April 18, 2005

TECHNICAL MEMORANDUM
RCRA FACILITY INVESTIGATION (RFI)

Soil; Sediment; Surface Water; Wipe Sampling

GM POWERTRAIN BEDFORD FACILITY
105 GM DRIVE
BEDFORD, INDIANA

EPA ID# IND006036099

Prepared For:
General Motors Corporation

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LIST OF ACRONYMS AND TERMS

µg/L:	microgram per liter
°F:	degrees Fahrenheit
Agreement:	Performance-Based Corrective Action Agreement
amsl:	above mean sea level
AOI:	Area of Interest
AST:	Aboveground Storage Tank
ATV:	acoustic televiewer
Bedford Facility:	GM Powertrain Bedford Plant
bgs:	below ground surface
BIPS:	borehole image processing system
BOD:	biological oxygen demand
BTEX:	benzene, toluene, ethylbenzene, and xylene
CCR:	Current Conditions Report
Cd:	compact disc
CDM:	Camp Dresser & McKee
CERCLA:	Comprehensive Environmental Response, Compensation, and Liability Act
CFD:	Central Foundry Division
cfs:	cubic feet per second
cms:	centimeter per second
COC:	Chain of Custody
CRA:	Conestoga-Rovers & Associates
CSI:	Compliance Sampling Inspection
CWM:	Chemical Waste Management
cy:	cubic yard
DWB:	Drinking Water Branch
EA:	Environmental Assessment
EDD:	Electronic Data Deliverable

LIST OF ACRONYMS AND TERMS

EI:	Environmental Indicators
EMA:	Environmental Management Act
ENRAC:	Chemical Waste Management – Environmental Remedial Action Division
ESA:	Environmental Site Assessment
FCA:	Fish Consumption Advisory
FEMA:	Federal Emergency Management Agency
GM:	General Motors Corporation
gpd:	gallons per day
gpm:	gallons per minute
GPR:	Ground Penetrating Radar
HQ:	Hazard Quotient
HSA:	hollow-stem augers
ID:	inside diameter
IDEM:	Indiana Department of Environmental Management
IDNR:	Indiana Department of Natural Resources
IEC:	Indiana Emergency Center
IEMA:	Indiana Environmental Management Act
ISBH:	Indiana State Board of Health
ISPCB:	Indiana State Pollution Control Board
IWI:	Index of Watershed Indicators
LCHD:	Lawrence County Health Department
mg/kg:	milligram per kilogram
mg/L:	milligram per liter
mgd:	million gallons per day
mm:	millimeter
MPC:	Minerals Processing Corporation
MS/MSD:	Matrix Spike/Matrix Spike Duplicate

LIST OF ACRONYMS AND TERMS

MTBE:	methyl (tert) butylether
NOAA	National Oceanic and Atmospheric Administration
NOV:	Notice of Violation
NPDES:	National Pollution Discharge Elimination System
NRC:	National Response Center
PCB:	Polychlorinated Biphenyl
PID	photoionization detector
POTW:	Publicly Owned Treatment Works
ppb:	parts per billion
ppm:	parts per million
PRG:	Preliminary Remediation Goal
psi:	pounds per square inch
PVC:	Polyvinyl Chloride
PWS:	Public Water Supply
QA/QC:	Quality Assurance/Quality Control
QA:	Quality Assurance
QAPP:	Quality Assurance Project Plan
RCRA:	Resource Conservation and Recovery Act
RFI:	RCRA Facility Investigation
SHA:	Schleede-Hampton Associates, Inc.
SP:	spontaneous potential
SPCC:	Spill Prevention Control and Countermeasure Plan
SPR:	single-point resistance
SPT:	standard split-barrel techniques
STL:	Severn-Trent Laboratories
SVOC:	Semi-Volatile Organic Compound
TAL:	Target Analyte List

LIST OF ACRONYMS AND TERMS

TCL:	Target Compound List
TCLP:	Toxic Characteristic Leachate Procedure
TCRL:	Target Cancer Risk Level
TDS:	total dissolved solids
TKN:	total kjehdahl nitrogen
TM:	Technical Memorandum
TOC:	Total Organic Carbon
TPH:	Total Petroleum Hydrocarbons
TSCA:	Toxic Substances Control Act
TSS:	total suspended solids
U.S. EPA:	United States Environmental Protection Agency
USDA:	United States Department of Agriculture
USGS:	United States Geological Survey
UST:	Underground Storage Tank
VOC:	Volatile Organic Compound
WWTP:	Wastewater Treatment Plant

1.0 INTRODUCTION

1.1 GENERAL

The General Motors Corporation (GM) Powertrain Bedford Facility (Bedford Facility) is located at 105 GM Drive, Bedford (Lawrence County), Indiana, 47421 (Figure 1.1). The Facility produces aluminum casting products, such as transmission cases, pistons, and engine blocks. Major aluminum production processes include die casting & permanent molding. The Bedford Facility has been operating as an aluminum foundry since 1942, with major facility modifications completed in 1950, 1953, 1966, 1971, 1974, 1977, 1979, and 1980.

The Bedford Facility, located on 152.5 acres, contains approximately 915,000 square feet of floor space and employs approximately 1,000 people (Figure 1.2).

1.2 RFI APPROACH

General Motors signed a Performance-Based Corrective Action Agreement (Agreement) with the United States Environmental Protection Agency (U.S. EPA) for the Bedford Facility on March 20, 2001, and modified on October 1, 2002. The signed Agreement states that GM will work voluntarily (with the U.S. EPA) to identify and define the nature and extent of releases of hazardous waste and/or hazardous constituents at or from the Bedford Facility.

To meet these requirements, GM is investigating those Areas of Interest (AOIs) that may be associated with a release of hazardous waste and/or hazardous constituents. These AOIs were identified in the Current Conditions Report (CCR) (CRA, May 25, 2001).

1.3 GOALS AND OBJECTIVES

The overall goal of the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) is to characterize the nature and extent of any releases of hazardous waste and/or hazardous constituents at or from the Facility which may pose an unacceptable risk to human health and the environment.

To meet these goals, the objective of the RFI is to collect data of sufficient quality and quantity to support an assessment of potential risks to human health and the environment associated with releases of hazardous waste and/or hazardous

constituents under current and reasonably expected future land use. Specifically, the RFI will:

- determine whether a release of hazardous waste/constituents to soil, groundwater, surface water, or sediment has occurred at AOIs identified in the CCR as requiring investigation;
- characterize the source(s) of a release and determine the nature and extent of constituents in environmental media to the extent necessary to support an assessment of risks to human health and the environment;
- characterize current and potential migration pathways, and potential human and environmental receptors under current and reasonably expected future land use;
- assess potential risk to human health and the environment associated with releases of hazardous waste/constituents to the environment;
- determine whether interim corrective measures are necessary to control unacceptable current human exposures, if any, or to control migration of any contaminated groundwater;
- provide sufficient data to support a demonstration that current human exposures to contamination above risk-based levels are under control, and that the migration of groundwater contaminated above acceptable levels is stabilized; and
- determine if final corrective measures are necessary to mitigate unacceptable risks, if any, to human health and the environment under current and reasonably expected future land use.

1.4 SAMPLE MATRIX/RFI WORK PLANS

This Technical Memorandum (TM) describes the RFI activities and results from January 2002 through April 2003 at the Facility. Specifically, this TM includes data for on-site soil, sediment, and surface water samples collected from the Facility during the investigation. While some hydrogeologic issues are addressed in this TM, the groundwater results and a more thorough discussion on the hydrogeology of the Facility will be presented in a future TM to summarize the ongoing hydrgeologic investigation.

The sampling plan for the investigations discussed in this TM was presented in the Sample Matrix (CRA, 2001), the RFI Work Plan (CRA, 2001), the RFI Work Plan Addendum No. 1 (CRA, 2002), and the RFI Work Plan Addendum No. 2 (CRA, 2003).

1.5 TECHNICAL MEMORANDUM CONTENT

Section 1.0 This Section provides an Introduction to the project, including the overall RFI Approach, and the RFI goals and objectives. This Section also references the work plans followed to obtain the data contained herein.

Section 2.0 This Section describes the types of activities completed and the methods employed to obtain the data included in this Technical Memorandum.

Section 3.0 This Section presents the Environmental Setting for the project site. This Section includes a discussion on the regional and local geology and hydrogeology.

Section 4.0 This Section describes the Quality Assurance/Quality Control (QA/QC) that was implemented during the sampling and general data collection. This Section includes a discussion of sample handling, sample analysis, data deliverables (including data validation), and the completeness and accuracy of the data collected.

Section 5.0 This Section discusses the selection of risk-based screening levels for evaluating the site characterization data, background levels for metals, and presents a description of the laboratory soil, surface water, sediment, bedrock, and wipe sample analytical results for each AOI.

Section 6.0 This Section describes the results of preliminary human health risk evaluation and the on–Site areas that require further action based on the risk evaluation.

Section 7.0 This Section lists the references used in compiling this report.

2.0 SCOPE OF WORK – METHODOLOGY

All sampling was completed in accordance with the Scope of Work and Field Sampling Plan presented in the RFI Work Plan (CRA, 2001a). This Section briefly describes the methodology employed during sample collection during the on-Site RFI.

2.1 SAMPLE LOCATIONS AND IDENTIFICATION

All sample locations were given a unique identifier based on an approximate easting and northing coordinate (NAD '83) times ten. An arbitrary origin (east = 0 feet and north = 0 feet) was arbitrarily established at the southeast corner of the site (NAD '83 coordinate of East = 3122252.7200 and North = 1321743.1549). For example, soil boring B-X046Y098 would roughly correspond to a location 460 east and 980 feet north of the origin (or, NAD '83 coordinate easting = 3122712.7200 and northing = 1322723.1549). Actual locations were adjusted in the field, and all final locations were surveyed for their exact coordinates and ground elevations upon completion. It should be noted that sample location IDs are not precise and some were mislabeled during sample collected (e.g., MW-X251Y189D is not located where the ID would suggest). All original location IDs were not corrected based on their final placement. However, all final locations were surveyed for actual locations and appropriately plotted.

All samples were also given a unique sample identification number at the time of collection, in accordance with the Quality Assurance Project Plan (QAPP) (CRA, 2001b). In general, each sample identification number included information such as matrix, sample date, and the initials of the main sampler. All sampling information was recorded and retained in field books and on forms in the field at the time of collection.

2.2 SUBSURFACE SAMPLE COLLECTION

The subsurface conditions at each boring and surface sample location were recorded in the field at the time of collection by the field geologist. Boring logs for all borings are provided in Appendix A.

2.2.1 OVERBURDEN

All overburden samples were collected through 4.25-inch, inside diameter (ID), hollow-stem augers (HSA) via standard penetration (split-barrel) techniques (SPT),

through hydraulic-push equipment and polyethylene tubing, or by stainless-steel hand augers. For locations where the bedrock was drilled, the overburden was sampled as described above.

2.2.1.1 ENVIRONMENTAL

At every soil boring and surface soil sample location, samples for laboratory analysis were collected from the surface (e.g., zero to two feet below ground surface (bgs)). All surface samples were collected immediately beneath the pavement and undercourse materials, where present. For every soil boring extending to depth, samples for laboratory analysis were additionally collected from a two-foot interval within the "construction worker" zone interval (six to eight feet bgs). A third sample was collected from each soil boring extending to depth either immediately above bedrock, or immediately above saturation, if encountered. At some locations, a fourth sample was collected if visual, olfactory, or photoionization detector (PID) readings indicated potential contamination (Table 2.1 presents a summary of all borehole samples collected). PID measurements can be found on the soil boring logs in Appendix A.

2.2.1.2 GEOTECHNICAL

At select locations, soil samples for geotechnical analysis (e.g., grain size, Atterberg Limits, vertical permeability, etc.) were collected. All samples collected for vertical permeability were collected via Shelby tube, so as to provide a minimally disturbed sample for analysis. Samples for other parameters were also collected by hand auger, or by SPT, as described above.

The results of these analyses can be found in Appendix B1.

2.2.1.3 BACKGROUND

In accordance with the RFI Work Plan, several samples were collected from locations believed to be non-impacted by the Facility operations. These samples were collected for the purpose of determining site-specific background concentrations for inorganic compounds. At three of the initial locations presented in the RFI Work Plan, it was determined in the field that fill materials were present. Therefore, these samples were submitted for laboratory analysis for all RFI parameters and three additional locations

were selected for background (CRA, 2002). A discussion of the results and calculations for the background locations can be found in Section 5.2.

2.2.2 BEDROCK

2.2.2.1 BEDROCK CORING

10 1/4 -inch HSAs or 10 7/8-inch tricone drilling techniques were utilized to set a 10-inch steel outer casing into place at approximately 2 feet into the top of the competent bedrock surface. This outer casing was cement grouted into place and allowed to cure prior to further advancing the boring into bedrock. Once the outer casing was set and cured, further advancement into the bedrock was accomplished using an HQ-size (approximately 3.8-inch outer diameter) core barrel and wireline techniques. At each bedrock boring location, core runs of five to ten feet were initially used to check the competency of the upper bedrock. Once competent rock was reached, core runs were generally ten feet in length until total depth was reached. Each core was visually inspected and described (recorded) by the field geologist in the field at the time of collection (boring logs are presented in Appendix A). Where the bedrock was heavily fractured or drilling fluids (water) circulation was lost, the boring was terminated at the next competent interval. These locations were then completed as open hole, shallow bedrock monitoring wells. In these cases, an additional boring was advanced adjacent to the first boring, and a 4-inch diameter casing was installed within the 10-inch outer casing to a depth below the open depth of the first boring.

Bedrock cores were retrieved from the core barrel and immediately placed into wooden core boxes. Core boxes were 4 feet in length and consisted of three rows for core placement, thus allowing for approximately 12 feet of core in each box. The top of the retrieved core was always placed in the upper left-hand corner (i.e., laid out from left to right, and from top to bottom). All cores were oriented to north and marked as such with a permanent marker. Core orientation to north was completed using geophysical logs after collection. Where necessary, cores were manually broken only to allow for placement into the core boxes (these breaks were noted on the cores). Each core box was labeled as to contents on the top and front, photographed, and placed into a storage container located on site.

2.2.2.2 BEDROCK CORE SAMPLES

At pre-described background locations (CRA, 2001b), a portion of the core was broken out and submitted to the analytical laboratory for analyses (further described in Section 5.3). At each location drilled near the service tunnels (AOI 9), samples of the bedrock were collected for additional analyses, as described in the RFI Work Plan and QAPP (CRA, 2001a). Bedrock samples generally consisted of gravel-sized pieces that were placed into glass jars, sealed, placed on ice in coolers, and transported to the laboratory under strict chain-of-custody protocols.

Bedrock core samples were collected from five borehole locations across the site. At each borehole location, a representative plug of core was collected from each of the limestone formations encountered at that location. Each plug, consisting of two-inch sections of rock matrix cut out of the original cores, was submitted to Core Laboratories in Houston, Texas for analysis. Conventional analyses included bulk density, fraction of organic carbon, and porosity. Additional matrix porosity testing was completed in the laboratory using a high pressure mercury injection method. The results of these tests are described in Section 5.5.

2.3 DOWNHOLE GEOPHYSICAL LOGGING

For each bedrock boring location and generally after each core run (approximately every 20 feet), downhole geophysical logging was conducted. Where the bedrock was more competent (usually at depth), logging was conducted on longer sections of the bedrock. A full suite of logs was also run upon completion of the borehole to total depth. COLOG, a Division of Layne-Christensen Company, of Golden, Colorado provided the equipment and engineer/operator for all downhole geophysical logging.

The geophysical logging consisted of measurements of the borehole diameter (caliper), the rock's natural radioactivity (natural gamma-ray), the rock's natural resistivity (short and long-normal), single-point resistance (spr), fluid spontaneous (or self) potential (sp), fluid temperature and specific conductance. Additionally, logging runs also utilized a digital acoustic televiewer (ATV) and all final logging runs (i.e., from total depth) also utilized a borehole image processing system (BIPS). Logs from each run were printed in the field (except the BIPS) upon completion and reviewed by the field geologist prior to further advancement of the borehole. Digital records of all logs (except the ATV) were also provided at the end of each run on compact disc (CD).

Final geophysical logs are presented on CD in Appendix C.

2.4 MONITORING WELLS

2.4.1 OVERBURDEN

Monitoring wells were placed where groundwater was encountered in the overburden materials. At four locations across the site, temporary monitoring wells were installed. Because groundwater saturation was not typically encountered in the overburden, each well was labeled as a temporary well to determine if the saturation was temporary. All overburden wells are still in place and are labeled with a location identification beginning with "TMW-". One overburden monitoring well (TMW-X225Y080) has remained dry since installation.

2.4.1.1 CONSTRUCTION DETAILS

Each well consists of polyvinyl chloride (PVC) risers attached to PVC #10 slot well screens. A number 5 silica sand pack was placed to a height of approximately 2-feet above the screens while the remaining annulus was either back filled with bentonite pellets or bentonite grout to ground surface. All but one well is completed as an above ground installation. Table 2.2 presents the well construction details for all monitoring wells on site. Appendix A presents the boring logs for all borings completed on site.

2.4.1.2 SLUG TESTING

Three of the four overburden monitoring wells (TMW-X033Y147, TMW-X085Y070, and TMW-X193Y251) and two of the shallow bedrock monitoring wells (MW-0X033Y147S, and MW-X085Y070S) were slug tested to determine an approximate value of hydraulic conductivity at those locations. Slug testing was performed at the two shallow bedrock monitoring well locations where straddle-packer testing was not completed (further described in Section 2.4.2.2).

All slug tests consisted of recording the changes in the rising head levels with time after a slug (solid, or slug of water) was removed from static water conditions. The changes in head were recorded by hand using an electronic water level indicator and were recorded on forms in the field at the time of measurement.

The results of the slug tests were analyzed by the methods of Bouwer and Rice (1976), and Bouwer (1988). The two shallow bedrock slug tests were additionally analyzed by the method of Hvorslev (1951). The slug test data, graphs, equations, and results are presented in Appendix D. The results are also summarized in Table 2.3.

2.4.2 BEDROCK

2.4.2.1 RECOVERY TESTING

At the conclusion of drilling, water was removed from each open borehole and the rate of recovery was recorded with time. This was completed to remove any remaining drilling fluids (water) and to determine the method for in-situ, discrete, hydraulic conductivity testing (pumping out vs. pumping in).

Prior to the recovery testing, a wire was attached to a Grundfos submersible pump in order to lower and raise the pump in the open corehole. A static water level measurement was taken prior to equipment being placed into the corehole utilizing an electric water level meter. The Grundfos pump was installed approximately two feet from the bottom of the corehole. Another water level measurement was then taken with the pump in the corehole. The pump discharge rate was set at approximately 2 to 3 gallons per minute (gpm). The discharge water was pumped into a 500-gallon storage tank then transferred into an on-site tank after each test for later disposal. A water level measurement was taken every minute to monitor drawdown. When the drawdown began to decrease, the water level measurement time increment was increased to 5 to 10 minutes. The pump rate was maintained at 2 to 3 gpm until either the corehole went dry or the water level remained constant. If the corehole went dry, pumping was stopped and the recovery test began. If the water level remained constant for 10 minutes or more, the pump rate was increased by 1 to 2 gpm. This process continued until the corehole went dry. During the recovery test, water level measurements were taken until a minimum 80 percent well recovery was reached. The drawdown/recovery data and graphs are presented in Appendix E.

2.4.2.2 STRADDLE-PACKER TESTING

In addition to the drawdown/recovery testing described above, straddle packer testing was completed at select intervals at each deep bedrock borehole to provide further details and vertical resolution of the spatial distribution of bedrock permeability. Specific intervals were selected on the basis of inspecting both the core logs and the

downhole geophysical test results. Two shallow bedrock borings were not straddle-packer tested for the following reasons: monitoring well MW-X033Y147S was not completed as an open hole due to the fractured nature of the shallow bedrock at that location (the well was constructed with a PVC screen and riser – refer to Section 2.4.2.4.1); and monitoring well MW-X085Y070S was not tested due to the presence of an oily sheen at the surface of the groundwater. Slug tests were completed at both of these wells, as described in Section 2.4.1.2.

Prior to the pressure testing, the available geophysical information was reviewed in order to determine the section of the corehole to be tested, based on potentially open fractures. The testing was then performed at pre-determined 10-foot long intervals through the tested section. For the bottom interval a single packer assembly was utilized for the test interval. After the bottom interval was completed, the single packer was removed and a double packer with a packer above and below the 10 feet of screen was used. The packer was set at the interval to be tested using the drill rig. The packers were inflated to the manufacture's recommended air pressure above the ambient pressure at any specific depth in order to maintain a seal against the borehole wall. A water level was recorded above the upper packer prior to and during testing to confirm that there was no water leakage around the packer. The 10-foot monitoring interval and tubing were filled with clean potable water. Calculated pressure was applied on the water column in the interval (water pressures were calculated so as to not exceed the hydraulic fracture pressure of the rock at each interval). The test was performed at various pressures to see if the interval would take water. There were three 5-minute tests performed at each pressure setting (approximately 5 pounds per square inch (psi) above ambient, 10 psi above ambient, and 15 psi above ambient), with 5 minutes of inactivity between the tests in order to allow the formation to equilibrate. A flow meter was used to determine if there was any water flow into the interval. A pressure meter was used to confirm that the pressure within the interval stayed constant. Once all of the intervals at a given well were completed, the equipment was removed and decontaminated. The not-to-exceed pressure (minimum hydraulic fracture pressure) was determined for each interval using the lowest pressure as determined by the following two equation(s):

Δp = 0.7 psi * feet of overburden and bedrock, and

Δp = 1 psi * feet of unsaturated formation + 0.57 psi * feet of saturated formation (this method is more accurate when the water level is closer to the ground surface).

The results of the pressure testing were recorded on forms in the field at the time of measurement. The data were then analyzed using the following equation (Hvorslev, 1951):

$$Q = \frac{2 \pi l K H}{Ln [l/r_w]}$$

Where:

K = Hydraulic Conductivity

Q = flow rate

l = length of test interval

r_w = radius of borehole

H = total head

The results of the Straddle-Packer Testing are summarized on Table 2.3; the data can be found in Appendix F.

