180 U
11096-82-5	Aroclor 1260	UG/KG	180 U	180 U	4600 U	350 U	180 U
8001-35-2	Toxaphene	UG/KG	90 U	90 U	11000 U	870 U	93 U
53494-70-5	Endrin ketone	UG/KG	11 U	11 U	460 U	35 U	11 U
	INORGANICS						
7440-47-3	Chromium	UG/KG	12400 J	9820	161000	340000	143000
7439-92-1	Lead	UG/KG	16400 J	6950	180000	48300	202000
7440-36-0	Antimony	UG/KG	416	638	2760	5440	2330
7782-49-2	Selenium	UG/KG	370	266 U	836	1310 U*	546 U*
7429-90-5	Aluminum	UG/KG	2740000	1890000	6200000	2750000	3950000
7440-39-3	Barium	UG/KG	26200 J	18000	306000	32000	78400
7440-41-7	Beryllium	UG/KG	425	319 U	614	314 U	655
7440-70-2	Calcium	UG/KG	7210000	2420000	15600000	8370000	16600000
7440-48-4	Cobalt	UG/KG	2660 U	2660 U	11300	14000	6170
7440-50-8	Copper	UG/KG	8500	26900	2370000	350000	93800
7439-89-6	Iron	UG/KG	6660000	6090000	69400000	14200000	68800000
7440-09-7	Potassium	UG/KG	531000 U	532000 U	744000	523000 U	546000 U
7439-95-4	Magnesium	UG/KG	622000 J	730000	3460000	623000	1380000
7439-96-5	Manganese	UG/KG	894000	107000	1990000	1690000	1790000
7440-23-5	Sodium	UG/KG	252000 J	624000	616000	209000	468000
7440-02-0	Nickel	UG/KG	5950 J	5950	195000	145000	33500
7440-62-2	Vanadium	UG/KG	6730 J	8750	10300	13300	6720
7440-66-6	Zinc	UG/KG	43700 J	9920	602000	69900	1120000
7440-38-2	Arsenic	UG/KG	797	872	7120	9460	4050
7440-43-9	Cadmium	UG/KG	122	121	10700	425	546
7439-97-6	Mercury	UG/KG	53.1 U	82.1	156	52.3 U	54.6 U
7440-22-4	Silver	UG/KG	266 U	266 U	886	261 U	273 U
7440-28-0	Thallium	UG/KG	266 UJ	266 U	341 U	261 U	273 U
57-12-5	Cyanide	UG/KG	480	490	3600	380	930
10-31-1	Total Solids	%	94.2	94	73.3	95.7	91.5

GM WEST YARD PONTIAC, MICHIGAN TEST TRENCHES SURFACE SOIL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SSTT1 0.0-0.5' A6A250126-001 QUANTERRA A6A250126 SOLID 1/22/96	SSTT2 0.0-0.5' A6A250126-003 QUANTERRA A6A250126 SOLID 1/22/96	SSTT3 0.0-0.5' A6A250126-005 QUANTERRA A6A250126 SOLID 1/22/96	SSTT4 0.0-0.5' A6A250126-008 QUANTERRA A6A250126 SOLID 1/23/96	SSTT5 0.0-0.5' A6A250126-011 QUANTERRA A6A250126 SOLID 1/23/96
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	UG/KG	6.8 J	96 J	2.3 J	270	110
95-50-1	1,2-Dichlorobenzene	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
541-73-1	1,3-Dichlorobenzene	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
106-46-7	1,4-Dichlorobenzene	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
156-59-2	cis-1,2-Dichloroethene	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
75-05-8	Acetonitrile	UG/KG	59 U		56 U	130 U	
107-02-8	Acrolein	UG/KG	59 U		56 U	130 U	
107-13-1	Acrylonitrile	UG/KG	59 U		56 U	130 U	
71-43-2	Benzene	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
75-27-4	Bromodichloromethane	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
75-25-2	Bromoform	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
74-83-9	Bromomethane	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
75-15-0	Carbon disulfide	UG/KG	59 U	580 U	56 U	130 U	55 U
56-23-5	Carbon tetrachloride	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
108-90-7	Chlorobenzene	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
126-99-8	Chloroprene	UG/KG	5.9 U		5.6 U	13 U	
124-48-1	Dibromochloromethane	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
96-12-8	1,2-Dibromo-3-chloropropane	UG/KG	12 U		11 U	27 U	
75-00-3	Chloroethane	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
67-66-3	Chloroform	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
74-87-3	Chloromethane	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
107-05-1	Allyl chloride	UG/KG	12 U		11 U	27 U	
74-95-3	Dibromomethane	UG/KG	5.9 U		5.6 U	13 U	
110-57-6	trans-1,4-Dichloro-2-butene	UG/KG	5.9 U		5.6 U	13 U	
75-71-8	Dichlorodifluoromethane	UG/KG	5.9 U		5.6 U	13 U	
75-34-3	1,1-Dichloroethane	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
107-06-2	1,2-Dichloroethane	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
75-35-4	1,1-Dichloroethene	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
156-60-5	trans-1,2-Dichloroethene	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
78-87-5	1,2-Dichloropropane	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
10061-01-5	cis-1,3-Dichloropropene	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
10061-02-6	trans-1,3-Dichloropropene	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
123-91-1	1,4-Dioxane	UG/KG	590 U		560 U	1300 U	
100-41-4	Ethylbenzene	UG/KG	5.9 U	58 U	5.6 U	10 J	3.3 J
97-63-2	Ethyl methacrylate	UG/KG	5.9 U		5.6 U	13 U	
75-69-4	Trichlorofluoromethane	UG/KG	5.9 U		5.6 U	13 U	
591-78-6	2-Hexanone	UG/KG	4.1 J	580 U	56 U	130 U	4 J
74-88-4	Iodomethane	UG/KG	5.9 U		5.6 U	13 U	
78-83-1	Isobutyl alcohol	UG/KG	2600 U		2500 U	5800 U	
126-98-7	Methacrylonitrile	UG/KG	24 U		22 U	53 U	
75-09-2	Methylene chloride	UG/KG	2.8 J	58 U	5.6 U	13 U	5.5 U
80-62-6	Methyl methacrylate	UG/KG	5.9 U		5.6 U	13 U	
107-12-0	Propionitrile	UG/KG	24 U		22 U	53 U	
100-42-5	Styrene	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
630-20-6	1,1,1,2-Tetrachloroethane	UG/KG	5.9 U		5.6 U	13 U	
79-34-5	1,1,2,2-Tetrachloroethane	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
127-18-4	Tetrachloroethene	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
108-88-3	Toluene	UG/KG	5.9 U	58 U	5.6 U	27	8.3
71-55-6	1,1,1-Trichloroethane	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
79-00-5	1,1,2-Trichloroethane	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
79-01-6	Trichloroethene	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
96-18-4	1,2,3-Trichloropropane	UG/KG	5.9 U		5.6 U	13 U	
108-05-4	Vinyl acetate	UG/KG	59 U		56 U	130 U	
75-01-4	Vinyl chloride	UG/KG	5.9 U	58 U	5.6 U	13 U	5.5 U
1330-20-7	Xylenes (total)	UG/KG	18 U	28 J	17 U	36 J	12 J
106-93-4	1,2-Dibromoethane (EDB)	UG/KG	5.9 U		5.6 U	13 U	
78-93-3	2-Butanone (MEK)	UG/KG	59 U	580 U	56 U	46 J	20 J
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/KG	59 U	580 U	56 U	16 J	4.2 J

GM WEST YARD PONTIAC, MICHIGAN TEST TRENCHES SURFACE SOIL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SSTT1 0.0-0.5' A6A250126-001 QUANTERRA A6A250126 SOLID 1/22/96	SSTT2 0.0-0.5' A6A250126-003 QUANTERRA A6A250126 SOLID 1/22/96	SSTT3 0.0-0.5' A6A250126-005 QUANTERRA A6A250126 SOLID 1/22/96	SSTT4 0.0-0.5' A6A250126-008 QUANTERRA A6A250126 SOLID 1/23/96	SSTT5 0.0-0.5' A6A250126-011 QUANTERRA A6A250126 SOLID 1/23/96
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
92-67-1	4-Aminobiphenyl	UG/KG	2000 U		950 U	36000 U	
60-11-7	p-Dimethylaminoazobenzene	UG/KG	790 U		370 U	14000 U	
57-97-6	7,12-Dimethylbenz(a)anthracene	UG/KG	790 U		370 U	14000 U	
1888-71-7	Hexachloropropene	UG/KG	3900 U		1900 U	70000 U	
62-44-2	Phenacetin	UG/KG	790 U		370 U	14000 U	
23950-58-5	Pronamide	UG/KG	790 U		370 U	14000 U	
122-09-8	a,a-Dimethylphenethylamine	UG/KG	2000 U		950 U	36000 U	
2303-16-4	Diallate	UG/KG	790 U		370 U	14000 U	
510-15-6	Chlorobenzilate	UG/KG	390 U		190 U	7000 U	
83-32-9	Acenaphthene	UG/KG	120 J	36000	190 U	1800 J	9100 U
208-96-8	Acenaphthylene	UG/KG	390 U	2000 J	190 U	7000 U	9100 U
98-86-2	Acetophenone	UG/KG	390 U		190 U	7000 U	
53-96-3	2-Acetylaminofluorene	UG/KG	3900 U		1900 U	70000 U	
62-53-3	Aniline	UG/KG	1000 U		950 U	14000 U	
120-12-7	Anthracene	UG/KG	290 J	21000	20 J	830 J	9100 U
56-55-3	Benzo(a)anthracene	UG/KG	180 J	15000	58 J	7000 U	9100 U
205-99-2	Benzo(b)fluoranthene	UG/KG	140 J	11000	120 J	7000 U	9100 U
207-08-9	Benzo(k)fluoranthene	UG/KG	390 U	5300 J	48 J	7000 U	9100 U
191-24-2	Benzo(ghi)perylene	UG/KG	110 J	4500 J	45 J	7000 U	9100 U
50-32-8	Benzo(a)pyrene	UG/KG	94 J	8600 J	69 J	7000 U	9100 U
100-51-6	Benzyl alcohol	UG/KG	790 U		730 U	14000 U	
111-91-1	bis(2-Chloroethoxy)methane	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
111-44-4	bis(2-Chloroethyl) ether	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
117-81-7	bis(2-Ethylhexyl) phthalate	UG/KG	240 J	9600 U	150 J	7000 U	1300 J
101-55-3	4-Bromophenyl phenyl ether	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
85-68-7	Butyl benzyl phthalate	UG/KG	240 J	2300 J	190 U	32000	9100 U
106-47-8	4-Chloroaniline	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
59-50-7	4-Chloro-3-methylphenol	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
91-58-7	2-Chloronaphthalene	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
95-57-8	2-Chlorophenol	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
7005-72-3	4-Chlorophenyl phenyl ether	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
218-01-9	Chrysene	UG/KG	230 J	16000	73 J	7000 U	9100 U
53-70-3	Dibenz(a,h)anthracene	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
132-64-9	Dibenzofuran	UG/KG	330 J	27000	190 U	7000 U	9100 U
84-74-2	Di-n-butyl phthalate	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
91-94-1	3,3'-Dichlorobenzidine	UG/KG	2400 U	58000 U	1100 U	42000 U	55000 U
120-83-2	2,4-Dichlorophenol	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
87-65-0	2,6-Dichlorophenol	UG/KG	390 U		190 U	7000 U	
84-66-2	Diethyl phthalate	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
119-93-7	3,3'-Dimethylbenzidine	UG/KG	390 U		190 U	7000 U	
105-67-9	2,4-Dimethylphenol	UG/KG	250 J	9600 U	190 U	7000 U	9100 U
131-11-3	Dimethyl phthalate	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
117-84-0	Di-n-octyl phthalate	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
99-65-0	1,3-Dinitrobenzene	UG/KG	390 U		190 U	7000 U	
534-52-1	4,6-Dinitro-2-methylphenol	UG/KG	2000 U	49000 U	950 U	36000 U	47000 U
51-28-5	2,4-Dinitrophenol	UG/KG	2000 U	49000 U	950 U	36000 U	47000 U
121-14-2	2,4-Dinitrotoluene	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
606-20-2	2,6-Dinitrotoluene	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
122-39-4	Diphenylamine	UG/KG	390 U		190 U	7000 U	
62-50-0	Ethyl methanesulfonate	UG/KG	390 U		190 U	7000 U	
206-44-0	Fluoranthene	UG/KG	390	82000	150 J	7000 U	9100 U
86-73-7	Fluorene	UG/KG	210 J	36000	190 U	9900	3500 J
118-74-1	Hexachlorobenzene	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
87-68-3	Hexachlorobutadiene	UG/KG	390 U	9600 U	190 U	7000 U	9100 U

GM WEST YARD PONTIAC, MICHIGAN TEST TRENCHES SURFACE SOIL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SSTT1 0.0-0.5' A6A250126-001 QUANTERRA A6A250126 SOLID 1/22/96	SSTT2 0.0-0.5' A6A250126-003 QUANTERRA A6A250126 SOLID 1/22/96	SSTT3 0.0-0.5' A6A250126-005 QUANTERRA A6A250126 SOLID 1/22/96	SSTT4 0.0-0.5' A6A250126-008 QUANTERRA A6A250126 SOLID 1/23/96	SSTT5 0.0-0.5' A6A250126-011 QUANTERRA A6A250126 SOLID 1/23/96
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES CONT'D						
77-47-4	Hexachlorocyclopentadiene	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
67-72-1	Hexachloroethane	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
193-39-5	Indeno(1,2,3-cd)pyrene	UG/KG	57 J	3700 J	40 J	7000 U	9100 U
78-59-1	Isophorone	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
120-58-1	Isosafrole	UG/KG	790 U		370 U	14000 U	
91-80-5	Methapyrilene	UG/KG	2000 U		950 U	36000 U	
95-53-4	o-Toluidine	UG/KG	790 U		370 U	14000 U	
56-49-5	3-Methylcholanthrene	UG/KG	790 U		370 U	14000 U	
66-27-3	Methyl methanesulfonate	UG/KG	390 U		190 U	7000 U	
91-57-6	2-Methylnaphthalene	UG/KG	5500	23000	46 J	2300 J	2400 J
95-48-7	2-Methylphenol	UG/KG	930	9600 U	190 U	7000 U	9100 U
108-39-4	3-Methylphenol	UG/KG	400		190 U	7000 U	
106-44-5	4-Methylphenol	UG/KG	450	9600 U	190 U	7000 U	9100 U
91-20-3	Naphthalene	UG/KG	2900	97000	34 J	7000 U	9100 U
130-15-4	1,4-Naphthoquinone	UG/KG	2000 U		950 U	36000 U	
134-32-7	1-Naphthylamine	UG/KG	390 U		190 U	7000 U	
91-59-8	2-Naphthylamine	UG/KG	390 U		190 U	7000 U	
88-74-4	2-Nitroaniline	UG/KG	2000 U	49000 U	950 U	36000 U	47000 U
99-09-2	3-Nitroaniline	UG/KG	2000 U	49000 U	950 U	36000 U	47000 U
100-01-6	4-Nitroaniline	UG/KG	2000 U	49000 U	950 U	36000 U	47000 U
98-95-3	Nitrobenzene	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
88-75-5	2-Nitrophenol	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
100-02-7	4-Nitrophenol	UG/KG	2000 U	49000 U	950 U	36000 U	47000 U
56-57-5	4-Nitroquinoline-1-oxide	UG/KG	3900 U		1900 U	70000 U	
924-16-3	N-Nitrosodi-n-butylamine	UG/KG	390 U		190 U	7000 U	
55-18-5	N-Nitrosodiethylamine	UG/KG	390 U		190 U	7000 U	
62-75-9	N-Nitrosodimethylamine	UG/KG	390 U		190 U	7000 U	
621-64-7	N-Nitrosodi-n-propylamine	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
86-30-6	N-Nitrosodiphenylamine	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
10595-95-6	N-Nitrosomethylethylamine	UG/KG	390 U		190 U	7000 U	
59-89-2	N-Nitrosomorpholine	UG/KG	390 U		190 U	7000 U	
100-75-4	N-Nitrosopiperidine	UG/KG	390 U		190 U	7000 U	
930-55-2	N-Nitrosopyrrolidine	UG/KG	390 U		190 U	7000 U	
99-55-8	5-Nitro-o-toluidine	UG/KG	790 U		370 U	14000 U	
608-93-5	Pentachlorobenzene	UG/KG	390 U		190 U	7000 U	
76-01-7	Pentachloroethane	UG/KG	390 U		190 U	7000 U	
82-68-8	Pentachloronitrobenzene	UG/KG	2000 U		950 U	36000 U	
87-86-5	Pentachlorophenol	UG/KG	3800 U	93000 U	1900 U	68000 U	88000 U
85-01-8	Phenanthrene	UG/KG	1300	110000	74 J	11000	3700 J
108-95-2	Phenol	UG/KG	2100	9600 U	23 J	7000 U	9100 U
106-50-3	p-Phenylene diamine	UG/KG	3900 U		1900 U	70000 U	
109-06-8	2-Picoline	UG/KG	790 U		370 U	14000 U	
129-00-0	Pyrene	UG/KG	360 J	50000	140 J	830 J	9100 U
110-86-1	Pyridine	UG/KG	790 U		370 U	14000 U	
94-59-7	Safrole	UG/KG	790 U		370 U	14000 U	
95-94-3	1,2,4,5-Tetrachlorobenzene	UG/KG	390 U		190 U	7000 U	
58-90-2	2,3,4,6-Tetrachlorophenol	UG/KG	2000 U		950 U	36000 U	
120-82-1	1,2,4-Trichlorobenzene	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
95-95-4	2,4,5-Trichlorophenol	UG/KG	1000 U	19000 U	950 U	14000 U	18000 U
88-06-2	2,4,6-Trichlorophenol	UG/KG	390 U	9600 U	190 U	7000 U	9100 U
99-35-4	1,3,5-Trinitrobenzene	UG/KG	2000 U		950 U	36000 U	
86-74-8	Carbazole	UG/KG	81 J	11000	190 U	7000 U	9100 U
108-60-1	bis(2-Chloroisopropyl) ether	UG/KG	390 U	9600 U	190 U	7000 U	9100 U

GM WEST YARD PONTIAC, MICHIGAN TEST TRENCHES SURFACE SOIL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SSTT1 0.0-0.5' A6A250126-001 QUANTERRA A6A250126 SOLID 1/22/96	SSTT2 0.0-0.5' A6A250126-003 QUANTERRA A6A250126 SOLID 1/22/96	SSTT3 0.0-0.5' A6A250126-005 QUANTERRA A6A250126 SOLID 1/22/96	SSTT4 0.0-0.5' A6A250126-008 QUANTERRA A6A250126 SOLID 1/23/96	SSTT5 0.0-0.5' A6A250126-011 QUANTERRA A6A250126 SOLID 1/23/96
CAS NO.	COMPOUND	UNITS:					
	PESTICIDES/PCBs						
309-00-2	Aldrin	UG/KG	12 U	19 U	11 U	11 U	37 U
319-84-6	alpha-BHC	UG/KG	12 U	19 U	11 U	11 U	37 U
319-85-7	beta-BHC	UG/KG	12 U	19 U	11 U	11 U	37 U
319-86-8	delta-BHC	UG/KG	12 U	19 U	11 U	11 U	37 U
58-89-9	gamma-BHC (Lindane)	UG/KG	12 U	19 U	11 U	11 U	37 U
5103-71-9	alpha-Chlordane	UG/KG	5.9 U	19 U	5.6 U	7.1 U	37 U
5103-74-2	gamma-Chlordane	UG/KG	5.9 U	19 U	5.6 U	7.1 U	37 U
72-54-8	4,4'-DDD	UG/KG	12 U	39 U	11 U	14 U	74 U
72-55-9	4,4'-DDE	UG/KG	12 U	39 U	11 U	14 U	74 U
50-29-3	4,4'-DDT	UG/KG	12 U	39 U	11 U	14 U	74 U
60-57-1	Dieldrin	UG/KG	12 U	39 U	11 U	14 U	74 U
959-98-8	Endosulfan I	UG/KG	12 U	19 U	11 U	11 U	37 U
33213-65-9	Endosulfan II	UG/KG	12 U	39 U	11 U	14 U	74 U
1031-07-8	Endosulfan sulfate	UG/KG	12 U	39 U	11 U	14 U	74 U
72-20-8	Endrin	UG/KG	12 U	39 U	11 U	14 U	74 U
7421-93-4	Endrin aldehyde	UG/KG	12 U	39 U	11 U	14 U	74 U
76-44-8	Heptachlor	UG/KG	12 U	19 U	11 U	11 U	37 U
1024-57-3	Heptachlor epoxide	UG/KG	12 U	19 U	11 U	11 U	37 U
465-73-6	Isodrin	UG/KG	3.9 U		3.7 U	7.1 U	
143-50-0	Kepone	UG/KG	39 U		37 U	110 U	
72-43-5	Methoxychlor	UG/KG	30 U	190 U	28 U	71 U	370 U
12674-11-2	Aroclor 1016	UG/KG	200 U	190 U	190 U	170 U	370 U
11104-28-2	Aroclor 1221	UG/KG	200 U	190 U	190 U	170 U	370 U
11141-16-5	Aroclor 1232	UG/KG	200 U	190 U	190 U	170 U	370 U
53469-21-9	Aroclor 1242	UG/KG	200 U	190 U	190 U	170 U	370 U
12672-29-6	Aroclor 1248	UG/KG	200 U	710	190 U	470	2000
11097-69-1	Aroclor 1254	UG/KG	200 U	390 U	190 U	520	1100 *
11096-82-5	Aroclor 1260	UG/KG	200 U	390 U	190 U	170 U	740 U
8001-35-2	Toxaphene	UG/KG	100 U	970 U	95 U	350 U	1800 U
53494-70-5	Endrin ketone	UG/KG	12 U	39 U	11 U	14 U	74 U
	HERBICIDES						
57-74-9	Chlordane (technical)	UG/KG	15 U		14 U	35 U	
297-97-2	Thionazin	UG/KG	1600 U		750 U	710 U	
60-51-5	Dimethoate	UG/KG	1600 U		750 U	710 U	
298-04-4	Disulfoton	UG/KG	1600 U		750 U	710 U	
52-85-7	Famphur	UG/KG	1600 U		750 U	710 U	
298-00-0	Methyl parathion	UG/KG	1600 U		750 U	710 U	
56-38-2	Parathion	UG/KG	1600 U		750 U	710 U	
298-02-2	Phorate	UG/KG	1600 U		750 U	710 U	
3689-24-5	Tetraethyldithiopyrophosphate	UG/KG	1600 U		750 U	710 U	
126-68-1	O,O,O-Triethyl phosphorothioate	UG/KG	1600 U		750 U	710 U	
94-75-7	2,4-D	UG/KG	120 U		110 U	110 U	
88-85-7	Dinoseb	UG/KG	12 U		11 U	11 U	
93-76-5	2,4,5-T	UG/KG	30 U		28 U	27 U	
93-72-1	2,4,5-TP (Silvex)	UG/KG	30 U		28 U	27 U	

GM WEST YARD PONTIAC, MICHIGAN TEST TRENCHES SURFACE SOIL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SSTT1 0.0-0.5' A6A250126-001 QUANTERRA A6A250126 SOLID 1/22/96	SSTT2 0.0-0.5' A6A250126-003 QUANTERRA A6A250126 SOLID 1/22/96	SSTT3 0.0-0.5' A6A250126-005 QUANTERRA A6A250126 SOLID 1/22/96	SSTT4 0.0-0.5' A6A250126-008 QUANTERRA A6A250126 SOLID 1/23/96	SSTT5 0.0-0.5' A6A250126-011 QUANTERRA A6A250126 SOLID 1/23/96
CAS NO.	COMPOUND	UNITS:					
	INORGANICS						
7440-47-3	Chromium	UG/KG	81900	251000	4480 J	1660000	940000 J
7439-92-1	Lead	UG/KG	151000	117000	3320 J	16400	18800 J
7440-36-0	Antimony	UG/KG	2200 J	4180 J	281 U	22500	16600 J
7782-49-2	Selenium	UG/KG	595 U*	1160 U*	281 U	5300 U*	5510 U
7429-90-5	Aluminum	UG/KG	3450000	4250000	1790000 J	438000	799000 J
7440-39-3	Barium	UG/KG	45200	79100 J	12800 J	9740	41600 J
7440-41-7	Beryllium	UG/KG	416	753	337 U	1590 U*	1650 U*
7440-70-2	Calcium	UG/KG	5550000 J	31900000	66900000	5920000	2760000 U
7440-48-4	Cobalt	UG/KG	6660	11800	5110	64400	69500 J
7440-50-8	Copper	UG/KG	57900 J	221000	6690 J	1590000	987000 J
7439-89-6	Iron	UG/KG	69000000	10700000	10500000	64800000	70000000 J
7440-09-7	Potassium	UG/KG	616000	579000	777000	530000 U	551000 U
7439-95-4	Magnesium	UG/KG	1230000	3490000 J	8160000 J	2700000	492000 J
7439-96-5	Manganese	UG/KG	2080000	2040000	543000 J	4490000	4600000 J
7440-23-5	Sodium	UG/KG	382000	675000	210000	109000	110000 U
7440-02-0	Nickel	UG/KG	25000 J	84700 J	5140 J	601000	557000 J
7440-31-5	Tin	UG/KG	27000		11200 U	84000	
7440-62-2	Vanadium	UG/KG	5460	15000	6460 J	46400	52700 J
7440-66-6	Zinc	UG/KG	3640000	379000	16900 J	99800	66000 J
7440-38-2	Arsenic	UG/KG	7770 J	7270 J	3710	44300	67100 J
7440-43-9	Cadmium	UG/KG	2110	2320	132	129	206
7439-97-6	Mercury	UG/KG	59.5 U	92.1	56.1 U	53 U	55.1 U
7440-22-4	Silver	UG/KG	357	487	281 U	382	447
7440-28-0	Thallium	UG/KG	297 U	290 UJ	281 UJ	265 U	276 UJ
18496-25-8	Sulfide	MG/KG	59 U		56 U	100	
57-12-5	Cyanide	UG/KG	590	360	280 U	270 U	370
10-31-1	Total Solids	%	84.1	86.3	89.1	94.3	90.7

GM WEST YARD PONTIAC, MICHIGAN TEST TRENCHES SURFACE SOIL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SSTT55 0.0-0.5' A6A250126-010 QUANTERRA A6A250126 SOLID 1/23/96	SSTT80 0.0-0.5' A6A250126-006 QUANTERRA A6A250126 SOLID 1/22/96
CAS NO.	COMPOUND	UNITS:		
	VOLATILES			
67-64-1	Acetone	UG/KG	8.4 J	57 U
95-50-1	1,2-Dichlorobenzene	UG/KG	5.5 U	5.7 U
541-73-1	1,3-Dichlorobenzene	UG/KG	5.5 U	5.7 U
106-46-7	1,4-Dichlorobenzene	UG/KG	5.5 U	2.4 J
156-59-2	cis-1,2-Dichloroethene	UG/KG	5.5 U	5.7 U
75-05-8	Acetonitrile	UG/KG		57 U
107-02-8	Acrolein	UG/KG		57 U
107-13-1	Acrylonitrile	UG/KG		57 U
71-43-2	Benzene	UG/KG	5.5 U	5.7 U
75-27-4	Bromodichloromethane	UG/KG	5.5 U	5.7 U
75-25-2	Bromoform	UG/KG	5.5 U	5.7 U
74-83-9	Bromomethane	UG/KG	5.5 U	5.7 U
75-15-0	Carbon disulfide	UG/KG	55 U	57 U
56-23-5	Carbon tetrachloride	UG/KG	5.5 U	5.7 U
108-90-7	Chlorobenzene	UG/KG	5.5 U	5.7 U
126-99-8	Chloroprene	UG/KG		5.7 U
124-48-1	Dibromochloromethane	UG/KG	5.5 U	5.7 U
96-12-8	1,2-Dibromo-3-chloropropane	UG/KG		11 U
75-00-3	Chloroethane	UG/KG	5.5 U	5.7 U
67-66-3	Chloroform	UG/KG	5.5 U	5.7 U
74-87-3	Chloromethane	UG/KG	5.5 U	5.7 U
107-05-1	Allyl chloride	UG/KG		11 U
74-95-3	Dibromomethane	UG/KG		5.7 U
110-57-6	trans-1,4-Dichloro-2-butene	UG/KG		5.7 U
75-71-8	Dichlorodifluoromethane	UG/KG		5.7 U
75-34-3	1,1-Dichloroethane	UG/KG	5.5 U	5.7 U
107-06-2	1,2-Dichloroethane	UG/KG	5.5 U	5.7 U
75-35-4	1,1-Dichloroethene	UG/KG	5.5 U	5.7 U
156-60-5	trans-1,2-Dichloroethene	UG/KG	5.5 U	5.7 U
78-87-5	1,2-Dichloropropane	UG/KG	5.5 U	5.7 U
10061-01-5	cis-1,3-Dichloropropene	UG/KG	5.5 U	5.7 U
10061-02-6	trans-1,3-Dichloropropene	UG/KG	5.5 U	5.7 U
123-91-1	1,4-Dioxane	UG/KG		570 U
100-41-4	Ethylbenzene	UG/KG	5.5 U	5.7 U
97-63-2	Ethyl methacrylate	UG/KG		5.7 U
75-69-4	Trichlorofluoromethane	UG/KG		5.7 U
591-78-6	2-Hexanone	UG/KG	55 U	57 U
74-88-4	Iodomethane	UG/KG		5.7 U
78-83-1	Isobutyl alcohol	UG/KG		2500 U
126-98-7	Methacrylonitrile	UG/KG		23 U
75-09-2	Methylene chloride	UG/KG	5.5 U	5.7 U
80-62-6	Methyl methacrylate	UG/KG		5.7 U
107-12-0	Propionitrile	UG/KG		23 U
100-42-5	Styrene	UG/KG	5.5 U	5.7 U
630-20-6	1,1,1,2-Tetrachloroethane	UG/KG		5.7 U
79-34-5	1,1,2,2-Tetrachloroethane	UG/KG	5.5 U	5.7 U
127-18-4	Tetrachloroethene	UG/KG	5.5 U	5.7 U
108-88-3	Toluene	UG/KG	5.5 U	5.7 U
71-55-6	1,1,1-Trichloroethane	UG/KG	5.5 U	5.7 U
79-00-5	1,1,2-Trichloroethane	UG/KG	5.5 U	5.7 U
79-01-6	Trichloroethene	UG/KG	5.5 U	5.7 U
96-18-4	1,2,3-Trichloropropane	UG/KG		5.7 U
108-05-4	Vinyl acetate	UG/KG		57 U
75-01-4	Vinyl chloride	UG/KG	5.5 U	5.7 U
1330-20-7	Xylenes (total)	UG/KG	17 U	17 U
106-93-4	1,2-Dibromoethane (EDB)	UG/KG		5.7 U
78-93-3	2-Butanone (MEK)	UG/KG	55 U	57 U
108-10-1	4-Methyl-2-pentanone (MIBK)	UG/KG	55 U	57 U

GM WEST YARD PONTIAC, MICHIGAN TEST TRENCHES SURFACE SOIL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SSTT55 0.0-0.5' A6A250126-010 QUANTERRA A6A250126 SOLID 1/23/96	SSTT80 0.0-0.5' A6A250126-006 QUANTERRA A6A250126 SOLID 1/22/96
CAS NO.	COMPOUND	UNITS:		
	SEMIVOLATILES			
92-67-1	4-Aminobiphenyl	UG/KG		970 U
60-11-7	p-Dimethylaminoazobenzene	UG/KG		380 U
57-97-6	7,12-Dimethylbenz(a)anthracene	UG/KG		380 U
1888-71-7	Hexachloropropene	UG/KG		1900 U
62-44-2	Phenacetin	UG/KG		380 U
23950-58-5	Pronamide	UG/KG		380 U
122-09-8	a,a-Dimethylphenethylamine	UG/KG		970 U
2303-16-4	Diallate	UG/KG		380 U
510-15-6	Chlorobenzilate	UG/KG		190 U
83-32-9	Acenaphthene	UG/KG	51 J	190 U
208-96-8	Acenaphthylene	UG/KG	180 U	190 U
98-86-2	Acetophenone	UG/KG		190 U
53-96-3	2-Acetylaminofluorene	UG/KG		1900 U
62-53-3	Aniline	UG/KG		970 U
120-12-7	Anthracene	UG/KG	100 J	190 U
56-55-3	Benzo(a)anthracene	UG/KG	120 J	35 J
205-99-2	Benzo(b)fluoranthene	UG/KG	130 J	49 J
207-08-9	Benzo(k)fluoranthene	UG/KG	41 J	25 J
191-24-2	Benzo(ghi)perylene	UG/KG	43 J	21 J
50-32-8	Benzo(a)pyrene	UG/KG	73 J	31 J
100-51-6	Benzyl alcohol	UG/KG		750 U
111-91-1	bis(2-Chloroethoxy)methane	UG/KG	180 U	190 U
111-44-4	bis(2-Chloroethyl) ether	UG/KG	180 U	190 U
117-81-7	bis(2-Ethylhexyl) phthalate	UG/KG	56 J	110 J
101-55-3	4-Bromophenyl phenyl ether	UG/KG	180 U	190 U
85-68-7	Butyl benzyl phthalate	UG/KG	120 J	190 U
106-47-8	4-Chloroaniline	UG/KG	180 U	190 U
59-50-7	4-Chloro-3-methylphenol	UG/KG	180 U	190 U
91-58-7	2-Chloronaphthalene	UG/KG	180 U	190 U
95-57-8	2-Chlorophenol	UG/KG	180 U	190 U
7005-72-3	4-Chlorophenyl phenyl ether	UG/KG	180 U	190 U
218-01-9	Chrysene	UG/KG	160 J	44 J
53-70-3	Dibenz(a,h)anthracene	UG/KG	180 U	190 U
132-64-9	Dibenzofuran	UG/KG	140 J	190 U
84-74-2	Di-n-butyl phthalate	UG/KG	180 U	190 U
91-94-1	3,3'-Dichlorobenzidine	UG/KG	1100 U	1100 U
120-83-2	2,4-Dichlorophenol	UG/KG	180 U	190 U
87-65-0	2,6-Dichlorophenol	UG/KG		190 U
84-66-2	Diethyl phthalate	UG/KG	180 U	190 U
119-93-7	3,3'-Dimethylbenzidine	UG/KG		190 U
105-67-9	2,4-Dimethylphenol	UG/KG	120 J	190 U
131-11-3	Dimethyl phthalate	UG/KG	180 U	190 U
117-84-0	Di-n-octyl phthalate	UG/KG	180 U	190 U
99-65-0	1,3-Dinitrobenzene	UG/KG		190 U
534-52-1	4,6-Dinitro-2-methylphenol	UG/KG	940 U	970 U
51-28-5	2,4-Dinitrophenol	UG/KG	940 U	970 U
121-14-2	2,4-Dinitrotoluene	UG/KG	180 U	190 U
606-20-2	2,6-Dinitrotoluene	UG/KG	180 U	190 U
122-39-4	Diphenylamine	UG/KG		190 U
62-50-0	Ethyl methanesulfonate	UG/KG		190 U
206-44-0	Fluoranthene	UG/KG	200	86 J
86-73-7	Fluorene	UG/KG	78 J	190 U
118-74-1	Hexachlorobenzene	UG/KG	180 U	190 U
87-68-3	Hexachlorobutadiene	UG/KG	180 U	190 U

GM WEST YARD PONTIAC, MICHIGAN TEST TRENCHES SURFACE SOIL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SSTT55 0.0-0.5' A6A250126-010 QUANTERRA A6A250126 SOLID 1/23/96	SSTT80 0.0-0.5' A6A250126-006 QUANTERRA A6A250126 SOLID 1/22/96
CAS NO.	COMPOUND	UNITS:		
	SEMIVOLATILES CONT'D			
77-47-4	Hexachlorocyclopentadiene	UG/KG	180 U	190 U
67-72-1	Hexachloroethane	UG/KG	180 U	190 U
193-39-5	Indeno(1,2,3-cd)pyrene	UG/KG	26 J	21 J
78-59-1	Isophorone	UG/KG	180 U	190 U
120-58-1	Isosafrole	UG/KG		380 U
91-80-5	Methapyrilene	UG/KG		970 U
95-53-4	o-Toluidine	UG/KG		380 U
56-49-5	3-Methylcholanthrene	UG/KG		380 U
66-27-3	Methyl methanesulfonate	UG/KG		190 U
91-57-6	2-Methylnaphthalene	UG/KG	2900	190 U
95-48-7	2-Methylphenol	UG/KG	260	190 U
108-39-4	3-Methylphenol	UG/KG		190 U
106-44-5	4-Methylphenol	UG/KG	140 J	190 U
91-20-3	Naphthalene	UG/KG	1500	190 U
130-15-4	1,4-Naphthoquinone	UG/KG		970 U
134-32-7	1-Naphthylamine	UG/KG		190 U
91-59-8	2-Naphthylamine	UG/KG		190 U
88-74-4	2-Nitroaniline	UG/KG	940 U	970 U
99-09-2	3-Nitroaniline	UG/KG	940 U	970 U
100-01-6	4-Nitroaniline	UG/KG	940 U	970 U
98-95-3	Nitrobenzene	UG/KG	180 U	190 U
88-75-5	2-Nitrophenol	UG/KG	180 U	190 U
100-02-7	4-Nitrophenol	UG/KG	940 U	970 U
56-57-5	4-Nitroquinoline-1-oxide	UG/KG		1900 U
924-16-3	N-Nitrosodi-n-butylamine	UG/KG		190 U
55-18-5	N-Nitrosodiethylamine	UG/KG		190 U
62-75-9	N-Nitrosodimethylamine	UG/KG		190 U
621-64-7	N-Nitrosodi-n-propylamine	UG/KG	180 U	190 U
86-30-6	N-Nitrosodiphenylamine	UG/KG	180 U	190 U
10595-95-6	N-Nitrosomethylethylamine	UG/KG		190 U
59-89-2	N-Nitrosomorpholine	UG/KG		190 U
100-75-4	N-Nitrosopiperidine	UG/KG		190 U
930-55-2	N-Nitrosopyrrolidine	UG/KG		190 U
99-55-8	5-Nitro-o-toluidine	UG/KG		380 U
608-93-5	Pentachlorobenzene	UG/KG		190 U
76-01-7	Pentachloroethane	UG/KG		190 U
82-68-8	Pentachloronitrobenzene	UG/KG		970 U
87-86-5	Pentachlorophenol	UG/KG	1900 U	1900 U
85-01-8	Phenanthrene	UG/KG	500	65 J
108-95-2	Phenol	UG/KG	930	190 U
106-50-3	p-Phenylene diamine	UG/KG		1900 U
109-06-8	2-Picoline	UG/KG		380 U
129-00-0	Pyrene	UG/KG	200	73 J
110-86-1	Pyridine	UG/KG		380 U
94-59-7	Safrole	UG/KG		380 U
95-94-3	1,2,4,5-Tetrachlorobenzene	UG/KG		190 U
58-90-2	2,3,4,6-Tetrachlorophenol	UG/KG		970 U
120-82-1	1,2,4-Trichlorobenzene	UG/KG	180 U	190 U
95-95-4	2,4,5-Trichlorophenol	UG/KG	940 U	970 U
88-06-2	2,4,6-Trichlorophenol	UG/KG	180 U	190 U
99-35-4	1,3,5-Trinitrobenzene	UG/KG		970 U
86-74-8	Carbazole	UG/KG	40 J	190 U
108-60-1	bis(2-Chloroisopropyl) ether	UG/KG	180 U	190 U

GM WEST YARD PONTIAC, MICHIGAN TEST TRENCHES SURFACE SOIL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SSTT55 0.0-0.5' A6A250126-010 QUANTERRA A6A250126 SOLID 1/23/96	SSTT80 0.0-0.5' A6A250126-006 QUANTERRA A6A250126 SOLID 1/22/96
CAS NO.	COMPOUND	UNITS:		
	PESTICIDES/PCBs			
309-00-2	Aldrin	UG/KG	11 U	11 U
319-84-6	alpha-BHC	UG/KG	11 U	11 U
319-85-7	beta-BHC	UG/KG	11 U	11 U
319-86-8	delta-BHC	UG/KG	11 U	11 U
58-89-9	gamma-BHC (Lindane)	UG/KG	11 U	11 U
5103-71-9	alpha-Chlordane	UG/KG	5.5 U	5.7 U
5103-74-2	gamma-Chlordane	UG/KG	5.5 U	5.7 U
72-54-8	4,4'-DDD	UG/KG	11 U	11 U
72-55-9	4,4'-DDE	UG/KG	11 U	11 U
50-29-3	4,4'-DDT	UG/KG	11 U	11 U
60-57-1	Dieldrin	UG/KG	11 U	11 U
959-98-8	Endosulfan I	UG/KG	11 U	11 U
33213-65-9	Endosulfan II	UG/KG	11 U	11 U
1031-07-8	Endosulfan sulfate	UG/KG	11 U	11 U
72-20-8	Endrin	UG/KG	11 U	11 U
7421-93-4	Endrin aldehyde	UG/KG	11 U	11 U
76-44-8	Heptachlor	UG/KG	11 U	11 U
1024-57-3	Heptachlor epoxide	UG/KG	11 U	11 U
465-73-6	Isodrin	UG/KG		3.8 U
143-50-0	Kepone	UG/KG		38 U
72-43-5	Methoxychlor	UG/KG	28 U	29 U
12674-11-2	Aroclor 1016	UG/KG	180 U	190 U
11104-28-2	Aroclor 1221	UG/KG	180 U	190 U
11141-16-5	Aroclor 1232	UG/KG	180 U	190 U
53469-21-9	Aroclor 1242	UG/KG	180 U	190 U
12672-29-6	Aroclor 1248	UG/KG	180 U	190 U
11097-69-1	Aroclor 1254	UG/KG	180 U	190 U
11096-82-5	Aroclor 1260	UG/KG	180 U	190 U
8001-35-2	Toxaphene	UG/KG	94 U	97 U
53494-70-5	Endrin ketone	UG/KG	11 U	11 U
	HERBICIDES			
57-74-9	Chlordane (technical)	UG/KG		14 U
297-97-2	Thionazin	UG/KG		760 U
60-51-5	Dimethoate	UG/KG		760 U
298-04-4	Disulfoton	UG/KG		760 U
52-85-7	Famphur	UG/KG		760 U
298-00-0	Methyl parathion	UG/KG		760 U
56-38-2	Parathion	UG/KG		760 U
298-02-2	Phorate	UG/KG		760 U
3689-24-5	Tetraethyldithiopyrophosphate	UG/KG		760 U
126-68-1	O,O,O-Triethyl phosphorothioate	UG/KG		760 U
94-75-7	2,4-D	UG/KG		110 U
88-85-7	Dinoseb	UG/KG		11 U
93-76-5	2,4,5-T	UG/KG		29 U
93-72-1	2,4,5-TP (Silvex)	UG/KG		29 U

GM WEST YARD PONTIAC, MICHIGAN TEST TRENCHES SURFACE SOIL DATA		SAMPLE ID: DEPTH: LAB ID: SOURCE: SDG: MATRIX: SAMPLED:	SSTT55 0.0-0.5' A6A250126-010 QUANTERRA A6A250126 SOLID 1/23/96	SSTT80 0.0-0.5' A6A250126-006 QUANTERRA A6A250126 SOLID 1/22/96
CAS NO.	COMPOUND	UNITS:		
	INORGANICS			
7440-47-3	Chromium	UG/KG	163000 J	11700 J
7439-92-1	Lead	UG/KG	51500 J	5810 J
7440-36-0	Antimony	UG/KG	2940 J	573 U*
7782-49-2	Selenium	UG/KG	554 U*	573 U*
7429-90-5	Aluminum	UG/KG	3960000 J	3270000 J
7440-39-3	Barium	UG/KG	83200 J	34400 J
7440-41-7	Beryllium	UG/KG	720 J	344 U
7440-70-2	Calcium	UG/KG	19300000 J	89700000
7440-48-4	Cobalt	UG/KG	4820 J	4070
7440-50-8	Copper	UG/KG	82700 J	12700 J
7439-89-6	Iron	UG/KG	52300000 J	7800000
7440-09-7	Potassium	UG/KG	554000 U	645000
7439-95-4	Magnesium	UG/KG	1530000 J	12000000 J
7439-96-5	Manganese	UG/KG	1530000 J	270000 J
7440-23-5	Sodium	UG/KG	440000	201000
7440-02-0	Nickel	UG/KG	44700 J	11100 J
7440-31-5	Tin	UG/KG		11500 U
7440-62-2	Vanadium	UG/KG	7400 J	10700 J
7440-66-6	Zinc	UG/KG	1370000 J	31300 J
7440-38-2	Arsenic	UG/KG	3350 J	3650
7440-43-9	Cadmium	UG/KG	573	121
7439-97-6	Mercury	UG/KG	55.4 U	57.3 U
7440-22-4	Silver	UG/KG	277 U	287 U
7440-28-0	Thallium	UG/KG	277 U	287 UJ
18496-25-8	Sulfide	MG/KG		57 U
57-12-5	Cyanide	UG/KG	520	390
10-31-1	Total Solids	%	90.3	87.2

GM WEST YARD DIOXIN RESULTS
GROUNDWATER
SDG 38993Br1/38993Cr1

9/25/96 sampled

SAMPLE ID		GMWYGWMW22		GMWYGWMW22	
LAB ID		S966652		T966485	
		OIL LAYER		WATER LAYER	
	TEFs	RESULT	TEF RESULT	RESULT	TEF RESULT
2378-TCDD	1	34.3	34.3		0
12378-PeCDD	0.5	117	58.5		0
12347or8HxCDD	0.1	203	20.3		0
123678-HxCDD	0.1	3420	342	214	21.4
123789-HxCDD	0.1	492	49.2		0
1234678-HpCDD	0.01	25100	251	1570	15.7
OCDD	0.001	22910	22.91	1660	1.66
2378-TCDF	0.1	974	97.4		0
12378-PeCDF	0.05	171	8.55		0
23478-PeCDF	0.5	332	166	15.8	7.9
123478-HxCDF	0.1	1880	188	205	20.5
123678-HxCDF	0.1	861	86.1	61	6.1
234678-HxCDF	0.1	1460	146	61.7	6.17
123789-HxCDF	0.1		0		0
1234678-HpCDF	0.01	59230	592.3	3630	36.3
1234789-HpCDF	0.01	1550	15.5	99.2	0.992
OCDF	0.001	49480	49.48	9490	9.49
TOTAL TCDD	0	1380	0	23.8	0
TOTAL PeCDD	0	2490	0	81.3	0
TOTAL HxCDD	0	15460	0	700	0
TOTAL HpCDD	0	46870	0	1570	0
TOTAL TCDF	0	5340	0	314	0
TOTAL PeCDF	0	5550	0	255	0
TOTAL HxCDF	0	108470	0	5130	0
TOTAL HpCDF	0	173890	0	10250	0
			2127.54		126.212

GMDIOGW5.XLS
Shaded areas indicate estimated maximum concentrations.
Sample results were corrected for blank contamination.
Units are ppq.
THIS DATA WAS NOT VALIDATED.

GM WEST YARD DIOXIN RESULTS
GROUNDWATER
SDG 38993Ar1

9/25/96 sampled

SAMPLE ID		GMWYGWDW22	
LAB ID		T966282	
	TEFs	RESULT	TEF RESULT
2378-TCDD	1		0
12378-PeCDD	0.5		0
123478HxCDD	0.1		0
123678-HxCDD	0.1	3.8	0.38
123789-HxCDD	0.1	2.4	0.24
1234678-HpCDD	0.01	35	0.35
OCDD	0.001	65.6	0.0656
2378-TCDF	0.1		0
12378-PeCDF	0.05		0
23478-PeCDF	0.5		0
123478-HxCDF	0.1	6.2	0.62
123678-HxCDF	0.1	2.3	0.23
234678-HxCDF	0.1		0
123789-HxCDF	0.1		0
1234678-HpCDF	0.01	57.7	0.577
1234789-HpCDF	0.01		0
OCDF	0.001	68.6	0.0686
TOTAL TCDD	0		0
TOTAL PeCDD	0		0
TOTAL HxCDD	0	6.5	0
TOTAL HpCDD	0	63.8	0
TOTAL TCDF	0		0
TOTAL PeCDF	0	9.9	0
TOTAL HxCDF	0	66	0
TOTAL HpCDF	0	170	0
TOTAL			2.5312

GMDIOGW2.XLS
Shaded numbers indicate estimated maximum possible concentrations.
Sample results were corrected for method blank contamination.
Units are ppq.
THIS DATA WAS NOT VALIDATED

GM WEST YARD DIOXIN RESULTS
GROUNDWATER
SDG 38993C

Sampled 9/25

SAMPLE ID		GMWYGWMW20	
LAB ID		W116507	
	TEFs	RESULT	TEF RESULT
2378-TCDD	1	32.2	32.2
12378-PeCDD	0.5	123	61.5
123478HxCDD	0.1	94.1	9.41
123678-HxCDD	0.1	1490	149
123789-HxCDD	0.1	560	56.0
1234678-HpCDD	0.01	9190	91.9
OCDD	0.001	34950	34.95
2378-TCDF	0.1	1490	149
12378-PeCDF	0.05	179	8.95
23478-PeCDF	0.5	437	218.5
123478-HxCDF	0.1	1360	136
123678-HxCDF	0.1	412	41.2
234678-HxCDF	0.1	534	53.4
123789-HxCDF	0.1		0
1234678-HpCDF	0.01	12040	120.4
1234789-HpCDF	0.01	285	2.85
OCDF	0.001	12960	12.96
TOTAL PeCDD	0	685	0
TOTAL HxCDD	0	12910	0
TOTAL HpCDD	0	18880	0
TOTAL TCDF	0	8510	0
TOTAL PeCDF	0	6650	0
TOTAL HxCDF	0	22790	0
TOTAL HpCDF	0	33600	0

GMDIOGW3.XLS - - -

Sample results were corrected for blank contamination.
Units are ppq.
THIS DATA WAS NOT VALIDATED.

GM WEST YARD DIOXIN RESULTS
GROUNDWATER
SDG 38993Ar2

Sampled 9/25 9/25 9/25

SAMPLE ID		GMWYGWDW21		GMWYGWDW20		TRIP BLANK	
LAB ID		T966297		T966287		T966290	
	TEFs	RESULT	TEF RESULT	RESULT	TEF RESULT	RESULT	TEF RESULT
2378-TCDD	1		0		0		0
12378-PeCDD	0.5		0		0		0
123478HxCDD	0.1		0		0		0
123678-HxCDD	0.1	133	13.3		0		0
123789-HxCDD	0.1		0		0		0
1234678-HpCDD	0.01	1620	16.2	40.1	0.401		0
OCDD	0.001	12060	12.06	106			0
2378-TCDF	0.1	65	6.5	18.4	1.84		0
12378-PeCDF	0.05		0		0		0
23478-PeCDF	0.5		0		0		0
123478-HxCDF	0.1		0	14.3	1.43		0
123678-HxCDF	0.1		0		0		0
234678-HxCDF	0.1		0	13.7	1.37		0
123789-HxCDF	0.1		0		0		0
1234678-HpCDF	0.01	2520	25.2	26.5	0.265		0
1234789-HpCDF	0.01		0		0		0
OCDF	0.001	3920	3.92	27.3	0.0273		0
TOTAL TCDD	0		0		0		0
TOTAL PeCDD	0		0	13.1	0		0
TOTAL HxCDD	0	337	0	26	0		0
TOTAL HpCDD	0	3130	0	88	0		0
TOTAL TCDF	0	65	0	18.4	0		0
TOTAL PeCDF	0	53.5	0	16.8	0		0
TOTAL HxCDF	0	2370	0	66.4	0		0
TOTAL HpCDF	0	8210	0	60.1	0		0
			77.18		5.3333		0

GMDIOGW4.XLS
Shaded numbers indicate estimated maximum possible concentrations.
Sample results were corrected for method blank contamination.
Units are ppq.
THIS DATA WAS NOT VALIDATED.

GM WEST YARD DIOXIN RESULTS
GROUNDWATER
SDG 38976

sampled		9/24		9/24		9/24		9/24	
SAMPLE ID		GMWYGWMW17		GMWYGWDW17		GMWYGWMW23		GMWYGWMW1	
LAB ID		T966105		T966106		T966113		T96114	
	TEFs	RESULT	TEF RESULT	RESULT	TEF RESULT	RESULT	TEF RESULT	RESULT	TEF RESULT
2378-TCDD	1		0		0		0		0
12378-PeCDD	0.5		0		0		0		0
123478HxCDD	0.1		0		0		0		0
123678-HxCDD	0.1		0		0	44.5	4.45		0
123789-HxCDD	0.1		0		0	16.1	1.61		0
1234678-HpCDD	0.01		0		0	260	2.6	42.1	0.421
OCDD	0.001		0	35.4	0.0354	1650	1.65	485	0.485
2378-TCDF	0.1		0		0	27.3	2.73		0
12378-PeCDF	0.05		0		0		0		0
23478-PeCDF	0.5		0		0		0		0
123478-HxCDF	0.1		0	5.9	0.59	32.5	3.25	8.8	0.88
123678-HxCDF	0.1		0		0		0	2.9	0.29
234678-HxCDF	0.1	5.7	0.57	5.2	0.52		0	6	0.6
123789-HxCDF	0.1		0		0		0		0
1234678-HpCDF	0.01		0		0	361	3.61	15	0.15
1234789-HpCDF	0.01		0		0		0		0
OCDF	0.001		0		0	178	0.178	15.6	0.0156
TOTAL TCDD	0		0		0	8.3	0		0
TOTAL PeCDD	0		0		0	22.3	0		0
TOTAL HxCDD	0		0		0	283	0	19.8	0
TOTAL HpCDD	0		0		0	523	0	91.1	0
TOTAL TCDF	0		0		0	47.8	0	15.6	0
TOTAL PeCDF	0		0	38.9	0	296	0	26.5	0
TOTAL HxCDF	0	5.7	0	33.9	0	371	0	17.5	0
TOTAL HpCDF	0		0		0	710	0	15	0
			0.57		1.1454		20.078		2.816

GMDIOXGW.XLS
Shaded numbers indicate estimated maximum possible concentrations.
The associated method blank was clean.
Units are ppq.
THIS DATA WAS NOT VALIDATED.

12/04/96 12:58 7810 433 0834 PARSONS +++ PARSONS ES SYRACUSE 005

GM WEST YARD DIOX .SULTS
GROUNDWATER
SDG 38976

SAMPLID		GMWYGWDW18		GMWYGWMW19		GMWYGWDW19		GMWYGWMW8	
LAB ID		T966115		T966116		T966117		T966118	
	TEFs	RESULT	TEF RESULT	RESULT	TEF RESULT	RESUT	TEF RESULT	RESULT	TEF RESULT
2378-TCD	1		0		0		0		0
12378-PCDD	0.5		0		0		0		0
123478-HxCDD	0.1		0		0		0		0
123678-HxCDD	0.1		0		0		0		0
123789-HxCDD	0.1		0		0		0		0
123467-HpCDD	0.01	3.9	0.039	5	0.05	.3	0.053		0
OCDD	0.001	15.5	0.0155	84.2	0.0842	3.3	0.0323	28.4	0.0284
2378-TCDF	0.1		0		0		0		0
12378-PCDF	0.05		0		0		0		0
23478-PCDF	0.5		0		0		0		0
123478-HxCDF	0.1		0	3	0.3	.2	0.62		0
123678-HxCDF	0.1		0		0		0		0
234678-HxCDF	0.1	4.9	0.49	4.6	0.46	.7	0.67	11	1.1
123789-HxCDF	0.1		0		0		0		0
123467-HpCDF	0.01	4.1	0.041	3.7	0.037	2.7	0.207		0
123478-HpCDF	0.01		0		0		0		0
OCDF	0.001	7.5	0.0075		0	6.3	0.0633		0
TOTALTCDD	0		0		0		0		0
TOTALPCDD	0		0		0		0		0
TOTALHxCDD	0		0		0		0		0
TOTALHpCDD	0	3.9	0	10.8	0	.1	0		0
TOTALTCDF	0		0		0		0		0
TOTALPCDF	0		0	3.3	0		0	5.4	0
TOTALHxCDF	0	4.9	0	7.6	0	.7	0	19.7	0
TOTALHpCDF	0	6.2	0	3.7	0	3.5	0	6.9	0
			0.593		0.9312		1.6456		1.1284

all sampled
9/24/96

GMDIOXWXLS
Shadedinters indicate estimated maximum possible concentrations.
The assiaed method blank was clean.
Units anp.
THIS DAWAS NOT VALIDATED.

12/04/96 13:00 ☎810 433 0834 Parsons +++ PARSON ES SYRCSE ☑006

GM WEST YARD DIOXIN RESULTS
GROUNDWATER
SDG 38976

pampled 9/24/96

SAMPLE ID		GMWYGWMW23		GMWYGWDW16	
LAB ID		X963996		X963965	
	TEFs	RESULT	TEF RESULT	RESULT	TEF RESULT
2378-TCDD	1				
12378-PeCDD	0.5				
123478HxCDD	0.1				
123678-HxCDD	0.1				
123789-HxCDD	0.1				
1234678-HpCDD	0.01				
OCDD	0.001				
2378-TCDF	0.1	9.7	0.97	15.9	1.59
12378-PeCDF	0.05				
23478-PeCDF	0.5				
123478-HxCDF	0.1				
123678-HxCDF	0.1				
234678-HxCDF	0.1				
123789-HxCDF	0.1				
1234678-HpCDF	0.01				
1234789-HpCDF	0.01				
OCDF	0.001				
TOTAL TCDD	0				
TOTAL PeCDD	0				
TOTAL HxCDD	0				
TOTAL HpCDD	0				
TOTAL TCDF	0				
TOTAL PeCDF	0				
TOTAL HxCDF	0				
TOTAL HpCDF	0				
			0.97		1.59

GMDIOXGW.XLS
Shaded numbers indicate estimated maximum possible concentrations.
The associated method blank was clean.
Units are ppq.
THIS DATA WAS NOT VALIDATED.

12/04/96 13:03 ☎810 433 0834 Parsons +++ PARSON ES SYRCSE 008

GM WEST YARD DIO. .ESULTS
GROUNDWATER
SDG 38976

SAMPLE ID		GMWYGWMW108		GMWYGWMW16		GMWYGWDW16	
LAB ID		T966119		T966120		T966121	
	TEFs	RESULT	TEF RESULT	RESULT	TEF RESULT	RESULT	TEF RESULT
2378-TCDD	1		0		0		0
12378-PeCDD	0.5		0		0		0
123478HxCDD	0.1		0		0		0
123678-HxCDD	0.1		0		0		0
123789-HxCDD	0.1		0		0		0
1234678-HpCDD	0.01	49.3	0.493	37.8	0.378	17.8	0.178
OCDD	.001	205	0.205	70.4	0.0704	75	0.075
2378-TCDF	0.1		0		0	20	2
12378-PeCDF	0.05		0		0		0
23478-PeCDF	0.5		0		0		0
123478-HxCDF	0.1		0	10.7	1.07		0
123678-HxCDF	0.1		0		0		0
234678-HxCDF	0.1	7	0.7	6.2	0.62	12.4	1.24
123789-HxCDF	0.1		0		0		0
1234678-HpCDF	0.01	7.3	0.073	105	1.05	35.7	0.357
1234789-HpCDF	0.01		0		0		0
OCDF	0001		0	216	0.216	44.2	0.0442
TOTAL TCDD	0		0		0		0
TOTAL PeCDD	0		0		0		0
TOTAL HxCDD	0		0		0		0
TOTAL HpCDD	0	81.4	0	56.9	0	28.5	0
TOTAL TCDF	0		0		0	34.2	0
TOTAL PeCDF	0		0	25.7	0	9.5	0
TOTAL HxCDF	0	21.7	0	81.5	0	23.1	0
TOTAL HpCDF	0	7.3	0	307	0	86	0
			1.471		3.4044		3.8942

all sampled 9/24/96

GMDIOXGW.XLS
Shaded numbers indicat estimated maximum possible concentrations.
The associated method lank was clean.
Units are ppq.
THIS DATA WAS NOT ALIDATED.

12/04/96 13:01 3810 433 0834 Parsons +++ PARSON ES SYRCSE 007

Chain of Custody Record

Quanterra Environmental Services

QUA-4124

Client	Project Manager	Date	Chain Of Custody Number
Parsons ES	D. Lomas	2-13-96	06562
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
STE 3858 30800 Telegraph Rd	810 433 2700		
City / **State** / **Zip Code**	**Site Contact**		
Bingham Farms / MI / 48025	B. Reeser		
Project Name	**Carrier/Waybill Number**		
GM-West Yard	Fedex 350856850 1		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: Metals (TAL)	TCL VOC	Sulfide	PCB/PEST	SVOCs	CYANIDE						
GMWY GW MW17	2-13-96	0910	W	1L	1L HDPE	1	HNO_3		✓											
GMWY GW DW17	"	0900	W	1L	"	"	HNO_3		✓											
GMWY GW MW18	"	0945	W	1L	"	"	"		✓											
~~GMWY GW DW18~~	~~"~~																			
GMWY GW MW22	"	1110	W				NO_3/NaOH/Zn-Ac/~~HCl~~		✓	✓	✓									
GMWY GW DW22	"	1100	W				NO_3/HCl		✓	✓										
GMWY GW DW72	"	1202	W	1L			HNO_3		✓											
GMWY GW DW21	"	1145	W				HNO_3		✓			✓	✓							
GMWY GW MW20	"	1530	W				NO_3/NaOH/2N-AC		✓	✓	✓			✓						
GMWY GW DW20	"	1415	W				NO_3/NaOH/HCl/Zn-Ac		✓	✓	✓	✓	✓							
GMWY GW MW70	"	1201	W				NaOH							✓					Dupof MW20	
GMWY GW DW70	"	1201	W				NO_3/NaOH HCl/Zn-Ac		✓	✓	✓	✓	✓						Dupof DW70	
GMWY GW MW20 MS+MSD	"	1530	W				NaOH							✓						
GMWY GW DW20 MS/MSD	"	1415	W				NO_3/NaOH/HCl/ZnAc		✓	✓	✓	✓	✓							
GMWY GW MW5	"	1645	W				NO_3		✓											

Special Instructions

~~No Zn-Ac preservative in DW20 MS/MSD or DW70 samples (NaOH) only~~ JSP

Possible Hazard Identification

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required

☒ Normal ☐ Rush

QC Level

☐ I. ☐ II. ☒ III.

Project Specific (Specify)

1. Relinquished By	Date	Time	1. Received By	Date	Time
Jeffrey Pomba	2-13-96	1900			
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Stays with Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

Quanterra Environmental Services

QUA-4124

Client	Project Manager	Date	Chain Of Custody Number
Parsons ES	DiLomas	2-14-96	06383
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
30800 Telegraph Rd	810 633 2700		
City / State / Zip Code	**Site Contact**		
Bingham Farms / MI / 48025	B. Reesen		
Project Name	**Carrier/Waybill Number**		
GM-West Yard	Fedex # 350856865 2		
Contract/Purchase Order/Quote No.			
727249			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: Metals	VOCs	SVOCs
GMWYGWMW16	2-14-96	0915	W	1L	HDPE	1	NO_3		✓		
GMWYGWDW16	"	1005	W	1L	HDPE	1	NO_3		✓		
GMWYGWMW7	"	0945	W				NO_3/HCl		✓	✓	✓
GMWYGWTB06	12-20-95	—	W				HCl			✓	1

Special Instructions: See attached

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☒ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☒ III.

Project Specific (Specify):

	Date	Time		Date	Time
1. Relinquished By	2-14-96	1100	1. Received By		
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments:

DISTRIBUTION: WHITE - Stays with Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

Quanterra Environmental Services

QUA-4124

Client	Project Manager	Date	Chain Of Custody Number
Parsons ES	D. Lomas	1-16-96	06384
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
30800 Telegraph Rd	810 433 2700		
City / **State** / **Zip Code**	**Site Contact**		
Bingham Farms / MI / 48025	Brian Reeser		
Project Name	**Carrier/Waybill Number**		
GM - West Yard			
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: Aprdx IX-VOC	-Metals, CN-	-Ab/Pest/OPP	-Herbicides	-SVOC, Sulfide	-Dioxins	TCL/TAL	-VOC only	-Ab/Pest	-Metals, CN-
GMWY GW MW17	1-16-96	1115	WATER		Mix	16	HCl/NaOH/HNO3/Zn-Ac		✓	✓	✓	✓	✓	✓				
GMWY GW DW17	1-16-96	1100	WATER		Mix	16	"		✓	✓	✓	✓	✓	✓				
GMWY GW MW18	"	1245	"		"	9	HCl/NaOH/HNO3								✓	✓	✓	✓
GMWY GW DW18	"	1300	"		"	9	"								✓	✓	✓	✓
GMWY GW MW19	"	1615				9									✓	✓	✓	✓
GMWY GW DW19	"	1600				9									✓	✓	✓	✓
GMWY GW DW21	"	1640				9									✓	✓	✓	✓
TRIP BLANK - GMWYTB01	12-2-95	1605	WATER		VOC	1	—									✓		

Special Instructions

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required
☑ Normal ☐ Rush

QC Level 2
☐ I. ☐ II. ☐ III.

Project Specific (Specify)

	Date	Time
1. Relinquished By	1-16-96	1800
2. Relinquished By		
3. Relinquished By		

	Date	Time
1. Received By		
2. Received By		
3. Received By		

Comments

WHITE - Shipped with Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

Quanterra Environmental Services

QUA-4124

Client	Project Manager	Date	Chain Of Custody Number
Parsons ES	D. Thomas	1-17-96	09344
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
30800 Telegraph Rd	(810) 433-2700		
City / State / Zip Code	**Site Contact**		
Bingham Farms / MI / 48025	B. Reeser		
Project Name	**Carrier/Waybill Number**		
GM - West Yard	Fedex 6539373735		
Contract/Purchase Order/Quote No.			
727249			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: TCL/TAL	Analysis: Appdx IX	Analysis: Appdx IX	Analysis: Appdx IX	Analysis: Appdx IX
GMWY GWDW22	1-17-96	1120	WATER							✓	✓	✓	
GMWY GWDW22 MS	"	1120	"							✓	✓		
GMWY GW DW 22 MSD	"	1120	"							✓	✓		
GMWY GWMW22	"	1010	"							✓			
GMWY GW MW 7	"	1700	"						✓	~~✓~~			
GMWY GW MW16	"	1640	"						✓				
GMWY GW MW 57	"	1201	"						✓				
GMWY TB02	—	1835							VOC ONLY				

Special Instructions:

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☒ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

	Date	Time		Date	Time
1. Relinquished By: Jeffrey Paik	1-17-96	1900	1. Received By:		
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments:

DISTRIBUTION: WHITE - Stays with Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

Quanterra Environmental Services

QUA-4124

Client	Project Manager	Date	Chain Of Custody Number
G Parsons ES	D. LOMAS	1-18-96	06379
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
30800 Telegraph Rd STE 3858	810 433 2700		
City / State / Zip Code	**Site Contact**		
Bingham Farms / MI / 48025	B. Reeser		
Project Name	**Carrier/Waybill Number**		
GM West YARD	Fedex 0447-11-320		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: Appdx IX VOC	SVOC, PEST/PEST	CN, metals, OPP	Sulfide, Herb	Dioxins		TCL/TOL	TCL VOC	Metals, SVOC	CN, PCB/PEST		
GMWY GW DW 16	1-18-96	1500	WATER			9			·						✓	✓	✓	✓		
GMWY GW MW5	"	1400	"			9									✓	✓	✓	✓		
GMWY GW DW10		0830				9		Dup of DW20	✓	✓	✓	✓	✓		·					
GMWY GW DW20		1301							✓	✓	✓	✓	✓							
GMWY GW MW20		0915							✓	✓	✓	✓	✓							
GMWY TB03	?	1825														✓	VOC only			

Special Instructions

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required
☑ Normal ☐ Rush

QC Level
☐ I. ☐ II. ☑ III.

Project Specific (Specify)

	Relinquished By	Date	Time	Received By	Date	Time
1.	Jeffrey Parsons	1-18-96	1900			
2.						
3.						

Comments

DISTRIBUTION: WHITE - Stays with Sample; CANARY - Returned to Client with Report; PINK - Field Copy

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092: ORIGINAL

As App IX

Chain-Of Custody Record

PROJECT NUMBER	PROJECT NAME/LOCATION
72749	GMW4 / Pontiac, MI

SAMPLER(S) NAME (Please Print)
Brian Reeser
Jeff Poulsen

(Signature)

PRESERVATIVES: ICE

ANALYSES REQUESTED: Reactivity, Corrosivity and Ignitability; EPTOX Met.+Cu&Zn; PNA ( ); BTEX ( ); MTBE ( ); Pb, Cd, Cr; TCLP TAL; TCLP TAL & App IX; TAL & App IX

STATION NUMBER	DATE MMDDYY	MILITARY TIME	COMP.	GRAB	STATION ID	MATRIX	CONTAINERS NO.	CONTAINERS TYPE	CONTAINERS SIZE	REMARKS
749	12/10/95	0905		X	SSSB1(0-6")/0905	Soil	3	Glass	40Z	
		1035		X	SBSB1(16-18)/1035	Soil	3		40z Glass	
		1600		X	SSSB5(0-6")/1600	Soil	3			
		1600		X	SSSB5(0-6")/1600	Soil	3			THIS IS MS/MSD
	12/12/95	1055		✓	SSMW22(0-6")/1055	Soil	3	G	40Z Glass	
		1315		✓	SBMW22(16-18 FT)/1315	"	"	"	"	
		1350		✓	GWMW22(20FT)/1350	WATER	"	"	"	24Hr Turn Around
		1555		✓	GWMW22(30FT)/1555	WATER	"	"	"	24Hr TurnAround.
★	→	1920		X	DIRB01/1920	Water	16	Plastic Glass	500ml 1L	

	Date / Time		Date / Time
Relinquished by: (Signature) Brian E Reeser	12/12/95 1936	Received by: (Signature)	
Relinquished by: (Signature)		Received by: (Signature)	
Relinquished by: (Signature)		Received for Laboratory by: (Signature)	

AIRBILL #: 653937393 COOLER #: 74

LABORATORY: Quanterra

ATTN.: Becky Strait

PLEASE SEND REPORT AND ORIGINAL COC TO:
Dave Lomas

TAT EXPECTED:

Distribution Original Accompanies Shipment. White Copy returned with Report.
Yellow retained by laboratory. Pink retained by sender.

ENGINEERING SCIENCE

0929

30800 Telegraph Road - Suite 3858, Bingham Farms, Michigan 48025 (313) 433-2700
FAX (313) 433-0835

Chain-Of Custody Record

PROJECT NUMBER: 727249/05000
PROJECT NAME/LOCATION: GM Wt, Pontiac
SAMPLER(S) NAME (Please Print): Brian Reeser / Jeff Poulsen
(Signature): Brian Reeser / Jeff Poulsen

PRESERVATIVES: HCl

ANALYSES REQUESTED

STATION NUMBER	DATE MMDDYY	MILITARY TIME	COMP.	GRAB	STATION ID	MATRIX	CONTAINERS NO.	CONTAINERS TYPE	CONTAINERS SIZE	Reactivity, Corrosivity, and Ignitability	EPTOX Met.+Cu&Zn	PNA ( )	BTEX ( )	MTBE ( )	Pb, Cd, Cr	TCL/TAL & AP	TCL/TAL	REMARKS
727249	12/13/95	1615		X	SBSB5(4-6)/1615	Soil	3	G	2oz 4oz 16oz						X			
	12/14/95	0930		X	SSSB2(0-6")/0930	Soil	3	G	2/4oz							X		
	"	1026		X	SBSB2(16-18)/1026	Soil	3	G	"							X		
		1245		X	SSSB3(0-6")/1245											X		
		1420		X	SBSB3(16-18)/1420											X		
		1201		X	SSSB53/1201 (0-6")											X		dup of SSSB3
	12-13	1630		X	SSMW18(0-6")/1630	Soil	3	G								✓		
	12-14	1405		X	SSMW17(0-6")/1405		3	G								✓		
	12-14	1420		X	SBMW17(6-12')/1420		3	G								✓		
	12-14	1300		X	SBMW18(16-18')/1300		3	G								✓		

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time

AIRBILL #: 653937350 COOLER #:
LABORATORY: Quanterra
ATTN.: Becky Strait
PLEASE SEND REPORT AND ORIGINAL COC TO: Dave Lomas
TAT EXPECTED:

...bution Original Accompanies Shipment. White Copy returned ... Report.
Yellow retained by laboratory. Pink retained by sender.

ENGINEER GSCIENCE

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FAX (313) 433-0835

09
1 of 2

Chain-Of Custody Record

PROJECT NUMBER	PROJECT NAME/LOCATION
727249	GMWT / Pontiac

SAMPLER(S) NAME (Please Print)
Brian Reeser

(Signature) Brian Reeser

PRESERVATIVES: Ice

ANALYSES REQUESTED: Reactivity, Corrosivity, and Ignitability; EPTOX Met.+Cu&Zn; PNA ( ); BTEX ( ); MTBE ( ); Pb, Cd, Cr; ADA TX; TCL-VOC

STATION NUMBER	DATE MMDDYY	MILITARY TIME	COMP.	GRAB	STATION ID	MATRIX	CONTAINERS NO.	CONTAINERS TYPE	CONTAINERS SIZE	REMARKS
727249	12/18/95	1607		X	SBWD2(24-26)/1607	Soil	3	G	2-4 oz	
	12/19/95	0843		X	SBWD2(30-32)/0843		1	G	2oz	
		0945		X	SBWD2(34-36)/0945		1	G	2oz	
		1335		X	SBWD3(4-6)/1335		1	G	2oz	
		1353		X	SBWD3(10-12)/1353					
		1415		X	SBWD3(14-16)/1415					
		1453		X	SBWD3(20-22)/1453					
		1506		X	SBWD3(24-26)/1506		3		8oz	
		1540		X	SBWD3(30-32)/1540		1	G	2oz	
		1615		X	SBWD3(34-36)/1615	Soil	1	G	2oz	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Brian S Reese	12/19/95 1640		
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time

AIRBILL # 653937361 COOLER #: A 94

LABORATORY: Quanterra

ATTN.: Rocky Strait

PLEASE SEND REPORT AND ORIGINAL COC TO:
D. Lomas

TAT EXPECTED:

Distribution Original Accompanies Shipment. White Copy returned with Report.
Yellow retained by laboratory. Pink retained by sender.

ENGINEERING SCIENCE

0928

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FAX (313) 433-0835

Chain-Of Custody Record

PROJECT NUMBER: 727249/0500 | PROJECT NAME/LOCATION: GMWT / Pontiac

SAMPLER(S) NAME (Please Print): Brian Reeser, Jeff Poulsen

(Signature) Brian Reeser Jeff Poulsen

PRESERVATIVES: TCL 6 4

ANALYSES REQUESTED: Reactivity, Corrosivity, and Ignitability; EPTOX Met.+Cu&Zn; PNA ( ); BTEX ( ); MTBE ( ); Pb, Cd, Cr ( ); TCL/TAL

STATION NUMBER	DATE MMDDYY	MILITARY TIME	COMP.	GRAB	STATION ID	MATRIX	CONTAINERS NO.	TYPE	SIZE	REMARKS
727249	12/15/95	1130		X	SSSB4(0-6")/1130	Soil	3	G	2oz	
		1150		X	SBSB4(6-8')/1150	"	"	"	"	
		0830		X	SSDW11(0-6")/0830					
		0945		X	SBDW9(16-18')/0945					
	3R	1510		X	SBDW9(36-38')/1510					
		1510		X	SBDW9(36-38')/1500	Soil	3	G	2oz	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Brian E. Reeser	12/15/95 1625		
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time

AIRBILL #: 653937 3024 COOLER #:

LABORATORY: Quanterra

ATTN.: Rocky Stair

PLEASE SEND REPORT AND ORIGINAL COC TO: Dave Lomas

TAT EXPECTED:

...ution Original Accompanies Shipment. White Copy returned w... Report.
Yellow retained by laboratory. Pink retained by sender.

ENGINEER 'G SCIENCE

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FAX (313) 433-0835

09
1 of 2

Chain-Of Custody Record

PROJECT NUMBER	PROJECT NAME/LOCATION
727249/05000	GMWT/Pontiac

SAMPLER(S) NAME (Please Print)
Brian Reeser, ~~Jeff Poulsen~~ BR

(Signature) Brian Reeser

PRESERVATIVES: Ice

ANALYSES REQUESTED: Reactivity, Corrosivity, and Ignitability; EPTOX Met.+Cu&Zn; PNA ( ); BTEX ( ); MTBE ( ); Pb, Cd, Cr ( ); TCL - 1624; Appendix IX

STATION NUMBER	DATE MMDDYY	MILITARY TIME	COMP	GRAB	STATION ID	MATRIX	CONTAINERS NO.	CONTAINERS TYPE	CONTAINERS SIZE	REMARKS
727249	12/7/95	0905		X	SBWD1(4-6)/0905	Soil	1	G	2oz	
		0928		X	SBWD1(10-12)/0928		1	G	2oz	
		0948		X	SBWD1(14-16)/0948		3	G	8oz	Can be as one No 2
		0953		X	SBWD1(20-22)/0953		1	G	2oz	
		1024		X	SBWD1(24-26)/1024		1	G		
		1046		X	SBWD1(30-32)/1046		1	G		
		1104		X	SBWD1(34-36)/1104		1	G		
		1448		X	SBWD2(4-6)/1448					
		1523		X	SBWD2(10-12)/1523					
		1536		X	SBWD2(14-16)/1536					
		1554		X	SBWD2(20-22)/1554					
		1607		X	SBWD2(24-26)/1607					

	Date / Time	Received by: (Signature)	Date / Time
Relinquished by: (Signature) Brian Reeser	12/7/95 1510		
Relinquished by: (Signature)		Received by: (Signature)	
Relinquished by: (Signature)		Received for Laboratory by: (Signature)	

AIRBILL #: 653937316 4 COOLER #: B180
LABORATORY: Quanterra
ATTN.: Becky Strait
PLEASE SEND REPORT AND ORIGINAL COC TO:
D. Lomcs
TAT EXPECTED:

Distribution Original Accompanies Shipment. White Copy returned with Report.
Yellow retained by laboratory. Pink retained by sender.

ENGINEERING SCIENCE

30800 Telegraph Road - Suite 3858, Bingham Farms, Michigan 48025 (313) 433-2700
FAX (313) 433-0835

0931

2 of 2

Chain-Of-Custody Record

PROJECT NUMBER	PROJECT NAME/LOCATION
727249050000	GMWY - Pontiac

SAMPLER(S) NAME (Please Print): JS Poulsen

(Signature): JS Poulsen

PRESERVATIVES: Ice

ANALYSES REQUESTED: Reactivity, Corrosivity, and Ignitability; EPTOX Met.+Cu&Zn; PNA ( ); BTEX ( ); MTBE ( ); Pb, Cd, Cr; TCL/TAL

STATION NUMBER	DATE MMDDYY	MILITARY TIME	COMP	GRAB	STATION ID	MATRIX	CONTAINERS NO.	CONTAINERS TYPE	CONTAINERS SIZE	REMARKS
727249	12-18-95	1210		V	SSMW19(25-27')/1210	Soil	3	G	2oz 40z	
"	"	1140		V	SSMW19(0-6")/1140	Soil	3	G	"	
"	"	1420		V	SSMW26(0-6")/1420	Soil	3	G	"	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
JS Poulsen	12-18-95 1700		
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time

AIRBILL #: Fedex 653937316 4 COOLER #:

LABORATORY: Quanterra

ATTN.: Becky Strait

PLEASE SEND REPORT AND ORIGINAL COC TO:

D. Lomas

TAT EXPECTED:

...bution Original Accompanies Shipment. White Copy returned ... Report.
Yellow retained by laboratory, Pink retained by sender

ENGINEERING SCIENCE

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FAX (313) 433-0835

0954

Chain-Of Custody Record

PROJECT NUMBER	PROJECT NAME/LOCATION
727249/05000	GMW T / Pontiac

SAMPLER(S) NAME (Please Print): Brian Reeser / Jeff Paulsen

(Signature) Brian Reeser / Jeff Paulsen

PRESERVATIVES: HNO3 / Ice / Methods / Kimble / NaOH

ANALYSES REQUESTED: Reactivity, Corrosivity, and Ignitability; EPTOX Met.+Cu&Zn; PNA ( ); BTEX ( ); MTBE ( ); Pb, Cd, Cr; TCL/TAL

STATION NUMBER	DATE MMDDYY	MILITARY TIME	COMP	GRAB	STATION ID	MATRIX	CONTAINERS NO.	CONTAINERS TYPE	CONTAINERS SIZE	REMARKS
727249	12/04/95	1305		X	SB MW 20 (23-25) / 1305	Soil	3		4oz	
		1201		X	SB MW 20 / 1201	Soil	3			
		1545		X	SB MW 16 (5-7) / 1545					
		1620		X	SB MW 17 (6-8) / 1620	S	3	G		
		1305		X	SB DW 18 (34-36) / 1305	S	3	G		
		1201		X	SB DW 68 (84-86) / 1201	S	3	G		
		1750		X	DIRBO2 / 1750	W	9	G HOPE		Pres. HCl, NaOH, HNO3

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Brian E Reeser	12/04/95 1750		
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time

AIRBILL #: 653937314 2 COOLER #: B20

LABORATORY: Quanterra

ATTN.: Becky Strait

PLEASE SEND REPORT AND ORIGINAL COC TO: D. Lomas

TAT EXPECTED:

Distribution Original Accompanies Shipment. White Copy returned with Report.
Yellow retained by laboratory. Pink retained by sender.