2.4.2.3 WATERLOO MULTI-LEVEL SYSTEM INSTALLATION

Upon completion and analysis of the pressure-testing results and further review of the downhole geophysical results, bedrock intervals were selected for discrete monitoring. The final design of each monitoring well system was manufactured by Solinst Canada, Ltd utilizing the Waterloo Multi-Level System.

The Waterloo System generally consists of six-inch long, two-inch ID sample ports separated by three-foot permanent packers above and below each sample port to isolate each zone to be monitored. Each sample port is constructed of stainless steel and has a small, screened section that is open to a single, or double, stem inside of the port. A double-valve pump is attached to the stem and airline and sample tubing is run up the entire length of casing to the wellhead. The second stem, if installed, is connected to a ¼-inch tubing run up the casing to the well head, which can be utilized for the purposes of measuring the hydraulic head within each monitored zone. The space within the two-inch ID, schedule 80 PVC casing, limits the number of tubes that will fit. For example, one well at the site has tubes for measuring hydraulic heads at only two zones; at five remaining zones within this well, only water samples can be collected (i.e., there was not enough room to fit five additional ¼-inch lines).

The entire system was constructed piece-by-piece at the wellhead. All sample ports, packers, and blank casings were attached at the wellhead, lowered, and the next piece attached, etc. Each single piece of the Waterloo System is attached to the next piece by means of a watertight seal (O-ring), and plastic wire ties. Once the desired depth was reached, the top of the assembly was completed with a manifold system to which each zone was affixed to a numbered port. The well assembly was hung inside the outer casing until the packers swelled against the borehole wall creating the permanent seal. Steel, outer protective casings over the wellhead were then completed with a locking, hinged cap.

2.5 SURFACE SOIL SAMPLING

Surface soil samples were collected to evaluate whether a release had occurred. All surface soil samples were collected either by a stainless-steel hand auger, hydraulic push drilling, or by hollow stem augers. Surface soil samples were collected in accordance with the Field Sampling Plan (Appendix B1 of the RCRA Facility Investigation Work Plan (CRA, 2001).

All surface soil samples were submitted to the analytical laboratory for analysis of selected constituents. The results of these samples are described in Section 5.3.

2.6 SEDIMENT AND SURFACE WATER SAMPLING

A number of sediment samples were also collected during this phase of the investigation. Sediment samples were collected via an agricultural type soil probe, stainless-steel trowel, or by an Eckman type dredge sampler (existing stormwater lagoon only). All sediment samples were collected from the upper 10 centimeters (approximately 4 inches) of the sediment surface, or less, depending upon the amount of sediment present. All sediment samples were submitted to the analytical laboratory for analysis of selected constituents. The results of these analyses are described in Section 5.3.

In general, where sediment samples were collected, surface water samples were also collected (where present at the time of collection). All surface water samples were collected prior to the sediment sample, to minimize the disturbance of the sample. Surface water samples were collected either by directly filling sample containers (i.e., at springs and seeps), or by the filling of clean sample containers, not containing preservatives, which were opened immediately below the water surface (i.e., existing

stormwater pond). The water from the containers used to collect the samples was then transferred to the appropriate containers with preservatives. All samples for dissolved analysis were filtered in the field at the time of collection using a 0.45 micron filter, prior to being preserved.

All surface water samples were submitted to the analytical laboratory for analysis of selected constituents. The results of these samples are described in Section 5.3.

2.7 WIPE SAMPLING

Five wipe samples were collected from the two former PCB storage areas (AOI 3). Three wipe samples were collected from the former PCB storage area located within the south Die Cast Building and two samples were collected from the former PCB storage area located in the Sludge Building. All wipe samples were collected by swabbing the sample surface inside of a 10x10 centimeter template with a hexane-soaked swab provided by the analytical laboratory. The swab was immediately returned to the sample container provided and submitted to the laboratory for analysis of PCBs. The results of these samples are described in Section 5.3.3.

2.8 SURFACE GEOPHYSICS

In order to supplement the subsurface investigation at areas where a large amount of filling had allegedly occurred, surface geophysical surveys were conducted to determine potential anomalies and to better delineate these disposal areas. In addition, surveys were conducted at several off-site locations.

Five on-site AOIs and the off-site AOIs were targeted for surface geophysical surveys (AOIs 4, 5, 6, 7, 15, and 25). These surveys consisted of terrain conductivity and metal detection (EM31 and EM38 meters) and buried metal detection (EM61).

The results of these surveys concluded in the development of a Proposed Test Pit Investigation Work Plan (RCRA Facility Investigation Work Plan: Addendum No. 4) to investigate anomalies detected. The results of the geophysical survey are provided in Appendix G.

2.9 LOCATION AND ELEVATION SURVEY

Upon completion of boreholes, monitoring wells, surface soil samples, and background samples, each location was surveyed to determine its map coordinates and ground and reference elevations. The map coordinates were based on the 1983 North American Datum (NAD '83) coordinate system and were surveyed to the nearest 1.0 foot. Ground and reference (e.g., top of casing) elevations were surveyed to the nearest 0.1 and 0.01 foot, respectively. All elevations were surveyed to the United States Geologic Survey datum (1988 North American Vertical Datum (NAVD)).

3.0 ENVIRONMENTAL SETTING

The following descriptions were compiled based on published data and from data obtained during the RCRA Facility Investigation at the Bedford Facility.

3.1 REGIONAL GEOLOGY/HYDROGEOLOGY

3.1.1 REGIONAL SETTING

3.1.1.1 REGIONAL GEOLOGY

The Bedford Facility lies within an area of Indiana that was not glaciated (driftless area). The maximum progression of the Illinoisan Glacial advance (the furthest advance of the Laurentide Ice Sheet) lies to the west, north, and east of the immediate region surrounding the Bedford Facility (Figure 3.1). Consequently, the surficial geology of the area generally consists of a relatively thin layer of unconsolidated deposits of sand, clay, and chert produced by the weathering of limestone bedrock (regolith), and wind-deposited silty material, known as loess. Due to its reddish color, the soil in this region is commonly referred to as terra rosa. Thicker deposits of proglacial outwash, lake sediment, and recent alluvium occur along the major stream valleys (Figure 3.1). The surficial deposits range in thickness from zero feet along bedrock outcrops to approximately 100 feet thick along Salt Creek and the East Fork of the White River (Gray, 1974).

The bedrock within the region is near the eastern margin of a structure known as the Illinois Basin. The bedrock formations in this area generally dip to the west - southwest at approximately 20 to 25 feet per mile. The Cincinnati Arch lies to the east of the Illinois Basin and covers much of Indiana (Figure 3.2).

Two regional structures are located within the vicinity of the Bedford Facility; the Leesward Anticline and the Mt. Carmel fault (Figure 3.2). The Leesward Anticline is located to the north and east of Bedford and plunges to the south-southeast. The Mt. Carmel fault is a normal fault with the downthrown side located to the west of the fault. This fault is located to the north and east of the Bedford Facility and truncates the Leesward Anticline on its western side. The Mt. Carmel fault generally acts as a hinge line, with gentler dips to the west of the fault and slightly steeper dips to the east (Melhorn and Smith, 1959).

Bedrock within the immediate vicinity of the Bedford Facility is Middle to Early Mississippian and consists of the following formations from youngest to oldest (or near surface to depth): the St. Louis Formation (the oldest formation within the Blue River Group); the Sanders Group, consisting of the Salem Formation, the Harrodsburg Formation, and the Ramp Creek Formations, and youngest formation of the Borden Group, the Edwardsville Formation (Melhorn and Smith, 1959). Figure 3.3 presents the bedrock geology of Indiana and Figure 3.4 presents a generalized stratigraphic column for Paleozoic formations in Indiana (e.g., those formation found within the area of the Facility). It is the Salem Formation that is locally quarried as fine building stone material in this region of Indiana.

The regional geology is characterized by karst topography. Several geomorphic features, such as sinkholes, characterize the land surface near Bedford. This is especially prominent along the western portion of Lawrence County, with much less surface expression through the mid and eastern portions of the county. The City of Bedford lies within the physiographic province known as the Mitchell Plain, or Plateau (karst plain). The Mitchell Plain extends from near Bloomington south to the Ohio River within the State of Indiana. Several caverns are known to exist in the area, including one of the largest mapped caverns in the world; Blue Springs Caverns, which is located approximately five miles southwest of the City of Bedford.

3.1.1.2 REGIONAL HYDROGEOLOGY

Groundwater resources are found in Lawrence County along the valleys of the major rivers or streams and within the thick Mississippian carbonate aquifer system (within the western portion of Lawrence County) and the Silurian-Devonian carbonate bedrock aquifer (within the eastern portion of Lawrence County) (Fenelon and Bobay, 1994).

There are two basic types of aquifers: unconsolidated and consolidated. Unconsolidated aquifers in Lawrence County generally occur along the Salt Creek and the East Fork of the White River within the proglacial outwash deposits, glaciolacustrine deposits, and recent alluvium. The tops of unconsolidated aquifers are often exposed to the surface or have a very thin covering of non-aquifer material, generally comprised of silt and clay (Fenelon and Bobay, 1994).

Groundwater flow within the consolidated (carbonate) aquifers primarily takes place along the joints, fractures, and bedding planes that eventually may become enlarged by solution to cave passages or Karst features. Typically, recharge to a karst system occurs through surface openings that vary in scale from narrow, solutionally-widened joints to

large sinkholes. Discharge typically occurs through springs, which are solutionally-widened joints or bedding planes, but may be enlarged, to sizable cave openings. Most groundwater within this type of aquifer system discharges to the major rivers, to underground rivers, and to springs. (Etzel, 1982)

3.1.2 LOCAL/SITE SETTING

3.1.2.1 GEOLOGY

The surficial geology of the area generally consists of a relatively thin layer of unconsolidated deposits of sand, clay, and chert produced by the weathering of limestone bedrock (regolith), and loess. Thicker deposits of proglacial outwash and lake sediment, and recent alluvium occur along the major stream valleys (Figure 3.1).

The natural soil in the immediate vicinity of the Bedford Facility is known as Crider. Crider soil is a fine-grained, silt loam to silty clay loam. Crider soil develops on 20 inches to 45 inches of silty loess over clayey material derived from limestone (USDA, 1985).

The unconsolidated, or overburden, materials at the site consist of native clay and silt, fill materials (e.g., foundry sand, clay, gravel, etc.), and weathered bedrock. The thickness of the overburden materials varies considerably across the site from approximately four feet to over forty feet; being thicker in the disposal areas and beneath the manufacturing buildings at the site. The overburden is thinnest where minimal to no filling has occurred (e.g., in the topographic valleys). Figure 3.5 presents the overburden thickness across the site.

Additional conditions describing the overburden materials are presented under each AOI description provided in Section 5.0 (geologic cross-sections across the site are provided as Figures 3.11 through 3.23 presenting the Site overburden conditions and Figures 3.24 through 3.28 showing the bedrock formations).

The elevation of the bedrock surface is presented on Figure 3.6. As can be seen on this figure, two bedrock valleys exist within the bedrock surface: one originating near the northern portion of the manufacturing building and extending to the east-northeast (beneath AOIs 4 and 15) across the site; the second bedrock valley can be seen originating near the southern extent of the manufacturing building (AOI 1) and extending to the east beneath the plant's Wastewater Treatment Plant (WWTP). The bedrock high points exist beneath the manufacturing buildings at the plant.

The upper bedrock surface consists of the St. Louis Formation throughout most of the site. However, the St. Louis pinches out to the north-northeast, near the location of AOI 4. The Salem Formation is then the uppermost bedrock surface from that location and to the north-northeast. At some boring locations, the uppermost bedrock unit, whether St. Louis or Salem, was observed to contain solution-widened, horizontal fractures at various depths within approximately 20 feet of the bedrock surface (digital images of the bedrock boreholes can be found in Appendix C). The largest open fractures were observed to be approximately 6 inches wide. At some locations, no observable permeable features were observed from the top of the rock surface to the total depth of the borehole.

Analysis of the straddle-packer testing data also suggests that the bulk rock hydraulic conductivity is very tight, with very few permeable features (other than at shallow depths). Figure 3.29 presents a graph demonstrating the magnitude of hydraulic apertures for all tests completed (bulk rock hydraulic conductivities from the straddle-packer testing were converted to single fracture hydraulic apertures). This analysis shows that relatively few permeable features were encountered and that most of the hydraulic apertures plotted at the lower limit of testing (i.e., no permeability). The permeable features that were encountered were mostly within the shallow, weathered bedrock. The bulk rock at depths below this shallow weathered zone is relatively impermeable. In-situ hydraulic conductivities are summarized on Table 2.3 (straddle-packer test results are presented in Appendix F).

At ten locations around the perimeter of the Site, bedrock borings were completed through the various limestone formations and were terminated at the first correlatable shale unit encountered (Edwardsville Formation). The stratigraphic contacts were estimated in the field upon visual examination of the collected cores. Most of the formation contacts are gradational in nature, and are not readily defined based on visual examination. Therefore, final contacts were approximated utilizing the core descriptions and the results of the downhole geophysical logging. These contact elevations and formation thickness are presented on Table 3.1.

Using the information from Table 3.1, geologic structure maps were prepared for each of the formations encountered. The following provides a brief discussion of each formation encountered, starting with the deepest formation encountered, due its position relative to deposition (i.e., deposited prior to overlying strata):

Borden Group

*Edwardsville Formation***:** The youngest formation of the Borden Group encountered at the site is the Edwardsville Formation. The Edwardsville Formation beneath the Bedford Facility consists of a relatively soft, grey to black calcareous shale. The very top of this formation was observed to contain a thin layer of green shale and small crystals of pyrite. Published information indicates that the green shale is glauconite (Nicoll and Rexroad, 1975). The thickness of this formation beneath the Facility is unknown, as the maximum depth that this formation was penetrated by borings was only a few feet.

The top of the Edwardsville Formation (shale) is easily recognized in the core by its sharp contact with the overlying Ramp Creek Formation (limestone). Figure 3.7 presents the elevation of the top of the Edwardsville Formation, (i.e., structure map). Elevations of the top of the Edwardsville Formation range from approximately 526 feet amsl along the northeastern border of the property to approximately 475 feet amsl along the western property line. As can be seen from this figure, the Edwardsville Formation slopes to the south-southwest across the site. The slope on this surface is relatively consistent and is approximately 0.016 feet/feet (or approximately 2 percent). This equates to approximately 86 feet per mile, which is higher than the reported regional dip of 25 to 30 feet per mile for the bedrock units, based on published literature. This increased slope is likely an unidentified, localized feature.

Sanders Group

Ramp Creek Formation: The Ramp Creek Formation, which is the oldest formation of the Sanders Group, consists of medium grained calcarenite and is interbedded with fine grained dolomitic limestone, shale and chert. Geodes are abundant throughout the approximate 20 feet thickness of the Ramp Creek Formation. The contact between the Ramp Creek Formation and the underlying Edwardsville Formation is characterized by a sharp lithologic break. According to the literature, this contact is disconformable (Nicoll and Rexroad, 1975). This contact was mapped at the site based on field observations and the noted change in the rock's measured natural radioactivity.

The Ramp Creek Formation also shares a sharp upper contact with the overlying Harrodsburg Formation. This formation was identified as a separate formation based on the downhole geophysical response and on detailed core examination. Figure 3.8 presents the structure map for the Ramp Creek Formation. Elevations of the surface of the Ramp Creek Formation range from approximately 547 feet above mean sea level (amsl) along the northeastern property boundary to approximately 497 feet amsl along the southwestern property line. The surface slopes from the northeast to the southwest

at an approximate gradient of 0.017 feet/feet (or approximately 2 percent). This is consistent with the underlying Edwardsville Formation and likely also represents a localized structural feature.

Harrodsburg Formation: The Harrodsburg Formation generally consists of medium to coarsely-grained limestone with beds of variable thickness. Calcareous shale was present in beds and as thin laminae throughout the formation, but, more dominant toward the base (argillaceous). The Harrodsburg has been divided in the literature into an Upper and a Lower Unit. Across the site, this distinction was approximated based on changes noted in the lithology (the presence of two correlated shale layers) and in the rock's resistivity. The upper portion of the Harrodsburg Formation consists of coarse-grained biocalcirudite and bioclastic calcarenite. At some locations the upper part of the formation closely resembled the lower portion of the Salem Formation. Individual grains consisted of well cemented broken fossils and microfossils (including the presence of abundant fan-like bryozoans, as well as brachiopods and crinoids). The lower portion of the Harrodsburg consists of a fine to medium grained calcarenite, interbedded with shale beds and shale laminae. The approximate thickness of the Upper Harrodsburg is 48 feet and the Lower Harrodsburg is approximately 25 feet thick. The base of the lower Harrodsburg contains numerous siliceous geodes. The contact between the Harrodsburg Formation and the underlying Ramp Creek Formation is sharp and conformable (Nicoll and Rexroad, 1975). This contact was mapped through field observation in the change in lithology.

Figure 3.9 presents the structure map of the Harrodsburg Formation. The Harrodsburg contact was identified at an approximate elevation of 605 feet amsl to the northeast of the Site to approximately 574 feet along the western portion of the Site. The slope of the surface of the Harrodsburg Formation is to the southwest at an approximate gradient of 0.012 feet/feet (or 1 percent). This slope is slightly less (at approximately 62 feet per mile) than that determined for the Edwardsville and Ramp Creek Formations. This may represent a localized depositional, or structural feature (as with the lower formations).

Salem Formation: The youngest of the Sanders Group consists of the Salem Formation, which is a more massively bedded limestone (also known as the Indiana Limestone, the Bedford Limestone, or the Oolitic Limestone). The Salem Formation consists of medium to coarse-grained, calcarenite, grading into a biocalcirudite near its base. The individual grains consist of microfossils and grains of broken fossils, cemented with calcite. The Salem Formation was observed in all borings across the site at an average thickness of approximately 58 feet. The Salem is the uppermost bedrock unit to the north-northeast of the site (where the St. Louis Formation is not present). The base of this formation grades into and conformably overlies the Harrodsburg Formation. The mapped contact

between the Salem Formation and the Harrodsburg Formation was approximated through field observation and a noted change in the rock's measured resistivity.

Figure 3.10 shows the structure map for the top of the Salem Formation. The portion of this figure that corresponds to where the Salem is the uppermost bedrock unit, represents the erosional surface. However, where the Salem is underlying the St. Louis Formation throughout the remainder of the Site, the Salem Formation slopes to the southwest at an approximate gradient of 0.031 feet/feet (or 3 percent). This equates to approximately 164 feet per mile, which is much steeper than the regional dip of 25 to 30 feet per mile, based on published literature. This may represent a localized feature within the Salem or reflect an underlying localized feature.

Blue River Group

St. Louis Formation: The St. Louis Formation consists mostly of thinly-bedded, generally micritic, limestone (becoming more of a calcarenite at its base). This formation was observed to contain very thin, interbeds of calcareous shale at all locations where encountered. Published information indicates that the St. Louis Formation can contain gypsum and anhydrite beds near its base. However, this was not observed beneath the Bedford Facility. The St. Louis Formation was present beneath the Facility at an average thickness of approximately 32 feet, with greater thickness to the south-southwest. The St. Louis Formation has been eroded away (was not present) to the north-northeast beneath the site. The base of this formation grades into and conformably overlies the Salem Formation. The mapped contact between the St. Louis Formation and the underlying Salem Formation was approximated through field observation and a change in the rock's measured natural radioactivity.

Figure 3.11 presents the bedrock surface elevation prepared from all borings reaching the top of bedrock. The bedrock elevation figure shows the erosional surface of the bedrock rather than being representative of the strike and dip of the formation. This figure also presents the approximate extent of the St. Louis Formation across the site. The St. Louis is present throughout much of the Site as the uppermost bedrock unit. However, this unit appears to have been eroded away along the northeast portion of the Site, where the uppermost bedrock surface is the underlying Salem Formation.

3.1.2.2 HYDROGEOLOGY

The site-specific hydrogeologic conditions are outside of the scope of this document. These data will be presented in a separate TM upon completion of the groundwater sampling activities and receipt of validated analytical data.

3.3 SURFACE WATER HYDROLOGY

Most of the rivers in the East Fork White River Basin drain to the southwest. According to United States Geologic Survey (USGS) Water Resources Division, the current stream flow recorded at the East Fork White River gauging station, located 7.8 miles southeast of Bedford in Lawrence County, is 4,210 cubic feet per second (cfs). There are eighteen total watersheds in Lawrence County.

Major tributaries to the East Fork White River include the Muscatatuck River, Salt Creek, Driftwood River, Flatrock River, and the Big Blue River. Drainages in the East Fork White River Basin include the Lost River, Sugar Creek, Graham Creek, Clifty Creek, Big Creek, Indian Creek, White Creek, Brandywine Creek, and the Little Blur River.

Rivers in the eastern half of the East Fork White River Basin have a subparallel drainage. Those rivers include the Sugar Creek, Big Blue River, Little Blur River, Flatrock River, Clifty Creek, Sand Creek, Vernon Forth, Graham Creek, and the East Fork White River from Medora to Jonesville (see Figure 3.30 for the Lower East Fork White River Drainage Map).

Drainage of the Mitchell Plain in the central Lawrence County, northeast Orange County, and Monroe County is different from the rest of the East Fork White River Basin. In the streams that flow across the Mitchell Plain, surface water is intercepted by swallow holes and diverted underground into the groundwater system or subterranean channels.

The Bedford Facility is situated high on a topographic ridge such that the Facility is drained by surface runoff primarily to the east and northeast in small valleys which are tributaries of Bailey's Branch of Pleasant Run Creek. According to Facility personnel, surface water runoff from the Facility to the west of the Facility is minimal. The ridge top is approximately 150 feet to 185 feet higher than the valley bottom, located approximately one-half mile northeast of the Bedford Facility.

Stormwater from the manufacturing portions (e.g., improved surfaces) of the Bedford Facility is currently collected in the Stormwater Lagoon (which is part of the Facility's recycled water system). Stormwater from non-operational portions of the Facility (i.e., property located north and east of the Stormwater Lagoon) drains directly to several unnamed ditches and eventually to Bailey's Branch of Pleasant Run Creek.