ENGINEERING SCIENCE

0937

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FAX (313) 433-0835

Chain-Of Custody Record

PROJECT NUMBER	PROJECT NAME/LOCATION
727249	GMW4 / Pontiac

SAMPLER(S) NAME (Please Print) Brian Reeser

(Signature) Brian Reeser

PRESERVATIVES: Blue Ice

ANALYSES REQUESTED: Reactivity, Corrosivity, and Ignitability; EPTOX Met.+Cu&Zn; PNA (8270); BTEX ( ); MTBE ( ); Pb, Cd, Cr; Modified 8080 PCBs; Purgeable Halocarbons

STATION NUMBER	DATE MMDDYY	MILITARY TIME	COMP.	GRAB	STATION ID	MATRIX	CONTAINERS NO.	CONTAINERS TYPE	CONTAINERS SIZE	REMARKS
727249	1/24/96	1600		X	MW03	Oil	1	Glass	1L	Analyze as well as Ho
↓	1/24/96	1430		X	MW006	Oil	1	↓	↓	↓

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Brian Reeser	1/25/96 1100		
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time

AIRBILL #: 3479520284 COOLER #:

LABORATORY: SPL

ATTN.: Nava

PLEASE SEND REPORT AND ORIGINAL COC TO:
Dave Lomos

TAT EXPECTED:

bution Original Accompanies Shipment. White Copy returned Report.
Yellow retained by laboratory. Pink retained by sender.

ENGINEERING SCIENCE

30800 Telegraph Road - Suite 3858; Bingham Farms, Michigan 48025 (313) 433-2700
FAX (313) 433-0835

05

Chain-Of Custody Record

PROJECT NUMBER	PROJECT NAME/LOCATION
727249	GMW#/ Pontiac

SAMPLER(S) NAME (Please Print): Brian Reeser

(Signature): Brian Reeser

PRESERVATIVES: ICE

ANALYSES REQUESTED: Reactivity, Corrosivity, and Ignitability; EPTOX Met.+Cu&Zn; PNA ( ); BTEX ( ); MTBE ( ); Pb, Cd, Cr; Appendix IX; TCL/TAL

STATION NUMBER	DATE MMDDYY	MILITARY TIME	COMP.	GRAB	STATION ID	MATRIX	CONTAINERS NO.	CONTAINERS TYPE	CONTAINERS SIZE	REMARKS
727249	1/22/96	0920		X	SSTT1(0-6")/0920	Soil	6	60ml	2 1oz	& MS/MSD
	1/22/96	1055		X	SBTT1(10'/15')/1055		3		4oz	
	1/22/96	1250		X	SSTT2(0-6")/1250		6		4oz	& MS/MSD
	1/22/96	1415		X	SBTT2(15'/15')/1415		3		↓	
	1/22/96	1530		X	SSTT3(0-6")/1530		3		2 1oz	
	1/22/96	1201		X	SSTTBD(0-6")/1201		3		↓	Dup of TT3(0-6")
	1/23/96	0859		X	SBTT3(5'/9')/859		3		4oz	
	1/23/96	1015		X	SSTT4(0-6")/1015		3		2 1oz	
	1/23/96	1046		X	SBTT4(10'/13')/1046		3		4oz	
	1/23/96	1201		X	~~SSTTBD(0-6")/1201~~		3		2 4oz	FD#is SS TT55(0-6")/1200
	1/23/96	1305		X	SSTT5(0-6")/1305		3		↓	Dup of TT5
	1/23/96	1320		X	SBTT5(5'/13')/1320		3		↓	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Brian Reeser	1/24/96 1130		
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time

AIRBILL #: 653937365 COOLER #: 31

LABORATORY: Quanterra

ATTN.: Becki Strait

PLEASE SEND REPORT AND ORIGINAL COC TO:

Dave Lomas

TAT EXPECTED: 14 Days

Distribution Original Accompanies Shipment. White Copy returned with Report.
Yellow retained by laboratory. Pink retained by sender.

ENGINEERING SCIENCE

0935

30800 Telegraph Road - Suite 3858, Bingham Farms, Michigan 48025 (313) 433-2700
FAX (313) 433-0835

Chain-Of Custody Record

PROJECT NUMBER: 727249/05000
PROJECT NAME/LOCATION: GMW4
SAMPLER(S) NAME (Please Print): Brian Reeser
(Signature): Brian Reeser

PRESERVATIVES: Wax/Sand

ANALYSES REQUESTED: Reactivity, Corrosivity, and Ignitability; EPTOX Met.+Cu&Zn; PNA ( ); BTEX ( ); MTBE ( ); Pb, Cd, Cr ( ); TCLP VOA; TCLP Pesticides; TCLP SVOA

STATION NUMBER	DATE MMDDYY	MILITARY TIME	COMP.	GRAB	STATION ID	MATRIX	CONTAINERS NO.	CONTAINERS TYPE	CONTAINERS SIZE	REMARKS
727249	11/28/95	1545		X	SBGT2(20-22)/1545	Soil	1	MeOH	2" x 2 ft	
	11/29/95	1000		X	SBGT2(38-46)/1000					
	11/29/95	1510		X	SBGT2(64-66)/1510					
	12/4/95	1330		X	SBGT4(22-24)/1330					
	12/7/95	0930		X	SBGT4(40-42)/0930					
	12/4/95	1405		X	SBGT3(40-42)/1405					
	12/4/95	1630		X	SBGT3(56-58)/1630					
	12/5/95	1035		X	SBGT3(78-80)/1035					
	12/5/95	1300		X	SBGT2(28-30)/1300					

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Brian E Reeser	12/6/96 0915	Gary Vanlatt	12-9-96 950
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time

AIRBILL #: ——— COOLER #: ———
LABORATORY: Schleede Hampton
ATTN.: James Berry
PLEASE SEND REPORT AND ORIGINAL COC TO: Dave Lomas
TAT EXPECTED:

Distribution Original Accompanies Shipment. White Copy returned w. Report.

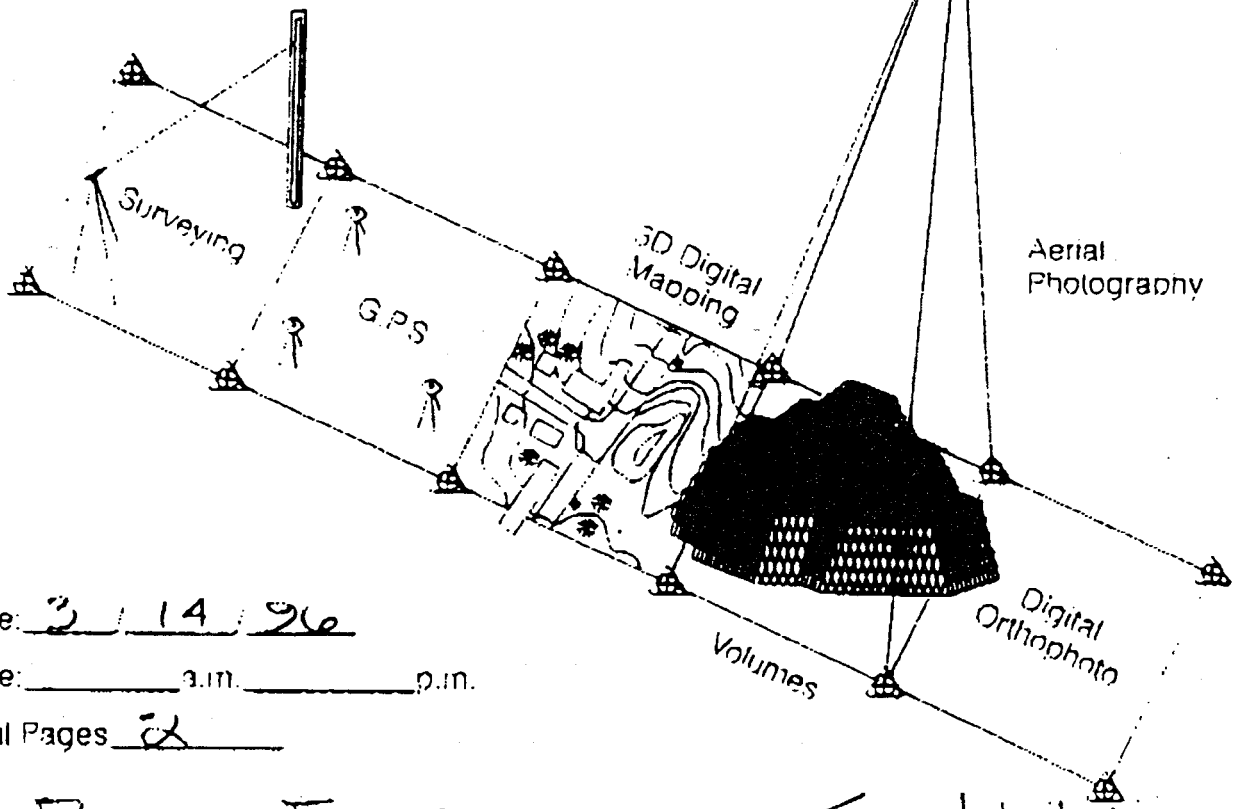
APPENDIX F

SURVEY DATA

Facsimile Transmittal

Air-Land Surveys, Inc.

P.O. Box 326 • 7990 M-15 • Clarkston, Michigan 48348
(810) 625-4890 • Fax (810) 625-4893



Date: 3 / 14 / 96

Time: _____ a.m. _____ p.m.

Total Pages 2

To: Parsons Engineering ATT: Scott Dillman

Phone: (313) 451-2560 Fax: (313) 451 9570

From: Mike Stonerock

Project#: _____

Regarding: Pontiac Foundry Well Locations

Original to follow in mail ☐ Yes ☒ No
☐ Normal ☐ Overnight

Please call if there were any problems with this fax transmission.

North	East	CASING Elev	GROUND Elev	Name
423311.29	13412518.49	971.01	968.42	MW19
423666.59	13412423.69	970.37	967.98	MW22
423472.58	13412216.34	971.20	968.73	MW20
423276.80	13412206.30	957.78	955.27	MW18
423308.58	13411868.17	948.55	946.16	MW17
423847.36	13411912.35	965.67	963.68	MW2
423746.79	13411929.43	965.94	964.33	MW11
423738.07	13411937.50	966.42	964.44	MW5
423663.34	13411987.06	965.18	963.31	MW13
423686.80	13411986.79	964.98	963.25	MW4
423647.32	13411980.35	966.23	964.19	MW12
423656.15	13411970.66	966.97	964.99	MW3
423847.31	13411849.66	966.30	964.06	MW6
423861.13	13411900.83	966.62	964.67	MW10
423628.37	13411859.94	966.12	963.82	MW7
423652.11	13411700.55	952.59	950.05	MW16
423529.07	13411670.19	952.44	949.83	MW8
423795.92	13412482.82		966.89	WD1
423534.62	13412638.05		969.03	WD3
423550.49	13412420.91		968.54	WD2
423310.57	13412524.11	970.77	968.42	DW19
423670.56	13412423.04	970.31	967.98	DW22
423473.03	13412212.83	971.03	968.73	DW20
424048.50	13412634.77	968.21	966.02	DW21
423276.32	13412201.45	957.69	955.27	DW18
423312.63	13411867.94	948.64	946.16	DW17
423648.95	13411701.05	952.38	~~964.67~~ 950.10	DW16
423984.63	13412154.22		963.82	SB2
423783.19	13412206.62		963.47 per 11/5/96 phone call	~~SB2~~ SB-5
423570.88	13411933.46		966.34	SB4
423587.97	13411883.84		963.48	SB3
423693.88	13411757.76		961.64	SB1
423316.09	13412493.63		967.81	GT3
423927.80	13412232.07		963.03	GT4
423303.41	13411873.87		946.16	GT2
423884.12	13411694.26		954.20	GT1
423828.47	13412323.99		964.35	TT2
423913.33	13412556.81		966.77	TT1
423514.52	13412370.96		969.51	TT4
423509.69	13412355.01		969.22	TT4
423643.05	13412356.43		968.08	TT5
423643.17	13412369.02		968.53	TT5
423552.38	13412239.36		968.78	TT3
423547.61	13412255.54		968.31	TT3
423271.33	13412815.14		970.48	TRAV.PT#1
423236.81	13411777.03		945.73	TRAV.PT#2

DESCRITPIONS FOR TRAVERSE POINTS

#1 1/2" IRON ON BACK OF CURB AT END OF GUARD RAIL ON SOUTH SIDE OF THE SITE
#2 CHISELED "X" IN CONCRETE AT BOTTOM OF HILL NEXT TO CONC. BLOCKS BY LAST LARGE STEEL POST.

NOTES: ELEVATIONS ARE N.A.V.D.88 SYSTEM. COORDIANTES ARE N.A.D.83, MICHIGAN STATE PLANE SOUTH ZONE.

APPENDIX G

PUBLIC WATER SUPPLY WELL SURVEY

The EDR-Geocheck™ Report

Pontiac, MI
Montcalm/Saginaw
Pontiac, MI 48342

Inquiry Number: 139276.1s

October 09, 1996

Environmental Data Resources, Inc

Creators of Toxicheck/®

The Source For Environmental Risk Management Data

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802

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Topographic Map	2
GeoCheck Summary	3

APPENDICES

GeoCheck Version 2.1	A1
Government Records Searched	A4

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Disclaimer

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THE EDR GEOCHECK™ REPORT

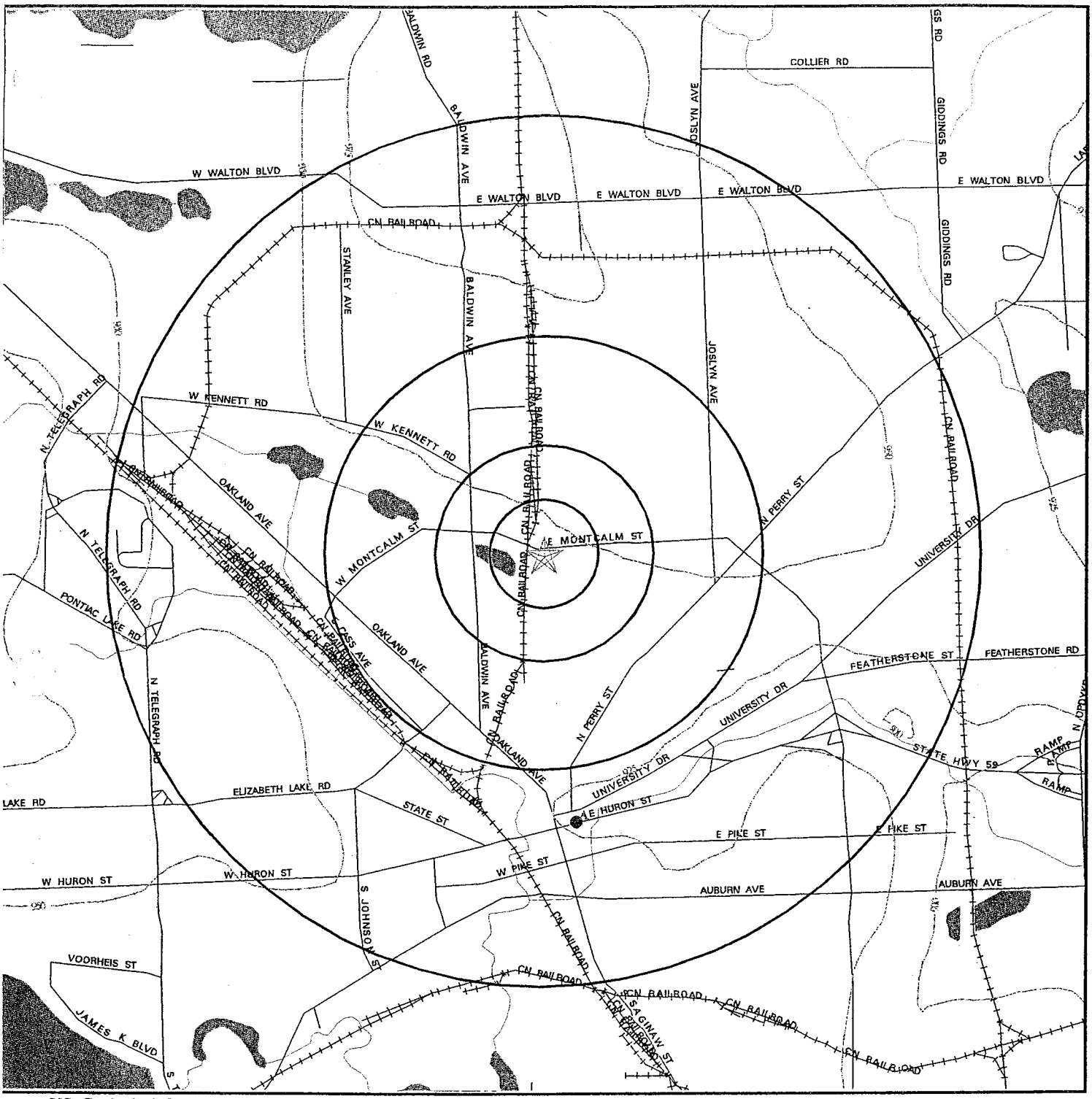
The EDR GeoCheck™ Report is a screening tool designed to assist in the hydrogeological assessment of a particular geographic area based upon publicly available information.

The EDR GeoCheck™ Report consists of the following information within a customer specified radius of the target property.

- topography (25 foot intervals unless otherwise shown)
- major roads
- surface water bodies
- railroad tracks
- flood plains (available in selected counties)
- wetlands (available in selected counties)
- wells including depth to water table and water level variability (in federal and selected state databases)
- public water supply wells (including violations information)
- geologic data
- radon data.

The EDR GeoCheck™ Report is a general area study. It may or may not be accurate at any specific location.

TOPOGRAPHIC MAP - 139276.1s - Parsons Engineering-Science



Source: US Geological Survey 1-Degree Digital Elevation Model
Compiled 09/15/92

- Major Roads
- Contour lines (25 foot interval unless otherwise shown)
- Waterways
- Wells within search distance to Target Property
- Earthquake Epicenters (Richter 5 or greater)
- Power lines
- Pipe lines
- Fault lines
- Water

0 1/2 1 2

scale in miles

N

TARGET PROPERTY:	Pontiac, MI	CUSTOMER:	Parsons Engineering-Science
ADDRESS:	Montcalm/Saginaw	CONTACT:	Dave Lomas
CITY/STATE/ZIP:	Pontiac MI 48342	INQUIRY #:	139276.1s
LAT/LONG:	42.6555 / 83.2936	DATE:	October 09, 1996

WELL SEARCH VERSION 2.1
SUMMARY

GEOLOGIC AGE IDENTIFICATION†

Geologic Code:	M1
Era:	Paleozoic
System:	Mississippian
Series:	Osagean and Kinderhookian Series

ROCK STRATIGRAPHIC UNIT†

Category:	Stratified Sequence

FEDERAL DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

NO WELLS FOUND

STATE WATER WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

NO WELLS FOUND

PUBLIC WATER SUPPLY SYSTEM INFORMATION (EPA-FRDS)

Map ID:	A1
PWS ID:	MI6320534
Location Relative to TP:	1 - 2 Miles South
PWS Name:	GUERRERO STANDARD 2021 AUBURN PONTIAC, MI 48063

Well currently has or has had major violation(s): No

Map ID:	A2
PWS ID:	MI6320542
Location Relative to TP:	1 - 2 Miles South
PWS Name:	A & A SPECIALTIES 2997 CROOKS PONTIAC, MI 48063

Well currently has or has had major violation(s): No

Map ID:	A3
PWS ID:	MI6321080
Location Relative to TP:	1 - 2 Miles South
PWS Name:	HUGHES STREET CHURCH OF CHRIST 210 HUGHES STREET PONTIAC, MI 48053

Well currently has or has had major violation(s): No

Map ID:	A4
PWS ID:	MI6321070
Location Relative to TP:	1 - 2 Miles South
PWS Name:	ELMWOOD ELEMENTARY 2251 AUBURN RD PONTIAC, MI 48063

Well currently has or has had major violation(s): No

† Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map: USGS Digital Data Series DDS -

WELL SEARCH VERSION 2.1
SUMMARY

PUBLIC WATER SUPPLY SYSTEM INFORMATION (EPA-FRDS)

Map ID: A5
PWS ID: MI6320106
Location Relative to TP: 1 - 2 Miles South
PWS Name: DNR PONTIAC LK R A ORG CMP
7800 GALE ROAD
PONTIAC, MI 48053
Well currently has or has had major violation(s): No

Map ID: A6
PWS ID: MI2101363
Location Relative to TP: 1 - 2 Miles South
PWS Name: AERODYNAMICS INC
PO BOX 508
PONTIAC 48056
Well currently has or has had major violation(s): No

Map ID: A7
PWS ID: MI2010663
Location Relative to TP: 1 - 2 Miles South
PWS Name: PONTIAC LAKE RECREATION AREA
7800 GALE ROAD
PONTIAC, MI 48053
Well currently has or has had major violation(s): No

Map ID: A8
PWS ID: MI2108063
Location Relative to TP: 1 - 2 Miles South
PWS Name: HUGHES STREET CHURCH OF CHRIST
210 HUGHES STREET
PONTIAC 48053
Well currently has or has had major violation(s): No

Map ID: A9
PWS ID: MI2107063
Location Relative to TP: 1 - 2 Miles South
PWS Name: ELMWOOD ELEMENTARY
2251 AUBURN RD
PONTIAC 48063
Well currently has or has had major violation(s): No

AREA RADON INFORMATION

OAKLAND COUNTY, MI

Number of sites tested: 61

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.189 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	1.539 pCi/L	93%	7%	0%

WELL SEARCH VERSION 2.1
WELL FINDINGS

Map ID
Direction
Distance

A1
South
1 - 2 Miles

PWS ID: MI6320534 PWS Status: Active Info. Source: FRDS
Date Initiated: Not Reported Date Deactivated: Not Reported
PWS Name: GUERRERO STANDARD
2021 AUBURN
PONTIAC, MI 48063

Addressee / Facility Type: Not Reported
Facility Name: Not Reported

Facility Latitude: 42 38 20 Facility Longitude: 083 17 27
City Served: Not Reported:
Treatment Class: Untreated Population Served: Under 101 Persons

Well currently has or has had major violation(s): No

A2
South
1 - 2 Miles

PWS ID: MI6320542 PWS Status: Active Info. Source: FRDS
Date Initiated: Not Reported Date Deactivated: Not Reported
PWS Name: A & A SPECIALTIES
2997 CROOKS
PONTIAC, MI 48063

Addressee / Facility Type: Not Reported
Facility Name: Not Reported

Facility Latitude: 42 38 20 Facility Longitude: 083 17 27
City Served: Not Reported:
Treatment Class: Treated Population Served: Under 101 Persons

Well currently has or has had major violation(s): No

A3
South
1 - 2 Miles

PWS ID: MI6321080 PWS Status: Active Info. Source: FRDS
Date Initiated: Not Reported Date Deactivated: Not Reported
PWS Name: HUGHES STREET CHURCH OF CHRIST
210 HUGHES STREET
PONTIAC, MI 48053

Addressee / Facility Type: Not Reported
Facility Name: Not Reported

Facility Latitude: 42 38 20 Facility Longitude: 083 17 27
City Served: Not Reported:
Treatment Class: Untreated Population Served: Under 101 Persons

Well currently has or has had major violation(s): No

A4
South
1 - 2 Miles

PWS ID: MI6321070 PWS Status: Active Info. Source: FRDS
Date Initiated: June / 1977 Date Deactivated: Not Reported
PWS Name: ELMWOOD ELEMENTARY
2251 AUBURN RD
PONTIAC, MI 48063

Addressee / Facility Type: Not Reported
Facility Name: Not Reported

Facility Latitude: 42 38 20 Facility Longitude: 083 17 27
City Served: Not Reported:
Treatment Class: Untreated Population Served: 101 - 500 Persons

Well currently has or has had major violation(s): No

WELL SEARCH VERSION 2.1
WELL FINDINGS

Map ID
Direction
Distance

A5
South
1 - 2 Miles

PWS ID: MI6320106 PWS Status: Active Info. Source: FRDS
Date Initiated: Not Reported Date Deactivated: Not Reported
PWS Name: DNR PONTIAC LK R A ORG CMP
7800 GALE ROAD
PONTIAC, MI 48053

Addressee / Facility Type: Not Reported
Facility Name: Not Reported

Facility Latitude: 42 38 20 Facility Longitude: 083 17 27
City Served: Not Reported:
Treatment Class: Untreated Population Served: 101 - 500 Persons

Well currently has or has had major violation(s): No

A6
South
1 - 2 Miles

PWS ID: MI2101363 PWS Status: Active Info. Source: FRDS
Date Initiated: June / 1977 Date Deactivated: Not Reported
PWS Name: AERODYNAMICS INC
PO BOX 508
PONTIAC 48056

Addressee / Facility Type: System Owner/Responsible Party
Facility Name: FRANK P MACARTNAY
S

Facility Latitude: 42 38 20 Facility Longitude: 083 17 27
City Served: Not Reported:
Treatment Class: Untreated Population Served: Under 101 Persons

Well currently has or has had major violation(s): No

A7
South
1 - 2 Miles

PWS ID: MI2010663 PWS Status: Active Info. Source: FRDS
Date Initiated: June / 1977 Date Deactivated: Not Reported
PWS Name: PONTIAC LAKE RECREATION AREA
7800 GALE ROAD
PONTIAC, MI 48053

Addressee / Facility Type: System Owner/Responsible Party
Facility Name: DALE GIRDLER
4045 IVERNESS LANE
ORCHARD LAKE, MI 48033

Facility Latitude: 42 38 20 Facility Longitude: 083 17 27
City Served: WHITE LAKE
Treatment Class: Untreated Population Served: 101 - 500 Persons

Well currently has or has had major violation(s): No

A8
South
1 - 2 Miles

PWS ID: MI2108063 PWS Status: Active Info. Source: FRDS
Date Initiated: June / 1977 Date Deactivated: Not Reported
PWS Name: HUGHES STREET CHURCH OF CHRIST
210 HUGHES STREET
PONTIAC 48053

Addressee / Facility Type: System Owner/Responsible Party
Facility Name: PASTOR
S

Facility Latitude: 42 38 20 Facility Longitude: 083 17 27
City Served: BLOOMFIELD
Treatment Class: Untreated Population Served: Under 101 Persons

Well currently has or has had major violation(s): No

WELL SEARCH VERSION 2.1
WELL FINDINGS

Map ID
Direction
Distance

A9
South
1 - 2 Miles

PWS ID:	MI2107063	PWS Status:	Active	Info. Source:	FRDS
Date Initiated:	June / 1977	Date Deactivated:	Not Reported		
PWS Name:	ELMWOOD ELEMENTARY 2251 AUBURN RD PONTIAC 48063				
Addressee / Facility Type:	System Owner/Responsible Party				
Facility Name:	JIM TUCKER S				
Facility Latitude:	42 38 20		Facility Longitude: 083 17 27		
City Served:	AVON				
Treatment Class:	Untreated		Population Served: 101 - 500 Persons		

Well currently has or has had major violation(s): No

GOVERNMENT WELL RECORDS SEARCHED

FRDS: Federal Reporting Data System
Source: EPA/Office of Drinking Water
Telephone: 202-260-2805
FRDS provides information regarding public water supplies and their compliance with monitoring requirements, maximum contaminant levels (MCL's), and other requirements of the Safe Drinking Water Act of 1986.

Area Radon Information: The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

USGS Water Wells: In November 1971 the United States Geological Survey (USGS) implemented a national water resource information tracking system. This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on more than 900,000 wells, springs, and other sources of groundwater.

Water Dams: National Inventory of Dams
Source: Federal Emergency Management Agency
Telephone: 202-646-2801
WATER DAMS: National computer database of more than 74,000 dams maintained by the Federal Emergency Management Agency.

Michigan Public and Private Water Wells
Source: Michigan Department of Natural Resources
Locations of verified municipal and private water well sites compiled from Michigan Department of Public Health, Water Well and Pump Records. Available in the following MI counties: Calhoun, Eaton, Genesee, Ingham, Jackson, Kalamazoo, Kent, Midland, Muskegon, Oakland, Ottawa, Saginaw, St. Clair, Washtenaw.

APPENDIX H

CONE PENETROMETER TESTS RESULTS REPORT

RESULTS OF CONE PENETROMETER TESTS

PREPARED FOR

GENERAL MOTORS
WEST YARD SITE
Pontiac, Michigan

PREPARED BY

PARSONS ENGINEERING SCIENCE, INC.
Syracuse, New York

PARSONS

JANUARY 1997

PARSONS ENGINEERING SCIENCE, INC.

290 Elwood Davis Road, Suite 312 • Liverpool, New York 13088 • (315) 451-9560 • Fax (315) 451-9570

January 9, 1997

Mr. Keith West
General Motors Corporation
Argonaut "A" Bldg.
Mail Code 482-310-004
485 W. Milwaukee Ave.
Detroit, MI 48202

RE: Results of Cone Penetrometer Tests
General Motors West Yard Site
Pontiac, Michigan
November 20-22, 1996

Dear Mr. West:

INTRODUCTION

A series of 27 cone penetrometer tests (CPTs) was completed at the General Motors West Yard Site in Pontiac, Michigan. The tests were performed during the week of November 20 though 22, 1996. Peter Harth of Parsons Engineering Science, Inc. was the Field Geologist. The Contractor providing the CPT services was Stratigraphics, based in Glen Ellyn, Michigan. Project details and the overall plan for the CPT study are provided in an October 29, 1996 letter from Dr. Kenneth Whittaker to Mr. Keith West.

One purpose of the penetrometer testing was to further delineate a clay layer underlying the entire site and encountered in previous borings. This layer is a low permeability zone acting to limit vertical hydraulic flow. A second primary objective of the CPT tests was to delineate a peat/marl layer found in previous borings in the southern portion of the site. The marl may act as an absorbent layer for various organic constituents found in site groundwater. The CPT tests were proposed to extend to a depth of 3-5 feet into the clay layer which was initially thought to be adequate to identify both the clay and peat/marl layers.

This report includes interpreted CPT logs in Appendix A, and site photographs of the CPT locations in Appendix B. The final site report from Stratigraphics is included as a separate document.

SITE CHARACTERISTICS

The General Motors (GM) West Yard Site covers 20 acres in the southwest corner of the GM complex. This area was historically used for waste disposal activities

related to manufacturing, but GM also operated a RCRA hazardous waste storage pad in a portion of the West Yard from 1982 through 1988. The West Yard is underlain by a variable thickness of fill (foundry sand), used to level the original topographic surface. Materials beneath the fill consist of sand with lenses of silt or peat and marl. These overlie a low permeability layer of silt and clay. Groundwater flow in the West Yard is to the southeast. The top of the low permeability layer appears to control the groundwater flow through the overlying sand and fill.

PREVIOUS INVESTIGATIONS

In previous subsurface investigations in the West Yard Site, four geotechnical borings were installed around the West Yard perimeter to a depth of 100 feet. Geotechnical samples were analyzed to determine hydraulic conductivity. Eight soil borings and five test trenches also provided subsurface soils samples for chemical analyses. Further, a groundwater investigation was conducted to characterize the site hydrogeology. Six monitoring well pairs were installed in addition to a single deep upgradient well as part of this investigation. The new wells and three preexisting wells were sampled for TCL/TAL compounds. Hydraulic conductivity tests were also performed.

A NAPL investigation was performed in the vicinity of three monitoring wells near the RCRA storage pad after NAPL was discovered in the wells. NAPL was collected and analyzed and 16 Geoprobe borings were advanced to visually inspect for sheen. The CPT program was proposed to address the concerns of contaminant migration/containment developed during the previous investigations.

CONE PENETROMETER TEST RIG

Stratigraphics provided a truck mounted CPT rig and a crew of two people to perform the tests. The CPT tool is a 2 inch diameter steel rod with a cone shaped CPT transducer at the tip. The tool is advanced by adding extra rods and standing the weight of the truck on the rods, exerting up to 2 million pounds per square foot of vertical pressure. The transducer measures the "cone end-bearing resistance" or vertical pressure encountered as the tool is advanced through the soils. The transducer also measures the "friction ratio", a ratio between end-bearing pressure and friction alongside the tool (lateral friction). A third parameter, the electrical conductivity is also measured. The tool sampling interval is .008 feet.

The combination of the responses of the end-bearing load and friction ratio are diagnostic of different soil types. Coarser grained soils such as sands and gravels tend to require greater vertical loads to penetrate, yielding high end-bearing readings but

low friction ratios. Larger grain sizes present less surface area against the side of the tool, hence less lateral friction. In contrast, finer grained soils such as silts and clays exhibit high friction ratios due to high cohesiveness, yet penetrate easily with lower vertical loads. The output is in the form of logs of the end-bearing load, friction ratio and conductivity, vs. depth. These are shown in Appendix A.

LAYOUT OF THE CPT SURVEY LINES

Three lines of CPT test points were set up for the West Yard Site. Refer to Figure 1. Line 1, CPT points 1-7, was oriented north-south through the center of the site from existing buildings to the railroad tracks. The topography along this line has a gentle dip to the north of approximately six feet. The seven CPT points on this line were originally set at 100 foot spacings.

Line 2 was oriented east-west on a roadway along the southern margin of the site, parallel to Montcalm Street. CPT points 8-15 were originally planned along the north side of the roadway at the base of an embankment at 100 foot spacings. The roadway dips to the west and CP-15 is approximately 15 feet below the grade of CP-8. Also along this line were CP-16 in the flat concrete area near the south site gate off of Montcalm Street, and CP-17, drilled near MW-17.

Line 3 was oriented south-north beginning on the roadway near the demolished pump house (CP-18) and running north towards the power substation. A 100 foot spacing was planned for CPT points 18-27. The road along line 3 rises gently to the north and CP-27 is almost at the same elevation as CP-1.

A photographic log showing the CPT locations and site features is included in Appendix B.

RESULTS: LINE 1

Refer to Appendix A for the interpreted CPT logs. Points CP-1 through CP-7 lie along north-south Line 1. Figure 2 depicts the site geology as defined by the CPT survey. The CPT response at CP-1 is typical of points along line 1: "rubbly fill" with erratic end bearing response to about 16 feet bgs. Below this is coarser soil listed as "silty sand to sandy silt" evidenced by a high excursion on the end-bearing log. The silt fraction gradually increases with depth. The clay horizon is encountered at 40.3 feet and is silty.

The foundry sand is thickest below the northern portion of line 1 and becomes thinner and siltier to the south. The depth to clay at other locations along line 1 ranged

from 27.3 feet bgs at CP-3 to 43.3 feet in CP-7. Fill thickness along line 1 ranged from 30 to 40 feet. No peat/marl was encountered along line 1. Refusals occurred at CP-4 at 1.7 and 12.0 feet, and at CP-5 at 15 feet. CP-4 was moved to 6 feet north of the original location, and was advanced to 40 feet. Several attempts at CP-5 failed to penetrate below 15 feet even when the location was moved as far as 60 feet from the original location. The locations of the refusals for CP-5 are plotted on Figure 1.

RESULTS: LINE 2

Access to the north side of the roadway at the base of the embankment was impossible due to the configuration of the CPT rig. Drilling in the roadway itself was not possible due to concrete. However, a narrow strip of asphalt on the south side of the road, just inside the guardrail, proved soft enough to penetrate with the CPT point. The locations of the CPT points CP-8 through CP-15 along line 2 were therefore moved to this asphalt strip. (See Appendix B, Photos 9 and 10). The samples were spaced at 100 foot intervals, the easternmost point, CP-8 was placed 130 to the east of MW-19 (See Figure 1).

CP-8 was advanced to 60 feet. The upper section showed an undifferentiated fill to about 25.3 feet. A zone of high friction ratio and low end bearing occurs from 30.4 to 34.5 feet. The CPT log identifies this as a "stiff silty clay" and is most likely the signature of the peat\marl layer. This has good correlation with the depth of peat\marl encountered in DW-19, the boring drilled for MW-19. CP-8 shows a thick, silty sand body at 37.6 to 56.6 feet, below the presumably undisturbed peat\marl layer. This correlates well with what the field geologist calls a "flowing sand and gravel" layer encountered at 43 feet in the geotechnical boring GT-3. Clay occurs at approximately 57 feet on CP-8.

The peat\marl signature was seen in CP-9 below fill at a depth of 31.4 feet. The interpreted CP-9 log shows the bottom of fill at 22.9 feet, based on the change in the conductivity curve. Fill may, however, extend to the top of the peat/marl layer at 31.4 feet. The clay layer was encountered at a depth of 34.9 feet, and the test was completed at a depth of 40 feet. Moving downgrade, to the west along line 2, the peat\marl and clay layers were encountered at progressively shallower depths. Peat\marl was found at 22.2 feet in CP-12, at 18 feet in CP-13 and at 13 feet in CP-15. Similarly, clay was found at 25.1, 20.8 and 15.9 feet, respectively. CP-10 could not be advanced below 15 feet after numerous attempts and therefore was not considered in the analysis.

In CP-16, located in a break in the concrete surface (Appendix B, photo 11) in a flat area near the Montcalm Street site entrance, the peat\marl layer noted on the CPT

log as "clay to organic soil" lies at the base of the fill at 8.6 feet. It is 9.1 feet thick at this location and exhibits a high conductivity. The conductivity decreases sharply at the top of the clay layer at about 17.7 feet. The log for CP-17, near MW-17, shows similar results with slightly lower conductivity. The peat\marl response on CP-16 and CP-17 correlates well with a "dark brown PEAT with rootlets" and "light pink/white MARL with trace organic debris" noted on the boring logs for GT-2 from 9.5 to 15.5 feet. This layer is approximately 5 feet thick at GT-2, and similarly at CP-17. Clay occurs at 15.5 feet on GT-2, and correlates well with the "stiff clayey silt" at 17.7 and 15.5 feet in CP-16 and CP-17, respectively. The boring log for GT-2 shows three separate clay horizons at 15.5, 36, and 50 feet with sand and silt layers between them. This most likely represents a single clay layer with localized interbedded sand and silt.

The peat\marl layer exhibits an unusually high electrical conductivity in many of the CPT tests, particularly downgradient. This can be seen clearly on CPTs 12, 15 and 16. This may indicate the presence of electrically conductive groundwater in the peat\marl layer.

Overall, line 2 confirmed the presence of the peat\marl layer and showed a thinner fill than that seen along Line 1. The clay layer was encountered in all CPT tests along line 2, and appears to be flat lying to west of CP-8.

RESULTS: LINE 3

A 100 foot spacing was originally planned for CPT points along line 3, but overhead power lines necessitated moving the northern portion of the line, CPT points 22-27, to the west edge of the road, approximately 25 feet to the east (see Figure 1). This line runs south-north along a roadway leading from the south site gate (off Montcalm Street), north towards the power substation. The roadway slopes gently upwards to the north.

CP-18 (shown in the background of Photo 13, Appendix B) was placed near the ruins of the pump house, and shows the peat\marl layer below fill at 4 feet. This layer is 5.3 feet thick and shows a high conductivity as does a 10 foot thick sand, which lies below the peat\marl layer. The conductivity decreases at the top of the less permeable clay layer at 19.1 feet. The only other clear signature of the peat\marl layer detected along line 3 was seen in CP-19 from 3.4 to 11 feet. The peat\marl layer appears to be absent to the north. CP-19 (Photo 13, Appendix B) shows the top of the "very stiff sandy clay" at 21.3 feet, immediately above a "very stiff sandy silt to clayey silt that occurs at 25.7 feet.

At CP-20 (Photo 12, Appendix B), fill extends to 12.7 feet. Below this is a dense sand to sandy silt as evidenced by a high end-bearing response and erratic friction ratio. A silty sand to sandy silt lies below this at about 23 feet. A silty clay was found at 27.1 feet. On CP-21 (Photo 14, Appendix B), fill extends to 21.1 feet. At this depth, the dense silty sand seen in CP-20 is more developed and extends to 37.4 feet where the test terminates in a very stiff sandy clay.

CP-22 shows fill to 8 feet where a silty clay was encountered, extending to top of the silty sand at 19.2 feet. This sand is approximately 18 feet thick at this location. The conductivity curve in this permeable layer is depressed, possibly indicating the presence of a non-conductive fluid. A gradational change to a sandy clay begins at 36.9 feet.

CP-23 (Photo 16, Appendix B), shows fill to 9.1 feet immediately underlain by the dense silty sand which is only 7 feet thick. A clayey silt was encountered at 19.3 feet below the dense silty sand and was penetrated to a depth of 40 feet. In CP-24, the fill extends to 10.4 feet, underlain by the silty sand. This sand forms a sharp contact with the clay horizon at 22 feet. The clay layer contains some sand lenses in the interval of 29.9 to 33.8 feet, grading to a clayey silt.

Several attempts to complete CP-25 failed with refusals at 8-10 feet. CP-26 also had refusals at 8 and 10 feet. The completed CP-26 (Photo 17, Appendix B) shows fill to 12 feet and a dense sand to silty sand between 12 and 24.3 feet. This overlies a very stiff, sandy clay which occurs between 24.3 and 32.9 feet. The test was terminated at 40 feet in a very stiff sandy silt to silty clay. The final CPT test, CP-27 (Photo 18, Appendix B) was done 100 feet north of CP-26 across from the power substation. At this location, a silty sand to sandy silt layer lies at 6.7 feet, below the fill. This silty sand layer extends to 31.3 feet, the top of the silty clay layer.

CONCLUSIONS

The General Motors West Yard Site geology, as defined by the cone-penetrometer tests, has a good correlation with previous interpretation based on geotechnical and well borings. The site has a variable thickness of fill ranging from over thirty feet, as seen along line 1, to less than 8 feet along line 3. The exceptions are CP-21 and CP-22, on Line 3, where the fill layer is as much as 18 feet thick. The peat/marl layer was evident in all CPT soundings along the east-west line 2 that runs along the southern border of the site. The marl ranged in thickness from 3 (CP-12) to 10 (CP-16) feet. The marl layer often exhibited an unusually high electrical conductivity, a good example of which can be seen on CPs 12, 13, 15, and 16.

South-north line 3 showed the peat\marl extending as far north as CP-19. Line 3 along the west margin of the site also showed a sand of variable thickness.

The clay layer was encountered at 27-43 feet, below thick fill in the center of the site along line 1. Along line 2, clay was found at depth ranging from 56.6 feet (CP-8) to 15.8 feet (CP-14). These measurements suggest a relatively flat clay surface west of CP-8. The clay layer seen in CPT tests along line 3 is correlative with the clay layer seen on line 1 and boring logs for GT-4, GT-3, MW-19, and MW-18 which note a "pink-grey clay with some silt" at approximately 40 feet. The clay can be seen clearly on CP-18 at 19.1 feet, at 19.3 feet on CP-23, 22 feet on CP-24, and 31.3 feet on CP-27 which is upgrade of CP-24. At CPT points 21 and 22, the clay layer, the clay layer occurs approximately 10 feet deeper than in adjacent tests. The clay was encountered in these two tests below a thick dense sand to silty sand. This sand is anomalously thick at these two locations. No evidence of a sand filled channel could be traced through the site to explain this. Excavation and backfill in this area is a possible explanation.

We trust that this report meets your objectives. If you have any questions please call us.

Sincerely,

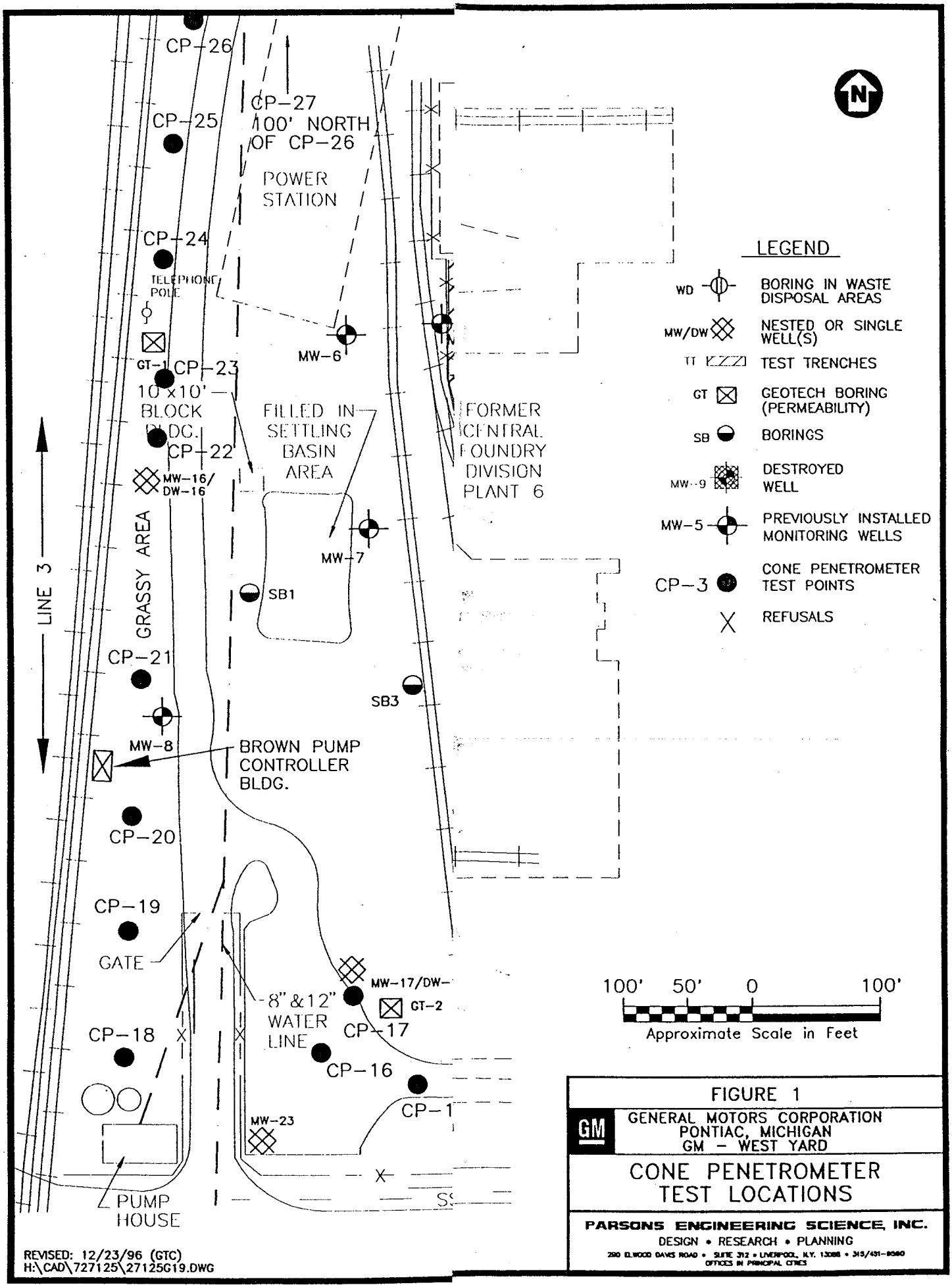
PARSONS ENGINEERING SCIENCE, INC.

Peter M. Harth
Field Geologist

Dr. Kenneth F. Whittaker, Ph.D., P.E.
Project Manager

PMH/KFW/rlc

Enclosures



REVISED: 12/23/96 (GTC)
H:\CAD\727125\27125G19.DWG

FIGURE 1

GM GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN
GM - WEST YARD

CONE PENETROMETER TEST LOCATIONS

PARSONS ENGINEERING SCIENCE, INC.
DESIGN • RESEARCH • PLANNING
290 ELWOOD DAVIS ROAD • SUITE 312 • LIVERPOOL, N.Y. 13088 • 315/451-9560
OFFICES IN PRINCIPAL CITIES

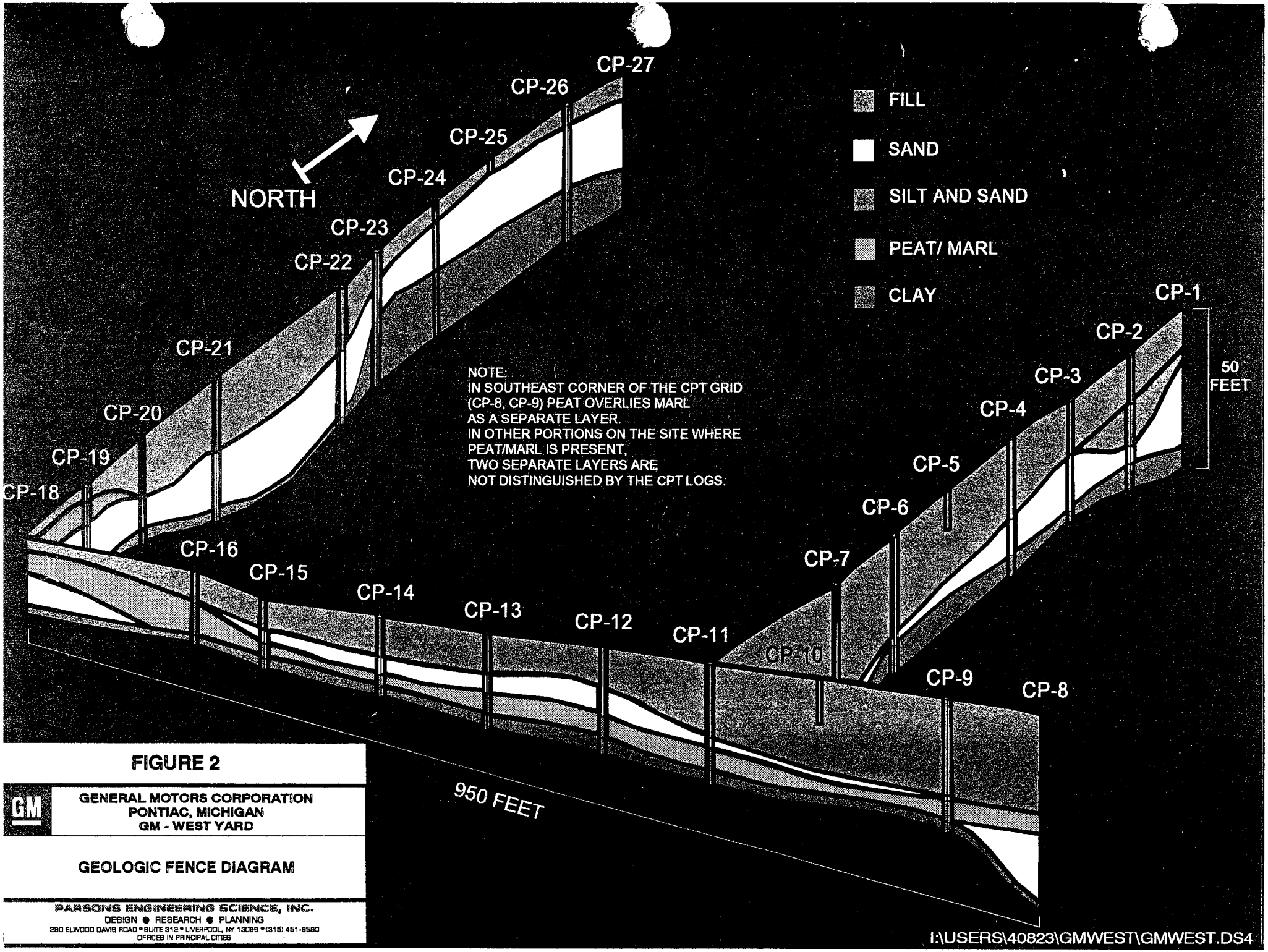


FIGURE 2

GM

GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN
GM - WEST YARD

GEOLOGIC FENCE DIAGRAM

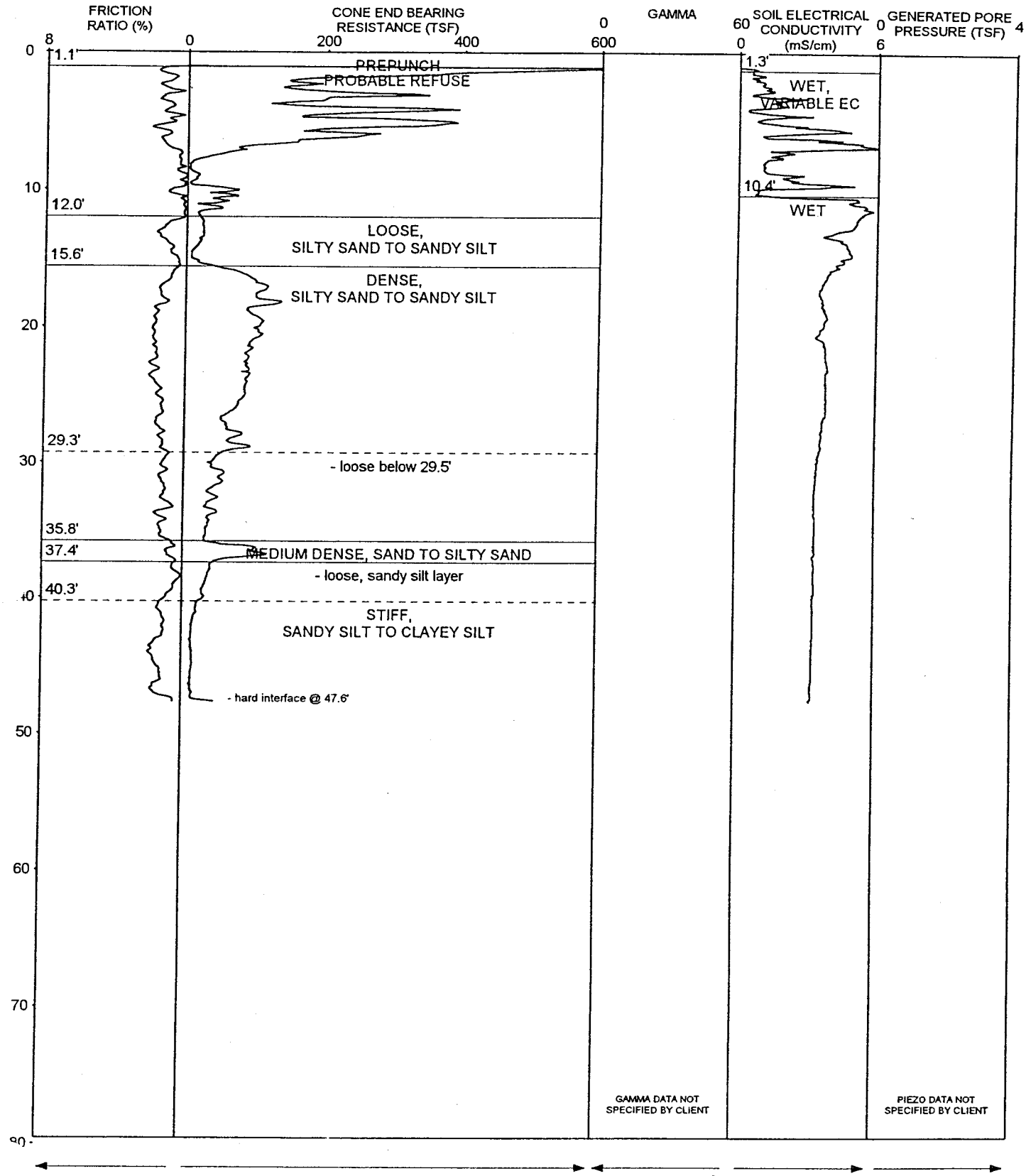
PARSONS ENGINEERING SCIENCE, INC.
DESIGN ● RESEARCH ● PLANNING
290 ELWOOD DAVIS ROAD • SUITE 312 • LIVERPOOL, NY 13088 • (315) 451-9560
OFFICES IN PRINCIPAL CITIES

I:\USERS\40823\GMWEST\GMWEST.DS4

APPENDIX A

CONE PENETROMETER LOGS

INTERPRETED CPT-EC LOG



STRATIGRAPHICS

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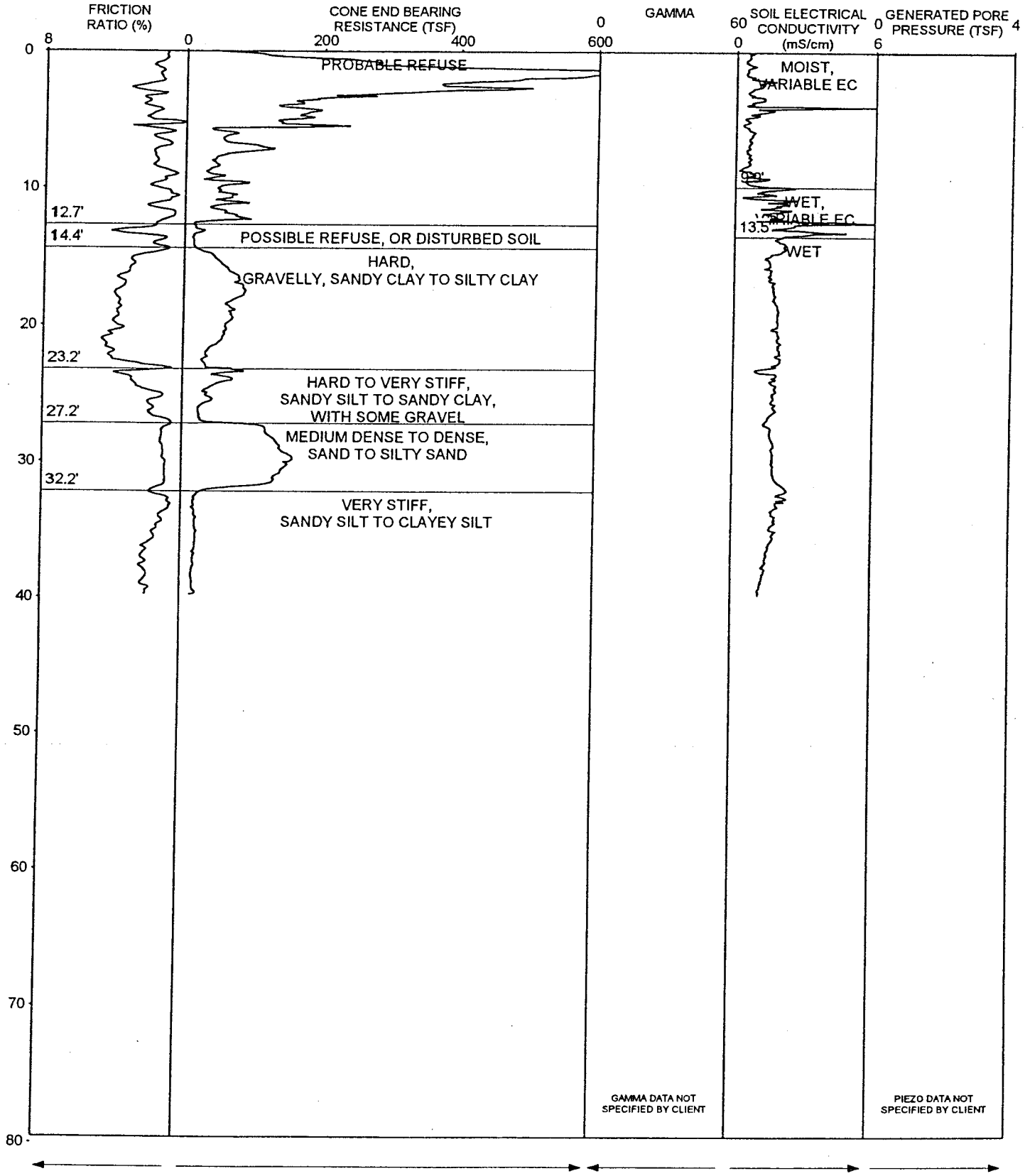
PROJECT NUMBER: 96-110-310

R1 DATE:11-21-1996
SOUNDING NUMBER: CPT-001

INTERPRETED CPT-EC LOG



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PROJECT NUMBER: 96-110-310

R1 DATE:11-21-1996
SOUNDING NUMBER: CPT-002

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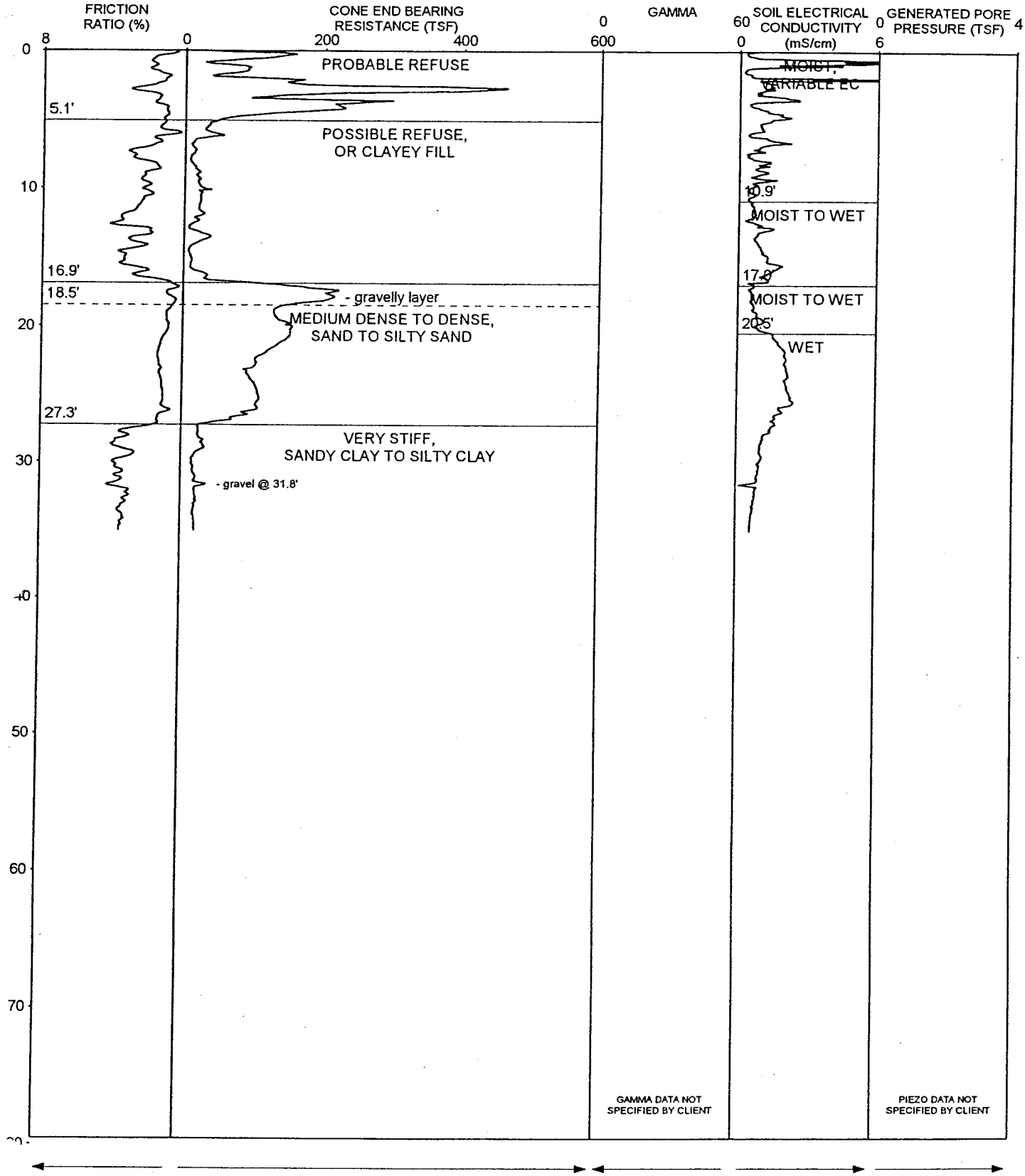

STRATIGRAPHICS

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PROJECT NUMBER: 96-110-310

R1 DATE:11-21-1996
SOUNDING NUMBER: CPT-003

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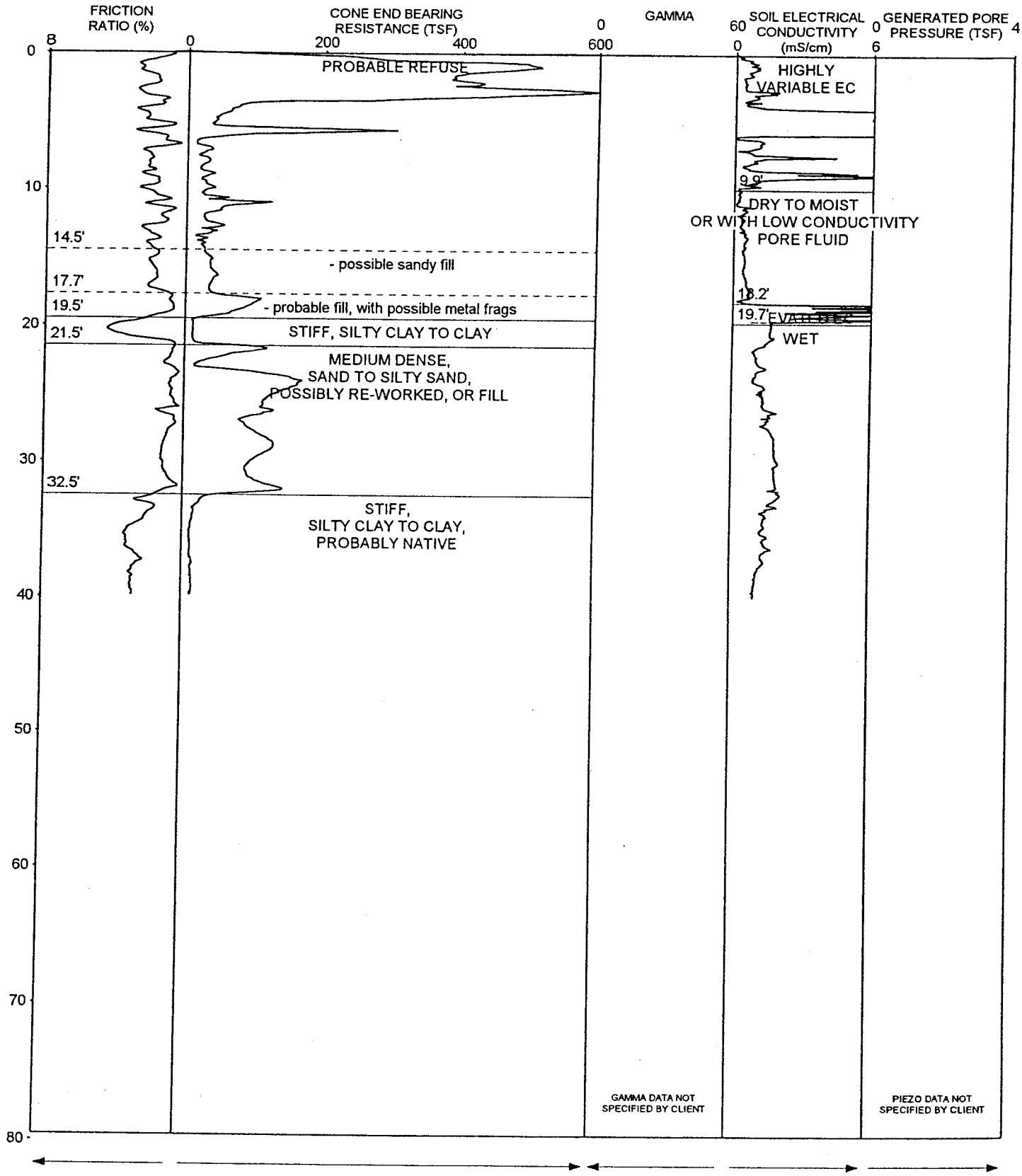

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PROJECT NUMBER: 96-110-310

R1 DATE:11-21-1996
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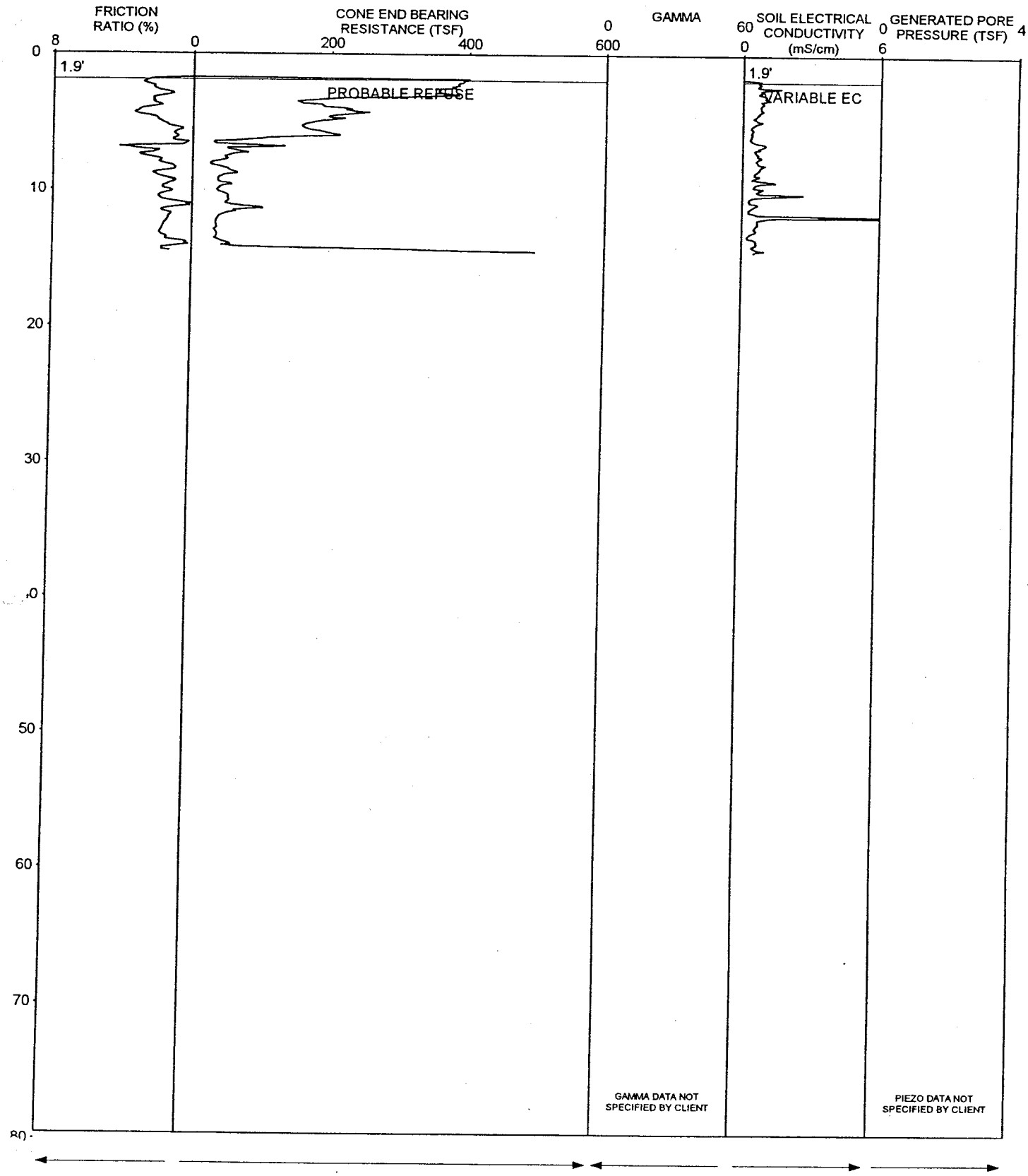

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PROJECT NUMBER: 96-110-310

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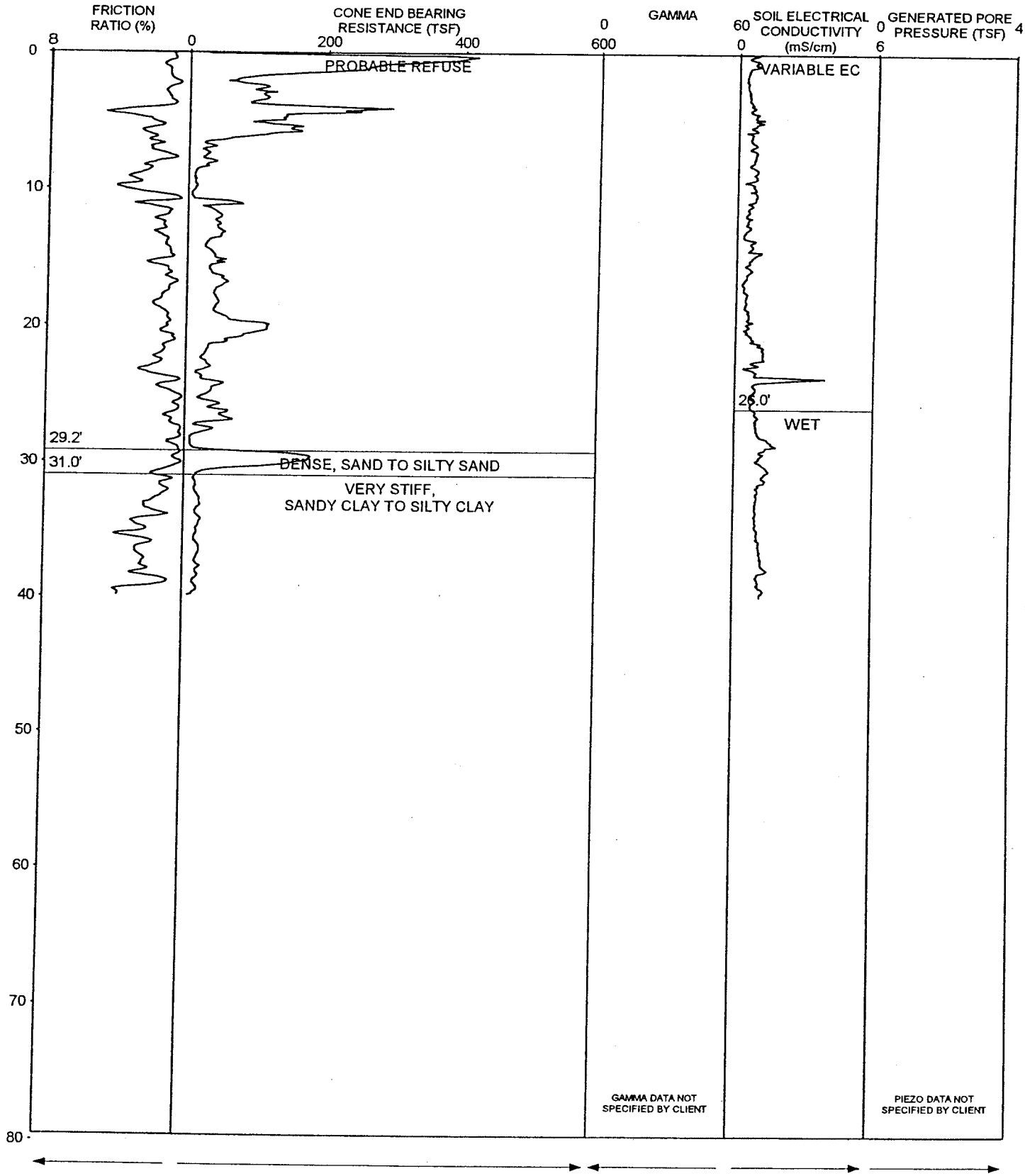

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PROJECT NUMBER: 96-110-310

R1 DATE:11-21-1996
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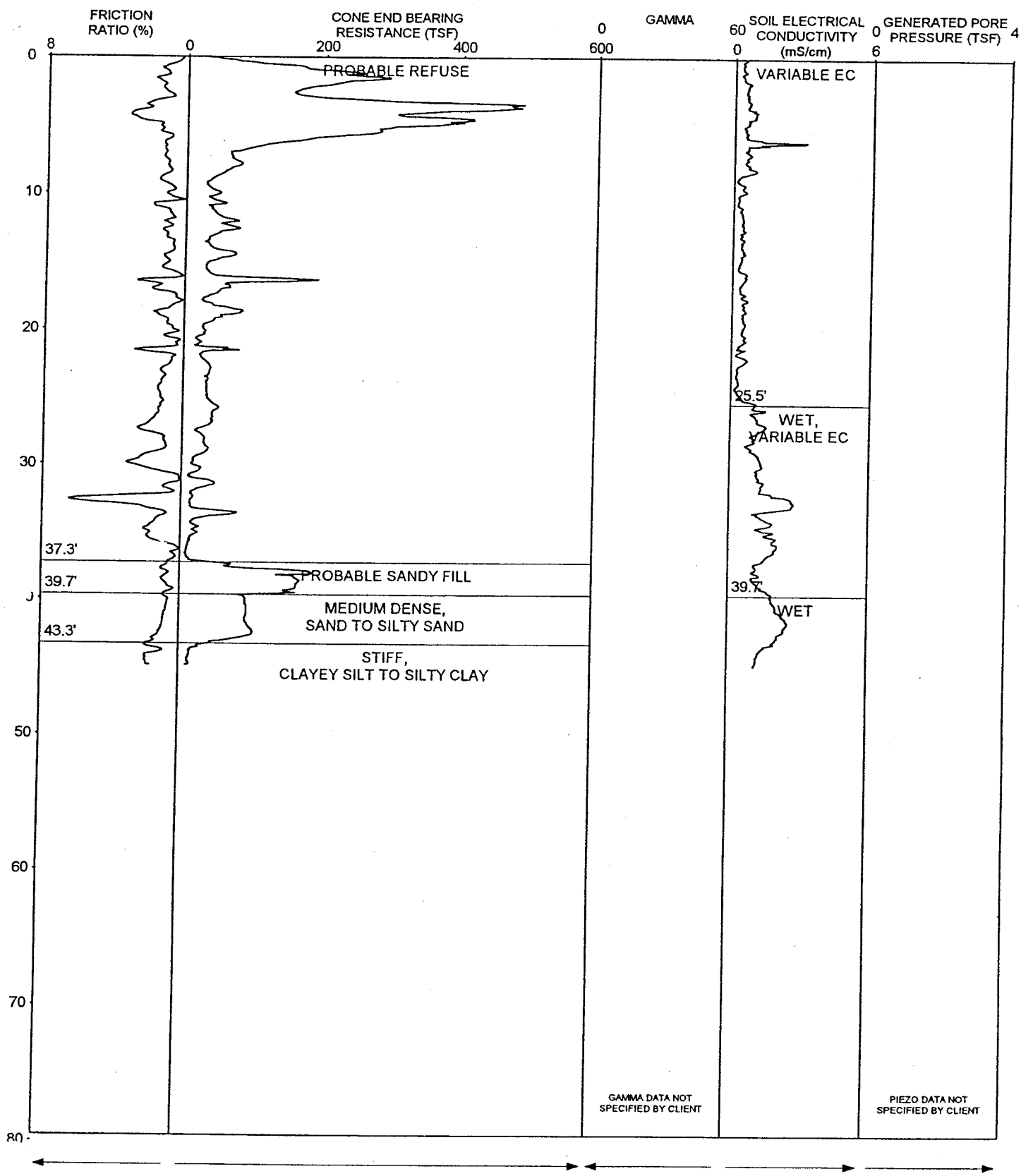

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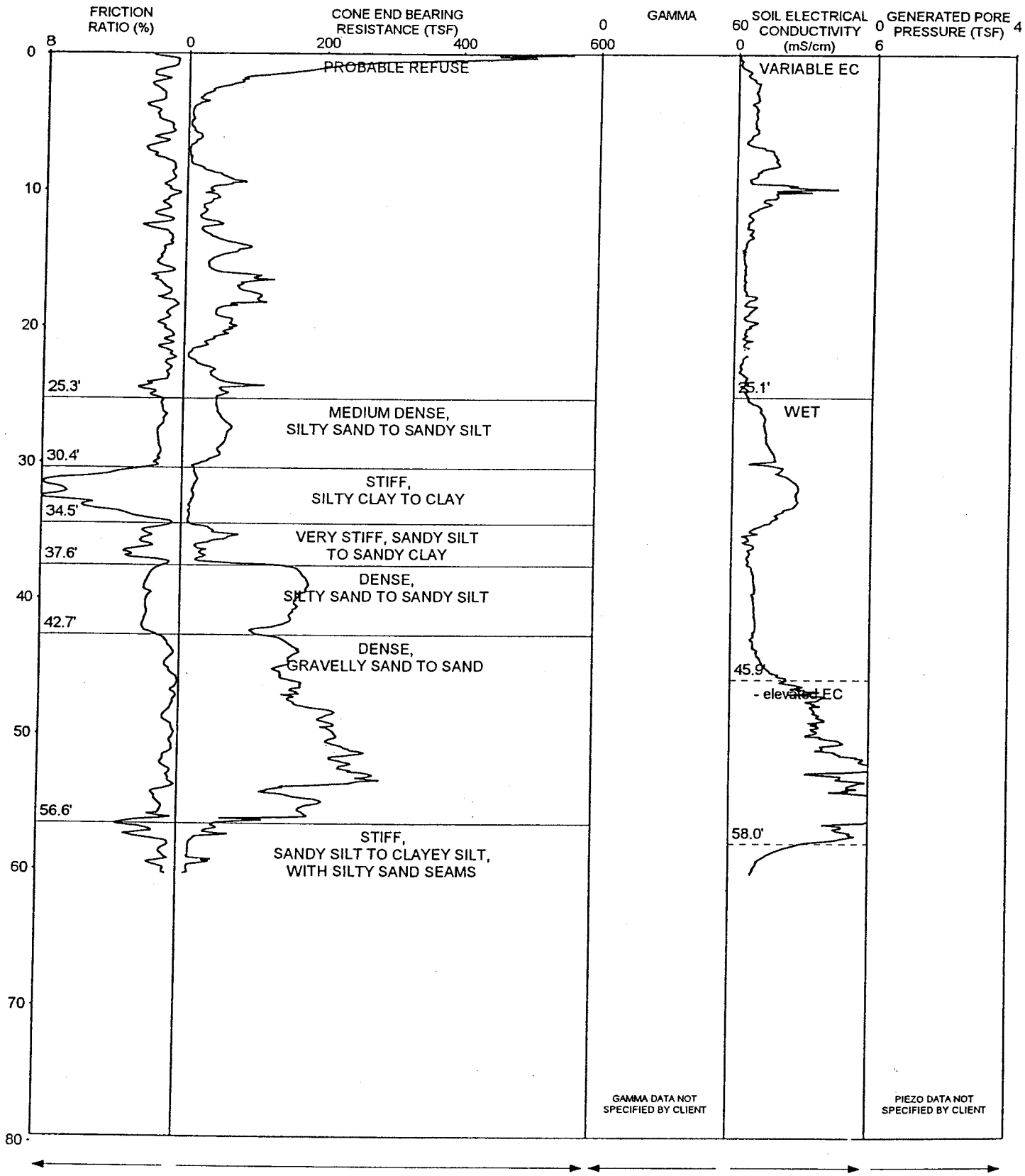

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PROJECT NUMBER: 96-110-310

R1 DATE:11-22-1996
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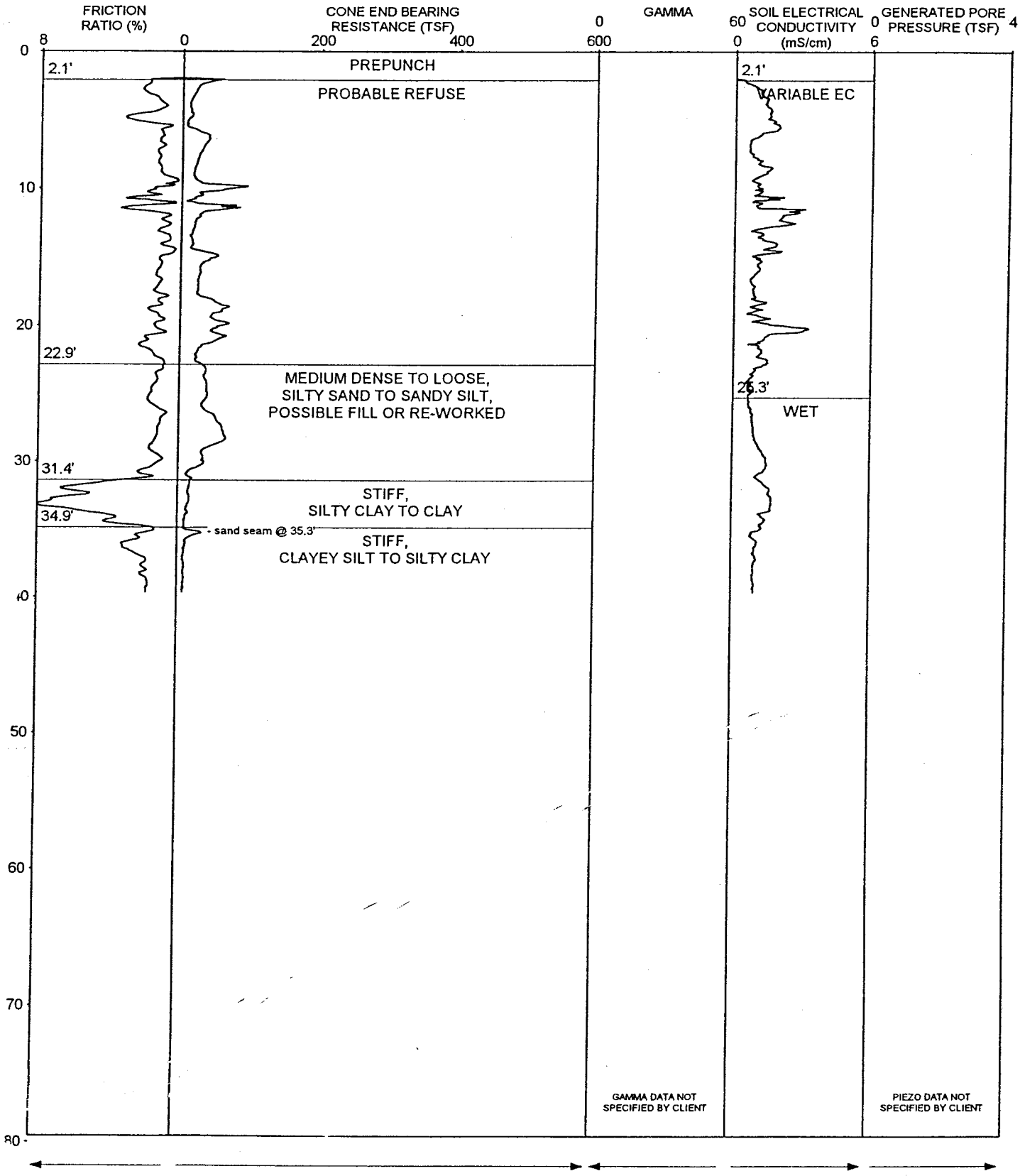

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PROJECT NUMBER: 96-110-310

R1 DATE:11-22-1996
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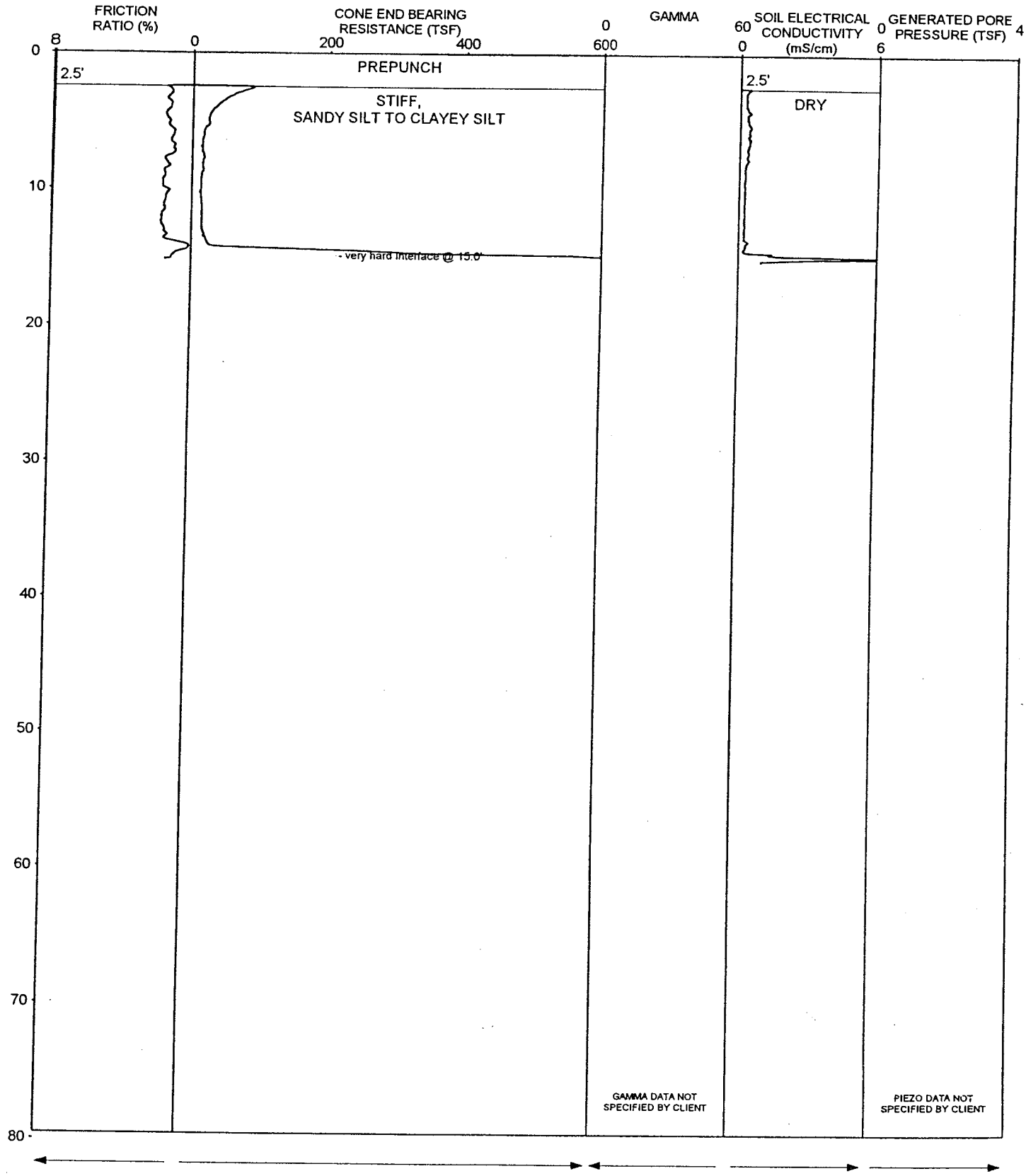

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PROJECT NUMBER: 96-110-310

R1 DATE:11-22-1996
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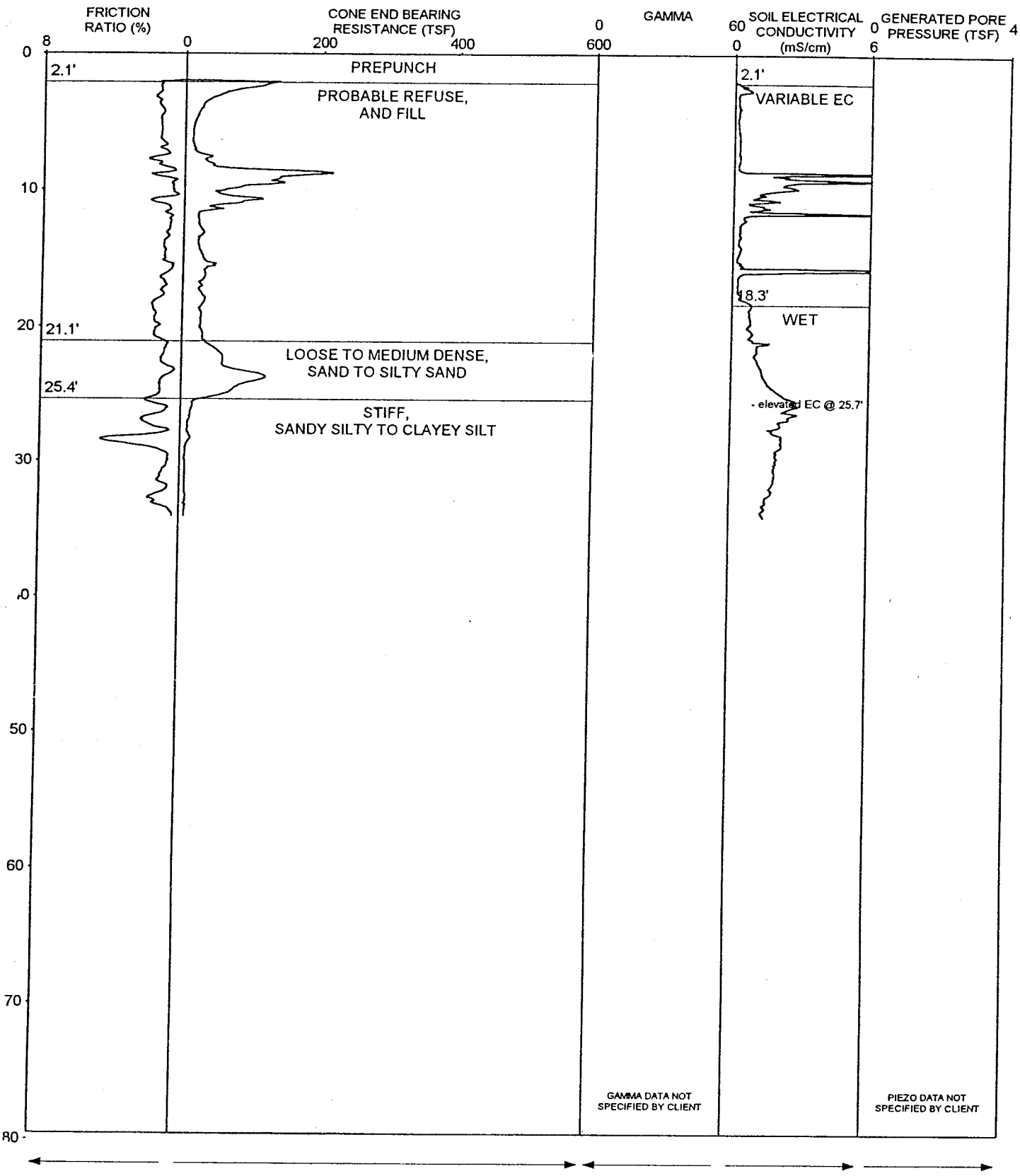

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PROJECT NUMBER: 96-110-310

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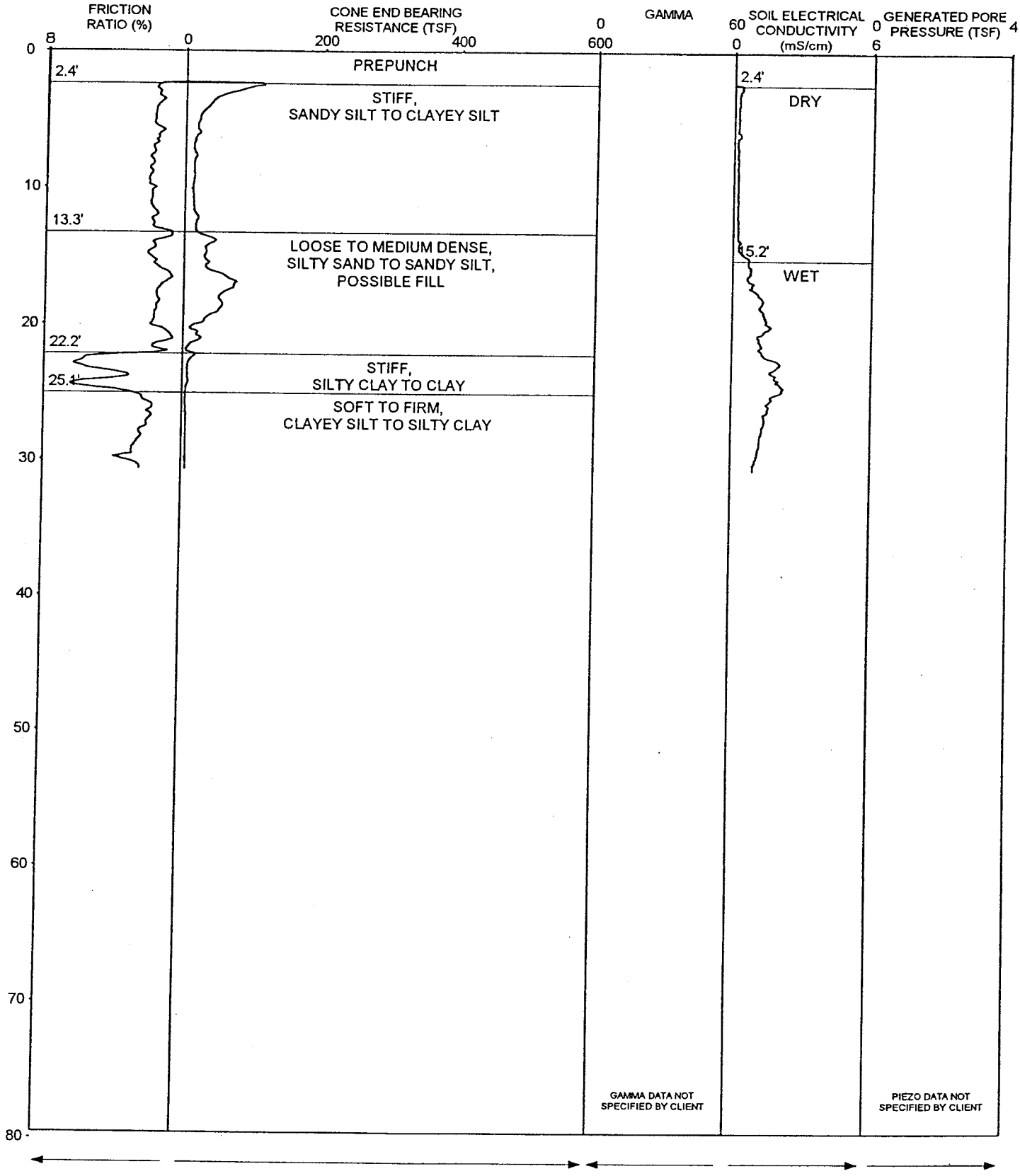

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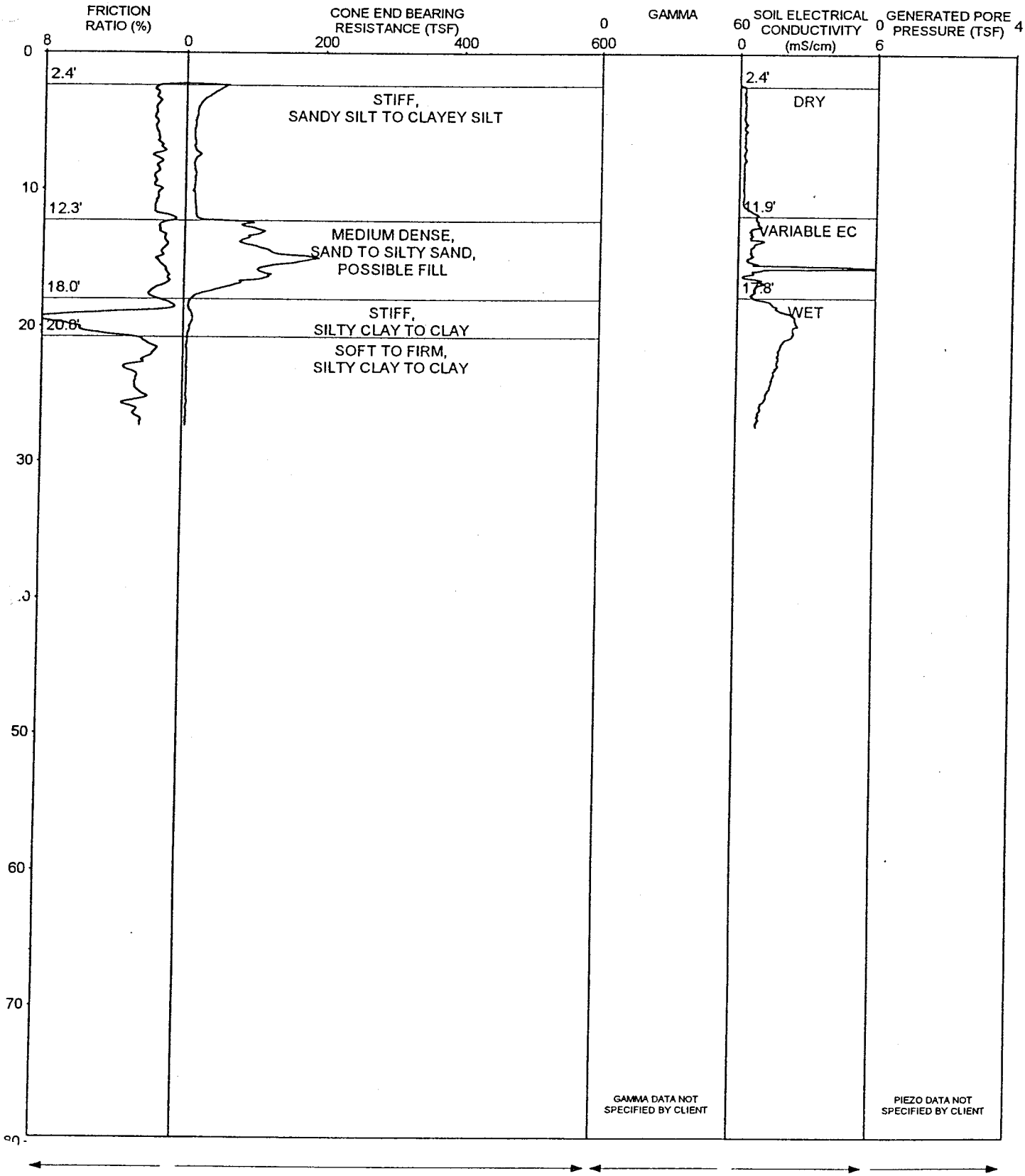

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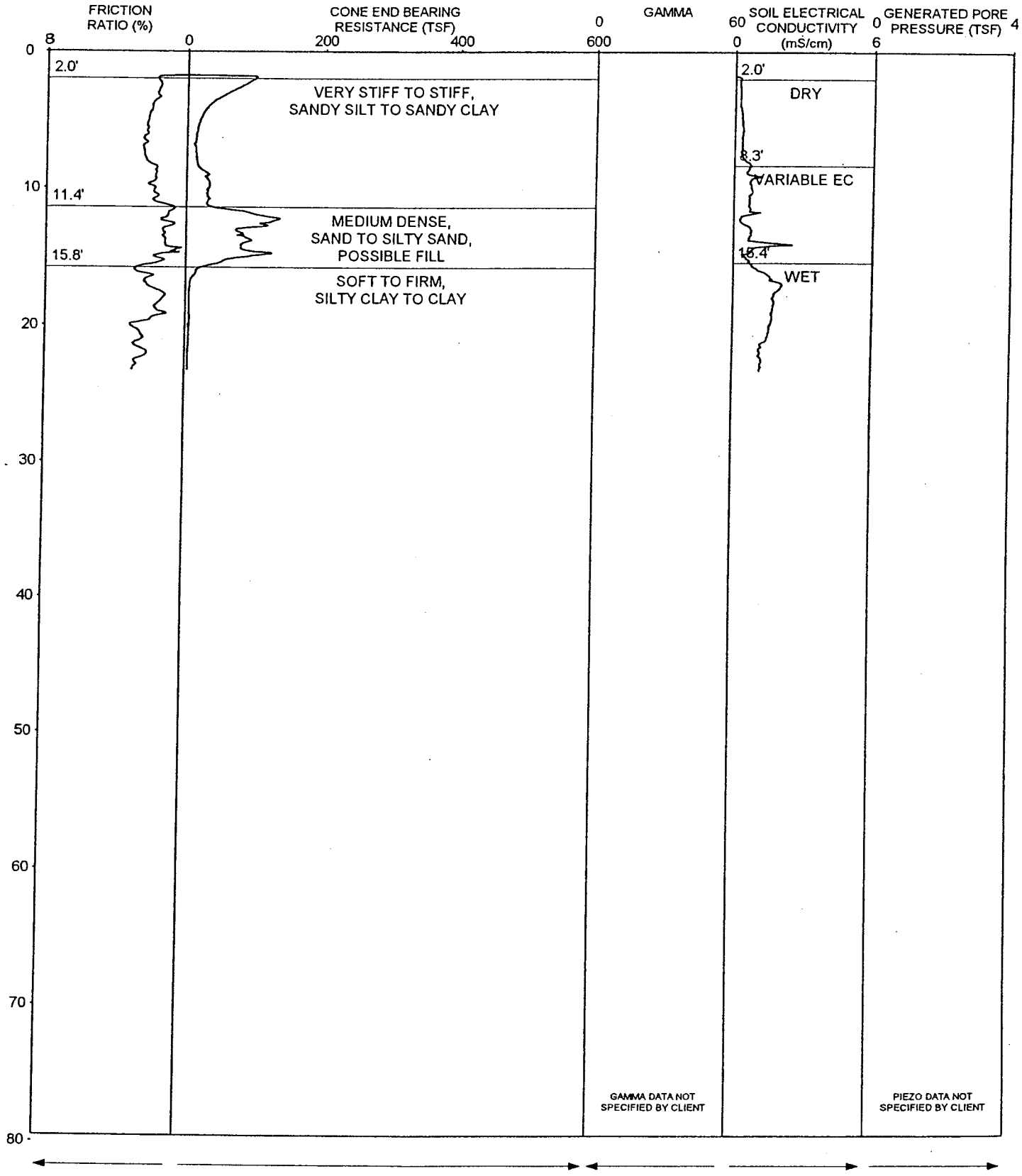

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PROJECT NUMBER: 96-110-310

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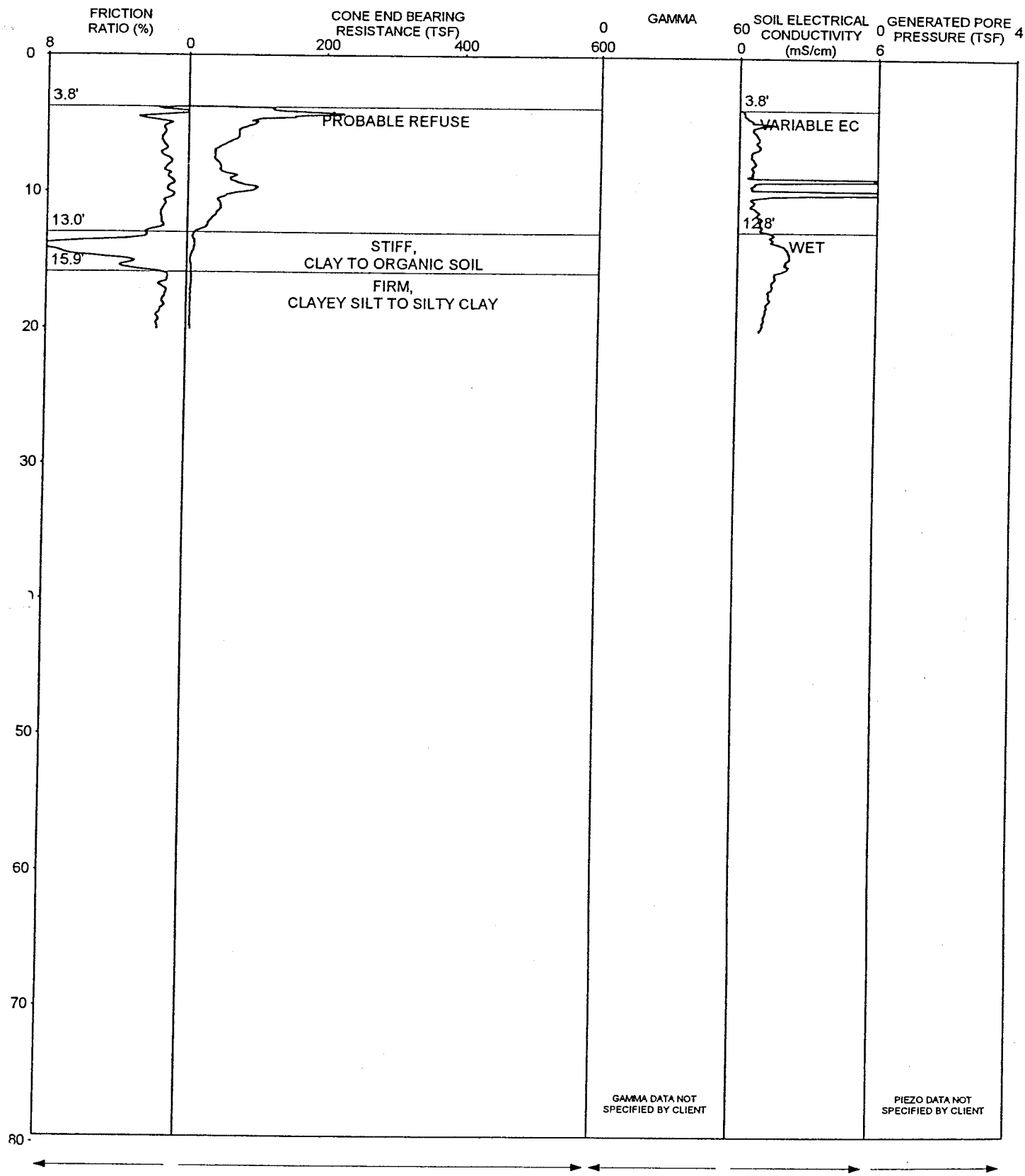

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PROJECT NUMBER: 96-110-310

R1 DATE:11-22-1996
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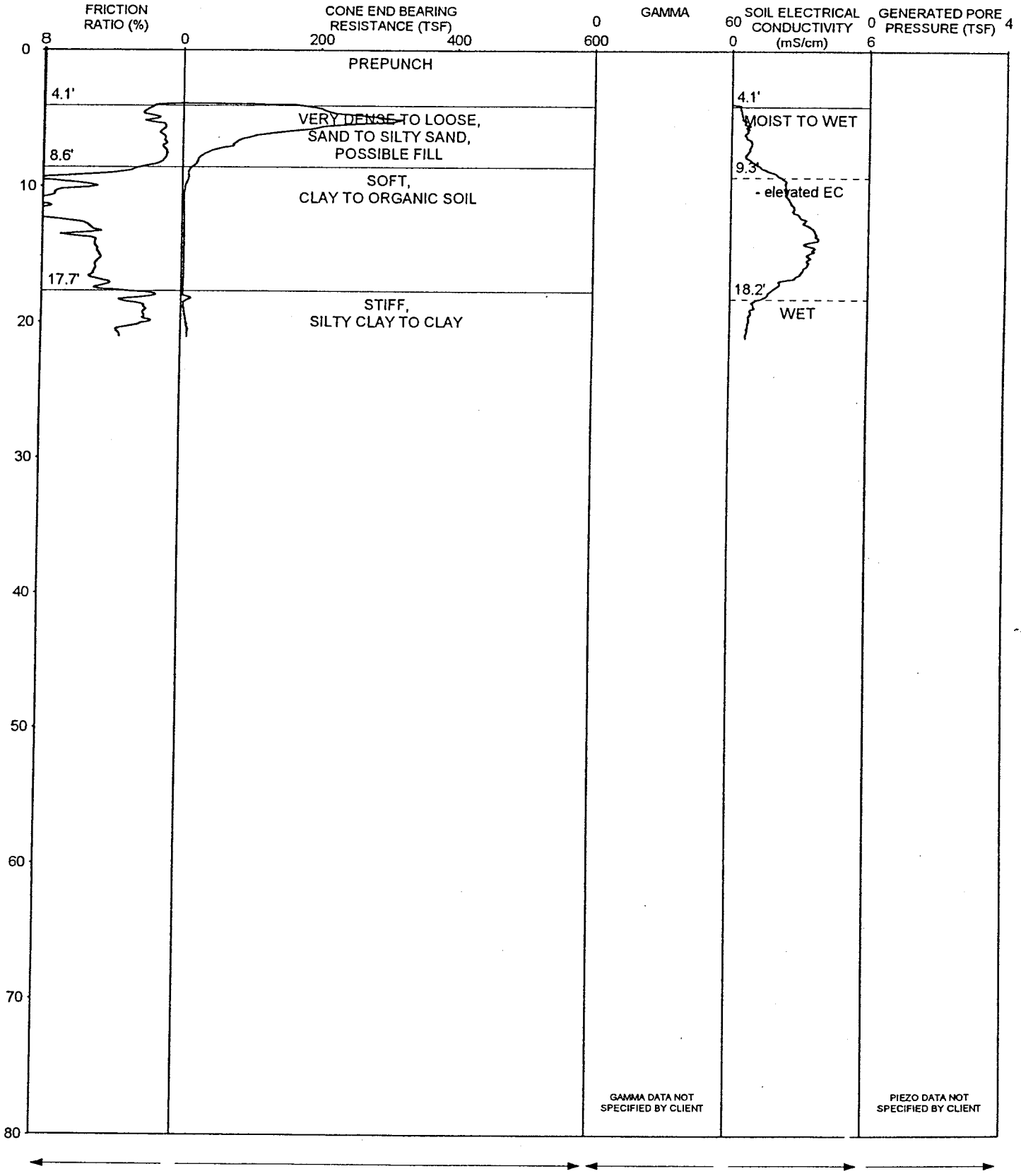

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PROJECT NUMBER: 96-110-310

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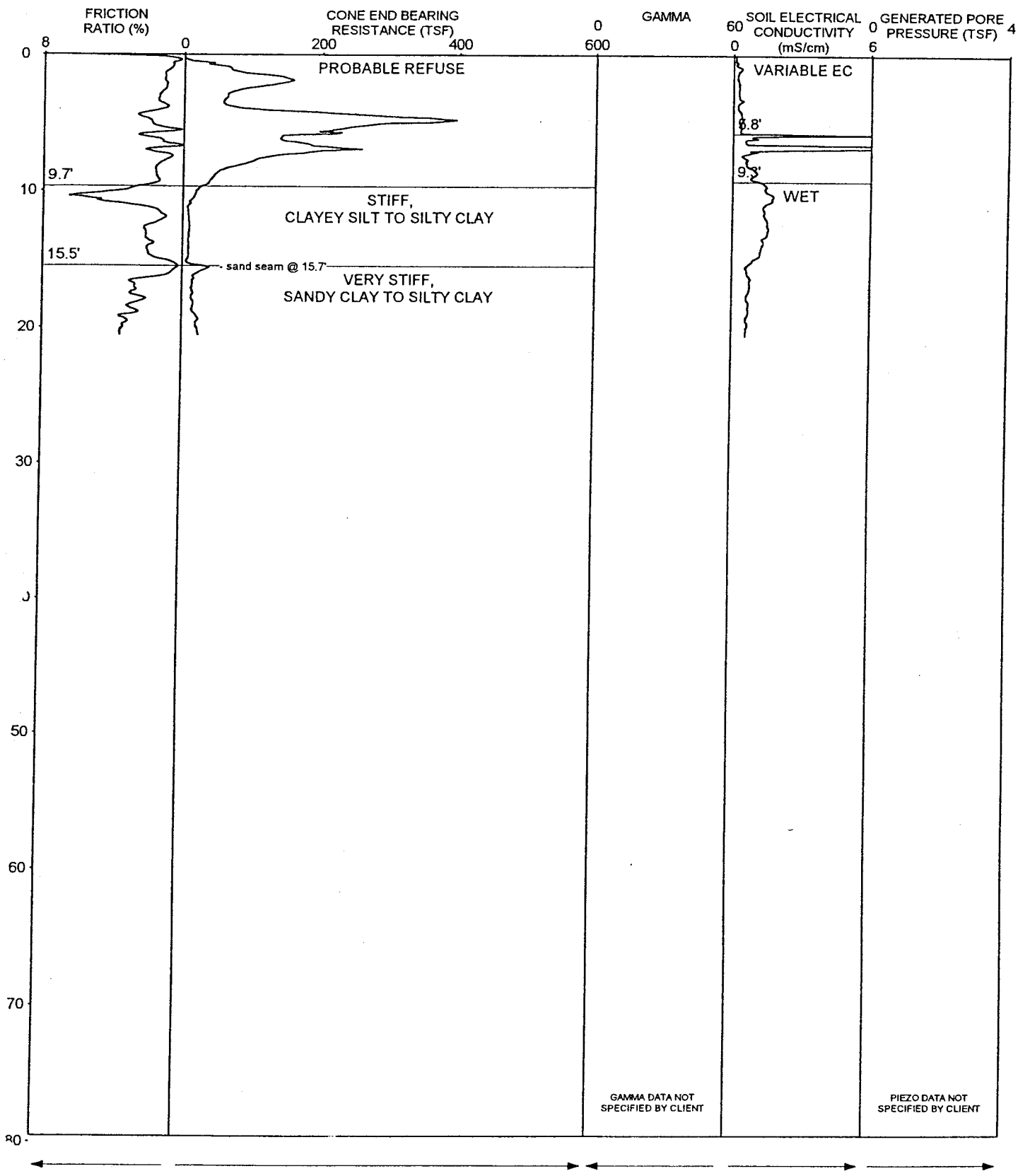

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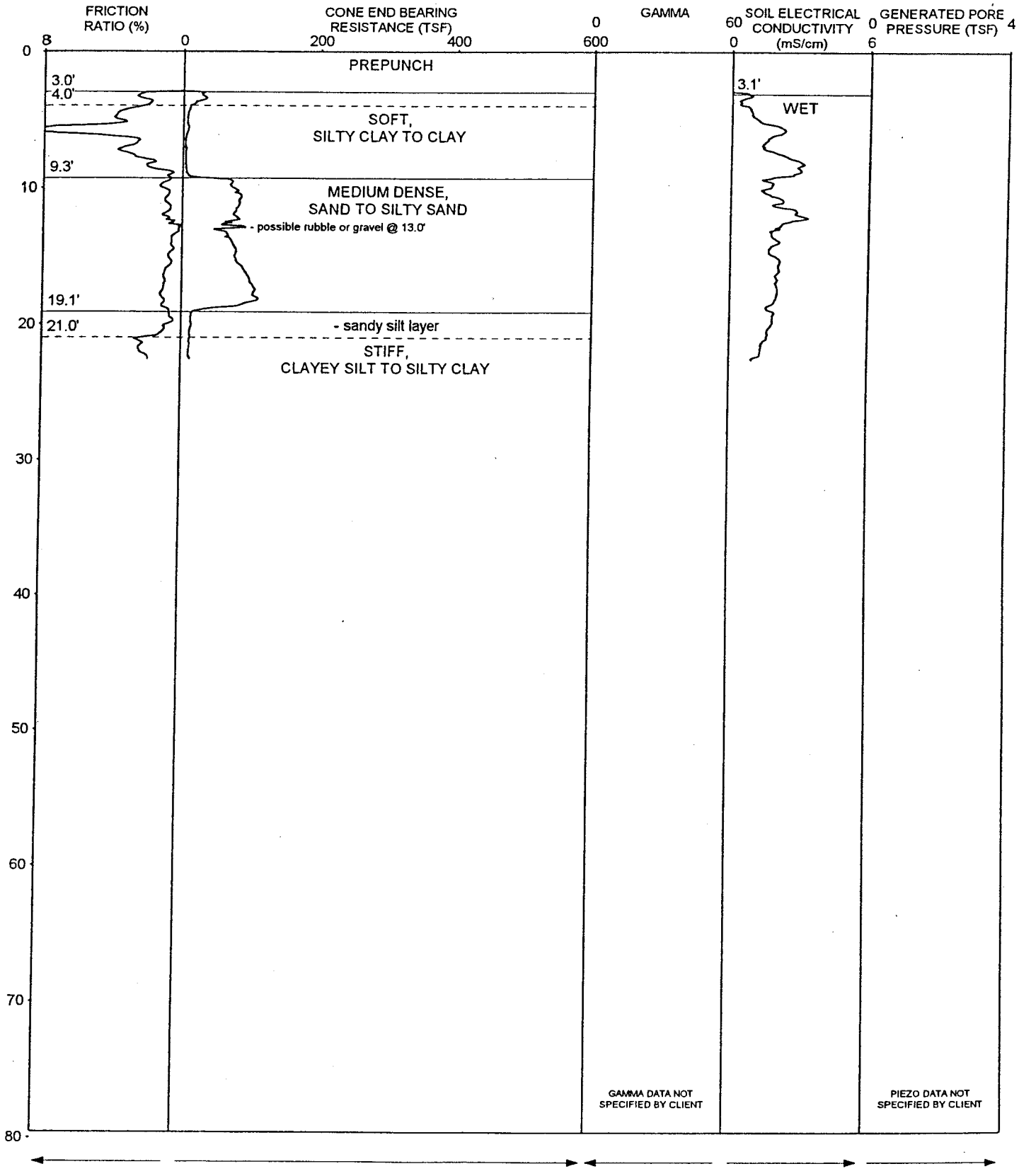

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PROJECT NUMBER: 96-110-310

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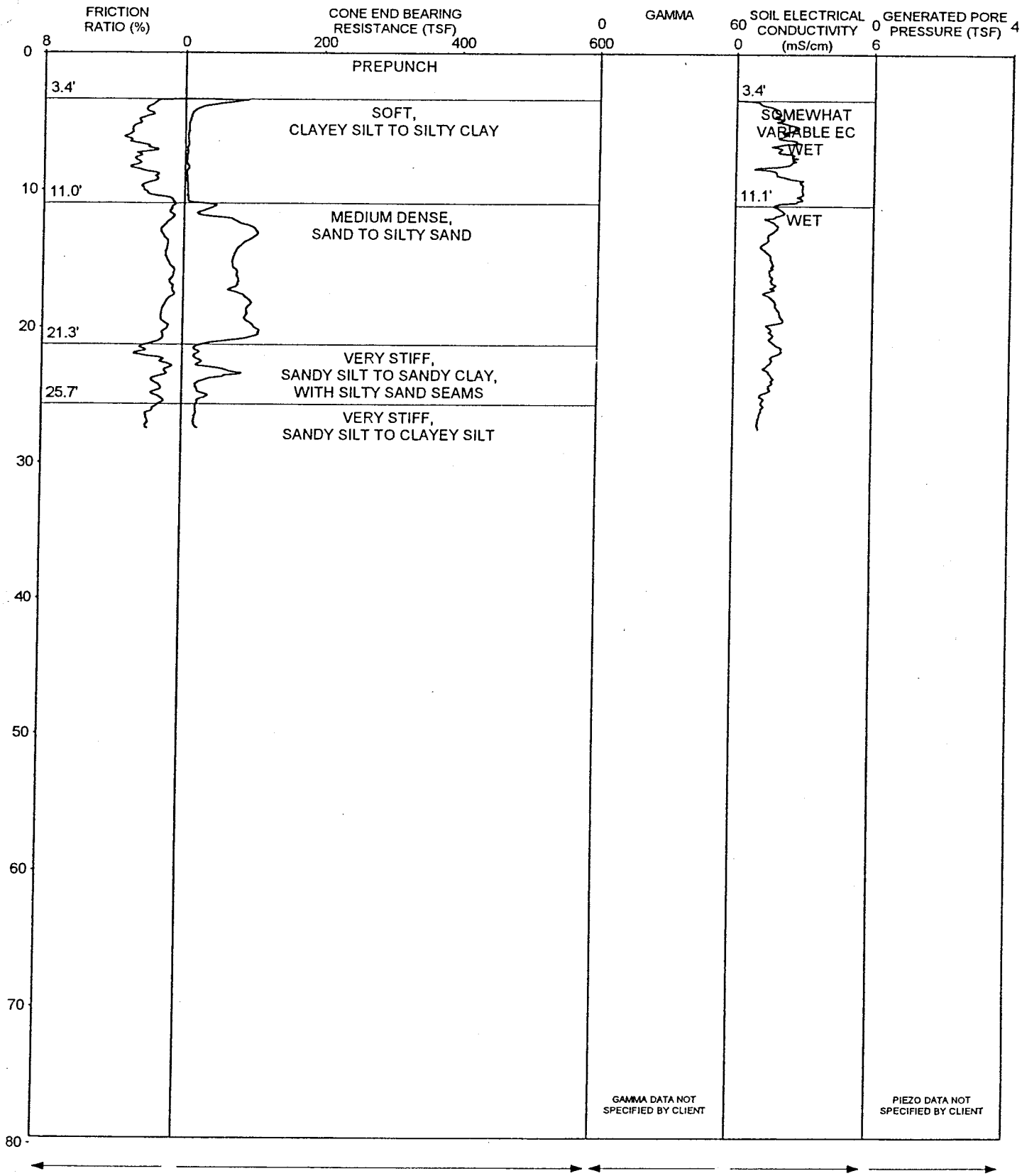

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PROJECT NUMBER: 96-110-310

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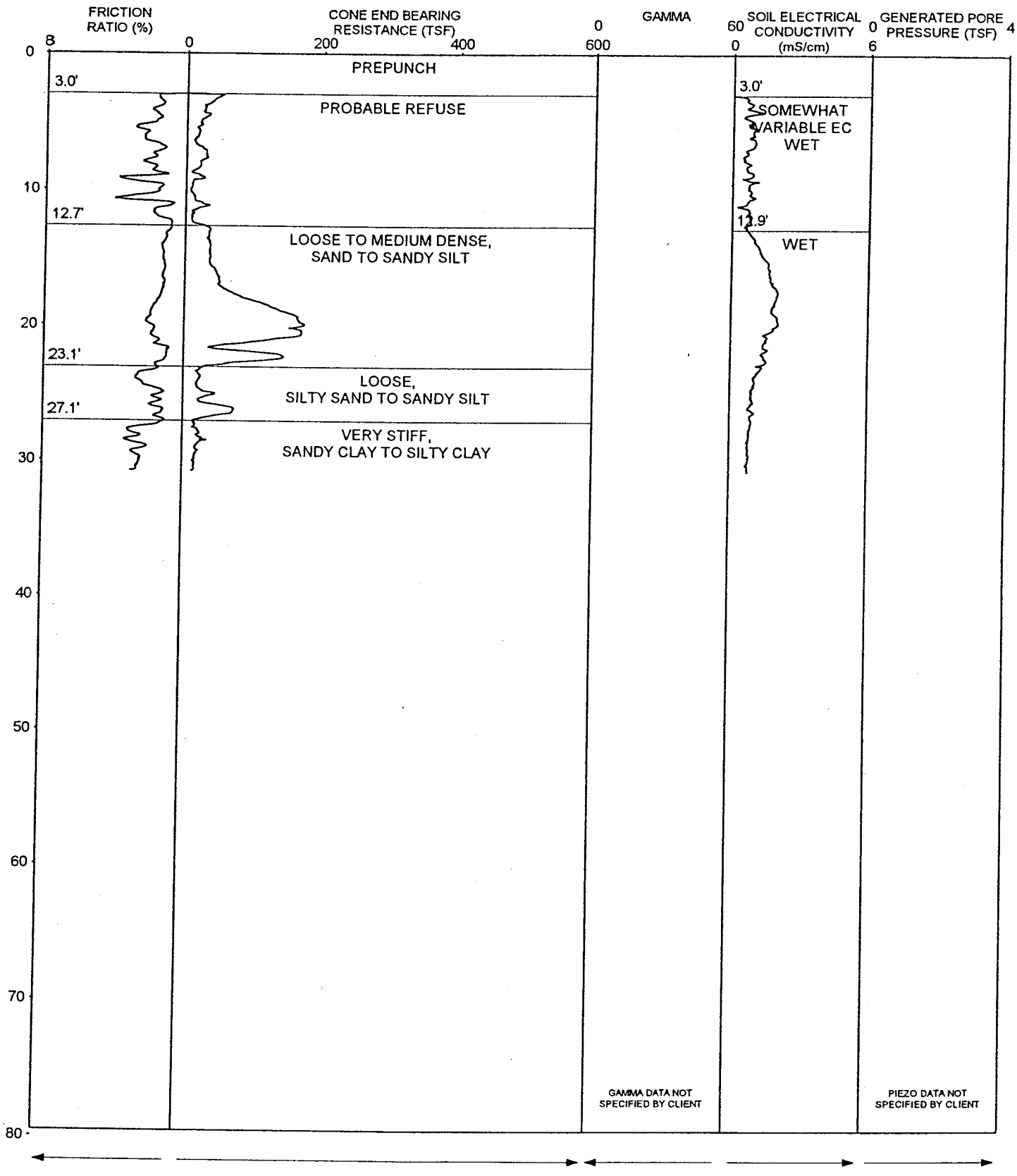

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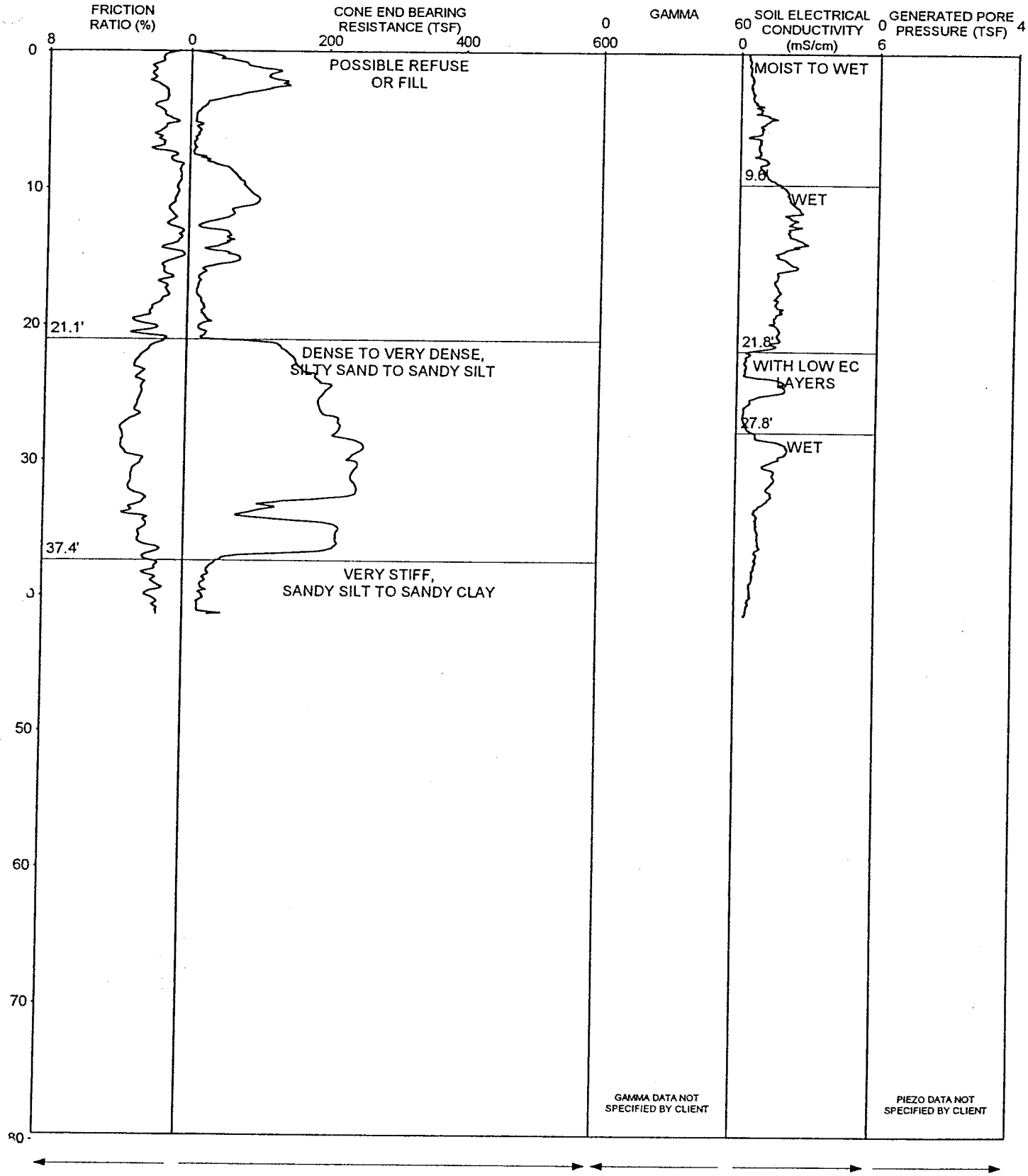
PROJECT NUMBER: 96-110-310

R1 DATE:11-22-1996
SOUNDING NUMBER: CPT-020

INTERPRETED CPT-EC LOG



STRATIGRAPHICS

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PROJECT NUMBER: 96-110-310

R1 DATE:11-23-1996
SOUNDING NUMBER: CPT-021

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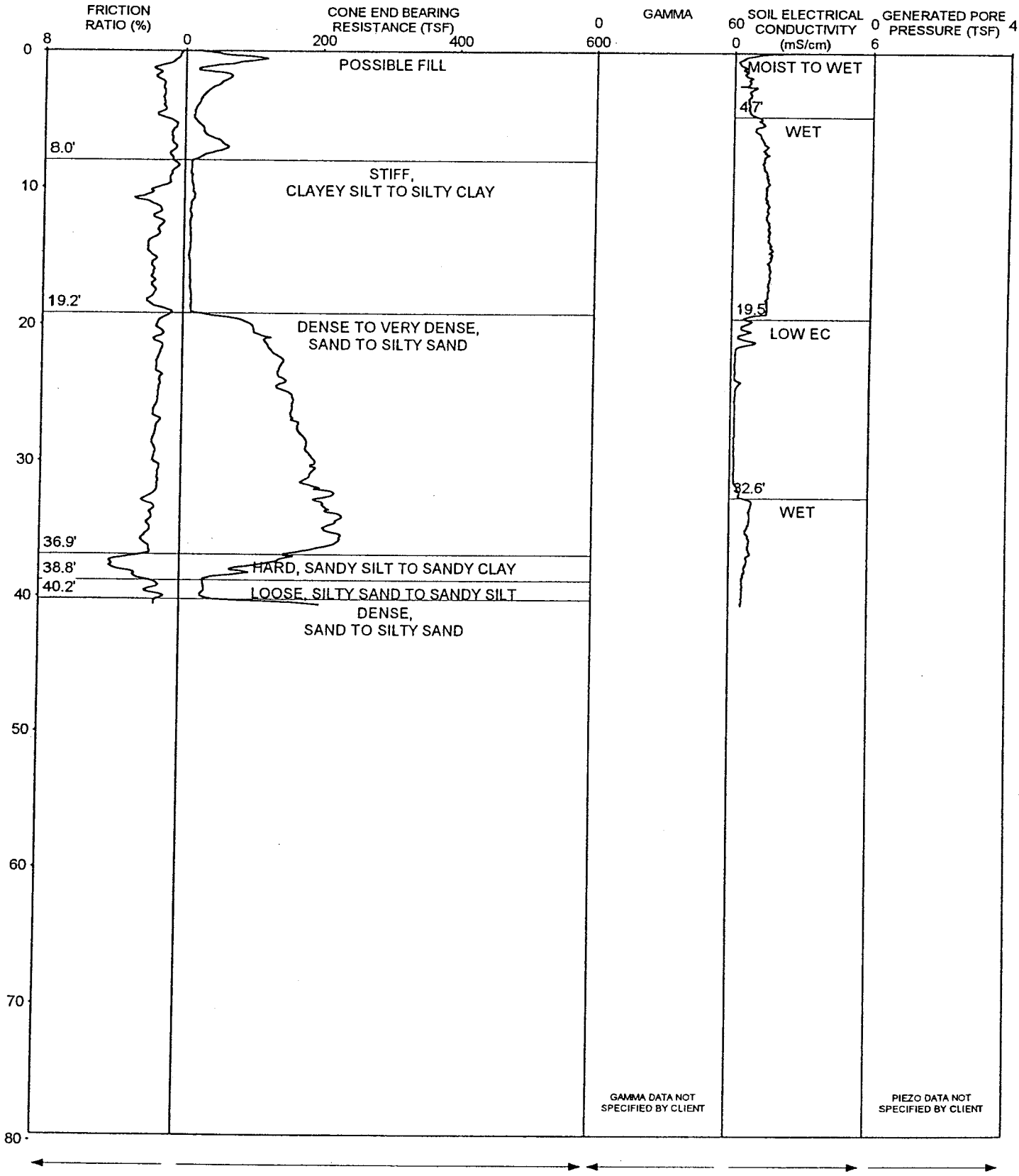

STRATIGRAPHICS

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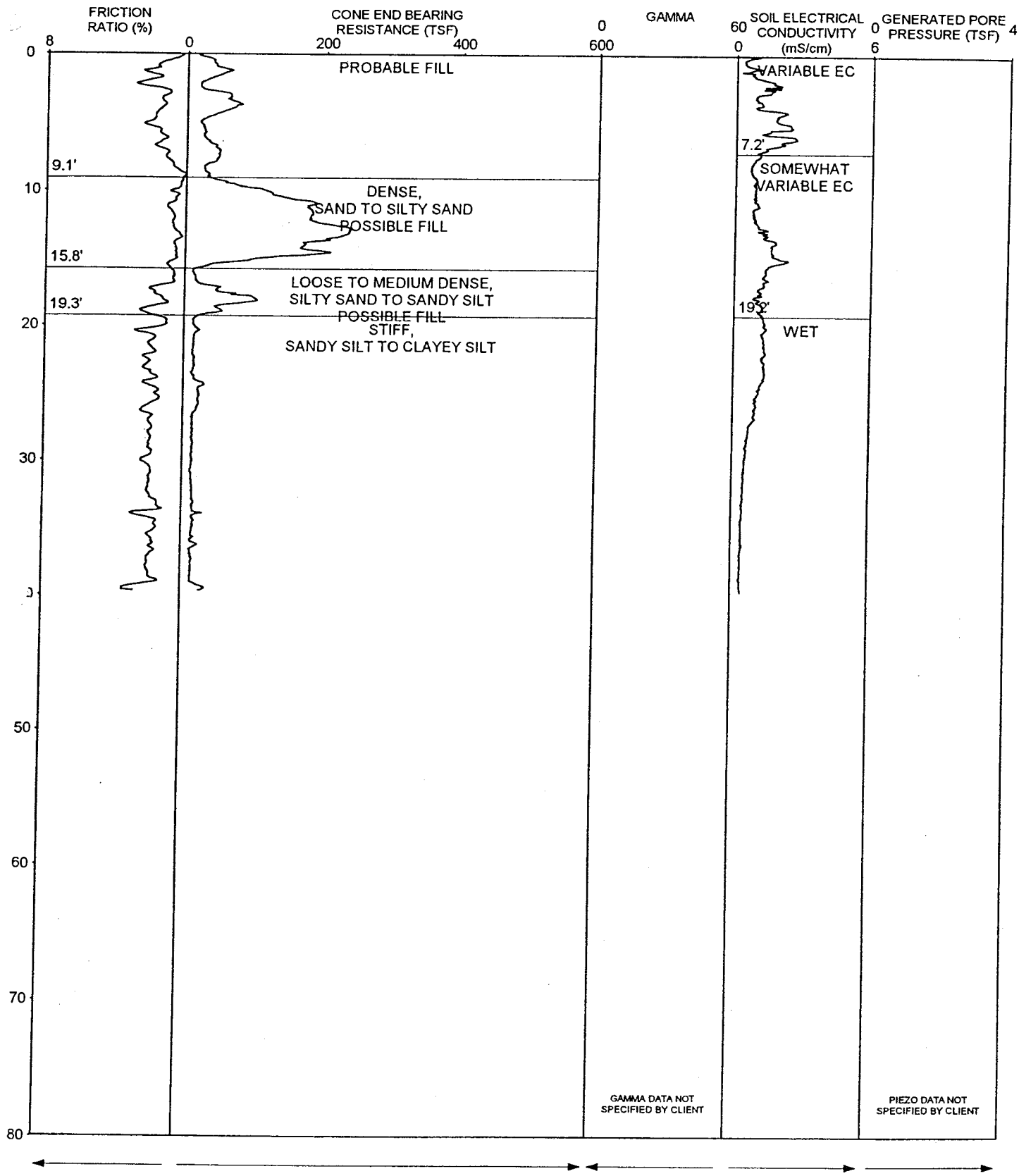
PROJECT NUMBER: 96-110-310

R1 DATE:11-23-1996
SOUNDING NUMBER: CPT-022B

INTERPRETED CPT-EC LOG

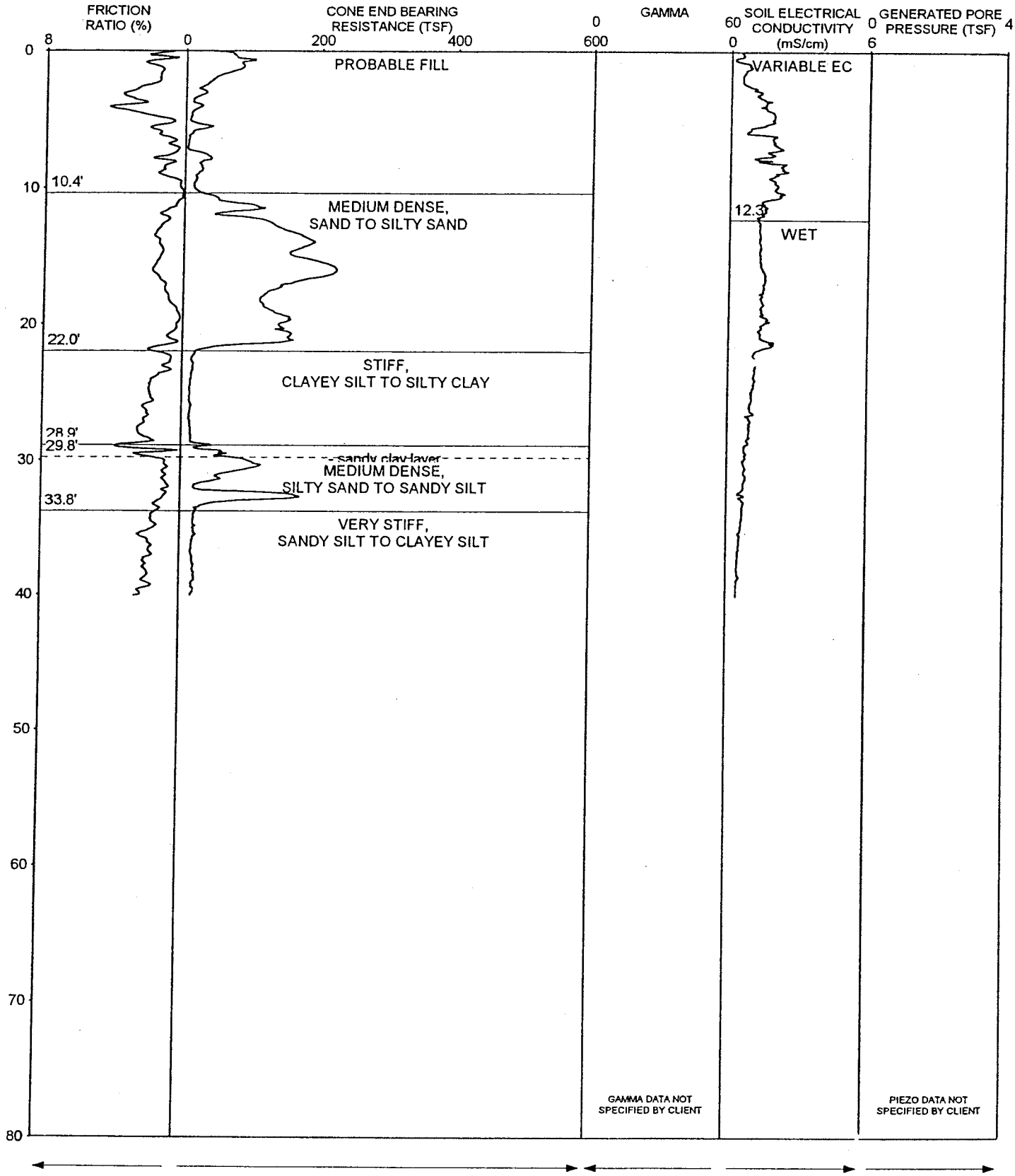


STRATIGRAPHICS

PROJECT NAME: GM Pontiac, Michigan CPT
PROJECT NUMBER: 96-110-310

R1 DATE:11-23-1996
SOUNDING NUMBER: CPT-023

INTERPRETED CPT-EC LOG

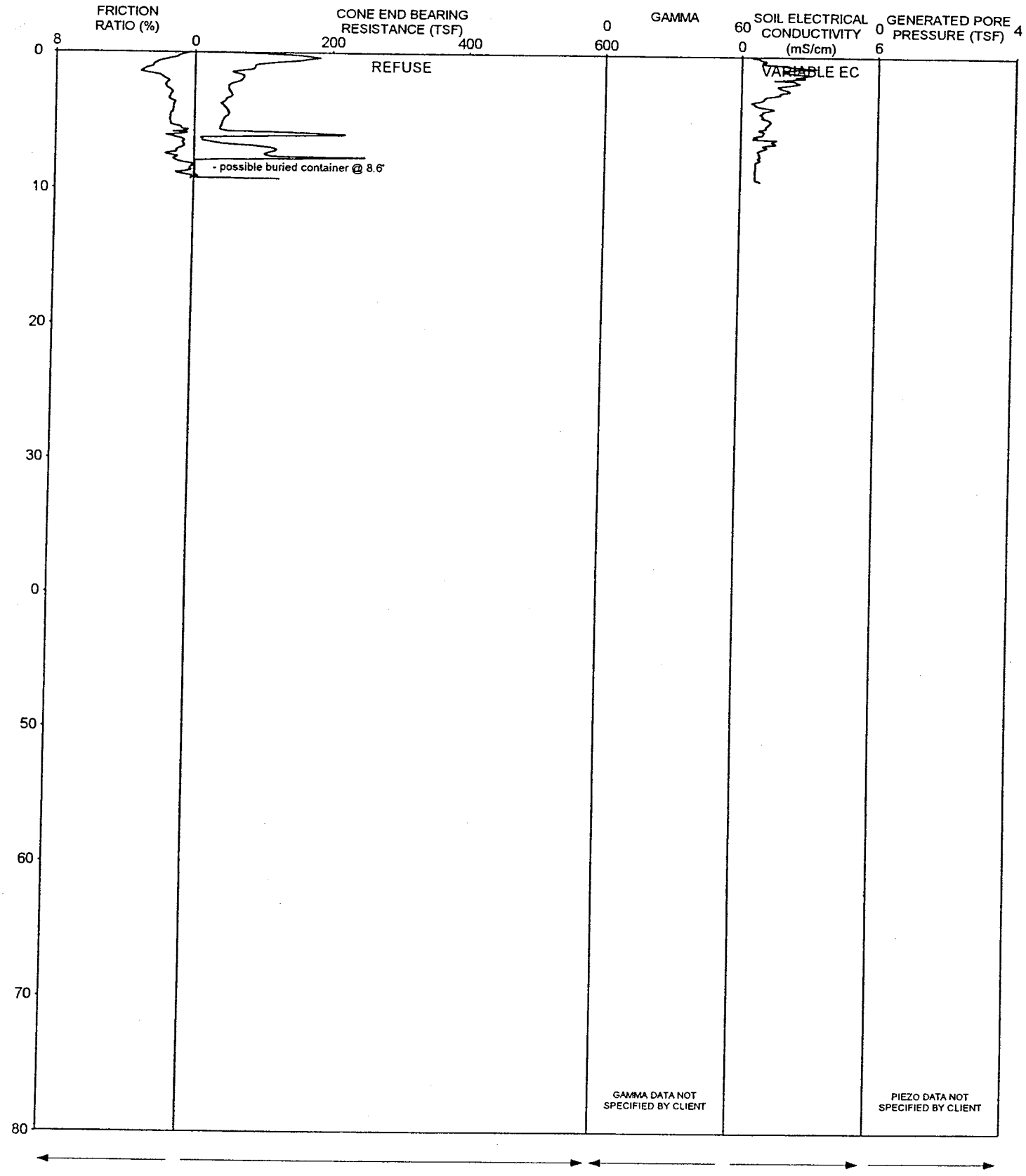


STRATIGRAPHICS

PROJECT NAME: GM Pontiac, Michigan CPT
PROJECT NUMBER: 96-110-310

R1 DATE:11-23-1996
SOUNDING NUMBER: CPT-024

INTERPRETED CPT-EC LOG

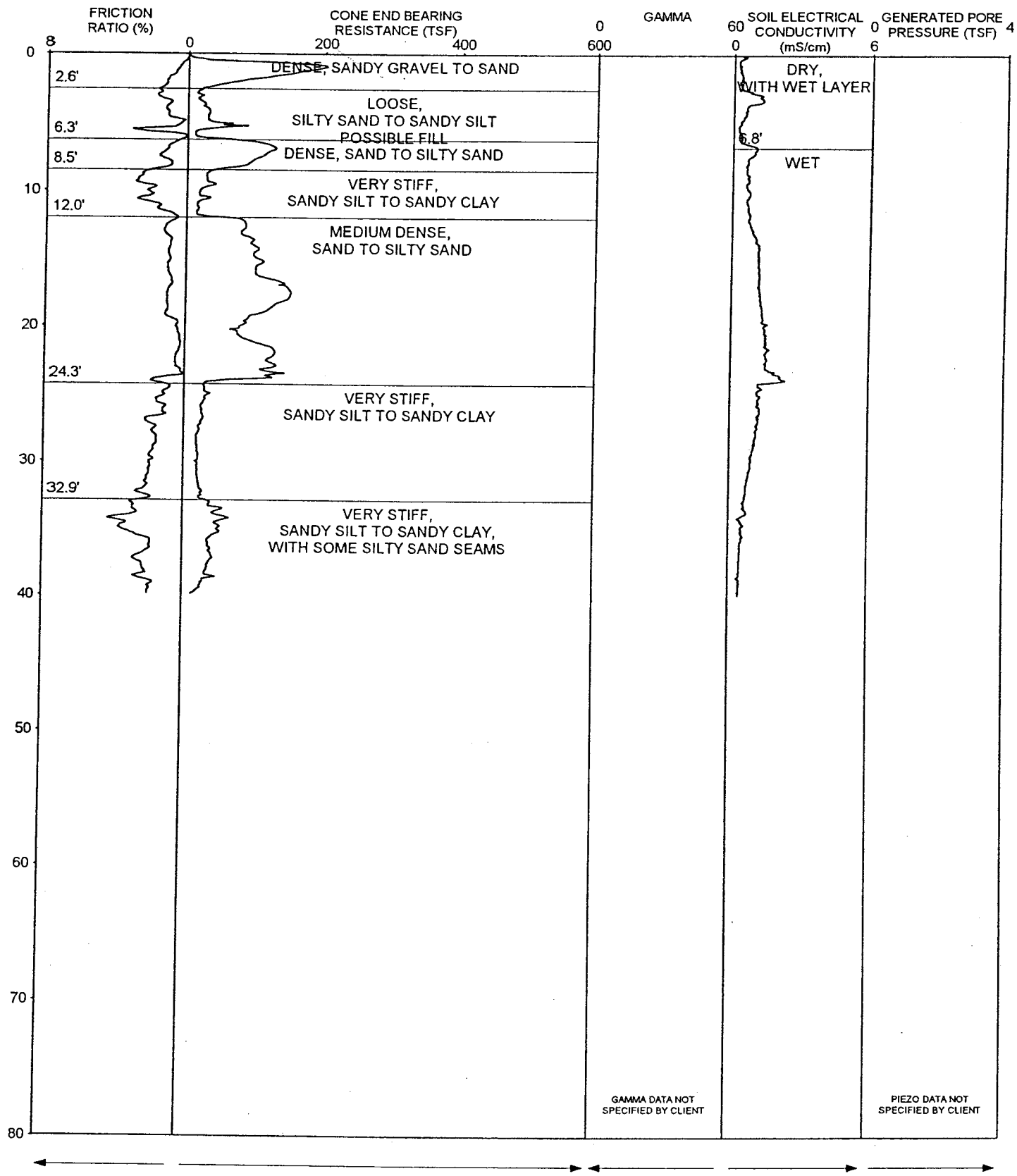


STRATIGRAPHICS

PROJECT NAME: GM Pontiac, Michigan CPT
PROJECT NUMBER: 96-110-310

R1 DATE:11-23-1996
SOUNDING NUMBER: CPT-025B

INTERPRETED CPT-EC LOG

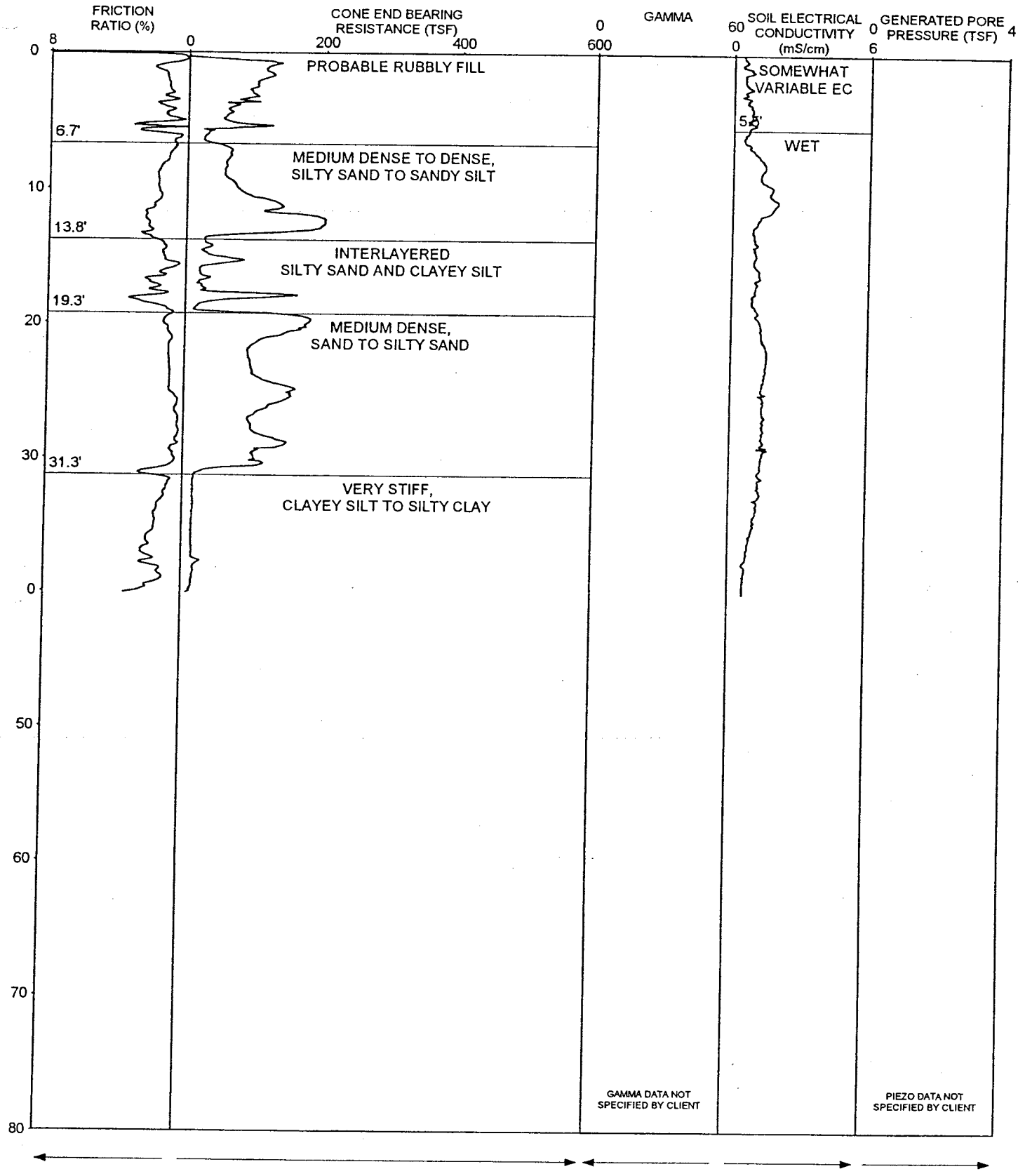


STRATIGRAPHICS

PROJECT NAME: GM Pontiac, Michigan CPT
PROJECT NUMBER: 96-110-310

R1 DATE:11-23-1996
SOUNDING NUMBER: CPT-026A

INTERPRETED CPT-EC LOG



STRATIGRAPHICS

PROJECT NAME: GM Pontiac, Michigan CPT
PROJECT NUMBER: 96-110-310

R1 DATE:11-23-1996
SOUNDING NUMBER: CPT-027A

APPENDIX B

GENERAL MOTORS WEST YARD

PHOTOGRAPHS

PHOTOGRAPHIC LOG

PARSONS ENGINEERING SCIENCE, INC

PROJECT: GM West Yard Site
LOCATION: Pontiac, MI
PROJECT #: 72722209000
CLIENT: General Motors
PHOTO # 1
DESCRIPTION:

Stratigraphics CPT rig at the beginning of LINE 1.

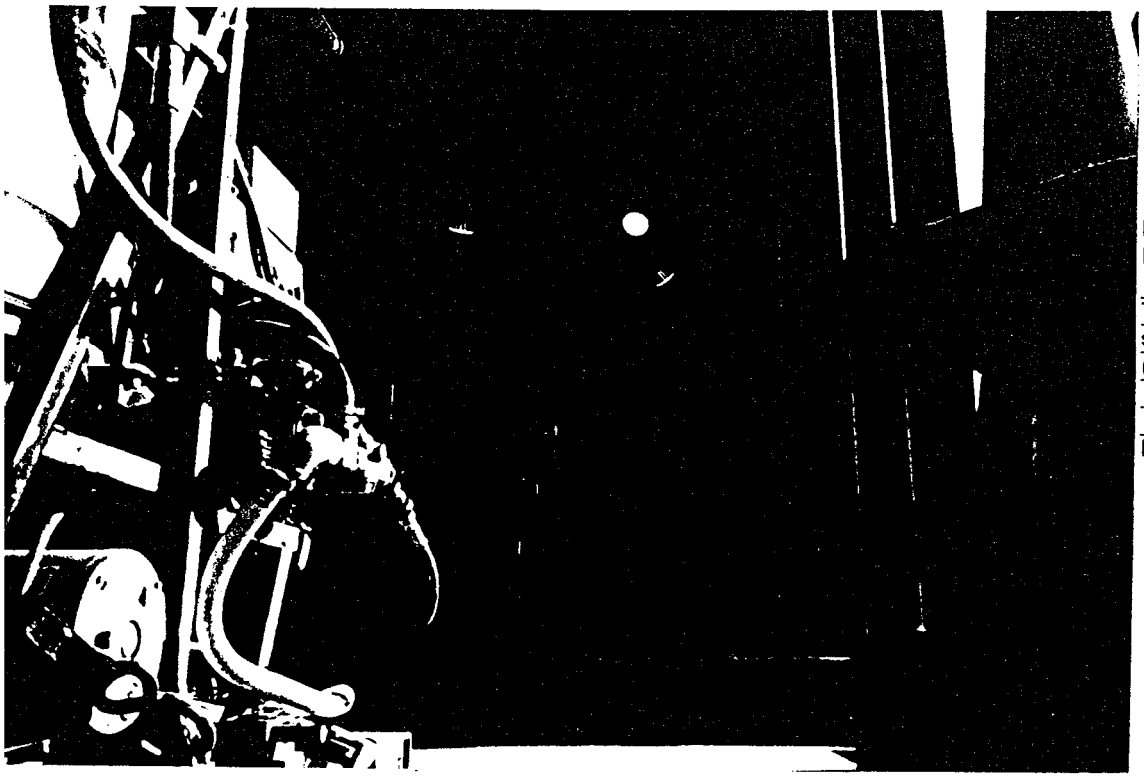


PHOTO # 2
Description:

The interior of the Stratigraphics CPT rig showing the hydraulic drive mechanism (yellow) and the computer.

Photos By: PMH

March 24, 199

PHOTOGRAPHIC LOG

PARSONS ENGINEERING SCIENCE, INC.

PROJECT:	GM West Yard Site
LOCATION:	Pontiac, MI
PROJECT #:	72722209000
CLIENT:	General Motors
PHOTO #	3
DESCRIPTION:	

Location CP-1, facing NW showing north site fence and existing buildings.