3.4 WATER SUPPLY/GROUNDWATER USE

The Facility receives City of Bedford water for potable and process water use. Public water supply lines are along all major roads throughout Lawrence County. These lines are owned by the Bedford City Utilities, East Lawrence Water Corporation, or North Lawrence Water Corporation. The surface water intake for the City of Bedford is located on the East Fork White River. East Lawrence Water Corporation purchases all of their water from the City of Bedford. The North Lawrence Water Corporation purchases water from the City of Bedford for all of their customers located east of Salt Creek. For their customers west of Salt Creek, the North Lawrence Water Corporation supplies water from water supply wells screened in the bedrock Indiana Department of Environmental Management (IDEM) http://www.ai.org/serv/idem_dwb_inventory, 2001).

Groundwater use in the area includes public supply, commercial, domestic, industrial, mining, livestock, irrigation, and hydroelectric power. About 85 percent of water used in the East Fork White River Basin originates from surface-water sources; 45 percent of drinking water originates from surface-water sources (IDEM, http://www.ai.org/serv/idem_dwb_inventory, 2001).

3.5 TOPOGRAPHY

The State of Indiana covers an area of approximately 36,300-square miles. The state's topography ranges from 324 to 1,257 feet amsl. The lowest point of elevation is in the southwest corner of Indiana, where the Wabash River flows into the Ohio River. The highest point is in Wayne County in east central Indiana.

3.6 CLIMATE

The climate in Lawrence County, Indiana is temperate with warm summers, cold winters, and no distinguishable wet or dry seasons. Precipitation is generally evenly

distributed throughout the year, although, precipitation is somewhat greater from March through July. The Facility has been keeping records of precipitation in inches of water. Also, CRA has established a weather station at the Facility to record precipitation events. Figure 3.31 presents these data for site-specific precipitation.

According to the National Oceanic and Atmospheric Administration (NOAA), the average length of the growing season, or freeze-free period, ranges from 173 days in northeastern Indiana to 199 days in southwestern Indiana. According to meteorological data from the National Climatic Data Center, the average annual precipitation in Indiana ranges from 44 inches in the south to 36 inches in the northeast; average annual snowfall ranges from 10 inches in the south to 40 inches in northern Indiana. Average annual temperature ranges from 50 degrees Fahrenheit (°F) in the north to 56°F in the southwest (NOAA, http://www.outlook.noaa.gov, 2001).

4.0 QUALITY ASSURANCE/QUALITY CONTROL

This section provides a summary of the QA/QC procedures completed during the on-Site RCRA Facility Investigation sampling activities.

4.1 SAMPLING PROCEDURES

Samples of soil, sediment, surface water, and surface wipes were obtained as detailed in Section 2.0 of this TM with adherence to the QA/QC procedures detailed in the following subsections.

4.1.1 SAMPLE CONTAINERS

The project laboratory provided sample containers for each sampling task. These containers were cleaned by the manufacturer to meet or exceed the analyte specifications established in the U.S. EPA, "Specifications and Guidance for Obtaining Contaminant-Free Sample Containers", April 1992, OSWER Directive #9240.0-0.5A. The specific sample containers, preservation methods, maximum holding times, and sample packaging information for each target parameter and sampling task were consistent with U.S. EPA protocols detailed in Table 4.1 of the RFI QAPP.

4.1.2 SAMPLE LABELING

All samples were labeled with a unique sample identification number, facilitating tracking and cross-referencing of sample information, as follows:

Example: SW-MMDDYY-XX-001

SW	=	SW-surface water, S–soil, SD-sediment, W-surface wipe
MMDDYY	=	Date in month/day/year
XX	=	Sampler's first and last initials
001	=	Sequential number for event

Equipment rinsate blank and field duplicate samples were also numbered with a unique sample number, consistent with the numbering system described above, to prevent laboratory bias of field QC samples.

The sample ID number along with sample type, sampler's name, date and time collected, preservation technique and analysis requested were entered on the sample labels and sample tags.

4.1.3 FIELD QC SAMPLE COLLECTION

Field QC samples included the collection of equipment rinsate blank samples, field duplicates, and matrix spike/matrix spike duplicate (MS/MSD) samples. The equipment rinsate blank samples (collected when non-dedicated or disposable sampling equipment is used to collect samples), the field duplicate samples, and MS/MSD samples were collected at a frequency of one of each per 20 investigative samples in accordance with the procedures identified in Section 2.0 of this TM.

4.2 CUSTODY PROCEDURES

Sample custody procedures during the RCRA Facility Investigation field sample collection, sample transfer, and laboratory analysis were adhered to as detailed in the RFI QAPP and as summarized in the following subsections:

4.2.1 FIELD CUSTODY PROCEDURES

Field custody was established and maintained through the use of field logbooks, sample labels, sample tags, and chain-of-custody (COC) records. Field logbooks consisting of bound field survey books or notebooks were maintained by field personnel to record data collecting and sampling activities performed. The equipment used to collect samples were noted, along with the time of sampling, sample description, depth from which the sample was collected, volume and number of containers.

Sample labels and sample tags were affixed to all sample containers submitted for analysis.

All samples were accompanied by a properly completed COC record, which lists the sample numbers, sample dates and times, the number of containers, and requested parameters. This COC record documented the transfer of custody of samples from the sampler to another person, to the laboratory, or to/from a secure storage area.

4.2.2 TRANSFER OF CUSTODY AND SHIPMENT PROCEDURES

Samples were packaged for transfer to the appropriate laboratory for analysis with a separate signed COC record. Shipping containers were secured with strapping tape and CRA custody tape for transfer to the laboratory. The COC record identifying the contents accompanied all shipments. Samples were transferred via a subcontracted courier service.

4.2.3 LABORATORY CHAIN-OF-CUSTODY PROCEDURES

Laboratory custody procedures were maintained documenting sample receipt, integrity of custody tape on the coolers, sample condition (i.e., unbroken, cooled, etc.), and the completeness of associated paperwork, such as COC records for the samples submitted. The custodian also documented that sufficient sample volume was received and appropriate preservation maintained to complete the analytical program. The sample custodian assigned a unique number to each incoming sample for use in the laboratory. The samples were then placed into a secure, limited access storage (refrigerated storage, if required). Consistent with the analyses requested on the COC record, analyses by the laboratory's analyst began in accordance with the appropriate methodologies. Samples were removed from secure storage in accordance with the laboratory's internal custody procedures.

The sample receipt documentation of each sample shipment was reviewed by the laboratory Project Manager and verified with a sample confirmation report submitted to CRA's Quality Assurance (QA) Officer. All discrepancies were noted and resolved via communication between the laboratory Project Manager and CRA's QA Officer prior to sample analysis.

4.3 SAMPLE ANALYSIS

Samples were analyzed in accordance with the laboratory standard operating procedures (SOP) presented in the RFI QAPP. The parameters and methods are detailed in the following subsections by matrix.

4.3.1 SOIL SAMPLE ANALYSES

A total of 350 soil samples collected during the RCRA Facility Investigation addressed by this TM were submitted to Severn Trent Laboratories, Inc. in North Canton, Ohio (STL) for one or more of the following parameters:

- Target Compound List (TCL) volatile organic compounds (VOC) prepared and analyzed by "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", SW-846, 3rd Edition and Promulgated Updates, November 1986 (SW-846) methods 5035 and 8260B;
- TCL semi-volatile organic compounds (SVOC) prepared and analyzed by SW-846 methods 3550B and 8270C;
- TCL polychlorinated biphenyls (PCB) prepared and analyzed by SW-846 methods 3550B and 8082;
- Target Analyte List (TAL) metals (less earth metals) prepared and analyzed by SW-846 methods 3050A and 6010B/6020/7471A;
- TAL cyanide prepared and analyzed by SW-846 method 9012A;
- Total organic carbon (TOC) by the Walkley-Black method; and
- Chloride prepared and analyzed by "Methods for the Analysis of Water and Wastewater", EPA/600/4-88/039, Revised July 1991 (EPA-WW) method 300.0.

4.3.2 SEDIMENT SAMPLE ANALYSES

Six sediment samples collected during the RCRA Facility Investigation addressed by this TM were submitted to STL for one or more of the following parameters:

- TCL VOC prepared and analyzed by SW-846 methods 5035 and 8260B;
- TCL SVOC prepared and analyzed by SW-846 methods 3550B and 8270C;
- TCL PCB prepared and analyzed by SW-846 methods 3550B and 8082;
- TAL metals (less earth metals) prepared and analyzed by SW-846 methods 3050A and 6010B/6020/7471A;
- TAL cyanide prepared and analyzed by SW-846 method 9012A; and
- TOC by the Walkley-Black method.

4.3.3 SURFACE WATER SAMPLE ANALYSES

Twelve surface water samples collected during the RCRA Facility Investigation addressed by this TM were submitted to STL for one or more of the following parameters:

- TCL VOC prepared and analyzed by SW-846 methods 5030 and 8260B;
- TCL SVOC prepared and analyzed by SW-846 methods 3520C and 8270C;
- TCL PCB prepared and analyzed by SW-846 methods 3520C and 8082;
- TAL metals (less earth metals) prepared and analyzed by SW-846 methods 3010A and 6010B/6020/7470A;
- TAL cyanide prepared and analyzed by SW-846 method 9012A;
- Ammonia nitrogen prepared and analyzed by EPA-WW method 350.1;
- Chloride prepared and analyzed by EPA-WW method 300.0;
- Totals dissolved solids (TDS) analyzed by EPA-WW method 160.1;
- Total suspended solids (TSS) analyzed by EPA-WW method 160.2; and
- Total Kjehdahl nitrogen (TKN) prepared and analyzed by EPA-WW method 351.2.

4.3.4 SURFACE WIPE SAMPLE ANALYSES

Five surface wipe samples collected during the RCRA Facility Investigation addressed by this TM were submitted to STL for TCL PCB prepared and analyzed by SW-846 method 3500C and 8082.

4.4 DATA VALIDATION

Laboratory analytical data was provided in electronic data deliverable (EDD) format and as hardcopy final reports. Electronic data was checked against hardcopy final reports and updated with the validation qualifiers established during data validation.

Validation was performed by qualified chemists at the direction of CRA's QA Officer in accordance with validation guidelines specified in the RFI QAPP. Data review and validation consisted of two tiers of assessment, incorporating an approach similar to "Innovative Approaches to Data Validation", U.S. EPA Region III, June 1995.

Tier I data validation was performed on 100 percent of the laboratory quality control summary data deliverables and consisted of the following components:

i) technical holding times;
ii) GC/MS instrument performance check;
iii) initial and continuing calibration;
iv) internal standard performance;
v) calibration, method, trip and equipment rinsate blanks;
vi) system monitoring compounds (surrogate spikes);
vii) ICP interference check samples;
viii) ICP/MS internal standards;
ix) ICP serial dilutions;
x) MS/MSD results;
xi) laboratory control samples; and
xii) field duplicate samples.

Tier II validation was completed on 10 percent of the expanded deliverables during the initial investigation activities. The Tier II validation included the above Tier I evaluation, as well as the following components.

Data qualifiers were applied based on this assessment using the following documents as guidance:

"U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", EPA-540/R-99/008, October 1999 and the "U.S. EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", EPA-540/R-94-013, February 1994.

The specific data qualifiers used were as defined in the CLP National Functional Guidelines and are summarized in Data Quality Assessment and Validation Memoranda, provided under separate cover.

5.0 INVESTIGATION RESULTS

This Section provides a description of the development and use of risk-based screening levels for evaluating the site characterization data, calculation of site-specific background levels for metals in, a brief description of each AOI, and presents a discussion of the subsurface conditions and specific soil, sediment, and surface water analytical results for each AOI.

5.1 RISK-BASED SCREENING LEVELS

Consistent with the RFI Work Plan, conservative risk-based screening levels were used to evaluate data during the implementation of the RFI at the Facility to support decisions regarding the need for further field work and to identify situations that might warrant interim measures. The approach discussed below streamlines the review of data by segregating data that indicate a higher potential for health significance under current and reasonably expected future land use from those that indicate a low potential. This allows investigators to focus on a subset of the typically voluminous site characterization data as they make decisions about what additional field investigation is necessary. It should be noted that the results of this screening level evaluation do not represent a quantitative assessment of risk. Rather, they represent one aspect of the data evaluation conducted to determine if: (1) a potentially significant release may have occurred; and, (2) the nature and extent of contamination detected in the AOIs has been defined to the extent necessary to support a reliable estimate of exposure concentrations for use in a RFI baseline risk assessment. As such, the segregation of data at this stage of the RFI is not used to eliminate areas, media, or chemicals from a human health risk assessment; it is used to eliminate areas, media, or chemicals from further field investigation.

The segregation of data after each phase of field investigation is done in two main steps. The first step uses computer-automated procedures to compare quantitatively the site characterization data to conservative risk-based screening criteria, and to present the results in tables and data-box figures, which show the data that exceed criteria and their spatial distribution. The second step combines these quantitative summaries with professional judgment to reach decisions regarding the need for additional data to support risk-based determinations of whether interim measures or corrective measures are warranted. The procedures for these two steps are further discussed below.

5.1.1 QUANTITATIVE COMPARISON TO SCREENING CRITERIA

The initial segregation of site characterization data is accomplished by using conservative, risk-based screening criteria that are relevant to the exposure scenarios in the preliminary conceptual site model that has been developed, and which will be refined during the RFI. The screening criteria and the use of these criteria are based on U.S. EPA guidance for conducting screening-level assessment of sites under RCRA and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The risk-based screening criteria and the procedures for evaluating soil, sediment, bedrock and surface water data are as follows (refer to Table 5.0):

Soil

Soil data are evaluated using two sets of screening criteria—one that is based on exposures under residential land use and another that is based on exposures under commercial/industrial land use. The two sets of criteria are used to provide two successively more focused levels of data screening to segregate data that indicate a higher potential for health significance from those that indicate a low potential. Each set of soil screening criteria is derived from the corresponding set of U.S. EPA Region 9 preliminary remediation goals (PRGs):

- risk-based screening levels for residential land use (set at a target cancer risk level (TCRL) of 10^{-6} for carcinogenic constituents and a target hazard quotient (HQ) of 1 for non-carcinogenic constituents); and
- risk-based screening levels for industrial land use (set at a TCRL of 10^{-5} for carcinogenic constituents and a target HQ of 1 for non-carcinogenic constituents).

The first-level segregation is done using screening criteria based on residential land use and a lower TCRL to minimize overlooking any concentration that could be remotely considered to be significant. The highest concentration of each chemical detected in surface and subsurface soil at each AOI is quantitatively compared to these criteria. Results of the quantitative comparison for every chemical at each AOI are summarized on tables that show the ratios of the highest site-related concentrations at an AOI to the screening criteria. Concentrations shown in the tables for metals are those in excess of background levels, which were estimated from site-specific data collected during the field investigations.

Chemicals with at least one sample with a concentration that exceeded the residential criteria at any AOI were selected for display on data-box figures that show their spatial

distribution. The figures show the concentrations of these chemicals for every sample across the Facility, regardless of whether a concentration exceeds criteria in a particular sample. Chemicals that do not have any concentration that exceeds the criteria at any AOI were included on the summary tables, but were not included on the figures.

The second-level segregation was done using screening criteria based on industrial land use and a TCRL of 10^{-5}. Because current land use at the Site is industrial and reasonably expected future land use remains industrial as well, these screening criteria are appropriate for identifying data that indicate the highest potential for health significance at the Facility. Where this level of screening was conducted, the surface and subsurface soil data at each AOI were quantitatively compared to the industrial screening criteria to identify every concentration that exceeds these criteria. The results of the comparisons are summarized on tables as ratios of the highest site-related concentrations at an AOI to the industrial screening criteria, and constituent concentrations that exceed these criteria are highlighted on the data-box figures.

U.S. EPA Region 9's published PRGs are based on a target cancer risk of 10^{-6} and a target HQ of 1. According to U.S. EPA, a target cancer risk of 10^{-6} is often used to develop screening criteria to ensure that cumulative cancer risk from exposure to multiple human carcinogens at a site would not exceed U.S. EPA's acceptable cumulative risk goal of 10^{-4} (61 FR 19432, May 1, 1996; U.S. EPA 1996; EPA 1991b). This means that as many as 100 human carcinogens can be present at a site at concentrations equal to the PRGs without exceeding the cumulative risk goal of 10^{-4}. However, potential exposures at many facilities (including this Facility) involve far fewer human carcinogens (i.e., closer to 10 than 100). This means the PRGs calculated using a target cancer risk of 10^{-6} are far more conservative than necessary to protect for simultaneous exposures to multiple carcinogens. As such, when only a few carcinogenic constituents are present at a site, as in this case, the risk-based screening criteria for carcinogens that are used in the second-level segregation of data are calculated using a target cancer risk of 10^{-5}.

Sediment and Bedrock

Generic risk-based screening criteria for evaluating the health significance of potential exposure to sediments and bedrock are not well established. Therefore, as a conservative approach, sediment and bedrock characterization data are quantitatively compared to the risk-based screening criteria described above for evaluating soil data. Use of soil screening criteria is highly conservative because potential exposures of receptors to sediment and bedrock, if any, at the Facility are expected to be lower than those assumed in deriving the soil criteria. The procedures for identifying chemicals in

sediment and bedrock for display on data-box figures and concentrations for highlighting were the same as those discussed above for soil.

Surface Water

Generic risk-based screening criteria for evaluating the health significance of potential exposure to surface water are also not well established. Therefore, as a conservative approach, surface water characterization data are quantitatively compared to the Indiana and Federal Maximum Contaminant Levels (MCLs) that are established under the Safe Drinking Water Act regulations. For chemicals without MCLs, risk-based drinking water criteria are calculated using EPA standard default exposure factors for residential drinking water consumption (i.e., 2 L/day, 350 days/year, 30 years, and 70 kg body weight; EPA 1991a), a TCRL of 10^{-5} for carcinogenic constituents, and a target HQ of 1 for non-carcinogenic constituents.

Use of drinking water criteria is highly conservative because potential exposures of receptors to surface water at the Facility are expected to be lower than those assumed in deriving the drinking water criteria. It is intended to minimize overlooking any concentration that could be remotely considered to be significant. The procedures for identifying chemicals in surface water for display on data-box figures and concentrations for highlighting were the same as those discussed above for soil.

In summary, the results of the quantitative comparison of site characterization data to conservative, risk-based screening criteria were used to produce summary tables and data-box figures that focus attention on the chemicals and concentrations at each AOI that have the highest potential for health significance.

5.1.2 REVIEW OF SCREENING RESULTS

The tables and data-box figures were reviewed to determine the scope of additional field work necessary to support risk-based determinations of whether interim measures or corrective measures are warranted. A key consideration during this review was whether concentrations highlighted on the data-box figures have sufficient lateral and vertical characterization to ensure that a reliable estimate of the exposure concentration (usually a 95 percent upper confidence limit on the mean) for a particular area can be developed to support a risk assessment. Other important considerations included the following:

- inconsistencies in the types of chemicals found among different environmental media at an AOI as compared to expectations based on operational history and properties of the chemicals (e.g., solubility), which may suggest a potential for false negative or false positive identification of chemicals;
- obvious trends in the lateral and/or vertical distribution of concentrations, which may indicate that concentrations significantly higher than the observed concentrations may be present in areas or depths that have not been sampled;
- unusually high concentrations, which may indicate that nonaqueous-phase liquids are present;
- unusual field observations, high field screening measurements, or unexpected analytical data, which may indicate the presence of contamination in areas or depths that have not been sampled;
- unusually large variance between results from duplicate pairs and unusually high quantitation limits, which may indicate a potential for sampling or laboratory problems; and
- concentrations that may not be entirely site-related, which may suggest a need for a more refined determination of background levels and/or potential off-site sources.

Based on these considerations, decisions were made at each AOI regarding the need for further site characterization, or other actions (e.g., check for laboratory errors, remediate an area) that might be more appropriate. Additional samples were proposed where current results indicated a need for additional data.

5.2 BACKGROUND CALCULATIONS AND ANALYTICAL RESULTS

Background soil samples were collected during the RFI to determine regional naturally occurring levels of metals in soil at the Facility. Consistent with the RFI Work Plan and RFI Work Plan Addendum No. 1, background soil samples were collected from 10 locations where no manufacturing or management of production materials or wastes have occurred. The locations where the background soil samples were collected are shown in Figure 5.1. At each location, one sample was collected from 0 feet bgs to 2 feet bgs, and additional subsurface samples (from 2 feet bgs to 8 feet bgs) were collected at selected background locations. The boring logs for these samples are provided in Appendix A and the analytical data are provided in Section 5.3.

The concentrations of metals in the samples from the 0 feet bgs to 2 feet bgs interval are the most representative of background exposures to metals in soil because surface soil is

encountered more often than deeper soil. Therefore, the data from the surface interval are used in calculating background levels of metals in soil for exposure assessment purposes. The metal concentrations in background soil from the surficial soil are summarized in Table 5.1, which also include summary statistics describing the concentration distributions.

For the calculation of background concentrations in Table 5.1, only nine of the ten background locations were used. The data from MW-X045Y258D were determined to be outside of the expected range of concentrations from the literature (Dragun 1991) for several metals and was not used in the calculations of background levels. These data, like all of the background data, are not excluded from evaluation in the RFI.

Table 5.1 summarizes the 95 percent upper confidence level (UCL) calculations for site-specific background metals. The 95 percent UCLs presented in Table 5.1 are nonparametric bootstrap confidence limits on the mean (Efron and Tibshirani 1998) calculated from 4,000 bootstrap replications. Nonparametric bootstrap statistical limits are more reliable than parametric statistical limits because, unlike parametric limits, they do not rely on assumptions about distribution shapes that are often difficult to justify. UCLs were not calculated for antimony and thallium, because these metals had low detection frequencies. The maximum detected concentration for antimony and thallium were used to represent background levels of these metals. Silver was not detected in background samples, so a background level also was not calculated for silver. For all metals, site-specific background concentrations are subtracted from the measured concentrations in soil prior to comparison with any of the screening criteria discussed in Section 5.1.1.