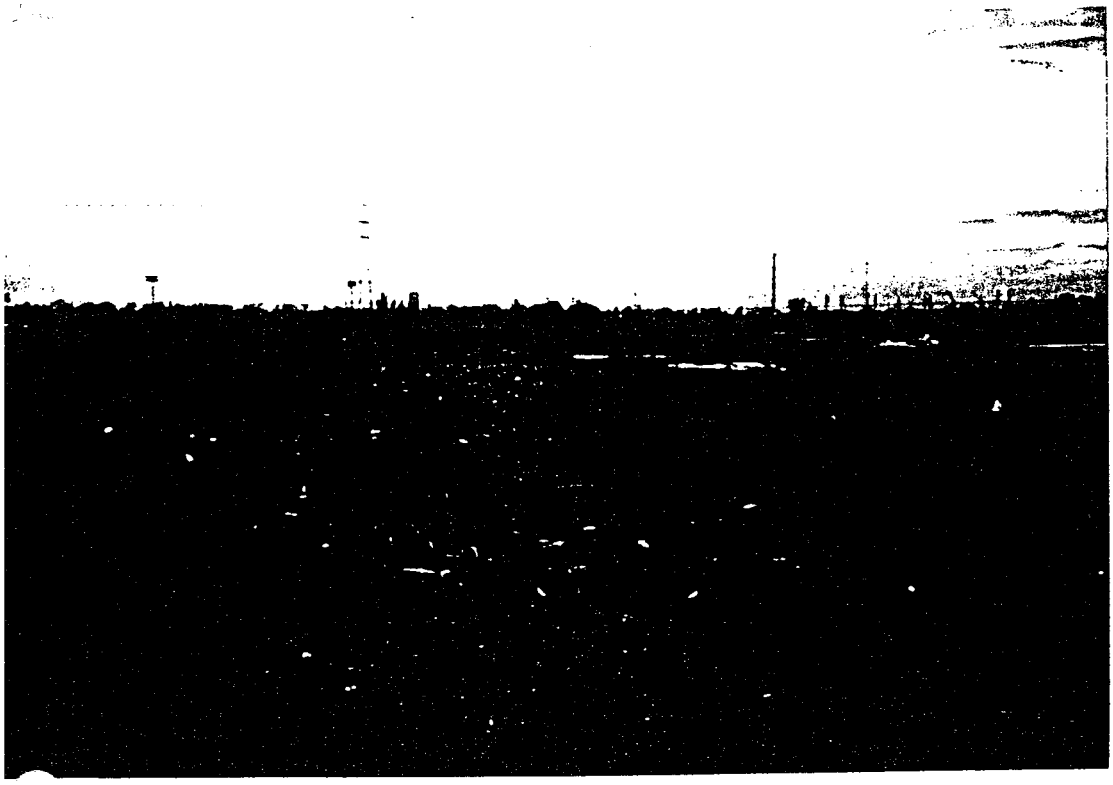


PHOTO #	4
Description:	

Line 1 facing south showing staked locations for CP-1 (closest) and CP-2.

Photos By: PMH

March 24, 1994

PHOTOGRAPHIC LOG

PARSONS ENGINEERING SCIENCE, INC

PROJECT: GM West Yard Site
LOCATION: Pontiac, MI
PROJECT #: 72722209000
CLIENT: General Motors
PHOTO # 5
DESCRIPTION:

Line 1 facing east showing location of CP-4, and MW-22 (background). Note water tower.

PHOTO # 6
Description:

Line 1 facing NNE showing locations of CP-4 (closest) and CPs 3, 2 and 1.

Photos By: PMH

March 24, 199

PHOTOGRAPHIC LOG

PARSONS ENGINEERING SCIENCE, INC.

PROJECT:	GM West Yard Site
LOCATION:	Pontiac, MI
PROJECT #:	72722209000
CLIENT:	General Motors
PHOTO #	7
DESCRIPTION:	

Line 1 facing north from location of CP-7, at railroad tracks.

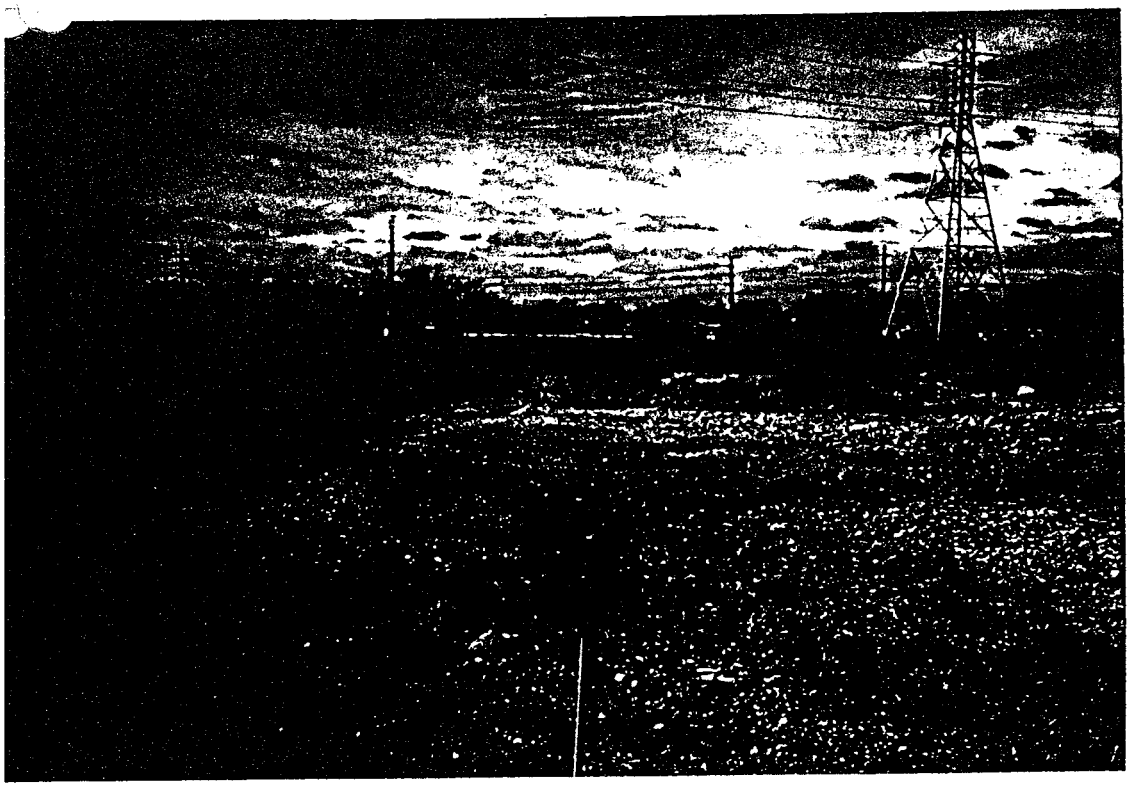


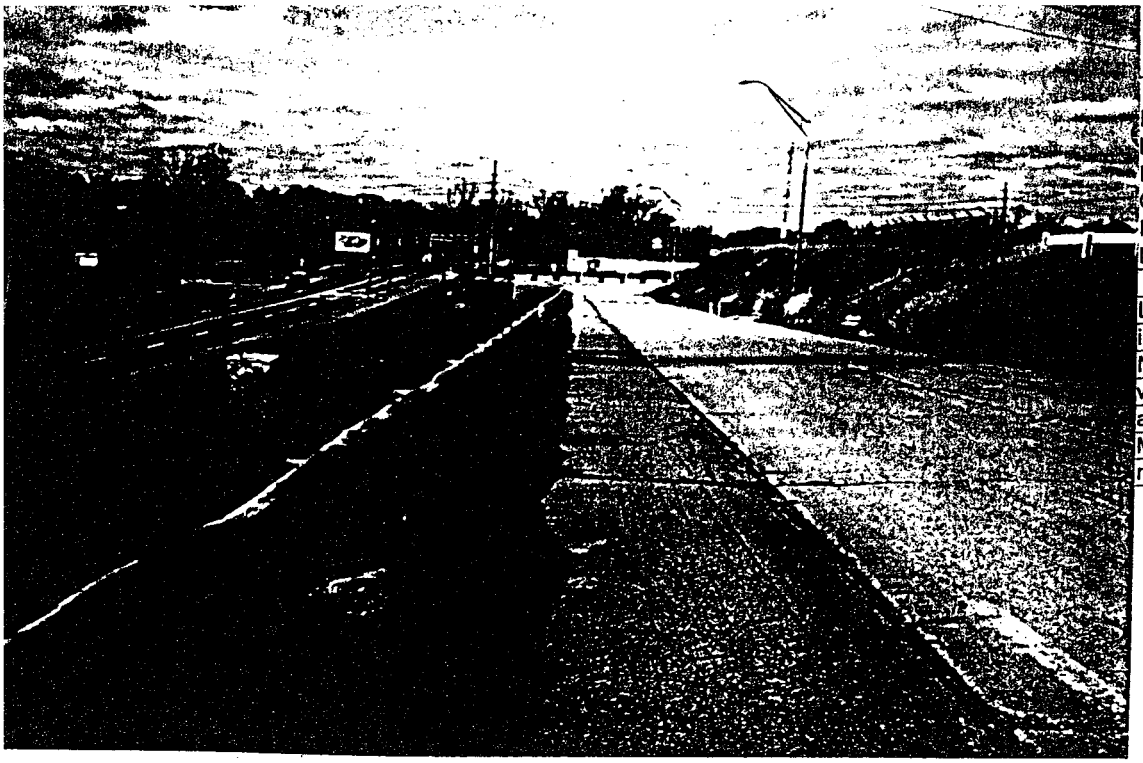
PHOTO # 8

Description:

Line 1 facing west showing location of CP-7. Note railroad tracks and power line tower.

Photos By: PMH

March 24, 1994



PHOTOGRAPHIC LOG

PARSONS ENGINEERING SCIENCE, INC.

PROJECT: GM West Yard Site
LOCATION: Pontiac, MI
PROJECT #: 72722209000
CLIENT: General Motors
PHOTO # 9
DESCRIPTION:

Line 2 facing west. Moncalm Street is to the left. Roadway dips to the west. Note asphalt strip by guardrail where the CPT borings were done and the concrete roadway to the right. Mw-18 is visible by the road near the black barrels.

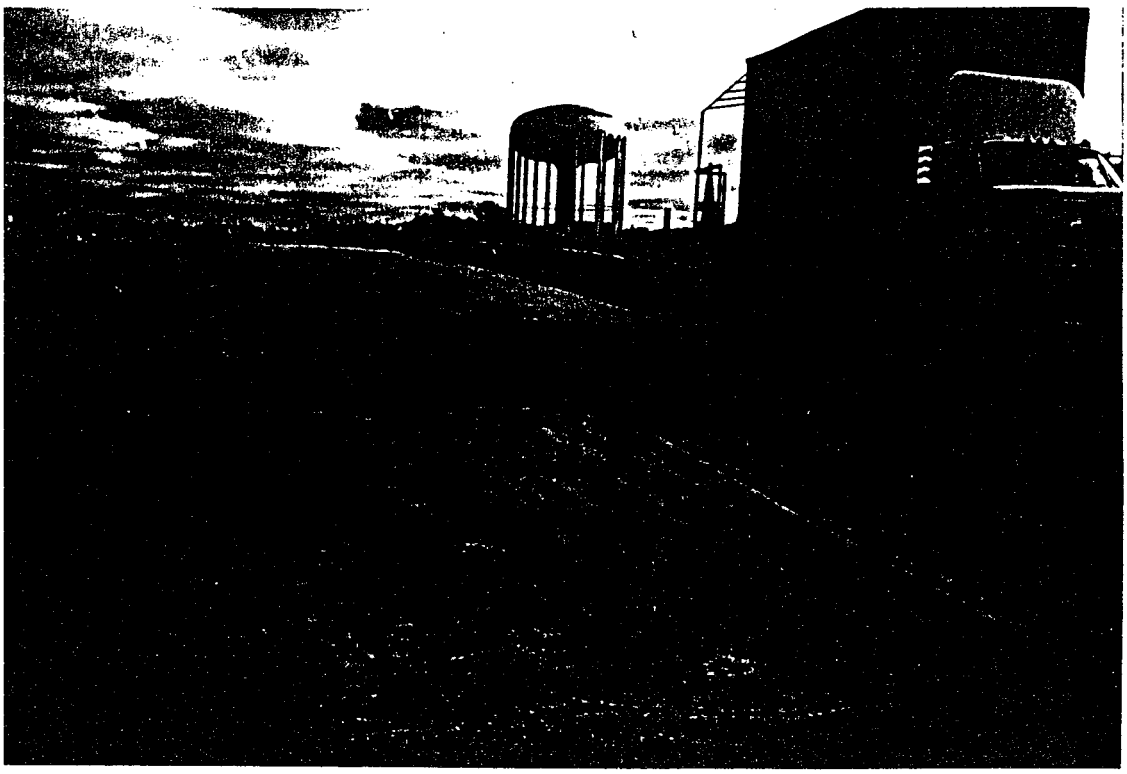


PHOTO # 10
Description:

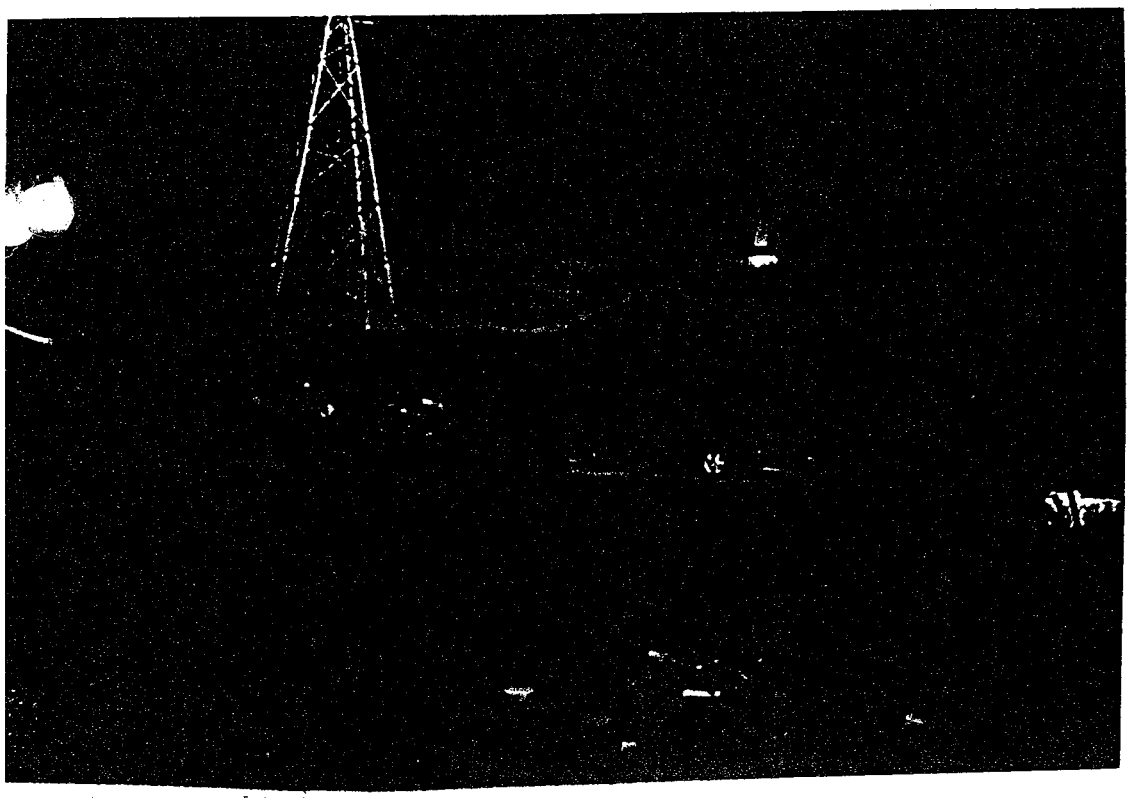
Line 2. The CPT rig is set up on CP-9. Photo is facing east. Note water tower.

Photos By: PMH

March 24, 1994

PHOTOGRAPHIC LOG

PARSONS ENGINEERING SCIENCE, INC.



PROJECT: GM West Yard Site
LOCATION: Pontiac, MI
PROJECT #: 72722209000
CLIENT: General Motors
PHOTO # 11
DESCRIPTION:

East end of Line 2 facing north. MW-17 is visible near the car. The cross-shaped pavement juncture in the foreground is the location of CP-16. CP-17 was drilled near MW-17.

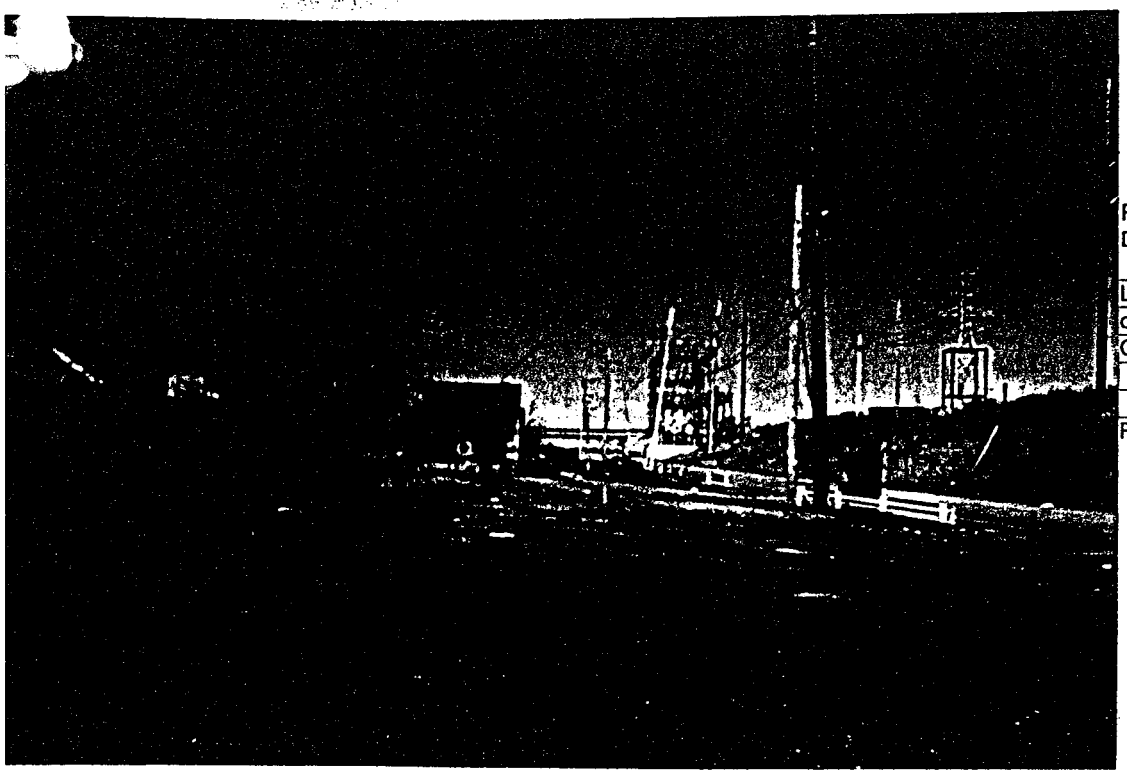
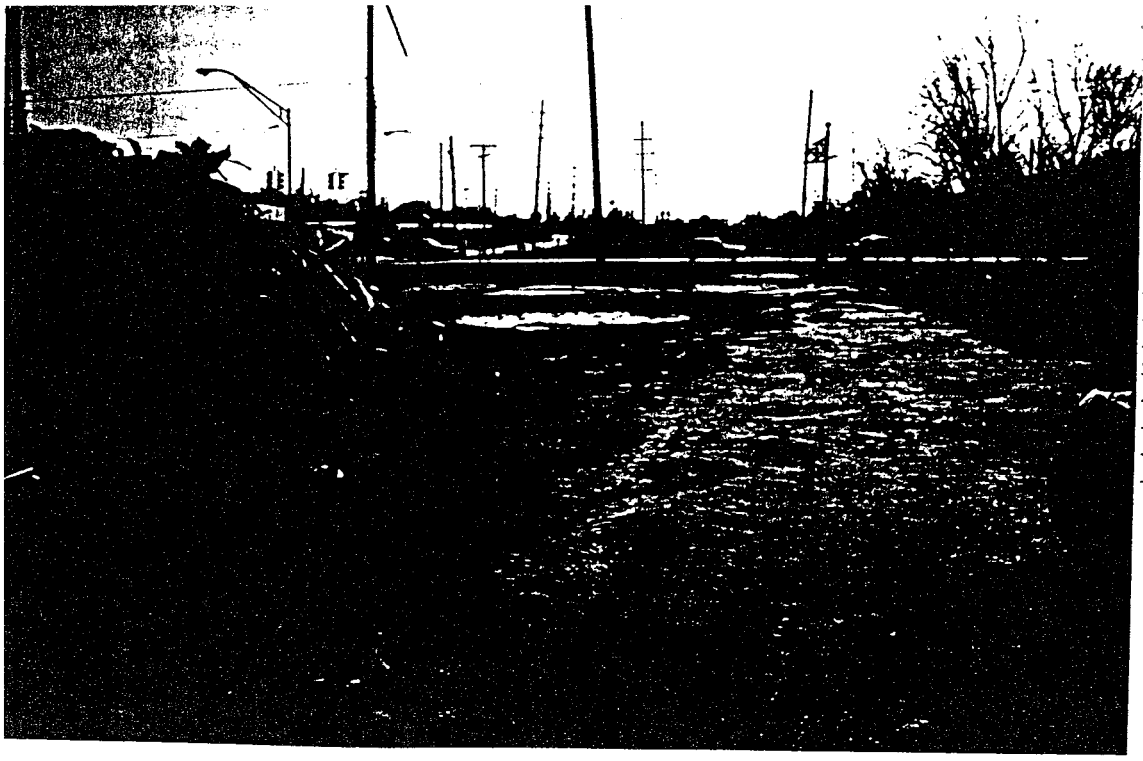


PHOTO # 12
Description:

Line 3 facing north from the old pump house. Staked locations CP-20 and CP-21 are shown.

Photos By: PMH

March 24, 1994



PHOTOGRAPHIC LOG

PARSONS ENGINEERING SCIENCE, INC.

PROJECT: GM West Yard Site
LOCATION: Pontiac, MI
PROJECT #: 72722209000
CLIENT: General Motors
PHOTO # 13
DESCRIPTION:

Line 3, facing south towards Montcalm St. CP-19 (closest) and CP-18 are shown.

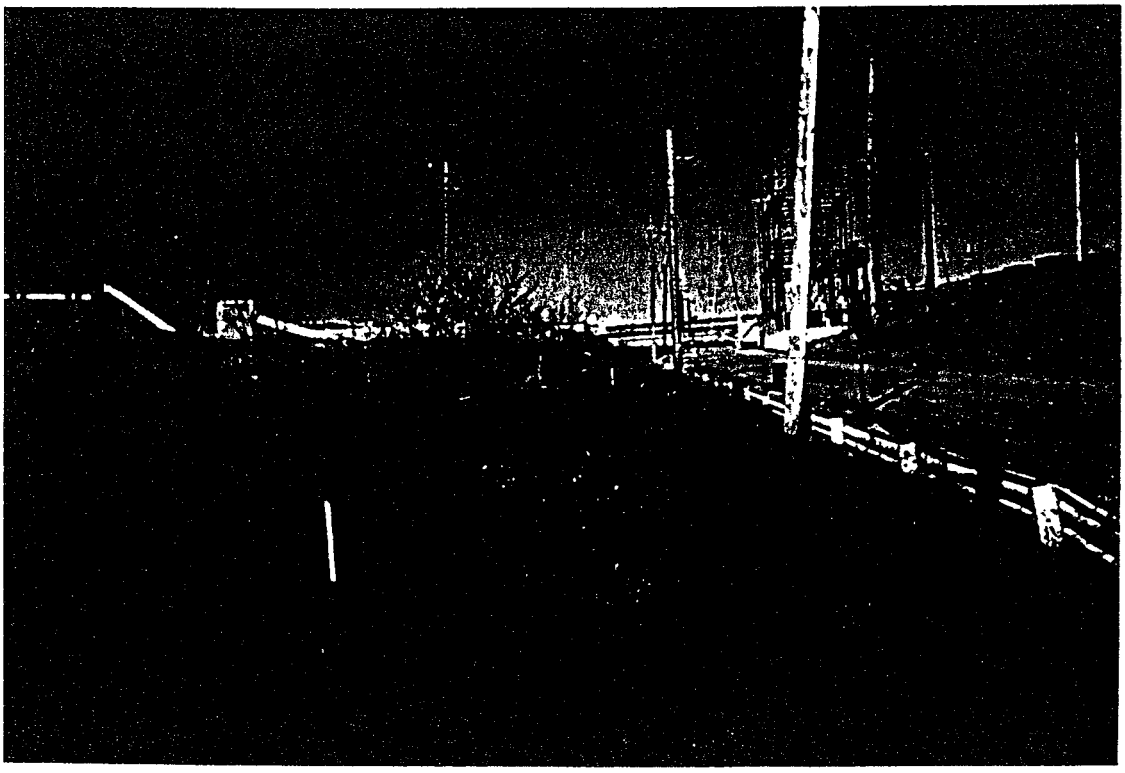
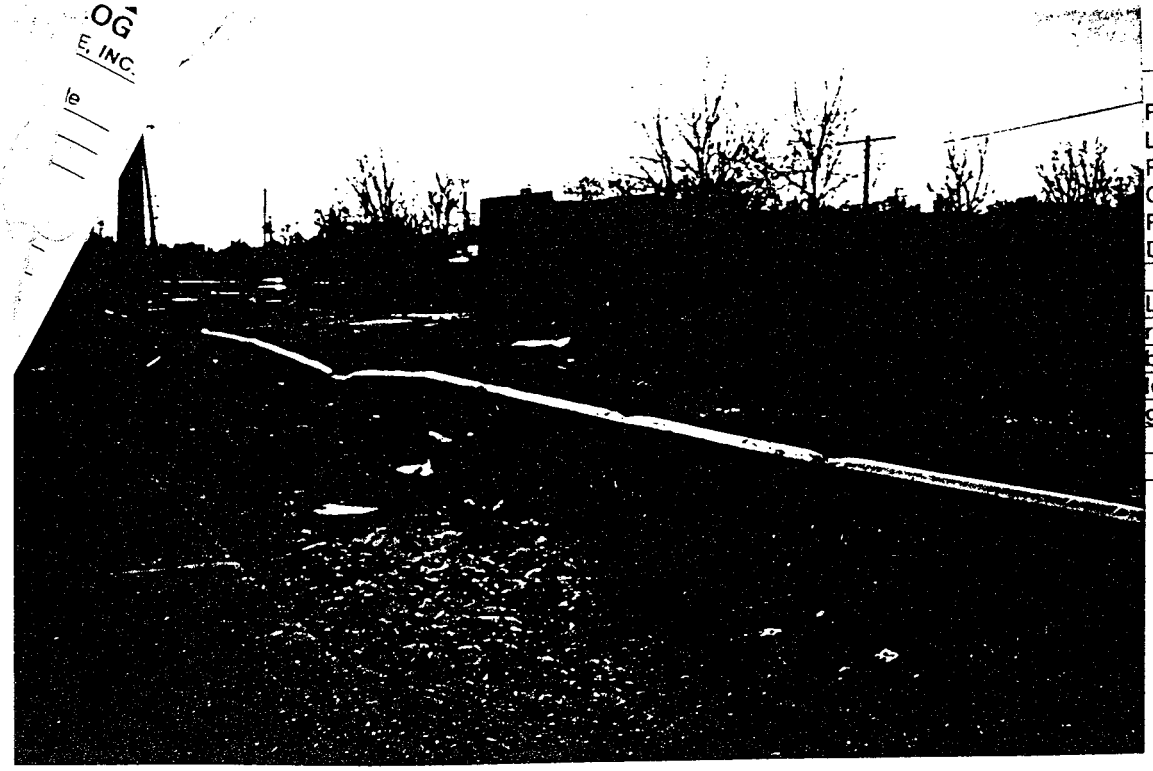


PHOTO # 14
Description:

Line 3 facing north showing staked location of CP-21. The location of CP-22 (background) was moved to the roadway.

Photos By: PMH

March 24, 1994



PHOTOGRAPHIC LOG

PARSONS ENGINEERING SCIENCE, INC.

PROJECT: GM West Yard Site
LOCATION: Pontiac, MI
PROJECT #: 72722209000
CLIENT: General Motors
PHOTO # 15
DESCRIPTION:

Line 3, facing SSW showing roadway, brown pump controller building and the staked location of CP-21 in the grassy area.

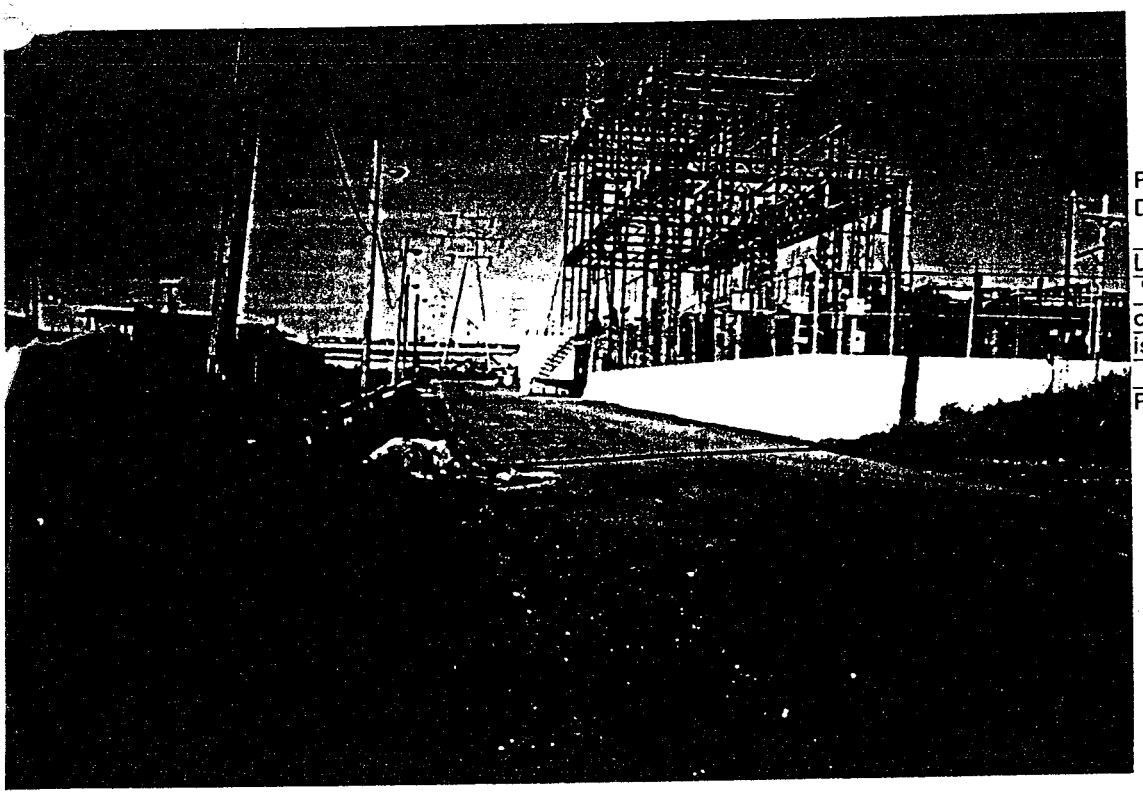
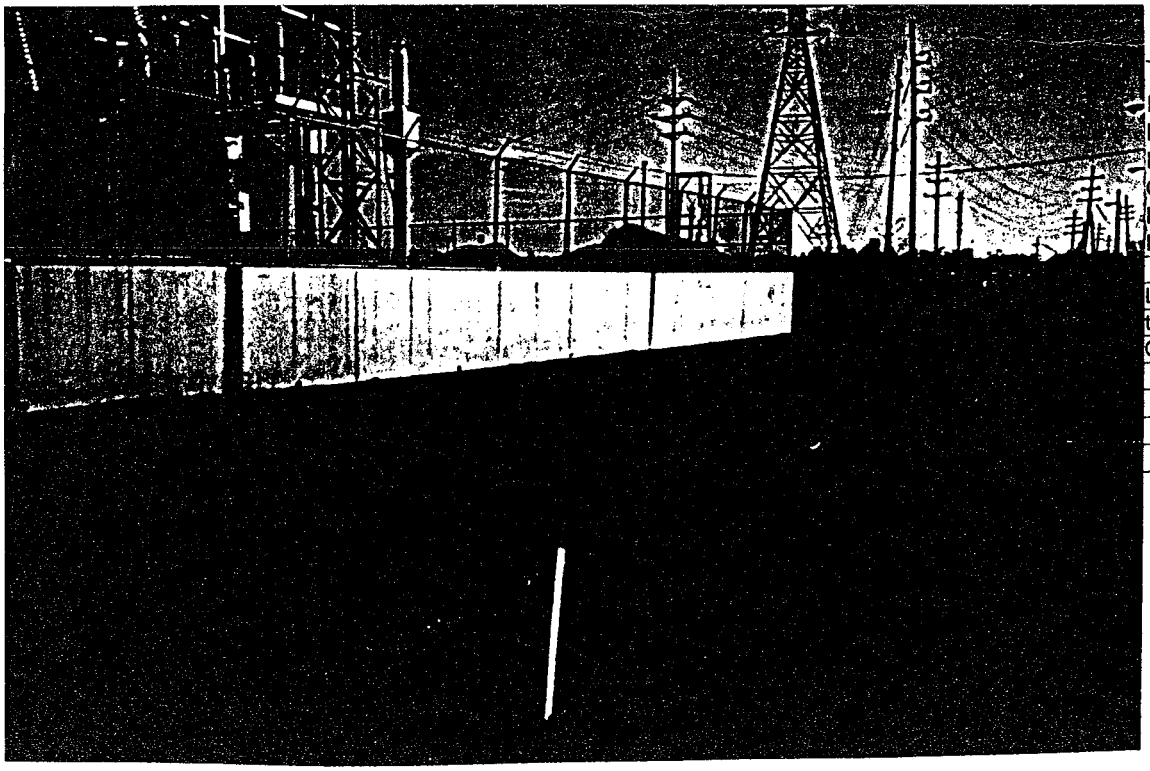


PHOTO # 16
Description:

Line 3 facing north showing location of CP-23 (red mark on pavement). The power substation is shown.

Photos By: PMH

March 24, 1994



PHOTOGRAPHIC LOG

PARSONS ENGINEERING SCIENCE, INC.

PROJECT: GM West Yard Site
LOCATION: Pontiac, MI
PROJECT #: 72722209000
CLIENT: General Motors
PHOTO # 17
DESCRIPTION:

Line 3, facing south showing the staked location of CP-26 and the power substation.

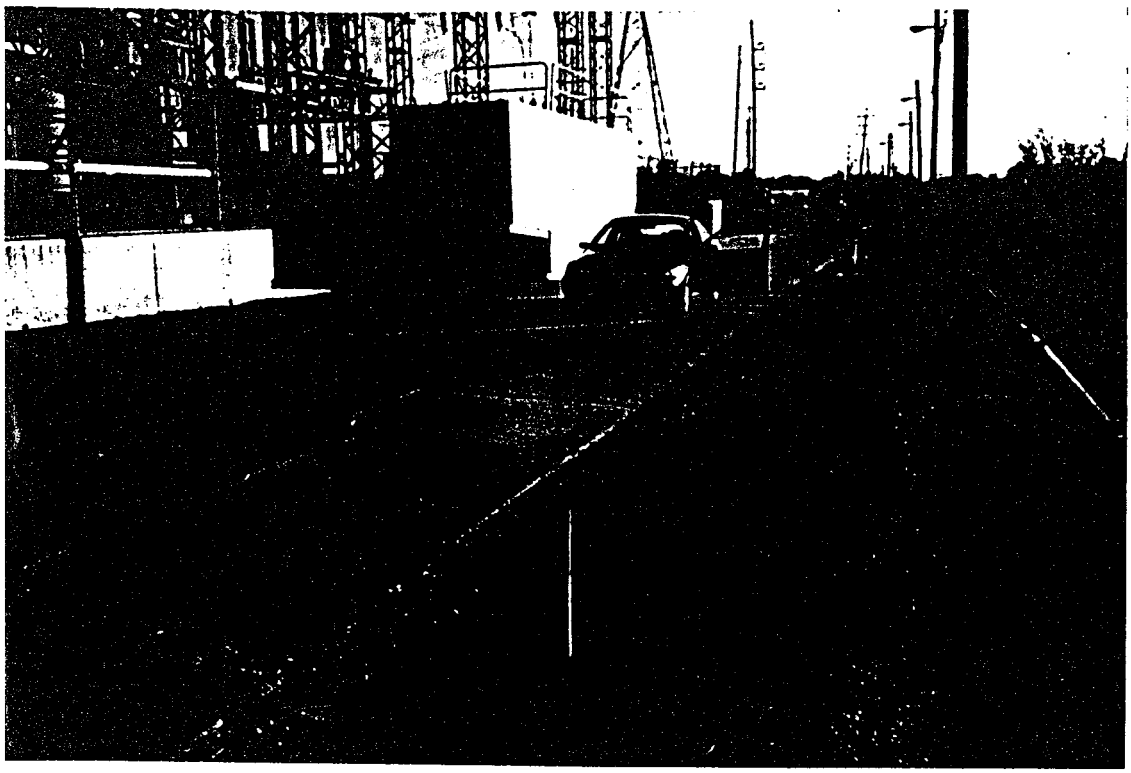


PHOTO # 18
Description:

Line 3 facing south showing CP-27 (closest) and CP-26 farther down the road.

Photos By: PMH

March 24, 199[illegible]

J-3

LNAPL DELINEATION REPORT

DRAFT FOR REVIEW

GENERAL MOTORS CORPORATION
PONTIAC NORTH COMPLEX
WEST YARD SITE
PONTIAC, MICHIGAN

DRAFT

MARCH 2000
REF. NO. 12614 (3)
This report is printed on recycled paper.

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1.0 INTRODUCTION

1.1 PURPOSE

This LNAPL Delineation Report (Report) has been prepared by Conestoga-Rovers & Associates (CRA) on behalf REALM to present the results of a Site investigation conducted at the General Motors (GM) West Yard Site (Site) located at the GM Pontiac North Complex located in Pontiac, Michigan. The Site location is presented on Figure 1.1. A Site plan is presented on Figure 1.2.

The purpose of this Site investigation was to perform an intrusive investigation to further delineate the nature and extent of subsurface light non-aqueous phase liquids (LNAPL) at the Site.

The LNAPL investigation included the installation of soil borings and monitoring wells, LNAPL monitoring, the collection of soil samples, and the collection of LNAPL samples. Select soil and LNAPL samples were analyzed for chemical analysis.

The Site investigation was performed consistent with the LNAPL Delineation Work Plan prepared by Conestoga-Rovers & Associates (CRA), July, 1999.

1.2 BACKGROUND AND HISTORY

The Site is located within the southern portion of the GM Pontiac North Complex (formerly the Chevrolet-Pontiac-Canada (CPC) Division and Central Foundry Division Pontiac Complex) in Pontiac, Michigan. This Site is approximately 50 acres and is bounded to the south by Montcalm Street, to the west by the Grand Trunk Western Railroad line, to the east by Glenwood Avenue and to the north by the former Plants 8 and 9. A Salvage Building, Compressor Building, and regulated hazardous waste storage pad formerly occupied the western portion of the Site. The West Yard property is operated by two GM Divisions and is covered by different U.S. EPA and MDEQ ID numbers. The western portion of the property is controlled by the automotive

manufacturing and support operations. This portion includes the hazardous waste storage pad. The eastern and central portions are controlled by the former foundry operations (Central Foundry Division).

From the 1940s until the mid-1960s, the West Yard was used for material management activities. These activities included on-Site placement of foundry sand in the West Yard. Soil borings indicate that the foundry sand extends from the surface to approximately 18 feet below grade across the Site except for the area west and south of the two access roads that parallel Montcalm Street and the railroad tracks. On-Site placement of foundry sand ceased in the mid-1960s at which time foundry sand was stored and staged in the West Yard prior to off-Site disposal. The foundry operations ceased in 1987.

In addition to foundry sand, the West Yard was also used to dispose of refuse from the Pontiac Complex operations. During the 1940s, a Salvage Building was constructed to separate reusable/salvageable materials from unusable wastes. The separable materials included wood, cardboard, metal, glass, and other wastes. Salvaged materials were loaded onto railroad cars or into trucks for off-Site transport. Materials with no salvage value such as combustible materials, wood, and cardboard, were incinerated at the Salvage Building. Other waste, including wood and cardboard ash resulting from incineration, was disposed of on-Site in the West Yard.

In 1975, an aboveground, bermed settling basin with a plastic liner was constructed immediately west of the former Compressor Building. Water from the foundry processes was stored to settle the solids prior to discharge into the public sewer system. The basin was filled with sand following closure in 1986 or 1987.

In 1982, a hazardous waste storage pad was constructed south of the Former Salvage Building to store RCRA hazardous waste for periods greater than 90 days. Prior to construction of the concrete pad, drums of unknown material were stored on-Site. Activities occurring at the storage pad included waste storage, drum washing, and empty drum storage. Chemicals stored on the pad included paint, paint thinner,

gasoline, chlorinated solvents, machining wastes, lead chips, and spent halogenated solvents used in degreasing. The closure activities for the pad began in July 1988 however, closure of the pad did not meet the "clean closure" criteria. The inability to meet the criteria was attributed to the residual from historical waste management practices at the complex.

1.3 SUMMARY OF PREVIOUS INVESTIGATION

In 1997, Parsons Engineering Science, Inc. (Parsons) produced an investigation report for the West Yard on behalf of GM. This report summarized all historical Site investigations and reported results from more recent investigations completed by Parsons. Investigations conducted by Parsons included an LNAPL investigation. Results of the LNAPL investigation identified oil staining/sheening in various boreholes primarily in the vicinity of the Former Salvage Building, Hazardous Waste Storage Pad, and Railroad Marshalling Area. The sampling and analysis of a limited number of wells identified what appeared to be the presence of two possible types of LNAPL on Site. The first contained chlorinated VOCs and low-level PCBs and appeared to consist of motor oil mixed with a small amount of diesel fuel. The second did not contain VOCs and the PCBs were of a different Aroclor than the first type and at much higher levels. This LNAPL appeared to consist of gasoline and fuel oil components.

Geoprobe sampling was also completed at the Site and results from this investigation further confirmed the presence of LNAPL in the vicinity of the Hazardous Waste Storage Pad, Railroad Marshalling Area, and former waste disposal areas.

The presence of LNAPL was also identified in a limited area in the eastern portion of the Site near MW-22. The presence of LNAPL in this area is not consistent with a single source location towards the western portion of the Site. Areas of historical LNAPL observation are presented on Figure 1.3.

A sample of LNAPL was collected from a former production well (Montcalm well) in the southern area of the West Yard. The oil observed in the Montcalm well appeared to

be characteristically different than the two other LNAPLs observed on Site. Analytical results indicate that the oil contained low level VOCs and no PCBs. The oil also had an apparent lower viscosity than that observed elsewhere on Site. Further evaluation of the Montcalm well was performed as part of the investigation to assess potential sources of LNAPL in the well.

In March 1998, CRA submitted a project update regarding a preliminary LNAPL recovery evaluation and interim remedial measures. This project update provided results of bail down tests, sample collection, and LNAPL removal activities. Results indicate that the kinematics viscosity of the LNAPL may be too great for product recovery using conventional pumping techniques. A Bi-Monthly LNAPL Recovery Program has been performed as an Interim Remedial Measure (IRM) from January of 1998 to August 1999 by CRA personnel. The LNAPL Recovery Program is now performed monthly. This program consists of measuring selected monitoring wells for LNAPL and removing and containerizing the LNAPL in drums. A summary of the LNAPL IRM program data is provided in Appendix A.

1.4 REPORT ORGANIZATION

The remainder of this report presents the results of the LNAPL Delineation. This report has been organized as follows:

Section 2.0 Environmental Setting
Section 3.0 Field Investigation
Section 4.0 Results
Section 5.0 Conclusions and Recommendations
Section 6.0 References

2.0 ENVIRONMENTAL SETTING

2.1 REGIONAL GEOLOGY AND HYDROLGEOLOGY

Regionally, the Site geology is characterized by glaciofluvial deposits that are common to Oakland County. Based on O'Brien and Gere (Remedial Action Plan for Part 201 Generic Industrial/TSCA Restricted Access Closure - Track 31), these glacial sediments were deposited during the Pleistocene Epoch. The regional overburden material consists of glacial till composed mostly of clay and some sands. Overburden material is regionally underlain by shales, lime stones and sand stones of Middle to Upper Devonian age.

Regionally, the hydrogeology may consist of groundwater present as perched water with elevations considerably above those in nearby sand or bedrock aquifers. Regional groundwater flow in both bedrock and/glacial overburden appears to be predominantly to the east and south. Groundwater flow in glacial deposits in the Pontiac area is generally eastward towards local stream valleys, primarily the Clinton River.

2.2 SITE GEOLOGY HYDROLOGY AND HYDROGEOLOGY

The Parsons' report indicated that the overburden at the Site consists of foundry sand (fill) of variable thickness, followed by sand with lenses of silt and organic-rich peat and marl. The sand unit is highly variable in thickness. The thickness of the fill ranges from over 30 feet in the southeast corner to less than 8 feet along the western edge of the West Yard. Low permeability layers, consisting of clay and silt with lenses of sand or sand and gravel, underline the sand or peat/marl unit to depths of approximately 100 feet. The geologic information generated during the current Site investigation confirmed the geologic interpretation from the Parsons report. Figure 2.1 shows the location of two geological cross sections, AA' and BB'. Figures 2.2 and 2.3 present the cross sections for AA' and BB', respectively. The borehole stratigraphic logs are presented in Appendix B.

Groundwater flows to the west and to the south along a groundwater divide that corresponds to a ridge in the low permeability zone. Figure 2.4 presents the February

1996 water level contours for the Site based on information contained in the Parsons' report.

3.0 FIELD INVESTIGATION

The purpose of this section is to provide a summary of the field investigation activities which were completed at the Site in August and September 1999.

3.1 SCOPE OF WORK

The Scope of Work (SOW) for the LNAPL Site investigation involved the delineation of LNAPL primarily in the vicinity of the Hazardous Waste Storage Pad, Railroad Marshalling Area and Former Salvage Building. Further delineation was conducted to supplement previous investigations which indicated that LNAPL may have migrated to other areas of the Site and that other sources of LNAPL may be present at the Site based on LNAPL observations at locations upgradient or side-gradient to the Hazardous Waste Storage Pad or Railroad Marshalling Area (i.e. MW-22).

The SOW for the Site investigation included the excavation of two test pits along sanitary and storm sewer lines located east of the storage pad, and the installation of twenty-three soil borings/monitoring wells between August 30, 1999 and September 16, 1999. Five of these borings, three shallow and two deep, were completed in the vicinity of the Montcalm well to investigate the subsurface fill material, the groundwater table and potential sources of LNAPL observed in the well. The work completed also included the collection of soil samples during the borehole drilling and the collection of LNAPL samples from select monitoring wells for chemical analysis.

All investigative activities were conducted in accordance with the LNAPL Delineation Work Plan (Work Plan).

3.2 BOREHOLE AND TEMPORARY MONITORING WELL INSTALLATIONS

During the investigation a total of twenty-one shallow wells and two deep wells were installed by Carlo Environmental Technologies, Inc. between August 31 and September 16, 1999. This included two additional monitoring wells (MW43-99 and MW44-99) from

the original SOW were added to evaluate whether LNAPL in the vicinity of MW-22 originated from north of the West Yard. All the soil borings were completed as temporary-monitoring wells, at the locations presented on Figure 3.1.

Boreholes were advanced from ground surface using 4 ¼ -inch ID hollow-stem augers with split spoon soil samples collected continuously at 2-foot intervals in advance of the augers. The soil samples were examined by CRA field personnel and described in accordance with the Unified Soil Classification System (USCS). As each split-spoon was opened, the soil was screened with a photoionization detector (PID) for the presence of volatile organics and observed for any signs of product or sheen. Based on visual or olfactory observations, and PID readings, select soil samples from the split-spoon samples were collected for chemical analysis. A sample key is provided in Table 3.1. Soil samples were submitted to Columbia Analytical Services (CAS), Inc. for chemical analysis. Samples were analyzed for Target Compound List (TCL) Volatile Organic Compounds (VOCs), and TCL PCBs. VOC sampling was completed using an EnCore Sampler™ and methanol preservation methods in accordance with the Work Plan. All sampling was completed in accordance with the Quality Assurance Project Plan (QAPP) identified in the Work Plan (i.e. RCRA Facility Investigation for the GM Truck Group). The handling of soil cuttings from the borehole investigation is discussed in Section 3.7.

Upon completion of the soil borings, monitoring wells were installed in the borings. The monitoring wells consisted of a two-inch diameter polyvinyl chloride (PVC) riser with either a five or ten-foot PVC machine slotted well screen. The well screens were situated to straddle the water table for LNAPL identification. An inert silica sand pack was placed around the screen to two feet above the top of the screen as the augers were withdrawn from the borehole. If bridging of the silica sand occurred, the bridged material was mechanically broken prior to the addition of additional silica sand.

A two-foot bentonite pellet seal was placed above the silica sand. The remaining annulus was backfilled to two-feet below ground surface with bentonite grout using a flush-threaded 1-inch diameter tremie pipe. The grout was then allowed 24 hours to set. The remainder of the annulus was then filled with concrete and a protective

aboveground casing. The protective casing was centered over the riser extending 1-foot into the concrete collar.

For the deep wells, a 10-inch diameter steel surface casing was installed and keyed into the confining unit to ensure no downward migration of any contaminants. The casing was cemented in place and allowed to set for a minimum of 48 hours prior to further advancement of the deep boring. The well installation was constructed in the same manner as the shallow well installation.

After completion and prior to sampling, monitoring wells were developed to a silt-free condition consistent with the work plan. The handling of development liquids is discussed in Section 3.7. Well development forms are provided in Appendix C.

3.3 TEST PIT INVESTIGATION

Two test pits were excavated on September 15, 1999 to investigate the possibility that LNAPL could be migrating or accumulating within the bedding of existing on-Site sewers. Test pits, TP1-99 and TP2-99 intersect storm and sanitary sewers located east of the Former Salvage Building as identified in Figure 3.2. The storm and sanitary sewers were encountered at depths of 8 feet and 7 feet below grade, respectively. The test pits and excavated fill was visually inspected for any evidence of oil staining or sheen.

The fill material around both sewers consisted of black foundry. No evidence of oil staining, sheen or free products was noted. The test pits were backfilled with the excavated soils upon completion. The test pit logs are provided in Appendix D.

3.4 SLUG TESTS

On September 29, 1999 prior to LNAPL monitoring; slug tests were performed on existing wells that did not previously contain LNAPL. The tests were performed to assess their integrity for detecting LNAPL in lieu of redeveloping the wells.

Redevelopment of the wells was not performed to avoid generating high volumes of liquids that may require disposal.

A 60 second falling-head slug test was conducted on existing monitoring wells MW-2, MW-10, MW-12, MW-17, MW-18 and MW-19. Prior to conducting the tests, water level measurements were obtained from each well. A slug was introduced into the well to raise the water level. The rate of water level decline was then recorded at 5 second increments for 60 seconds.

A commercially available computer program (AQTESOLV) was used to analyze the slug test data using the Bouwer and Rice method. Five of the six wells were analyzed as unconfined aquifers. MW-2 was analyzed as a confined aquifer because of the clay layer present above the screen interval.

From the tests, the average hydraulic conductivity for the monitoring wells was calculated to be 3.67ft/day (1.294×10^{-3} cm/s). The hydraulic conductivity ranged from 0.83ft/day (2.932×10^{-4}cm/s) to 7.73ft/day (2.726×10^{-3}cm/s). The hydraulic conductivity values obtained are consistent with published data (Fetter, 1994) for silt and fine sand units.

All monitoring wells showed good recovery during the 60 second tests indicating that the wells had good integrity. Data plots and response test data for each well is included in Appendix E.

3.5 LNAPL MONITORING/SAMPLING

The monitoring of LNAPL was completed two weeks following installation and development of the newly installed temporary monitoring wells to provide time for LNAPL to migrate and accumulate in the monitoring wells. On September 29, 1999 new and select existing monitoring wells were measured for the presence of LNAPL using a submersible interface probe. Field recorded measurements and observations are presented in Table 3.2.

During the initial monitoring, LNAPL was only detected in two of the newly installed monitoring wells, MW25-99 and MW36-99. LNAPL samples were collected from both monitoring wells for chemical analysis. LNAPL samples were also collected and analyzed from MW-22 and MW-6 as being representative of the two LNAPL previously encountered at the site.

All LNAPL sampling was conducted using clear disposable bottom-filling bailers. The LNAPL samples were collected in unpreserved 4-oz glass jars, packed in ice, and transported under chain-of-custody protocol to CAS in Kelso, Washington. Samples were analyzed for TCL VOCs, PCBs, API density and viscosity. A sample key is presented in Table 3.3.

Further monitoring conducted on January 3, 2000 indicates the presence of LNAPL in MW24-99 in addition to the monitoring wells.

3.6 DECONTAMINATION PROCEDURES

Upon mobilization to the Site and prior to commencing work, the drill rig and all associated equipment was thoroughly cleaned by a high-pressure steam-cleaner to remove oil, grease, mud and other foreign matter. The drill rig was inspected by the CRA field personnel to ensure that all seals and gaskets were intact, and that no fluids were leaking. Before initiating drilling at each location, the augers, drill rods and associated equipment were decontaminated to prevent cross-contamination.

The drill rig and associated equipment was thoroughly cleaned by a high-pressure steam-cleaner to remove soils and other foreign matter prior to demobilization.

All sampling equipment was decontaminated prior to each use in accordance with the Work Plan. The handling of decontamination liquids is discussed in Section 3.7.

3.7 MANAGEMENT OF INVESTIGATION DERIVED WASTE

Non-impacted soil cuttings generated during drilling operations were scattered on the ground in the immediate vicinity surrounding each borehole. Any soil cuttings that were visually impacted, contained odors, or contained free products were placed in 55-gallon DOT approved drums, sealed and labeled for future disposal in accordance with Site remedial activities.

Liquids generated from the activities conducted on Site included decontamination water and development water. This water was collected and containerized separately in accordance with the Work Plan for future disposal. An inventory of the drums generated is presented in Table 4.3. The drums are currently stored north of the Former Salvage Building.

4.0 RESULTS

This section presents a summary and evaluation of the results of the Site investigation.

4.1 SOIL INVESTIGATION RESULTS

A total of 7 soil samples were collected and analyzed for TCL VOCs and PCBs. Figure 3.1 presents the soil boring locations.

Table 4.1 presents a summary of observations and maximum PID readings for each soil boring. Table 4.2 presents a summary of the analytical results for the soil samples. A sample key was previously presented in Table 3.3.

VOCs were detected in three of the soil samples from MW34-99, MW36-99 and MW40-99 including benzene, toluene, ethylbenzene and xylene (BTEX). Tetrachloroethene was also found only in MW36-99.

Given the history, nature, and the anticipated future use of the Site, analytical results of soil samples were evaluated against the Michigan Part 201 - Soil Cleanup Criteria: Industrial and Commercial II, Soil Volatilization to Indoor Air and Direct Contact Criteria. VOCs were not detected in any of the soil samples collected at concentrations above applicable Criteria.

PCBs (Aroclors 1248, 1254, or 1260) were detected in four soil borings (MW26-99, MW34-99, MW36-99 and 39-99). The maximum PCB concentration was 4 ppm at MW39-99 and MW36-99. Based on the low levels of PCBs in the soil and based on historical operations at the Site, it can be assumed that the PCBs originate from a source containing less than 50 ppm PCBs. As a result, the detected PCBs are assumed not to be TSCA regulated. This designation has been previously applied and has been confirmed with U.S.EPA (Jean Greensley, U.S.EPA Region 5). The results are below the Michigan Part 201 Generic Industrial/Commercial Direct Contact Criteria of 9.9 ppm. The laboratory analytical data is presented in Appendix F.

TABLE 3.1

SOIL SAMPLE KEY
PONTIAC NORTH COMPLEX
WEST YARD SITE
PONTIAC, MICHIGAN

SAMPLE I.D.	*LOCATION*	*DEPTH (ft. bgs)*	*PARAMETER*
S-12614-083199-KMV-01	MW40-99	15 -- 16	VOC & PCB
S-12614-090199-KMV-02	MW39-99	4 -- 6	VOC & PCB
S-12614-090199-KMV-03	MW39-99	26 -- 27	VOC & PCB
S-12614-090199-KMV-04	MW34-99	22 -- 23	VOC & PCB
S-12614-090299-KMV-05	MW36-99	17 -- 18	VOC & PCB
S-12614-091099-KMV-06	MW26-99	10	VOC & PCB
S-12614-091399-KMV-07	MW27-99	10	VOC & PCB

Notes :

VOC = Target Compound List (TCL) Volatile Organic Compound (VOC)
PCB = Polychlorinated Biphenyl
ft. bgs. = Feet below ground surface

TABLE 3.2

LNAPL MEASUREMENTS
PONTIAC NORTH COMPLEX
WEST YARD SITE
PONTIAC, MICHIGAN
SEPTEMBER 29, 1999

Existing Monitoring Wells	*LNAPL (ft.)*	*Static Water (ft.)*	*Comments*
MW-2	NA	20.8	no LNAPL observed
MW-3	16.82	16.89	black, low viscosity
MW-6	19.7	20.11	black, high viscosity, moderate odor
MW-10	NA	16.2	no LNAPL observed
MW-11	18.23	18.25	light tan, slight odor
MW-12	NA	20.51	no LNAPL
MW-13	13.6	14.48	black, low viscosity, strong odor
MW-17	NA	7.2	no LNAPL
MW-18	NA	16	no LNAPL
MW-19	NA	27.85	no LNAPL
MW-20	25.7	25.73	black, slight odor
MW-22	24.21	24.31	black-slight brown, slight odor
New Wells			
MW24-99	NA	18.05	no LNAPL
MW25-99	24.52	24.78	black, high viscosity, slight odor
MW26-99	NA	11.70	no LNAPL
MW27-99	NA	12.31	no LNAPL
MW28-99	NA	11.15	no LNAPL
MW29-99	NA	12.01	no LNAPL
MW30-99	NA	18.00	no LNAPL
MW31-99	NA	22.11	no LNAPL
MW32-99	NA	25.65	no LNAPL
MW33-99	NA	24.86	no LNAPL
MW34-99	NA	26.92	no LNAPL
MW35-99	NA	24.00	no LNAPL
MW36-99	19.18	21.20	brown-tan, slight odor
MW37-99	NA	24.00	no LNAPL
MW38-99	NA	19.50	no LNAPL
MW39-99	NA	27.60	slight sheen, strong odor
MW40-99	NA	11.00	no LNAPL
DW40-99	NA	11.33	no LNAPL
MW41-99	NA	4.10	no LNAPL
DW41-99	NA	3.70	no LNAPL
MW42-99	NA	19.45	no LNAPL
MW43-99	NA	15.50	no LNAPL
MW44-99	NA	22.00	no LNAPL

TABLE 3.3

LNAPL SAMPLE KEY
PONTIAC NORTH COMPLEX
WEST YARD SITE
PONTIAC, MICHIGAN

Location	*Date*	*Time*	*Sample Number*	*Parameters*
MW25-99	9/28/99	1335	0-12614-092899-BW-001	TCL VOCs, PCBs, API Density & Viscosity
MW36-99	9/28/99	1425	0-12614-092899-BW-002	TCL VOCs, PCBs, API Density & Viscosity
MW-22	9/28/99	1525	0-12614-092899-BW-003	TCL VOCs, PCBs, API Density & Viscosity
MW-6	9/28/99	1605	0-1264-092899-BW-004	TCL VOCs, PCBs, API Density & Viscosity

TABLE 3.4

DRUM INVENTORY
PONTIAC NORTH COMPLEX
WEST YARD SITE
PONTIAC, MICHIGAN

Drum ID	*Contents*	*Date*	*Capacity*
1	Development water	9/17/99	25% full
2	Hexane Rinse	NA	10% full
3	Soil	NA	100% full
4	Empty	NA	0% full
5	Decon water	NA	100% full
6	Decon water	NA	100% full
7	Decon water	NA	100% full
8	Decon water	NA	100% full
9	Decon water	NA	100% full
10	Decon water	NA	100% full
11	Development water	NA	100% full
12	PPE and Disp. Bailers	NA	100% full
13	Development water	NA	100% full
14	Development water	NA	100% full
15	Development water	NA	75% full

Notes:

NA=Not available

TABLE 4.1

SUMMARY OF BOREHOLE LOGS
PONTIAC NORTH COMPLEX
WEST YARD SITE
PONTIAC, MICHIGAN

Borehole/ Monitoring Well Identification	*Description of Odor and Interval (ft. bgs)*	*Description of Staining and Interval (ft. bgs)*	*PID and Interval (ft. bgs)*
MW24-99	faint odor (14-16)	none	0
MW25-99	faint odor (creosote) (2-13)	none	20.9 (4-6)
MW26-99	none	slight sheen (8-10)	0
MW27-99	odor (10-11.5)	sheen (10-11.5)	25.2 (12-14)
MW28-99	faint odor (9.5-11.5)	sheen (9.5-11.5)	0
MW29-99	none	none	0
MW30-99	none	none	0
MW31-99	none	none	0
MW32-99	none	none	0
MW33-99	stong odor (24-26)	none	101 (24-26)
MW34-99	strong odor (2.5-6) strong odor (22-30)	slight sheen (4-6) sheen, trace product (25-26.5) green/grey in color (28-30)	154 (2-4) / 130 (4-6) 140 (22-24)
MW35-99	none	none	0
MW36-99	none none odor (4-26)	none none slight sheen (16-24.5)	2.2 (0-2) / 9.5 (2-4) 4.5 (6-8) 8.3 (18-20) / 4.3 (22-24) 1.1 (24-26)
MW37-99	none none	none slight sheen (21-24)	1.2 (2-4) 2.1 (18-20)
MW38-99	none	none	0
MW39-99	odor (3-4) strong odor (4-9) none	none none sheen (26-27)	23.1 (2-4) 89.9 (4-6) / 41(6-8) 0
MW40-99	faint odor (15.5-16)	slight sheen (15.5-16)	0
DW40-99	none	none	0
MW41-99	none	none	0
DW41-99	none	none	0
MW42-99	very faint odor (17-20.5)	none	0
MW43-99	none	none	0
MW44-99	none	none	0

TABLE 4.2

SOIL ANALYTICAL RESULTS FOR TCL VOCS AND PCBS
PONTIAC NORTH COMPLEX
WEST YARD SITE
PONTIAC, MICHIGAN

Sample ID (S-12614-) *Sample Location* *Depth (feet bgs)* *Date Sampled* *Date Analyzed*	*MDEQ SOIL Direct Contact Criteria (1)*	*MDEQ SOIL Volitilization to Indoor Air Criteria (2)*	*083199-KMV-01* *MW40-99* *15-16* *8/30/95* *9/13/95*	*090199-KMV-02* *MW39-99* *4-6* *8/31/95* *9/14/95*	*090199-KMV-03* *MW39-99* *26-27* *8/31/95* *9/14/95*
Parameter (µg/kg)					
VOCs					
Benzene	4.0E+05	8,400	57	ND(50)	ND(50)
Bromodichloromethane	4.0E+05	6,400	ND(100)	ND(100)	ND(100)
Bromoform	8.7E+05	7.7E+05	ND(100)	ND(100)	ND(100)
Bromomethane	1.0E+06	1,600	ND(250)	ND(250)	ND(250)
Carbon tetrachloride	1.9E+05	990	ND(50)	ND(50)	ND(50)
Chlorobenzene	2.6E+05	2.2E+05	ND(50)	ND(50)	ND(50)
Chlorodibromomethane	3.0E+05	21,000	ND(50)	ND(50)	ND(50)
Chloroethane	9.7E+05	9.7E+05	ND(250)	ND(250)	ND(250)
Chloroform	1.5E+06	38,000	ND(50)	ND(50)	ND(50)
Chloromethane	1.1E+06	12,000	ND(250)	ND(250)	ND(250)
1,1-Dichloroethane	7.9E+05	7.9E+05	ND(50)	ND(50)	ND(50)
1,2-Dichloroethane	2.7E+05	11,000	ND(50)	ND(50)	ND(50)
1,1-Dichloroethene	5.8E+05	330	ND(50)	ND(50)	ND(50)
cis-1,2-Dichloroethene	6.4E+05	6.4E+05	ND(50)	ND(50)	ND(50)
trans-1,2-Dichloroethene	1.4E+06	1.4E+06	ND(50)	ND(50)	ND(50)
1,2-Dichloropropane	3.6E+05	7,400	ND(50)	ND(50)	ND(50)
Ethylbenzene	1.4E+05	1.4E+05	ND(50)	ND(50)	ND(50)
Methylene chloride	2.3E+06	2.4E+05	ND(750)	ND(750)	ND(750)
Styrene	5.2E+05	5.2E+05	ND(50)	ND(50)	ND(50)
1,1,2,2-Tetrachloroethane	1.2E+05	23,000	ND(100)	ND(100)	ND(100)
Tetrachloroethene	88,000	60,000	ND(50)	ND(50)	ND(50)
Toluene	2.5E+05	2.5E+05	68	ND(50)	ND(50)
1,1,1-Trichloroethane	2.5E+07	2.4E+06	ND(50)	ND(50)	ND(50)
1,1,2-Trichloroethane	4.6E+05	4.6E+05	ND(50)	ND(50)	ND(50)
Trichloroethene	5.0E+05	37,000	ND(50)	ND(50)	ND(50)
Vinyl chloride	11,000	150	ND(100)	ND(100)	ND(100)
Acetone	7.4E+07	1.1E+08	ND(1000)	ND(1000)	ND(1000)
Carbon disulfide	2.8E+05	1.4E+05	ND(250)	ND(250)	ND(250)
2-Butanone (MEK)	2.7E+07	2.7E+07	ND(1000)	ND(1000)	ND(1000)
4-methyl-2-pentanone	2.7E+06	2.7E+06	ND(1000)	ND(1000)	ND(1000)
cis-1,3-Dichloropropene	1.4E+05	420	ND(50)	ND(50)	ND(50)
trans-1,3-Dichloropropene	1.4E+05	420	ND(50)	ND(50)	ND(50)
2-Hexanone	2.5E+06	1.8E+06	ND(1000)	ND(1000)	ND(1000)
m,p-Xylenes	--	--	ND(100)	ND(100)	ND(100)
o-Xylene	--	--	ND(50)	ND(50)	ND(50)
xylenes, total	1.5E+05	1.5E+05	ND	ND	ND
PCBs					
Aroclor 1016	9,900	1.6E+07	ND (10)	ND (10)	ND (10)
Aroclor 1221	9,900	1.6E+07	ND (20)	ND (20)	ND (20)
Aroclor 1232	9,900	1.6E+07	ND (10)	ND (10)	ND (10)
Aroclor 1242	9,900	1.6E+07	ND (10)	ND (10)	ND (10)
Aroclor 1248	9,900	1.6E+07	ND (10)	ND (10)	1,800
Aroclor 1254	9,900	1.6E+07	ND (10)	ND (10)	ND (10)
Aroclor 1260	9,900	1.6E+07	ND (10)	4,000	ND (10)
Total PCBs	9,900	1.6E+07	ND	4,000	1,800

Notes:

(1) = DEQ Training Material for Part 201 - Cleanup Criteria, Soil: Industrial and Commercial II, Direct Contact Criteria, May 28, 1999
(2) = DEQ Training Material for Part 201 - Cleanup Criteria, Soil: Industrial and Commercial II, Soil Volitilization to Indoor Air Criteria, May 28, 1999
ND ( ) = Not detected above the report limit in the parenthesis.
NC = No criteria available.

TABLE 4.2

SOIL ANALYTICAL RESULTS FOR TCL VOCS AND PCBS
PONTIAC NORTH COMPLEX
WEST YARD SITE
PONTIAC, MICHIGAN

Sample ID (S-12614-) *Sample Location* *Depth (feet bgs)* *Date Sampled* *Date Analyzed*	*MDEQ SOIL Residential Direct Contact Subsurface Soil*	*MDEQ SOIL Volitilization to Indoor Air Criteria (2)*	*83199-KMV-04* *MW34-99* *22-23* *8/30/95* *9/13/95*	*083199-KMV-05* *MW36-99* *17-18* *8/30/95* *9/13/95*	*083199-KMV-06* *MW26-99* *10* *8/31/95* *9/14/95*	*083199-KMV-07* *MW27-99* *10* *8/31/95* *9/14/95*
Parameter (µg/kg)						
VOCs						
Benzene	4.0E+05	8,400	ND(50)	58	ND(50)	ND(50)
Bromodichloromethane	4.0E+05	6,400	ND(100)	ND(100)	ND(100)	ND(100)
Bromoform	8.7E+05	7.7E+05	ND(100)	ND(100)	ND(100)	ND(100)
Bromomethane	1.0E+06	1,600	ND(250)	ND(250)	ND(100)	ND(100)
Carbon tetrachloride	1.9E+05	990	ND(50)	ND(50)	ND(250)	ND(250)
Chlorobenzene	2.6E+05	2.2E+05	ND(50)	ND(50)	ND(50)	ND(50)
Chlorodibromomethane	3.0E+05	21,000	ND(50)	ND(50)	ND(50)	ND(50)
Chloroethane	9.7E+05	9.7E+05	ND(250)	ND(250)	ND(50)	ND(50)
Chloroform	1.5E+06	38,000	ND(50)	ND(50)	ND(250)	ND(250)
Chloromethane	1.1E+06	12,000	ND(250)	ND(250)	ND(50)	ND(50)
1,1-Dichloroethane	7.9E+05	7.9E+05	ND(50)	ND(50)	ND(250)	ND(250)
1,2-Dichloroethane	2.7E+05	11,000	ND(50)	ND(50)	ND(50)	ND(50)
1,1-Dichloroethene	5.8E+05	330	ND(50)	ND(50)	ND(50)	ND(50)
cis-1,2-Dichloroethene	6.4E+05	6.4E+05	ND(50)	ND(50)	ND(50)	ND(50)
trans-1,2-Dichloroethene	1.4E+06	1.4E+06	ND(50)	ND(50)	ND(50)	ND(50)
1,2-Dichloropropane	3.6E+05	7,400	ND	ND(50)	ND(50)	ND(50)
Ethylbenzene	1.4E+05	1.4E+05	150	1700	ND(50)	ND(50)
Methylene chloride	2.3E+06	2.4E+05	ND(750)	ND(750)	ND(750)	ND(750)
Styrene	5.2E+05	5.2E+05	ND(50)	ND(50)	ND(50)	ND(50)
1,1,2,2-Tetrachloroethane	1.2E+05	23,000	ND(100)	ND(100)	ND(100)	ND(100)
Tetrachloroethene	88,000	60,000	ND(50)	120	ND(50)	ND(50)
Toluene	2.5E+05	2.5E+05	ND(50)	2100	ND(50)	ND(50)
1,1,1-Trichloroethane	2.5E+07	2.4E+06	ND(50)	ND(50)	ND(50)	ND(50)
1,1,2-Trichloroethane	4.6E+05	4.6E+05	ND(50)	ND(50)	ND(50)	ND(50)
Trichloroethene	5.0E+05	37,000	ND(50)	ND(50)	ND(50)	ND(50)
Vinyl chloride	11,000	150	ND(100)	ND(100)	ND(100)	ND(100)
Acetone	7.4E+07	1.1E+08	ND(1000)	ND(1000)	ND(1000)	ND(1000)
Carbon disulfide	2.8E+05	1.4E+05	ND(250)	ND(250)	ND(250)	ND(250)
2-Butanone (MEK)	2.7E+07	2.7E+07	ND(1000)	ND(1000)	ND(1000)	ND(1000)
4-methyl-2-pentanone	2.7E+06	2.7E+06	ND(1000)	ND(1000)	ND(1000)	ND(1000)
cis-1,3-Dichloropropene	1.4E+05	420	ND(50)	ND(50)	ND(50)	ND(50)
trans-1,3-Dichloropropene	1.4E+05	420	ND(50)	ND(50)	ND(50)	ND(50)
2-Hexanone	2.5E+06	1.8E+06	ND(1000)	ND(1000)	ND(1000)	ND(1000)
m,p-Xylenes	--	--	620	4900	ND(100)	ND(100)
o-Xylene	--	--	ND(50)	2700	ND(50)	ND(50)
xylenes, total	1.5E+05	1.5E+05	620	7600	ND	ND
PCBs						
Aroclor 1016	9,900	1.6E+07	ND (10)	ND (10)	ND (10)	ND (10)
Aroclor 1221	9,900	1.6E+07	ND (20)	ND (20)	ND (20)	ND (20)
Aroclor 1232	9,900	1.6E+07	ND (10)	ND (10)	ND (10)	ND (10)
Aroclor 1242	9,900	1.6E+07	ND (10)	ND (10)	ND (10)	ND (10)
Aroclor 1248	9,900	1.6E+07	3,700	4,000	600	ND (10)
Aroclor 1254	9,900	1.6E+07	ND (10)	ND (10)	ND (10)	ND (10)
Aroclor 1260	9,900	1.6E+07	ND (10)	ND (10)	ND (10)	ND (10)
Total PCBs	9,900	1.6E+07	3,700	4,000	600	ND

Notes

(1) = DEQ Training Material for Part 201 - Cleanup Criteria, Soil: Industrial and Commercial II, Direct Contact Criteria, May 28, 1999
(2) = DEQ Training Material for Part 201 - Cleanup Criteria, Soil: Industrial and Commercial II, Soil Volitilization to Indoor Air Criteria, May 28, 1999
ND ( ) = Not detected above the report limit in the parenthesis.
NC = No criteria available.

TABLE 4.3

LNAPL MEASUREMENTS
PONTIAC NORTH COMPLEX
WEST YARD SITE
PONTIAC, MICHIGAN

Well I.D.	Sep-29-1999			Jan-03-2000			Feb-09-2000			Comments
	Depth to Water (btor) (ft)	Depth to LNAPL (btor) (ft)	LNAPL Thickness (ft)	Depth to Water (btor) (ft)	Depth to LNAPL (btor) (ft)	LNAPL Thickness (ft)	Depth to Water (btor) (ft)	Depth to LNAPL (btor) (ft)	LNAPL Thickness (ft)	
Existing Monitoring Wells										
MW-2	20.80	NA		19.82	NA					
MW-3	16.89	16.82	0.07	NA	NA		14.93	14.91	0.02	Black heavy oil, moderate odor
MW-6	20.11	19.7	0.41	NA	NA		25.10	24.75	0.35	Brown-tan, slight odor
MW-10	16.20	NA		17.82	NA					
MW-11	18.25	18.23	0.02	Dry at 19.60	NA					Light tan, slight odor
MW-12	20.15	NA		21.08	NA					
MW-13	14.58	13.6	0.98	14.45	14.06	0.39	14.46	14.1	0.36	black, strong odor
MW-17	7.20	NA		8.19	NA					
MW-18	16.00	NA		16.66	NA					
MW-19	27.85	NA		28.05	NA					
MW-20	25.73	25.7	0.03	27.90	27.83	0.07	26.81	26.75	0.06	Black, slight odor
MW-22	24.31	24.21	0.1	24.47	24.41	0.06	24.19	24.16	0.03	Black-Brown oil, slight odor
New Wells										
MW24-99	18.05	NA	0.00	18.59	18.31	0.28	18.58	18.36	0.22	
MW25-99	14.78	14.52	0.26	14.30	14.00	0.3	14.28	13.95	0.33	Black, slight odor
MW26-99	11.70	NA		11.46	NA		NA	NA		
MW-27-99	12.31	NA		12.12	NA		NA	NA		
MW-28-99	11.15	NA		11.30	NA		NA	NA		
MW29-99	12.01	NA		12.00	NA		NA	NA		
MW30-99	18.00	NA		18.18	NA		NA	NA		
MW31-99	22.11	NA		23.07	NA		NA	NA		
MW32-99	25.65	NA		26.18	NA		NA	NA		
MW33-99	24.86	NA		24.80	NA		NA	NA		
MW34-99	26.92	NA		27.11	NA		NA	NA		
MW35-99	24.00	NA		25.06	NA		NA	NA		
MW36-99	21.20	19.18	2.02	20.93	19.42	1.51	20.88	19.37	1.51	Brown-tan slight odor
MW37-99	24.00	NA		24.15	NA		NA	NA		
MW38-99	19.50	NA		19.72	NA		NA	NA		
MW39-99	27.60	NA		27.75	NA		NA	NA		
MW40-99	11.00	NA		11.33	NA		NA	NA		
DW40-99	11.33	NA		11.88	NA		NA	NA		
MW41-99	4.10	NA		4.17	NA		NA	NA		
DW41-99	3.70	NA		4.22	NA		NA	NA		
MW42-99	19.45	NA		18.62	NA		NA	NA		
MW43-99	15.40	NA		18.09	NA		NA	NA		
MW44-99	22.00	NA		26.42	NA		NA	NA		

Notes:

btor = Below top of riser.
NA = Not available

TABLE 4.4

LNAPL ANALYTICAL RESULTS FOR VOCS AND PCBS
PONTIAC NORTH COMPLEX
WEST YARD SITE
PONTIAC, MICHIGAN

Sample Location	*MW25-99*	*MW36-99*	*MW-22*	*MW-6*
Sample ID (O-12614-)	*092899-BW-001*	*092899-BW-002*	*092899-BW-003*	*092899-BW-004*
Date Sampled	*9/28/99*	*9/28/99*	*9/28/99*	*9/28/99*
Date Analyzed	*12/10/99*	*12/10/99*	*12/10/99*	*12/10/99*
Parameter (µg/kg)				
VOCs				
Benzene	ND(250)	ND(250)	ND(250)	ND(250)
Bromodichloromethane	ND(250)	ND(250)	ND(250)	ND(250)
Bromoform	ND(500)	ND(500)	ND(500)	ND(500)
Bromomethane	ND(1200)	ND(1200)	ND(1200)	ND(1200)
Carbon tetrachloride	ND(250)	ND(250)	ND(250)	ND(250)
Chlorobenzene	ND(250)	ND(250)	ND(250)	ND(250)
Chlorodibromomethane	ND(500)	ND(500)	ND(500)	ND(500)
Chloroethane	ND(1200)	ND(1200)	ND(1200)	ND(1200)
Chloroform	ND(250)	ND(250)	ND(250)	ND(250)
Chloromethane	ND(1200)	ND(1200)	ND(1200)	ND(1200)
1,1-Dichloroethane	ND(250)	ND(250)	ND(250)	ND(250)
1,2-Dichloroethane	ND(250)	ND(250)	ND(250)	ND(250)
1,1-Dichloroethene	ND(250)	ND(250)	ND(250)	ND(250)
cis-1,2-Dichloroethene	ND(250)	ND(250)	ND(250)	ND(250)
trans-1,2-Dichloroethene	ND(250)	ND(250)	ND(250)	ND(250)
1,2-Dichloropropane	ND(250)	ND(250)	ND(250)	ND(250)
Ethylbenzene	34,000	30,000	97,000	ND(250)
Methylene chloride	ND(3800)	ND(3800)	ND(3800)	ND(3800)
Styrene	ND(250)	ND(250)	ND(250)	ND(250)
1,1,2,2-Tetrachloroethane	ND(500)	ND(500)	ND(500)	ND(500)
Tetrachloroethene	6,500	1,900	ND(250)	ND(250)
Toluene	34,000	34,000	14,000	ND(250)
1,1,1-Trichloroethane	ND(250)	ND(250)	ND(250)	ND(250)
1,1,2-Trichloroethane	ND(250)	ND(250)	ND(250)	ND(250)
Trichloroethene	ND(250)	ND(250)	ND(250)	ND(250)
Vinyl chloride	ND(500)	ND(500)	ND(500)	ND(500)
Acetone	ND(5000)	ND(5000)	ND(5000)	ND(5000)
Carbon disulfide	ND(1200)	ND(1200)	ND(1200)	ND(1200)
2-Butanone (MEK)	ND(5000)	ND(5000)	ND(5000)	ND(5000)
4-methyl-2-pentanone	ND(5000)	ND(5000)	ND(5000)	ND(5000)
cis-1,3-Dichloropropene	ND(250)	ND(250)	ND(250)	ND(250)
trans-1,3-Dichloropropene	ND(250)	ND(250)	ND(250)	ND(250)
2-Hexanone	ND(5000)	ND(5000)	ND(5000)	ND(5000)
m,p-Xylenes	99,000	85,000	190,000	2,100
o-Xylene	57,000	52,000	70,000	1,400
xylene, total	156,000	137,000	260,000	3,500
PCBs				
Aroclor 1016	ND (10)	ND (10)	ND (10)	ND (10)
Aroclor 1221	ND (20)	ND (20)	ND (20)	ND (20)
Aroclor 1232	ND (10)	ND (10)	ND (10)	ND (10)
Aroclor 1242	ND (10)	ND (10)	ND (10)	ND (10)
Aroclor 1248	83,000	47,000	24,000	230,000
Aroclor 1254	ND (10)	ND (10)	ND (10)	ND (10)
Aroclor 1260	ND (10)	ND (10)	ND (10)	ND (10)
Total PCBs	83,000	47,000	24,000	230,000

Notes:

ND ( ) = Not detected above the report limit in the parenthesis.

TABLE 4.5

SUMMARY OF LNAPL MEASUREMENTS
PONTIAC NORTH COMPLEX
WEST YARD SITE
PONTIAC, MICHIGAN

Well Identification	Mar-23-98			Apr-9-98			Apr-28-98		
	Depth to Product (ft BTOC)	Depth to Water (ft BTOC)	Apparent LNAPL Thickness ft.	Depth to Product (ft BTOC)	Depth to Water (ft BTOC)	Apparent LNAPL Thickness ft.	Depth to Product (ft BTOC)	Depth to Water (ft BTOC)	Apparent LNAPL Thickness ft.
MW-3	14.52	14.78	0.26	14.48	14.56	0.08	14.86	14.9	0.04
MW-6	20.05	22.37	2.32	20.26	21.94	1.68	20.69	21.78	1.09
MW-13	11.89	12.58	0.96	11.62	12.38	0.76	12.04	12.85	0.81
MW-22	23.71	23.82	0.11	23.49	23.61	0.12	23.93	24.04	0.11

	Oct-19-98			Feb-2-99			May-28-99		
	Depth to Product (ft BTOC)	Depth to Water (ft BTOC)	Apparent LNAPL Thickness ft.	Depth to Product (ft BTOC)	Depth to Water (ft BTOC)	Apparent LNAPL Thickness ft.	Depth to Product (ft BTOC)	Depth to Water (ft BTOC)	Apparent LNAPL Thickness ft.
MW-3	16.18	16.71	0.53	16.01	16.4	0.39	15.21	15.43	0.22
MW-6	21.04	22.36	16.75	20.41	21.67	1.26	20.96	21.17	0.21
MW-13	14.78	16.57	1.97	14.06	14.93	0.87	13.58	14.6	1.02
MW-20	NA	NA	NA	NA	NA	NA	26.1	26.63	0.53
MW-22	24.65	25.19	0.63	23.91	23.94	0.03	24.56	24.66	0.1
Montcalm Well	NA	NA	NA	NA	NA	NA	44.53	47.9	3.55

	Oct-15-99			Nov-2-99			Dec-3-99		
	Depth to Product (ft BTOC)	Depth to Water (ft BTOC)	Apparent LNAPL Thickness ft.	Depth to Product (ft BTOC)	Depth to Water (ft BTOC)	Apparent LNAPL Thickness ft.	Depth to Product (ft BTOC)	Depth to Water (ft BTOC)	Apparent LNAPL Thickness ft.
MW-3	16	16.09	0.09	15.9	15.95	0.05	16.15	16.18	0.03
MW-6	21.65	22	0.35	21.77	22.05	0.28	20.86	21.3	0.44
MW-13	13.9	14.34	0.44	13.94	14.2	0.26	14.42	14.6	0.18
MW-20	25.9	25.94	0.04	25.92	25.95	0.03	25.96	25.98	0.02
MW-22	24.35	24.39	0.04	24.46	24.5	0.04	24.67	24.71	0.04
Montcalm Well	44.5	45.8	1.3	44.51	45.77	1.26	45	46.41	1.41

Notes:

NA = Not available

TABLE 4.6

PHYSICAL PROPERTIES OF LNAPL, WATER AND SELECTED PETROLEUM PRODUCT
PONTIAC NORTH COMPLEX
WEST YARD SITE
PONTIAC, MICHIGAN

	API Gravity	*Density @ 60 °F* (g/cm^3)	*Kinematic Viscosity @100 °F* (*cSt*)	*comments*
LNAPL-MW25-99	23.47	0.9106	29.73	Black, slight odor
LNAPL-MW36-99	24.08	0.9095	29.16	Brown-tan, slight odor
LNAPL-MW-22	24.47	0.9072	32.86	Brown-slight brown, slight odor
LNAPL-MW-6	26.04	0.8961	22.43	Black, moderate odor
Automotive gasoline	--	0.72-0.76	<1	
Diesel fuel Oil	39.4	0.8503	1.3-4	
Steam Turbine Oil (Grade 32)	--	--	32-39	
Lubricating Oil (Cutting)	--	--	29-32	
Lubricating Oil (Engine, Diesel)	--	0.882	43-114	
Lubricating Oil (Engine, Gasoline)	28.3	0.8848	60-99	
Water	--	0.998	0.65	

TABLE 4.7

SUMMARY OF HISTORICAL LNAPL ANALYTICAL RESULTS
PONTIAC NORTH COMPLEX
WEST YARD SITE
PONTIAC, MICHIGAN

	MW-6			*MW-22*			*MW-13*		
	1996	*1998*	*1999*	*1996*	*1998*	*1999*	*1996*	*1998*	*1999*
LNAPL Thickness (ft)	10	9.62	0.38	0	1	0.04			
VOCs (µg/kg)									
Ethylbenzene	ND	NA	ND	NA	NA	97000	ND	NA	NA
m,p-Xylenes	ND	NA	2100	NA	NA	190000	ND	NA	NA
o-Xylenes	ND	NA	1400	NA	NA	70000	ND	NA	NA
Toluene	ND	NA	ND	NA	NA	14000	ND	NA	NA
1,1-Dichloroethene	ND	NA	ND	NA	NA	ND	17,000	NA	NA
Tetrachloroethene	ND	NA	ND	NA	NA	ND	940	NA	NA
Chlorobenzene	ND	NA	ND	NA	NA	ND	660	NA	NA
1,2 Dichlorobenzene	ND	NA	ND	NA	NA	ND	30,000	NA	NA
1,3 Dichlorobenzene	ND	NA	ND	NA	NA	ND	560	NA	NA
1,4 Dichlorobenzene	ND	NA	ND	NA	NA	ND	1,200	NA	NA
PCBs (µg/kg)									
Aroclor 1248	244000	NA	23000	NA	NA	24000	ND	NA	NA
Aroclor 1254	ND	NA	ND	NA	NA	ND	28,200	NA	NA
Viscosity (cSt @ 25°C)	NA	38	38*	NA	66	60*	NA	NA	NA
Density (g/cm^3)	NA	0.9	0.9	NA	0.9	0.9	NA	NA	NA

Notes:

ND = Not detected.
NA = Not analyzed
* = Estimated values -- adjusted for temperature

4.2 LNAPL INVESTIGATION RESULTS

A total of 4 LNAPL samples were collected from MW25-99, MW36-99, MW-22 and MW-6. All LNAPL samples were analyzed for TCL VOCs, PCBs, densities and viscosities. Table 4.3 presents a summary of the LNAPL observations. Figure 3.1 presents the monitoring well locations.

Table 4.4 presents a summary of the analytical results for the LNAPL samples. The VOC compounds detected were xylene, toluene, ethylbenzene and tetrachloroethene. Xylene was detected in all LNAPL samples at concentrations ranging from 3,500µg/kg to 260,000 µg/kg. Ethylbenzene and toluene were detected in all but one of the monitoring wells (MW-6). Tetrachloroethene was detected in MW25-99 and MW36-99 at concentrations of 6,500µg/kg and 1,900 µg/kg, respectively. PCBs (Aroclor 1248) were detected in all LNAPL samples ranging from 24,000 µg/kg to 230,000 µg/kg. The laboratory analytical data is presented in Appendix F.

In January 1996, Parsons analyzed LNAPL samples collected from monitoring wells MW-6 and MW-13. The MW-6 sample contained 244,000 µg/kg of Aroclor 1248 which is comparable to the 236,000 µg/kg detected on September 18, 1999. No other compounds were detected in the Parsons' sample for MW-6.

The LNAPL samples were also analyzed for API density and viscosity. Movement and distribution of LNAPL in the subsurface depends on its physical and chemical properties. Density is defined as the mass per unit volume of a substance. It is most often reported for oils in units of g/mL. The density of spilled oils will tend to increase with time, as the more volatile (and less dense) components are lost. Two density-related properties of oils are often used: specific gravity and American Petroleum Institute (API) gravity. Specific gravity is the ratio, at a specific temperature, of the oil density to the density of pure water. The API gravity scale arbitrarily assigns an API gravity of 10 to pure water. Oils with low densities have high API gravities. The API gravities of the LNAPL collected from MW-6, MW25-99, MW36-99, and MW-22 were 26.04, 23.47, 24.08 and 24.47, respectively.

Viscosity is a measure of a fluid's resistance to flow; the lower the viscosity of a fluid, the more easily it flows. Viscosity is a very important property of oils to assess remedial alternatives and also because it affects the rate at which spilled oil will spread in the soil. The LNAPL collected from MW25-99, MW26-99 and MW-22 had a kinematic viscosity of 29.73, 29.16 and 32.86 cSt(100°F) respectively. The viscosity of the sample collected from MW-6 was 22.34 cSt(100°F).

During the period of January 26, 1998 through March 2, 1998, CRA personnel collected LNAPL samples from monitoring wells MW-6 and MW-22 for specific gravity and viscosity analysis. Kinematic viscosity of the product obtained was measured to be 66 cSt(25°C) for MW-22 and 38 cSt(25°C) for MW-6. These values are comparable with the September 18, 1999 temperature adjusted results of 60 and 38 cSt(25°C) for MW-22 and MW-6 respectively.

The density and viscosity results of the LNAPL samples and typical values for water, and selected petroleum products are presented in Table 4.6. Additionally, Table 4.7 summarizes historical LNAPL characteristics for MW-6 and MW-22.

Based on the LNAPL measurements on September 29, 1999, January 3, 2000 and February 2, 2000, MW36-99 has the highest LNAPL thickness of 1.51 to 2.02 feet. This may indicate that MW36-99 could be located in the vicinity of a potential source. Additionally, the similarity between the analytical results and physical and visual characterization for MW36-99 and that of MW25-99 and MW-22 suggest that the LNAPL in these locations may be from the same source. The historical analytical data for MW-13 shows that the LNAPL at that location differs from MW-6 and MW36-99, MW25-99, and MW-22.

No LNAPL was detected in any of the other new wells. A current summary of the LNAPL observations is presented on Figure 4.1.

4.3 ANALYTICAL DATA VALIDATION RESULTS SUMMARY

Soil and LNAPL samples were submitted to CAS, Inc. in Kelso, Washington for chemical analysis.

All samples were analyzed using EPA approved methods in accordance with the QAPP. The quality control criteria used to assess the data were established by the methods in the QAPP, which are consistent with "U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", EPA-540/R-94/012, February 1994.

The laboratory analytical data was reviewed by CRA chemists to determine the quality and validity of the analytical data resulting from the collection and analysis of samples. The laboratory analytical data is presented in Appendix F. The data validation memorandum is presented in Appendix G.

4.4 TEST PITS

No evidence of LNAPL was noted in test pits TP1-99 or TP2-99 located in the vicinity of the Former Salvage Building. This indicates that LNAPL is not likely migrating within existing sewer backfill located near MW-3 and MW-13.

4.5 MONTCALM WELL

The "Montcalm" well is located along the southern perimeter of the West Yard. The well is a former production well that is 13 inches in diameter and approximately 190-ft deep. Additional information on the well construction is not currently available.

Currently the well contains approximately two feet of LNAPL. Initially, it was thought that the oil might be used motor oil that was disposed down the well. A sample of the oil collected in March 1999 revealed that the oil contained low levels of VOCs (ethylbenzene, xylene, 2-butanone). No PCBs were detected in the sample. At that time approximately 12 gallons of oil and water of which 5 gallons were oil was removed from the well. Following bailing there was no apparent change in the thickness of the oil.

Additional investigation as discussed in Section 3.2, was completed in the vicinity of the Montcalm well to assess potential LNAPL migration to the well. Four monitoring wells, including two deep wells were installed to investigate the potential presence of LNAPL in this area. No evidence of staining or free product was encountered during drilling or in the monitoring wells during monitoring.

Additionally, a downhole video survey was conducted in an effort to determine whether breaches were present allowing LNAPL to enter the well. Based on the video, there did not appear to be any breaches in the well casing above the LNAPL level. The video below the LNAPL was inconclusive due to the turbidity of the water.

Based on the investigations there is no conclusive evidence of how the LNAPL entered the well. However, the borehole investigation and monitoring well data sufficiently confirms that LNAPL is not migrating to the well in either the overburden groundwater or in of the lower aquifer. As a result, the LNAPL is likely present as a result of unauthorized disposal down the well. It is suspected the previous observation that there was no apparent change in the thickness of the oil following the removal of approximately 12 gallons of oil and water was due to the interface probe measuring mixing/disturbance at the oil/water interface.

It is recommended that the remainder of the oil be removed from the well and the well be properly abandoned in accordance with the appropriate regulations.

5.0 CONCLUSIONS AND RECOMMENDATION

The objective of this investigation was to delineate the nature and extent of LNAPL on Site. Based on the investigation, the current lateral extent of LNAPL is fairly well characterized. Figure 5.1 summarizes the approximated extent of LNAPL at the Site. It should be noted that data from the Parsons' report for abandoned well MW-9, and the destroyed wells RW-1 and SV-1 were included in estimating the extent of LNAPL.

It appears that at least three sources of LNAPL may be present at the Site. LNAPL characterized from MW-6, MW-13, and MW-22, MW36-99, and MW25-99 appear to represent three different sources. It appears that a majority of the LNAPL encountered is similar in nature to that found at MW-22, MW36-99, MW25-99. LNAPL encountered in the vicinity of MW-6, MW-13 appears to be from different sources.

Based on the fill materials present at the Site, the potential exists for further lateral migration of the LNAPL. As such, it is recommended that periodic monitoring of various monitoring wells be continued to verify the limits of the LNAPL until remedial measures are implemented.

The evaluation of LNAPL remedial alternatives should commence immediately with the design and implementation subsequently being performed. Additional analysis of LNAPL samples may be required for further characterization in order to assess the viability of some remedial alternatives. CRA will propose any additional testing to REALM prior to implementation. CRA will prepare a focused feasibility study for REALM review assessing various remedial alternatives and a recommendation for a preferred alternative.

The removal of oil from the Montcalm well and subsequent abandonment should be completed as soon as possible. CRA will coordinate directly with REALM to complete this work.

6.0 REFERENCES

Light Nonaqueous Phase Liquids, United States Environmental Protection Agency, September 1995;

Crude Oil and Oil Product Properties, Canadian Environmental Technology Center, March 1999;

Cohen, R.M., and J.W. Mercer, 1993. DNAPL Site Evaluation, CRC Press, Boca Raton, FL, 314 pp;

David M. Nielsen, 1991. Practical Handbook of Ground - Water Monitoring, National Water Well Association;

Draft LNAPL Delineation Work Plan, CRA, July 1999;

DEQ Training Material for Part 201 Cleanup Criteria, May 1999;

Remedial Action Plan Report, O'Brien and Gere, July 1996;

West Yard Investigation Report, Parsons Engineering Science, March 1997; and

Bioremediation of Petroleum Hydrocarbons in Soil Environments, Environment Canada, December 1992.

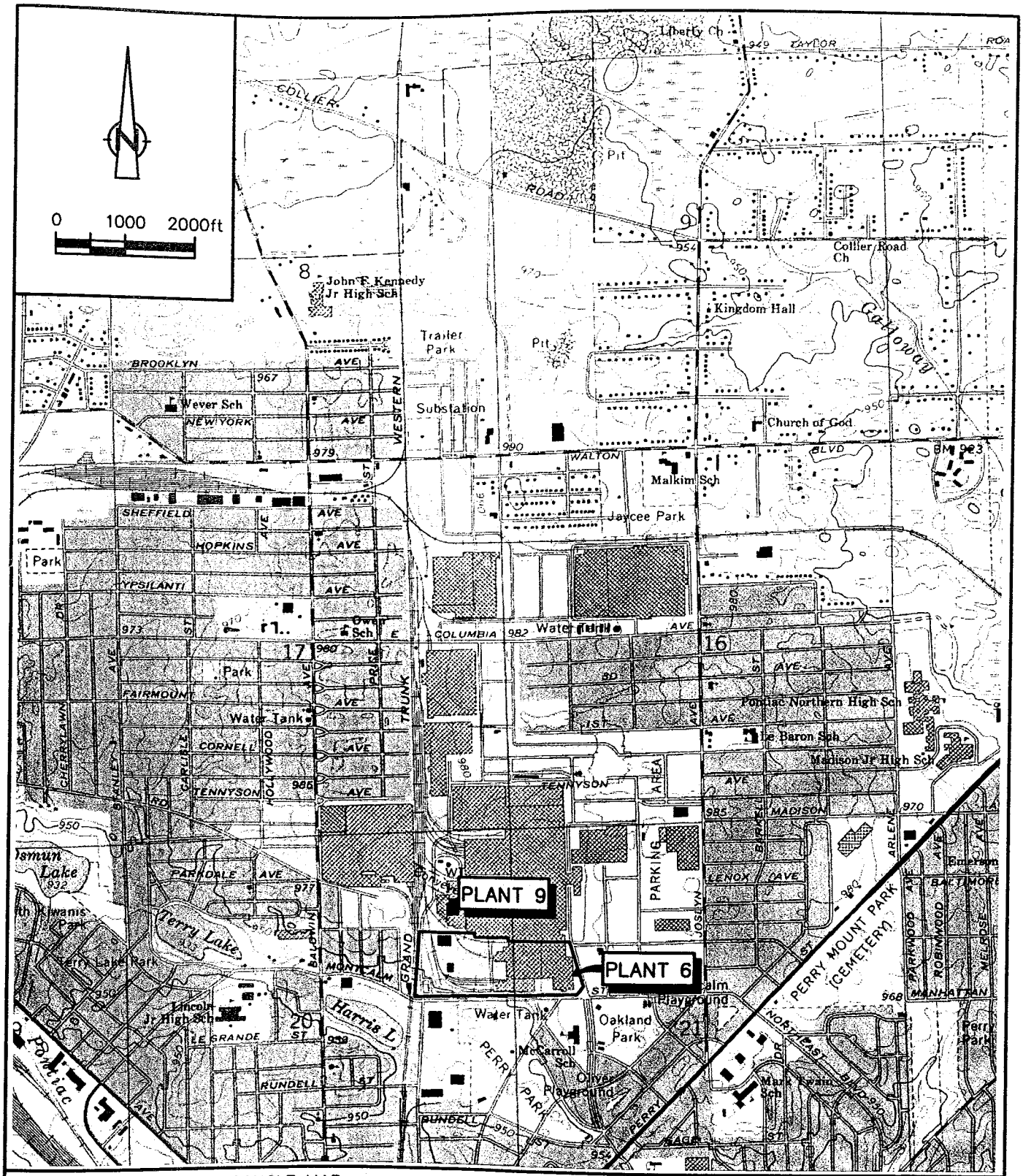


figure 1.1

SITE LOCATION

PONTIAC NORTH COMPLEX – WEST YARD

Pontiac, Michigan

CRA

12614-00(003)GN-WA005 MAR 02/2000

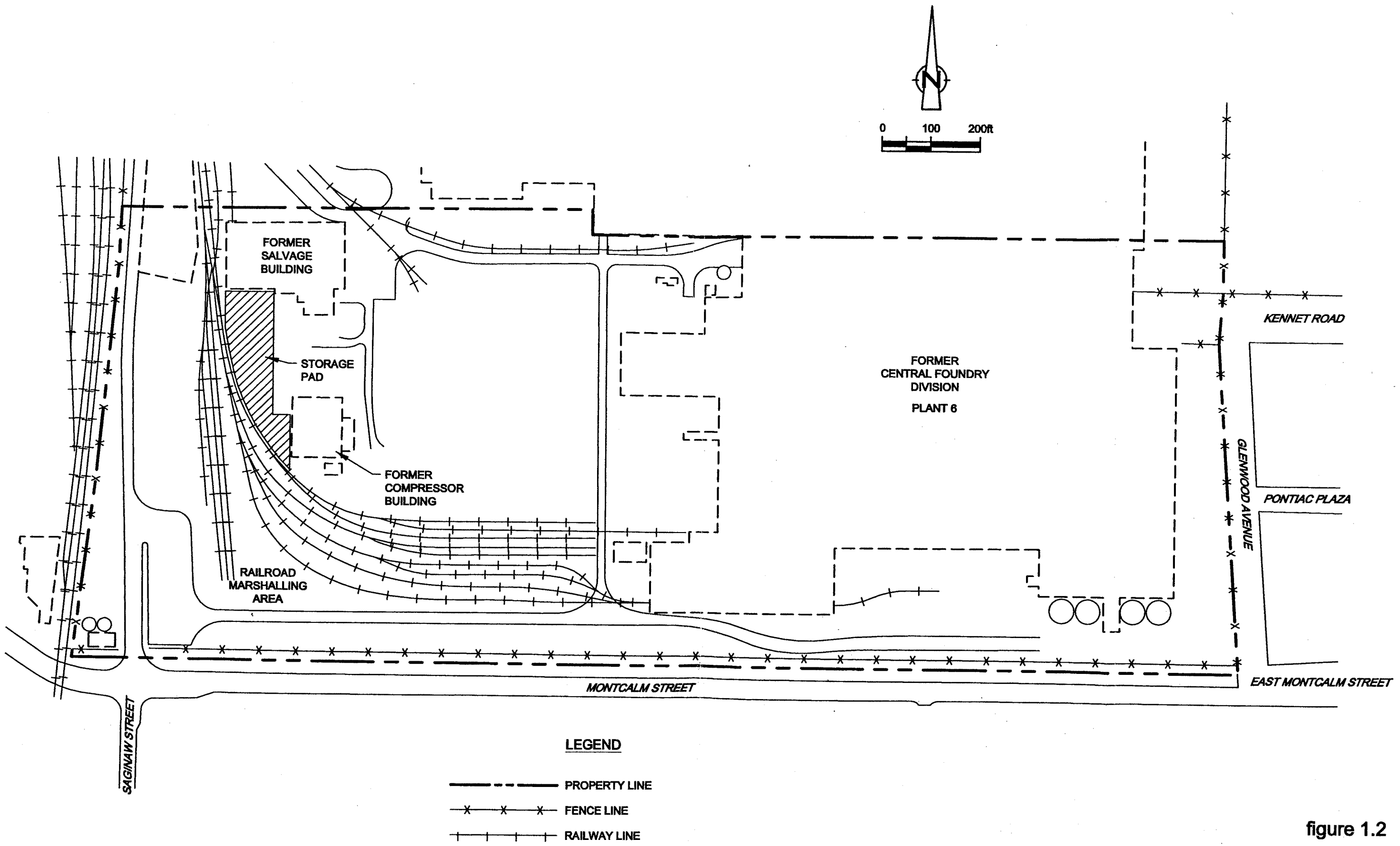


figure 1.2

SITE PLAN
PONTIAC NORTH COMPLEX - WEST YARD
Pontiac, Michigan

CRA

12614-00(003)GN-DE007 MAR 02/2000

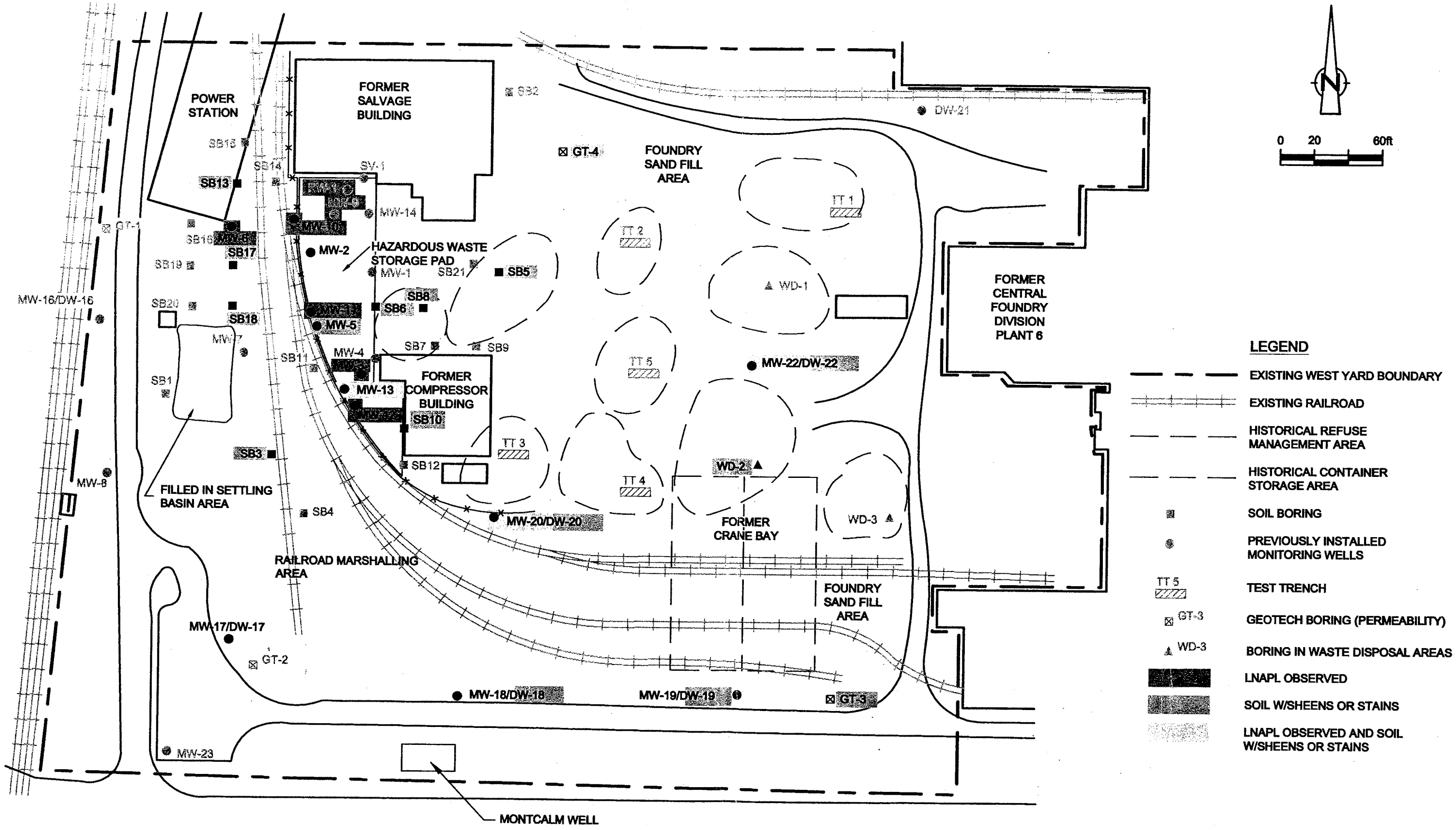


figure 1.3

HISTORICAL LNAPL OBSERVATION
PONTIAC NORTH COMPLEX - WEST YARD
Pontiac, Michigan

CRA

12614-00(003)GN-DE002 MAR 01/2000

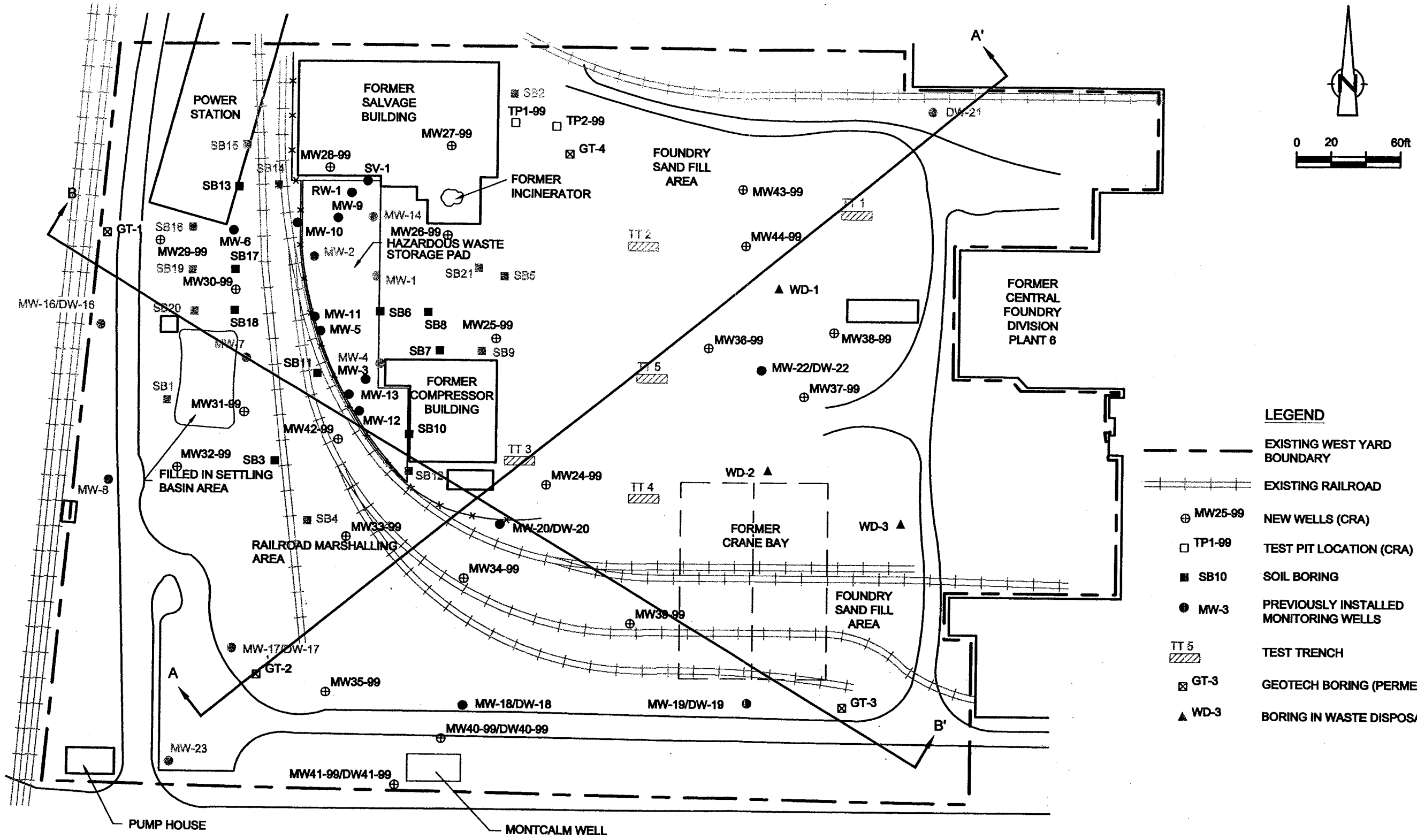
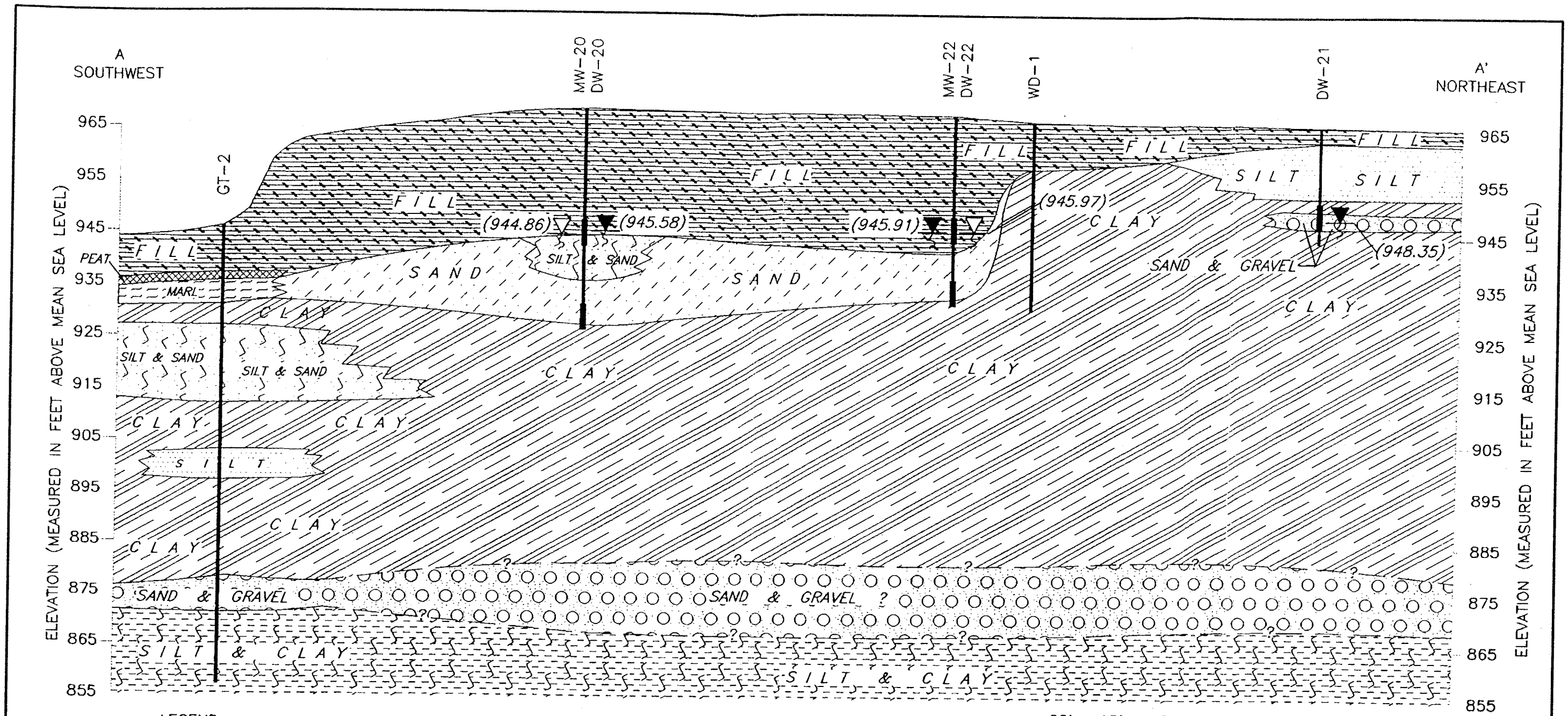


figure 2.1

CROSS SECTION LOCATION MAP
PONTIAC NORTH COMPLEX - WEST YARD
Pontiac, Michigan

CRA

12614-00(003)GN-DE001 FEB 28/2000



LEGEND

- GT GEOTECHNICAL SOIL BORING
- SB SOIL BORING
- DW/MW MONITORING WELLS
- STATIC WATER LEVEL IN DEEP WELLS
- STATIC WATER LEVEL IN SHALLOW WELLS
- (945.58) WATER LEVEL ELEVATION
- INFERRED BOUNDARY OF STRATUM DUE TO LACK OF DATA
- WELL OR BORING
- MONITORING WELL SCREEN INTERVAL

20' 10' 0 20'
Approximate Scale in Feet
VERTICAL SCALE

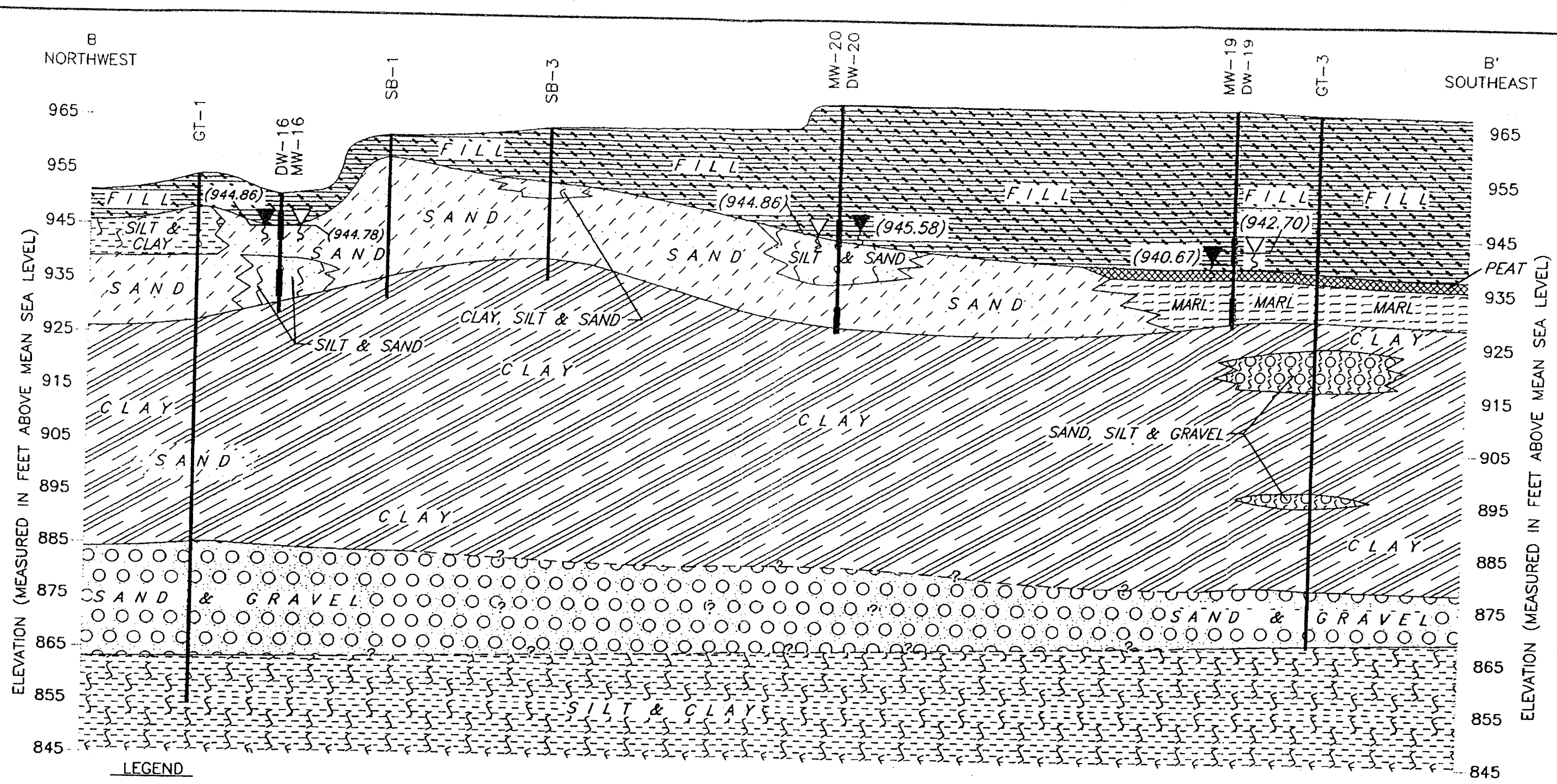
100' 50' 0 100'
Approximate Scale in Feet
HORIZONTAL SCALE

figure 2.2
CROSS-SECTION A-A'
PONTIAC NORTH COMPLEX - WEST YARD
Pontiac, Michigan

CRA

SOURCE: PARSONS ENGINEERING SCIENCE, INC.

12614-00(003)GN-WA003 MAR 01/2000



SOURCE: PARSONS ENGINEERING SCIENCE, INC.

figure 2.3

CROSS-SECTION B-B'
PONTIAC NORTH COMPLEX - WEST YARD
Pontiac, Michigan

CRA

12614-00(003)GN-WA004 MAR 01/2000

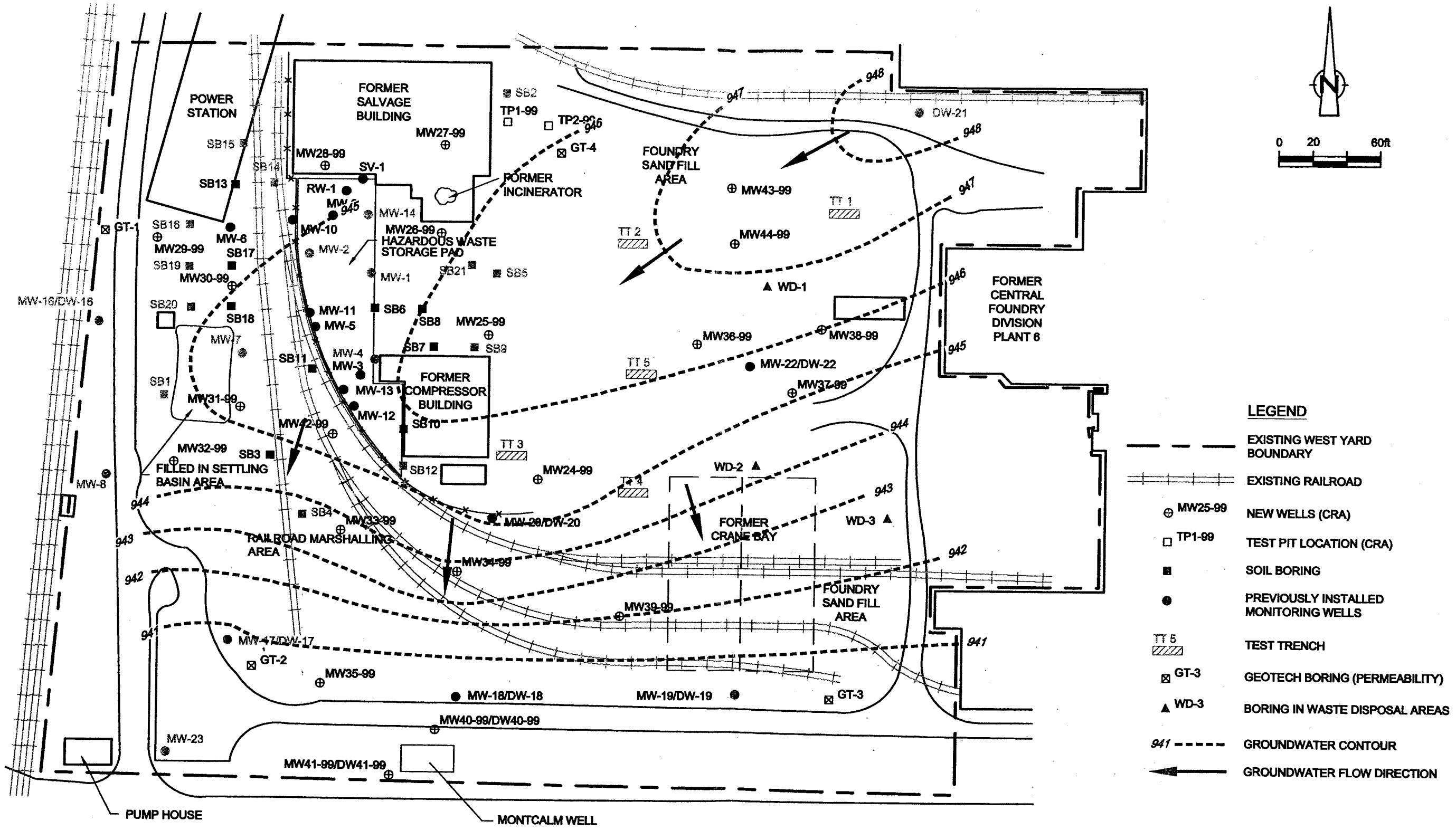


figure 2.4

WATER LEVEL CONTOURS FEBRUARY 1996
PONTIAC NORTH COMPLEX - WEST YARD
Pontiac, Michigan

CRA

12614-00(003)GN-DE003 MAR 01/2000

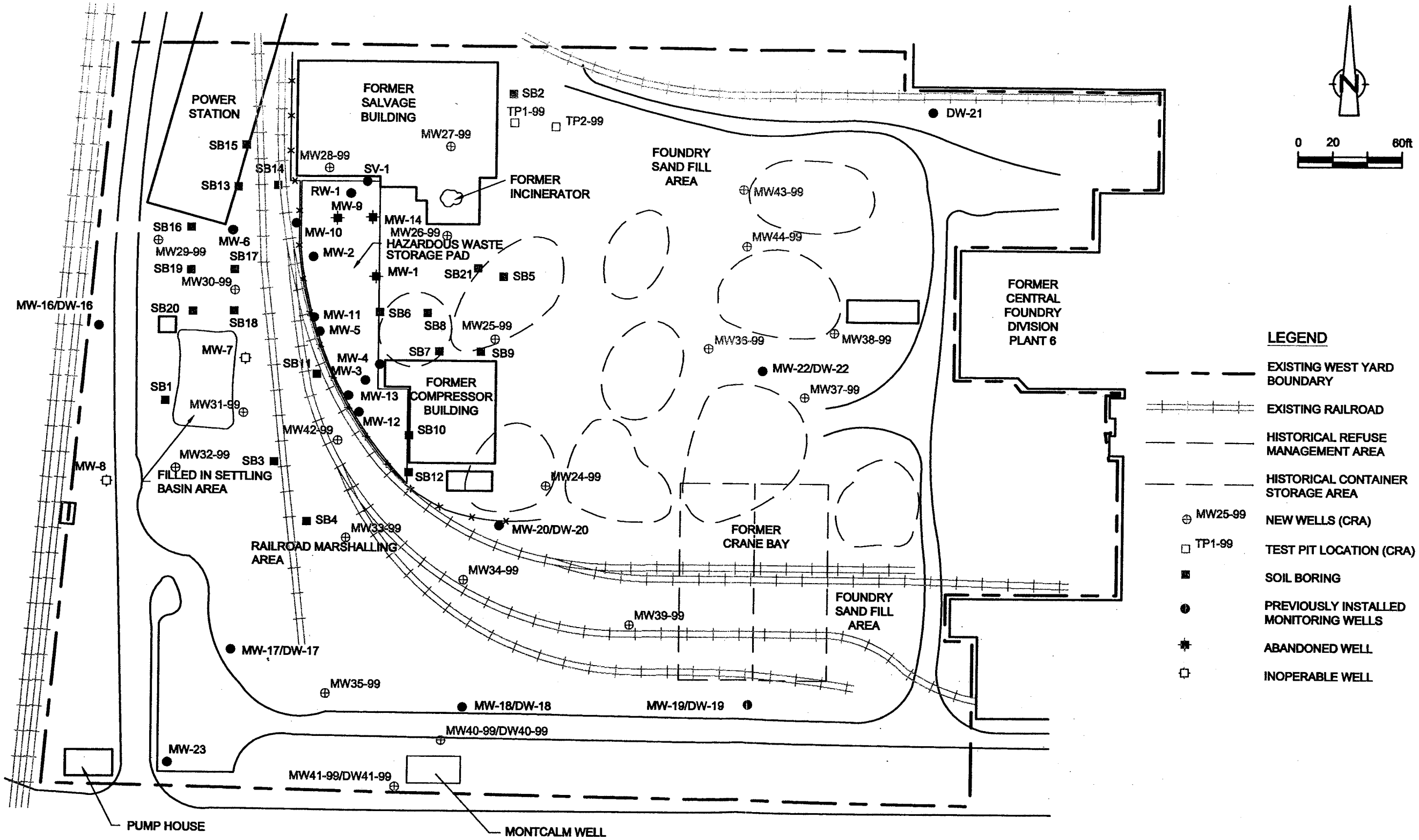
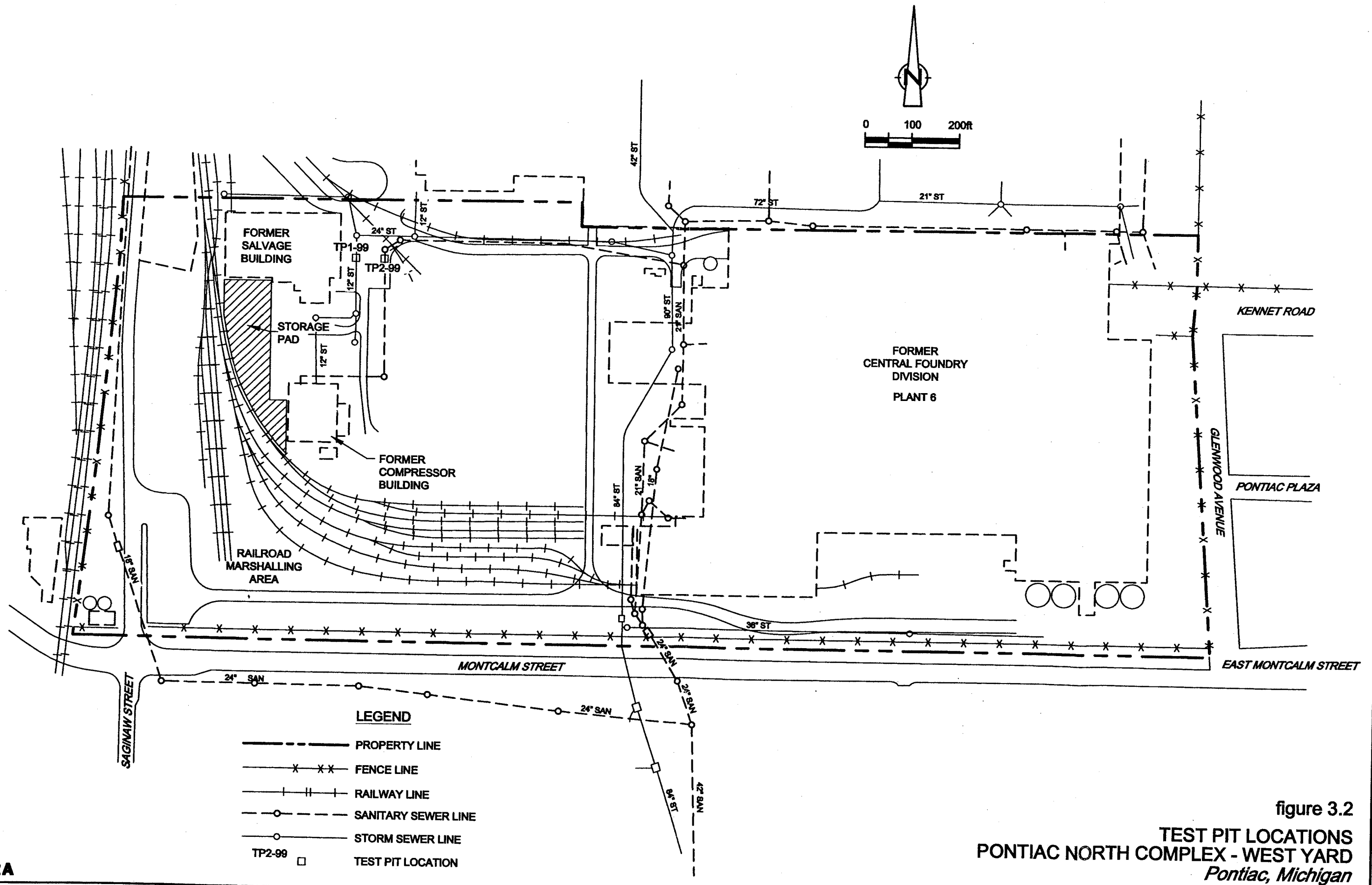


figure 3.1

SOIL BORING AND MONITORING WELL LOCATIONS
PONTIAC NORTH COMPLEX - WEST YARD
Pontiac, Michigan

CRA

12614-00(003)GN-DE009 MAR 01/2000



CRA

figure 3.2

TEST PIT LOCATIONS
PONTIAC NORTH COMPLEX - WEST YARD
Pontiac, Michigan

12614-00(003)GN-DE006 MAR 01/2000

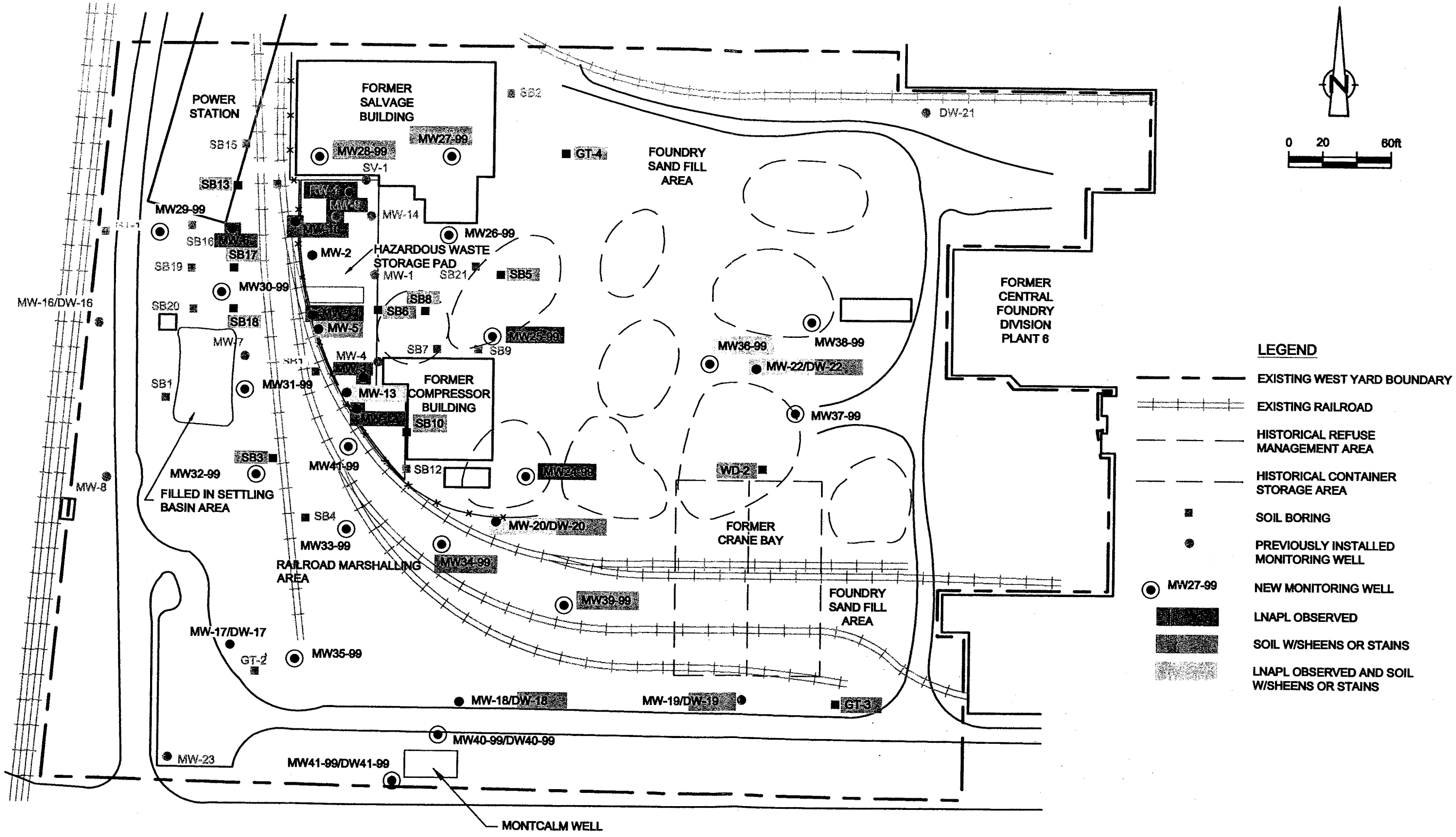


figure 4.1

CURRENT LNAPL OBSERVATION
PONTIAC NORTH COMPLEX - WEST YARD
Pontiac, Michigan

CRA

12614-00(003)GN-DE004 MAR 01/2000

APPENDIX A

SUMMARY OF LNAPL RECOVERY PROGRAM MEMOS AND TABLES

DRAFT

CONESTOGA-ROVERS & ASSOCIATES
11100 Metro Airport Center Drive
Suite #160, Romulus, Michigan 48174

TELEPHONE: (734) 942-0909
FACSIMILE: (734) 942-1858

MEMORANDUM

TO: Gavin O'Neill

REF. NO.: 12614

FROM: Bart Williams/rm/9/Det.

DATE: November 8, 1999

RE: **Bi-Monthly LNAPL Recovery Program**
GM Metal Fabricating Division Facility
West Yard
Pontiac, Michigan

The purpose of this memo is to summarize the field activities that were conducted at the GM Metal Fabricating Division Facility West Yard (Site) located in Pontiac, Michigan on November 2, 1999. This memo is presented in the following sections:

1.0 Introduction
2.0 Personnel
3.0 Bimonthly LNAPL Recovery Program

1.0 INTRODUCTION

Field activities at the Site were completed on November 2, 1999 and consisted of the Bimonthly LNAPL Recovery Program.

2.0 PERSONNEL

- Bart Williams - CRA, Romulus

3.0 BIMONTHLY LNAPL RECOVERY PROGRAM

On November 2, 1999, the bimonthly LNAPL Recovery Program was conducted and completed by CRA field personnel. Groundwater (GW) monitoring wells MW-22, MW-3, MW-6, MW-20, MW-13 and the Montcalm well were measured for LNAPL levels, LNAPL thickness and GW depths using a submersible interface probe.

Upon recording the measurements, a dedicated disposable polyethylene bailer was used to remove LNAPL present in each well while removing a minimal amount of groundwater. As LNAPL was observed to have been removed from each well, a second reading of measurements were recorded. Recovered LNAPL was containerized into a 55-gallon drum, sealed, labeled, and staged on-Site. Field recorded measurements and observations are presented in Table 3.1 attached to this memo.

TABLE 3.1

BIMONTHLY LNAPL RECOVERY PROGRAM
GM METAL FABRICATING DIVISION FACILITY - WEST YARD
PONTIAC, MICHIGAN
NOVEMBER 2, 1999

Monitoring Well Identification	MW22	MW3	MW6	MW13	MW20	Montcalm Well
Initial Depth to LNAPL (ft. BTOR)	24.46	15.90	21.77	13.94	25.92	44.51
Initial Depth to Water (ft. BTOR)	24.50	15.95	22.05	14.20	25.95	45.77
Initial LNAPL Thickness (ft.)	0.04	0.05	0.28	0.26	0.03	1.26
Estimated LNAPL Removed (gallons)	0.1	0.1	0.2	0.2	0.1	0
Estimated Water Removed (gallons)	0.9	0.9	1.8	1.8	0.9	0
Final Depth to LNAPL (ft. BTOR)	No LNAPL	No LNAPL	No LNAPL	No LNAPL	No LNAPL	NA
Final Depth to Water (ft. BTOR)	26.84	18.20	23.99	16.71	27.58	NA
Final LNAPL Thickness (ft.)	0	0	0	0	0	1.26
LNAPL Observations	Black-Brown Oil	Black-Brown oil Slight Odor	Black-Brown Oil	Black Heavy Oil Strong Odor	Black Slight Odor	Light Brown Slight Odor

Notes:

BTOR - Below top of riser.

CONESTOGA-ROVERS & ASSOCIATES
11100 Metro Airport Center Drive
Suite #160, Romulus, Michigan 48174

TELEPHONE: (734) 942-0909
FACSIMILE: (734) 942-1858

MEMORANDUM

TO: Gavin O'Neill

REF. NO.: 12614

FROM: Bart Williams/lr/7/Det.

DATE: August 19, 1999

RE: Bi-Monthly LNAPL Recovery Program
GM Metal Fabricating Division Facility
West Yard
Pontiac, Michigan

The purpose of this memo is to summarize the field activities that were conducted at the GM Metal Fabricating Division Facility West Yard (Site) located in Pontiac, Michigan on August 19, 1999. This memo is presented in the following sections:

1.0 Introduction
2.0 Personnel
3.0 Bimonthly LNAPL Recovery Program

1.0 INTRODUCTION

Field activities at the Site were completed on August 19, 1999 and consisted of the bimonthly LNAPL Recovery Program.

2.0 PERSONNEL

- Bart Williams

3.0 BIMONTHLY LNAPL RECOVERY PROGRAM

On August 19, 1999, the bimonthly LNAPL Recovery Program was conducted and completed by CRA field personnel. Groundwater (GW) monitoring wells MW-22, MW-3, MW-6, MW-20, MW-13 and the Montcalm well were measured for LNAPL levels, LNAPL thickness and GW depths using a submersible interface probe.

Upon recording the measurements, a dedicated disposable polyethylene bailer was used to remove LNAPL present in each well while removing a minimal amount of groundwater. As LNAPL was observed to have been removed from each well, a second reading of measurements were recorded. Recovered LNAPL was containerized into a 55-gallon drum, sealed, labeled, and staged on-Site. Field recorded measurements and observations are presented in Table 3.1 attached to this memo.

TABLE 3.1

BIMONTHLY LNAPL RECOVERY PROGRAM
GM METAL FABRICATING DIVISION FACILITY - WEST YARD
PONTIAC, MICHIGAN
AUGUST 19, 1999

Monitoring Well Identification	MW22	MW3	MW6	MW13	MW20	Montcalm Well
Initial Depth to LNAPL (ft. BTOR)	23.85	15.15	20.0	12.50	25.60	45.25
Initial Depth to Water (ft. BTOR)	23.95	15.25	20.63	13.21	25.65	47.18
Initial LNAPL Thickness (ft.)	0.10	0.10	0.63	0.71	0.05	1.93
Estimated LNAPL Removed (gallons)	0.1	0.1	0.2	0.3	0.1	0
Estimated Water Removed (gallons)	0.9	0.9	1.8	1.7	0.9	0
Final Depth to LNAPL (ft. BTOR)	No LNAPL	No LNAPL	No LNAPL	No LNAPL	No LNAPL	45.01
Final Depth to Water (ft. BTOR)	26.0	17.80	23.05	17.03	27.02	47.10
Final LNAPL Thickness (ft.)	0	0	0	0	0	1.93
LNAPL Observations	Black-Brown Oil	Black-Brown oil Slight Odor	Black-Brown Oil	Black Heavy Oil Strong Odor	Black Slight Odor	Brown Slight Odor

Notes:

BTOR - Below top of riser.

CONESTOGA-ROVERS & ASSOCIATES
11100 Metro Airport Center Drive
Suite #160, Romulus, Michigan 48174

TELEPHONE: (734) 942-0909
FACSIMILE: (734) 942-1858

MEMORANDUM

TO: Gavin O'Neill

REF. NO.: 12614

FROM: Bart Williams/mw/8/Det.

DATE: October 18, 1999

RE: **Bi-Monthly LNAPL Recovery Program**
GM Metal Fabricating Division Facility
West Yard
Pontiac, Michigan

The purpose of this memo is to summarize the field activities that were conducted at the GM Metal Fabricating Division Facility West Yard (Site) located in Pontiac, Michigan on October 15th, 1999. This memo is presented in the following sections:

1.0 Introduction
2.0 Personnel
3.0 Bimonthly LNAPL Recovery Program
4.0 Measurement of Montcalm Well

1.0 INTRODUCTION

Field activities at the Site were completed on October 15th, 1999 and consisted of the Bimonthly LNAPL Recovery Program.

2.0 PERSONNEL

- Bart Williams - CRA, Romulus

3.0 BIMONTHLY LNAPL RECOVERY PROGRAM

On October 15th, 1999, the bimonthly LNAPL Recovery Program was conducted and completed by CRA field personnel. Groundwater (GW) monitoring wells MW-22, MW-3, MW-6, MW-20, MW-13 and the Montcalm well were measured for LNAPL levels, LNAPL thickness and GW depths using a submersible interface probe.

Upon recording the measurements, a dedicated disposable polyethylene bailer was used to remove LNAPL present in each well while removing a minimal amount of groundwater. As LNAPL was observed to have been removed from each well, a second reading of measurements were recorded. Recovered LNAPL was containerized into a 55-gallon drum, sealed, labeled, and staged on-Site. Field recorded measurements and observations are presented in Table 3.1 attached to this memo.

4.0 MEASUREMENT OF MONTCALM WELL

On October 15th, 1999, the Montcalm well was measured for total depth using new nylon rope and a 2' stainless steel slug. The total depth measurement from the top of the casing was approximately 188'. A semi-oily sludge was observed on the bottom of the slug, it was black and had a strong odor.

TABLE 5.1

SLUG TESTS DATA
SEPTEMBER 29, 1999
GM WEST YARD
PONTIAC, MICHIGAN

Location	MW-2	MW-10	MW-12	MW-17	MW-18	MW-19
Initial Water Level (ft.)	20.8	16.20	20.51	7.20	16.0	27.85
Time Elapsed (Seconds)						
5	20.65	16.01	20.25	7.11	15.75	27.70
10	20.70	16.01	20.30	7.11	15.79	27.70
15	20.71	16.01	20.33	7.12	15.79	27.71
20	20.71	16.02	20.35	7.12	15.8	27.72
25	20.73	16.02	20.38	7.12	15.82	27.72
30	20.73	16.02	20.40	7.12	15.82	27.74
35	20.73	16.04	20.43	7.12	15.83	27.74
40	20.74	16.05	20.43	7.13	15.83	27.74
45	20.74	16.06	20.43	7.13	15.84	27.74
50	20.74	16.06	20.45	7.13	15.84	27.76
55	20.74	16.07	20.48	7.14	15.85	27.76
60	20.75	16.07	20.49	7.14	15.85	27.76

TABLE 3.1

BIMONTHLY LNAPL RECOVERY PROGRAM
GM METAL FABRICATING DIVISION FACILITY - WEST YARD
PONTIAC, MICHIGAN
OCTOBER 15, 1999

Monitoring Well Identification	MW22	MW3	MW6	MW13	MW20	Montcalm Well
Initial Depth to LNAPL (ft. BTOR)	24.35	16.00	21.65	13.90	25.90	44.50
Initial Depth to Water (ft. BTOR)	24.39	16.09	22.00	14.34	25.94	45.80
Initial LNAPL Thickness (ft.)	0.04	0.09	0.35	0.44	0.04	1.30
Estimated LNAPL Removed (gallons)	0.1	0.1	0.2	0.2	0.1	0
Estimated Water Removed (gallons)	0.9	0.9	1.8	1.8	0.9	0
Final Depth to LNAPL (ft. BTOR)	No LNAPL	No LNAPL	No LNAPL	No LNAPL	No LNAPL	NA
Final Depth to Water (ft. BTOR)	26.75	18.30	23.88	16.60	27.55	NA
Final LNAPL Thickness (ft.)	0	0	0	0	0	1.30
LNAPL Observations	Black-Brown Oil	Black-Brown oil Slight Odor	Black-Brown Oil	Black Heavy Oil Strong Odor	Black Slight Odor	Light Brown Slight Odor

Notes:

BTOR - Below top of riser.

TABLE 3.2

LNAPL SUMMARY
WEST YARD - GM METAL FABRICATING DIVISION
PONTIAC, MICHIGAN

Well I.D.	Sep-18-1999			Jan-03-2000			Groundwater Level Change (ft)	LNAPL Thickness Change (ft)
	Initial Depth to Water (ft)	Initial Depth to LNAPL (ft)	Initial LNAPL to Thickness (ft)	Initial Depth Water (ft)	Initial Depth to LNAPL (ft)	Initial LNAPL to Thickness (ft)		
Existing Monitoring Wells								
MW-2	20.80	NA		19.82	NA		-0.98	
MW-3	16.89	16.82	0.07	15.73	15.7	0.03	-1.16	
MW-6	20.11	19.7	0.41	21.46	21.05	0.41	1.35	
MW-10	16.20	NA		17.82	NA		1.62	
MW-11	18.25	18.23	0.02	Dry at 19.60			Dry at 19.60	
MW-12	20.15	NA		21.08	NA		0.93	
MW-13	14.58	13.6	0.98	14.45	14.06	0.39	-0.13	-0.59
MW-17	7.20	NA		8.19	NA		0.99	
MW-18	16.00	NA		16.66	NA		0.66	
MW-19	27.85	NA		28.05	NA		0.20	
MW-20	25.73	25.7	0.03	27.90	27.83	0.07	2.17	0.04
MW-22	24.31	24.21	0.1	24.47	24.41	0.06	0.16	-0.04
New Wells								
MW24-99	18.05	NA		18.59	18.31	0.28	0.54	0.28
MW25-99	12.78	12.52	0.26	14.30	14.00	0.3	1.52	0.04
MW26-99	11.70	NA		11.46	NA		-0.24	
MW-27-99	12.31	NA		12.12	NA		-0.19	
MW-28-99	11.15	NA		11.30	NA		0.15	
MW29-99	12.01	NA		12.00	NA		-0.01	
MW30-99	18.00	NA		18.18	NA		0.18	
MW31-99	22.11	NA		23.07	NA		0.96	
MW32-99	25.65	NA		26.18	NA		0.53	
MW33-99	24.86	NA		24.80	NA		-0.06	
MW34-99	26.92	NA		27.11	NA		0.19	
MW35-99	24.00	NA		25.06	NA		1.06	
MW36-99	21.20	19.18	2.02	20.93	19.42	1.51	-0.27	-0.51
MW37-99	24.00	NA		24.15	NA		0.15	
MW38-99	19.50	NA		19.72	NA		0.22	
MW39-99	27.60	NA		27.75	NA		0.15	
MW40-99	11.00	NA		11.33	NA		0.33	
DW40-99	11.33	NA		11.88	NA		0.55	
MW41-99	4.10	NA		4.17	NA		0.07	
DW41-99	--	--		4.22	NA		--	
MW42-99	--	--		18.62	NA		--	
MW43-99	--	--		18.09	NA		--	
MW44-99	--	--		26.42	NA		--	

CONESTOGA-ROVERS & ASSOCIATES
11100 Metro Airport Center Drive
Suite #160, Romulus, Michigan 48174

TELEPHONE: (734) 942-0909
FACSIMILE: (734) 942-1858

MEMORANDUM

TO: Gavin O'Neill

REF. NO.: 12614

FROM: Bart Williams/rm/4/Det.

DATE: May 7, 1999

RE: Bi-Monthly LNAPL Recovery Program
GM Metal Fabricating Division Facility
West Yard
Pontiac, Michigan

The purpose of this memo is to summarize the field activities that were conducted at the GM Metal Fabricating Division Facility West Yard (Site) located in Pontiac, Michigan on April 29, 1999. This memo is presented in the following sections:

1.0 Introduction
2.0 Personnel
3.0 Bimonthly LNAPL Recovery Program

1.0 INTRODUCTION

Field activities at the Site were completed on April 29, 1999 and consisted of the bimonthly LNAPL Recovery Program.

2.0 PERSONNEL

- Bart Williams

3.0 BIMONTHLY LNAPL RECOVERY PROGRAM

On April 29, 1999, the bimonthly LNAPL Recovery Program was conducted and completed by CRA field personnel. Groundwater (GW) monitoring wells MW-22, MW-3, MW-6, and MW-13 were measured for LNAPL levels, LNAPL thickness and GW depths using a submersible interface probe.

Upon recording the measurements, a dedicated disposable polyethylene bailer was used to remove LNAPL present in each well while removing a minimal amount of groundwater. As LNAPL was observed to have been removed from each well, a second reading of measurements were recorded. Recovered LNAPL was containerized into a 55-gallon drum, sealed, labeled, and staged on-Site. Field recorded measurements and observations are presented in Table 3.1 attached to this memo.

TABLE 3.1

BIMONTHLY LNAPL RECOVERY PROGRAM
GM METAL FABRICATING DIVISION FACILITY - WEST YARD
PONTIAC, MICHIGAN
APRIL 29, 1999

Monitoring Well Identification	MW22	MW3	MW6	MW13
Initial Depth to LNAPL (ft. BTOR)	24.22	15.05	20.8	13.20
Initial Depth to Water (ft. BTOR)	24.45	15.5	21.32	13.69
Initial LNAPL Thickness (ft.)	0.32	0.10	0.52	0.49
Estimated LNAPL Removed (gallons)	0.1	0.1	0.2	0.1
Estimated Water Removed (gallons)	0.9	0.9	1.8	0.9
Final Depth to LNAPL (ft. BTOR)	No LNAPL	No LNAPL	No LNAPL	No LNAPL
Final Depth to Water (ft. BTOR)	25.52	16.85	21.20	17.81
Final LNAPL Thickness (ft.)	0	0	0	0
LNAPL Observations	Black-Brown Oil	Black-Brown oil Slight Odor	Black-Brown Oil	Black Heavy Oil Strong Petroleum Odor

Notes:

BTOR - Below top of riser.
NA - Not available

CONESTOGA-ROVERS & ASSOCIATES
11100 Metro Airport Center Drive
Suite #160, Romulus, Michigan 48174

TELEPHONE: (734) 942-0909
FACSIMILE: (734) 942-1858

MEMORANDUM

TO: Gavin O'Neill

REF. NO.: 12614

FROM: Bart Williams/lr/5/Det.

DATE: June 25, 1999

RE: **Bi-Monthly LNAPL Recovery Program**
GM Metal Fabricating Division Facility
West Yard
Pontiac, Michigan

The purpose of this memo is to summarize the field activities that were conducted at the GM Metal Fabricating Division Facility West Yard (Site) located in Pontiac, Michigan on June 25, 1999. This memo is presented in the following sections:

1.0 Introduction
2.0 Personnel
3.0 Bimonthly LNAPL Recovery Program

1.0 INTRODUCTION

Field activities at the Site were completed on June 25, 1999 and consisted of the bimonthly LNAPL Recovery Program.

2.0 PERSONNEL

- Bart Williams

3.0 BIMONTHLY LNAPL RECOVERY PROGRAM

On June 25, 1999, the bimonthly LNAPL Recovery Program was conducted and completed by CRA field personnel. Groundwater (GW) monitoring wells MW-22, MW-3, MW-6, MW-20, MW-13 and the Montcalm well were measured for LNAPL levels, LNAPL thickness and GW depths using a submersible interface probe.

Upon recording the measurements, a dedicated disposable polyethylene bailer was used to remove LNAPL present in each well while removing a minimal amount of groundwater. As LNAPL was observed to have been removed from each well, a second reading of measurements were recorded. Recovered LNAPL was containerized into a 55-gallon drum, sealed, labeled, and staged on-Site. Field recorded measurements and observations are presented in Table 3.1 attached to this memo.

TABLE 3.1

BIMONTHLY LNAPL RECOVERY PROGRAM
GM METAL FABRICATING DIVISION FACILITY - WEST YARD
PONTIAC, MICHIGAN
JUNE 25, 1999

Monitoring Well Identification	MW22	MW3	MW6	MW13	MW20	Montcalm Well
Initial Depth to LNAPL (ft. BTOR)	24.0	15.16	20.20	12.64	26.14	45.20
Initial Depth to Water (ft. BTOR)	24.11	15.29	21.20	13.27	27.01	47.21
Initial LNAPL Thickness (ft.)	0.11	0.13	1.00	0.63	0.87	2.01
Estimated LNAPL Removed (gallons)	0.1	0.1	0.1	0.1	0.1	0
Estimated Water Removed (gallons)	0.9	0.9	0.9	0.9	0.9	0
Final Depth to LNAPL (ft. BTOR)	No LNAPL	No LNAPL	No LNAPL	No LNAPL	No LNAPL	LNAPL
Final Depth to Water (ft. BTOR)	26.72	18.8	23.18	17.40	28.0	47.21
Final LNAPL Thickness (ft.)	0	0	0	0	0	2.01
LNAPL Observations	Black-Brown Oil	Black-Brown oil Slight Odor	Black-Brown Oil	Black Heavy Oil Strong Odor	Black Slight Odor	Brown Slight Odor

Notes:

BTOR - Below top of riser.
NA - Not available

CONESTOGA-ROVERS & ASSOCIATES
11100 Metro Airport Center Drive
Suite #160, Romulus, Michigan 48174

TELEPHONE: (734) 942-0909
FACSIMILE: (734) 942-1858

MEMORANDUM

TO: Gavin O'Neill

REF. NO.: 12614

FROM: Bart Williams/mw/6/Det.

DATE: July 22, 1999

RE: Bi-Monthly LNAPL Recovery Program
GM Metal Fabricating Division Facility
West Yard
Pontiac, Michigan

The purpose of this memo is to summarize the field activities that were conducted at the GM Metal Fabricating Division Facility West Yard (Site) located in Pontiac, Michigan on July 22, 1999. This memo is presented in the following sections:

1.0 Introduction
2.0 Personnel
3.0 Bimonthly LNAPL Recovery Program

1.0 INTRODUCTION

Field activities at the Site were completed on July 22, 1999 and consisted of the bimonthly LNAPL Recovery Program.

2.0 PERSONNEL

- Bart Williams

3.0 BIMONTHLY LNAPL RECOVERY PROGRAM

On July 22, 1999, the bimonthly LNAPL Recovery Program was conducted and completed by CRA field personnel. Groundwater (GW) monitoring wells MW-22, MW-3, MW-6, MW-20, MW-13 and the Montcalm well were measured for LNAPL levels, LNAPL thickness and GW depths using a submersible interface probe.

Upon recording the measurements, a dedicated disposable polyethylene bailer was used to remove LNAPL present in each well while removing a minimal amount of groundwater. As LNAPL was observed to have been removed from each well, a second reading of measurements were recorded. Recovered LNAPL was containerized into a 55-gallon drum, sealed, labeled, and staged on-Site. Field recorded measurements and observations are presented in Table 3.1 attached to this memo.

TABLE 3.1

BIMONTHLY LNAPL RECOVERY PROGRAM
GM METAL FABRICATING DIVISION FACILITY - WEST YARD
PONTIAC, MICHIGAN
JULY 22, 1999

Monitoring Well Identification	MW22	MW3	MW6	MW13	MW20	Montcalm Well
Initial Depth to LNAPL (ft. BTOR)	23.75	14.85	20.10	12.11	25.67	45.01
Initial Depth to Water (ft. BTOR)	23.90	14.89	20.81	12.84	25.70	47.10
Initial LNAPL Thickness (ft.)	0.15	0.04	0.71	0.73	0.03	2.09
Estimated LNAPL Removed (gallons)	0.1	0.1	0.3	0.3	0.1	0
Estimated Water Removed (gallons)	0.9	0.9	1.7	1.7	0.9	0
Final Depth to LNAPL (ft. BTOR)	No LNAPL	No LNAPL	No LNAPL	No LNAPL	No LNAPL	45.01
Final Depth to Water (ft. BTOR)	25.20	16.41	23.03	14.16	26.99	47.10
Final LNAPL Thickness (ft.)	0	0	0	0	0	2.02
LNAPL Observations	Black-Brown Oil	Black-Brown oil Slight Odor	Black-Brown Oil	Black Heavy Oil Strong Odor	Black Slight Odor	Brown Slight Odor

Notes:

BTOR - Below top of riser.

CONESTOGA-ROVERS & ASSOCIATES
11100 Metro Airport Center Drive
Suite #160, Romulus, Michigan 48174

TELEPHONE: (734) 942-0909
FACSIMILE: (734) 942-1858

MEMORANDUM

TO: Gavin O'Neill

REF. NO.: 12614

FROM: Bart Williams/rer/2/Det.

DATE: April 29, 1999

RE: **Bi-Monthly LNAPL Recovery Program**
GM Metal Fabricating Division Facility
West Yard
Pontiac, Michigan

The purpose of this memo is to summarize the field activities that were conducted at the GM Metal Fabricating Division Facility West Yard (Site) located in Pontiac, Michigan on March 19, 1999. This memo is presented in the following sections:

1.0 Introduction
2.0 Personnel
3.0 Bimonthly LNAPL Recovery Program

1.0 INTRODUCTION

Field activities at the Site were completed on March 19, 1999 and consisted of the bimonthly LNAPL Recovery Program.

2.0 PERSONNEL

- Bart Williams

3.0 BIMONTHLY LNAPL RECOVERY PROGRAM

On March 19, 1999, the bimonthly LNAPL Recovery Program was conducted and completed by CRA field personnel. Groundwater (GW) monitoring wells MW-22, MW-3, MW-6, MW-13 and the Montcalm well were measured for LNAPL levels, LNAPL thickness and GW depths using a submersible interface probe.

Upon recording the measurements, a dedicated disposable polyethylene bailer was used to remove LNAPL present in each well while removing a minimal amount of groundwater. As LNAPL was observed to have been removed from each well, a second reading of measurements were recorded. Recovered LNAPL was containerized into a 55-gallon drum, sealed, labeled, and staged on-Site. Field recorded measurements and observations are presented in Table 3.1 attached to this memo.

An oil sample was collected from the Montcalm well location by using a disposable polyethylene bailer, and is being sent to a laboratory for analysis.

TABLE 3.1

BIMONTHLY LNAPL RECOVERY PROGRAM
GM METAL FABRICATING DIVISION FACILITY - WEST YARD
PONTIAC, MICHIGAN April 29, 1999

Monitoring Well Identification	MW22	MW3	MW6	MW13	MONTCALM
Initial Depth to LNAPL (ft. BTOR)	24.22	15.05	20.8	13.2	44.41
Initial Depth to Water (ft. BTOR)	24.45	15.2	21.32	13.69	46.7
Initial LNAPL Thickness (ft.)	0.32	0.10	0.52	0.49	2.29
Estimated LNAPL Removed (gallons)	0.1	0.1	0.2	0.1	3.0
Estimated Water Removed (gallons)	0.9	0.9	1.8	0.9	9.0
Final Depth to LNAPL (ft. BTOR)	No LNAPL	No LNAPL	No LNAPL	No LNAPL	LNAPL
Final Depth to Water (ft. BTOR)	25.52	16.85	21.2	17.81	46.7
Final LNAPL Thickness (ft.)	0	0	0	0	2.29
LNAPL Observations	Black-Brown Oil Slight reddish Tint	Oil Faint Petroleum	Black-Brown Oil	Black Heavy Oil Strong Petroleum Odor	Black-Brown Oil Slight Odor

Notes:

BTOR - Below top of riser.
NA - Not available

CONESTOGA-ROVERS & ASSOCIATES
11100 Metro Airport Center Drive
Suite #160, Romulus, Michigan 48174

TELEPHONE: (734) 942-0909
FACSIMILE: (734) 942-1858

MEMORANDUM

TO: Gavin O'Neill

REF. NO.: 12614

FROM: Bart Williams/lr/2/Det.