5.3 ANALYTICAL RESULTS

This section describes the borings, soil, wipe, sediment, and/or surface water samples collected, subsurface conditions encountered during drilling, and analytical results for each AOI, based on the site screening criteria. Except as otherwise noted, all soil samples were submitted for analysis of TCL VOCs, SVOCs, PCBs, TAL inorganics (minus the earth metals). All sediment samples were submitted to STL for analysis of TCL VOCs, SVOCs, PCBs, TAL metals (minus the earth metals), and total organic carbon (TOC). All surface water samples were submitted to STL for analysis of TCL VOCs, SVOCs, PCBs (total and dissolved), and TAL total and dissolved metals (minus the earth metals).

Table 5.2 presents a summary of the soil analytical; Table 5.3 presents a summary of the sediment analytical results; Table 5.4 presents a summary of the surface water analytical results; and Table 5.5 presents a summary of the wipe sample analytical results. All tables are arranged by AOI. These data were evaluated as described in Section 5.1 and the results are presented on databox figures depicting the spatial distribution of constituents that have concentrations higher than the screening criteria. Because of the amount of soil borings and data that are presented on the databox figures, the Facility was divided into six Study Areas for presentation purposes. Appendix H presents the databox figures as Drawings 1 through 8 for all on-site soil, bedrock, and wipe sampling results.

5.3.1 AOI 1 – FORMER RAILROAD OPERATIONS AND MINERAL PROCESSING FACILITY

The portion of land south and southeast of the Die Cast Building was the location of the former railroad maintenance operations and the Minerals Processing Facility. According to Bedford Facility records and historic Sanborn maps, the railroad operations included a railroad roundhouse (turn-around building) and maintenance shops. The Minerals Processing Corporation (MPC), which began operations at this location in 1971, leased the property from the railroad until GM purchased the property in 1977. The railroad had ceased maintenance operations at this location in the 1940's. After GM purchased the property from Milwaukee Railroad, MPC continued leasing from GM for their operations. In 1989 Mica Resources, Ltd. acquired MPC. The location of the former roundhouse and Minerals Processing Facility are shown on Drawing No. 1, Appendix H.

Seven soil borings (B-X100Y107, B-X115Y070, B-X128Y079, B-X130Y064, B-X137Y073, B-X143Y075, and B-X148Y076) were advanced through this AOI . In addition, one monitoring well nest (TMW-X085Y070, MW-X085Y070S, and MW-X085Y070D) was located within the southwest corner and one monitoring well nest (MW-X168058S, MW-X168058I, and MW-X168058D) was located just to the southeast of this AOI as part of the overall groundwater investigation (Drawing No. 1, Appendix H). Samples from this AOI were additionally analyzed for chloride due to historical storage of salts used in the dross reclaim process.

The subsurface conditions beneath this AOI can be seen in cross-sections E-E', H-H', I-I', 3-3', and 4-4' (Figures 3.15, 3.18, 3.19, 3.26, and 3.27). In general, the subsurface conditions consist of approximately 2 to 12 of sand fill overlying 10 to 20 feet of clay, which in turn sits on limestone of the St. Louis Formation. Borings completed in the

vicinity of and through the former roundhouse location contained large amounts of concrete debris (approximately two to eleven feet). Groundwater saturation was encountered at one location within the overburden and a PVC well screen and riser were installed (TMW-X075Y080).

Two monitoring well nests were completed within the underlying limestone bedrock. All five formations described in Section 3.1.1.1 were encountered at the deep well at each location. Approximate stratigraphic contacts and thickness of formations is presented in Table 3.1.

Two surface water samples (SW-X156Y082 and SW-X168Y066) were collected from the springs located within the WWTP area, downhill of AOI 1 in April 2002. These springs were also resampled in May 2002. All samples were submitted to the laboratory for analysis of TCL VOCs, SVOCs, PCBs, TAL inorganics (minus earth metals), and chloride. The analytical results indicated that three parameters exceeded screening levels during each sampling event. Antimony (unfiltered) was detected in the spring sample SW-X156Y082 at a concentration of 0.009 milligram per liter (mg/L) and 0.011 mg/L during April and May 2002, respectively. Dissolved antimony (filtered) was detected at this same spring at a concentration of 0.009 microgram per liter (µg/L) and 0.013 µg/L during April and May 2002, respectively. The screening level for antimony is 0.006 mg/L. Bis(2-ethyhexyl)phthalate was detected at spring sample SW-X168Y066 at a concentration of 0.01 mg/L during April 2002 and at 0.008 mg/L (duplicate results was 0.009 mg/L) during May 2002, which exceeded the screening level of 0.006 mg/L. PCBs were detected in the unfiltered sample SW-X156Y082 at concentrations of 0.002 mg/L and 0.001 mg/L, during April and May 2002, respectively, which are above the screening level of 0.0005 mg/L. The results were non-detect for PCBs in the filtered samples from this spring.

No additional data are required to be collected from this AOI.

5.3.2 AOI 2 – WASTE STORAGE AREA

The Waste Storage Area (also referred to as the Drum Storage Pad) is a secure fenced area located north of the Piston Building (Drawing No. 1, Appendix H). The Former RCRA Hazardous Waste Storage Area was located in the northeast corner of the Waste Storage Area.

Four soil borings (B-X096Y195, B-X107Y203, B-X108Y190, and B-X113Y194) were advanced beneath the Waste Storage Area (one in each corner). Each boring was

advanced via direct-push methods to the bedrock surface. The subsurface conditions encountered beneath this AOI consisted of 1.5 to 4 feet of fine, poorly graded sand beneath the sub-coarse materials. The remainder of each borehole to total depth consisted of brown silty clay fill. Bedrock was encountered ranging from 32 feet bgs to 35 feet bgs. Some black staining was encountered at each boring at the surface of the clay fill (refer to Cross-Sections A-A' and H-H' (Figures 3.11 and 3.18) and Appendix A for the soil boring logs).

Soil sampling consisted of a surficial sample (collected immediately below the concrete surface), from 6 feet bgs to 8 feet bgs, and from immediately above the bedrock surface. Groundwater was not encountered at any boring location.

No parameters exceeded the screening levels for the borings completed at this AOI. Therefore, no additional data collection will be necessary to address this AOI. The results of the screening are presented on Drawing No. 3, Appendix H; Study Area 2. No additional data are required to be collected from this AOI.

5.3.3 AOI 3 – PCB STORAGE AREAS

There have been two PCB storage areas utilized at the Facility. One former PCB storage area consisting of a room (now removed) was located in the west side of the Die Cast Building and an existing PCB storage area is currently located in the WWTP Filter Building (Drawing No. 1, Appendix H).

Three wipe samples (W-X032Y097, W-X034Y101, and W-X035Y090) were collected in the former PCB storage area (Die Cast Building) and two wipe samples (W-X197Y070 and W-X199Y070) were collected at the current PCB storage area (WWTP Filter Building). Each wipe sample was collected as described in Section 2.7.

Analytical results for all wipe samples were non-detect (at a detection limit of 4 µg) per 100 square centimeters. Based on the results of the wipe testing, further testing does not appear to be necessary for this AOI (either location). The results of the screening are presented on Drawing No. 2 and 3, Appendix H; Study Areas 1 and 3. No additional data are required to assess this AOI.

5.3.4 AOI 4 – FORMER NORTH DISPOSAL AREA

Beginning in the late 1950s, the Bedford Facility began disposing of waste materials northeast of the former North Lagoon (Drawing No. 1, Appendix H). This area has been referred to as the Sand Fill Area, Sand Landfill, Foundry Sand Storage Area, Landfill Storage Area, North Landfill, and Landfill (for purposes of this report, this area will be termed the Former North Disposal Area). Review of historical photographs and documents also suggests that there was a quarry present in the 1950s. This former quarry is not present currently and existed along the northeastern boundary of this AOI.

Seven soil borings (B-X148Y233, B-X169Y248, B-X187Y217, B-X192Y234, ,B-X193Y251, B-X219Y249, and B-X243Y257) and one monitoring well nest (MW-X143Y245S and MW-X143Y245D) were advanced within the Former North Disposal Area. Two of these soil borings and the monitoring well nest are also included in the adjacent AOI 15. One overburden well (TMW-X193Y251) was installed due to the presence of groundwater within the overburden materials.

In addition, two borings were advanced on a 30-degree angle from vertical to assess the bedrock beneath AOI 4. Boring B-X223Y247D was advanced on an angle to the east and boring B-X177Y252D was advanced on an angle to the north. Boring B-X223Y247D consisted entirely of competent limestone and was advanced to the top of the Edwardsville Formation. Boring B-X177Y252D was only advanced to a vertical depth of 53.6 feet bgs, where a permeable feature was encountered and all drilling fluid return was lost (this boring was terminated at this depth). A geotechnical evaluation was also performed for the materials within this AOI (refer to Section 5.5.2 and Appendix I).

The subsurface conditions encountered within this AOI included approximately 2 feet to 31 feet of fill materials (gray to black fine-grained, poorly graded sand, with inclusion of gravel, bricks, metal, wood, and plastic). This fill material is overlain with 3 feet to 6 feet of clay and topsoil, and is underlain in places by a relatively thin layer of native clay. The native clay directly overlies the limestone bedrock (St. Louis Formation and Salem Formation) in some locations. At other locations, it appears that the waste materials directly overlie the limestone bedrock. Water saturation was encountered at one location at a low point in the bedrock surface where the native clay was absent. A two-inch PCV well screen and riser were installed at this location. Refer to Cross-Sections A-A', I-I', J-J', K-K', L-L', and 2-2' (Figures 3.11, 3.19, 3.20, 3.21, 3.22, and 3.25).

Thirty-six soil samples (including six duplicates) were collected and analyzed for TCL VOCs, SVOCs, PCBs, and TAL inorganics (minus earth metals) from various depths

throughout the Former North Disposal Area. Total mercury exceeded the screening level of 13.6 mg/kg (after subtracting the calculated background for surface soil of 0.04 mg/kg) in samples collected from borings B-X177Y252D (6-8 feet bgs), B-X193Y251 (6-8 feet bgs), and B-X243Y257 (6-8 feet bgs) at concentrations of 20.2 mg/kg (39.7 mg/kg from the duplicate sample), 23.9 mg/kg, and 33.7 mg/kg, respectively. Total PCBs exceeded the site screening level of 7.4 mg/kg in eight samples from this AOI, ranging in concentration from 9.82 mg/kg to 1,340 mg/kg. The results of the screening are presented on Drawing No. 5, Appendix H; Study Area 4.

Sediment and surface water samples were collected from within the existing stormwater pond and from immediately downstream of the pond from an existing spring. Two sediment (SD-X220Y224 and SD-X225Y180) and one surface water sample (SW-217Y224) were collected from within the stormwater pond. The sediment sample consisted of approximately the upper 4 inches (or approximately 10 centimeters) of the sediment; the surface water sample was collected from immediately below the surface of the pond. In addition, one sediment (SD-X245Y233; parent and duplicate) and two surface water samples (SW-X243Y232; 3/15/02 and 5/21/02) were collected from the spring located immediately down gradient of the Outfall #003 (additional samples were also collected in this area, and further downstream, as part of the stream investigation).

All sediment samples were submitted for laboratory analysis of TCL VOC, SVOCs, PCBs, TAL inorganics (minus earth metals), grain size distribution, and total organic carbon. Analytical results for the collected sediment samples indicated that only PCBs from within the stormwater pond exceeded the screening level for soil from these locations. Concentrations of PCBs in the sediment within the stormwater pond were 17.6 mg/kg and 27.8 mg/kg. The results of the screening are presented on Drawing No. 6, Appendix H; Study Area 4.

All surface water samples were submitted for laboratory analysis of TCL VOC, SVOCs, PCBs (filtered and unfiltered), and TAL inorganics (minus earth metals) (filtered and unfiltered). Analytical results of the sample from the stormwater pond did not exceed any of the screening levels established. Analytical results from the spring sample exceeded the screening levels for three parameters (filtered and unfiltered); manganese, PCBs, and thallium for the sample collected on March 15, 2002. Only manganese (filtered and unfiltered) and PCBs (unfiltered only) exceeded the screening levels for the sample collected on May 21, 2002.

Analytical results for the filtered and unfiltered samples from March indicated concentrations of manganese of 1.5 mg/L and 1.4 mg/L, respectively; and from May, the concentrations were 1.2 mg/L and 1.2 mg/L, respectively. The screening level for

manganese is 0.88 mg/L. Concentrations of filtered and unfiltered thallium from the March sample were 0.008 mg/kg and 0.007 mg/L, respectively. The screening level for thallium is 0.002 mg/L. The concentrations of PCBs in the spring sample collected in March were 0.014 mg/L (filtered) and 0.023 mg/L (unfiltered). The concentration of PCBs for the sample collected in May was 0.013 mg/L (unfiltered). The screening level for PCBs in surface water is 0.0005 mg/L. The results of the screening are presented on Drawing No. 8, Appendix H.

Currently, this AOI is covered with two to three feet of clay soil. There were no exceedances of screening levels from this clay cap. Based on the results of the samples collected from this AOI, additional data are necessary to determine the lateral extent of fill material, to investigate the filled quarry, and to further define the extent of PCBs in the subsurface.

5.3.5 AOI 5 – FORMER EAST SAND DISPOSAL AREA

In 1985, GM began placing foundry sand east of the salary parking lot (Drawing No. 1, Appendix H). The foundry sand was reportedly used as fill to expand the existing salary parking lot (AOI 5). The former Sludge Disposal Area (AOI 6) was identified from historical aerial photographs and from interviews with Facility personnel. This disposal area was located on Facility property to the east and south of the salary parking lot east of GM Drive (Drawing No. 1, Appendix H). The Facility's fire-training area was previously located south of the salary parking lot and was situated on top of the former Sludge Disposal Area. Because AOI 5 and AOI 6 are immediately adjacent to each other and because each is difficult to distinguish, the following discussion includes both AOIs.

Eleven soil borings were initially installed to investigate AOIs 5 and 6 (4 at AOI 5 and 7 at AOI 6). Twenty-three additional soil borings and nine surface soil samples were collected in three separate phases; each phase being based on the preliminary results for PCBs in soil from the previous phase. This was completed in order to further define the extent of PCBs discovered in the surface and subsurface soil. In total, 14 soil borings and 9 surface samples were completed from AOI 5 and 20 soil borings were completed from AOI 6.

Subsurface conditions encountered while drilling at these AOIs generally consisted of variable thickness of clay fill materials and foundry sand lenses directly overlying limestone bedrock. The bedrock in this area is interpreted to be of the St. Louis Formation and is at a higher elevation immediately beneath the salary parking lot (Figure 3.6). The bedrock surface slopes to the north, east, and south of AOI 5. The

overburden materials are the thickest along the northeast corner of AOI 5 and general decrease in thickness to the east and south. Geologic cross-sections B-B', C-C', J-J', K-K', L-L', and M-M' depict the subsurface conditions encountered through AOIs 5 and 6 (Figures 3.12, 3.13, 3.20, 3.21, 3.22, and 3.23). All soil boring logs can be found in Appendix A.

Soil samples were collected during advancement of all soil borings. For the most part, all soil samples were submitted for all parameters included in this program. However, eight soil samples (five from borings and three surface samples) were analyzed only for PCBs. These samples were collected after initial review of data to provide a tighter horizontal extent of identified PCB contamination in two selected areas.

Analytical results from all soil samples from AOIs 5 and 6 indicated that three parameters exceeded the screening levels in this area (arsenic, 1,4-dichlorobenzene, and PCBs) in one or more samples. One soil sample (B-X189Y122; 8-10 feet bgs) exhibited a concentration of 37 mg/kg for arsenic, which exceeded the screening level of 16.0 mg/kg (after subtracting the calculated background concentration for surficial soil of 10.0 mg/kg). One soil sample (B-X218Y141; 8-10 feet bgs) collected from the eastern side of AOI 6 exhibited a concentration of 84 mg/kg for 1,4-dichlorobenzene, which slightly exceeded the screening level of 79 mg/kg.

Total PCBs in soil were detected in individual samples at concentrations exceeding the site screening level surficial soil and at various depths. Concentrations ranged from "non-detect" to a maximum concentration of 19,400 mg/kg at B-X218Y141; 8-10 feet bgs). The results of the screening are presented on Drawing No. 4, Appendix H; Study Area 3.

Because of the intensive sampling efforts at these two AOIs, it appears that all exceedances of the screening levels have been sufficiently defined as to the horizontal and vertical extent. A newly constructed fence currently restricts access to the surficial soil within these two AOIs. Additional data may be necessary to support any proposed Interim Measure activity.

5.3.6 AOI 6 – FORMER SLUDGE DISPOSAL AND FIRE TRAINING AREA

Because AOI 5 and AOI 6 are immediately adjacent to each other and because each is difficult to distinguish, refer to Section 5.3.5 for the discussion on subsurface conditions and analytical results.

5.3.7 AOI 7 – FORMER NORTH LAGOON AND OUTFALL 001

The Stone City Construction Company originally constructed the Former North Lagoon (also referred to as the North Pond, Old Lagoon, and North Stormwater Lagoon) sometime between 1938 and 1942 (Figure 1.3). GM continued the use of the Former North Lagoon for stormwater collection and utilized a portion of the stormwater in the Facility's manufacturing processes on an as-needed basis until 1981 (closure of the former North Lagoon was completed in 1987).

Three soil borings (B-X158Y207, B-X170Y211, and B-X185Y195) were advanced within the former North Lagoon area for the purposes of evaluating the existing soil conditions. Soil samples were collected from the surface, from 6 feet bgs to 8 feet bgs, and from immediately above the bedrock surface. All soil samples were analyzed for TCL VOCs, SVOCs, PCBs, and TAL inorganics (minus earth metals). The subsurface materials consisted of a brown, clay fill below a layer of topsoil. Bedrock was encountered ranging from 13 feet bgs to 28 feet bgs.

Subsurface conditions encountered while drilling at this AOI consisted of topsoil underlain by approximately 24 feet to 28 feet of brown clay fill with a trace of silt. This clay fill directly overlies limestone (lower St. Louis Formation). Geologic cross-Section J-J' presents the subsurface stratigraphy beneath AOI 7 (Figure 3.20).

Based on the results of the laboratory analysis, no soil sample collected within AOI 7 exceeded the screening levels, therefore no additional data are required for the soil at this AOI. The results of the screening are presented on Drawing No. 5, Appendix H; Study Area 4.

5.3.8 AOI 8 – FORMER SOUTH LAGOONS AND OUTFALL 002

GM utilized five lagoons (South Lagoons #1 through #5) at the Bedford Facility for the purpose of treating process waste water prior to discharge to Outfall 002, pursuant to a NPDES permit (IN 0003573), originally issued in 1974. These former South Lagoons (also referred to as the Process Lagoons; South Lagoon #4 also referred to as the Sludge Storage Lagoon) operated in a cascading-type fashion in order to separate and reclaim the heavier hydraulic oils (settled to the bottom) contained in the process wastewater. The process wastewater was primarily from the existing service tunnels beneath the die cast machines. GM constructed the former South Lagoons in 1959 (Drawing No. 1, Appendix H). South Lagoons #1 through #3 were apparently removed for the construction of the current WWTP. South Lagoon #5 was reportedly cleaned and the

materials placed with South Lagoon #4 prior to the construction of the WWTP surge basins. South Lagoon #4 underwent closure activities (excavation, disposal, and verification sampling) in 1983.

Four soil borings (B-X193Y098, B-X219Y095, B-X223Y097A, and B-X223Y097B) were advanced within this AOI during the RFI. One boring was advanced at the location of the former South Lagoon #4 and three borings were advanced at the location of the former South Lagoon #5 for the purposes of verifying the existing conditions. No borings could be completed at the former locations of South Lagoons #1, #2, or #3 due to the presence of the current wastewater treatment facility at this location.

The subsurface conditions at former #4 South Lagoon consisted of topsoil underlain by approximately 13 feet of clay fill. At approximately 12 feet bgs, the clay was observed to be stained and exhibiting a noticeable petroleum odor. Bedrock was encountered at 14 feet bgs. The subsurface conditions at former #5 South Lagoon consisted of variable fill materials (clay, sand, and gravel) ranging in thickness between 6 feet and 14 feet, below which bedrock was encountered. Logs for these borings can be found in Appendix A and the subsurface conditions are presented on cross-sections D-D', K-K', L-L', and M-M' (Figures 3.14, 3.21, 3.22, and 3.23).

Arsenic and PCBs exceeded the screening levels in one or more soil samples collected at this AOI. Specifically, total arsenic from a sample collected from 6 feet bgs to 8 feet bgs at soil boring B-X219Y095 at a concentration of 44.2 mg/kg exceeds the screening level of 16.0 mg/kg, after adjusting for the site background concentration of 10.0 mg/kg. .

Out of the 11 samples collected from the subsurface at AOI 8, five exceeded the screening level for PCBs of 7.4 mg/kg. All exceedances were from soil collected near the bedrock at each of the boring locations. Concentrations of total PCBs ranged from ND to a maximum concentration of 1,890 mg/kg immediately above bedrock beneath the former #4 South Lagoon (soil boring B-X193Y098; 13 feet bgs to 14 feet bgs). The results of the screening are presented on Drawing No. 4, Appendix H; Study Area 3.

Based on the results from soil samples collected at AOI 8, additional investigative activities were completed to obtain information on the soil conditions in the area (see Section 5.3.30 NAPL Investigation).

5.3.9 AOI 9 – SERVICE TUNNELS

Six service tunnels are located within the Die Cast Building at the Bedford Facility. The service tunnels are located under the die cast machines and are identified as: North Make #'s 1 through #5 and South Make #1. Their locations are shown in on Drawing No. 1, Appendix H.

Five soil borings (B-X047Y072, B-X069Y098B, B-X093Y090, B-X106Y102B, and B-X130Y089) were completed to the bedrock surface beneath the service tunnels (boring logs are provided in Appendix A). An additional eleven borings were unable to reach bedrock due to refusal at shallower depths (it is believed that an old foundation was encountered at many of the borings located in the North Die Cast Building). The five soil borings that reached the bedrock surface were additionally advanced approximately 20 feet into bedrock. All borings were advanced from inside of the Die Cast Building beginning from the main floor (i.e., above the service tunnels located beneath the main floor).

Subsurface conditions encountered during drilling at this AOI consisted of 1 foot to 7 feet of sand and gravel fill overlying a soft, brown clay fill material with traces of silt and gravel. The clay fill appears to overlie the bedrock surface. Figure 3.5 presents the thickness of overburden materials beneath AOI 9, which ranges from approximately 25 feet to 42 feet (thickness generally increases to the west). Approximately 20 feet of the limestone bedrock was drilled at most locations. The limestone was identified as the St. Louis Formation. The stratigraphy beneath AOI 9 can be seen in geologic cross-sections C-C', D-D', F-F', G-G', H-H', and 3-3' (Figures 3.13, 3.14, 3.16, 3.17, 3.18, and 3.26).

Twenty-three soil samples and six bedrock samples were collected from the subsurface near the service tunnels. Total PCBs exceeded the screening level in one or more samples in this AOI. Concentrations of PCBs ranged from "non-detect" to 3,690 mg/kg. However, PCBs exceeded the screening level at only two locations beneath AOI 9 (B-X059Y135B and B-X106Y102B). The concentration of PCBs in soil at B-X059Y135B were 117 mg/kg, 0.204 mg/kg, 0.061 mg/kg, and 0.069 mg/kg from depth of 2 feet bgs to 4 feet bgs, 6 feet bgs to 8 feet bgs, 34 feet bgs to 36 feet bgs, and 40 feet bgs to 42 feet bgs, respectively. Concentrations of PCBs in soil at boring B-X106Y102B were 3,690 mg/kg, 260 mg/kg (96.9 mg/kg duplicate), and 503 mg/kg, at depths of 2 feet bgs to 4 feet bgs, 6 feet bgs to 8 feet bgs, and 20 feet bgs to 22 feet bgs, respectively. One bedrock chip sample was collected from an encountered fracture at B-X106Y102C from 27.8 feet bgs to 28 feet bgs, which exhibited a PCB concentration of 4.33 mg/kg. The results of the screening are presented on Drawing No. 2, Appendix H; Study Area 1.

Because these detections are from below the concrete flooring of the active manufacturing areas of the Plant and there is no complete pathway for current exposure to soil, no further soil borings are planned. Plant personnel regularly collect concrete and soil samples at any location where modifications to the Plant are being considered.

5.3.10 AOI 10 – EXISTING STORMWATER LAGOON AND OUTFALL 003

The Existing Stormwater Lagoon is located northeast of the salary parking lot, east of GM Drive. The Stormwater Lagoon, which discharges to Outfall 003, is allowed emergency stormwater overflows. The emergency overflow from Outfall 003 enters an unnamed ditch and flows to the northeast until the ditch joins with Bailey's Branch of Pleasant Run Creek. The location of the Stormwater Lagoon and Outfall 003 are shown on Drawing No. 1, Appendix H.

One surface water (SW-X217Y224) and two sediment samples (SD-X220Y224 and SD-X225Y180) were collected within the Existing Stormwater Lagoon. The surface water sample was collected just below the water surface. In addition, one surface water (SW-X243Y232) and one sediment (SD-X245Y233) sample were collected from the spring located immediately down gradient of the emergency overflow discharge point (Outfall #003).

Analytical results from within the stormwater lagoon indicate that only PCBs in sediment at both locations exceeded the screening levels for surface soil. Total PCBs in sediment were 27.8 mg/kg and 17.6 mg/kg at SD-X220Y224 and SD-X225Y180, respectively. Analytical results from the spring (surface water) indicated that manganese, PCBs, and thallium exceeded the screening levels. Total manganese (unfiltered sample) concentrations were 1.4 mg/L and 1.2 mg/L during March and May 2002, respectively; filtered sample results were 1.5 mg/L and 1.2 mg/L for the same sample times). The filtered sample for PCB analysis indicated 0.014 mg/L during March 2002 and below detection limits during the May sampling event. The unfiltered samples for PCBs analysis indicated 0.023 mg/L and 0.013 mg/L for the March and May 2002 sampling events, respectively. Thallium was detected in the spring sample at concentrations of 0.007 mg/L (unfiltered) and 0.008 mg/L (filtered) during March 2002. Thallium was not detected in both the filtered and unfiltered water samples from May 2002. Only arsenic exceeded the screening level for the sediment sample collected at the spring.

The results of the screening are presented on Drawing No. 8, Appendix H.

The data obtained from within the existing stormwater pond are sufficient in terms of this investigation. No additional data are required. Additional data requirements for the discharge from the spring will be completed during the implementation of the Site Source Control Work Plan (November 6, 2003).

5.3.11 AOI 11 – ABOVE GROUND STORAGE TANKS

The Bedford Facility has historically utilized several above ground storage tanks (ASTs) for storage of various materials including vehicle fuel and PCB-containing fluids. Those ASTs with documented, or suspected releases, have been classified as AOIs. These include: Former Used Hydraulic Fluid ASTs; Used Mineral Oil AST Release; and Temporary Diesel AST Release. The locations of these former ASTs can be found on Drawing No. 1, Appendix H.

Former ASTs used for containing hydraulic fluid were located in three bermed areas. The WWTP concrete holding basin (Aeration Basin) currently covers most of one of the former bermed areas; the second former bermed AST area is lies at the current location of the Calgon Building and Surge Basin; and, the third former bermed AST area is located within the currently bermed containment for the one-million gallon AST.

In February 1977, a release of used mineral oil hydraulic fluid was discovered from an AST located west of the Die Cast Building. The spill and surrounding asphalt were removed between March and June 1977 to the satisfaction of the Indiana Stream Pollution Board.

In October 2000, a diesel fuel release occurred when one of the support legs failed from a temporary AST. This area was subsequently excavated and is currently covered with gravel. The location of the October 2000 spill can be found on Drawing No. 1, Appendix H.

The subsurface conditions at these locations for AOI 11 can be seen on geologic cross-sections D-D', L-L', and M-M' (Figures 3.14, 3.22, and 3.23). Thickness of overburden and the top of bedrock elevation contours can be seen on Figures 3.5 and 3.6, respectively. All soil boring logs are presented in Appendix A.

One surface soil sample (SS-X030Y111) was collected at the former used mineral oil hydraulic fluid release. There were no exceedances of the screening levels at this location. The results of the screening are presented on Drawing No. 2, Appendix H; Study Area 1.

One surface soil sample (SS-X145Y106) was collected at the location of the October 2000 diesel fuel release. There were no exceedances of the screening levels at this location. The results of the screening are presented on Drawing No. 3, Appendix H; Study Area 2.

Four soil borings (B-X219Y095, B-X223Y097A, B-X223Y097B, and B-X225Y077) and two monitoring wells (TMW-X225Y080 and MW-X225Y080S) were installed within the two southern most, former used hydraulic fluid AST bermed areas. In addition, three soil borings (B-X204Y111A, B-X204Y111B, and B-X204Y111C) were completed as near as possible to the northern-most, former bermed area. Soil analytical results from these locations indicated that arsenic and PCBs exceeded the site screening criteria in at least one sample. Arsenic was detected above the screening level of 16.0 mg/kg (after subtracting the calculated site background level of 10.0 mg/kg for surficial soil) at soil boring B-X223Y097B (5-6 feet bgs) and at B-X219Y096 (8-9 feet bgs) at concentrations of 27.8 mg/kg and 44.2 mg/kg, respectively. Total PCBs exceeded the screening levels at one location (two depths); soil boring B-X219Y095 exhibited total PCB concentrations of 699 mg/kg and 152 mg/kg from depths of 8 feet bgs to 9 feet bgs and 13 feet bgs to 14 feet bgs, respectively. The results of the screening are presented on Drawing No. 4, Appendix H; Study Area 3.

Based on the results from soil samples collected at AOI 11 and at AOI 8, it appears that additional delineation of PCBs in soil is warranted.

5.3.12 AOI 12 – AREA AFFECTED BY THE RECLAIMED HYDRAULIC FLUID RELEASE

A release of reclaimed hydraulic fluid occurred when a tanker ruptured adjacent to the Die Cast Building (Drawing No. 1, Appendix H).

Two surface soil samples (SS-X124Y115 and SS-X134Y098) were collected from immediately below the asphalt at this AOI. There were no exceedances of the screening levels at either location. The results of the screening are presented on Drawing No. 3, Appendix H; Study Area 2.

No additional data are required to assess this AOI.

5.3.13 AOI 13 – UNDERGROUND STORAGE TANKS

Seven underground storage tanks (USTs) have been utilized at the Facility for the storage of vehicle fuel and ethyl silicate. These USTs were installed between 1950 and 1977 and were removed between 1991 and 1994. Closure reports for the removal of the USTs have been submitted to the IDEM. These former USTs were located in two separate locations; the Oil House area and the south Piston Yard area.

One surface soil sample (SS-X145Y106) was collected at the south Piston Yard area to confirm current conditions, as indicated in the closure report filed with IDEM. Laboratory analytical results indicated that there were no exceedances of the screening criteria at this location. The results of the screening are presented on Drawing No. 3, Appendix H; Study Area 2.

No additional data are required to assess this AOI.

5.3.14 AOI 14 – MCBRIDE COWS DISPOSAL AREA

In April 1978, GM purchased and euthanized 91 head of cattle from the McBride dairy farm located along Bailey's Branch of Pleasant Run Creek, into which GM discharged its treated wastewater. The cattle had been exposed to PCBs and subsequent testing of the cattle indicated the presence of PCBs in the milk and fat. Documentation indicated that the cattle were properly disposed in accordance with Indiana Code IC-2.1-16-20. Euthanized cattle were placed in a prepared pit where the sidewalls and bottom were plastic-lined and the cattle were covered with 4 feet to 6 feet of clay (Drawing No. 1, Appendix H).

Nine soil borings (B-X253Y329A through H, and B-X254Y336) were advanced in the area believed to be where the cattle were buried. One soil sample (B-X252Y329H from 10-11 feet bgs) was collected from within the former disposal area and one soil sample (B-X254Y336 from 3-3.5 feet bgs) was collected from outside of the former disposal area. Both samples were analyzed for PCBs only. There were no exceedances of the screening criterion of 7.4 mg/kg.

The nine borings were utilized to verify subsurface conditions in this area. All borings were completed to the bedrock surface, where refusal was encountered. Subsurface conditions generally consisted on 12 feet to 13 feet of clay fill material within the disposal area and approximately 4 feet to 5 feet of native clay outside of the disposal area. The clay fill material generally consisted of brown, soft (medium plasticity) clay

with a trace of silt. Grey, white, and black layering was noted in several borings advanced through the fill area. One boring indicated a trace of trash encountered within the disposal area. A 6-inch layer of sand was encountered immediately above the bedrock at the eastern limit of the disposal area. A stiff, reddish-brown to strong brown clay with a trace of silt was encountered outside of the disposal area and immediately above the weathered bedrock surface.

Figures 5.2 and 5.3 show the overburden thickness and bedrock surface elevation at this AOI, respectively. It can be seen from these figures, that there is a relatively steep slope to the bedrock surface along the northern disposal limit and a gentler slope to the south. All soil boring logs are presented in Appendix A. The results of the screening are presented on Drawing No. 7, Appendix H; Study Area 6.

The concentrations of PCB in soil did not exceed the screening levels for this project. No additional data are required to assess this AOI.

5.3.15 AOI 15 – FORMER EQUIPMENT STORAGE AREA

A review of historical photographs, aerials, drawings and interviews with Facility personnel identified a former Equipment Staging Area located on the east side of GM Drive, north of the former North Lagoon. See Drawing No. 1, Appendix H for the location. This AOI sits upon AOI 4 (Former North Disposal Area) and was described under Section 5.3.4 of this TM.

5.3.16 AOI 16 – FORMER EAST ELECTRICAL SUBSTATION

An electrical substation was located west of the aeration basin on the east side of GM Drive (Drawing No. 1, Appendix H). As this property is actually owned by Cinergy Corp. of Cincinnati, Ohio, no samples were collected at this location. One soil boring (B-X189Y122) was advanced approximately 40 feet to the north of this area, and was described under Section 5.3.6 of this TM.

5.3.17 AOI 17 – PISTON BUILDING OIL ACCUMULATIONS

In late 1977, oil accumulations were identified in a ditch along the west side of the current Piston Building (Drawing No. 1, Appendix H).

Two soil borings (B-X107Y151 and B-X123Y129) were advanced to the bedrock surface in this area. The subsurface conditions consisted of 23.5 to 33.5 feet of overburden (clay fill underlying approximately one foot of gravel fill at the surface). Geologic conditions are presented on cross-sections B-B', C-C', and H-H' (Figures 3.12, 3.13, and 3.18).

Analytical results from soil samples collected within this AOI indicated that no parameters exceeded the screening levels. The results of the screening are presented on Drawing No. 3, Appendix H; Study Area 2.

No additional data are required to assess this AOI.

5.3.18 AOI 18 – AREA AFFECTED BY THE HENRY SYSTEM DISCHARGE

On April 7, 1986, wastewater from the Henry System, formerly located inside the Piston Building, was discharged onto a concrete slab south of the building. The discharge entered a storm sewer and flowed down the steps leading into the WWTP (Drawing No. 1, Appendix H). The Henry System is located in the southern portion of the Piston Building.

Two surface soil samples (SS-X149Y126 and SS-X154Y117) were collected from this AOI. The sample from SS-X149Y126 was collected from immediately below the concrete and undercoarse materials. Total PCBs were detected at a concentration of 19.2 mg/kg from SS-X154Y117, which exceeded the screening level of 7.4 mg/kg. No other parameter exceeded the screening levels from these two locations. The results of the screening are presented on Drawing No. 3, Appendix H; Study Area 2.

Additional data will be collected to determine the vertical and lateral extent of PCBs in soil near existing soil boring SS-X154Y177.

5.3.19 AOI 19 – AREA AFFECTED BY PAINT AND THINNER SPILL

In May 1990, spent thinner and paint was spilled on the ground surface north of the concrete pad on the outside of the Paint and Thinner Storage Area at the Oil House (Drawing No. 1, Appendix H).

One soil boring (B-X096Y195) was advanced to the bedrock surface at this location. Three soil samples were collected from this boring and analyzed for TCL VOCs and PCBs only. The results from these samples indicated that there were no exceedances of

screening levels. The results of the screening are presented on Drawing No. 3, Appendix H; Study Area 2.

Subsurface conditions encountered during drilling at this AOI are similar to those described at AOI 2 (Section 5.3.2).

No additional data are required to assess this AOI.

5.3.20 AOI 20 – NORTHERN PORTION OF THE PISTON BUILDING

The Manifold Department was located in the northern portion of the current Piston Building (Drawing No. 1, Appendix H). Plant records indicated that there may have been releases of cooling water and oily substances in 1990 from this area.

One surface soil sample (SS-X120Y177) was collected immediately below the concrete floor and undercourse materials. There were no exceedances of screening levels from this sample. The results of the screening are presented on Drawing No. 3, Appendix H; Study Area 2.

No additional data are required to assess this AOI.

5.3.21 AOI 21 – FILLED RAVINE NORTH OF DIE CAST BUILDING

Reviews of historic photographs (1945) indicate that a ravine existed north of the current Die Cast Building. It appeared that filling activities occurred and drums appeared to had been stored in this area. See Drawing No. 1, Appendix H for the location of the former ravine. In addition, recently found historical figures indicate that this ravine was connected to a drainage feature which extends to the northeast across the current Hourly Parking Lot. The drainage feature appears to have once been connected to the current drainage feature that exists north of AOIs 4 and 15. Other drainage features, which appear to begin on the Plant property, were also indicated on these figures. One such feature appears to originate just north of the ravine shown in the 1945 photograph and appears to have at one time been connected to the Northern Tributary located across Breckenridge Road (it is currently filled at the Plant property and a portion is filled across the road). Also, the figures indicate a former drainage feature located just to the northeast of the Piston Building. This feature appears to have been connected with the Former Stormwater Pond (AOI 7) and is currently filled.

Five soil borings (B-X045Y172, B-X049Y198, B-X059Y160, B-X075Y183A, and B-X075Y183B) and three monitoring well locations were advanced in the area shown on the 1945 photographs. Each of the soil borings was advanced until refusal was encountered at the bedrock surface. One monitoring well (TMW-X033Y147) was installed in the overburden along the western extent of the property where saturation was encountered. Two additional monitoring wells (MW-X033Y147S and (MW-X033Y147D) were installed within the bedrock, as part of the perimeter groundwater investigation.

Subsurface conditions in this area generally consists of brown to dark grey to black, fine grained, poorly sorted sand fill underlying the concrete/asphalt and ranging in thickness from approximately 8.5 feet to approximately 20 feet. Immediately underlying the sand fill layer is a soft, brown clay with a trace of silt fill layer. Along the western extent of this AOI, the underlying clay is not present and the sand fill layer is present to the top of the bedrock surface. At the location of monitoring well nest MW-X033Y147S/D, the clay fill underlying the sand fill is layered with lenses of silt and a possible limestone mill block immediately above the surface of the bedrock. Figure 3.5 shows that the overburden thickness increases to the west of this AOI. Geologic cross-sections A-A', B-B', F-F', 3-3', and 4-4' cover borings completed within AOI 21 (Figures 3.11, 3.12, 3.16, 3.26, and 3.27).

Analytical results from soil samples collected within this AOI indicated only one parameter at one location exceeded the screening levels, as well as the calculated background for surficial soil. Arsenic was detected in soil at a concentration of 6.1 mg/kg (parent) and 29 mg/kg (duplicate) at soil boring B-X049Y198 (36-38 feet bgs). The screening level for arsenic is 16.0 mg/kg and the background concentration was calculated to be 10.0 mg/kg. The results of the screening are presented on Drawing No. 3, Appendix H; Study Area 2.

Prior to obtaining the recently discovered figures (as indicated above), three soil borings (B-X080Y210, B-X097Y232, and B-X130Y215) were advanced in the current hourly parking lot, located to the north of the Die Cast and Piston Buildings (Drawing No. 1, Appendix H). These borings were completed to investigate the potential of foundry sand, which had been reportedly used as fill material at this location. Each boring was advanced until refusal was encountered at the bedrock surface. Based on the new figures, it appears that the former drainage feature was missed in the placement of these borings.

The subsurface conditions beneath the parking lot consisted of 0.5 feet to approximately 6 feet of sand and gravel fill material immediately underlying the asphalt parking lot. A

soft, brown clay with a trace of silt fill material underlies the sand and gravel and is present to the bedrock surface. The thickness of the overburden beneath the parking lot ranges from 19.5 feet to approximately 34.5 feet (Figure 3.5). Based on the bedrock surface elevation contours, it appears that the bedrock valley extends from AOI 4 to beneath the hourly parking lot (Figure 3.6). No foundry sand was encountered during the advancement of these three borings.

Analytical results indicated that no parameter exceeded the screening levels at the three locations beneath the current parking lot. The results of the screening are presented on Drawing No. 3, Appendix H; Study Area 2.

Additional investigation will be completed to assess the historical drainage features to the north, northeast (Hourly Parking Lot), and east (northeast of the Piston Building) that are currently filled.

5.3.22 AOI 22 – TOOL ROOM ANNEX DOCK RELEASE

A spill of Peerless Spray Kleen 901-1 occurred on March 21, 2000, at the Tool Room Annex Dock. The release extended along the dock and to the adjacent bare rail bed located to the west of the Die Cast Building. The location of the release is shown on Drawing No. 1, Appendix H.

One surface soil sample (SS-X031Y124) was collected from the rail bed to verify cleanup efforts undertaken by GM personnel at the time of the release. No organic compounds were detected within this sample. However, two metals (antimony and lead) were detected at concentrations which exceeded the screening levels (after subtracting the calculated background concentrations for surficial soil for this project). Concentrations of antimony (1,410 mg/kg) and lead (10,600 mg/kg) exceeded the screening levels of 410 mg/kg and 750 mg/kg, respectively. The background concentrations for antimony and lead were calculated to be 1.01 mg/kg, and 19.3 mg/kg, respectively. The results of the screening are presented on Drawing No. 2, Appendix H; Study Area 1.

Additional data will be collected to assess the vertical and horizontal distribution of antimony and lead in this area.

5.3.23 AOI 23 – AREA AFFECTED BY THE 1996 WASTEWATER TREATMENT FILTER CAKE RELEASE

In October 1996, a release of filter cake waste liquid occurred on a gravel surface outside of the Sludge Building (Drawing No. 1, Appendix H).

One surface soil sample (SS-X203Y066) was collected from immediately below the gravel fill surface at this location. Analytical results indicated that no parameter exceeded the screening levels at this AOI. The results of the screening are presented on Drawing No. 4, Appendix H; Study Area 3.

No additional data are required to assess this AOI.

5.3.24 AOI 24 – AREA AFFECTED BY THE JUNE 2000 DIE LUBE 5150 RELEASE

A release of Die Lube 5150 (used on the die cast forms to allow for release of the parts) occurred near the Receiving Office in the Die Cast Building. See Drawing No. 1, Appendix H for the location of AOI 24.

Two surface soil samples (SS-X045Y114A and SS-X048Y112) were collected from immediately below the concrete floor and undercourse materials. In addition, one soil boring (mislabeled as SS-X045Y114B) was advanced slightly deeper at this AOI. A soil sample from 10 feet bgs to 12 feet bgs was collected at this boring location.

Analytical results did not reveal any parameter from these three samples which exceeded the screening levels. The results of the screening are presented on Drawing No. 2, Appendix H; Study Area 1.

No additional data are required to assess this AOI.

5.3.25 AOI 25 – OFF-SITE FILL AREA – PARCEL 398

This area consists of an open field covering approximately five acres, located along Breckenridge Road, just west of the Facility. This area has been designated as Parcel 398 and is under private ownership (refer to Figure 1.3).

The current owner of this parcel believes that this land was once low-lying and that GM had placed material at this location. During the installation of a water line by the City of Bedford utilities department through this area, it was observed that fill material did exist. Subsequently, GM performed a surface geophysical survey which identified several anomalous areas. The RFI Work Plan Addendum No. 4 (CRA, March 3, 2004) recommended several proposed test pits to be completed on this property to identify the nature of the fill materials and the anomalous geophysical responses.