DATE: March 19, 1999

RE: **Bi-Monthly LNAPL Recovery Program**
GM Metal Fabricating Division Facility
West Yard
Pontiac, Michigan

The purpose of this memo is to summarize the field activities that were conducted at the GM Metal Fabricating Division Facility West Yard (Site) located in Pontiac, Michigan on March 19, 1999. This memo is presented in the following sections:

1.0 Introduction
2.0 Personnel
3.0 Bimonthly LNAPL Recovery Program
4.0 Montcalm Well Sampling

1.0 INTRODUCTION

Field activities at the Site were completed on March 19, 1999 and consisted of the bimonthly LNAPL Recovery Program.

2.0 PERSONNEL

- Bart Williams

3.0 BIMONTHLY LNAPL RECOVERY PROGRAM

On March 19, 1999, the bimonthly LNAPL Recovery Program was conducted and completed by CRA field personnel. Groundwater (GW) monitoring wells MW-22, MW-3, MW-6, MW-13, and Montcalm well were measured for LNAPL levels, LNAPL thickness and GW depths using a submersible interface probe.

Upon recording the measurements, a dedicated disposable polyethylene bailer was used to remove LNAPL present in each well while removing a minimal amount of groundwater. As LNAPL was observed to have been removed from each well, a second reading of measurements were recorded. Recovered LNAPL was containerized into a 55-gallon drum, sealed, labeled, and staged on-Site. Field recorded measurements and observations are presented in Table 3.1 attached to this memo.

4.0 MONTCALM WELL SAMPLING

An oil sample was collected from the Montcalm well location by using a disposable polyethylene bailer, and is being sent to a laboratory for analysis. Twelve gallons of product and water were bailed from the well, approximately 75% water and 25% product. There was no apparent change in the initial thickness of the LNAPL present in the well after bailing. The initial depth to water also remained the same after bailing. The sample ID# is 0-12614-031999-BW-001. Field recorded measurements and observations are presented in Table 3.1 attached to this memo.

TABLE 3.1

BIMONTHLY LNAPL RECOVERY PROGRAM
GM METAL FABRICATING DIVISION FACILITY - WEST YARD
PONTIAC, MICHIGAN
MARCH 19, 1999

Monitoring Well Identification	MW22	MW3	MW6	MW13	MONTCALM
Initial Depth to LNAPL (ft. BTOR)	24.61	15.75	20.65	13.72	44.41
Initial Depth to Water (ft. BTOR)	24.72	16.1	21.30	14.62	46.7
Initial LNAPL Thickness (ft.)	0.11	0.35	0.65	0.90	2.29
Estimated LNAPL Removed (gallons)	0.1	0.1	0.5	0.2	3
Estimated Water Removed (gallons)	0.9	0.9	1.5	0.8	9
Final Depth to LNAPL (ft. BTOR)	No LNAPL	No LNAPL	No LNAPL	No LNAPL	LNAPL
Final Depth to Water (ft. BTOR)	25.82	18.18	21.1	18.49	46.7
Final LNAPL Thickness (ft.)	0	0	0	0	2.29
LNAPL Observations	Black-Brown Oil	Black Heavy Oil Faint	Black-Brown Oil	Black Heavy Oil Strong Petroleum Odor	Black-Brown Oil Slight Odor

Notes:
BTOR - Below top of riser
NA - Not available

CONESTOGA-ROVERS & ASSOCIATES
11100 Metro Airport Center Drive
Suite #160, Romulus, Michigan 48174

TELEPHONE: (734) 942-0909
FACSIMILE: (734) 942-1858

MEMORANDUM

TO: Gavin O'Neill

REF. NO.: 12614

FROM: Bart Williams/lr/1/Det.

DATE: February 19, 1999

RE: Bi-Monthly LNAPL Recovery Program
GM Metal Fabricating Division Facility
West Yard
Pontiac, Michigan

The purpose of this memo is to summarize the field activities that were conducted at the GM Metal Fabricating Division Facility West Yard (Site) located in Pontiac, Michigan on February 19, 1999. This memo is presented in the following sections:

1.0 Introduction
2.0 Personnel
3.0 Bimonthly LNAPL Recovery Program

1.0 INTRODUCTION

Field activities at the Site were completed on February 19, 1999 and consisted of the bimonthly LNAPL Recovery Program.

2.0 PERSONNEL

- Bart Williams

3.0 BIMONTHLY LNAPL RECOVERY PROGRAM

On February 19, 1999, the bimonthly LNAPL Recovery Program was conducted and completed by CRA field personnel. Groundwater (GW) monitoring wells MW-22, MW-3, MW-6, and MW-13 were measured for LNAPL levels, LNAPL thickness and GW depths using a submersible interface probe.

Upon recording the measurements, a dedicated disposable polyethylene bailer was used to remove LNAPL present in each well while removing a minimal amount of groundwater. As LNAPL was observed to have been removed from each well, a second reading of measurements were recorded. Recovered LNAPL was containerized into a 55-gallon drum, sealed, labeled, and staged on-Site. Field recorded measurements and observations are presented in Table 3.1 attached to this memo.

TABLE 3.1

BIMONTHLY LNAPL RECOVERY PROGRAM
GM METAL FABRICATING DIVISION FACILITY - WEST YARD
PONTIAC, MICHIGAN
FEBRUARY 19, 1999

Monitoring Well Identification	MW22	MW3	MW6	MW13
Initial Depth to LNAPL (ft. BTOR)	22.88	15.40	20.51	14.25
Initial Depth to Water (ft. BTOR)	22.90	15.90	21.00	14.65
Initial LNAPL Thickness (ft.)	0.02	0.50	0.5	0.40
Estimated LNAPL Removed (gallons)	0.1	0.2	1.0	0.50
Estimated Water Removed (gallons)	0.9	1.8	1.0	0.50
Final Depth to LNAPL (ft. BTOR)	No LNAPL	No LNAPL	No LNAPL	No LNAPL
Final Depth to Water (ft. BTOR)	23.90	18.51	20.53	18.51
Final LNAPL Thickness (ft.)	0	0	0	0
LNAPL Observations	Black-Brown Oil	Black Heavy Oil Faint Petroleum	Black-Brown Oil	Black Heavy Oil Strong Petroleum

Notes:
BTOR - Below top of riser
NA - Not available

CONESTOGA-ROVERS & ASSOCIATES
11100 Metro Airport Center Drive
Suite #160, Romulus, Michigan 48174

TELEPHONE: (734) 942-0909
FACSIMILE: (734) 942-1858

MEMORANDUM

TO: Gavin O'Neill

REF. NO.: 12614

FROM: Bart Williams/lr/1/Det.

DATE: February 19, 1999

RE: **Bi-Monthly LNAPL Recovery Program**
GM Metal Fabricating Division Facility
West Yard
Pontiac, Michigan

The purpose of this memo is to summarize the field activities that were conducted at the GM Metal Fabricating Division Facility West Yard (Site) located in Pontiac, Michigan on February 19, 1999. This memo is presented in the following sections:

1.0 Introduction
2.0 Personnel
3.0 Bimonthly LNAPL Recovery Program

1.0 INTRODUCTION

Field activities at the Site were completed on February 19, 1999 and consisted of the bimonthly LNAPL Recovery Program.

2.0 PERSONNEL

- Bart Williams

3.0 BIMONTHLY LNAPL RECOVERY PROGRAM

On February 19, 1999, the bimonthly LNAPL Recovery Program was conducted and completed by CRA field personnel. Groundwater (GW) monitoring wells MW-22, MW-3, MW-6, and MW-13 were measured for LNAPL levels, LNAPL thickness and GW depths using a submersible interface probe.

Upon recording the measurements, a dedicated disposable polyethylene bailer was used to remove LNAPL present in each well while removing a minimal amount of groundwater. As LNAPL was observed to have been removed from each well, a second reading of measurements were recorded. Recovered LNAPL was containerized into a 55-gallon drum, sealed, labeled, and staged on-Site. Field recorded measurements and observations are presented in Table 3.1 attached to this memo.

TABLE 3.1

BIMONTHLY LNAPL RECOVERY PROGRAM
GM METAL FABRICATING DIVISION FACILITY - WEST YARD
PONTIAC, MICHIGAN
FEBRUARY 19, 1999

Monitoring Well Identification	MW22	MW3	MW6	MW13
Initial Depth to LNAPL (ft. BTOR)	22.88	15.40	20.51	14.25
Initial Depth to Water (ft. BTOR)	22.90	15.90	21.00	14.65
Initial LNAPL Thickness (ft.)	0.02	0.50	0.5	0.40
Estimated LNAPL Removed (gallons)	0.1	0.2	1.0	0.50
Estimated Water Removed (gallons)	0.9	1.8	1.0	0.50
Final Depth to LNAPL (ft. BTOR)	No LNAPL	No LNAPL	No LNAPL	No LNAPL
Final Depth to Water (ft. BTOR)	23.90	18.51	20.53	18.51
Final LNAPL Thickness (ft.)	0	0	0	0
LNAPL Observations	Black-Brown Oil	Black Heavy Oil Faint Petroleum	Black-Brown Oil	Black Heavy Oil Strong Petroleum

Notes:
BTOR - Below top of riser
NA - Not available

CONESTOGA-ROVERS & ASSOCIATES
11100 Metro Airport Center Drive
Suite #160, Romulus, Michigan 48174

TELEPHONE: (734) 942-0909
FACSIMILE: (734) 942-1858

MEMORANDUM

TO: Gavin O'Neill

REF. NO.: ~~10491~~ 12614

FROM: Bart Williams/rm/11/Det.

DATE: February 2, 1999

RE: **Bi-Monthly LNAPL Recovery Program**
GM Metal Fabricating Division Facility
West Yard
Pontiac, Michigan

The purpose of this memo is to summarize the field activities that were conducted at the GM Metal Fabricating Division Facility West Yard (Site) located in Pontiac, Michigan on February 2, 1999. This memo is presented in the following sections:

1.0 Introduction
2.0 Personnel
3.0 Bimonthly LNAPL Recovery Program

1.0 INTRODUCTION

Field activities at the Site were completed on February 2, 1999 and consisted of the bimonthly LNAPL Recovery Program.

2.0 PERSONNEL

- Thomas Johnson
- Bart Williams

3.0 BIMONTHLY LNAPL RECOVERY PROGRAM

On February 2, 1999, the bimonthly LNAPL Recovery Program was conducted and completed by CRA field personnel. Groundwater (GW) monitoring wells MW-22, MW-3, MW-6, and MW-13 were measured for LNAPL levels, LNAPL thickness and GW depths using a submersible interface probe.

Upon recording the measurements, a dedicated disposable polyethylene bailer was used to remove LNAPL present in each well while removing a minimal amount of groundwater. As LNAPL was observed to have been removed from each well, a second reading of measurements were recorded. Recovered LNAPL was containerized into a 55-gallon drum, sealed, labeled, and staged on-Site. Field recorded measurements and observations are presented in Table 3.1 attached to this memo.

TABLE 3.1

BIMONTHLY LNAPL RECOVERY PROGRAM
GM METAL FABRICATING DIVISION FACILITY - WEST YARD
PONTIAC, MICHIGAN
FEBRUARY 2, 1999

Monitoring Well Identification	MW22	MW3	MW6	MW13
Initial Depth to LNAPL (ft. BTOR)	23.91	16.01	20.41	14.06
Initial Depth to Water (ft. BTOR)	23.94	16.40	21.67	14.93
Initial LNAPL Thickness (ft.)	0.03	0.39	1.26	0.87
Estimated LNAPL Removed (gallons)	0.1	0.1	0.5	1.9
Estimated Water Removed (gallons)	0.9	0.9	2.5	0.1
Final Depth to LNAPL (ft. BTOR)	No LNAPL	No LNAPL	No LNAPL	No LNAPL
Final Depth to Water (ft. BTOR)	25.94	9.61	20.59	18.10
Final LNAPL Thickness (ft.)	0	0	0	0
LNAPL Observations	Black-Brown Oil	Black Heavy Oil Faint Petroleum	Black-Brown Oil	Black Heavy Oil Strong Petroleum

Notes:
BTOR - Below top of riser
NA - Not available

1445 12614

RJD SURVEYORS
Raymond J. Donnelly
& Associates, Inc.

1853 E. Maple Road
Troy, MI 48083-4207

Tel (248) 689-5
Fax (248) 689-5677

January 27, 1999

Rec'd CRA

FEB 0 2 1999

Mr. Gavin O'Neill or Ms. Carrie Broome
Conestoga-Rovers & Assoc. Limited
651 Colby Drive
Waterloo, Ontario N2V1C2

Re: Proposal for Surveying Services
G.M. - Pontiac West Yard Site
C.R.A. Project No. 12614

Dear Gavin:

This Letter will serve as our formal proposal to provide surveying and mapping services to you for the above-captioned site.

We have made a visit to become familiar with the existing site conditions to be surveyed and have also reviewed the documentation furnished with your RFP. In addition, we have done some other investigation regarding old plant site drawings and property boundary information.

The scope of our services and related fees will be as follows:

1. Consultation with C.R.A. and G.M. officials to prepare survey drawing and descriptions in accordance with specific criteria.

2. Research, field measurements, and drafting of survey map of existing topographic conditions of area to be surveyed (approx. 20 acres).

3. Prepare metes and bounds legal description of subject property to be split off from remainder of plant.

Estimated Fee Based Upon Hourly Charge Rates: **$ 8,800.00**

We could begin the survey within 4 or 5 days of receiving notice of award of contract. We look forward to working with C.R.A. once again.

Sincerely,

Raymond J. Donnelly, RLS
President

RJD:gh

File: proposal\CRA PJ 99-008

CONESTOGA-ROVERS & ASSOCIATES
651 Colby Drive
Waterloo, Ontario, Canada N2V 1C2

TELEPHONE: (519) 884-0510 (Colby Office)
(519) 725-3313 (Bathurst Office)
FACSIMILE: (519) 884-0525

MEMORANDUM

DRAFT
PRIVILEGED AND CONFIDENTIAL
PREPARED AT THE REQUEST OF COUNSEL

TO:	Ed Peterson	REF. NO.:	12614
FROM:	Gavin O'Neill	DATE:	January 27, 1999
C.C.:	Keith West		
RE:	**Status of Activities** **Metal Fabricating Division-West Yard** **Pontiac, Michigan**		

Pursuant to my voice mail message to you today, attached are copies memorandums summarizing the various Bi-Monthly LNAPL Recovery Program events which have been conducted since January of 1998. Also attached is a copy of a memorandum, from March 3, 1998, presenting the preliminary LNAPL recovery evaluation based on field investigations conducted by CRA in early 1998.

As indicated on my voice mail message, please call me if you require any further information or if you have any questions with respect to the attached information. I look forward to discussing the Proposal for the West Yard at your convenience.

CRA
11100 Metro Airport Center Drive
Suite #160
Romulus, Michigan 48174
(313) 942-0909

MEMO

TO: Scott Green

REFERENCE NO. 10491

FROM: Thomas Johnson/rm/3/Det.

DATE: March 26, 1998

RE: Bi-Monthly LNAPL Recovery Program
GM Metal Fabricating Division Facility
West Yard
Pontiac, Michigan

The purpose of this memo is to summarize the field activities that were conducted at the GM Metal Fabricating Division Facility West Yard (Site) located in Pontiac, Michigan on March 23, 1998. This memo is presented in the following sections:

1.0 Introduction
2.0 Personnel
3.0 Groundwater (GW) Measurements
4.0 Bimonthly LNAPL Recovery Program

1.0 INTRODUCTION

Field activities at the Site were completed on March 23, 1998 and consisted of the collection of GW measurements and the bimonthly LNAPL Recovery Program.

2.0 PERSONNEL

- Thomas Johnson

3.0 GROUNDWATER (GW) MEASUREMENTS

GW measurements were collected and recorded for all on-Site monitoring wells on March 23, 1998 by CRA field personnel. Prior to collecting GW measurements, well caps were removed and water levels were given time to stabilize. Groundwater measurements were collected using a submersible interface probe and were measured to pre-determine well markings. The utilized groundwater measuring device was decontaminated prior to each well measurement with an alconox wash followed by a deionized water rinse. Groundwater measurements and field observations are recorded in Table 3.2 attached with this memo.

4.0 BIMONTHLY LNAPL RECOVERY PROGRAM

On March 23, 1998, the bimonthly LNAPL Recovery Program was conducted by CRA field personnel. GW monitoring wells MW22, MW3, MW6, and MW-13 were measured for LNAPL levels, LNAPL thickness and GW depths using a submersible interface probe.

Upon recording the measurements, a dedicated disposable polyethylene bailer was used to remove LNAPL present in each well while removing a minimal amount of groundwater. As LNAPL was observed to have been removed from each well, a second reading of measurements were recorded. Recovered LNAPL was containerized into a 55-gallon drum, sealed, labeled, and staged on-Site. Field recorded measurements and observations are presented in Table 3.3 attached to this memo.

TABLE 3.2

GROUNDWATER MEASUREMENTS
GM METAL FABRICATING DIVISION FACILITY - WEST YARD
PONTIAC, MICHIGAN
MARCH 23, 1998

Monitoring Well Identification	Depth to Water (ft BTOR)
MW-12	19.86
MW-4	12.58
MW-8	Obstructed
MW-23	6.11
MW-17	5.98
DW-17	5.99
MW-18	15.00
DW-18	15.82
MW-19	27.04
DW-19	28.57
MW-20	Removed
DW-20	Removed
DW-22	23.82
MW-7	Obstructed
MW-16	7.69
DW-16	Obstructed
MW-7	20.14
MW-10	15.52
MW-9	Removed
MW-14	Removed
MW-1	Removed
MW-11	16.9
MW-5	20.35

Notes:
BTOR - Below Top of Riser

TABLE 3.3

BIMONTHLY LNAPL RECOVERY PROGRAM
GM METAL FABRICATING DIVISION FACILITY - WEST YARD
PONTIAC, MICHIGAN
MARCH 23, 1998

Monitoring Well Identification	MW22	MW3	MW6	MW13
Initial Depth to LNAPL (ft. BTOR)	23.71	14.52	20.05	11.89
Initial Depth to Water (ft. BTOR)	23.82	14.78	22.37	12.85
Initial LNAPL Thickness (ft.)	0.11	0.26	2.32	0.96
Estimated LNAPL Removed (gallons)	0.06	0.12	1.00	1.00
Estimated Water Removed (gallons)	2.44	2.88	2.00	2.00
Final Depth to LNAPL (ft. BTOR)	No LNAPL	No LNAPL	No LNAPL	No LNAPL
Final Depth to Water (ft. BTOR)	27.68	18.32	28.35	18.62
Final LNAPL Thickness (ft.)	0.0	0.0	0.0	0.0
LNAPL Observations	Black-Brown Oil Faint Petroleum Odor	Black Heavy Oil Moderate Petroleum Odor	Black-Brown Oil Faint	Black Heavy Oil Strong Petroleum Odor

Notes:
BTOR - Below top of riser
LNAPL - Light Non-Aqueous Phase Liquid

CRA
11100 Metro Airport Center Drive
Suite #160
Romulus, Michigan 48174
(313) 942-0909

MEMO

TO: Frank Ring

REFERENCE NO. 10491

FROM: Thomas Johnson/lr/5/Det.

DATE: April 9, 1998

RE: Bi-Monthly LNAPL Recovery Program
GM Metal Fabricating Division Facility
West Yard
Pontiac, Michigan

The purpose of this memo is to summarize the field activities that were conducted at the GM Metal Fabricating Division Facility West Yard (Site) located in Pontiac, Michigan on April 9, 1998. This memo is presented in the following sections:

1.0 Introduction
2.0 Personnel
3.0 Bimonthly LNAPL Recovery Program

1.0 INTRODUCTION

Field activities at the Site were completed on April 9, 1998 and consisted of the bimonthly LNAPL Recovery Program.

2.0 PERSONNEL

- Thomas Johnson

3.0 BIMONTHLY LNAPL RECOVERY PROGRAM

On April 9, 1998, the bimonthly LNAPL Recovery Program was conducted by CRA field personnel. Groundwater (GW) monitoring wells MW22, MW3, MW6, and MW-13 were measured for LNAPL levels, LNAPL thickness and GW depths using an audible submersible interface probe.

Upon recording the measurements, a dedicated disposable polyethylene bailer was used to remove LNAPL present in each well while removing a minimal amount of groundwater. As LNAPL was observed to have been removed from each well, a second reading of measurements were recorded. Recovered LNAPL was containerized into a 55-gallon drum, sealed, labeled, and staged on-Site. Field recorded measurements and observations are presented in Table 3.1 attached to this memo.

TABLE 3.1

BIMONTHLY LNAPL RECOVERY PROGRAM
GM METAL FABRICATING DIVISION FACILITY - WEST YARD
PONTIAC, MICHIGAN
MARCH 2, 1998

Monitoring Well Identification	MW22	MW3	MW6	MW13
Initial Depth to LNAPL (ft. BTOR)	23.49	14.48	20.26	11.62
Initial Depth to Water (ft. BTOR)	23.61	14.56	21.94	12.38
Initial LNAPL Thickness (ft.)	0.12	0.08	1.68	0.76
Estimated LNAPL Removed (gallons)	0.07	0.07	0.50	0.15
Estimated Water Removed (gallons)	1.43	2.93	1.50	1.85
Final Depth to LNAPL (ft. BTOR)	No LNAPL	No LNAPL	No LNAPL	No LNAPL
Final Depth to Water (ft. BTOR)	25.23	18.32	24.51	15.91
Final LNAPL Thickness (ft.)	0	0	0	0
LNAPL Observations	Black-Brown Oil	Black Heavy Oil Faint Petroleum	Black-Brown Oil	Black Heavy Oil Strong Petroleum

Notes:
BTOR - Below top of riser
NA - Not available

CRA
11100 Metro Airport Center Drive
Suite #160
Romulus, Michigan 48174
(313) 942-0909

MEMO

TO: Liz Marsh Faler

REFERENCE NO. 10491

FROM: Thomas Johnson/lr/6/Det.

DATE: April 28, 1998

RE: Bi-Monthly LNAPL Recovery Program
GM Metal Fabricating Division Facility
West Yard
Pontiac, Michigan

The purpose of this memo is to summarize the field activities that were conducted at the GM Metal Fabricating Division Facility West Yard (Site) located in Pontiac, Michigan on April 27, 1998. This memo is presented in the following sections:

1.0 Introduction
2.0 Personnel
3.0 Bimonthly LNAPL Recovery Program

1.0 INTRODUCTION

Field activities at the Site were completed on April 27, 1998 and consisted of the bimonthly LNAPL Recovery Program.

2.0 PERSONNEL

- Thomas Johnson

3.0 BIMONTHLY LNAPL RECOVERY PROGRAM

On April 27, 1998, the bimonthly LNAPL Recovery Program was conducted by CRA field personnel. Groundwater (GW) monitoring wells MW-22, MW-3, MW-6, and MW-13 were measured for LNAPL levels, LNAPL thickness and GW depths using a submersible interface probe.

Upon recording the measurements, a dedicated disposable polyethylene bailer was used to remove LNAPL present in each well while removing a minimal amount of groundwater. As LNAPL was observed to have been removed from each well, a second reading of measurements were recorded. Recovered LNAPL was containerized into a 55-gallon drum, sealed, labeled, and staged on-Site. Field recorded measurements and observations are presented in Table 3.1 attached to this memo.

TABLE 3.1

BIMONTHLY LNAPL RECOVERY PROGRAM
GM METAL FABRICATING DIVISION FACILITY - WEST YARD
PONTIAC, MICHIGAN
MARCH 2, 1998

Monitoring Well Identification	MW22	MW3	MW6	MW13
Initial Depth to LNAPL (ft. BTOR)	23.93	14.86	20.69	12.04
Initial Depth to Water (ft. BTOR)	24.04	14.90	21.78	12.85
Initial LNAPL Thickness (ft.)	0.11	0.04	1.09	0.81
Estimated LNAPL Removed (gallons)	0.02	0.03	0.25	0.25
Estimated Water Removed (gallons)	1.48	1.97	2.00	1.75
Final Depth to LNAPL (ft. BTOR)	No LNAPL	No LNAPL	No LNAPL	No LNAPL
Final Depth to Water (ft. BTOR)	25.98	17.92	23.07	16.18
Final LNAPL Thickness (ft.)	0	0	0	0
LNAPL Observations	Black-Brown Oil	Black Heavy Oil Faint Petroleum	Black-Brown Oil	Black Heavy Oil Strong Petroleum

Notes:
BTOR - Below top of riser
NA - Not available

CRA
11100 Metro Airport Center Drive
Suite #160
Romulus, Michigan 48174
(313) 942-0909

MEMO

TO: Liz Marsh Faler

REFERENCE NO. 10491

FROM: Thomas Johnson/lr/8/Det.

DATE: May 8, 1998

RE: Bi-Monthly LNAPL Recovery Program
GM Metal Fabricating Division Facility
West Yard
Pontiac, Michigan

The purpose of this memo is to summarize the field activities that were conducted at the GM Metal Fabricating Division Facility West Yard (Site) located in Pontiac, Michigan on May 8, 1998. This memo is presented in the following sections:

1.0 Introduction
2.0 Personnel
3.0 Bimonthly LNAPL Recovery Program

1.0 INTRODUCTION

Field activities at the Site were completed on May 8, 1998 and consisted of the bimonthly LNAPL Recovery Program.

2.0 PERSONNEL

- Thomas Johnson

3.0 BIMONTHLY LNAPL RECOVERY PROGRAM

On May 8, 1998, the bimonthly LNAPL Recovery Program was conducted by CRA field personnel. Groundwater (GW) monitoring wells MW-22, MW-3, MW-6, and MW-13 were measured for LNAPL levels, LNAPL thickness and GW depths using a submersible interface probe.

Upon recording the measurements, a dedicated disposable polyethylene bailer was used to remove LNAPL present in each well while removing a minimal amount of groundwater. As LNAPL was observed to have been removed from each well, a second reading of measurements were recorded. Recovered LNAPL was containerized into a 55-gallon drum, sealed, labeled, and staged on-Site. Field recorded measurements and observations are presented in Table 3.1 attached to this memo.

TABLE 3.1

BIMONTHLY LNAPL RECOVERY PROGRAM
GM METAL FABRICATING DIVISION FACILITY - WEST YARD
PONTIAC, MICHIGAN
MARCH 2, 1998

Monitoring Well Identification	MW22	MW3	MW6	MW13
Initial Depth to LNAPL (ft. BTOR)	23.82	14.94	20.71	12.36
Initial Depth to Water (ft. BTOR)	24.04	15.01	21.69	12.71
Initial LNAPL Thickness (ft.)	0.22	0.07	0.98	0.035
Estimated LNAPL Removed (gallons)	0.05	0.05	0.31	0.16
Estimated Water Removed (gallons)	2.95	2.95	2.19	2.34
Final Depth to LNAPL (ft. BTOR)	No LNAPL	No LNAPL	No LNAPL	No LNAPL
Final Depth to Water (ft. BTOR)	27.89	20.8	26.71	17.97
Final LNAPL Thickness (ft.)	0	0	0	0
LNAPL Observations	Black-Brown Oil	Black Heavy Oil Faint Petroleum	Black-Brown Oil	Black Heavy Oil Strong Petroleum

Notes:
BTOR - Below top of riser
NA - Not available

CRA
11100 Metro Airport Center Drive
Suite #160
Romulus, Michigan 48174
(313) 942-0909

MEMO

TO: Frank Ring

REFERENCE NO. 10491

FROM: Thomas Johnson/rm/9/Det.

DATE: June 12, 1998

RE: Bi-Monthly LNAPL Recovery Program
GM Metal Fabricating Division Facility
West Yard
Pontiac, Michigan

The purpose of this memo is to summarize the field activities that were conducted at the GM Metal Fabricating Division Facility West Yard (Site) located in Pontiac, Michigan on June 4 and 12, 1998. This memo is presented in the following sections:

1.0 Introduction
2.0 Personnel
3.0 Bimonthly LNAPL Recovery Program

1.0 INTRODUCTION

Field activities at the Site were completed on June 4 and 12, 1998 and consisted of the bimonthly LNAPL Recovery Program.

2.0 PERSONNEL

- Thomas Johnson
- Jeff Lambert

3.0 BIMONTHLY LNAPL RECOVERY PROGRAM

On June 4, 1998 the bimonthlyLNAPL Recovery Program was conducted by CRA field personnel, however due to instrument failure liquid measurements were not recorded.

On June 12, 1998 Groundwater (GW) monitoring wells MW-22, MW-3, MW-6, and MW-13 were measured for LNAPL levels, LNAPL thickness and GW depths using a submersible interface probe.

For both bimonthly LNAPL Recovery Events, a dedicated disposable polyethylene bailer was used to remove LNAPL present in each well while removing a minimal amount of groundwater. As LNAPL was observed to have been removed from each well, a second reading of measurements for the June 12, 1998 event was recorded. Recovered LNAPL was containerized into a 55-gallon drum, sealed, labeled, and staged on-Site. Field recorded measurements and observations are presented in Table 3.1 attached to this memo.

TABLE 3.1

BIMONTHLY LNAPL RECOVERY PROGRAM
GM METAL FABRICATING DIVISION FACILITY - WEST YARD
PONTIAC, MICHIGAN
JUNE 12, 1998

Monitoring Well Identification	MW22	MW3	MW6	MW13
Initial Depth to LNAPL (ft. BTOR)	No LNAPL	15.44	21.03	13.13
Initial Depth to Water (ft. BTOR)	24.14	15.48	21.95	13.32
Initial LNAPL Thickness (ft.)	0	0.04	0.92	0.19
Estimated LNAPL Removed (gallons)	0	0.02	0.15	0.07
Estimated Water Removed (gallons)	0	1.48	1.85	1.43
Final Depth to LNAPL (ft. BTOR)	No LNAPL	No LNAPL	No LNAPL	No LNAPL
Final Depth to Water (ft. BTOR)	NA	18.57	21.21	16.18
Final LNAPL Thickness (ft.)	0	0	0	0
LNAPL Observations	Black-Brown Oil	Black Heavy Oil Faint Petroleum	Black-Brown Oil	Black Heavy Oil Strong Petroleum

Notes:
BTOR - Below top of riser
NA - Not available

CONESTOGA-ROVERS & ASSOCIATES
11100 Metro Airport Center Drive
Suite #160, Romulus, Michigan 48174

TELEPHONE: (734) 942-0909
FACSIMILE: (734) 942-1858

MEMORANDUM

TO: Frank Ring

REF. NO.: 10491

FROM: Thomas Johnson/lr/9/Det.

DATE: October 19, 1998

RE: **Bi-Monthly LNAPL Recovery Program**
GM Metal Fabricating Division Facility
West Yard
Pontiac, Michigan

The purpose of this memo is to summarize the field activities that were conducted at the GM Metal Fabricating Division Facility West Yard (Site) located in Pontiac, Michigan on October 9 and 14, 1998. This memo is presented in the following sections:

1.0 Introduction
2.0 Personnel
3.0 Bimonthly LNAPL Recovery Program

1.0 INTRODUCTION

Field activities at the Site were completed on October 9 and 14, 1998 and consisted of the bimonthly LNAPL Recovery Program.

2.0 PERSONNEL

- Thomas Johnson

3.0 BIMONTHLY LNAPL RECOVERY PROGRAM

On October 9, 1998, the bimonthly LNAPL Recovery Program was conducted, however do to time restraints it was not completed. On October 14, 1998 the Bi-Monthly LNAPL Recovery Program was conducted and completed by CRA field personnel. Groundwater (GW) monitoring wells MW-22, MW-3, MW-6, and MW-13 were measured for LNAPL levels, LNAPL thickness and GW depths using a submersible interface probe.

Upon recording the measurements, a dedicated disposable polyethylene bailer was used to remove LNAPL present in each well while removing a minimal amount of groundwater. As LNAPL was observed to have been removed from each well, a second reading of measurements were recorded. Recovered LNAPL was containerized into a 55-gallon drum, sealed, labeled, and staged on-Site. Field recorded measurements and observations are presented in Table 3.1 and Table 3.2 attached to this memo.

TABLE 3.1

BIMONTHLY LNAPL RECOVERY PROGRAM
GM METAL FABRICATING DIVISION FACILITY - WEST YARD
PONTIAC, MICHIGAN
OCTOBER 9, 1998

Monitoring Well Identification	MW22	MW3	MW6	MW13
Initial Depth to LNAPL (ft. BTOR)	24.56	16.18	21.04	14.78
Initial Depth to Water (ft. BTOR)	25.19	16.71	22.36	16.75
Initial LNAPL Thickness (ft.)	0.63	0.53	1.32	1.97
Estimated LNAPL Removed (gallons)	None	0.2	None	2.00
Estimated Water Removed (gallons)	None	1.30	None	0
Final Depth to LNAPL (ft. BTOR)	NA	No LNAPL	NA	NA
Final Depth to Water (ft. BTOR)	NA	16.77	NA	NA
Final LNAPL Thickness (ft.)	NA	0	NA	NA
LNAPL Observations	Black-Brown Oil	Black Heavy Oil Faint Petroleum	Black-Brown Oil	Black Heavy Oil Strong Petroleum

Notes:
BTOR - Below top of riser
NA - Not available

TABLE 3.2

BIMONTHLY LNAPL RECOVERY PROGRAM
GM METAL FABRICATING DIVISION FACILITY - WEST YARD
PONTIAC, MICHIGAN
OCTOBER 14, 1998

Monitoring Well Identification	MW22	MW3	MW6	MW13
Initial Depth to LNAPL (ft. BTOR)	25.44	16.22	21.04	15.07
Initial Depth to Water (ft. BTOR)	25.46	16.46	22.19	16.04
Initial LNAPL Thickness (ft.)	0.02	0.24	1.15	0.97
Estimated LNAPL Removed (gallons)	0.05	0.1	1.0	0.50
Estimated Water Removed (gallons)	0.45	0.90	2.0	2
Final Depth to LNAPL (ft. BTOR)	No LNAPL	No LNAPL	No LNAPL	No LNAPL
Final Depth to Water (ft. BTOR)	25.92	17.24	21.34	18.01
Final LNAPL Thickness (ft.)	0	0	0	0
LNAPL Observations	Black-Brown Oil	Black Heavy Oil Faint Petroleum	Black-Brown Oil	Black Heavy Oil Strong Petroleum

Notes:
BTOR - Below top of riser
NA - Not available

CONESTOGA-ROVERS & ASSOCIATES
11100 Metro Airport Center Drive
Suite #160, Romulus, Michigan 48174

TELEPHONE: (734) 942-0909
FACSIMILE: (734) 942-1858

MEMORANDUM

TO: Gavin O'Neill

REF. NO.: ~~10491~~ 12614

FROM: Thomas Johnson/lr/10/Det.

DATE: November 9, 1998

RE: **Bi-Monthly LNAPL Recovery Program**
GM Metal Fabricating Division Facility
West Yard
Pontiac, Michigan

The purpose of this memo is to summarize the field activities that were conducted at the GM Metal Fabricating Division Facility West Yard (Site) located in Pontiac, Michigan on November 5, 1998. This memo is presented in the following sections:

1.0 Introduction
2.0 Personnel
3.0 Bimonthly LNAPL Recovery Program

1.0 INTRODUCTION

Field activities at the Site were completed on November 5, 1998 and consisted of the bimonthly LNAPL Recovery Program.

2.0 PERSONNEL

- Thomas Johnson

3.0 BIMONTHLY LNAPL RECOVERY PROGRAM

On November 5, 1998, the bimonthly LNAPL Recovery Program was conducted and completed by CRA field personnel. Groundwater (GW) monitoring wells MW-22, MW-3, MW-6, and MW-13 were measured for LNAPL levels, LNAPL thickness and GW depths using a submersible interface probe.

Upon recording the measurements, a dedicated disposable polyethylene bailer was used to remove LNAPL present in each well while removing a minimal amount of groundwater. As LNAPL was observed to have been removed from each well, a second reading of measurements were recorded. Recovered LNAPL was containerized into a 55-gallon drum, sealed, labeled, and staged on-Site. Field recorded measurements and observations are presented in Table 3.1 attached to this memo.

TABLE 3.1

BIMONTHLY LNAPL RECOVERY PROGRAM
GM METAL FABRICATING DIVISION FACILITY - WEST YARD
PONTIAC, MICHIGAN
OCTOBER 9, 1998

Monitoring Well Identification	MW22	MW3	MW6	MW13
Initial Depth to LNAPL (ft. BTOR)	None	16.3	21.14	15.18
Initial Depth to Water (ft. BTOR)	25.48	16.74	22.04	16.77
Initial LNAPL Thickness (ft.)	None	0.44	0.9	1.59
Estimated LNAPL Removed (gallons)	None	0.3	0.25	0.50
Estimated Water Removed (gallons)	None	1.75	2.00	2.00
Final Depth to LNAPL (ft. BTOR)	No LNAPL	No LNAPL	No LNAPL	No LNAPL
Final Depth to Water (ft. BTOR)	25.48	18.41	21.39	18.04
Final LNAPL Thickness (ft.)	0	0	0	0
LNAPL Observations	Black-Brown Oil	Black Heavy Oil Faint Petroleum	Black-Brown Oil	Black Heavy Oil Strong Petroleum

Notes:
BTOR - Below top of riser
NA - Not available

CRA
11100 Metro Airport Center Drive
Suite #160
Romulus, Michigan 48174
(313) 942-0909

MEMO

DRAFT
PRIVILEGED AND CONFIDENTIAL
PREPARED AT THE REQUEST OF GENERAL MOTORS COUNSEL

TO: Keith West REFERENCE NO. 10491

FROM: Scott Green/lr/1/Det. DATE: March 3, 1998

C.C.: Ed Peterson/Glenn Turchan/Frank Ring

RE: Project Update
Preliminary LNAPL Recovery Evaluation/Interim Measure Activities
GM Metal Fabricating Division – West Yard (Site)
Pontiac, Michigan

Pursuant to Conestoga-Rovers & Associates' (CRA) proposals dated June 12, 1997 and December 4, 1997, this memorandum provides a project update of Interim Remedial Measure (IRM) activities conducted at the above-referenced Site.

During the period of January 26, 1998 through March 2, 1998, representatives of CRA conducted Light Non-Aqueous Phase Liquid (LNAPL) monitoring and testing which consisted of the following:

- monitoring well inventory and one-time measurement of LNAPL thickness and water levels at all locatable monitoring wells;
- collection of LNAPL samples from monitoring wells MW-6 and MW-22 for specific gravity and viscosity analysis;
- completion of one-time LNAPL bail-down tests at monitoring wells MW-6 and MW-22;
- LNAPL removal, by manual bailing on an approximate bi-weekly basis, from all monitoring wells determined to contain LNAPL; and
- review of Parsons Engineering LNAPL laboratory characterization data.

The data obtained from these investigative activities are summarized in the data package attached to this memorandum with the exception of a review of LNAPL characterization data. Review of LNAPL laboratory characterization data is presented in a separate memorandum. Figure 1 presents monitoring well locations. Table 1 presents water level elevations and LNAPL thickness as determined on January 26, 1998. As presented in Table 1, three of the monitoring wells have been abandoned (MW-1, MW-9 and MW-14). Two monitoring wells could not be accessed due to obstructions or damaged casing (MW-7 and MW-8), and two wells

(MW-15 and MW-21) could not be located and may have been destroyed during demolition activities. Table 2 presents a LNAPL thickness summary for four wells identified to contain LNAPL (MW-3, MW-6, MW-13 and MW-22).

LNAPL bail-down tests were performed on wells MW-6 and MW-22. These two wells were selected based on LNAPL thickness and spatial distribution from each other. In addition, the LNAPL in MW-6 appeared to be of lighter density and viscosity than the LNAPL in MW-22. After the wells were bailed down, full recovery at each of the two monitoring wells had not occurred after two weeks as shown on the data plots. This behavior is likely due to the LNAPL viscosity coupled with the density being close to that of water. However, product bail-down test data could still be analyzed. LNAPL bail-down test data indicate the actual thickness in the vicinity of MW-6 is approximately 1.0 foot and the actual thickness in the vicinity of MW-22 is approximately 0.42 feet.

Moreover, the general distribution of LNAPL at the West Yard is intermittent. No clear correlation can be drawn between the monitoring wells containing LNAPL; however, no monitoring wells currently exist between MW-22 and the drum storage pad suggesting that the extent of LNAPL could be more prevalent than indicated by existing data. LNAPL in the vicinity of MW-22 is likely due to historic waste disposal activities in the foundry sand fill area. Furthermore, it is likely that LNAPL in the vicinity of MW-6, MW-13 and MW-3 could be due to historic activities associated with the adjacent rail lines and/or former salvage building and not the handling of waste at the drum storage pad. CRA has noted as well, that three of the four monitoring wells currently containing LNAPL are within 10 feet of existing manhole covers. This indicates that LNAPL could potentially be migrating within existing sewer line backfill.

Recoverability of the LNAPL was also evaluated by determining the kinematic viscosity of the LNAPL from the two product samples. The kinematic viscosity of the product obtained from MW-22 was measured to be approximately 66 centistokes and the kinematic viscosity of the product obtained from MW-6 was measured to be approximately 38 centistokes. The upper range for product recovery using conventional pumping techniques is approximately 40 centistokes.

An initial review of Site conditions suggests that an LNAPL recovery system using conventional pumping techniques may not be effective in recovering significant amounts of LNAPL located near MW-22. Moreover, the extent of LNAPL in the vicinity of MW-22 has not been determined. Although, LNAPL recovery using conventional pumping techniques may be effective in the vicinity of MW-6, and it is assumed MW-13 and MW-3 as well, other techniques such as trench and/or horizontal well enhanced recovery, bioslurping, or even simple excavation in "hot spots" may be appropriate, in whole or in part, for the remediation of LNAPL at the West Yard. Finally, the type of remedial action undertaken will also depend in part on the handling and disposal methods determined for the product based on the LNAPL characterization. This will be evaluated separately.

TABLE 1

SUMMARY OF GROUNDWATER ELEVATIONS AND LNAPL THICKNESS
FIRST QUARTER - JANUARY 26, 1998
GENERAL MOTORS METAL FABRICATING DIVISION - WEST YARD
PONTIAC, MICHIGAN

Well Identification	*Depth to Product (ft BTOC)* [2]	*Depth to Water (ft. BTOC)*	*Apparent LNAPL* [1] *Thickness (ft)*
MW-1	--[3]	--	--
MW-2	--[4]	20.65	--
MW-3	15.06	15.24	0.18
MW-4	--	13.17	--
MW-5	--	20.87	--
MW-6	19.71[5]	29.33	9.62
MW-7	--[6]	--	--
MW-8	--[7]	--	--
MW-9	--[3]	--	--
MW-10	--	15.93	--
MW-11	--	18.06	--
MW-12	--	20.42	--
MW-13	13.50	14.99	1.49
MW-14	--[3]	--	--
MW-15	--[8]	--	--
MW-16	--	7.88	--
DW-16	--[5]	7.78	--
MW-17	--	6.99	--
DW-17	--	7.03	--
MW-18	--	15.87	--
DW-18	--	16.64	--
MW-19	--	27.65	--
DW-19	--	29.30	--
MW-20	--	25.84	--
DW-20	--	25.40	--
DW-21	--[8]	--	--
MW-22	24.10	25.50	1.40
DW-22	--	24.33	--
MW-23	--	7.06	--

Notes:
(1) LNAPL - Light Non-Aqueous Phase Liquid
(2) ft BTOC - feet below top of casing
(3) Well abandoned
(4) "-" Indicates LNAPL not encountered
(5) Well gauged on 1/27/98 - watera tubing could not be removed on 1/26/98
(6) Obstruction in well - unable to access - appears to be filled with concrete
(7) Bent riser - unable to access
(8) Well could not be located. May have been destroyed during demolition

TABLE 2

SUMMARY OF LNAPL THICKNESS
GENERAL MOTORS METAL FABRICATING DIVISION - WEST YARD
PONTIAC, MICHIGAN

Well Identification	January 26, 1998			February 12, 1998			March 2, 1998		
	Depth to Product (ft BTOC)	*Depth to Water (ft. BTOC)* [2]	*Apparent LNAPL* [1] *Thickness ft.*	*Depth to Product (ft BTOC)*	*Depth to Water (ft. BTOC)* [2]	*Apparent LNAPL* [1] *Thickness ft.*	*Depth to Product (ft BTOC)*	*Depth to Water (ft. BTOC)* [2]	*Apparent LNAPL* [1] *Thickness ft.*
MW-3	15.06	15.24	0.18	15.53	15.88	0.35	14.69	15.21	0.52
MW-6	19.71	29.33	9.62	20.65	26.91	6.26	19.96	24.42	4.46
MW-13	13.5	14.99	1.49	13.23	14.48	1.25	12.32	13.52	1.2
MW-22	24.10	25.5	1.4	24.18	24.91	0.73	23.76	24.02	0.26

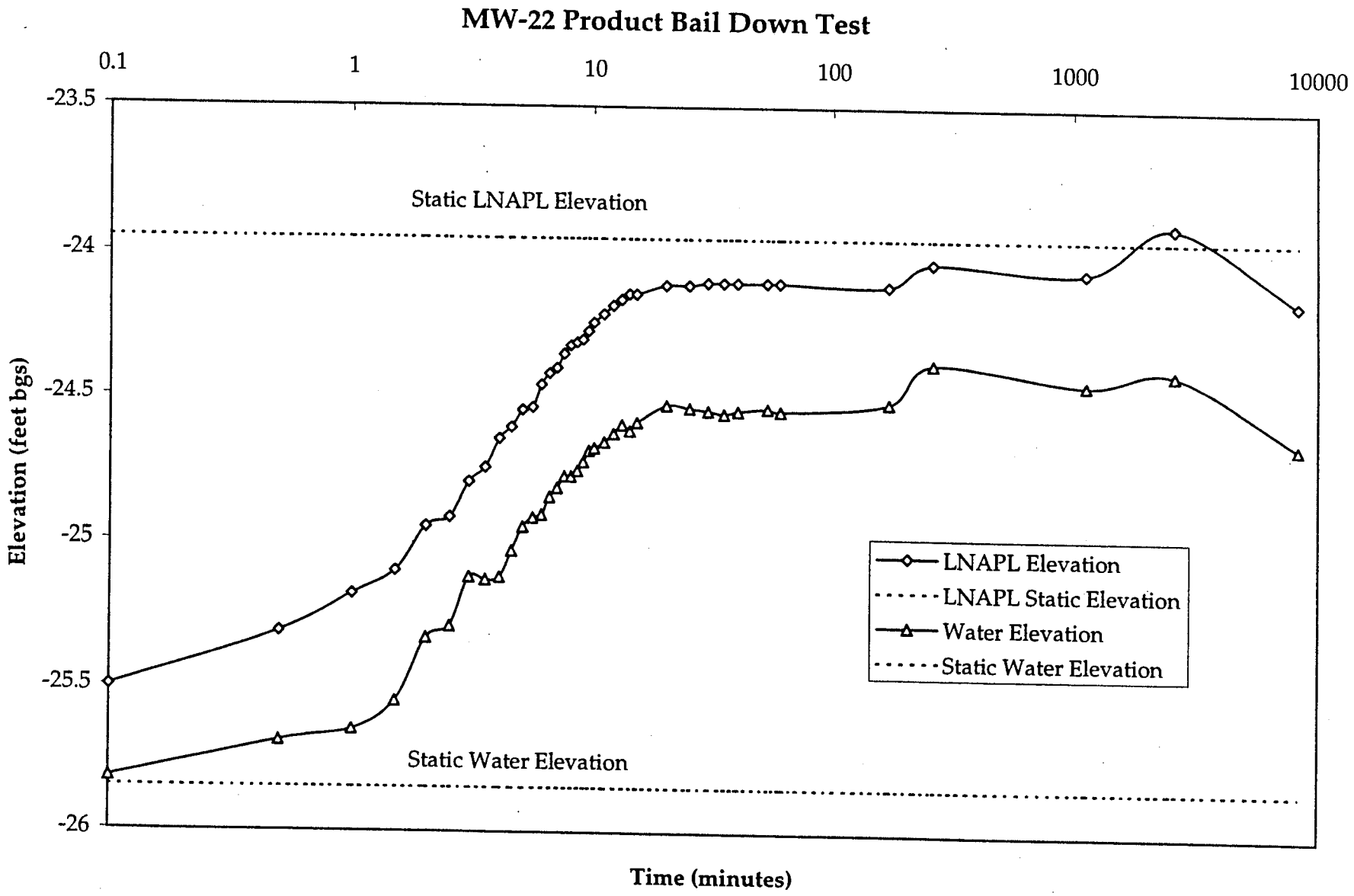
Notes:
(1) LNAPL - Light Non-Aqueous Phase Liquid
(2) ft BTOC - feet below top of casing

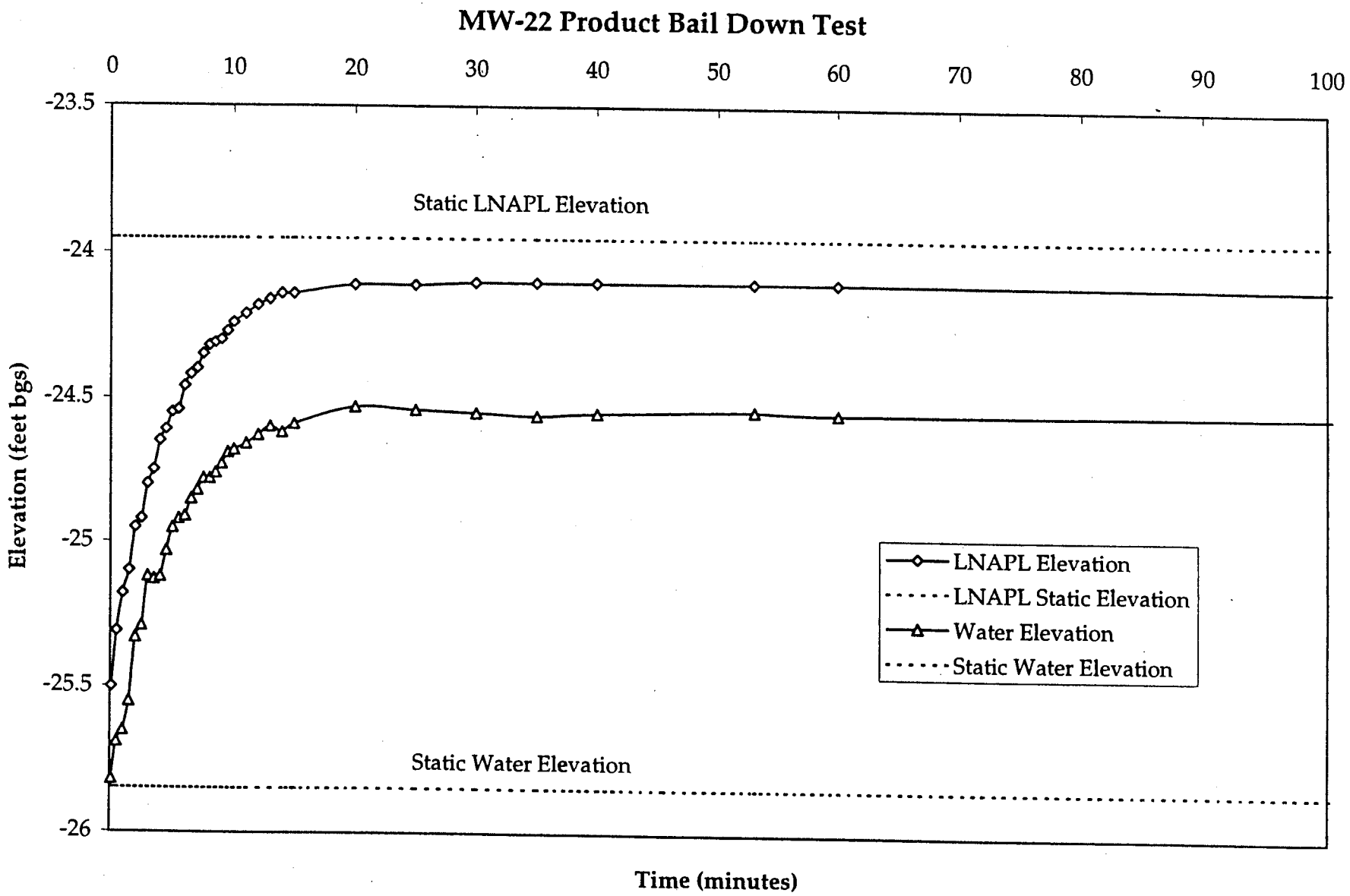
PRODUCT BAILDOWN TEST

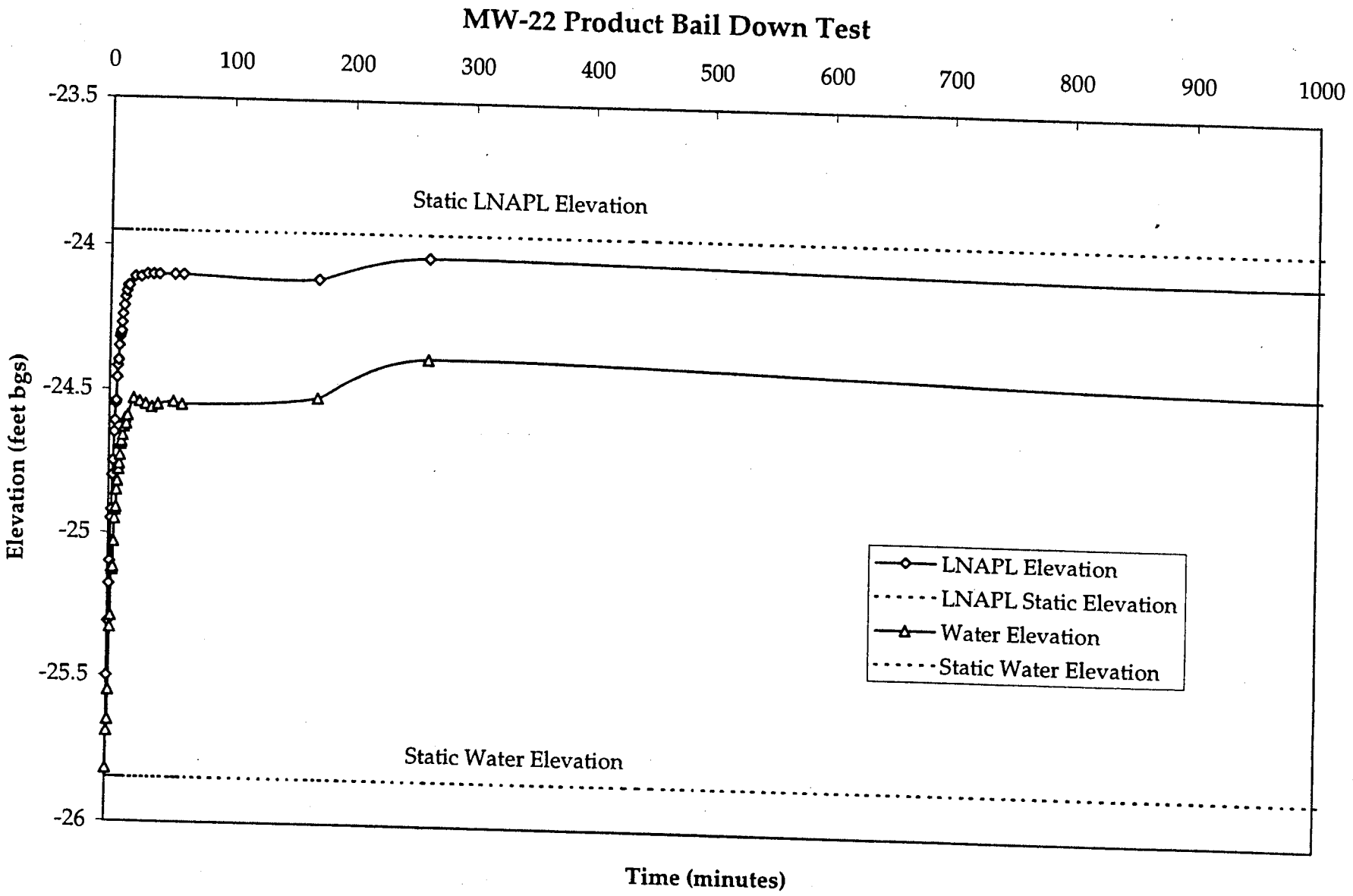
MW-22

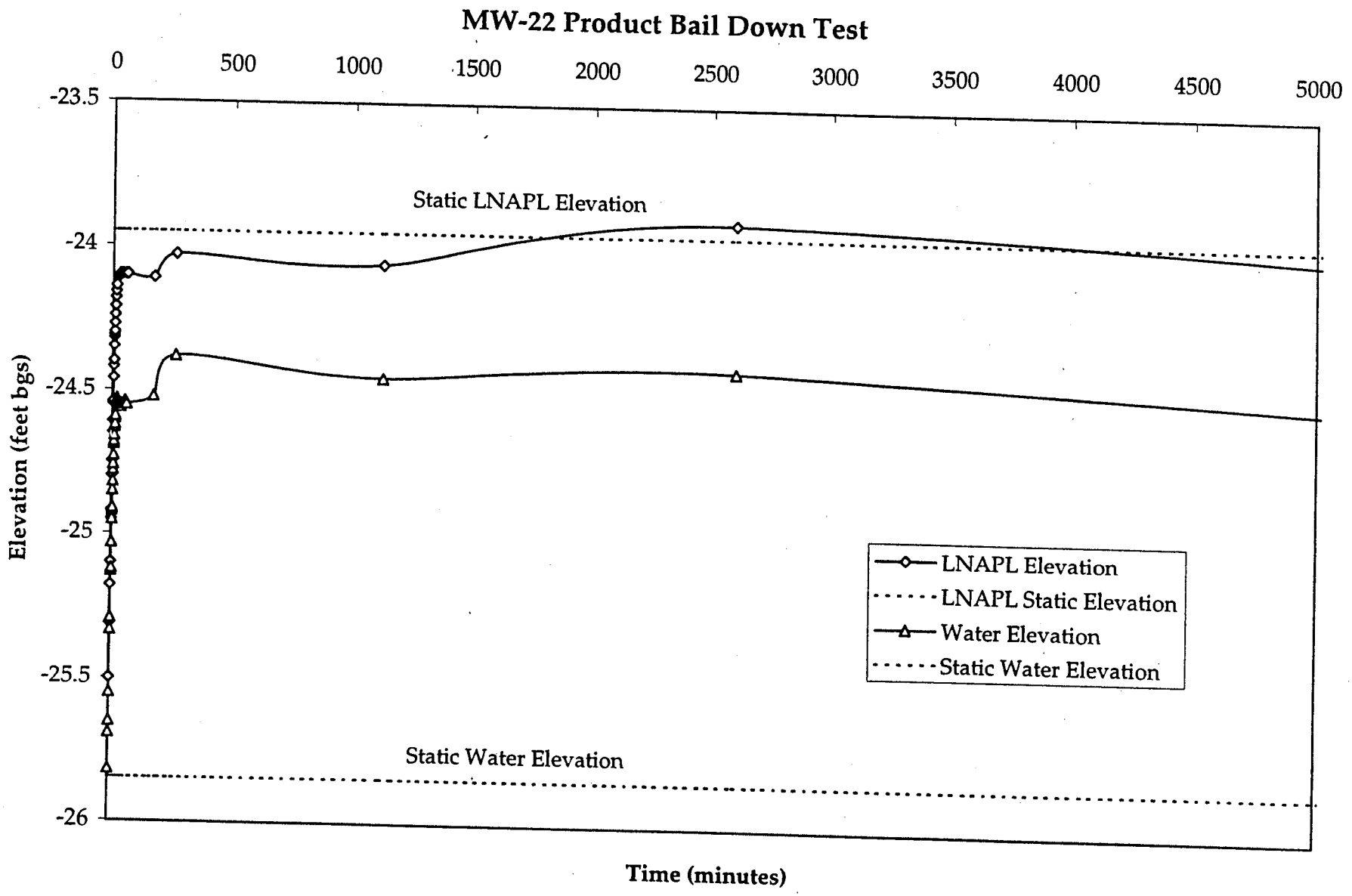
JANUARY 27, 1998

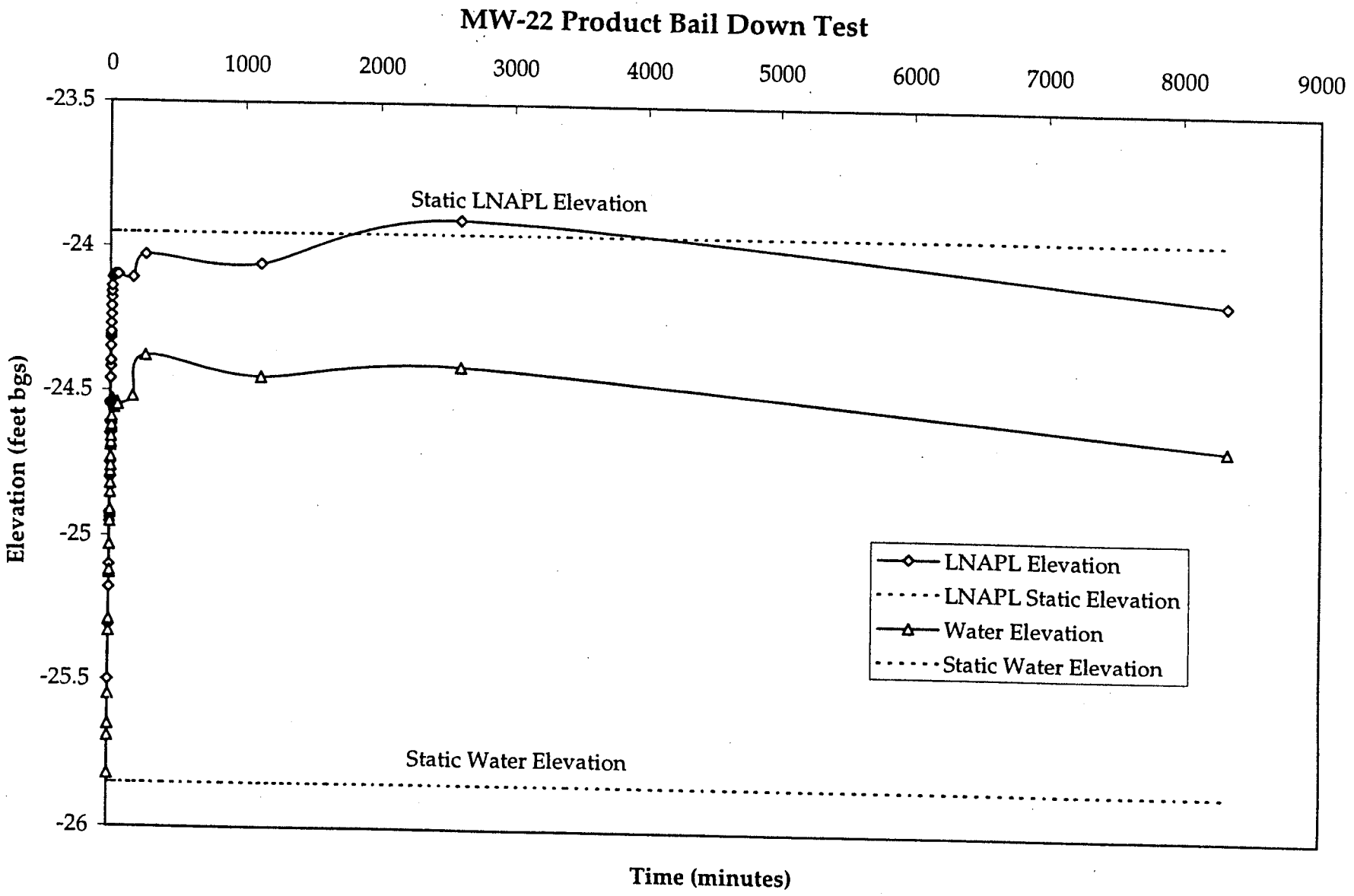
Time (Minutes)	*LNAPL Depth (ft) Top of Product*	*Water Depth (ft) Top of Water*	*Difference in Depths (ft)*
Static	23.95	25.85	-1.90
0.0	25.50	25.82	-0.32
0.5	25.31	25.69	-0.38
1.0	25.18	25.65	-0.47
1.5	25.10	25.55	-0.45
2.0	24.95	25.33	-0.38
2.5	24.92	25.29	-0.37
3.0	24.80	25.12	-0.32
3.5	24.75	25.13	-0.38
4.0	24.65	25.12	-0.47
4.5	24.61	25.03	-0.42
5.0	24.55	24.95	-0.40
5.5	24.54	24.92	-0.38
6.0	24.46	24.91	-0.45
6.5	24.42	24.85	-0.43
7.0	24.40	24.82	-0.42
7.5	24.35	24.78	-0.43
8.0	24.32	24.78	-0.46
8.5	24.31	24.76	-0.45
9.0	24.30	24.73	-0.43
9.5	24.27	24.69	-0.42
10.0	24.24	24.68	-0.44
11.0	24.21	24.66	-0.45
12.0	24.18	24.63	-0.45
13.0	24.16	24.60	-0.44
14.0	24.14	24.62	-0.48
15.0	24.14	24.59	-0.45
20.0	24.11	24.53	-0.42
25.0	24.11	24.54	-0.43
30.0	24.10	24.55	-0.45
35.0	24.10	24.56	-0.46
40.0	24.10	24.55	-0.45
53.0	24.10	24.54	-0.44
60.0	24.10	24.55	-0.45
171.0	24.11	24.52	-0.41
262.0	24.03	24.38	-0.35
1118.0	24.06	24.45	-0.39
2598.0	23.90	24.41	-0.51
8323.0	24.16	24.66	-0.50


MW-22 Product Bail Down Test
0.1
1
10
100
1000
10000
-23.5
-24
-24.5
-25
-25.5
-26
Elevation (feet bgs)
Time (minutes)
Static LNAPL Elevation
Static Water Elevation
LNAPL Elevation
LNAPL Static Elevation
Water Elevation
Static Water Elevation


MW-22 Product Bail Down Test
0
10
20
30
40
50
60
70
80
90
100
-23.5
-24
-24.5
-25
-25.5
-26
Elevation (feet bgs)
Time (minutes)
Static LNAPL Elevation
Static Water Elevation
LNAPL Elevation
LNAPL Static Elevation
Water Elevation
Static Water Elevation


MW-22 Product Bail Down Test
0
100
200
300
400
500
600
700
800
900
1000
-23.5
-24
-24.5
-25
-25.5
-26
Elevation (feet bgs)
Time (minutes)
Static LNAPL Elevation
Static Water Elevation
LNAPL Elevation
LNAPL Static Elevation
Water Elevation
Static Water Elevation

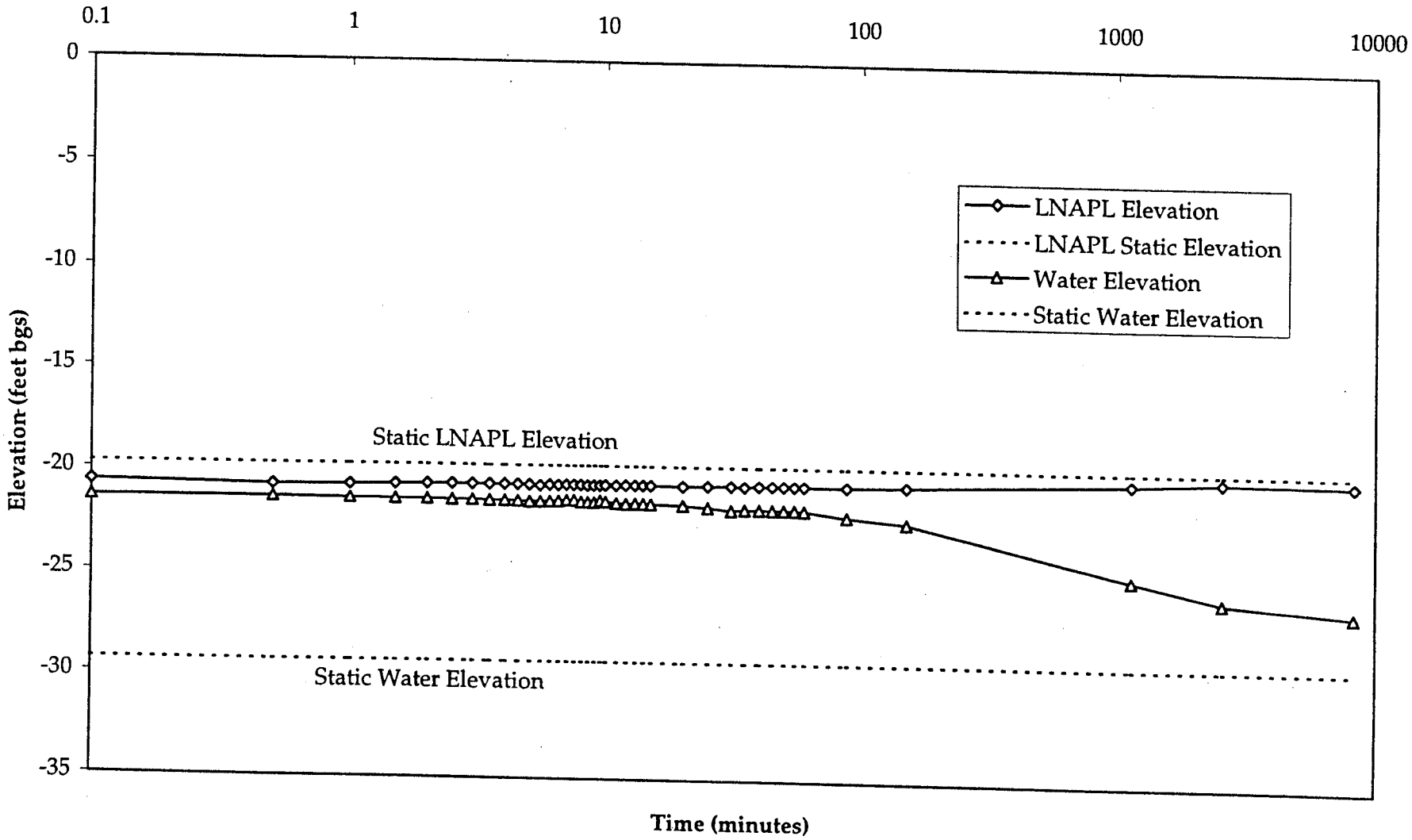

MW-22 Product Bail Down Test
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
-23.5
-24
-24.5
-25
-25.5
-26
Elevation (feet bgs)
Static LNAPL Elevation
Static Water Elevation
LNAPL Elevation
LNAPL Static Elevation
Water Elevation
Static Water Elevation
Time (minutes)

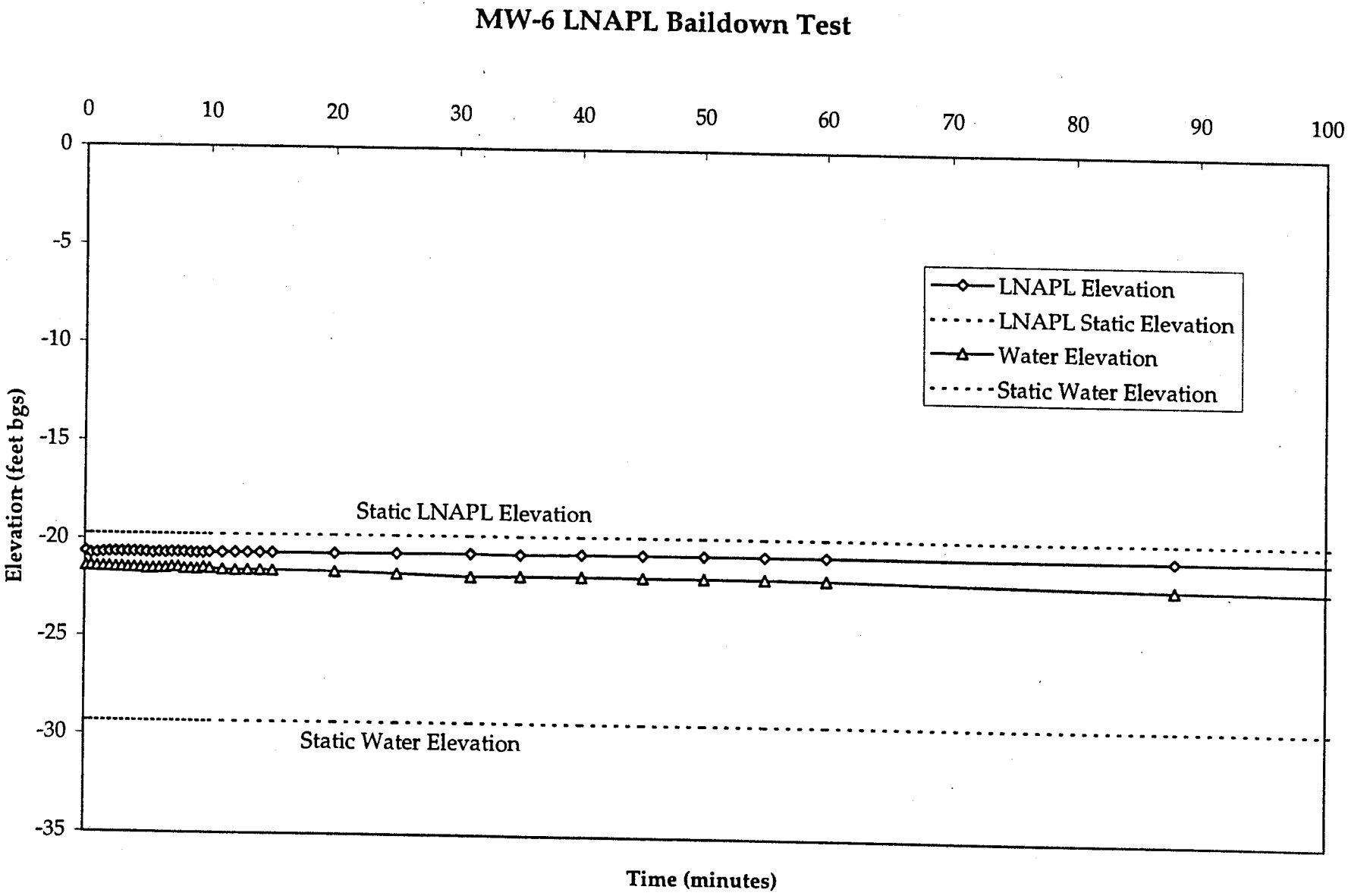

MW-22 Product Bail Down Test
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
-23.5
-24
-24.5
-25
-25.5
-26
Elevation (feet bgs)
Time (minutes)
Static LNAPL Elevation
Static Water Elevation
LNAPL Elevation
LNAPL Static Elevation
Water Elevation
Static Water Elevation

PRODUCT BAILDOWN TEST
MW-6

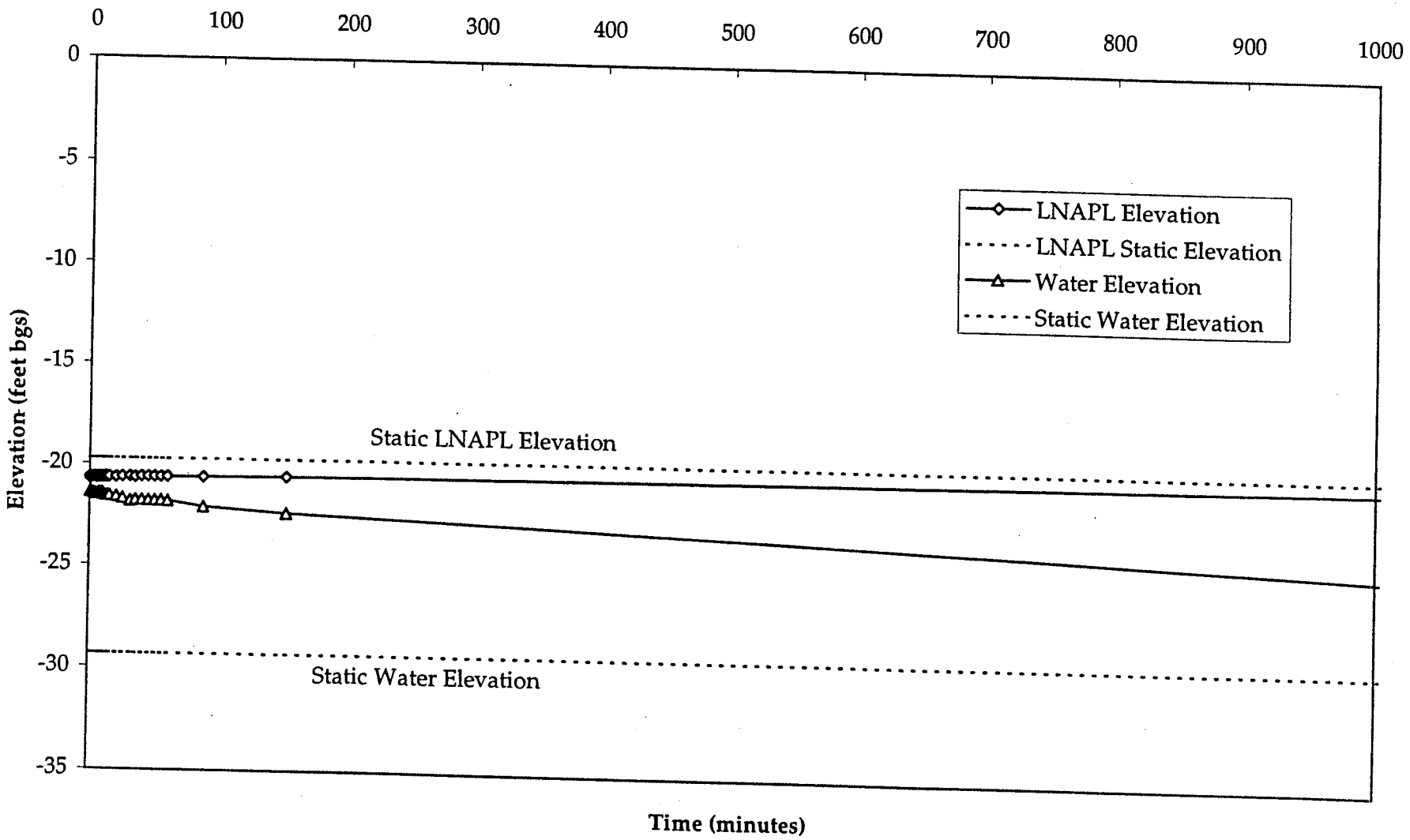
Time (Minutes)	*LNAPL Depth (ft) Top of Product*	*Water Depth (ft) Top of Water*	*Difference in Depths (ft)*
Static	19.71	29.33	-9.62
0.0	20.64	21.39	-0.75
0.5	20.75	21.36	-0.61
1.0	20.72	21.40	-0.68
1.5	20.69	21.42	-0.73
2.0	20.66	21.42	-0.76
2.5	20.65	21.44	-0.79
3.0	20.65	21.43	-0.78
3.5	20.65	21.45	-0.80
4.0	20.65	21.45	-0.80
4.5	20.65	21.46	-0.81
5.0	20.66	21.50	-0.84
5.5	20.70	21.49	-0.79
6.0	20.66	21.48	-0.82
6.5	20.67	21.47	-0.80
7.0	20.65	21.42	-0.77
7.5	20.65	21.42	-0.77
8.0	20.65	21.50	-0.85
8.5	20.68	21.50	-0.82
9.0	20.68	21.51	-0.83
9.5	20.67	21.43	-0.76
10.0	20.65	21.48	-0.83
11.0	20.65	21.54	-0.89
12.0	20.64	21.57	-0.93
13.0	20.64	21.54	-0.90
14.0	20.64	21.55	-0.91
15.0	20.64	21.57	-0.93
20.0	20.65	21.60	-0.95
25.0	20.62	21.69	-1.07
31.0	20.61	21.81	-1.20
35.0	20.63	21.77	-1.14
40.0	20.60	21.77	-1.17
45.0	20.60	21.78	-1.18
50.0	20.60	21.78	-1.18
55.0	20.60	21.78	-1.18
60.0	20.60	21.80	-1.20
88.0	20.60	22.08	-1.48
152.0	20.55	22.36	-1.81
1141.0	20.25	24.94	-4.69
2593.0	20.09	25.98	-5.89
8316.0	20.12	26.52	-6.40

MW-6 LNAPL Baildown Test




MW-6 LNAPL Baildown Test
0
10
20
30
40
50
60
70
80
90
100
0
-5
-10
-15
-20
-25
-30
-35
Elevation (feet bgs)
LNAPL Elevation
LNAPL Static Elevation
Water Elevation
Static Water Elevation
Static LNAPL Elevation
Static Water Elevation
Time (minutes)