5.3.26 AOI 26 – OFF-SITE FILL AREA – PARCELS 384/386

AOI 26 is located across from the entrance to the Facility on Breckenridge Road. This AOI appears to originally have been an extension of the northern tributary which appears to have been filled. Several sources have identified this area as having been filled by Facility activities. Currently, the area is grassy and is vacant.

GM completed a surface geophysical survey of this area during this investigation and identified several anomalous responses. The RFI Work Plan Addendum No. 4 (CRA, March 3, 2004) recommended several proposed test pits to be completed on this property to identify the nature of the fill materials and the anomalous geophysical responses.

5.3.27 AOI 27 – OFF-SITE FILL AREA – PARCELS 381/382

This AOI is located immediately adjacent to AOI 26 and was reportedly an area that was used to recycle materials from the GM Facility and portions of the property were reportedly filled with materials from the Facility.

GM completed a surface geophysical survey of this area during this investigation and identified several anomalous responses. The RFI Work Plan Addendum No. 4 (CRA, March 3, 2004) recommended several proposed test pits to be completed on this property to identify the nature of the fill materials and the anomalous geophysical responses.

5.3.28 AOI 28 – OFF-SITE FILL AREA – PARCEL 401

This AOI is located immediately north of the Former North Disposal Area (AOI 4) and the Former Equipment Storage Area (AOI 15) and is not currently owned by GM.

Historical information indicates that the configuration of the surface water drainage, currently located just south of this parcel, originally cut through the southeast corner. The property was reportedly filled with material from the GM Facility and other source over several years.

Currently, GM is completing soil excavation activities at this AOI under the Removal Action Order. This work was based on confirmation sampling and subsequent test pits completed to determine the extent of PCBs within the fill material. No additional work under the RFI is proposed for this AOI.

5.3.29 AOI 29 – OFF-SITE FILL AREA – PARCEL 39

A relatively small area located near the abandoned Murdock Rail Station and within Parcel 39, was identified as historically having received fill material from the GM Facility.

GM completed a surface geophysical survey of this area during this investigation and identified several anomalous responses. The RFI Work Plan Addendum No. 4 (CRA, March 3, 2004) recommended several proposed test pits to be completed on this property to identify the nature of the fill materials and the anomalous geophysical responses.

5.3.30 OTHER SOIL SAMPLING

Soil samples were collected at the location of the former Henry System (LaSalle Units), within the southern portion of the Piston Building. This area had not been previously identified as an AOI, based on the historical records reviewed. Soil samples were collected in accordance with the RFI Work Plan and were described in the RFI Work Plan Addendum #1 (CRA, November 18, 2002).

LaSalle Units

One soil boring (B-X137Y132) was advanced near a location where Plant personnel had obtained a suspect concrete wipe sample result for PCBs. This location was inside of the Piston Building, adjacent to the former Henry System (Drawing No. 1, Appendix H). This boring was extended until refusal was encountered at the bedrock surface.

The subsurface conditions at this boring consisted of approximately 4 feet of sand and gravel fill material immediately below the floor of the Piston Building. Immediately underlying the sand and gravel fill lies a soft, brown clay fill with traces of silt and gravel. This clay unit was present to the surface of the bedrock at approximately 24 feet below the floor.

The laboratory analytical results indicated that there were no parameters that exceeded the screening levels at this location. The results of the screening are presented on Drawing No. 3, Appendix H; Study Area 2.

No additional data are required to assess this area.

NAPL Investigation

In May 2002, a dense, non-aqueous liquid (DNAPL) oil was discovered within the creek bottom near the existing Outfall 002 after a period of heavy rainfall. The DNAPL was observed to be exiting the bedrock creek bottom at the location of a known seep and was immediately contained, removed, and appropriately disposed. In order to determine a possible source for the DNAPL, several borings were advanced between the Plant and the Outfall area, as described in the RFI Work Plan Addendum No. 1. Containment and cleanup of this area is currently on-going.

A series of two vertical wells (MW-X220Y088S and MW-X233Y087S) were completed in the vicinity of the existing Calgon Building as part of this NAPL investigation and additional delineation of AOI 8. Also, in the vicinity of the one million gallon ASTs, the overburden and bedrock were further investigated through the advancement of five additional borings. CRA advanced three borings (B-X209Y078A/B/C) to bedrock within the former footprint of the removed one million gallon AST. One boring was later re-drilled and advanced into the bedrock as a shallow monitoring well (MW-X209Y078S). Soil samples collected indicate that no result exceeded the screening levels. Two additional borings were advanced northeast of the existing one million gallon AST (MW-X225Y080S and TMW-X225Y080). Monitoring well MW-X225Y080S is completed within the shallow bedrock, while TMW-X225Y080 was completed within the overburden due to the presence of groundwater during the drilling activity. Again, soil analytical results indicate no contaminants of concern above the screening levels.

To further characterize the transport of NAPL within the bedrock in the vicinity of Outfall #002, a series of shallow bedrock monitoring wells were installed at a 30-degree angle (to vertical) as part of the RFI Work Plan Addendum No. 1. These wells are located along a line perpendicular to the flow of the stream at Outfall #002. At each well

location a steel casing was grouted approximately two feet into the bedrock. The bedrock was further advanced through the upper weathered rock utilizing the HQ wet coring method until competent rock was encountered. A series of fifteen angle-monitoring wells were completed east of the aeration tank (at 10 locations in total). The borings were completed on an angle of 30-degrees from vertical (extending to the east) to increase the chance in locating any vertical fractures that might be present. Five of the 10 monitoring well locations were completed as well nests (shallow and deep wells completed next to each other). The monitoring wells that have been installed in a north-south alignment (MW-X242Y060, MW-X233Y071A/B, MW-X233Y095, MW-X233Y100, MW-X233Y105A/B, MW-X233Y110A/B, MW-X233Y115A/B, MW-X233Y120A/B, and MW-X233Y125A/B). The monitoring well nests were completed because either a substantial loss of drilling fluids through the shallow bedrock fractures occurred during drilling, or because the presence of contaminant was noted during drilling (likely residual oil in the unsaturated zone). Therefore, many of the shallow wells within a well nest were completed above the water table and a nested monitoring well was installed deeper.

Thirteen (including one duplicate) soil samples were submitted to STL for laboratory analysis. Only arsenic from MW-X233Y115 (6-7 feet bgs) at a concentration of 27.3 mg/kg exceeded the screening level of 16.0 mg/kg (after subtracting the Site-Specific Background level of 10.0 mg/kg).

RFI Boundary

Additional soil samples were collected during installation of the groundwater monitoring wells around the perimeter of the Facility. For those locations that fell within, or near, an existing AOI, the results are discussed within the discussion of that particular AOI previously. The following monitoring well locations, considered as RFI Boundary locations, are as follows: MW-X045Y258D, MW-X261Y356D, MW-X033Y147S, MW-X169Y058S, MW-X178Y367D, MW-X234Y157D, and MW-X269Y201D.

Two sample locations exceeded the screening level for PCBs of 7.4 mg/kg. The parent sample (MW-X234Y157D, 0-2 feet bgs) exhibited a concentration of 17.2 mg/kg and the duplicate sample from the same interval exhibited a concentration of 19.7 mg/kg. The surface soil sample collected from MW-X045Y258D (0-2 feet bgs) exhibited a PCB concentration of 58.5 mg/kg (parent) and 4.18 mg/kg (duplicate). No other parameters exceeded any of the screening levels for this group. The location of monitoring well MW-X045Y258D was initially chosen as a background location. However, upon the collection of the initial soil sample it was determined that this area had potentially been filled and the result was excluded from the background data set.

Because of the discrepancy between the parent sample and the duplicate at the location of monitoring well MW-X045Y258D, additional surface soil samples were completed at and near this location. Five surface soil samples (BK-X045Y258, SS-X062Y257, SS-X065Y254, SS-X065Y260, and SS-X065Y256) were collected to delineate the extent of PCBs. Analytical results from the replicate sample (SS-X065Y256) and from the surrounding samples were all below the screening levels.

Parcel 217

Several soil samples were collected off-site at an adjacent property to the north of the Facility (Parcel 217). These samples were collected to investigate claims of historical filling and waste reclamation activities. Twenty-three soil borings were advanced which included the collection of 49 soil samples (including 5 duplicate samples) for analysis of TCL VOCs, SVOCs, PCBs, and TAL inorganics (minus earth metals). Screening of analytical results for this parcel was performed using screening levels appropriate for Residential land-use and background metals.

Analytical results from samples collected at Parcel 217 revealed exceedances of the Residential screening and background levels of three inorganic compounds (aluminum, arsenic, and copper). The exceedances of aluminum and copper came from one sample (B-809012-10 at 0-2 feet bgs) at concentrations of 95,700 mg/kg and 20,400 mg/kg, respectively. The Residential screening level for aluminum is 76,000 mg/kg and the background level is 14,200 mg/kg. The Residential screening level for copper is 3,100 mg/kg and the background level is 22.5 mg/kg. This sample consisted of a metallic substance that was at the ground surface at this location.

Arsenic exceeded the Residential screening level of 3.9 mg/kg and the background level of 10.0 mg/kg at 14 soil boring locations at varying depths. Concentrations of these arsenic exceedances ranged from 15.2 mg/kg to 36.6 mg/kg.

Groundwater-Surface Water Investigation

This section discusses activities that are in place to monitor surface water and nearby groundwater flow along Bailey's Branch and Pleasant Run Creek (completed as part of the RFI Work Plan Addendum No. 1). The flow monitoring is required to set up a hydraulic model of the Site and local creek system. Five stream monitoring stations are in place at the locations presented on Figures 5.4 to 5.8. Each stream monitoring station has a water level and water velocity recorder. Three locations were chosen to assist in

determining flow from the various creeks and tributaries. Rainfall stations were also installed for Site-specific data for the hydraulic modeling of the watershed.

A shallow piezometer (PZ08, PZ23, PZ31, PZ38, and PZ39) was installed near the location of each stream monitoring station (boring logs for each well can be found in Appendix A). The piezometer Ids reflect the Parcel number on which they are located. The purpose of these piezometers is to determine groundwater/surface water hydraulic characteristics. Each piezometer is installed in the vicinity of the stream gages, which monitor level and flow of the surface water throughout the creek system. The depth of each piezometer was completed at what was believed to be below the seasonal groundwater flow elevation. The results of this monitoring will be presented under separate cover.

Additional Site Monitoring Well

An additional perimeter monitoring well was installed on the eastern portion of Parcel 216 east of Bailey's Scale Road as part of the RFI Work Plan Addendum No. 1. This monitoring well (MW-X297Y305D) was constructed in the same manner as the existing wells in that it is designed as per the Waterloo Multi Well System with two sample ports. Appendix A contains the boring logs. Soil samples were not collected at this location due to the shallow presence of bedrock. The results of the straddle-packer testing can be found in Appendix F).

5.4 SURFACE GEOPHYSICAL RESULTS

The results of the surface geophysical surveys completed at on and off-site locations are presented in Appendix G. These results culminated in the selection of several proposed test pits, as presented in the *RCRA Facility Investigation Work Plan: Addendum No. 4 (CRA, March 2004)*.

5.5 GEOTECHNICAL TESTING RESULTS

5.5.1 SITE WIDE

During completion of soil borings across the site, several soil samples were collected and submitted to Schleede-Hampton Associates, Inc. (SHA) for analysis of geotechnical properties.

Table 5.6 presents a summary of the testing results for all samples submitted to SHA. Appendix B1 presents the report prepared by SHA.

Table 5.7 presents a summary of the bedrock geophysical core testing completed by Core Laboratories. In general the average porosity results for the high-pressure mercury injection testing were 8.6 percent for the St. Louis, 9 percent for the Salem, 5.4 percent for the Harrodsburg, and 23 percent for the Ramp Creek. Appendix B2 presents the final reports prepared by Core Laboratories.

5.5.2 AOI 4

A geotechnical evaluation was conducted on the Former North Disposal Area to evaluate slope stability for the potential placement of additional fill materials. The report is presented in Appendix I.

To further investigate the subsurface conditions of AOI 4 two-bedrock borings (B-X177Y252D and B-X233Y247D) were completed by CRA at an approximate angle of 30 degrees from vertical in order to increase the opportunity to identify vertical fractures and solution features. At the completion of each boring, straddle-packer testing was completed along the entire run of the open bedrock core. Upon completion of the testing the borings were then sealed with cement/bentonite grout and the outer casing removed to two feet below ground (the boring logs for these two borings can be found in Appendix A).

6.0 PRELIMINARY RISK EVALUATION OF ON-SITE SOIL

6.1 HUMAN HEALTH RISK EVALUATION

The significance of potential exposures to on-site soil via direct contact by routine workers, construction workers, and trespassers can be evaluated by estimating the cumulative cancer risk and noncancer hazard index (HI) and comparing them with levels that the U.S. EPA has established as trigger for requiring corrective measures. According to U.S. EPA policy, corrective measures are not warranted when the site-related cumulative cancer risk and noncancer HI do not exceed 10^{-4} or 1, respectively (61 FR 19432, May 1, 1996; OSWER Directive 9355.0-30 1991). To evaluate the health significance of the chemical concentrations in soil and sediment, the risk estimates are based on the conservative exposure factors that are used to derive the U.S. EPA Region 9 Preliminary Remediation Goals (PRGs) for soil at industrial sites.

Table 6.1 shows the bounding estimates of the reasonable maximum exposure (RME) cumulative cancer risk and HI that are based on the maximum site-related concentrations detected at each AOI for soil samples. These estimates are considered bounding estimates because the RME risks for an area would be lower if concentrations representative of the area were used instead of maximum concentrations, and if site-specific exposure factors were used to account for the magnitude, frequency, and duration of exposures appropriate for the area. The cumulative cancer and noncancer risks at AOIs 1, 2, 7, 12, 14, 17, 19, 20, 21, 23, 24, and Background (for all chemicals including organics) do not exceed the acceptable cancer risk and noncancer HI limits of 10^{-4} and 1, respectively. The site-related risks and/or HIs at AOIs 4, 5, 6, 8, 9, 10, 11, 15, 18, 22, and RFI Boundary exceed the acceptable risk limits.

Table 6.2 shows the estimates of cancer risk and noncancer HI calculated for the background metals in soil (see Section 5.2). These estimates represent background levels of cancer and noncancer risk associated with exposure to background levels of metals in soil at the Facility. The risks associated with background metal concentrations are low relative to the risk limits, and are not included in the site-related risk estimates shown on Table 6.1.

The areas where the cumulative risk and/or HI exceed the risk limits are further evaluated based on 95 percent upper confidence limits (UCLs) on the mean concentrations, as explained in Section 5.2, for chemicals with maximum concentrations that have significant contributions to the cumulative cancer and/or noncancer risks. The results are shown in Table 6.3 for surface (0-2 feet bgs) soils and in Table 6.4 for depth-averaged (0-15 feet bgs) soils.

Table 6.3 shows the high-end estimates of the cumulative cancer risk and HI that are based on the maximum site-related concentrations detected in surface soil at each AOI for most chemicals and 95 percent surface UCLs for chemicals that contribute significantly to the total risks and have at least 8 data points. At several of the AOIs, concentrations of PCBs and a few metals at some locations are high enough that they had to be excluded from the risk calculations in order for the cumulative cancer and noncancer risk estimates to be within the acceptable limits. The locations that were excluded from the risk calculations, along with corresponding concentrations that contribute significantly to the upper-bound risks shown on Table 6.1, are listed on the table and discussed in Section 6.2. Further action (e.g., institutional control or limited excavation) is recommended to restrict or eliminate access to these locations. As shown on Table 6.3, the high-end estimates of cumulative cancer risk and HI at these AOIs do not exceed 10^{-4} or 1, respectively. This means that once the action is taken at the locations specified, there would be no unacceptable current exposure of routine workers and trespassers to surface soil at the Facility.

Table 6.4 shows the high-end estimates of the cumulative cancer risk and HI that are based on the maximum site-related depth-averaged concentrations detected at each AOI for most chemicals and 95 percent depth-averaged UCLs for chemicals that contribute significantly to the total risks and have at least 8 data points. At several of the AOIs, concentrations of PCBs and a few metals at some locations are high enough that they had to be excluded from the risk calculations in order for the cumulative cancer and noncancer risk estimates to be within the acceptable limits. The locations that were excluded from the risk calculations, along with corresponding concentrations that contribute significantly to the upper-bound risks shown on Table 6.1, are listed on the table and discussed in Section 6.2. Further action (e.g., institutional control or limited excavation) is recommended to restrict or eliminate access to these locations. As shown on Table 6.4, the high-end estimates of cumulative cancer risk and HI at these AOIs do not exceed 10^{-4} or 1, respectively, after these locations were excluded from the risk calculations. Further evaluation will be conducted to determine whether an Interim Measure is warranted at these locations.

6.2 SUMMARY OF AREAS REQUIRING FURTHER ACTION

Based on the results of the initial set of soil borings completed across the site and the preliminary human health risk evaluation (Section 6.1), the dominant constituents of concern at the site are PCBs. Most of the distribution of PCBs appears to be located to the east of GM Drive in three distinct areas and in isolated areas at the manufacturing

area located west of GM Drive. In addition, a few other isolated areas indicated exceedances of screening levels for several other parameters.

The distributions of chemicals in soil that contribute significantly to the upper-bound risks (Table 6.1) and the proposed actions at each of these areas are discussed in more detail in the following sections. On-site sediment and surface water that require further actions are addressed under the Site Source Control Work Plan.

6.2.1 EAST OF GM DRIVE

6.2.1.1 AREAS OF INTEREST 4 & 15

The surficial PCB concentrations at the boring locations MW-X143Y245D and B-X148Y233 (38 mg/kg and 30 mg/kg, respectively) contribute significantly to the upper-bound risks. No other surficial soil concentrations within AOIs 4 and 15 lead to the estimates of cumulative cancer risk and HI above the U.S. EPA's risk limits (Table 6.3).

PCB concentrations from the 6-8 feet bgs samples at the boring locations B-X243Y257, B-X193Y251, and B-X219Y249 (190 mg/kg, 86 mg/kg, and 25 mg/kg, respectively) and the mercury concentration from the 6-8 feet bgs sample at B-X177Y252D (30 mg/kg) contribute significantly to the upper-bound risks. No other depth-averaged soil concentrations within AOIs 4 and 15 lead to the estimates of cumulative cancer risk and HI above the U.S. EPA's risk limits (Table 6.4).

All of the soil samples described above are currently located beneath a paved surface (gravel at AOI 15) or beneath the existing landfill clay cap (AOI 4), and the extents of contamination at these locations are well defined. However, additional delineation of PCBs will be completed for soil samples collected at greater depths in order to support the development of an Interim Measure for this area. Also, the abandoned and filled quarry located just north of AOI 4 will be investigated.

6.2.1.2 AREAS OF INTEREST 5 & 6

Surficial soil PCB contamination at three separate areas within these AOIs contribute significantly to the upper-bound risks. The first area lies partially beneath the current salary parking lot and extends to the east into a grassy area (AOI 5). Surficial soil samples collected from borings B-X186Y180 and B-X200Y161. Surficial soil

concentrations of PCBs are 2,500 mg/kg and 560 mg/kg, respectively. However, the highest concentrations appear to be located below the pavement. Another area lies under the western edge of AOI 6, where PCBs were detected at a concentration of 1,600 mg/kg at boring B-X173Y131. The third area lies southeast of the paved parking lot within AOI 6. Surficial soil exhibited a PCB concentration of 1,400 mg/kg at the location of boring B-X204Y132.

For those areas that were not covered by pavement, a security fence was constructed around the paved parking lot as an interim measure to restrict access to these areas and the fire training area was relocated. No other surficial soil concentrations within AOIs 5 and 6 lead to the estimates of cumulative cancer risk and HI above the U.S. EPA's risk limits (Table 6.3).

Surface and subsurface soil contamination in four areas within these AOIs contribute significantly to the upper-bound risks. At AOI 5, the PCB concentrations which were shown to contribute most to the risk calculations are from boring B-X186Y180 at concentrations of 2,500 mg/kg (0-2 feet bgs) and 9,700 mg/kg (6-8 feet bgs); boring B-X200Y161 at concentrations of 560 mg/kg (0-2 feet bgs) and 330 mg/kg (9-11 feet bgs); boring B-X176Y143 at a concentration of 260 mg/kg (6-8 feet bgs); and from boring B-X186Y159 at a concentration of 110 mg/kg (6-8 feet bgs). At AOI 6, the PCB concentrations which were shown to contribute most to the risk calculations are from boring B-X218Y141 at concentrations of 2,500 mg/kg (0-2 feet bgs), 19,000 mg/kg (8-10 feet bgs), and 620 mg/kg (14-15.5 feet bgs); boring B-X173Y131 at a concentration of 1,600 (0-2 feet bgs); boring B-X204Y132 at a concentration of 1,400 mg/kg (0-2 feet bgs); boring B-X211Y169 at concentrations of 1,300 mg/kg (10-11 feet bgs) and 450 mg/kg (12-12.5 feet bgs); boring B-X183Y133 at a concentration of 800 mg/kg (3.5-4.5 feet bgs); and from boring B-X223Y150B at a concentration of 120 mg/kg (3-4 feet bgs). No other depth-averaged soil concentrations within these AOIs lead to the estimates of cumulative cancer risk and HI above the U.S. EPA's risk limits (Table 6.4).

The extents of PCBs in all of the areas described above are well defined. However, additional delineation of PCBs to support the development of an Interim Measure for this area for soil samples described above and for those collected at greater depths will be completed.

6.2.1.3 AREAS OF INTEREST 8 & 11

Soil samples from boring B-X193Y098 at PCB concentrations of 860 mg/kg (12-13 feet bgs) and 1,900 mg/kg (13-14 feet bgs); from boring B-X219Y095 at concentrations of 700

(8-9 feet bgs) and 150 mg/kg (13-14 feet bgs); and from boring B-X223Y097A at a PCB concentration of 190 mg/kg (6-8 feet bgs) were the sample results which contributed significantly to the upper-bound risks in these AOIs. This sampling accounted for the entire thickness of the overburden in this area. No other surficial and depth-averaged soil concentrations within these AOIs lead to the estimates of cumulative cancer risk and HI above the U.S. EPA's risk limits (Tables 6.3 and 6.4).

Additional delineation of PCBs to support the development of an Interim Measure for this area for soil samples described above will be completed.

6.2.2 WEST OF GM DRIVE

Four areas of soil contamination in surface and subsurface soil located west of GM Drive contribute significantly to the upper-bound risks.

For surface soil samples, PCBs at a concentration of 19 mg/kg (0-2 feet bgs) from sample SS-X154Y117 (AOI 18), and antimony at a concentration of 1,400 mg/kg (0-2 feet bgs) from sample SS-X031Y124 (AOI 22) were identified to contribute significantly to the upper-bound risks (Table 6.3). Additional delineation at each of these areas will be completed to determine the horizontal and vertical extent of contamination.

Subsurface soil concentrations of PCBs at two locations near the Service Tunnels (AOI 9) also contribute significantly to the upper-bound risks (Table 6.4). The first area is located under the South Die Cast Building and the second area is located under the North Die Cast Building. The PCB concentrations in soil, which contributed the most to the risk calculations, are from samples collected at boring B-X106Y102B at concentrations of 3,700 mg/kg (2-4 feet bgs) and 180 mg/kg (6-8 feet bgs); and from boring B-X059Y135B at a concentration of 120 mg/kg (2-4 feet bgs). Both of these areas are currently located beneath the manufacturing area of the Facility.

Additional investigative activities will be completed at these locations to support any future Interim Measure that may be required (e.g., dye trace testing).

6.2.3 OFF-SITE FILL AREAS

Additional investigation will be completed at AOIs 25, 26, 27 and 29, as described in the RFI Work Plan Addendum No. 4. This work will consist of completing several test pits

at locations of the surface geophysics anomalies. Additional work at AOI 28 is being addressed under the Removal Action, currently ongoing.

7.0 REFERENCES

Publications Cited:

Camp, M.J., and G.T. Richardson, 1999, Roadside Geology of Indiana, Mountain Press Publishing Company, Missoula, Montana.

Conestoga-Rovers & Associates (CRA), 2001a, Current Conditions Report, GM Powertrain, Bedford Plant, Bedford, Indiana.

- 2001b, RCRA Facility Investigation (RFI) Work Plan, GM Powertrain, Bedford Plant, Bedford, Indiana.
- 2002, RCRA Facility Investigation Work Plan Addendum No. 1, GM Powertrain, Bedford Plant, Bedford Indiana.
- 2003, RCRA Facility Investigation Work Plan Addendum No. 2, GM Powertrain, Bedford Facility, Bedford, Indiana.

Dragun, James and Andrew Chiasson. 1991. Elements in North American Soils. Hazardous Materials control Resources Institute, Greenbelt, Maryland.

Efron, B. and R. J. Tibshirani. 1998. An Introduction to the Bootstrap. Chapman & Hall/CRC, Boca Raton.

Etzel, J.E., 1982, Geological History of Bedford Plant Site Area, unpublished report provided to General Motors.

Fenelon, J.M., K.E. Bobay, et. al, 1994, Hydrogeologic Atlas of Aquifers in Indiana, U.S. Geological Survey, Water Resources Investigations Report 92-4142.

Frushour, S.S., D. Harper, and C.R. Dintaman, 2000, Map Showing Selected Subsurface Dye Traces in South-Central Indiana, Indiana University, Indiana Geologic Survey.

Gray, H.H., 1974, Glacial Lake Sediments in Salt Creek Valley near Bedford, Indiana, Department of Natural Resources, Geological Survey Occasional Paper 1.

- 1982, Map of Indiana Showing Topography of the Bedrock Surface, Indiana Geological Survey and Indiana Department of Natural Resources, Miscellaneous Map 36.
- 1983, Map of Indiana Showing Thickness of Unconsolidated Deposits, Indiana Geological Survey and Indiana Department of Natural Resources, Miscellaneous Map 37.

Gray, H.H., C.H. Ault, and S.J. Keller, 1987, Bedrock Geologic Map of Indiana, Indiana Geological Survey and Indiana Department of Natural Resources, Miscellaneous Map 48.

Hall, R.D., 1999, Geology of Indiana, 2nd Edition, Indiana University-Purdue University at Indianapolis, Center for Earth and Environmental Science and Department of Geology.

Hasenmueller, N.R., C.B. Rexroad, R.L. Powell, M. Buehler, and J.L Bassett, 2000, Karst Geology, Hydrology, and Water Quality in the Spring Mill Lake and Lost River Drainage Basins in Southern Indiana, Indiana Geological Survey, Open-File Study 99-10, Revised.

Hill, J.R., undated, The Geology of Indiana: A General Summary 1986, Geology of South-Central Indiana: A Cross Section, National Science Teachers Association, Indianapolis Area Convention.

Indiana Department of Environmental Management, Office of Water Management, Drinking Water Branch, 1997, Annual Compliance Report for Indiana Public Water Supply Systems, 1-5 p.

Melhorn, W.N., and N.M. Smith, 1959, The Mt. Carmel Fault and Related Structural Features in South-Central Indiana, Indiana Department of Conservation, Geological Survey, Report of Progress No. 16.

Nicoll, R.S. and C.B. Rexroad, 1975, Stratigraphy and Conodont Paleontology of the Sanders Group (Mississippian) in Indiana and Adjacent Kentucky, Indiana Geological Survey Bulletin 51. 36 p.

Palmer, A.N., 1969, A Hydrologic Study of the Indiana Karst, Ph. D. thesis, Indiana University.

Powell, R.L., 1966, Caves, Speleology and Karst Hydrology, Reprinted from The Indiana Sesquicentennial Volume NATURAL FEATURES OF INDIANA, Indiana Academy of Science, State Library, Indianapolis, Indiana.

- 1976, Some Geomorphic and Hydrologic Implications of Jointing in Carbonate Strata of Mississippian Age in South-Central Indiana, Ph.D. thesis, Purdue University.
- 2001, Personal Communication.

Rupp, J.A., 1991, Structure and Isopach Maps of the Paleozoic Rocks of Indiana. Indiana Geological Survey, Special Report 48.

United States Department of Agriculture (USDA), 1985, Soil Survey of Lawrence County, Indiana, Soil Conservation Service.

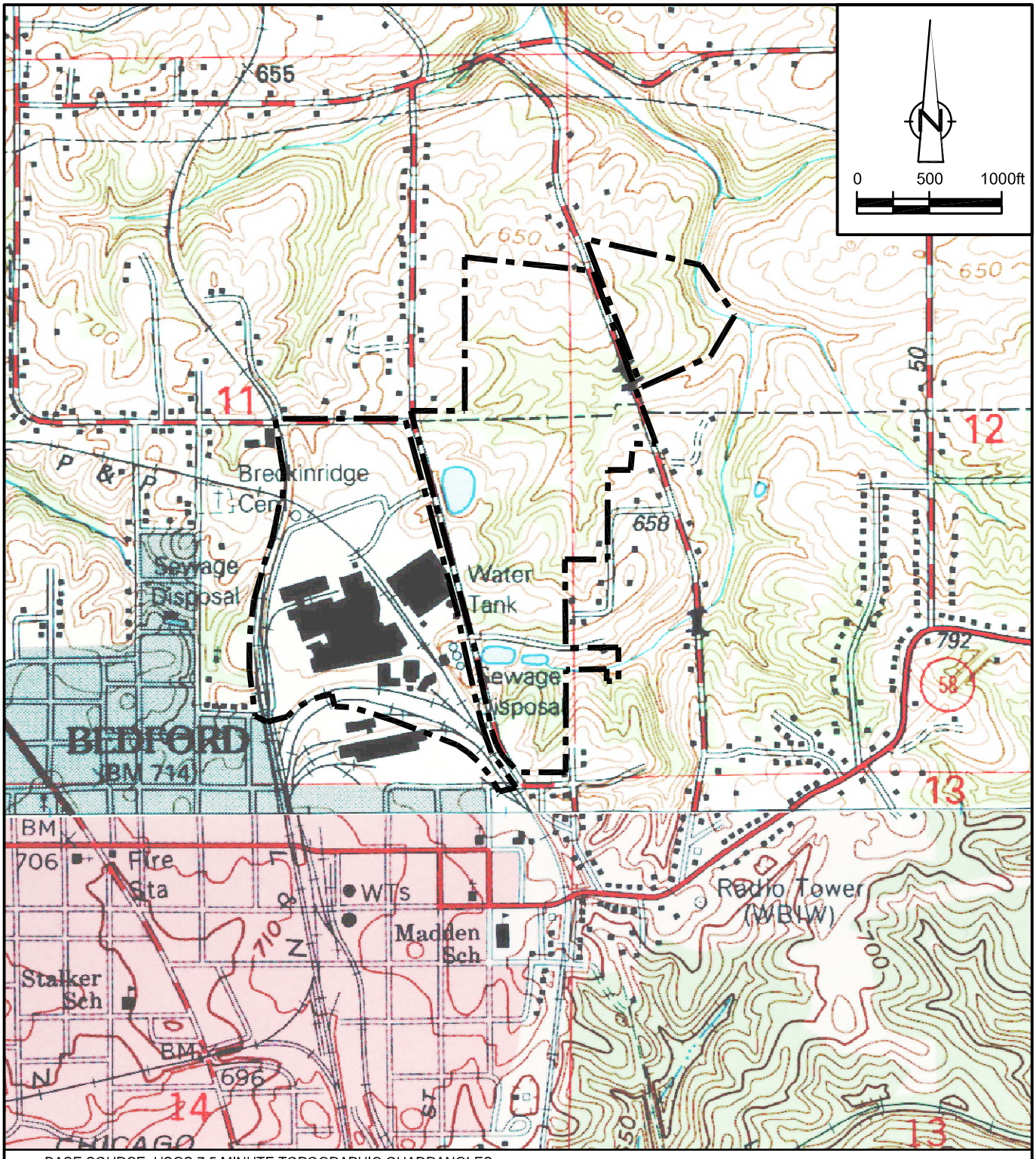
United States Department of the Interior (USDOI), 1990, The Earth Manual – Third Edition, Part 2, Bureau of Reclamation, Test Designation E-18.

Local Government Agencies Cited:

- Indiana Department of Environmental Management, Indiana Public Water System Database, http://www.ai.org/serv/idem_dwb_inventory, 2001.
- Indiana Department of Natural Resources, Division of Fish and Wildlife, http://www.state.in.us/dnr, 2001.
- Indiana Geological Survey, http://www.adamite.igs.indiana.edu/index.htm, 2001.
- Indiana State Board of Health, http://www.state.in.us, 2001.
- Indiana State Pollution Control Board, http://www.state.in.us, 2001.

Federal Government Agencies Cited:

- Federal Emergency Management Agency, http://www.fema.gov, 2001.
- National Climatic Data Center, http://www.ncdc.noaa.gov, 2001.
- National Oceanic and Atmospheric Administration, http://www.outlook.noaa.gov, 2001.
- U.S. Census Bureau, http://www.census.gov, 2001.
- U.S. Department of Agriculture, http://www.usda.gov, 2001.
- U.S. Department of Interior, http://www.doi.gov, 2001.
- U.S. Environmental Protection Agency, http://www.epa.gov, 2001.
- U.S. Fish & Wildlife Service, http://www.fws.gov, 2001.
- U.S. Geological Survey, http://www.usgs.gov, 2001.



BASE SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLES;
BARTLETTSVILLE, INDIANA 1994
BEDFORD EAST, INDIANA 1978
BEDFORD WEST, INDIANA 1993
OOLITIC, INDIANA 1987

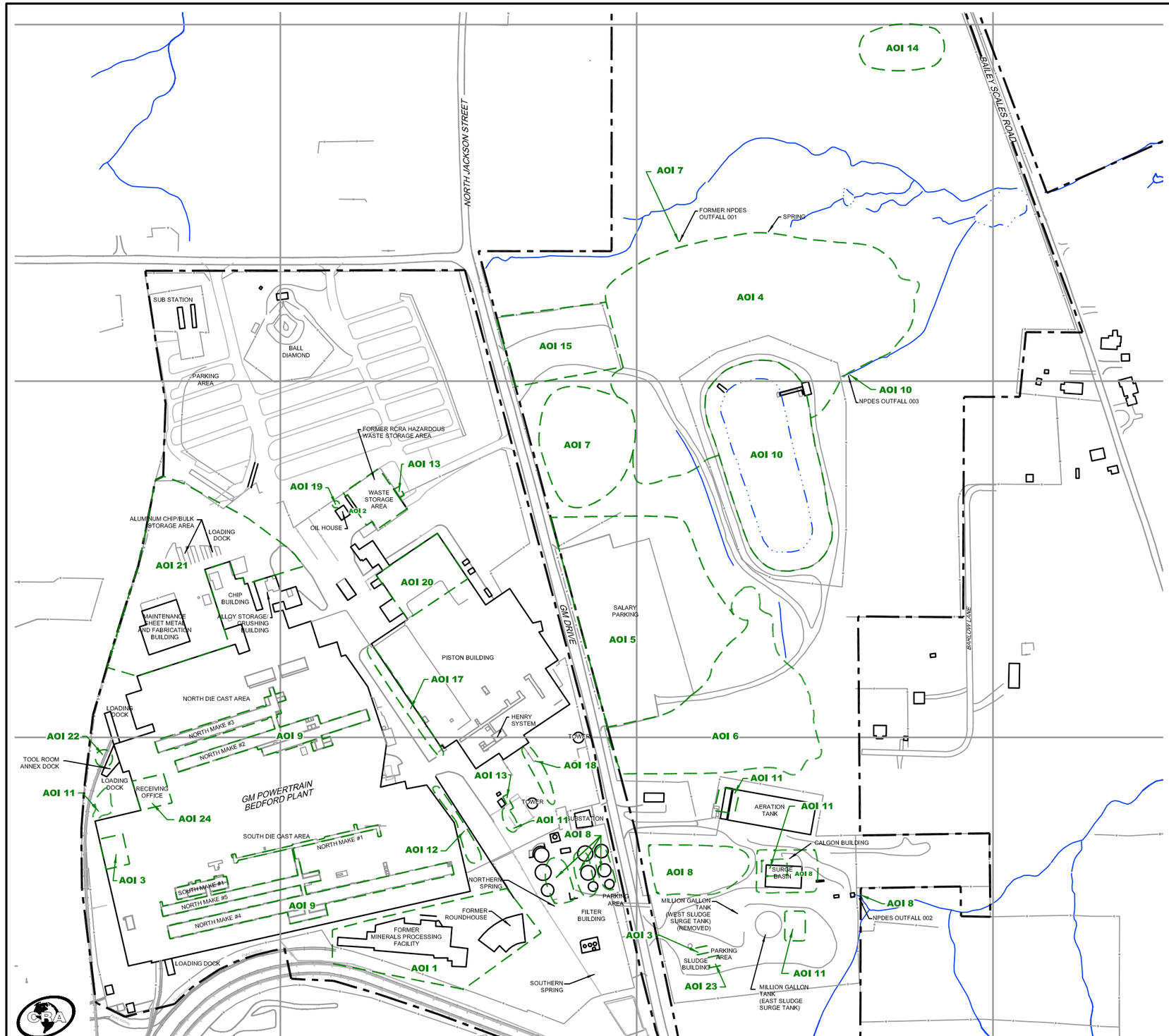


LEGEND

FACILITY BOUNDARY

figure 1.1

SITE LOCATION
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana



AOI SUMMARY

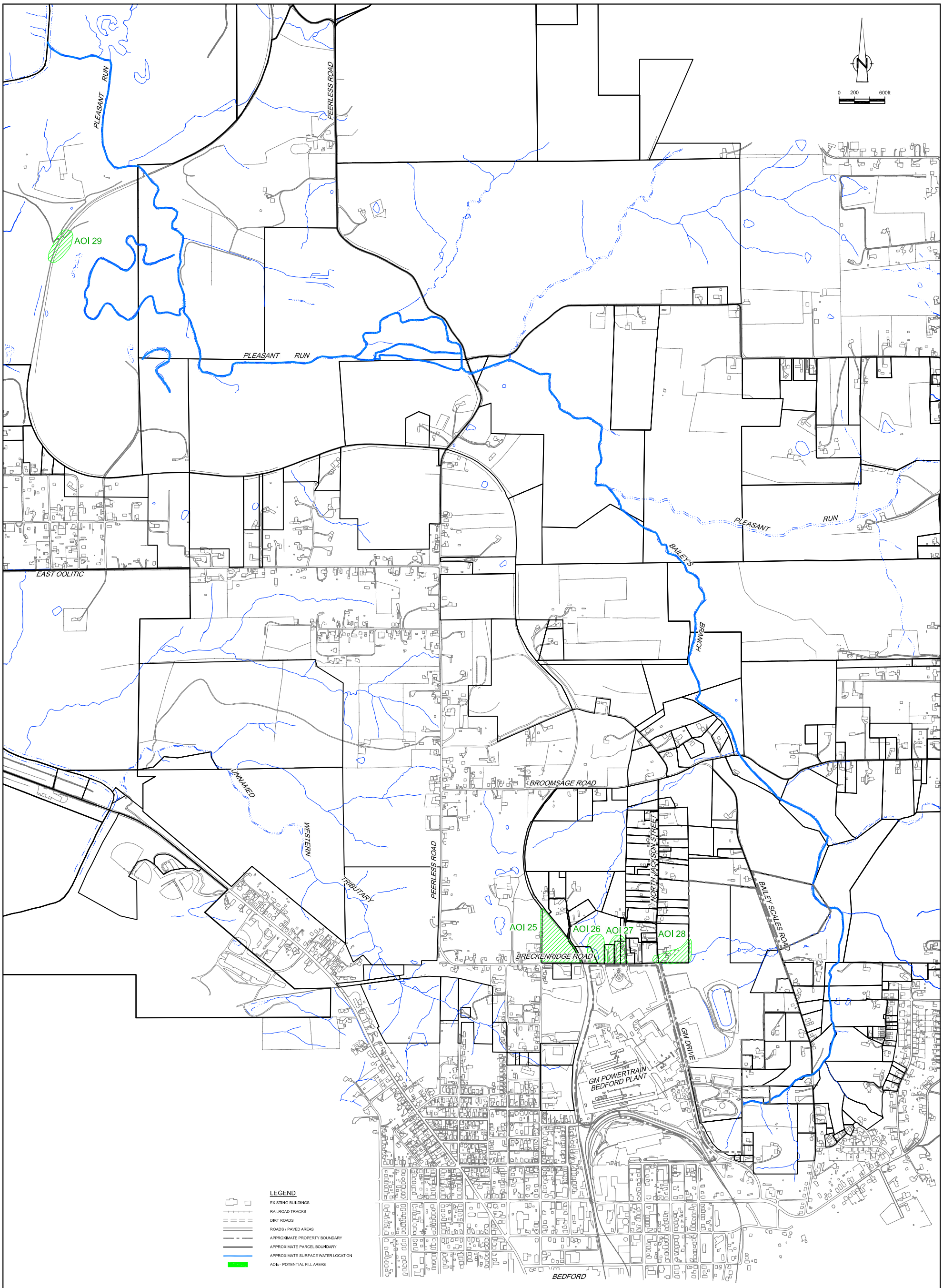
AOI ID Description

AOI 1 Former Railroad Operations and Minerals Processing Facility
AOI 2 Waste Storage Area
AOI 3 PCB Storage Areas
AOI 4 Former North Disposal Area
AOI 5 Former East Sand Disposal Area
AOI 6 Former Sludge Disposal and Fire Training Area
AOI 7 Former North Lagoon and Outfall 001
AOI 8 Former South Lagoons and Outfall 002
AOI 9 Service Tunnels
AOI 10 Existing Stormwater Lagoon and Outfall 003
AOI 11 Aboveground Storage Tanks
AOI 12 Area Affected by the Reclaimed Hydraulic Fluid Release
AOI 13 Underground Storage Tanks
AOI 14 McBride Cows Disposal Area
AOI 15 Former Equipment Storage Area
AOI 17 Piston Building Oil Accumulations
AOI 18 Area Affected by the Henry System Discharge
AOI 19 Area Affected by Paint and Thinner Spill
AOI 20 Northern Portion of the Piston Building
AOI 21 Filled Ravine North of Die Cast Building
AOI 22 Tool Room Annex Dock Release
AOI 23 Area Affected by the 1996 Wastewater Treatment Filter Cake Release
AOI 24 Area Affected by the June 2000 Die Lube 5150 Release

figure 1.2

SITE PLAN AND AOI LOCATIONS
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

13968-00(045)GN-WA053 APR 20/2005



NOTES:
(1) DATA COLLECTED AS OFNOVEMBER 13, 2002. DRAWING SUBJECT TO REVISION.
(2) POTENTIAL FILL AREAS NOT ON MAP: F - STALKER SCHOOL, K - SOUTH OF WHITE RIVER.