MW-6 LNAPL Baildown Test



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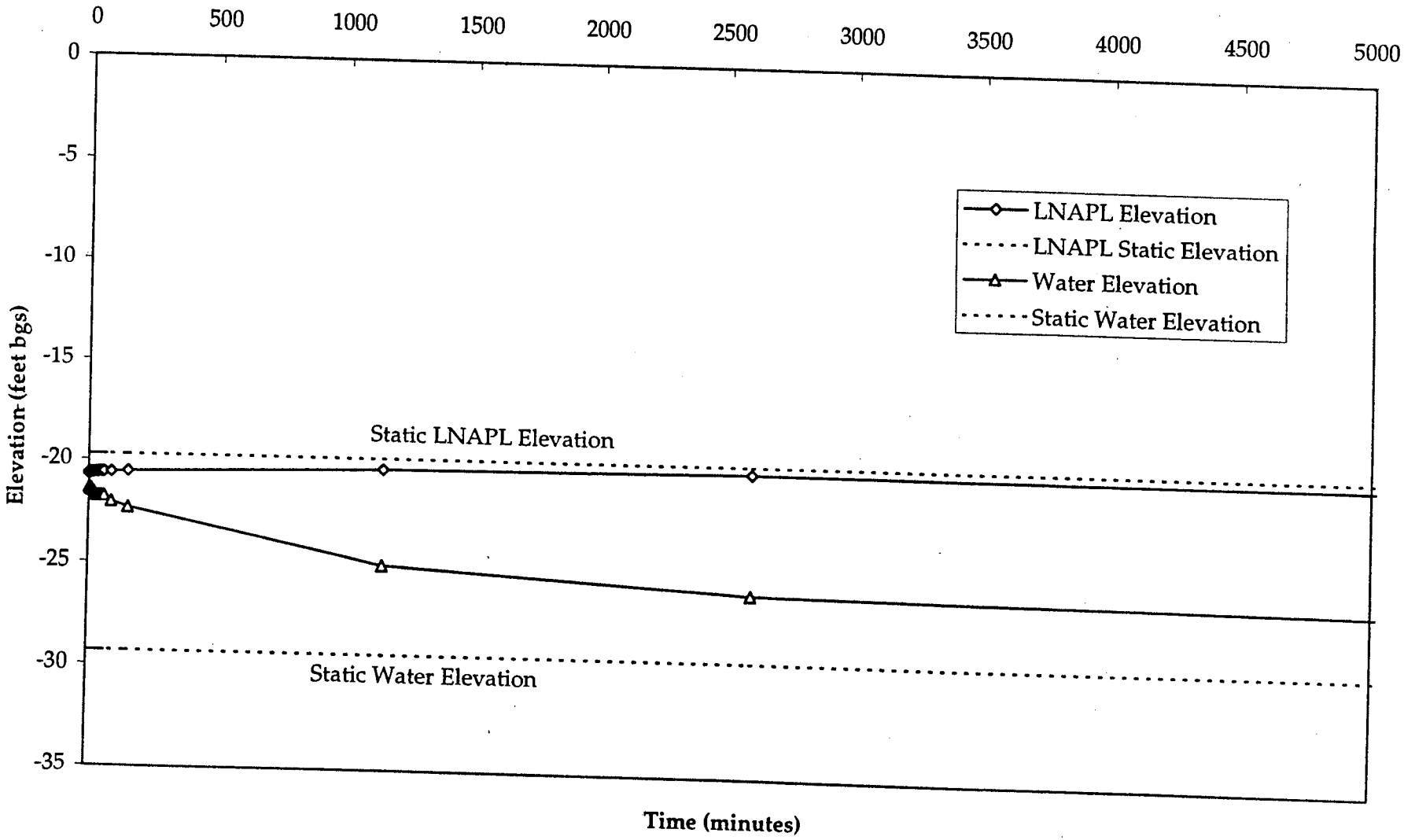

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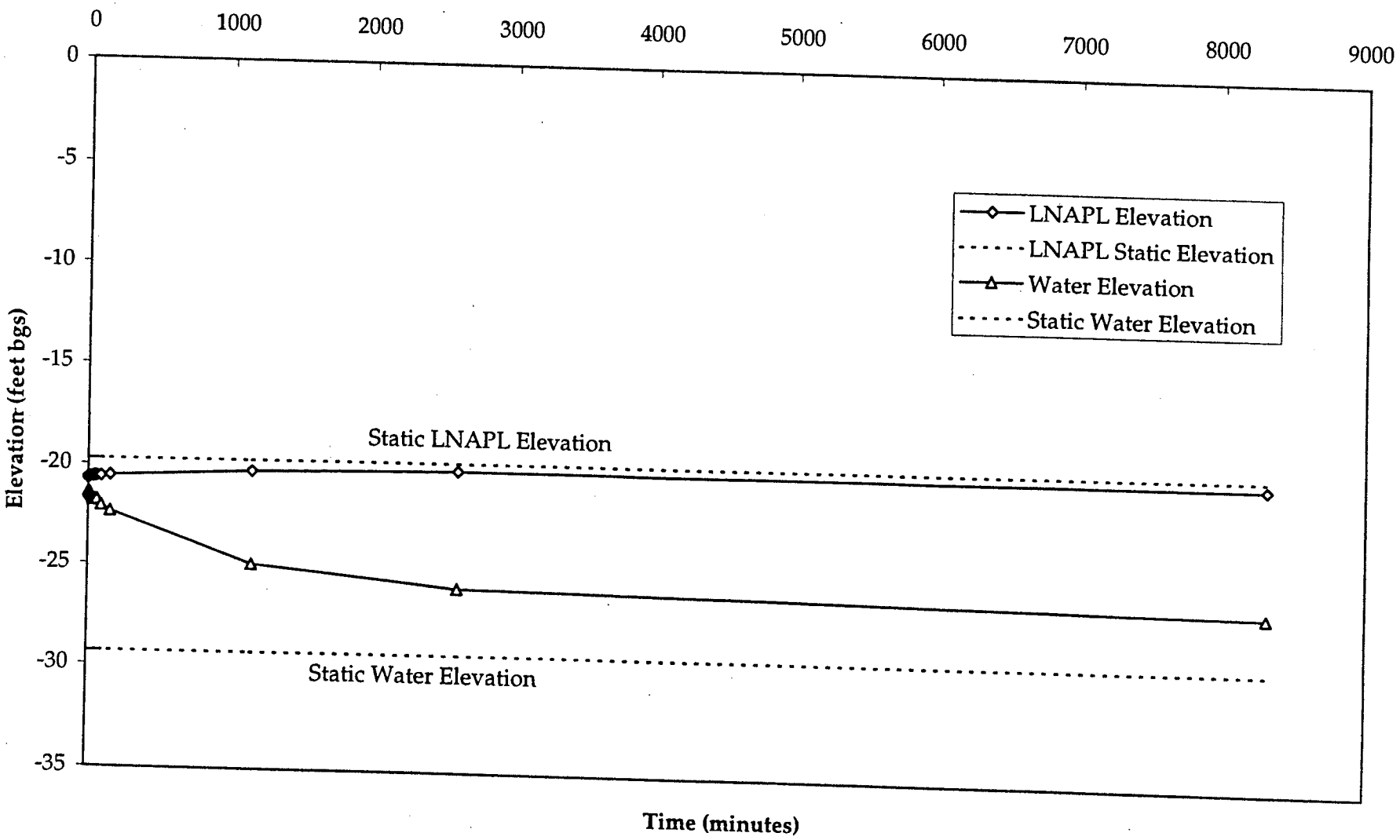


APPENDIX B

STRATIGRAPHIC AND MONITORING WELL CONSTRUCTION LOGS

DRAFT

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

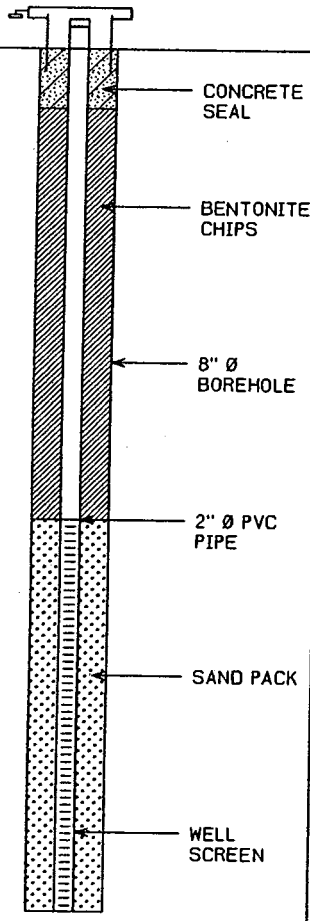
(WL-05)
Page 1 of 1

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW24-99
DATE COMPLETED: SEPTEMBER 8, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
	REFERENCE POINT (Top of Riser)	0.00
	GROUND SURFACE	0.00
2.5	SW/GW-SAND and GRAVEL (FILL), little silt, medium dense, fine to medium grained, well graded, brown, moist, pieces of wood, pieces of metal	-2.0
	FOUNDRY SAND (FILL), little silt, medium dense, fine grained, poorly graded, black, moist	-3.0
5.0	CL/ML-CLAY and SILT (FILL), little gravel, medium dense, beige, moist - piece of wood, wire, possible abandoned conduit	
7.5	FOUNDRY SAND (FILL), little silt, medium dense, fine grained, poorly graded, black, moist	-7.0
10.0	- wood, very moist	
12.5	SM-SAND (FILL), some silt, trace gravel, trace clay, medium dense, fine grained, poorly graded, brown/gray, very moist	-12.0
15.0	- little clay, very moist to wet, faint odour	
17.5	FOUNDRY SAND (FILL), little silt, very loose, fine grained, poorly graded, black, wet	-16.0
20.0	SM-SAND (NATIVE), some silt, trace clay, very loose, fine grained, poorly graded, brown/gray, wet	-19.0
22.5	CL-CLAY, little silt, stiff, medium plasticity, gray, very moist to wet	-21.5
	END OF HOLE @ 22.0ft BGS	-22.0
25.0		
27.5		
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS
Screened interval:
12.0 to 22.0ft BGS
Length: 10.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
12.0 to 22.0ft BGS
Material: Silica Sand

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		>15	0
2SS		34	0
3SS		54	0
4SS		10	0
5SS		11	0
6SS		18	0
7SS		11	0
8SS		10	0
9SS		3	0
10SS		5	0
11SS		9	0

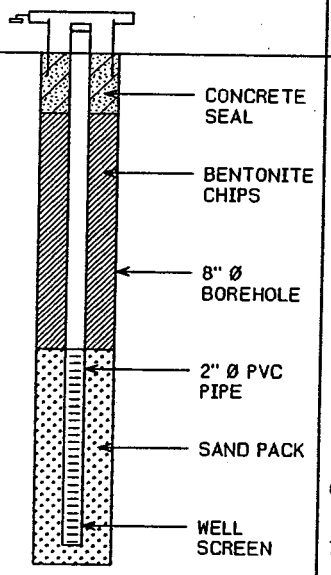
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-06)
Page 1 of 1

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW25-99
DATE COMPLETED: SEPTEMBER 2, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*0.00* *0.00*					
2.5	SW/GW-SAND and GRAVEL (FILL), little silt, extremely dense, fine to coarse grained, well graded, dark brown, moist, cobbles - dense, faint odour, pieces of wood (possible rail tie)			1SS		97	0
		-4.0		2SS		37	3.9
5.0	FOUNDRY SAND (FILL), trace gravel, dense, fine grained, poorly graded, black, moist, faint odour (creosote)			3SS		30	20.9
7.5	- medium dense - sand and pieces of wood			4SS		22	0
10.0	- very moist to wet, black			5SS		29	0
12.5	- wood, oil			6SS		6	1.0
	WOOD, possible wooden floor of a tank	*-13.0*		7SS		63	15.0
15.0	END OF HOLE @ 13.0ft BGS	*-13.0*					
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

SCREEN DETAILS
Screened interval:
7.5 to 12.5ft BGS
Length: 5.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
7.5 to 13.0ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

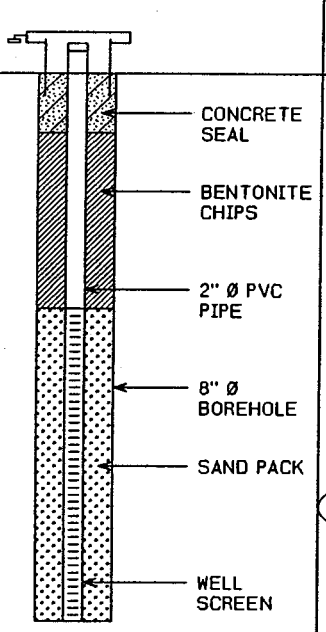
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW26-99
DATE COMPLETED: SEPTEMBER 10, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
	REFERENCE POINT (Top of Riser)	*0.00*
	GROUND SURFACE	*0.00*
	CONCRETE	
		-2.0
2.5	SW/GW-SAND and GRAVEL (FILL), little to some silt, loose, fine to medium grained, well graded, brown, moist	
		-4.5
5.0	CONCRETE	
		-5.5
	FOUNDRY SAND (FILL), slag, silt, gravel, medium dense, fine grained, poorly graded, black, moist	
7.5	- wet, very slight sheen, sheen	
10.0		
12.5		
		-13.0
	MARL (NATIVE), organics (rootlets), silt, trace clay, soft, dark brown, very moist to wet	*-14.0*
15.0	END OF HOLE @ 14.0ft BGS	
17.5		
20.0		
22.5		
25.0		
27.5		
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS
Screened interval:
6.0 to 14.0ft BGS
Length: 8.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
6.0 to 14.0ft BGS
Material: Silica Sand

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		5	0
2SS		>50	0
3SS		14	0
4SS		4	0
(5SS)		5	0
6SS		3	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS (5SS)

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

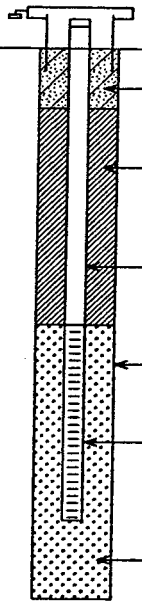
(WL-08)
Page 1 of 1

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW27-99
DATE COMPLETED: SEPTEMBER 13, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*0.00* *0.00*
	CONCRETE	*-.5*
-2.5	SW/GW-SAND and GRAVEL (FILL), some silt, medium dense, fine to medium grained, well graded, black/dark brown, moist, bricks, some foundry sand	*-3.0*
-5.0	FOUNDRY SAND (FILL), little to some silt, trace gravel, medium dense, fine grained, poorly graded, black, moist - trace clay, slag, rusty brown, loose	
-7.5	- rock fragments	
-10.0	- wet, odour, sheen	
	MARL, silt, little clay, soft, gray, moist, organics (rootlets)	*-11.5*
-12.5		
	END OF HOLE @ 14.0ft BGS	*-14.0*
-15.0		
-17.5		
-20.0		
-22.5		
-25.0		
-27.5		
-30.0		
-32.5		

MONITOR INSTALLATION



SCREEN DETAILS
Screened interval:
7.0 to 12.0ft BGS
Length: 5.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
7.0 to 14.0ft BGS
Material: Silica Sand

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		23	0
2SS		19	0
3SS		39	0
4SS		7	0
5SS		>50	0
(6SS)		9	25.2
7SS		3	1.9

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

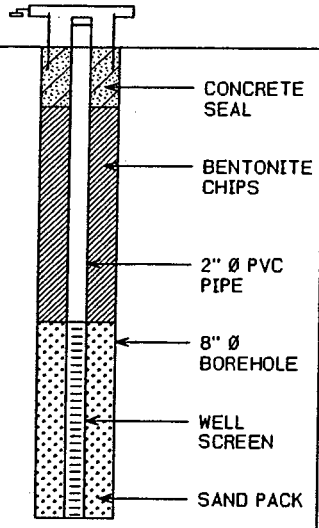
(WL-09)
Page 1 of 1

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW28-99
DATE COMPLETED: SEPTEMBER 13, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
	REFERENCE POINT (Top of Riser)	*0.00*
	GROUND SURFACE	*0.00*
	CONCRETE	*-.5*
	SW/GW-SAND and GRAVEL (FILL), some silt, medium dense, fine to medium grained, well graded, brown, moist	*-1.0*
2.5	FOUNDRY SAND (FILL), little gravel, medium dense, fine grained, poorly graded, black, moist	
	– stones, cobbles	
5.0	– pieces of wood, wire	
	– slag	
7.5		
	– very loose, wet, sheen, faint odor	
10.0		
	MARL, silt, rootlets, trace clay, soft, gray, very moist	*-11.5*
12.5		*-12.0*
	END OF HOLE @ 12.0ft BGS	
15.0		
17.5		
20.0		
22.5		
25.0		
27.5		
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS
Screened interval:
7.0 to 12.0ft BGS
Length: 5.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
7.0 to 12.0ft BGS
Material: Silica Sand

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		17	0
2SS		22	0
3SS		21	0
4SS		7	0
5SS		2	0
6SS		4	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW29-99
DATE COMPLETED: SEPTEMBER 16, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*0.00* *0.00*					
0 – 2.5	SW/GW-SAND and GRAVEL (FILL), little silt, medium dense, fine to coarse grained, well graded, brown, moist, cobbles		CONCRETE SEAL	1SS		13	0
2.5 – 5.0	ML/CL-SILT and CLAY (FILL), little gravel, trace fine sand, medium dense, low plasticity, brown, moist	*-3.0*	BENTONITE CHIPS	2SS		13	0
				3SS		7	0
5.0 – 7.5	CL-CLAY (NATIVE), some silt, stiff, low plasticity, layered, brown/gray, moist – medium plasticity, gray, rootlets	*-8.5*	2" Ø PVC PIPE	4SS		11	0
				5SS		10	0
10.0 – 17.5	SP-SAND, medium dense, medium grained, poorly graded, gray, wet	*-10.0*	8" Ø BOREHOLE	6SS		15	0
			WELL SCREEN	7SS		7	0
				8SS		4	0
17.5 – 18.0	CL-CLAY (TILL), little silt, little gravel, stiff, low plasticity, gray, very moist	*-17.5* *-18.0*	SAND PACK	9SS		6	0
	END OF HOLE @ 18.0ft BGS						

SCREEN DETAILS
Screened interval:
8.0 to 18.0ft BGS
Length: 10.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
8.0 to 18.0ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

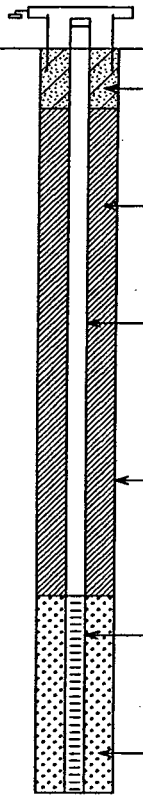
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW30-99
DATE COMPLETED: SEPTEMBER 15, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
	REFERENCE POINT (Top of Riser)	*0.00*
	GROUND SURFACE	*0.00*
2.5	SW/GW-SAND and GRAVEL (FILL), some to little silt, dense, fine to coarse grained, well graded, brown, moist	
		-3.0
5.0	FOUNDRY SAND (FILL), trace silt, dense, fine grained, poorly graded, black, moist, slag	
7.5		
		-9.0
10.0	SM-SAND (FILL), some silt, medium dense, fine grained, poorly graded, brown, moist - loose - trace clay	
12.5		
		-13.0
	ML/CL-SILT and CLAY (FILL), trace fine sand and gravel, firm, low plasticity, gray, very moist	
		-14.5
15.0	SP-SAND (NATIVE), trace to little silt, medium dense, fine grained, poorly graded, gray, wet	
17.5		
		-18.0
	CL-CLAY, little silt, stiff, low to medium plasticity, gray, moist	*-19.0*
20.0	END OF HOLE @ 19.0ft BGS	
22.5		
25.0		
27.5		
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS
Screened interval:
19.0 to 14.0ft BGS
Length: 5.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
14.0 to 19.0ft BGS
Material: Silica Sand

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		47	0
2SS		35	0
3SS		21	0
4SS		17	0
5SS		7	0
6SS		4	0
7SS		6	0
8SS		4	0
9SS		9	0
10SS		12	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

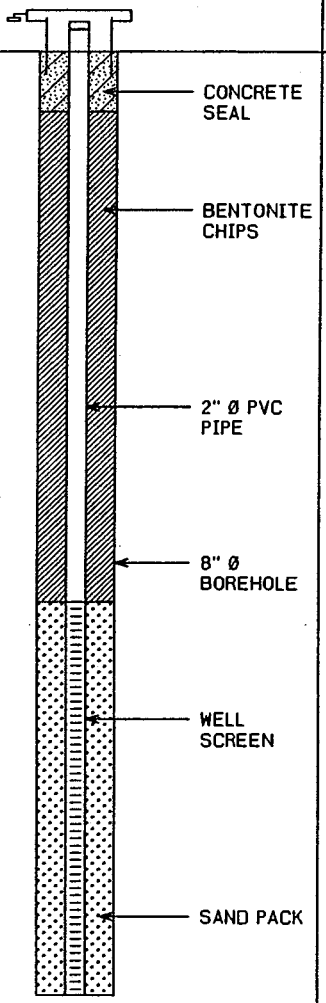
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW31-99
DATE COMPLETED: SEPTEMBER 15, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
	REFERENCE POINT (Top of Riser)	*0.00*
	GROUND SURFACE	*0.00*
-2.5	SW/GW-SAND and GRAVEL (FILL), little silt, medium dense, fine to medium grained, well graded, brown, moist, cobbles, next to rail line	
-5.0		
		-6.0
-7.5	FOUNDRY SAND (FILL), loose, fine grained, poorly graded, black, moist	
		-8.0
	ML/CL-SILT and CLAY (FILL), trace gravel, trace fine sand, loose, low to medium plasticity, brown, moist	
-10.0		*-9.5*
	SM-SAND (NATIVE), some silt, medium dense, fine grained, poorly graded, brown, moist	
	- very moist to wet	
-12.5		
-15.0		*-15.0*
	SW/GW-SAND and GRAVEL, little silt, medium dense, fine to coarser grained, well graded, gray, moist	*-16.0*
-17.5	SP-SAND, trace silt, medium dense, fine grained, poorly graded, brown, very moist to wet	
	- wet	
-20.0	- medium grained, gray	
	- trace gravel	
-22.5		*-23.0*
	CL-CLAY (TILL), little silt, little gravel, firm, medium plasticity, gray, very moist	*-24.0*
-25.0	END OF HOLE @ 24.0ft BGS	
-27.5		
-30.0		
-32.5		

MONITOR INSTALLATION



SCREEN DETAILS
Screened interval:
14.0 to 24.0ft BGS
Length: 10.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
14.0 to 24.0ft BGS
Material: Silica Sand

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		27	0
2SS		38	0
3SS		24	0
4SS		11	0
5SS		6	0
6SS		13	0
7SS		10	0
8SS		10	0
9SS		14	0
10SS		9	0
11SS		8	0
12SS		4	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

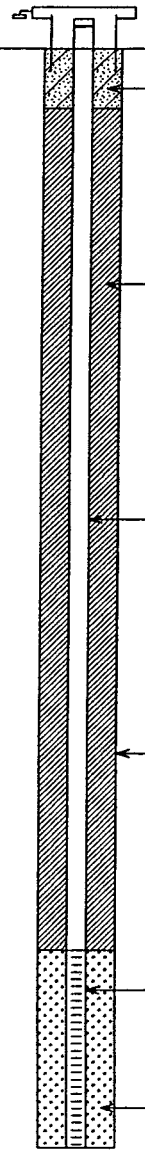
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-13)
Page 1 of 1

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW32-99
DATE COMPLETED: SEPTEMBER 14, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
	REFERENCE POINT (Top of Riser)	0.00
	GROUND SURFACE	0.00
	SLAG, old rail line	-1.0
2.5	SW/GW-SAND and GRAVEL (FILL), little silt, medium dense, fine to coarse grained, well graded, brown, moist	-2.5
	FOUNDRY SAND (FILL), medium dense, fine grained, poorly graded, black, moist	
5.0	MIXTURE OF BROWN SANDS	-5.0
7.5		-8.0
	- gravel	
10.0	- very loose, foam or mold like material	
12.5		
15.0		
		-16.0
17.5	ML-SILT (FILL), little gravel, trace fine sand, medium dense, brown, moist	
		-19.0
20.0	SM-SAND (FILL), some silt, medium dense, fine grained, poorly graded, brown, moist	
		-20.5
	ML/CL-SILT and CLAY (NATIVE), medium dense, low plasticity, brown, moist	
22.5		
		-23.5
	SW/GW-SAND and GRAVEL, little silt, loose, fine to coarse grained, well graded, brown, wet	
25.0		-25.0
	SP-SAND, trace to little gravel, trace silt, loose, fine grained, poorly graded, brown, wet	
		-27.0
27.5	CL-CLAY (TILL), some silt, little gravel, firm, medium plasticity, gray, moist	-28.0
	END OF HOLE @ 28.0ft BGS	
30.0		
32.5		



MONITOR INSTALLATION

SCREEN DETAILS
Screened interval:
23.0 to 28.0ft BGS
Length: 5.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
23.0 to 28.0ft BGS
Material: Silica Sand

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		13	0
2SS		10	0
3SS		8	0
4SS		5	0
5SS		3	0
6SS		2	0
7SS		2	0
8SS		2	0
9SS		16	0
10SS		13	0
11SS		16	0
12SS		8	0
13SS		8	0
14SS		6	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

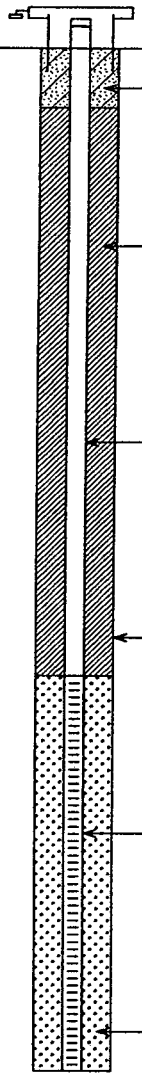
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW33-99
DATE COMPLETED: SEPTEMBER 14, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*0.00* *0.00*
2.5	SW/GW-SAND and GRAVEL (FILL), little silt, medium dense, fine to medium grained, well graded, black, moist	
	FOUNDRY SAND (FILL), trace gravel, medium dense, fine grained, poorly graded, black, moist	*-2.5*
5.0	– very loose	
7.5		
10.0		
	– rock fragments	
12.5		
15.0		
17.5		
20.0		
	– very moist	
22.5	– wet, faint odor	
	SP-SAND (NATIVE), little silt, loose, fine grained, poorly graded, brown, wet, strong odor	*-24.0*
25.0		
	END OF HOLE @ 26.0ft BGS	*-26.0*
27.5		
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS
Screened interval:
16.0 to 26.0ft BGS
Length: 10.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
16.0 to 26.0ft BGS
Material: Silica Sand

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		20	0
2SS		13	0
3SS		4	0
4SS		14	0
5SS		5	0
6SS		21	0
7SS		8	0
8SS		15	0
9SS		12	0
10SS		4	0
11SS		5	0
12SS		5	0
13SS		8	101

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

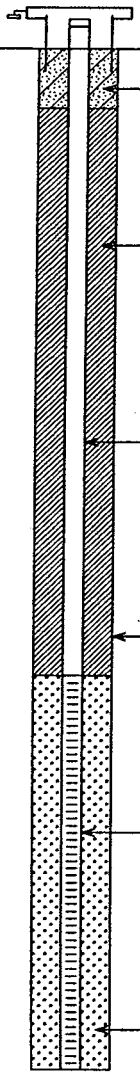
(WL-15)
Page 1 of 1

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW33-99
DATE COMPLETED: SEPTEMBER 14, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
	REFERENCE POINT (Top of Riser)	*0.00*
	GROUND SURFACE	*0.00*
2.5	SW/GW-SAND and GRAVEL (FILL), little silt, medium dense, fine to medium grained, well graded, black, moist	
	FOUNDRY SAND (FILL), trace gravel, medium dense, fine grained, poorly graded, black, moist	*-2.5*
5.0	- very loose	
7.5		
10.0		
	- rock fragments	
12.5		
15.0		
17.5		
20.0		
	- very moist	
22.5	- wet, faint odor	
		-24.0
25.0	SP-SAND (NATIVE), little silt, loose, fine grained, poorly graded, brown, wet, strong odor	
		-26.0
	END OF HOLE @ 26.0ft BGS	
27.5		
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS
Screened interval:
16.0 to 26.0ft BGS
Length: 10.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
16.0 to 26.0ft BGS
Material: Silica Sand

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		20	0
2SS		13	0
3SS		4	0
4SS		14	0
5SS		5	0
6SS		21	0
7SS		8	0
8SS		15	0
9SS		12	0
10SS		4	0
11SS		5	0
12SS		5	0
13SS		8	101

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW34-99
DATE COMPLETED: SEPTEMBER 1, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*0.00* *0.00*					
	SW/GW-SAND and GRAVEL (FILL), little silt, medium dense, fine to medium grained, well graded, brown, moist		CONCRETE SEAL	1SS		21	0
2.5	FOUNDRY SAND (FILL), trace gravel, medium dense, fine grained, poorly graded, black, strong odors	*-2.5*		2SS		25	154
5.0	– slight sheen, odors		BENTONITE GROUT	3SS		17	130
	SW/GW-SAND and GRAVEL (FILL), little silt, medium dense, fine to medium grained, well graded, brown, moist	*-6.0*		4SS		35	0
7.5	FOUNDRY SAND (FILL), trace gravel, loose, fine grained, poorly graded, black, strong odors	*-8.5*		5SS		7	0
10.0			2" Ø PVC PIPE	6SS		2	0
12.5				7SS		9	0
15.0	– occasional brown sands		8" Ø BOREHOLE	8SS		8	0
				9SS		5	0
17.5			BENTONITE CHIPS	10SS		5	0
20.0				11SS		4	0
22.5	– strong odors, slight sheen on sands			12SS		4	148
25.0	– wet, sheen, trace product, strong odors		WELL SCREEN	13SS		8	211
	ML/CL-SILT and CLAY, trace fine sand, soft, low to medium plasticity, grey, very moist to wet, odors	*-26.5*		14SS		7	10.1
27.5	– green/gray in color, strong odors		SAND PACK	15SS		10	13.2
30.0	END OF HOLE @ 30.0ft BGS	*-30.0*					
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW34-99
DATE COMPLETED: SEPTEMBER 1, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
-37.5			SCREEN DETAILS Screened interval: 20.0 to 30.0ft BGS Length: 10.0ft Diameter: 2" Slot Size: #10 Material: PVC Sand Pack: 20.0 to 30.0ft BGS Material: Silica Sand				
-40.0							
-42.5							
-45.0							
-47.5							
-50.0							
-52.5							
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

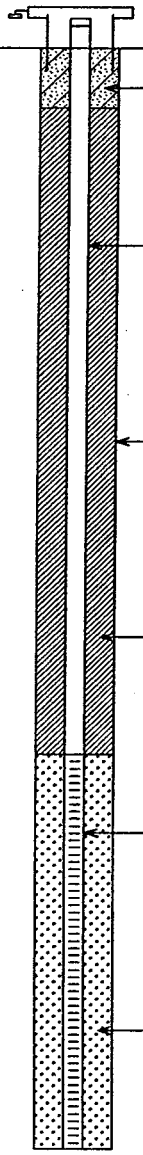
(WL-17)
Page 1 of 1

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW35-99
DATE COMPLETED: SEPTEMBER 14, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
	REFERENCE POINT (Top of Riser)	0.00
	GROUND SURFACE	0.00
	SW/GW-SAND and GRAVEL (FILL), little silt, medium dense, fine to medium grained, well graded, brown, moist, pieces of glass	
		-2.0
2.5	FOUNDRY SAND (FILL), medium dense, fine grained, poorly graded, black, moist	
		-4.0
5.0	BROWN FINE SAND MIXTURE	
		-6.0
7.5		
		-9.0
	SP-SAND (FILL), little silt, very loose, fine grained, poorly graded, brown, moist	-9.5
10.0	SM-SAND (FILL), some silt, trace gravel, loose, fine grained, poorly graded, brwon, moist	
12.5		
15.0		-15.0
	ML-SILT (FILL), little fine sand, little clay, very loose, brown, moist	
17.5		-17.5
	FOUNDRY SAND (FILL), slag, loose, fine grained, poorly graded, black, moist	
20.0	- black, wet	
22.5	- slag	
25.0		
27.5		-27.5
	PT-PEAT (NATIVE), rootlets, silt, loose, dark brown, moist	-28.0
	END OF HOLE @ 28.0ft BGS	
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS
Screened interval:
18.0 to 28.0ft BGS
Length: 10.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
18.0 to 28.0ft BGS
Material: Silica Sand

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		10	0
2SS		22	0
3SS		13	0
4SS		2	0
5SS		2	0
6SS		7	0
7SS		4	0
8SS		4	0
9SS		10	0
10SS		7	0
11SS		4	0
12SS		12	0
13SS		3	0
14SS		4	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

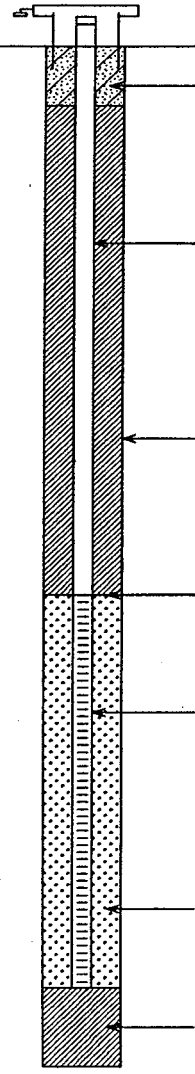
(WL-18)
Page 1 of 1

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW36-99
DATE COMPLETED: SEPTEMBER 2, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
	REFERENCE POINT (Top of Riser)	*0.00*
	GROUND SURFACE	*0.00*
	SW/GW-SAND and GRAVEL (FILL), little silt, very dense, fine to medium grained, well graded, black, moist	
2.5	- foundry sand mix	
		-4.0
5.0	FOUNDRY SAND (FILL), trace to little gravel, very dense, fine grained, poorly graded, black, sands, wood, moist, faint odor	
7.5		
10.0	- lots of wood, loose	
12.5		
15.0		
	- very moist to wet, slight sheen, odors	
17.5	- all foundry sands, wet, black, odors, sheen	
20.0		
22.5		
		-24.5
25.0	CL-CLAY, little silt, firm, medium plasticity, grey	*-25.0*
	PT-PEAT (NATIVE), rootlets, dark brown, very moist	*-25.5*
27.5	SW/GW-SAND and GRAVEL, little silt, medium dense, medium to coarse grained, well graded, gray, wet	*-26.0*
	END OF HOLE @ 26.0ft BGS	
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS
Screened interval:
14.0 to 24.0ft BGS
Length: 10.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
14.0 to 24.0ft BGS
Material: Silica Sand

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		69	2.2
2SS		35	9.5
3SS		60	0
4SS		25	4.5
5SS		5	0
6SS		9	0
7SS		8	0
8SS		5	0
(9SS)		4	15.8
10SS		5	8.3
11SS		5	0
12SS		6	4.3
13SS		10	1.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

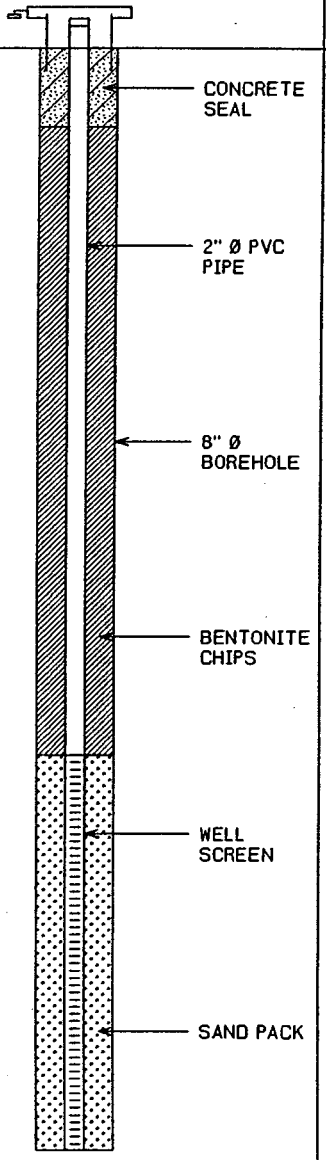
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW37-99
DATE COMPLETED: SEPTEMBER 2, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
	REFERENCE POINT (Top of Riser)	*0.00*
	GROUND SURFACE	*0.00*
	FOUNDRY SAND (FILL), little gravel, dense, fine grained, poorly graded, black, moist	
2.5		
	– medium dense	
5.0		
7.5		
10.0	– loose	
	– occasional brown sand	
12.5		
15.0		
17.5		
20.0		
	– very moist to wet, slight sheen	
22.5		
	– wet, no sheen or odors	
25.0		
		-27.0
27.5	CL-CLAY (TILL), little to some silt, little gravel, firm, low to medium plasticity, grey, moist	*-28.0*
	END OF HOLE @ 28.0ft BGS	
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS
Screened interval:
18.0 to 28.0ft BGS
Length: 10.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
18.0 to 28.0ft BGS
Material: Silica Sand

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		35	0
2SS		45	1.2
3SS		19	0
4SS		26	0
5SS		14	0
6SS		5	0
7SS		5	0
8SS		4	0
9SS		5	0
10SS		7	2.1
11SS		5	0
12SS		5	0
13SS		5	0
14SS		5	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

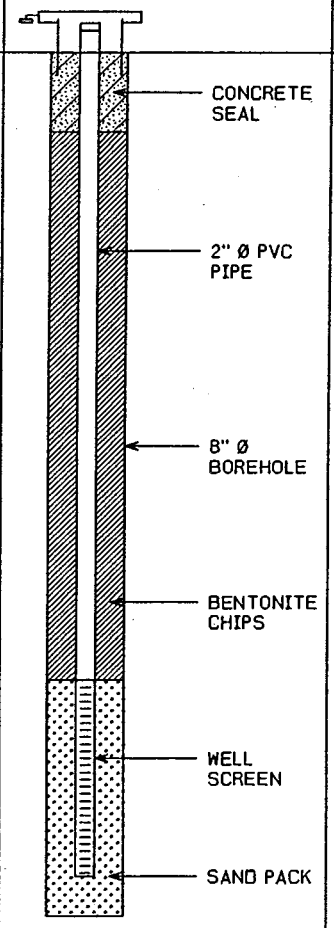
(WL-20)
Page 1 of 1

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW38-99
DATE COMPLETED: SEPTEMBER 3, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
	REFERENCE POINT (Top of Riser)	*0.00*
	GROUND SURFACE	*0.00*
2.5	SM-SAND (FILL), some silt, little gravel, medium dense, fine grained, poorly graded, dark brown, moist	
	FOUNDRY SAND (FILL), trace to little gravel, very dense, fine grained, poorly graded, black, cobbles	*-3.0*
5.0		
	– no gravel or cobbles, loose	
7.5		
10.0		
12.5		
15.0		
17.5	– wet	
		-19.0
20.0	ML-SILT (NATIVE), rootlets, little very fine sand, trace clay, medium dense, gray, very moist	*-20.0*
	SM-SAND, some silt, very loose, fine grained, poorly graded, gray, very moist to wet	*-21.0*
22.5	CL-CLAY, little to some silt, soft, low plasticity, gray, moist	*-22.0*
	END OF HOLE @ 22.0ft BGS	
25.0		
27.5		
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS
Screened interval:
16.0 to 21.0ft BGS
Length: 5.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
16.0 to 22.0ft BGS
Material: Silica Sand

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		11	0
2SS		68	0
3SS		>50	0
4SS		5	0
5SS		4	0
6SS		9	0
7SS		5	0
8SS		6	0
9SS		4	0
10SS		10	0
11SS		3	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW39-99
DATE COMPLETED: SEPTEMBER 1, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*0.00* *0.00*					
	SW/GW-SAND and GRAVEL (FILL), little silt, medium dense, fine to medium grained, well graded, dark brown, moist, cobbles		CONCRETE SEAL	1SS		14	0
2.5		*-3.0*		2SS		18	23.1
	FOUNDRY SAND (FILL), trace to little gravel, medium dense, fine grained, poorly graded, black, moist, odors		2" Ø PVC PIPE	3SS		26	89.9
5.0	– strong odors			4SS		20	41.0
7.5				5SS		5	0
	SM-SAND (FILL), some silt, trace gravel, loose, fine grained, poorly graded, brown, very moist, occasional foundry sands	*-9.0*	BENTONITE GROUT	6SS		7	0
10.0				7SS		3	0
12.5		*-14.0*		8SS		4	0
	ML-SILT (FILL), trace sand, trace gravel, trace clay, loose, brown, very moist, with foundry sands	*-16.0*	8" Ø BOREHOLE	9SS		16	0
15.0	FOUNDRY SAND (FILL), trace gravel, medium dense, fine grained, poorly graded, black and occasional brown sands, moist		BENTONITE CHIPS	10SS		6	0
17.5				11SS		6	0
20.0				12SS		9	0
22.5			WELL SCREEN	13SS		21	0
25.0	– sheen, wet			14SS		5	0
	ML-SILT (NATIVE), some peat, trace fine sand, loose, dark gray, moist to very moist, rootlets	*-27.0*	SAND PACK	15SS		6	0
27.5				16SS		4	0
30.0	MARL (NATIVE), shells, silt, trace fine sand, soft, white/tan, very moist	*-30.0* *-31.0*	BENTONITE CHIPS	17SS		3	0
	PT-PEAT (NATIVE), rootlets, dark brown, pieces of wood			18SS		2	0
32.5	MARL (NATIVE), shells, silt, trace fine sand, trace clay, soft, gray, very moist	*-33.0*					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW39-99
DATE COMPLETED: SEPTEMBER 1, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
			BENTONITE CHIPS	18SS		2	0
		-37.0		19SS		5	0
-37.5	SW-SAND, trace gravel, loose, fine to coarse grained, well graded, brown, wet	*-38.0*	8" Ø BOREHOLE				
	END OF HOLE @ 38.0ft BGS						
-40.0			SCREEN DETAILS Screened interval: 20.0 to 30.0ft BGS Length: 10.0ft Diameter: 2" Slot Size: #10 Material: PVC Sand Pack: 20.0 to 30.0ft BGS Material: Silica Sand				
-42.5							
-45.0							
-47.5							
-50.0							
-52.5							
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

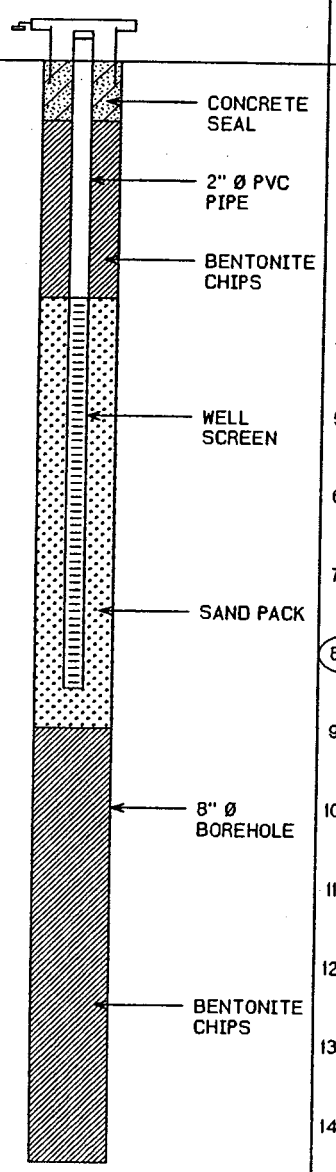
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW40-99
DATE COMPLETED: AUGUST 31, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
	REFERENCE POINT (Top of Riser)	0.00
	GROUND SURFACE	0.00
	ASPHALT	-.5
	FOUNDRY SAND (FILL), little gravel, medium dense, fine grained, poorly graded, black, moist	
2.5	- loose	
5.0	- very loose, very moist	
7.5		
	- wet, no sheen or odors, black	
10.0	- loose	
	- medium dense	
12.5		
	- very loose	
15.0	- faint odor, slight sheen	
		-16.0
	PT-PEAT (NATIVE), organics (rootlets), dark brown, wet	-16.5
17.5	MARL (NATIVE), silt, shells, rootlets, low plasticity, tan/beige, very moist	
20.0	- trace clay, very moist to wet	
22.5		
25.0		
		-26.0
27.5	CL-CLAY, little silt, soft, low to medium plasticity, gray, very moist to wet	
		-28.0
	END OF HOLE @ 28.0ft BGS	
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS
Screened interval:
6.0 to 16.0ft BGS
Length: 10.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
6.0 to 17.0ft BGS
Material: Silica Sand

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		16	0
2SS		6	0
3SS		4	0
4SS		2	0
5SS		2	0
6SS		9	0
7SS		10	0
8SS		3	0
9SS		2	0.2
10SS		1	0
11SS		1	0
12SS		1	0
13SS		1	0
14SS		2	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-23)
Page 1 of 2

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: DW40-99
DATE COMPLETED: SEPTEMBER 9, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*0.00* *0.00*					
	ASPHALT	*-.5*	CONCRETE SEAL				
	FOUNDRY SAND (FILL), little gravel, medium dense, fine grained, poorly graded, black, moist						
2.5	- loose						
5.0			2" Ø PVC PIPE				
	- very loose, very moist						
7.5							
	- wet, no sheen or odors, black		CEMENT/ BENTONITE GROUT				
10.0	- loose						
	- medium dense						
12.5			BENTONITE GROUT				
	- very loose						
15.0	- faint odor, slight sheen						
		-16.0					
	PT-PEAT (NATIVE), organics (rootlets), dark brown, wet	*-16.5*					
17.5	MARL (NATIVE), silt, shells, rootlets, low plasticity, tan/beige, very moist		10" Ø STEEL CASING				
20.0	- trace clay, very moist to wet						
22.5			14" Ø BOREHOLE				
25.0							
	CL-CLAY, little silt, soft, low to medium plasticity, gray, very moist to wet	*-26.0*					
27.5							
	SW/GW-SAND and GRAVEL, little to trace silt, loose, fine to coarse grained, well graded, brown, wet	*-29.0*		15SS		9	0
30.0	- trace silt, medium dense		BENTONITE CHIPS	16SS		24	0
32.5	- rock fragments		WELL SCREEN	17SS		20	0
			SAND PACK	18SS		22	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: DW40-99
DATE COMPLETED: SEPTEMBER 9, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
37.5			8" Ø BOREHOLE	18SS		22	0
40.0			SAND PACK	19SS		28	0
	CL-CLAY (TILL), some silt, little gravel, very stiff, low plasticity, gray, moist	-41.0	WELL SCREEN	20SS		15	0
42.5	END OF HOLE @ 42.0ft BGS	-42.0					
45.0							
47.5							
50.0							
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							
67.5							

SCREEN DETAILS
Screened interval:
32.0 to 42.0ft BGS
Length: 10.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
32.0 to 42.0ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

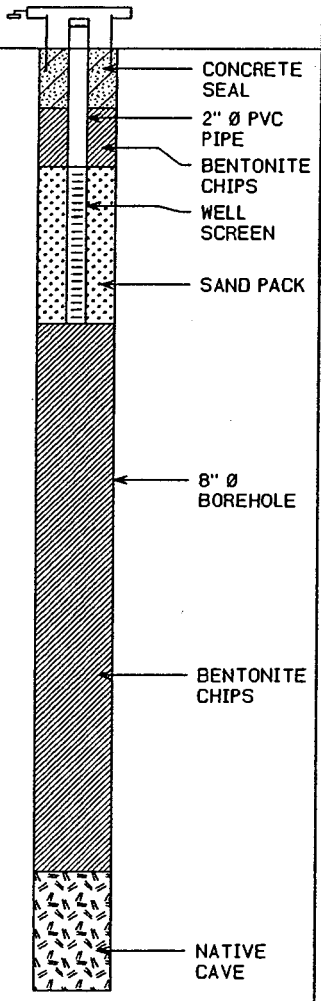
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW41-99
DATE COMPLETED: AUGUST 31, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
	REFERENCE POINT (Top of Riser)	*0.00*
	GROUND SURFACE	*0.00*
	TOPSOIL	*-.5*
2.5	FOUNDRY SAND (FILL), little gravel, trace to little silt, loose, fine grained, poorly graded, black, moist	
5.0	– black, wet, no sheen or odors	
		-6.0
	CL-CLAY (FILL), wood fragments, moist	*-6.5*
7.5	PT-PEAT (NATIVE), organics (rootlets), dark brown, very moist to wet	*-7.5*
	MARL (NATIVE), rootlets, shells, silt, very soft, tan/beige, very moist to wet	
10.0		
	– trace clay	
12.5		
15.0		
17.5		
20.0		*-20.0*
	CL-CLAY, little silt, very soft, medium plasticity, gray, very moist to wet	*-21.0*
22.5	SP-SAND, trace gravel, loose, medium grained, poorly graded, brown, wet	
	END OF HOLE @ 24.0ft BGS	*-24.0*
25.0		
27.5		
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS
Screened interval:
3.0 to 7.0ft BGS
Length: 5.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
3.0 to 7.0ft BGS
Material: Silica Sand

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		6	0
2SS		40	0
3SS		19	0
4SS		1	0
5SS		1	0
6SS		1	0
7SS		1	0
8SS		1	0
9SS		1	0
10SS		1	0
11SS		6	0
12SS		4	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-25)
Page 1 of 2

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: DW41-99
DATE COMPLETED: SEPTEMBER 9, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

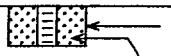
DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*0.00* *0.00*					
	TOPSOIL	*-.5*	CONCRETE SEAL				
2.5	FOUNDRY SAND (FILL), little gravel, trace to little silt, loose, fine grained, poorly graded, black, moist		2" Ø PVC PIPE				
5.0	– black, wet, no sheen or odors						
	CL-CLAY (FILL), wood fragments, moist	*-6.0* *-6.5*	BENTONITE GROUT				
7.5	PT-PEAT (NATIVE), organics (rootlets), dark brown, very moist to wet	*-7.5*					
	MARL (NATIVE), rootlets, shells, silt, very soft, tan/beige, very moist to wet						
10.0							
	– trace clay		CEMENT/ BENTONITE GROUT				
12.5							
15.0			10" Ø STEEL CASING				
17.5			14" Ø BOREHOLE				
20.0		*-20.0*					
	CL-CLAY, little silt, very soft, medium plasticity, gray, very moist to wet	*-21.0*					
22.5	SP-SAND, trace gravel, loose, medium grained, poorly graded, brown, wet						
		-24.0					
25.0	SW/GW-SAND and GRAVEL, little silt, loose, fine to coarse grained, well graded, brown, wet		BENTONITE CHIPS	1SS		6	0
	– rock fragments			2SS		3	0
27.5			WELL SCREEN				
				3SS		14	0
30.0				4SS		14	0
			SAND PACK				
32.5				5SS		6	0
				6SS		18	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: DW41-99
DATE COMPLETED: SEPTEMBER 9, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	END OF HOLE @ 36.0ft BGS	-36.0	 8" Ø BOREHOLE; SAND PACK SCREEN DETAILS Screened interval: 26.0 to 36.0ft BGS Length: 10.0ft Diameter: 2" Slot Size: #10 Material: PVC Sand Pack: 26.0 to 36.0ft BGS Material: Silica Sand				
-37.5							
-40.0							
-42.5							
-45.0							
-47.5							
-50.0							
-52.5							
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

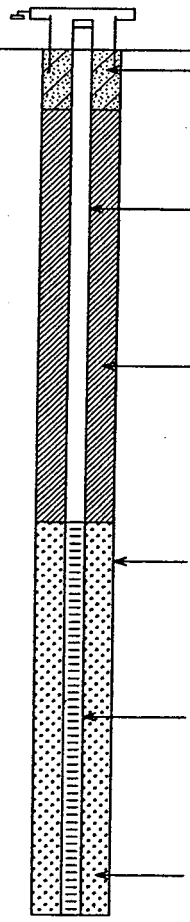
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW42-99
DATE COMPLETED: SEPTEMBER 13, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. VANDERMEULEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
	REFERENCE POINT (Top of Riser)	*0.00*
	GROUND SURFACE	*0.00*
2.5	SW/GW-SAND and GRAVEL (FILL), some silt, medium dense, fine to coarse grained, well graded, brown, moist, cobbles	
		-3.0
5.0	FOUNDRY SAND (FILL), medium dense, fine grained, poorly graded, black, moist - slag	
7.5	- pieces of glass, loose	
10.0		
12.5		
15.0		
17.5	- wet, very faint odor	
20.0		
		-20.5
	PT-PEAT (NATIVE), rootlets, silt, dark brown, moist	*-21.0*
22.5	MARL, silt, trace clay, medium dense, gray, very moist	*-22.0*
	END OF HOLE @ 22.0ft BGS	
25.0		
27.5		
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS
Screened interval:
12.0 to 22.0ft BGS
Length: 10.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
12.0 to 22.0ft BGS
Material: Silica Sand

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		14	0
2SS		29	0
3SS		22	0
4SS		19	0
5SS		6	0
6SS		4	0
7SS		3	0
8SS		4	0
9SS		4	0
10SS		3	0
11SS		16	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW43-99
DATE COMPLETED: SEPTEMBER 9, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: B. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*0.00* *0.00*					
	SW/GW-SAND and GRAVEL, some silt, medium dense, well graded, black, moist		CONCRETE SEAL	1SS		2	
2.5	SM-SAND (FILL), little silt, fine grained, poorly graded, black, dry	*-2.0*		2SS		0	
5.0			2" Ø PVC PIPE	3SS		0	
7.5				4SS		5	
10.0			BENTONITE CHIPS	5SS		5	
12.5			8" Ø BOREHOLE	6SS		5	
15.0			WELL SCREEN	7SS		5	
				8SS		5	
17.5	CL-CLAY (NATIVE), little silt, soft, medium plasticity, gray, moist	*-16.5*	SAND PACK	9SS		5	
	END OF HOLE @ 18.0ft BGS	*-18.0*					
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

SCREEN DETAILS
Screened interval:
13.0 to 18.0ft BGS
Length: 5.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
13.0 to 18.0ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

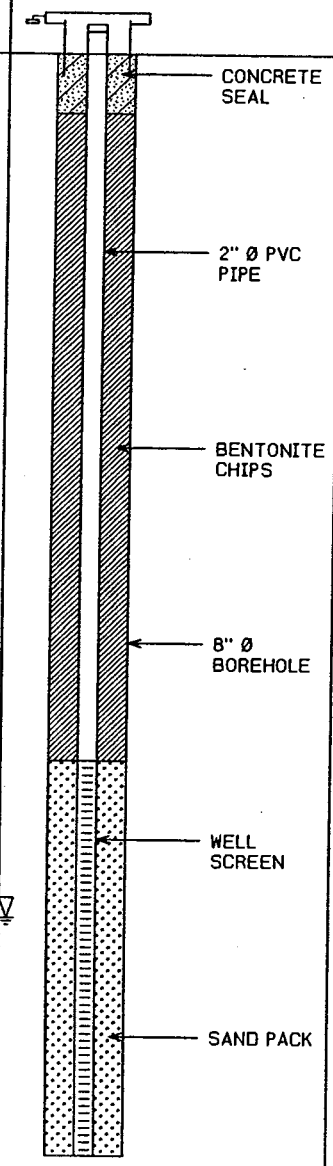
(WL-28)
Page 1 of 1

PROJECT NAME: REALM-WEST YARD
PROJECT NUMBER: 12614
CLIENT: REALM
LOCATION: PONTIAC, MI

HOLE DESIGNATION: MW44-99
DATE COMPLETED: SEPTEMBER 9, 1999
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: B. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
	REFERENCE POINT (Top of Riser)	0.00
	GROUND SURFACE	0.00
	CONCRETE PAD	-.7
	SW/GW-SAND and GRAVEL (FILL), some silt, medium grained, well graded, brown, dry	
2.5		
		-3.5
	SM-SAND (FOUNDRY), some silt, medium dense, fine grained, black, moist	
5.0		
7.5		
10.0		-10.0
	CL-CLAY, little silt, stiff	-11.0
	SM-SAND (FOUNDRY), some silt, medium dense, fine grained, black, moist	
12.5		
15.0		
17.5		
20.0		
22.5		
25.0		
		-26.5
27.5	CL-CLAY, stiff, medium plasticity, gray, wet	
		-28.0
	END OF HOLE @ 28.0ft BGS	
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS
Screened interval:
18.0 to 28.0ft BGS
Length: 10.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
18.0 to 28.0ft BGS
Material: Silica Sand

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		6	
2SS		11	
3SS		23	
4SS		11	
5SS		42	
6SS		23	
7SS		15	
8SS		4	
9SS		4	
10SS		5	
11SS		5	
12SS		7	
13SS		4	
14SS		7	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

APPENDIX A

Laboratory QC Results

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9906792
Project:	GM-West Yard/12614	**Date Collected:**	9/28/99
Sample Matrix:	Oil	**Date Received:**	9/29/99
		Date Extracted:	10/7/99
		Date Analyzed:	10/10/99

Surrogate Recovery Summary
Polychlorinated Biphenyls (PCBs)

Prep Method:	EPA 3580A	Units:	PERCENT
Analysis Method:	8082	Basis:	NA

Sample Name	Lab Code	Test Notes	Percent Recovery Decachlorobiphenyl
0-12614-092899-BW-001	K9906792-001		105
0-12614-092899-BW-002	K9906792-002		107
0-12614-092899-BW-003	K9906792-003		104
0-12614-092899-BW-004	K9906792-004		102
0-12614-092899-BW-001	K9906792-001MS		103
0-12614-092899-BW-001	K9906792-001DMS		102
Lab Control Sample	KWG9903424-2		104
Method Blank	KWG9903424-1		107

CAS Acceptance Limits: 49-129

Approved By: Jay Date: 10-18-99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9906792
Project:	GM-West Yard/12614	**Date Collected:**	9/28/99
Sample Matrix:	Oil	**Date Received:**	9/29/99
		Date Extracted:	10/7/99
		Date Analyzed:	10/10/99

Matrix Spike/Duplicate Matrix Spike Summary
Polychlorinated Biphenyls (PCBs)

Sample Name:	0-12614-092899-BW-001	Units:	mg/Kg (ppm)
Lab Code:	K9906792-001MS, K9906792-001DMS	Basis:	NA
Test Notes:	C		

Analyte	Prep Method	Analysis Method	MRL	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Limits	Relative Percent Difference	Result Notes
Aroclor 1016	EPA 3580A	8082	10	19	19	ND	NA	NA	NC	NC	41-144	-	
Aroclor 1260	EPA 3580A	8082	10	19	19	ND	22	21	116	111	52-126	5	

NA Not Applicable; see case narrative.
C The MRL is elevated because the sample required diluting.

Approved By: _____ Date: 10/18/99

DMS/020597p
06792SVG.AY1 - DMS 10/18/99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Conestoga Rovers & Assoc.
Project: GM-West Yard/12614
LCS Matrix: Oil

Service Request: K9906792
Date Collected: NA
Date Received: NA
Date Extracted: 10/7/99
Date Analyzed: 10/10/99

Laboratory Control Sample Summary
Polychlorinated Biphenyls (PCBs)

Sample Name: Lab Control Sample
Lab Code: KWG9903424-2
Test Notes:

Units: mg/Kg (ppm)
Basis: NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Aroclor 1016	EPA 3580A	8082	20	13	65	31-173	
Aroclor 1260	EPA 3580A	8082	20	18	90	49-120	

Approved By: _____ Date: 10-18-99

LCS/080797p
06792SVG.AY1 - LCS 10/18/99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Conestoga Rovers & Assoc.
Project: GM-West Yard/12614
Sample Matrix: Oil

Service Request: K9906792
Date Collected: 9/28/99
Date Received: 9/29 - 10/25/99
Date Extracted: 10/11 - 10/12/99
Date Analyzed: 10/11 - 10/12/99

Surrogate Recovery Summary
Volatile Organic Compounds by GC/MS

Prep Method: EPA 5035
Analysis Method: 8260B

Units: PERCENT
Basis: NA

Sample Name	Lab Code	Test Notes	Percent Recovery		
			Dibromofluoromethane	Toluene-d8	4-Bromofluorobenzene
0-12614-092899-BW-001	K9906792-001		87	94	103
0-12614-092899-BW-002	K9906792-002		86	95	103
0-12614-092899-BW-003	K9906792-003		83	93	107
0-12614-092899-BW-004	K9906792-004		82	94	96
Method Blank	KWG9903486-5		94	88	80
Lab Control Sample	KWG9903486-6		94	98	91
0-12614-092899-BW-004	K9906792-004MS		94	93	93
0-12614-092899-BW-004	K9906792-004DMS		90	93	87
CAS Acceptance Limits:			75-132	85-109	49-131

Approved By: _____ Date: 10/26/99

SUR3QC.XLT_SUR/01071998a
06792VOA.JG2 - SUR 10/26/99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Conestoga Rovers & Assoc.
Project: GM-West Yard/12614
Sample Matrix: Oil

Service Request: K9906792
Date Collected: 9/28/99
Date Received: 10/25/99
Date Extracted: 10/11/99
Date Analyzed: 10/11/99

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name: 0-12614-092899-BW-004
Lab Code: K9906792-004MS K9906792-004DMS
Test Notes:

Units: ug/Kg (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Limits	Relative Percent Difference
1,1-Dichloroethene	EPA 5035	8260B	250	320000	320000	ND	250000	260000	78	81	51-127	4
Benzene	EPA 5035	8260B	250	320000	320000	ND	300000	330000	94	103	57-121	10
Trichloroethene (TCE)	EPA 5035	8260B	250	320000	320000	ND	280000	310000	88	97	45-127	10
Toluene	EPA 5035	8260B	250	320000	320000	ND	280000	310000	88	97	34-134	10
Chlorobenzene	EPA 5035	8260B	250	320000	320000	ND	290000	310000	91	97	37-126	7

Approved By: _____ Date: 11/1/99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Conestoga Rovers & Assoc.
Project: GM-West Yard/12614
LCS Matrix: Oil

Service Request: K9906792
Date Collected: NA
Date Received: NA
Date Extracted: 10/11/99
Date Analyzed: 10/11/99

Laboratory Control Sample Summary
Volatile Organic Compounds by GC/MS

Sample Name: Lab Control Sample
Lab Code: KWG9903486-6
Test Notes:

Units: ug/Kg (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
1,1-Dichloroethene	EPA 5035	8260B	1000	910	91	73-118	
Benzene	EPA 5035	8260B	1000	1100	110	78-116	
Trichloroethene (TCE)	EPA 5035	8260B	1000	990	99	79-119	
Toluene	EPA 5035	8260B	1000	1000	100	77-118	
Chlorobenzene	EPA 5035	8260B	1000	1000	100	80-117	

Approved By: _____ Date: 10/26/99

SUR3QC.XLT_LCS/01071998a
06792VOA.JG2 - LCS 10/26/99

APPENDIX B

Chain of Custody Information

Columbia Analytical Services Inc.
Cooler Receipt And Preservation Form

Project/Client CRA Work Order K99 6792

Cooler received on 9/29/99 and opened on 9/29/99 by mw

1. Were custody seals on outside of cooler? YES (NO)
   If yes, how many and where? Fed Ex
2. Were seals intact and signature & date correct? ~~YES NO~~
3. COC # 6541 ____ ____ ____ ____
   Temperature of cooler(s) upon receipt: 13.1 ____ ____ ____ ____
   Temperature Blank: ~ ____ ____ ____ ____
4. Were custody papers properly filled out (ink, signed, etc.)? (YES) NO
5. Type of packing material present b. wrap
6. Did all bottles arrive in good condition (unbroken)? (YES) NO
7. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
8. Did all bottle labels and tags agree with custody papers? (YES) NO
9. *Were the correct types of bottles used for the tests indicated?* (YES) NO
10. Were all of the preserved bottles received at the lab with the appropriate pH? ~~YES NO~~
11. Were VOA vials checked for absence of air bubbles, and if present, noted below? ~~YES NO~~
12. Did the bottles originate from CAS/K or a branch laboratory? ____ (YES) NO

Explain any discrepancies ____

Samples that required preservation or received outside of temperature range at the lab(circle)

Sample ID	Reagent	Volume	Lot Number	Initials
AL1				

1C4906+20

CRA
CONESTOGA-ROVERS & ASSOCIATES, INC.
11100 Metro Airport Center Drive - Suite 160
Romulus, MI 48174 (313) 942-0909

CHAIN OF CUSTODY RECORD

SHIPPED TO (Laboratory Name): Columbia Analytical

REFERENCE NUMBER: 12614

PROJECT NAME: GM - WESTYARD

SAMPLER'S SIGNATURE: Bart Will PRINTED NAME: Bart Willman

SEQ: No.	DATE	TIME		SAMPLE TYPE	No. OF CONTAINERS	PARAMETERS: TCL-voc	PCB	API Gravity Viscosity	REMARKS
1	9/28/99	p.m	0-126H-092899-BW-001	oil	2	X	X	X	STAT
2			002	oil	2	X	X	X	
3			003	oil	2	X	X	X	
4			004	oil	2	X	X	X	

TOTAL NUMBER OF CONTAINERS

RELINQUISHED BY: 1. Bart Will	DATE: / TIME:	RECEIVED BY: 1. Deb Wood	DATE: 9/29/99 TIME: 0930
RELINQUISHED BY: 2.	DATE: / TIME:	RECEIVED BY: 2.	DATE: / TIME:
RELINQUISHED BY: 3.	DATE: / TIME:	RECEIVED BY: 1.	DATE: / TIME:

METHOD OF SHIPMENT: FED-EX AIR BILL No. ~~4456~~ 148 257 019

White -Fully Executed Copy
Yellow -Receiving Laboratory Copy
Pink -Shipper Copy
Goldenrod -Sampler Copy

SAMPLE TEAM:

RECEIVED FOR LABORATORY BY:

DATE: TIME:

6541

1001 (FORM APRIL 29, 93-REV.0-(C)(F-01)

Columbia Analytical Services, INC.
An Employee-Owned Company

REC'D CRA
OCT - 5 1999
SDG: 2

October 1, 1999

Service Request No: K9905929

Paul Wiseman
Conestoga-Rovers & Associates, Inc.
11100 Metro Airport Center Drive, Suite 160
Romulus, MI 48174

Re: West Yard/12614

Dear Paul:

Enclosed are the results of the sample(s) submitted to our laboratory on September 1, 1999. Preliminary results were transmitted via facsimile on September 28, 1999. For your reference, these analyses have been assigned our service request number K9905929.

All analyses were performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions. My extension is 245.

Respectfully submitted,

Columbia Analytical Services, Inc.

Mingta Lin
Project Chemist

ML/aw

ORIGINAL ANALYTICAL REPORT

Project#: 12614 **Lab#:** K9905929
Name: GM - West Yard

Description

Event: Soil Investigation
Samples: 1 Soil
Analysis: VOC, PCB

TAT: 14 day not met Page 1 of 10
Lab: CAS

Checked Against Preliminary Data:
Date: 10/5/99 **Init.:** CWH
Date of Validation Memo: 12/28/99
Invoice Approval Date:
Comments:

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
J	Estimated concentration. The value is less than the method reporting limit, but greater than the method detection limit.
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected at or above the MRL
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Conetoga Rovers & Associates	**Service Request No.:**	K9905929
Project:	West Yard/12614	**Date Received:**	9/1/99
Sample Matrix:	Soil		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for sample(s) designated for Tier IIA data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Matrix Spike (MS), Matrix/Duplicate Matrix Spike (MS/DMS), and Laboratory Control Sample (LCS).

All EPA recommended holding times have been met for analyses in this sample delivery group.

PCBs by EPA 8082

No QC difficulties were experienced during analysis of this batch.

VOA by EPA 8260B

No QC difficulties were experienced during analysis of this batch.

Approved by mth **Date** 9/28/99

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9905929
Project:	West Yard/12614	**Date Collected:**	8/31/99
Sample Matrix:	Soil	**Date Received:**	9/1/99

Total Solids

Prep Method:	NONE	Units:	PERCENT
Analysis Method:	160.3M	Basis:	Wet
Test Notes:			

Sample Name	Lab Code	Date Analyzed	Result	Result Notes
S-12614-083199-KMV-01	K9905929-001	9/1/99	70.3	

Approved By: _____ Date: 9/14/99

TSOLIDS.XLT_Sample/01071998a

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9905929
Project:	West Yard/12614	**Date Collected:**	8/31/99
Sample Matrix:	Soil	**Date Received:**	9/1/99

Polychlorinated Biphenyls (PCBs)

Sample Name:	S-12614-083199-KMV-01	Units:	mg/Kg (ppm)
Lab Code:	K9905929-001	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Aroclor 1016	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	
Aroclor 1221	EPA 3540C	8082	0.2	1	9/9/99	9/12/99	ND	
Aroclor 1232	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	
Aroclor 1242	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	
Aroclor 1248	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	
clor 1254	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	
oclor 1260	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	

Approved By: _____ Date: 9-16-99

1S22/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9905929
Project:	West Yard/12614	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA

Polychlorinated Biphenyls (PCBs)

Sample Name:	Method Blank	Units:	mg/Kg (ppm)
Lab Code:	KWG9903003-4	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Aroclor 1016	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	
Aroclor 1221	EPA 3540C	8082	0.2	1	9/9/99	9/12/99	ND	
Aroclor 1232	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	
Aroclor 1242	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	
Aroclor 1248	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	
Aroclor 1254	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	
Aroclor 1260	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	

Approved By: _____ Date: 9-16-99

1S22/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Conestoga Rovers & Assoc.
Project: West Yard/12614
Sample Matrix: Soil

Service Request: K9905929
Date Collected: 8/31/99
Date Received: 9/1/99

Volatile Organic Compounds by GC/MS

Sample Name: S-12614-083199-KMV-01
Lab Code: K9905929-001
Test Notes:

Units: ug/Kg (ppb)
Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chloromethane	EPA 5035	8260B	250	1	9/1/99	9/14/99	ND	
Vinyl Chloride	EPA 5035	8260B	100	1	9/1/99	9/14/99	ND	
Bromomethane	EPA 5035	8260B	250	1	9/1/99	9/14/99	ND	
Chloroethane	EPA 5035	8260B	250	1	9/1/99	9/14/99	ND	
Acetone	EPA 5035	8260B	1000	1	9/1/99	9/14/99	ND	
1,1-Dichloroethene	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Carbon Disulfide	EPA 5035	8260B	250	1	9/1/99	9/14/99	ND	
Methylene Chloride	EPA 5035	8260B	750	1	9/1/99	9/14/99	ND	
trans-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
1,1-Dichloroethane	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
2-Butanone (MEK)	EPA 5035	8260B	1000	1	9/1/99	9/14/99	ND	
cis-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Chloroform	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
1,1,1-Trichloroethane (TCA	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Carbon Tetrachloride	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
1,2-Dichloroethane (EDC)	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Benzene	EPA 5035	8260B	50	1	9/1/99	9/14/99	57	
Trichloroethene (TCE)	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
1,2-Dichloropropane	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Bromodichloromethane	EPA 5035	8260B	100	1	9/1/99	9/14/99	ND	
2-Hexanone	EPA 5035	8260B	1000	1	9/1/99	9/14/99	ND	
cis-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Toluene	EPA 5035	8260B	50	1	9/1/99	9/14/99	68	
trans-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
1,1,2-Trichloroethane	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
4-Methyl-2-pentanone (MIB	EPA 5035	8260B	1000	1	9/1/99	9/14/99	ND	
Tetrachloroethene (PCE)	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Dibromochloromethane	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Chlorobenzene	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Ethylbenzene	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
m,p-Xylenes	EPA 5035	8260B	100	1	9/1/99	9/14/99	ND	
o-Xylene	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Styrene	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Bromoform	EPA 5035	8260B	100	1	9/1/99	9/14/99	ND	
1,1,2,2-Tetrachloroethane	EPA 5035	8260B	100	1	9/1/99	9/14/99	ND	

Approved By: _____ Date: 9/28/99

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Conestoga Rovers & Assoc.
Project: West Yard/12614
Sample Matrix: Soil

Service Request: K9905929
Date Collected: NA
Date Received: NA

Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: KWG9903066-4
Test Notes:

Units: ug/Kg (ppb)
Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chloromethane	EPA 5035	8260B	250	1	9/1/99	9/14/99	ND	
Vinyl Chloride	EPA 5035	8260B	100	1	9/1/99	9/14/99	ND	
Bromomethane	EPA 5035	8260B	250	1	9/1/99	9/14/99	ND	
Chloroethane	EPA 5035	8260B	250	1	9/1/99	9/14/99	ND	
Acetone	EPA 5035	8260B	1000	1	9/1/99	9/14/99	ND	
1,1-Dichloroethene	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Carbon Disulfide	EPA 5035	8260B	250	1	9/1/99	9/14/99	ND	
Methylene Chloride	EPA 5035	8260B	750	1	9/1/99	9/14/99	ND	
trans-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
1,1-Dichloroethane	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
2-Butanone (MEK)	EPA 5035	8260B	1000	1	9/1/99	9/14/99	ND	
cis-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Chloroform	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
1,1,1-Trichloroethane (TCA	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Carbon Tetrachloride	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
1,2-Dichloroethane (EDC)	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Benzene	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Trichloroethene (TCE)	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
1,2-Dichloropropane	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Bromodichloromethane	EPA 5035	8260B	100	1	9/1/99	9/14/99	ND	
2-Hexanone	EPA 5035	8260B	1000	1	9/1/99	9/14/99	ND	
cis-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Toluene	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
trans-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
1,1,2-Trichloroethane	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
4-Methyl-2-pentanone (MIB	EPA 5035	8260B	1000	1	9/1/99	9/14/99	ND	
Tetrachloroethene (PCE)	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Dibromochloromethane	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Chlorobenzene	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Ethylbenzene	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
m,p-Xylenes	EPA 5035	8260B	100	1	9/1/99	9/14/99	ND	
o-Xylene	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Styrene	EPA 5035	8260B	50	1	9/1/99	9/14/99	ND	
Bromoform	EPA 5035	8260B	100	1	9/1/99	9/14/99	ND	
1,1,2,2-Tetrachloroethane	EPA 5035	8260B	100	1	9/1/99	9/14/99	ND	

Approved By: _____ Date: 9/28/99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Conestoga Rovers & Assoc.
Project: West Yard/12614
Sample Matrix: Soil

Service Request: K9905929
Date Collected: 8/31/99
Date Received: 9/1/99
Date Extracted: 9/9/99
Date Analyzed: 9/12 - 15/99

Surrogate Recovery Summary
Polychlorinated Biphenyls (PCBs)

Prep Method: EPA 3540C
Analysis Method: 8082

Units: PERCENT
Basis: NA

Sample Name	Lab Code	Test Notes	Percent Recovery Decachlorobiphenyl
S-12614-083199-KMV-01	K9905929-001		120
Batch QC	K9905907-001		108
Batch QC	K9905907-001MS		109
Batch QC	K9905907-001DMS		108
Lab Control Sample	KWG9903003-3		129
Method Blank	KWG9903003-4		124

CAS Acceptance Limits: 42-130

Approved By: _____ Date: 9-16-99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9905929
Project:	West Yard/12614	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Extracted:	9/9/99
		Date Analyzed:	9/15/99

Matrix Spike/Duplicate Matrix Spike Summary
Polychlorinated Biphenyls (PCBs)

Sample Name:	Batch QC	Units:	mg/Kg (ppm)
Lab Code:	K9905907-001MS, K9905907-001DMS	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Limits	Relative Percent Difference	Result Notes
Aroclor 1016	EPA 3540C	8082	0.1	1.0	1.0	ND	1.2	1.2	120	120	36-126	<1	
Aroclor 1260	EPA 3540C	8082	0.1	1.0	1.0	1.5	2.7	2.7	120	120	30-136	<1	

Approved By: _____ Date: 9-16-99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Conestoga Rovers & Assoc.
Project: West Yard/12614
LCS Matrix: Soil

Service Request: K9905929
Date Collected: NA
Date Received: NA
Date Extracted: 9/9/99
Date Analyzed: 9/12/99

Laboratory Control Sample Summary
Polychlorinated Biphenyls (PCBs)

Sample Name: Lab Control Sample
Lab Code: KWG9903003-3
Test Notes:

Units: mg/Kg (ppm)
Basis: Dry

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Aroclor 1016	EPA 3540C	8082	1.0	1.2	120	26-142	
Aroclor 1260	EPA 3540C	8082	1.0	1.2	120	40-139	

Approved By: _____ Date: 9.16-99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9905929
Project:	West Yard/12614	**Date Collected:**	8/31/99
Sample Matrix:	Soil	**Date Received:**	9/1/99
		Date Extracted:	9/1/99
		Date Analyzed:	9/14/99

Surrogate Recovery Summary
Volatile Organic Compounds by GC/MS

Prep Method:	EPA 5035	Units:	PERCENT
Analysis Method:	8260B	Basis:	Dry

Sample Name	Lab Code	Test Notes	Percent Recovery		
			Dibromofluoromethane	Toluene-d8	4-Bromofluorobenzene
S-12614-083199-KMV-01	K9905929-001		94	105	93
Method Blank	KWG9903066-4		95	102	94
S-12614-083199-KMV-01	K9905929-001MS		94	103	101
S-12614-083199-KMV-01	K9905929-001DMS		98	100	96
Lab Control Sample	KWG9903066-3		97	100	98
CAS Acceptance Limits:			75-132	85-109	49-131

Approved By: _____ Date: 9/28/99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9905929
Project:	West Yard/12614	**Date Collected:**	8/31/99
Sample Matrix:	Soil	**Date Received:**	9/1/99
		Date Extracted:	9/1/99
		Date Analyzed:	9/14/99

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name:	S-12614-083199-KMV-01		Units:	ug/Kg (ppb)
Lab Code:	K9905929-001MS	K9905929-001DMS	Basis:	Dry
Test Notes:				

Analyte	Prep Method	Analysis Method	MRL	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Limits	Relative Percent Difference	Result Notes
1,1-Dichloroethene	EPA 5035	8260B	50	1600	1600	ND	1300	1400	81	88	51-127	8	
Benzene	EPA 5035	8260B	50	1600	1600	57	1500	1500	90	90	57-121	<1	
Trichloroethene (TCE)	EPA 5035	8260B	50	1600	1600	ND	1500	1500	94	94	45-127	<1	
Toluene	EPA 5035	8260B	50	1600	1600	68	1600	1500	96	90	34-134	6	
Chlorobenzene	EPA 5035	8260B	50	1600	1600	ND	1400	1500	88	94	37-126	7	

Approved By: _____ Date: 9/28/99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Conestoga Rovers & Assoc.
Project: West Yard/12614
LCS Matrix: Soil

Service Request: K9905929
Date Collected: NA
Date Received: NA
Date Extracted: 9/14/99
Date Analyzed: 9/14/99

Laboratory Control Sample Summary
Volatile Organic Compounds by GC/MS

Sample Name: Lab Control Sample
Lab Code: KWG9903066-3
Test Notes:

Units: ug/Kg (ppb)
Basis: Dry

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
1,1-Dichloroethene	EPA 5035	8260B	10	8.2	82	73-118	
Benzene	EPA 5035	8260B	10	9.2	92	78-116	
Trichloroethene (TCE)	EPA 5035	8260B	10	9.0	90	79-119	
Toluene	EPA 5035	8260B	10	9.2	92	77-118	
Chlorobenzene	EPA 5035	8260B	10	9.0	90	80-117	

Approved By: _____ Date: 9/28/99

CRA
CONESTOGA-ROVERS & ASSOCIATES, INC.
11100 Metro Airport Center Drive - Suite 160
Romulus, MI 48174 (313) 942-0909

CHAIN OF CUSTODY RECORD

SHIPPED TO (Laboratory Name): Columbia Analytical Services Inc. K9905929

REFERENCE NUMBER: 12614

PROJECT NAME: West Yard

SAMPLER'S SIGNATURE: K. Vander Meulen PRINTED NAME: K. Vander Meulen

SEQ: No.	DATE '99	TIME		SAMPLE TYPE	No. OF CONTAINERS	PARAMETERS: Encore	PARAMETERS: VOC	PARAMETERS: PCB	REMARKS
1	08/31	9:30A	S-12614-083199-KMV-01	SOIL	2		✓	✓	TAT= 2 WKS
									CT=3.6
TOTAL NUMBER OF CONTAINERS					2				

RELINQUISHED BY: 1. K. Vander Meulen	DATE: 08.31.99 TIME: 5:00 PM	RECEIVED BY: 1. Debi Wood	DATE: 9/1/99 TIME: 0925
RELINQUISHED BY: 2.	DATE: TIME:	RECEIVED BY: 2.	DATE: TIME:
RELINQUISHED BY: 3.	DATE: TIME:	RECEIVED BY: 1.	DATE: TIME:

METHOD OF SHIPMENT: FED EX: Cooler=3.6 AIR BILL No. 811205150541

White -Fully Executed Copy Pink -Shipper Copy
Yellow -Receiving Laboratory Copy Goldenrod -Sampler Copy

CT 6258

SAMPLE TEAM:

RECEIVED FOR LABORATORY BY:

DATE: TIME:

SHORT HOLD TIME

Columbia Analytical Services Inc.
Cooler Receipt And Preservation Form

Project/Client CRA Work Order K99 5929

Cooler received on 9/1/99 and opened on 9/1/99 by MW

1. Were custody seals on outside of cooler? YES (NO)
   If yes, how many and where? _____
2. Were seals intact and signature & date correct? Fed Ex ~~YES NO~~
3. COC # 6258
   Temperature of cooler(s) upon receipt: 3.6
   Temperature Blank: —
4. Were custody papers properly filled out (ink, signed, etc.)? (YES) NO
5. Type of packing material present b. wrap
6. Did all bottles arrive in good condition (unbroken)? (YES) NO
7. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
8. Did all bottle labels and tags agree with custody papers? (YES) NO
9. *Were the correct types of bottles used for the tests indicated?* (YES) NO
10. Were all of the preserved bottles received at the lab with the appropriate pH? ~~YES~~
11. Were VOA vials checked for absence of air bubbles, and if present, noted below? ~~YES NO~~
12. Did the bottles originate from CAS/K or a branch laboratory? _____ YES NO

Explain any discrepancies _____

Samples that required preservation or received outside of temperature range at the lab(circle)

Sample ID	Reagent	Volume	Lot Number	Initials

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Southern Petroleum Laboratories, Inc.

Certificate of Analysis Number: 99-10-045

Approved for Release by:

Sonia West, Senior Project Manager — 10-12-99 Date

Joel Grice
Laboratory Director

Ted Yen
Quality Assurance Officer

The attached analytical data package may not be reproduced except in full without the express written approval of this laboratory.
The results relate only to the samples tested.
Results reported on a Wet Weight Basis unless otherwise noted.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77
PHONE (713) 660-09

Certificate of Analysis No. H9-9910045-01

Conestoga-Rovers & Associates
11100 Metro Airport Dr., #160
Romulus, MI 48174
ATTN: Paul Wiseman

11/05/

PROJECT: GM-Wespygd
SITE:
SAMPLED BY: Conestoga-Rovers & Associates
SAMPLE ID: O-12614-092899-BW-001

PROJECT NO: 12614
MATRIX: OIL
DATE SAMPLED: 09/28/99
DATE RECEIVED: 10/01/99

ASTM D-4052

PARAMETER	RESULTS	ANALYZED	ANALYST
API Gravity @ 60 °F	23.74	10/12/99	TB
Specific Gravity @ 60 °F	0.9115	10/12/99	TB
Density @ 60 °F	0.9106	10/12/99	TB

METHOD: ASTM D-4052
NOTES:

COMMENTS: ANALYSIS PERFORMED ON OIL PHASE ONLY.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9910045-01

Conestoga-Rovers & Associates
11100 Metro Airport Dr., #160
Romulus, MI 48174
ATTN: Paul Wiseman

11/05/9

PROJECT: GM-Wespygd
SITE:
SAMPLED BY: Conestoga-Rovers & Associates
SAMPLE ID: O-12614-092899-BW-001

PROJECT NO: 12614
MATRIX: OIL
DATE SAMPLED: 09/28/99
DATE RECEIVED: 10/01/99

ANALYTICAL DATA

Viscosity @	100	°F in CST:	29.73
Viscosity @	100	°F in SUS:	140.3

ANALYZED BY: TB
METHOD: ASTM D-445

DATE/TIME: 10/12/99

COMMENTS: ANALYSIS PERFORMED ON OIL PHASE ONLY.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77
PHONE (713) 660-09

Certificate of Analysis No. H9-9910045-02

Conestoga-Rovers & Associates
11100 Metro Airport Dr., #160
Romulus, MI 48174
ATTN: Paul Wiseman

11/05/

PROJECT: GM-Wespygd
SITE:
SAMPLED BY: Conestoga-Rovers & Associates
SAMPLE ID: O-12614-092899-BW-002

PROJECT NO: 12614
MATRIX: OIL
DATE SAMPLED: 09/28/99
DATE RECEIVED: 10/01/99

ASTM D-4052

PARAMETER	RESULTS	ANALYZED	ANALYST
API Gravity @ 60 °F	24.08	10/12/99	TB
Specific Gravity @ 60 °F	0.9095	10/12/99	TB
Density @ 60 °F	0.9086	10/12/99	TB

METHOD: ASTM D-4052
NOTES:

COMMENTS: ANALYSIS PERFORMED ON OIL PHASE ONLY.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9910045-02

Conestoga-Rovers & Associates
11100 Metro Airport Dr., #160
Romulus, MI 48174
ATTN: Paul Wiseman

11/05/9

PROJECT: GM-Wespygd
SITE:
SAMPLED BY: Conestoga-Rovers & Associates
SAMPLE ID: O-12614-092899-BW-002

PROJECT NO: 12614
MATRIX: OIL
DATE SAMPLED: 09/28/99
DATE RECEIVED: 10/01/99

ANALYTICAL DATA

Viscosity @	100	°F in CST:	29.16
Viscosity @	100	°F in SUS:	137.8

ANALYZED BY: TB
METHOD: ASTM D-445

DATE/TIME: 10/12/99

COMMENTS: ANALYSIS PERFORMED ON OIL PHASE ONLY.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77(
PHONE (713) 660-09(

Certificate of Analysis No. H9-9910045-03

Conestoga-Rovers & Associates
11100 Metro Airport Dr., #160
Romulus, MI 48174
ATTN: Paul Wiseman

11/05/9

PROJECT: GM-Wespygd
SITE:
SAMPLED BY: Conestoga-Rovers & Associates
SAMPLE ID: O-12614-092899-BW-003

PROJECT NO: 12614
MATRIX: OIL
DATE SAMPLED: 09/28/99
DATE RECEIVED: 10/01/99

ASTM D-4052

PARAMETER		RESULTS	ANALYZED	ANALYST
API Gravity @ 60	°F	24.47	10/12/99	TB
Specific Gravity @ 60	°F	0.9072	10/12/99	TB
Density @ 60	°F	0.9063	10/12/99	TB

METHOD: ASTM D-4052
NOTES:

COMMENTS: ANALYSIS PERFORMED ON OIL PHASE ONLY.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9910045-03

Conestoga-Rovers & Associates
11100 Metro Airport Dr., #160
Romulus, MI 48174
ATTN: Paul Wiseman

11/05/9

PROJECT: GM-Wespygd
SITE:
SAMPLED BY: Conestoga-Rovers & Associates
SAMPLE ID: O-12614-092899-BW-003

PROJECT NO: 12614
MATRIX: OIL
DATE SAMPLED: 09/28/99
DATE RECEIVED: 10/01/99

ANALYTICAL DATA

Viscosity @	100	°F in CST:	32.86
Viscosity @	100	°F in SUS:	154.4

ANALYZED BY: TB
METHOD: ASTM D-445

DATE/TIME: 10/12/99

COMMENTS: ANALYSIS PERFORMED ON OIL PHASE ONLY.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77
PHONE (713) 660-09(

Certificate of Analysis No. H9-9910045-04

Conestoga-Rovers & Associates
11100 Metro Airport Dr., #160
Romulus, MI 48174
ATTN: Paul Wiseman

11/05/9

PROJECT: GM-Wespygd
SITE:
SAMPLED BY: Conestoga-Rovers & Associates
SAMPLE ID: O-12614-092899-BW-004

PROJECT NO: 12614
MATRIX: OIL
DATE SAMPLED: 09/28/99
DATE RECEIVED: 10/01/99

ASTM D-4052

PARAMETER	RESULTS	ANALYZED	ANALYST
API Gravity @ 60 °F	26.40	10/12/99	TB
Specific Gravity @ 60 °F	0.8961	10/12/99	TB
Density @ 60 °F	0.8952	10/12/99	TB

METHOD: ASTM D-4052
NOTES:

COMMENTS: ANALYSIS PERFORMED ON OIL PHASE ONLY.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9910045-04

Conestoga-Rovers & Associates
11100 Metro Airport Dr., #160
Romulus, MI 48174
ATTN: Paul Wiseman

11/05/9

PROJECT: GM-Wespygd
SITE:
SAMPLED BY: Conestoga-Rovers & Associates
SAMPLE ID: O-12614-092899-BW-004

PROJECT NO: 12614
MATRIX: OIL
DATE SAMPLED: 09/28/99
DATE RECEIVED: 10/01/99

ANALYTICAL DATA

Viscosity @	100	°F in CST:	22.34
Viscosity @	100	°F in SUS:	107.8

ANALYZED BY: TB
METHOD: ASTM D-445

DATE/TIME: 10/12/99

COMMENTS: ANALYSIS PERFORMED ON OIL PHASE ONLY.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

CHAIN OF CUSTODY

AND

SAMPLE RECEIPT CHECKLIST

CRA

CONESTOGA-ROVERS & ASSOCIATES, INC.
11100 Metro Airport Center Drive - Suite 160
Romulus, MI 48174 (313) 942-0909

CHAIN OF CUSTODY RECORD

SHIPPED TO (Laboratory Name): Columbia Analytical 9910045

REFERENCE NUMBER: 12614

PROJECT NAME: GM [redacted]

SAMPLER'S SIGNATURE: Brett Wilson PRINTED NAME: Brett Wilson

SEQ: No.	DATE	TIME		SAMPLE TYPE	No. OF CONTAINERS	PARAMETERS: Tcl-VOC	PCB	API Gravity Viscosity	REMARKS
1	9/28/99	pm	O-126M-092899-BW-001	oil	2	X	X	X	STAT
2	↓	↓	002	oil	2	X	X	X	
3			003	oil	2	X	X	X	
4			004	oil	2	X	X	X	

1Z 973 659 01 4624 5748

amstern

TOTAL NUMBER OF CONTAINERS

RELINQUISHED BY: 1. Brett Wilson	DATE: TIME:	RECEIVED BY: 1. Bill Wood	DATE: 9/29/99 TIME: 0930
RELINQUISHED BY: 2. Bill Wood	DATE: 9/30/99 TIME: 1000	RECEIVED BY: 2.	DATE: TIME:
RELINQUISHED BY: 3.	DATE: TIME:	RECEIVED BY: 1.	DATE: TIME:

METHOD OF SHIPMENT: FED EX AIR BILL No. ~~4456~~ 148 257 019

White -Fully Executed Copy Pink -Shipper Copy
Yellow -Receiving Laboratory Copy Goldenrod -Sampler Copy

6541

SAMPLE TEAM:

RECEIVED FOR LABORATORY BY: Donna [redacted]
DATE: 10/1 TIME: 1000

SPL Houston Environmental Laboratory

Sample Login Checklist

Date:	Time:
10/1	1000

SPL Sample ID:
9910045

			Yes	No
1	Chain-of-Custody (COC) form is present.		✓	
2	COC is properly completed.		✓	
3	If no, Non-Conformance Worksheet has been completed.			
4	Custody seals are present on the shipping container.			✓
5	If yes, custody seals are intact.			
6	All samples are tagged or labeled.		✓	
7	If no, Non-Conformance Worksheet has been completed.			
8	Sample containers arrived intact		✓	
9	Temperature of samples upon arrival:		ambient C	
10	Method of sample delivery to SPL:	SPL Delivery		
		Client Delivery		
		FedEx Delivery (airbill #)		
		Other: 129732e 590146245748		
11	Method of sample disposal:	SPL Disposal	✓	
		HOLD		
		Return to Client		

Name:	Date:
Damma Stelly	10/1/99

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

October 12, 1999

REC'D CRA
OCT 22 1999
SDG: 7

Mr. Paul Wiseman
CONESTOGA-ROVERS & ASSOCIATES
11100 Metro Airport Dr., #160
Romulus, MI 48174

The following report contains analytical results for the sample(s) received at Southern Petroleum Laboratories (SPL) on October 1, 1999. The sample(s) was assigned to Certificate of Analysis No. (s) 9910045 and analyzed for all parameters as listed on the chain of custody.

Upon receipt of your samples it was found that the sample collection date/time was not listed on the chain of custody. Your samples were logged in per the sample bottle labels.

Any data flags or quality control exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

If you have any questions or comments pertaining to this data report, please do not hesitate to contact me. Please reference the above Certificate of Analysis No. during any inquiries.

Again, SPL is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

Southern Petroleum Laboratories

Sonia West
Senior Project Manager

ORIGINAL ANALYTICAL REPORT
Project#: 12614 Lab#: 9910045
Name: GM West Yard
Description
Event:
Samples: 4 Oil
Analysis: API Density, Viscosity
T[illegible]: 14 day
L[illegible]: SPL mt
Checked Against Preliminary **Data:**
[illegible]: 10/26/99 **Init.:** IC/LT
T[illegible] Verification **emo:** 12/28/99
[illegible] **Date:**

REC'D CRA
OCT 11 1999
SDG: 3

Columbia Analytical Services INC.
An Employee-Owned Company

October 1, 1999 Service Request No: K9905976

Paul Wiseman
Conestoga-Rovers & Associates, Inc.
11100 Metro Airport Center Drive, Suite 160
Romulus, MI 48174

Re: West Yard/12614

Dear Paul:

Enclosed are the results of the sample(s) submitted to our laboratory on september 2, 1999. Preliminary results were transmitted via facsimile on September 28, 1999. For your reference, these analyses have been assigned our service request number K9905976.

All analyses were performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions. My extension is 245.

Respectfully submitted,

Columbia Analytical Services, Inc.

Mingta Lin
Project Chemist

ML/aw

ORIGINAL ANALYTICAL REPORT
Project#: 12614 **Lab#:** K9905976
Name: GH West Yard
Description
Event: Soil Investigation
Samples: 3 Soil
Analysis: VOC, PCB

TAT: 14 day not met Page 1 of 23
Lab: CAS
Checked Against Preliminary Data:
Date: 10/11/99 **Init.:**
Date of Validation Memo: 12/28/99
Invoice Approval Date:
Comments:

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
J	Estimated concentration. The value is less than the method reporting limit, but greater than the method detection limit.
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected at or above the MRL
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Conetoga Rovers & Associates	**Service Request No.:**	K9905976
Project:	West Yard/12614	**Date Received:**	9/2/99
Sample Matrix:	Soil		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for sample(s) designated for Tier IIA data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Matrix Spike (MS), Matrix/Duplicate Matrix Spike (MS/DMS), and Laboratory Control Sample (LCS).

All EPA recommended holding times have been met for analyses in this sample delivery group.

PCBs by EPA 8082

No QC difficulties were experienced during analysis of this batch.

VOA by EPA 8260B

No QC difficulties were experienced during analysis of this batch.

Approved by _____ **Date** 9/28/99

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9905976
Project:	West Yard/12614	**Date Collected:**	9/1/99
Sample Matrix:	Soil	**Date Received:**	9/2/99

Total Solids

Prep Method:	NONE	Units:	PERCENT
Analysis Method:	160.3M	Basis:	Wet
Test Notes:			

Sample Name	Lab Code	Date Analyzed	Result	Result Notes
S-12614-090199-KMV-02	K9905976-001	9/7/99	83.4	
S-12614-090199-KMV-03	K9905976-002	9/7/99	72.3	
S-12614-090199-KMV-04	K9905976-003	9/7/99	91.8	

Approved By: _____ Date: 9/14/99

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9905976
Project:	West Yard/12614	**Date Collected:**	9/1/99
Sample Matrix:	Soil	**Date Received:**	9/2/99

Polychlorinated Biphenyls (PCBs)

Sample Name:	S-12614-090199-KMV-02	Units:	mg/Kg (ppm)
Lab Code:	K9905976-001	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Aroclor 1016	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	ND	
Aroclor 1221	EPA 3540C	8082	0.2	1	9/9/99	9/15/99	ND	
Aroclor 1232	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	ND	
Aroclor 1242	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	ND	
Aroclor 1248	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	ND	
Aroclor 1254	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	ND	
Aroclor 1260	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	4.0	

Approved By: _____ Date: 9-16-99

1S22/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9905976
Project:	West Yard/12614	**Date Collected:**	9/1/99
Sample Matrix:	Soil	**Date Received:**	9/2/99

Polychlorinated Biphenyls (PCBs)

Sample Name:	S-12614-090199-KMV-03	Units:	mg/Kg (ppm)
Lab Code:	K9905976-002	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Aroclor 1016	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	ND	
Aroclor 1221	EPA 3540C	8082	0.2	1	9/9/99	9/15/99	ND	
Aroclor 1232	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	ND	
Aroclor 1242	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	ND	
Aroclor 1248	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	1.8	
Aroclor 1254	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	ND	
Aroclor 1260	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	ND	

Approved By: _____ Date: 9-16-99

1S22/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9905976
Project:	West Yard/12614	**Date Collected:**	9/1/99
Sample Matrix:	Soil	**Date Received:**	9/2/99

Polychlorinated Biphenyls (PCBs)

Sample Name:	S-12614-090199-KMV-04	Units:	mg/Kg (ppm)
Lab Code:	K9905976-003	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Aroclor 1016	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	ND	
Aroclor 1221	EPA 3540C	8082	0.2	1	9/9/99	9/15/99	ND	
Aroclor 1232	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	ND	
Aroclor 1242	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	ND	
Aroclor 1248	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	3.7	
Aroclor 1254	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	ND	
Aroclor 1260	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	ND	

Approved By: _____ Date: 9-16-99

1S22/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9905976
Project:	West Yard/12614	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA

Polychlorinated Biphenyls (PCBs)

Sample Name:	Method Blank	Units:	mg/Kg (ppm)
Lab Code:	KWG9903003-4	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Aroclor 1016	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	
Aroclor 1221	EPA 3540C	8082	0.2	1	9/9/99	9/12/99	ND	
Aroclor 1232	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	
Aroclor 1242	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	
Aroclor 1248	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	
Aroclor 1254	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	
Aroclor 1260	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	

Approved By: _____ Date: 9-16-99

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K990597
Project:	West Yard/12614	**Date Collected:**	9/1/99
Sample Matrix:	Soil	**Date Received:**	9/2/99

Volatile Organic Compounds by GC/MS

Sample Name:	S-12614-090199-KMV-02	Units:	ug/Kg (ppb)
Lab Code:	K9905976-001	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chloromethane	EPA 5035	8260B	250	1	9/2/99	9/15/99	ND	
Vinyl Chloride	EPA 5035	8260B	100	1	9/2/99	9/15/99	ND	
Bromomethane	EPA 5035	8260B	250	1	9/2/99	9/15/99	ND	
Chloroethane	EPA 5035	8260B	250	1	9/2/99	9/15/99	ND	
Acetone	EPA 5035	8260B	1000	1	9/2/99	9/15/99	ND	
1,1-Dichloroethene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Carbon Disulfide	EPA 5035	8260B	250	1	9/2/99	9/15/99	ND	
Methylene Chloride	EPA 5035	8260B	750	1	9/2/99	9/15/99	ND	
trans-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
1,1-Dichloroethane	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
2-Butanone (MEK)	EPA 5035	8260B	1000	1	9/2/99	9/15/99	ND	
cis-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Chloroform	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
1,1,1-Trichloroethane (TCA	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Carbon Tetrachloride	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
1,2-Dichloroethane (EDC)	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Benzene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Trichloroethene (TCE)	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
1,2-Dichloropropane	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Bromodichloromethane	EPA 5035	8260B	100	1	9/2/99	9/15/99	ND	
2-Hexanone	EPA 5035	8260B	1000	1	9/2/99	9/15/99	ND	
cis-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Toluene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
trans-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
1,1,2-Trichloroethane	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
4-Methyl-2-pentanone (MIB	EPA 5035	8260B	1000	1	9/2/99	9/15/99	ND	
Tetrachloroethene (PCE)	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Dibromochloromethane	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Chlorobenzene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Ethylbenzene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
m,p-Xylenes	EPA 5035	8260B	100	1	9/2/99	9/15/99	ND	
o-Xylene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Styrene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Bromoform	EPA 5035	8260B	100	1	9/2/99	9/15/99	ND	
1,1,2,2-Tetrachloroethane	EPA 5035	8260B	100	1	9/2/99	9/15/99	ND	

Approved By: _____ Date: 9/28/99

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9905976
Project:	West Yard/12614	**Date Collected:**	9/1/99
Sample Matrix:	Soil	**Date Received:**	9/2/99

Volatile Organic Compounds by GC/MS

Sample Name: S-12614-090199-KMV-03
Lab Code: K9905976-002
Test Notes:

Units: ug/Kg (ppb)
Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chloromethane	EPA 5035	8260B	250	1	9/2/99	9/15/99	ND	
Vinyl Chloride	EPA 5035	8260B	100	1	9/2/99	9/15/99	ND	
Bromomethane	EPA 5035	8260B	250	1	9/2/99	9/15/99	ND	
Chloroethane	EPA 5035	8260B	250	1	9/2/99	9/15/99	ND	
Acetone	EPA 5035	8260B	1000	1	9/2/99	9/15/99	ND	
1,1-Dichloroethene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Carbon Disulfide	EPA 5035	8260B	250	1	9/2/99	9/15/99	ND	
Methylene Chloride	EPA 5035	8260B	750	1	9/2/99	9/15/99	ND	
trans-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
1,1-Dichloroethane	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
2-Butanone (MEK)	EPA 5035	8260B	1000	1	9/2/99	9/15/99	ND	
cis-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Chloroform	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
1,1,1-Trichloroethane (TCA	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Carbon Tetrachloride	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
1,2-Dichloroethane (EDC)	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Benzene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Trichloroethene (TCE)	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
1,2-Dichloropropane	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Bromodichloromethane	EPA 5035	8260B	100	1	9/2/99	9/15/99	ND	
2-Hexanone	EPA 5035	8260B	1000	1	9/2/99	9/15/99	ND	
cis-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Toluene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
trans-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
1,1,2-Trichloroethane	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
4-Methyl-2-pentanone (MIB	EPA 5035	8260B	1000	1	9/2/99	9/15/99	ND	
Tetrachloroethene (PCE)	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Dibromochloromethane	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Chlorobenzene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Ethylbenzene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
m,p-Xylenes	EPA 5035	8260B	100	1	9/2/99	9/15/99	ND	
o-Xylene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Styrene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Bromoform	EPA 5035	8260B	100	1	9/2/99	9/15/99	ND	
1,1,2,2-Tetrachloroethane	EPA 5035	8260B	100	1	9/2/99	9/15/99	ND	

Approved By: _____ Date: 9/28/99

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K99059
Project:	West Yard/12614	**Date Collected:**	9/1/99
Sample Matrix:	Soil	**Date Received:**	9/2/99

Volatile Organic Compounds by GC/MS

Sample Name:	S-12614-090199-KMV-04	Units:	ug/Kg (ppb)
Lab Code:	K9905976-003	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chloromethane	EPA 5035	8260B	250	1	9/2/99	9/15/99	ND	
Vinyl Chloride	EPA 5035	8260B	100	1	9/2/99	9/15/99	ND	
Bromomethane	EPA 5035	8260B	250	1	9/2/99	9/15/99	ND	
Chloroethane	EPA 5035	8260B	250	1	9/2/99	9/15/99	ND	
Acetone	EPA 5035	8260B	1000	1	9/2/99	9/15/99	ND	
1,1-Dichloroethene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Carbon Disulfide	EPA 5035	8260B	250	1	9/2/99	9/15/99	ND	
Methylene Chloride	EPA 5035	8260B	750	1	9/2/99	9/15/99	ND	
trans-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
1,1-Dichloroethane	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
2-Butanone (MEK)	EPA 5035	8260B	1000	1	9/2/99	9/15/99	ND	
cis-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Chloroform	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
1,1,1-Trichloroethane (TCA	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Carbon Tetrachloride	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
1,2-Dichloroethane (EDC)	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Benzene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Trichloroethene (TCE)	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
1,2-Dichloropropane	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Bromodichloromethane	EPA 5035	8260B	100	1	9/2/99	9/15/99	ND	
2-Hexanone	EPA 5035	8260B	1000	1	9/2/99	9/15/99	ND	
cis-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Toluene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
trans-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
1,1,2-Trichloroethane	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
4-Methyl-2-pentanone (MIB	EPA 5035	8260B	1000	1	9/2/99	9/15/99	ND	
Tetrachloroethene (PCE)	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Dibromochloromethane	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Chlorobenzene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Ethylbenzene	EPA 5035	8260B	50	1	9/2/99	9/15/99	150	
m,p-Xylenes	EPA 5035	8260B	100	1	9/2/99	9/15/99	620	
o-Xylene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Styrene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Bromoform	EPA 5035	8260B	100	1	9/2/99	9/15/99	ND	
1,1,2,2-Tetrachloroethane	EPA 5035	8260B	100	1	9/2/99	9/15/99	ND	

Approved By: _____ Date: 9/28/99

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9905976
Project:	West Yard/12614	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA

Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: KWG9903088-3
Test Notes:

Units: ug/Kg (ppb)
Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chloromethane	EPA 5035	8260B	250	1	9/2/99	9/15/99	ND	
Vinyl Chloride	EPA 5035	8260B	100	1	9/2/99	9/15/99	ND	
Bromomethane	EPA 5035	8260B	250	1	9/2/99	9/15/99	ND	
Chloroethane	EPA 5035	8260B	250	1	9/2/99	9/15/99	ND	
Acetone	EPA 5035	8260B	1000	1	9/2/99	9/15/99	ND	
1,1-Dichloroethene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Carbon Disulfide	EPA 5035	8260B	250	1	9/2/99	9/15/99	ND	
Methylene Chloride	EPA 5035	8260B	750	1	9/2/99	9/15/99	ND	
trans-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
1,1-Dichloroethane	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
2-Butanone (MEK)	EPA 5035	8260B	1000	1	9/2/99	9/15/99	ND	
cis-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Chloroform	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
1,1,1-Trichloroethane (TCA	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Carbon Tetrachloride	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
1,2-Dichloroethane (EDC)	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Benzene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Trichloroethene (TCE)	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
1,2-Dichloropropane	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Bromodichloromethane	EPA 5035	8260B	100	1	9/2/99	9/15/99	ND	
2-Hexanone	EPA 5035	8260B	1000	1	9/2/99	9/15/99	ND	
cis-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Toluene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
trans-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
1,1,2-Trichloroethane	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
4-Methyl-2-pentanone (MIB	EPA 5035	8260B	1000	1	9/2/99	9/15/99	ND	
Tetrachloroethene (PCE)	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Dibromochloromethane	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Chlorobenzene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Ethylbenzene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
m,p-Xylenes	EPA 5035	8260B	100	1	9/2/99	9/15/99	ND	
o-Xylene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Styrene	EPA 5035	8260B	50	1	9/2/99	9/15/99	ND	
Bromoform	EPA 5035	8260B	100	1	9/2/99	9/15/99	ND	
1,1,2,2-Tetrachloroethane	EPA 5035	8260B	100	1	9/2/99	9/15/99	ND	

Approved By: _____ Date: 9/28/99

APPENDIX A

Laboratory QC Results

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Conestoga Rovers & Assoc.
Project: West Yard/12614
Sample Matrix: Soil

Service Request: K9905976
Date Collected: 9/1/99
Date Received: 9/2/99

Duplicate Summary

Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Date Analyzed	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
S-12614-090199-KMV-02	K9905976-001DUP	9/7/99	83.4	83.1	83.3	<1	

Approved By: _____ Date: 9/14/99

00014

TSOLIDS.XLT_DUP/09291998a

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Conestoga Rovers & Assoc.
Project: West Yard/12614
Sample Matrix: Soil

Service Request: K9905976
Date Collected: 9/1/99
Date Received: 9/2/99
Date Extracted: 9/9/99
Date Analyzed: 9/12 - 15/99

Surrogate Recovery Summary
Polychlorinated Biphenyls (PCBs)

Prep Method: EPA 3540C
Analysis Method: 8082

Units: PERCENT
Basis: NA

Sample Name	Lab Code	Test Notes	Percent Recovery Decachlorobiphenyl
S-12614-090199-KMV-02	K9905976-001		119
S-12614-090199-KMV-03	K9905976-002		118
S-12614-090199-KMV-04	K9905976-003		127
Batch QC	K9905907-001		108
Batch QC	K9905907-001MS		109
Batch QC	K9905907-001DMS		108
Lab Control Sample	KWG9903003-3		129
Method Blank	KWG9903003-4		124

CAS Acceptance Limits: 42-130

Approved By: _____ Date: 9-16-99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9905976
Project:	West Yard/12614	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Extracted:	9/9/99
		Date Analyzed:	9/15/99

Matrix Spike/Duplicate Matrix Spike Summary
Polychlorinated Biphenyls (PCBs)

Sample Name:	Batch QC	Units:	mg/Kg (ppm)
Lab Code:	K9905907-001MS, K9905907-001DMS	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Limits	Relative Percent Difference	Result Notes
Aroclor 1016	EPA 3540C	8082	0.1	1.0	1.0	ND	1.2	1.2	120	120	36-126	<1	
Aroclor 1260	EPA 3540C	8082	0.1	1.0	1.0	1.5	2.7	2.7	120	120	30-136	<1	

Approved By: _____ Date: 9-16-99

DMS/020597p
05976SVG.AY1 - DMS 9/15/99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9905976
Project:	West Yard/12614	**Date Collected:**	NA
LCS Matrix:	Soil	**Date Received:**	NA
		Date Extracted:	9/9/99
		Date Analyzed:	9/12/99

Laboratory Control Sample Summary
Polychlorinated Biphenyls (PCBs)

Sample Name:	Lab Control Sample	Units:	mg/Kg (ppm)
Lab Code:	KWG9903003-3	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Aroclor 1016	EPA 3540C	8082	1.0	1.2	120	26-142	
Aroclor 1260	EPA 3540C	8082	1.0	1.2	120	40-139	

Approved By: _____ Date: 9-16-99

00017

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Conestoga Rovers & Assoc.
Project: West Yard/12614
Sample Matrix: Soil

Service Request: K9905976
Date Collected: 9/1/99
Date Received: 9/2/99
Date Extracted: 9/2/99
Date Analyzed: 9/15/99

Surrogate Recovery Summary
Volatile Organic Compounds by GC/MS

Prep Method: EPA 5035
Analysis Method: 8260B

Units: PERCENT
Basis: Dry

Sample Name	Lab Code	Test Notes	Percent Recovery		
			Dibromofluoromethane	Toluene-d8	4-Bromofluorobenzen
S-12614-090199-KMV-02	K9905976-001		89	102	97
S-12614-090199-KMV-03	K9905976-002		88	98	98
S-12614-090199-KMV-04	K9905976-003		89	101	95
Method Blank	KWG9903088-3		91	100	94
S-12614-090199-KMV-04	K9905976-003MS		89	99	97
S-12614-090199-KMV-04	K9905976-003DMS		90	101	98
Lab Control Sample	KWG9903088-2		96	101	97
CAS Acceptance Limits:			75-132	85-109	49-131

Approved By: _____ Date: 9/28/99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9905976
Project:	West Yard/12614	**Date Collected:**	9/1/99
Sample Matrix:	Soil	**Date Received:**	9/2/99
		Date Extracted:	9/2/99
		Date Analyzed:	9/15/99

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name:	S-12614-090199-KMV-04		Units:	ug/Kg (ppb)
Lab Code:	K9905976-003MS	K9905976-003DMS	Basis:	Dry
Test Notes:				

Analyte	Prep Method	Analysis Method	MRL	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Limits	Relative Percent Difference	Resul Notes
1,1-Dichloroethene	EPA 5035	8260B	50	1100	1100	ND	870	840	79	76	51-127	4	
Benzene	EPA 5035	8260B	50	1100	1100	ND	990	970	90	88	57-121	1	
Trichloroethene (TCE)	EPA 5035	8260B	50	1100	1100	ND	1000	1000	91	91	45-127	1	
Toluene	EPA 5035	8260B	50	1100	1100	ND	1000	1000	91	91	34-134	1	
Chlorobenzene	EPA 5035	8260B	50	1100	1100	ND	1000	1000	91	91	37-126	2	

Approved By: _____ Date: 9/28/99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Conestoga Rovers & Assoc.
Project: West Yard/12614
LCS Matrix: Soil

Service Request: K9905976
Date Collected: NA
Date Received: NA
Date Extracted: 9/15/99
Date Analyzed: 9/15/99

Laboratory Control Sample Summary
Volatile Organic Compounds by GC/MS

Sample Name: Lab Control Sample
Lab Code: KWG9903088-2
Test Notes:

Units: ug/Kg (ppb)
Basis: Dry

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
1,1-Dichloroethene	EPA 5035	8260B	10	7.7	77	73-118	
Benzene	EPA 5035	8260B	10	9.0	90	78-116	
Trichloroethene (TCE)	EPA 5035	8260B	10	8.8	88	79-119	
Toluene	EPA 5035	8260B	10	9.3	93	77-118	
Chlorobenzene	EPA 5035	8260B	10	8.9	89	80-117	

Approved By: _____ Date: 9/28/99

APPENDIX B

Chain of Custody Information

K9905976

CRA
CONESTOGA-ROVERS & ASSOCIATES, INC.
11100 Metro Airport Center Drive - Suite 160
Romulus, MI 48174 (734) 942-0909

SHIPPED TO (Laboratory Name): Columbia Analytical Services Inc.

8022

REFERENCE NUMBER: 12614

PROJECT NAME: west yard

CHAIN OF CUSTODY RECORD

SAMPLER'S SIGNATURE: K. VanderMeulen PRINTED NAME: K. VanderMeulen

SEQ: No.	DATE 99	TIME		SAMPLE TYPE	No. OF CONTAINERS	PARAMETERS: Extractable - VOC	PARAMETERS: PCB	REMARKS
	09-01	8:50	S.12614-090199-KMV-02	Soil	2	✓	✓	cooler = 12.2
	↓	10:20	-03	Soil	2	✓	✓	
	↓	2:20	-04	Soil	2	✓	✓	

TOTAL NUMBER OF CONTAINERS: 6

RELINQUISHED BY: 1. K. VanderMeulen	DATE: 09-01-99 TIME: 5:20 P	RECEIVED BY: 1. Deb Wood	DATE: 9/2/99 TIME: 0930
RELINQUISHED BY: 2.	DATE: TIME:	RECEIVED BY: 2.	DATE: TIME:
RELINQUISHED BY: 3.	DATE: TIME:	RECEIVED BY: 1.	DATE: TIME:

METHOD OF SHIPMENT: FED EX. AIR BILL No. 807878168314

White -Fully Executed Copy
Yellow -Receiving Laboratory Copy
Pink -Shipper Copy
Goldenrod -Sampler Copy

SAMPLE TEAM:

RECEIVED FOR LABORATORY BY:

DATE: TIME:

7789

1001 (FORMS)-APRIL 29, 93-REV 0-(CVE.01)

SHORT HOLD TIME

Columbia Analytical Services Inc.
Cooler Receipt And Preservation Form

Project/Client CRA Work Order K99 5976

Cooler received on 9/2/99 and opened on 9/2/99 by DW FE

1. Were custody seals on outside of cooler? YES NO
   If yes, how many and where? Tape
2. Were seals intact and signature & date correct? YES NO
3. COC # 7789
   Temperature of cooler(s) upon receipt: 12.2
   Temperature Blank: /
4. Were custody papers properly filled out (ink, signed, etc.)? YES NO
5. Type of packing material present Bubble Wrap
6. Did all bottles arrive in good condition (unbroken)? YES NO
7. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
8. Did all bottle labels and tags agree with custody papers? YES NO
9. *Were the correct types of bottles used for the tests indicated?* YES NO
10. Were all of the preserved bottles received at the lab with the appropriate pH? ~~YES~~
11. Were VOA vials checked for absence of air bubbles, and if present, noted below? ~~YES NO~~
12. Did the bottles originate from CAS/K or a branch laboratory? YES NO

Explain any discrepancies Encore Samples Mislabeled (See extention 02.03 Verified by date + time

Samples that required preservation or received outside of temperature range at the lab(circle)

Sample ID	Reagent	Volume	Lot Number	Initials
ALL				

00023

REC'D CRA
OCT 15 1999
SDG: 4, 5, 6

Columbia Analytical Services INC.
An Employee-Owned Company

October 6, 1999 Service Request No: K9906014

Paul Wiseman
Conestoga-Rovers & Associates, Inc.
11100 Metro Airport Center Drive, Suite 160
Romulus, MI 48174

Re: West Yard/12614

Dear Paul:

Enclosed are the results of the sample(s) submitted to our laboratory on September 3, 1999. Preliminary results were transmitted via facsimile on September 23, 1999. For your reference, these analyses have been assigned our service request number K9906014.

All analyses were performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions. My extension is 245.

Respectfully submitted,

Columbia Analytical Services, Inc.

Mingta Lin
Project Chemist

ML/aw

ORIGINAL ANALYTICAL REPORT

Project#: 12614 **Lab#:** K9906014
Name: GM West Yard

Description

Event: Soil Investigation
Samples: 3 Soil
Analysis: VOC, PCB

TAT: 14 days Page 1 of 33
Lab: CAS
Checked Against Preliminary Data:
Date: 10/18/99 **Init.:**
Date of Validation Memo: 12/28/99
Invoice Approval Date:
Comments:

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
J	Estimated concentration. The value is less than the method reporting limit, but greater than the method detection limit.
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected at or above the MRL
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Conestoga Rovers & Associates	**Service Request No.:**	K9906014
Project:	West Yard/12614	**Date Received:**	9/3-14/99
Sample Matrix:	Soil		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for sample(s) designated for Tier IIA data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Matrix Spike (MS), Matrix/Duplicate Matrix Spike (MS/DMS), and Laboratory Control Sample (LCS).

All EPA recommended holding times have been met for analyses in this sample delivery group.

No difficulties were experienced during analysis of this batch.

Approved by MH **Date** 10/4/99

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9906014
Project:	West Yard/12614	**Date Collected:**	9/2,10,13/99
Sample Matrix:	Soil	**Date Received:**	9/3-14/99

Total Solids

Prep Method:	NONE	Units:	Percent
Analysis Method:	160.3M	Basis:	WET
Test Notes:			

Sample Name	Lab Code	Date Analyzed	Result	Result Notes
S-12614-090299-KMV-05	K9906014-001	9/9/99	88.1	
S-12614-091099-KMT-06	K9906014-002	9/13/99	77.1	
S-12614-091399-KMV-07	K9906014-003	9/15/99	75.3	

Approved By: _____ Date: 10/8/99

00004

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9906014
Project:	West Yard/12614	**Date Collected:**	9/2/99
Sample Matrix:	Soil	**Date Received:**	9/3/99

Polychlorinated Biphenyls (PCBs)

Sample Name:	S-12614-090299-KMV-05	Units:	mg/Kg (ppm)
Lab Code:	K9906014-001	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Aroclor 1016	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	ND	
Aroclor 1221	EPA 3540C	8082	0.2	1	9/9/99	9/15/99	ND	
Aroclor 1232	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	ND	
Aroclor 1242	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	ND	
Aroclor 1248	EPA 3540C	8082	1	10	9/9/99	9/15/99	4.0	
Aroclor 1254	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	ND	
Aroclor 1260	EPA 3540C	8082	0.1	1	9/9/99	9/15/99	ND	

Approved By: _____ Date: 9-22-99

1S22/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9906014
Project:	West Yard/12614	**Date Collected:**	9/10/99
Sample Matrix:	Soil	**Date Received:**	9/11/99

Polychlorinated Biphenyls (PCBs)

Sample Name:	S-12614-091099-KMV-06	Units:	mg/Kg (ppm)
Lab Code:	K9906014-002	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Aroclor 1016	EPA 3545	8082	0.1	1	9/15/99	9/18/99	ND	
Aroclor 1221	EPA 3545	8082	0.2	1	9/15/99	9/18/99	ND	
Aroclor 1232	EPA 3545	8082	0.1	1	9/15/99	9/18/99	ND	
Aroclor 1242	EPA 3545	8082	0.1	1	9/15/99	9/18/99	ND	
Aroclor 1248	EPA 3545	8082	0.1	1	9/15/99	9/18/99	ND	
Aroclor 1254	EPA 3545	8082	0.1	1	9/15/99	9/18/99	0.6	
Aroclor 1260	EPA 3545	8082	0.1	1	9/15/99	9/18/99	ND	

Approved By: _____ Date: 9-22-99

1S22/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9906014
Project:	West Yard/12614	**Date Collected:**	9/13/99
Sample Matrix:	Soil	**Date Received:**	9/14/99

Polychlorinated Biphenyls (PCBs)

Sample Name:	S-12614-091399-KMV-07	Units:	mg/Kg (ppm)
Lab Code:	K9906014-003	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Aroclor 1016	EPA 3545	8082	0.1	1	9/15/99	9/18/99	ND	
Aroclor 1221	EPA 3545	8082	0.2	1	9/15/99	9/18/99	ND	
Aroclor 1232	EPA 3545	8082	0.1	1	9/15/99	9/18/99	ND	
Aroclor 1242	EPA 3545	8082	0.1	1	9/15/99	9/18/99	ND	
Aroclor 1248	EPA 3545	8082	0.1	1	9/15/99	9/18/99	ND	
Aroclor 1254	EPA 3545	8082	0.1	1	9/15/99	9/18/99	ND	
Aroclor 1260	EPA 3545	8082	0.1	1	9/15/99	9/18/99	ND	

Approved By: _____ Date: 9/22/99

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9906014
Project:	West Yard/12614	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA

Polychlorinated Biphenyls (PCBs)

Sample Name:	Method Blank	Units:	mg/Kg (ppm)
Lab Code:	KWG9903003-4	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Aroclor 1016	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	
Aroclor 1221	EPA 3540C	8082	0.2	1	9/9/99	9/12/99	ND	
Aroclor 1232	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	
Aroclor 1242	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	
Aroclor 1248	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	
Aroclor 1254	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	
Aroclor 1260	EPA 3540C	8082	0.1	1	9/9/99	9/12/99	ND	

Approved By: _____ Date: 9-22-99

1S22/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9906014
Project:	West Yard/12614	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA

Polychlorinated Biphenyls (PCBs)

Sample Name:	Method Blank	Units:	mg/Kg (ppm)
Lab Code:	KWG9903085-7	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Aroclor 1016	EPA 3545	8082	0.1	1	9/15/99	9/18/99	ND	
Aroclor 1221	EPA 3545	8082	0.2	1	9/15/99	9/18/99	ND	
Aroclor 1232	EPA 3545	8082	0.1	1	9/15/99	9/18/99	ND	
Aroclor 1242	EPA 3545	8082	0.1	1	9/15/99	9/18/99	ND	
Aroclor 1248	EPA 3545	8082	0.1	1	9/15/99	9/18/99	ND	
Aroclor 1254	EPA 3545	8082	0.1	1	9/15/99	9/18/99	ND	
Aroclor 1260	EPA 3545	8082	0.1	1	9/15/99	9/18/99	ND	

Approved By: _____ Date: 9.22.99

1S22/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K990601
Project:	West Yard/12614	**Date Collected:**	9/2/99
Sample Matrix:	Soil	**Date Received:**	9/3/99

Volatile Organic Compounds by GC/MS

Sample Name: S-12614-090299-KMV-05
Lab Code: K9906014-001
Test Notes:

Units: ug/Kg (ppb)
Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chloromethane	EPA 5035	8260B	250	1	9/16/99	9/16/99	ND	
Vinyl Chloride	EPA 5035	8260B	100	1	9/16/99	9/16/99	ND	
Bromomethane	EPA 5035	8260B	250	1	9/16/99	9/16/99	ND	
Chloroethane	EPA 5035	8260B	250	1	9/16/99	9/16/99	ND	
Acetone	EPA 5035	8260B	1000	1	9/16/99	9/16/99	ND	
1,1-Dichloroethene	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
Carbon Disulfide	EPA 5035	8260B	250	1	9/16/99	9/16/99	ND	
Methylene Chloride	EPA 5035	8260B	750	1	9/16/99	9/16/99	ND	
trans-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
1,1-Dichloroethane	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
2-Butanone (MEK)	EPA 5035	8260B	1000	1	9/16/99	9/16/99	ND	
cis-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
Chloroform	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
1,1,1-Trichloroethane (TCA	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
Carbon Tetrachloride	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
1,2-Dichloroethane (EDC)	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
Benzene	EPA 5035	8260B	50	1	9/16/99	9/16/99	58	
Trichloroethene (TCE)	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
1,2-Dichloropropane	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
Bromodichloromethane	EPA 5035	8260B	100	1	9/16/99	9/16/99	ND	
2-Hexanone	EPA 5035	8260B	1000	1	9/16/99	9/16/99	ND	
cis-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
Toluene	EPA 5035	8260B	50	1	9/16/99	9/16/99	2100	
trans-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
1,1,2-Trichloroethane	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
4-Methyl-2-pentanone (MIB	EPA 5035	8260B	1000	1	9/16/99	9/16/99	ND	
Tetrachloroethene (PCE)	EPA 5035	8260B	50	1	9/16/99	9/16/99	120	
Dibromochloromethane	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
Chlorobenzene	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
Ethylbenzene	EPA 5035	8260B	50	1	9/16/99	9/16/99	1700	
m,p-Xylenes	EPA 5035	8260B	100	1	9/16/99	9/16/99	4900	
o-Xylene	EPA 5035	8260B	50	1	9/16/99	9/16/99	2700	
Styrene	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
Bromoform	EPA 5035	8260B	100	1	9/16/99	9/16/99	ND	
1,1,2,2-Tetrachloroethane	EPA 5035	8260B	100	1	9/16/99	9/16/99	ND	

Approved By: _____ Date: 9/30/99

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9906014
Project:	West Yard/12614	**Date Collected:**	9/10/99
Sample Matrix:	Soil	**Date Received:**	9/11/99

Volatile Organic Compounds by GC/MS

Sample Name:	S-12614-091099-KMV-06	Units:	ug/Kg (ppb)
Lab Code:	K9906014-002	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chloromethane	EPA 5035	8260B	250	1	9/24/99	9/24/99	ND	
Vinyl Chloride	EPA 5035	8260B	100	1	9/24/99	9/24/99	ND	
Bromomethane	EPA 5035	8260B	250	1	9/24/99	9/24/99	ND	
Chloroethane	EPA 5035	8260B	250	1	9/24/99	9/24/99	ND	
Acetone	EPA 5035	8260B	1000	1	9/24/99	9/24/99	ND	
1,1-Dichloroethene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Carbon Disulfide	EPA 5035	8260B	250	1	9/24/99	9/24/99	ND	
Methylene Chloride	EPA 5035	8260B	750	1	9/24/99	9/24/99	ND	
trans-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
1,1-Dichloroethane	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
2-Butanone (MEK)	EPA 5035	8260B	1000	1	9/24/99	9/24/99	ND	
cis-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Chloroform	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
1,1,1-Trichloroethane (TCA	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Carbon Tetrachloride	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
1,2-Dichloroethane (EDC)	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Benzene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Trichloroethene (TCE)	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
1,2-Dichloropropane	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Bromodichloromethane	EPA 5035	8260B	100	1	9/24/99	9/24/99	ND	
2-Hexanone	EPA 5035	8260B	1000	1	9/24/99	9/24/99	ND	
cis-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Toluene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
trans-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
1,1,2-Trichloroethane	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
4-Methyl-2-pentanone (MIB	EPA 5035	8260B	1000	1	9/24/99	9/24/99	ND	
Tetrachloroethene (PCE)	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Dibromochloromethane	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Chlorobenzene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Ethylbenzene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
m,p-Xylenes	EPA 5035	8260B	100	1	9/24/99	9/24/99	ND	
o-Xylene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Styrene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Bromoform	EPA 5035	8260B	100	1	9/24/99	9/24/99	ND	
1,1,2,2-Tetrachloroethane	EPA 5035	8260B	100	1	9/24/99	9/24/99	ND	

Approved By: _____ Date: 9/30/99

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K99060
Project:	West Yard/12614	**Date Collected:**	9/13/99
Sample Matrix:	Soil	**Date Received:**	9/14/99

Volatile Organic Compounds by GC/MS

Sample Name: S-12614-091399-KMV-07
Lab Code: K9906014-003
Test Notes:

Units: ug/Kg (ppb)
Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chloromethane	EPA 5035	8260B	250	1	9/24/99	9/24/99	ND	
Vinyl Chloride	EPA 5035	8260B	100	1	9/24/99	9/24/99	ND	
Bromomethane	EPA 5035	8260B	250	1	9/24/99	9/24/99	ND	
Chloroethane	EPA 5035	8260B	250	1	9/24/99	9/24/99	ND	
Acetone	EPA 5035	8260B	1000	1	9/24/99	9/24/99	ND	
1,1-Dichloroethene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Carbon Disulfide	EPA 5035	8260B	250	1	9/24/99	9/24/99	ND	
Methylene Chloride	EPA 5035	8260B	750	1	9/24/99	9/24/99	ND	
trans-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
1,1-Dichloroethane	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
2-Butanone (MEK)	EPA 5035	8260B	1000	1	9/24/99	9/24/99	ND	
cis-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Chloroform	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
1,1,1-Trichloroethane (TCA	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Carbon Tetrachloride	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
1,2-Dichloroethane (EDC)	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Benzene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Trichloroethene (TCE)	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
1,2-Dichloropropane	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Bromodichloromethane	EPA 5035	8260B	100	1	9/24/99	9/24/99	ND	
2-Hexanone	EPA 5035	8260B	1000	1	9/24/99	9/24/99	ND	
cis-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Toluene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
trans-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
1,1,2-Trichloroethane	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
4-Methyl-2-pentanone (MIB	EPA 5035	8260B	1000	1	9/24/99	9/24/99	ND	
Tetrachloroethene (PCE)	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Dibromochloromethane	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Chlorobenzene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Ethylbenzene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
m,p-Xylenes	EPA 5035	8260B	100	1	9/24/99	9/24/99	ND	
o-Xylene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Styrene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Bromoform	EPA 5035	8260B	100	1	9/24/99	9/24/99	ND	
1,1,2,2-Tetrachloroethane	EPA 5035	8260B	100	1	9/24/99	9/24/99	ND	

Approved By: _____ Date: 9/30/99

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9906014
Project:	West Yard/12614	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA

Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	Units:	ug/Kg (ppb)
Lab Code:	KWG9903103-1	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chloromethane	EPA 5035	8260B	250	1	9/16/99	9/16/99	ND	
Vinyl Chloride	EPA 5035	8260B	100	1	9/16/99	9/16/99	ND	
Bromomethane	EPA 5035	8260B	250	1	9/16/99	9/16/99	ND	
Chloroethane	EPA 5035	8260B	250	1	9/16/99	9/16/99	ND	
Acetone	EPA 5035	8260B	1000	1	9/16/99	9/16/99	ND	
1,1-Dichloroethene	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
Carbon Disulfide	EPA 5035	8260B	250	1	9/16/99	9/16/99	ND	
Methylene Chloride	EPA 5035	8260B	750	1	9/16/99	9/16/99	ND	
trans-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
1,1-Dichloroethane	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
2-Butanone (MEK)	EPA 5035	8260B	1000	1	9/16/99	9/16/99	ND	
cis-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
Chloroform	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
1,1,1-Trichloroethane (TCA	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
Carbon Tetrachloride	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
1,2-Dichloroethane (EDC)	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
Benzene	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
Trichloroethene (TCE)	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
1,2-Dichloropropane	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
Bromodichloromethane	EPA 5035	8260B	100	1	9/16/99	9/16/99	ND	
2-Hexanone	EPA 5035	8260B	1000	1	9/16/99	9/16/99	ND	
cis-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
Toluene	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
trans-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
1,1,2-Trichloroethane	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
4-Methyl-2-pentanone (MIB	EPA 5035	8260B	1000	1	9/16/99	9/16/99	ND	
Tetrachloroethene (PCE)	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
Dibromochloromethane	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
Chlorobenzene	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
Ethylbenzene	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
m,p-Xylenes	EPA 5035	8260B	100	1	9/16/99	9/16/99	ND	
o-Xylene	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
Styrene	EPA 5035	8260B	50	1	9/16/99	9/16/99	ND	
Bromoform	EPA 5035	8260B	100	1	9/16/99	9/16/99	ND	
1,1,2,2-Tetrachloroethane	EPA 5035	8260B	100	1	9/16/99	9/16/99	ND	

Approved By: _____ Date: 9/30/99

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K99060.
Project:	West Yard/12614	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA

Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	Units:	ug/Kg (ppb)
Lab Code:	KWG9903217-4	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chloromethane	EPA 5035	8260B	250	1	9/24/99	9/24/99	ND	
Vinyl Chloride	EPA 5035	8260B	100	1	9/24/99	9/24/99	ND	
Bromomethane	EPA 5035	8260B	250	1	9/24/99	9/24/99	ND	
Chloroethane	EPA 5035	8260B	250	1	9/24/99	9/24/99	ND	
Acetone	EPA 5035	8260B	1000	1	9/24/99	9/24/99	ND	
1,1-Dichloroethene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Carbon Disulfide	EPA 5035	8260B	250	1	9/24/99	9/24/99	ND	
Methylene Chloride	EPA 5035	8260B	750	1	9/24/99	9/24/99	ND	
trans-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
1,1-Dichloroethane	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
2-Butanone (MEK)	EPA 5035	8260B	1000	1	9/24/99	9/24/99	ND	
cis-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Chloroform	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
1,1,1-Trichloroethane (TCA	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Carbon Tetrachloride	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
1,2-Dichloroethane (EDC)	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Benzene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Trichloroethene (TCE)	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
1,2-Dichloropropane	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Bromodichloromethane	EPA 5035	8260B	100	1	9/24/99	9/24/99	ND	
2-Hexanone	EPA 5035	8260B	1000	1	9/24/99	9/24/99	ND	
cis-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Toluene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
trans-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
1,1,2-Trichloroethane	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
4-Methyl-2-pentanone (MIB	EPA 5035	8260B	1000	1	9/24/99	9/24/99	ND	
Tetrachloroethene (PCE)	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Dibromochloromethane	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Chlorobenzene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Ethylbenzene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
m,p-Xylenes	EPA 5035	8260B	100	1	9/24/99	9/24/99	ND	
o-Xylene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Styrene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Bromoform	EPA 5035	8260B	100	1	9/24/99	9/24/99	ND	
1,1,2,2-Tetrachloroethane	EPA 5035	8260B	100	1	9/24/99	9/24/99	ND	

Approved By: _____ Date: 9/29/99

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9906014
Project:	West Yard/12614	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA

Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	Units:	ug/Kg (ppb)
Lab Code:	KWG9903217-5	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chloromethane	EPA 5035	8260B	250	1	9/24/99	9/24/99	ND	
Vinyl Chloride	EPA 5035	8260B	100	1	9/24/99	9/24/99	ND	
Bromomethane	EPA 5035	8260B	250	1	9/24/99	9/24/99	ND	
Chloroethane	EPA 5035	8260B	250	1	9/24/99	9/24/99	ND	
Acetone	EPA 5035	8260B	1000	1	9/24/99	9/24/99	ND	
1,1-Dichloroethene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Carbon Disulfide	EPA 5035	8260B	250	1	9/24/99	9/24/99	ND	
Methylene Chloride	EPA 5035	8260B	750	1	9/24/99	9/24/99	ND	
trans-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
1,1-Dichloroethane	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
2-Butanone (MEK)	EPA 5035	8260B	1000	1	9/24/99	9/24/99	ND	
cis-1,2-Dichloroethene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Chloroform	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
1,1,1-Trichloroethane (TCA	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Carbon Tetrachloride	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
1,2-Dichloroethane (EDC)	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Benzene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Trichloroethene (TCE)	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
1,2-Dichloropropane	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Bromodichloromethane	EPA 5035	8260B	100	1	9/24/99	9/24/99	ND	
2-Hexanone	EPA 5035	8260B	1000	1	9/24/99	9/24/99	ND	
cis-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Toluene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
trans-1,3-Dichloropropene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
1,1,2-Trichloroethane	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
4-Methyl-2-pentanone (MIB	EPA 5035	8260B	1000	1	9/24/99	9/24/99	ND	
Tetrachloroethene (PCE)	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Dibromochloromethane	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Chlorobenzene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Ethylbenzene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
m,p-Xylenes	EPA 5035	8260B	100	1	9/24/99	9/24/99	ND	
o-Xylene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Styrene	EPA 5035	8260B	50	1	9/24/99	9/24/99	ND	
Bromoform	EPA 5035	8260B	100	1	9/24/99	9/24/99	ND	
1,1,2,2-Tetrachloroethane	EPA 5035	8260B	100	1	9/24/99	9/24/99	ND	

Approved By: _____ Date: 9/30/99

APPENDIX A

Laboratory QC Results

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Conestoga Rovers & Assoc.
Project: West Yard/12614
Sample Matrix: Soil

Service Request: K9906014
Date Collected: 9/2,10,13/99
Date Received: 9/3-14/99

Duplicate Summary
Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: WET

Sample Name	Lab Code	Date Analyzed	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
S-12614-090299-KMV-05	K9906014-001DUP	9/9/99	88.1	89.0	88.6	1	

Approved By: _____ Date: 10/8/99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9906014
Project:	West Yard/12614	**Date Collected:**	9/2/99
Sample Matrix:	Soil	**Date Received:**	9/3/99
		Date Extracted:	9/9/99
		Date Analyzed:	9/12 - 15/99

Surrogate Recovery Summary
Polychlorinated Biphenyls (PCBs)

Prep Method:	EPA 3540C	Units:	PERCENT
Analysis Method:	8082	Basis:	NA

Sample Name	Lab Code	Test Notes	Percent Recovery Decachlorobiphenyl
S-12614-090299-KMV-05	K9906014-001		118
Batch QC	K9905907-001		108
Batch QC	K9905907-001MS		109
Batch QC	K9905907-001DMS		108
Lab Control Sample	KWG9903003-3		129
Method Blank	KWG9903003-4		124

CAS Acceptance Limits: 42-130

Approved By: _____ Date: 9-22-99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Conestoga Rovers & Assoc.
Project: West Yard/12614
Sample Matrix: Soil

Service Request: K9906014
Date Collected: 9/10 - 13/99
Date Received: 9/11 - 14/99
Date Extracted: 9/15/99
Date Analyzed: 9/18/99

Surrogate Recovery Summary
Polychlorinated Biphenyls (PCBs)

Prep Method: EPA 3545
Analysis Method: 8082

Units: PERCENT
Basis: NA

Sample Name	Lab Code	Test Notes	Percent Recovery Decachlorobiphenyl
S-12614-091099-KMV-06	K9906014-002		107
S-12614-091399-KMV-07	K9906014-003		109
Batch QC	K9906335-006		108
Batch QC	K9906335-006MS		99
Batch QC	K9906335-006DMS		102
Lab Control Sample	KWG9903085-6		114
Method Blank	KWG9903085-7		113

CAS Acceptance Limits: 42-130

Approved By: _____ Date: 9.22.99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9906014
Project:	West Yard/12614	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Extracted:	9/9/99
		Date Analyzed:	9/15/99

Matrix Spike/Duplicate Matrix Spike Summary
Polychlorinated Biphenyls (PCBs)

Sample Name:	Batch QC	Units:	mg/Kg (ppm)
Lab Code:	K9905907-001MS, K9905907-001DMS	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Limits	Relative Percent Difference	Result Notes
Aroclor 1016	EPA 3540C	8082	0.1	1.0	1.0	ND	1.2	1.2	120	120	36-126	<1	
Aroclor 1260	EPA 3540C	8082	0.1	1.0	1.0	1.5	2.7	2.7	120	120	30-136	<1	

Approved By: _____ Date: 9-22-99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Conestoga Rovers & Assoc.
Project: West Yard/12614
Sample Matrix: Soil

Service Request: K9906014
Date Collected: NA
Date Received: NA
Date Extracted: 9/15/99
Date Analyzed: 9/18/99

Matrix Spike/Duplicate Matrix Spike Summary
Polychlorinated Biphenyls (PCBs)

Sample Name: Batch QC
Lab Code: K9906335-006MS, K9906335-006DMS
Test Notes:

Units: mg/Kg (ppm)
Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Limits	Relative Percent Difference	Result Notes
Aroclor 1016	EPA 3545	8082	0.1	1.6	1.6	ND	1.2	1.2	75	75	36-126	<1	
Aroclor 1260	EPA 3545	8082	0.1	1.6	1.6	ND	1.3	1.3	81	81	30-136	<1	

Approved By: _____ Date: 9-22-99

DMS/020597p
06014SVG.AY2 - DMS 9/22/99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Conestoga Rovers & Assoc.
Project: West Yard/12614
LCS Matrix: Soil

Service Request: K9906014
Date Collected: NA
Date Received: NA
Date Extracted: 9/9/99
Date Analyzed: 9/12/99

Laboratory Control Sample Summary
Polychlorinated Biphenyls (PCBs)

Sample Name: Lab Control Sample
Lab Code: KWG9903003-3
Test Notes:

Units: mg/Kg (ppm)
Basis: Dry

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Aroclor 1016	EPA 3540C	8082	1.0	1.2	120	26-142	
Aroclor 1260	EPA 3540C	8082	1.0	1.2	120	40-139	

Approved By: _____ Date: 9.22.99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Conestoga Rovers & Assoc.
Project: West Yard/12614
LCS Matrix: Soil

Service Request: K9906014
Date Collected: NA
Date Received: NA
Date Extracted: 9/15/99
Date Analyzed: 9/18/99

Laboratory Control Sample Summary
Polychlorinated Biphenyls (PCBs)

Sample Name: Lab Control Sample
Lab Code: KWG9903085-6
Test Notes:

Units: mg/Kg (ppm)
Basis: Dry

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Aroclor 1016	EPA 3545	8082	1.0	0.8	80	26-142	
Aroclor 1260	EPA 3545	8082	1.0	0.9	90	40-139	

Approved By: _____ Date: 9-22-99

LCS/080797p
06014SVG.AY2 - LCS 9/22/99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Conestoga Rovers & Assoc.
Project: West Yard/12614
Sample Matrix: Soil

Service Request: K9906014
Date Collected: 9/2 - 9/13/99
Date Received: 9/3-14/99
Date Extracted: 9/16 - 9/24/99
Date Analyzed: 9/16 - 9/24/99

Surrogate Recovery Summary
Volatile Organic Compounds by GC/MS

Prep Method: EPA 5035
Analysis Method: 8260B

Units: PERCENT
Basis: Dry

Sample Name	Lab Code	Test Notes	Percent Recovery		
			Dibromofluoromethane	Toluene-d8	4-Bromofluorobenzei
S-12614-090299-KMV-05	K9906014-001		89	100	97
S-12614-091099-KMV-06	K9906014-002		92	97	95
S-12614-091399-KMV-07	K9906014-003		97	100	98
Method Blank	KWG9903103-1		93	97	94
Method Blank	KWG9903217-4		94	89	91
S-12614-091099-KMV-06	K9906014-002MS		92	97	99
S-12614-091099-KMV-06	K9906014-002DMS		89	100	98
Lab Control Sample	KWG9903217-7		92	99	9?
Method Blank	KWG9903217-5		91	100	9(

CAS Acceptance Limits: 75-132 85-109 49-131

Approved By: _____ Date: 9/30/99

SUR3QC.XLT_SUR/01071998a
06014VOA.ML2 - SUR 9/30/99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Conestoga Rovers & Assoc.	**Service Request:**	K9906014
Project:	West Yard/12614	**Date Collected:**	9/10/99
Sample Matrix:	Soil	**Date Received:**	9/14/99
		Date Extracted:	9/24/99
		Date Analyzed:	9/24/99

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name:	S-12614-091099-KMV-06		Units: ug/Kg (ppb)
Lab Code:	K9906014-002MS	K9906014-002DMS	Basis: Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Limits	Relative Percent Difference	Result Notes
1,1-Dichloroethene	EPA 5035	8260B	50	1300	1300	ND	980	990	75	76	51-127	1	
Benzene	EPA 5035	8260B	50	1300	1300	ND	1100	1100	85	85	57-121	<1	
Trichloroethene (TCE)	EPA 5035	8260B	50	1300	1300	ND	1200	1200	92	92	45-127	<1	
Toluene	EPA 5035	8260B	50	1300	1300	ND	1100	1200	85	92	34-134	9	
Chlorobenzene	EPA 5035	8260B	50	1300	1300	ND	1100	1200	85	92	37-126	9	

Approved By: _____ Date: 9/30/99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Conestoga Rovers & Assoc.
Project: West Yard/12614
LCS Matrix: Soil

Service Request: K9906014
Date Collected: NA
Date Received: NA
Date Extracted: 9/24/99
Date Analyzed: 9/24/99

Laboratory Control Sample Summary
Volatile Organic Compounds by GC/MS

Sample Name: Lab Control Sample
Lab Code: KWG9903217-7
Test Notes:

Units: ug/Kg (ppb)
Basis: Dry

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
1,1-Dichloroethene	EPA 5035	8260B	1000	770	77	73-118	
Benzene	EPA 5035	8260B	1000	890	89	78-116	
Trichloroethene (TCE)	EPA 5035	8260B	1000	870	87	79-119	
Toluene	EPA 5035	8260B	1000	870	87	77-118	
Chlorobenzene	EPA 5035	8260B	1000	900	90	80-117	

Approved By: _____ Date: 9/29/99

APPENDIX B

Chain of Custody Information

K990600 1

C A
CONESTOGA-ROVERS & ASSOCIATES, INC.
11100 Metro Airport Center Drive - Suite 160
Romulus, MI 48174 (313) 942-0909

CHAIN OF CUSTODY RECORD

SHIPPED TO (Laboratory Name): Columbia Analytical Services

REFERENCE NUMBER: 12614

PROJECT NAME: West yard

00028

SAMPLER'S SIGNATURE: K. Vander Meulen PRINTED NAME: K. Vander Meulen

SEQ: No.	DATE 99	TIME		SAMPLE TYPE	No. OF CONTAINERS	PARAMETERS: Encore - VOC	PARAMETERS: PCB	REMARKS
	09-13	8:50A	S-12614-091399-KMV-07	SOIL	2	✓	✓	TAT = 2 weeks
			TOTAL NUMBER OF CONTAINERS		2			

RELINQUISHED BY: 1. K. Vander Meulen	DATE: 09-13-99 TIME: 4:45P	RECEIVED BY: 1. Debi Wood	DATE: 9/14/99 TIME: 0930
RELINQUISHED BY: 2.	DATE: TIME:	RECEIVED BY: 2.	DATE: TIME:
RELINQUISHED BY: 3.	DATE: TIME:	RECEIVED BY: 1.	DATE: TIME:

METHOD OF SHIPMENT: FED EX AIR BILL No. 807878168299

White -Fully Executed Copy
Yellow -Receiving Laboratory Copy
Pink -Shipper Copy
Goldenrod -Sampler Copy

SAMPLE TEAM:

RECEIVED FOR LABORATORY BY:

DATE: TIME:

6262

1001 (FORMS)-APRIL 29, 93-REV.0-(C)(F-01)

CT 57

K9906014

00029

CRA
CONESTOGA-ROVERS & ASSOCIATES, INC.
11100 Metro Airport Center Drive - Suite 160
Romulus, MI 48174 (734) 942-0909

CHAIN OF CUSTODY RECORD

SHIPPED TO (Laboratory Name): Columbia Analytical Services

REFERENCE NUMBER: 12614

PROJECT NAME: West yard

SAMPLER'S SIGNATURE: K. Vanda Meulen PRINTED NAME: K. Vanda Meulen

SEQ: No.	DATE '99	TIME		SAMPLE TYPE	No. OF CONTAINERS	PARAMETERS: Extract-VOC	PARAMETERS: PCB	REMARKS
1	09-10	11:00	S-12614-091099-KMV-06	SOIL	2	✓	✓	TAT = 2 weeks

TOTAL NUMBER OF CONTAINERS: 2

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
1. K. Vanda Meulen	09-10-99	12:00	1. Debi Wood	9/11/99	11:00
2.			2.		
3.			1.		

METHOD OF SHIPMENT: FED EX

AIR BILL No.

White -Fully Executed Copy
Yellow -Receiving Laboratory Copy
Pink -Shipper Copy
Goldenrod -Sampler Copy

SAMPLE TEAM:

RECEIVED FOR LABORATORY BY:

DATE: _____ TIME: _____

7787

100 ORMS)-APRIL 29, 93-REV.0-(C)(F-01)

(K6014)

000330

C A
CONESTOGA-ROVERS & ASSOCIATES, INC.
11100 Metro Airport Center Drive - Suite 160
Romulus, MI 48174 (734) 942-0909

CHAIN OF CUSTODY RECORD

SHIPPED TO (Laboratory Name): Columbia Analytical Services Inc.

REFERENCE NUMBER: 12614

PROJECT NAME: West Yard

SAMPLER'S SIGNATURE: K. VanderMeulen PRINTED NAME: K. VanderMeulen

SEQ: No.	DATE 99	TIME		SAMPLE TYPE	No. OF CONTAINERS	PARAMETERS: Encore - VOC	PARAMETERS: PCB	REMARKS
	09-02	3:30	S-12614-090299-KMV-05	SOIL	2	✓	✓	TAT = 2 wks
			TOTAL NUMBER OF CONTAINERS		2			CT=12

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
1. K. VanderMeulen	09.02.99	4:30 P	1.		
2.			2.		
3.			1.		

METHOD OF SHIPMENT: FED EX

AIR BILL No. 807878168303

White -Fully Executed Copy
Yellow -Receiving Laboratory Copy
Pink -Shipper Copy
Goldenrod -Sampler Copy

7788

SAMPLE TEAM:

RECEIVED FOR LABORATORY BY:

DATE: 9/3/99 TIME: 0930

1001 (FORMS)-APRIL 29, 93-REV.0-(C)(F-01)

SHORT HOLD TIME

Columbia Analytical Services Inc.
Cooler Receipt And Preservation Form

Project/Client CRA Work Order K99 6014

Cooler received on 9/3/99 and opened on 9/3/99 by MW

1. Were custody seals on outside of cooler? YES (N)
   If yes, how many and where? _____ FedEx
2. Were seals intact and signature & date correct? ~~YES N~~
3. COC # 7788
   Temperature of cooler(s) upon receipt: 1.2
   Temperature Blank:
4. Were custody papers properly filled out (ink, signed, etc.)? (YES) NO
5. Type of packing material present b. wrap
6. Did all bottles arrive in good condition (unbroken)? (YES) NO
7. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
8. Did all bottle labels and tags agree with custody papers? (YES) NO
9. *Were the correct types of bottles used for the tests indicated?* (YES) NO
10. Were all of the preserved bottles received at the lab with the appropriate pH? ~~YES NO~~
11. Were VOA vials checked for absence of air bubbles, and if present, noted below? ~~YES NO~~
12. Did the bottles originate from CAS/K or a branch laboratory? _____ YES (NO)

Explain any discrepancies _____

Samples that required preservation or received outside of temperature range at the lab(circle)

Sample ID	Reagent	Volume	Lot Number	Initials

Columbia Analytical Services Inc.
Cooler Receipt And Preservation Form

Project/Client CRA Work Order K99 6014

Cooler received on 9/11 and opened on 9/11 by TBowen

1. Were custody seals on outside of cooler? YES (N)
   If yes, how many and where? _____
2. Were seals intact and signature & date correct? YES (N)
3. COC # 7787
   Temperature of cooler(s) upon receipt: 2.6
   Temperature Blank: _____
4. Were custody papers properly filled out (ink, signed, etc.)? YES N(
5. Type of packing material present bubble wrap
6. Did all bottles arrive in good condition (unbroken)? (YES) N(
7. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) N(
8. Did all bottle labels and tags agree with custody papers? (YES) N(
9. *Were the correct types of bottles used for the tests indicated?* (YES) N(
10. Were all of the preserved bottles received at the lab with the appropriate pH? ~~YES~~ ~~(~~
11. Were VOA vials checked for absence of air bubbles, and if present, noted below? ~~YES NO~~
12. Did the bottles originate from CAS/K or a branch laboratory? _____ (YES) NO

Explain any discrepancies _____

Samples that required preservation or received outside of temperature range at the lab(circle)

Sample ID	Reagent	Volume	Lot Number	Initials

Columbia Analytical Services Inc.
Cooler Receipt And Preservation Form

SHORT HOLD TIM

Project/Client CRA Work Order K99 6014

Cooler received on 9/14/99 and opened on 9/14/99 by [signature]

1. Were custody seals on outside of cooler? YES
   If yes, how many and where? — FX
2. Were seals intact and signature & date correct? ~~YES~~
3. COC # #6262
   Temperature of cooler(s) upon receipt: 5.7
   Temperature Blank: —
4. Were custody papers properly filled out (ink, signed, etc.)? YES N
5. Type of packing material present Bubble Wrap
6. Did all bottles arrive in good condition (unbroken)? YES N
7. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES N
8. Did all bottle labels and tags agree with custody papers? YES N
9. *Were the correct types of bottles used for the tests indicated?* YES N
10. Were all of the preserved bottles received at the lab with the appropriate pH? ~~YES~~ N
11. Were VOA vials checked for absence of air bubbles, and if present, noted below? ~~YES~~ N
12. Did the bottles originate from CAS/K or a branch laboratory? _____ YES N

Explain any discrepancies _____

Samples that required preservation or received outside of temperature range at the lab(circle)

Sample ID	Reagent	Volume	Lot Number	Initials

APPENDIX G

DATA QUALITY VALIDATION MEMORANDUM

CONESTOGA-ROVERS & ASSOCIATES
11100 Metro Airport Center Drive
Suite #160, Romulus, Michigan 48174

TELEPHONE: (734) 942-0909
FACSIMILE: (734) 942-1858

MEMORANDUM

TO: Gavin O'Neill

REF. NO.: 12614

FROM: Mary Cameron/lr/11/Det.

DATE: December 28, 1999

RE: Data Quality Assessment and Validation
GM West Yard
Pontiac, Michigan

The following details a quality assessment and validation of the analytical data resulting from the August and September 1999, collection of seven (7) soil samples from the GM West Yard Site in Pontiac, Michigan. The sample summary detailing sample identification, sample location, and analytical parameters is presented in Table 1. Sample analysis was completed at Columbia Analytical Services, Inc. in Kelso, Washington (CAS) in accordance with the methodologies presented in Table 2. The quality control criteria used to assess the data were established by the methods and the quality assurance project plan (QAPP).[1]

Holding Time Period and Sample Analysis

The holding time periods are presented in Table 3. The samples, as indicated by the sample collection, extraction and analysis dates on the chain-of-custody forms and analytical reports provided by CAS, were prepared and analyzed within the required holding time periods.

Method Blank Samples

Contamination of samples contributed by laboratory conditions or procedures was monitored by concurrent preparation and analysis of method blank samples. The method blank samples were reported to be free from detectable concentrations of target analytes, indicating no laboratory-attributable contamination occurred.

Laboratory Control Sample Analysis

The laboratory control sample (LCS) analyses serve as a monitor of the overall performance in all steps of the sample analysis. The LCS percent recoveries were within the laboratory control limits, indicating that an acceptable level of overall performance was achieved.

Surrogate Compound Percent Recoveries (Surrogate Recoveries)

Individual sample performance for the organic analyses was monitored by assessing the results of surrogate compound percent recoveries. The surrogate recovery acceptance criteria was met for all samples.

---

[1] Application of quality assurance criteria was consistent with "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", EPA-540/R-94/012, February 1994.

Matrix Spike/Matrix Spike Duplicate Percent Recoveries

To assess the long term accuracy and precision of the analytical methods on various matrices, matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and the relative percent difference (RPD) of the recoveries were determined. The MS/MSD percent recoveries and associated RPDs acceptance criteria were met for all analyses.

Overall Assessment

The data were found to exhibit acceptable levels of accuracy and precision, based on the provided information, and may be used.

TABLE 1

SAMPLE SUMMARY
GM WEST YARD SITE
PONTIAC, MICHIGAN

Sample Identification	*Location*	*Depth (ft. bgs)*	*Matrix*	*Parameters*
S-12614-083199-KMV-01	MW40-99	15-16	Soil	VOC, PCB
S-12614-090199-KMV-02	MW39-99	4-6	Soil	VOC, PCB
S-12614-090199-KMV-03	MW39-99	26-27	Soil	VOC, PCB
S-12614-090199-KMV-04	MW34-99	22-23	Soil	VOC, PCB
S-12614-090299-KMV-05	MW36-99	17-18	Soil	VOC, PCB
S-12614-091099-KMV-06	MW26-99	10	Soil	VOC, PCB
S-12614-091399-KMV-07	MW27-99	10	Soil	VOC, PCB

Notes:

VOC - Target Compound List (TCL) Volatile Organic Compounds (VOC).

PCB - Polychlorinated Biphenyls.

ft. bgs - feet below ground surface

TABLE 2

SUMMARY OF ANALYTICAL METHODS
GM WEST YARD SITE
PONTIAC, MICHIGAN

Parameter	*Method*
TCL VOC	SW-846 5035/8260B[1]
PCB	SW-846 8082

[1] "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, 3rd Edition, and promulgated updates, November 1986.

TABLE 3

HOLDING TIME PERIODS
GM WEST YARD SITE
PONTIAC, MICHIGAN

Analysis	*Holding Time Period*
TCL VOC	- 48 hours from sample collection to extraction - 14 days from sample extract to completion of analysis
PCB	- 14 days from sample collection to extraction - 40 days from extraction to completion of analysis

CONESTOGA-ROVERS & ASSOCIATES
11100 Metro Airport Center Drive
Suite #160, Romulus, Michigan 48174

TELEPHONE: (734) 942-0909
FACSIMILE: (734) 942-1858

MEMORANDUM

TO: Gavin O'Neill

REF. NO.: 12614

FROM: Mary Cameron/lr/12/Det. MC

DATE: December 28, 1999

RE: Data Quality Assessment and Validation
LNAPL Delineation Program
GM West Yard, Pontiac, Michigan

The following details a quality assessment and validation of the analytical data resulting from the September 28, 1999, collection of four (4) oil samples from the GM West Yard Site in Pontiac, Michigan. The sample summary detailing sample identification, sample location, quality control sample and analytical parameters is presented in Table 1. Sample analysis was completed at Columbia Analytical Services in Kelso, Washington (CAS) facility in accordance with the methodologies presented in Table 2. The quality control criteria used to assess the data were established by the methods and the quality assurance project plan (QAPP).[1]

Holding Time Period and Sample Analysis

The holding time periods are presented in Table 3. The samples, as indicated by the sample collection, extraction and analysis dates on the chain-of-custody forms and analytical reports provided by CAS, were prepared and analyzed within the required holding time periods.

Method Blank Samples

Contamination of samples contributed by laboratory conditions or procedures was monitored by concurrent preparation and analysis of method blank samples. The method blank samples were reported to be free from detectable concentrations of target analytes, indicating no laboratory-attributable contamination occurred.

Laboratory Control Sample Analysis

The laboratory control sample (LCS) analyses serve as a monitor of the overall performance in all steps of the sample analysis. The LCS percent recoveries were within the laboratory control limits, indicating that an acceptable level of overall performance was achieved.

Surrogate Compound Percent Recoveries (Surrogate Recoveries)

Individual sample performance for the organic analyses was monitored by assessing the results of surrogate compound percent recoveries. The surrogate recovery acceptance criteria was met for all samples.

---

[1] Application of quality assurance criteria was consistent with "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", EPA-540/R-94/012, February 1994.

Matrix Spike/Matrix Spike Duplicate Percent Recoveries - Organic Analyses

To assess the long term accuracy and precision of the analytical methods on various matrices, matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and the relative percent difference (RPD) of the recoveries were determined. The MS/MSD percent recoveries and associated RPDs acceptance criteria were met for all analyses.

Overall Assessment

The data were found to exhibit acceptable levels of accuracy and precision, based on the provided information, and may be used.

TABLE 1

SAMPLE SUMMARY
GM WEST YARD SITE
PONTIAC, MICHIGAN

Sample Identification	*Location*	*Matrix*	*Parameters*
O-12614-092899-BW-001	MW25-99	Oil	VOC, PCB
O-12614-092899-BW-002	MW36-99	Oil	VOC, PCB
O-12614-092899-BW-003	MW-22	Oil	VOC, PCB
O-12614-092899-BW-004	MW-6	Oil	VOC, PCB

Notes:

VOC - Target Compound List (TCL) Volatile Organic Compounds (VOC).

PCB - Polychlorinated Biphenyls.

TABLE 2

SUMMARY OF ANALYTICAL METHODS
GM WEST YARD SITE
PONTIAC, MICHIGAN

Parameter	*Method*
TCL VOC	SW-846 8260B[1]
PCB	SW-846 8082

[1] "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, 3rd Edition, and promulgated updates, November 1986.

TABLE 3

HOLDING TIME PERIODS
GM WEST YARD SITE
PONTIAC, MICHIGAN

Analysis	*Holding Time Period*
TCL VOC	- 14 days from sample collection to completion of analysis
PCB	- 7 days from sample collection to extraction - 40 days from extraction to completion of analysis