Nº	Revision	Date	Initial

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

GM POWERTRAIN BEDFORD PLANT
BEDFORD, INDIANA

OFF-SITE
AOIs LOCATION

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
BASE MAP COMPLETED BY AIR-LAND SURVEYS, FLINT, MI. APRIL 2001

Project Manager:	Revlewed By:	Date:	
J.M.	M.K.	MARCH 2004	
Scale: AS SHOWN	Project Nº: 13968-00	Report Nº: 045	Drawlng Nº: figure 1.3

13968-00(045)GN-WA076 APR 20/2005

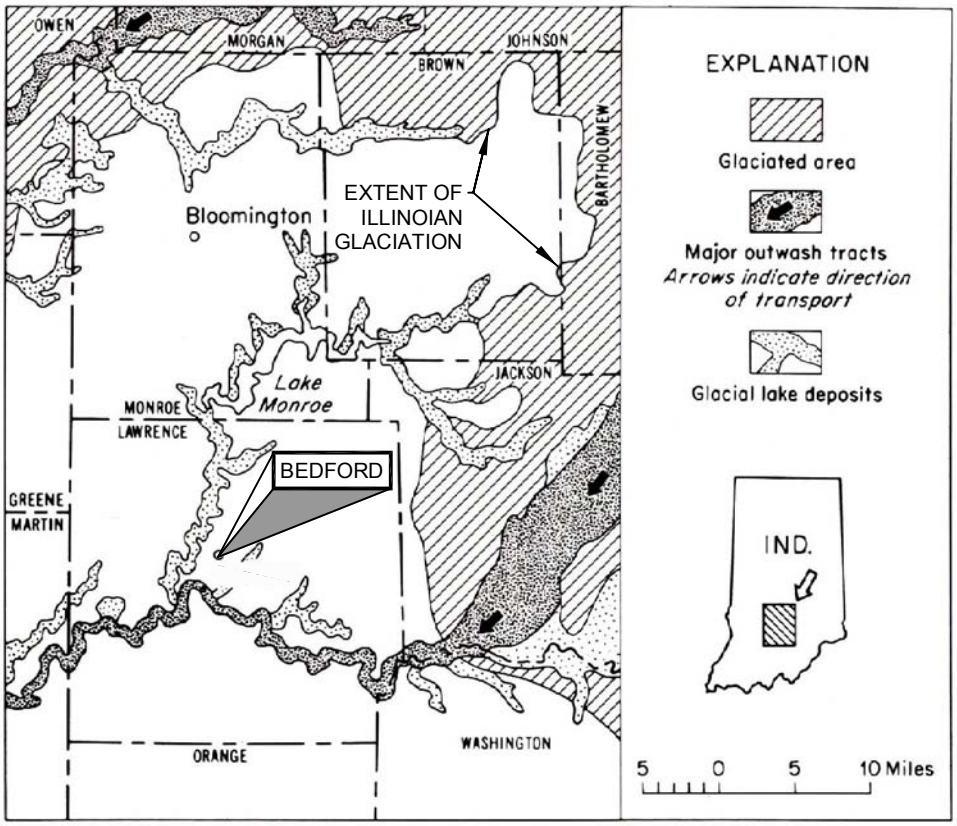


figure 3.1

GLACIAL FEATURES OF SOUTH-CENTRAL INDIANA
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

SOURCE: GRAY, 1974

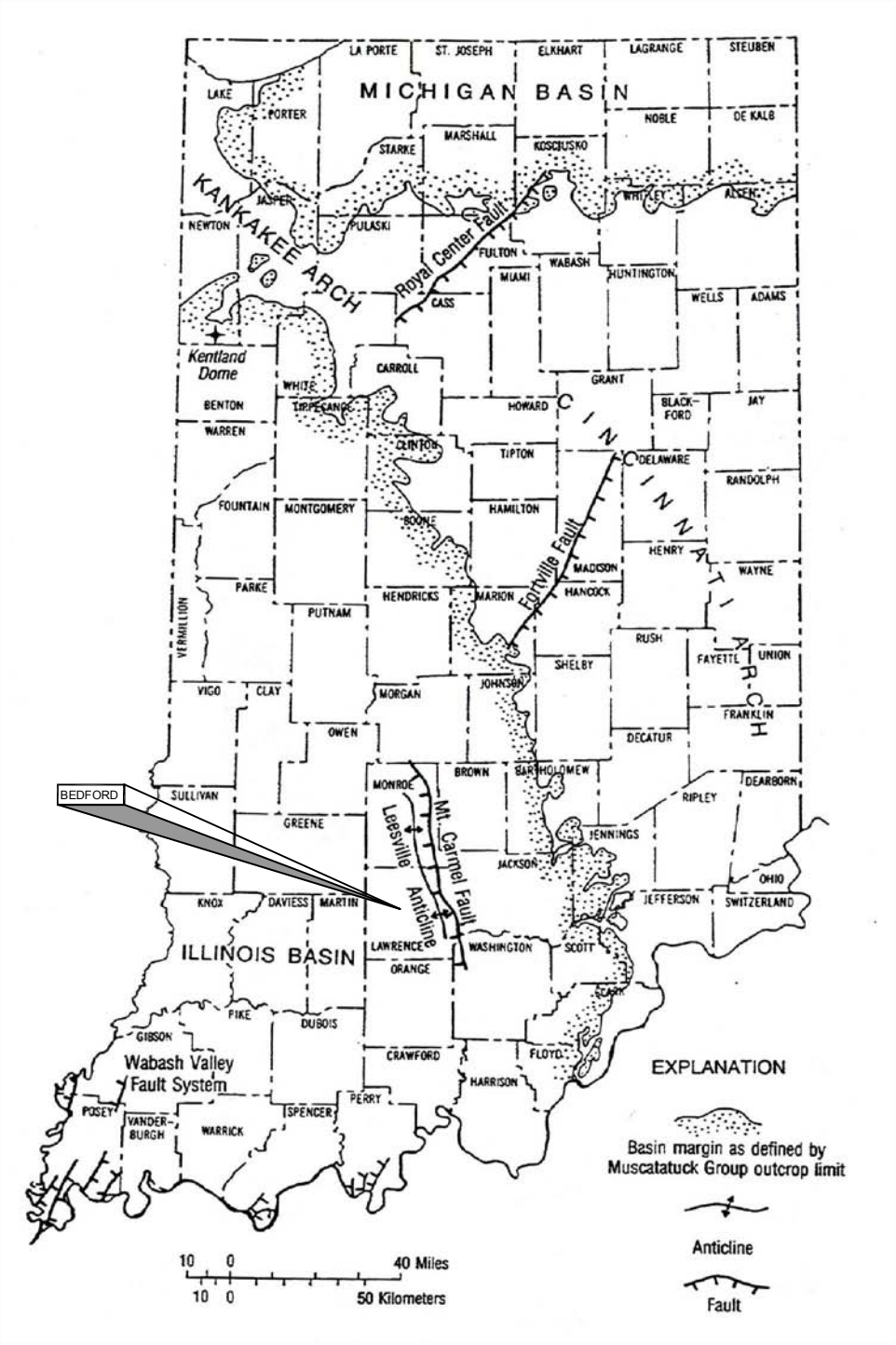


figure 3.2

BEDROCK STRUCTURAL FEATURES OF INDIANA
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

SOURCE: RUPP, 1991

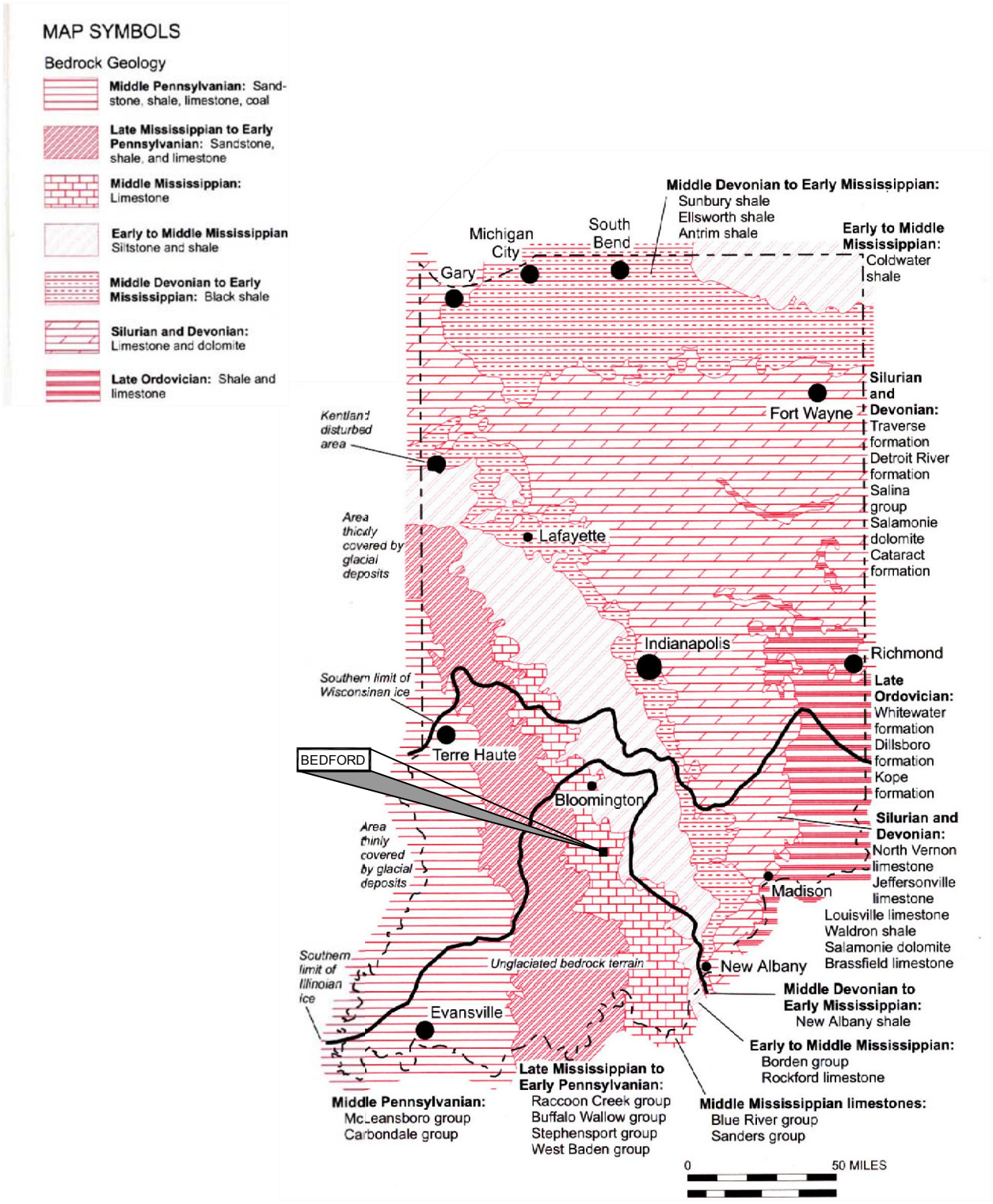


figure 3.3

BEDROCK GEOLOGY OF INDIANA
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

SOURCE: CAMP AND RICHARDSON, 1999

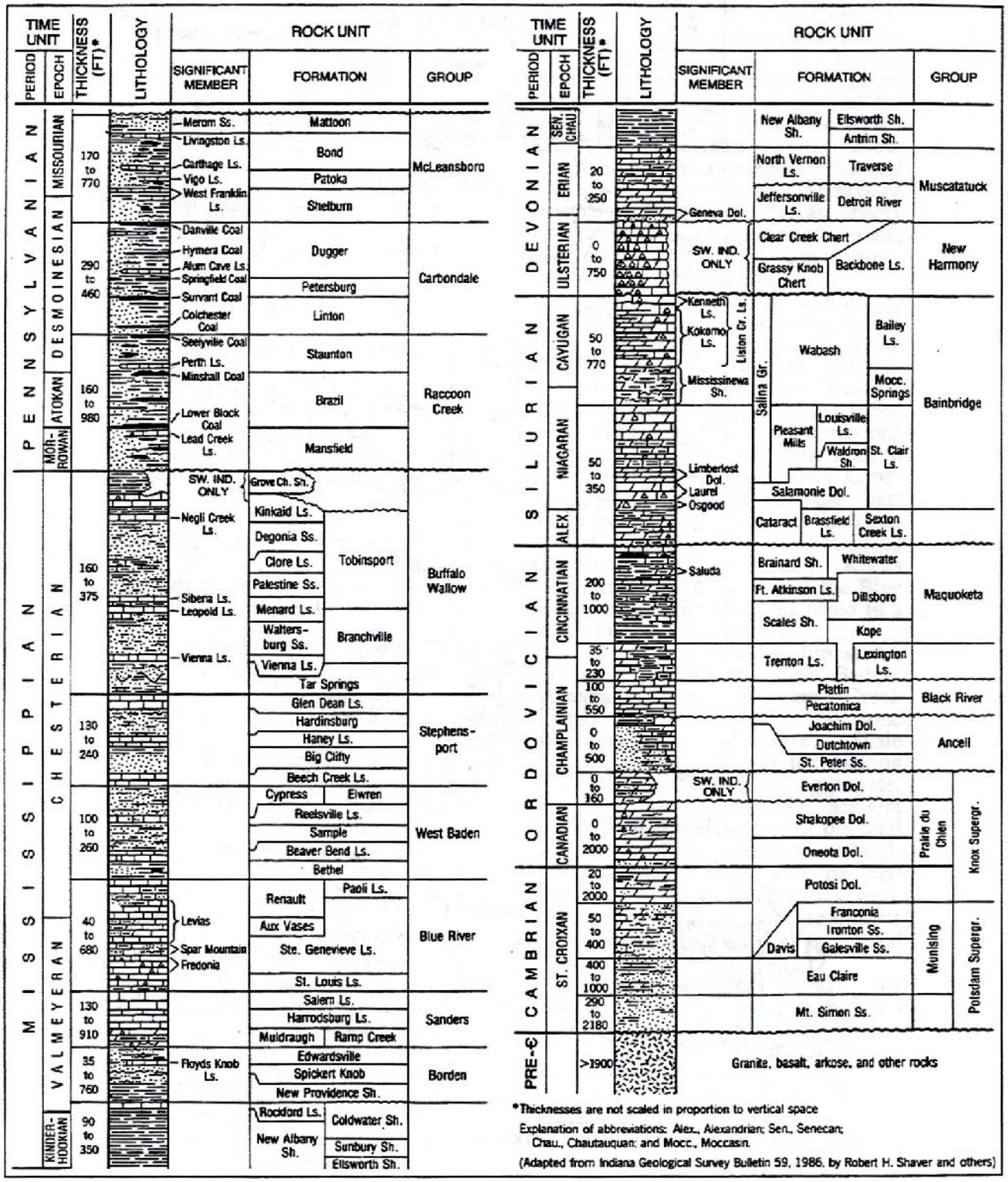
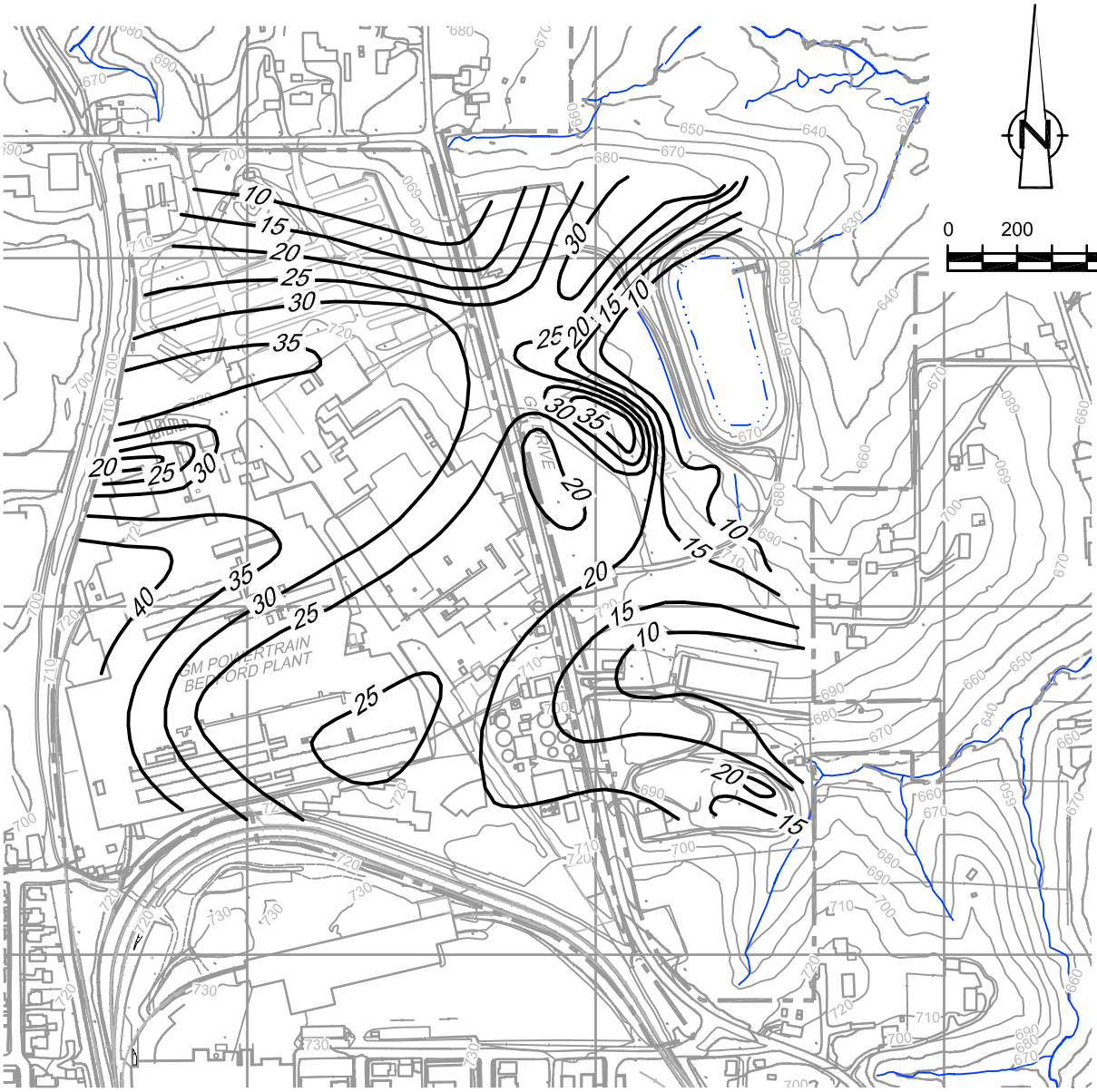


figure 3.4

GENERALIZED STRATIGRAPHIC COLUMN
FOR PALEOZOIC ROCKS IN INDIANA
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

SOURCE: HILL, UNDATED



LEGEND

- EXISTING GROUND SURFACE ELEVATION CONTOURS (feet AMSL)
- EXISTING BUILDINGS
- RAILROAD TRACKS
- DIRT ROADS
- ROADS / UNPAVED AREAS
- ROADS / PAVED AREAS
- APPROXIMATE SURFACE WATER LOCATION
- APPROXIMATE GM PROPERTY BOUNDARY
- 20 THICKNESS OF OVERBURDEN COUNTOUR (ft)

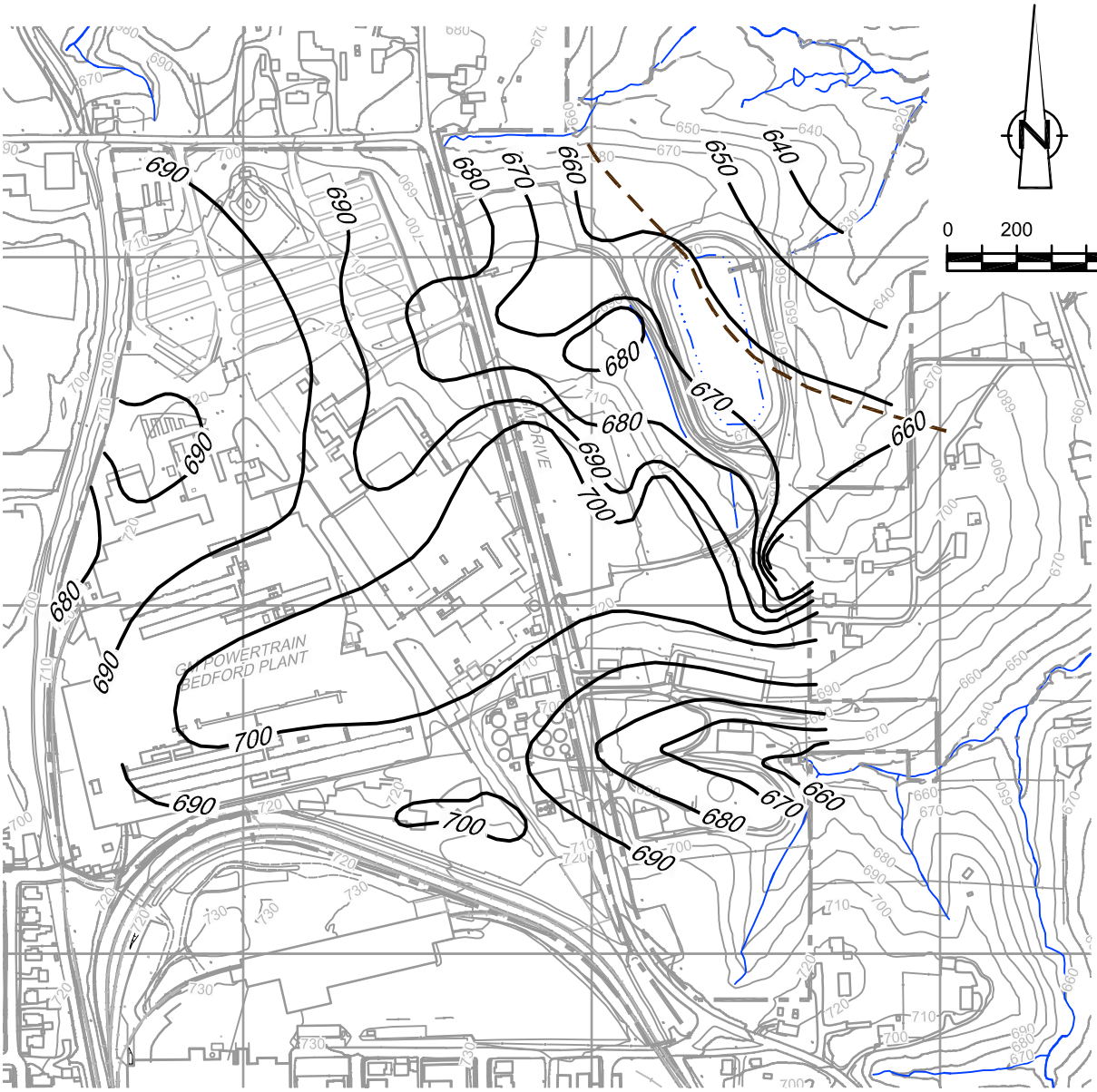
figure 3.5

THICKNESS OF OVERBURDEN ON-SITE RFI INVESTIGATION GM POWERTRAIN BEDFORD PLANT

Bedford, Indiana

SOURCE:
BASE MAP COMPLETED BY AIR-LAND SURVEYS, FLINT, MI. APRIL 2001

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LEGEND

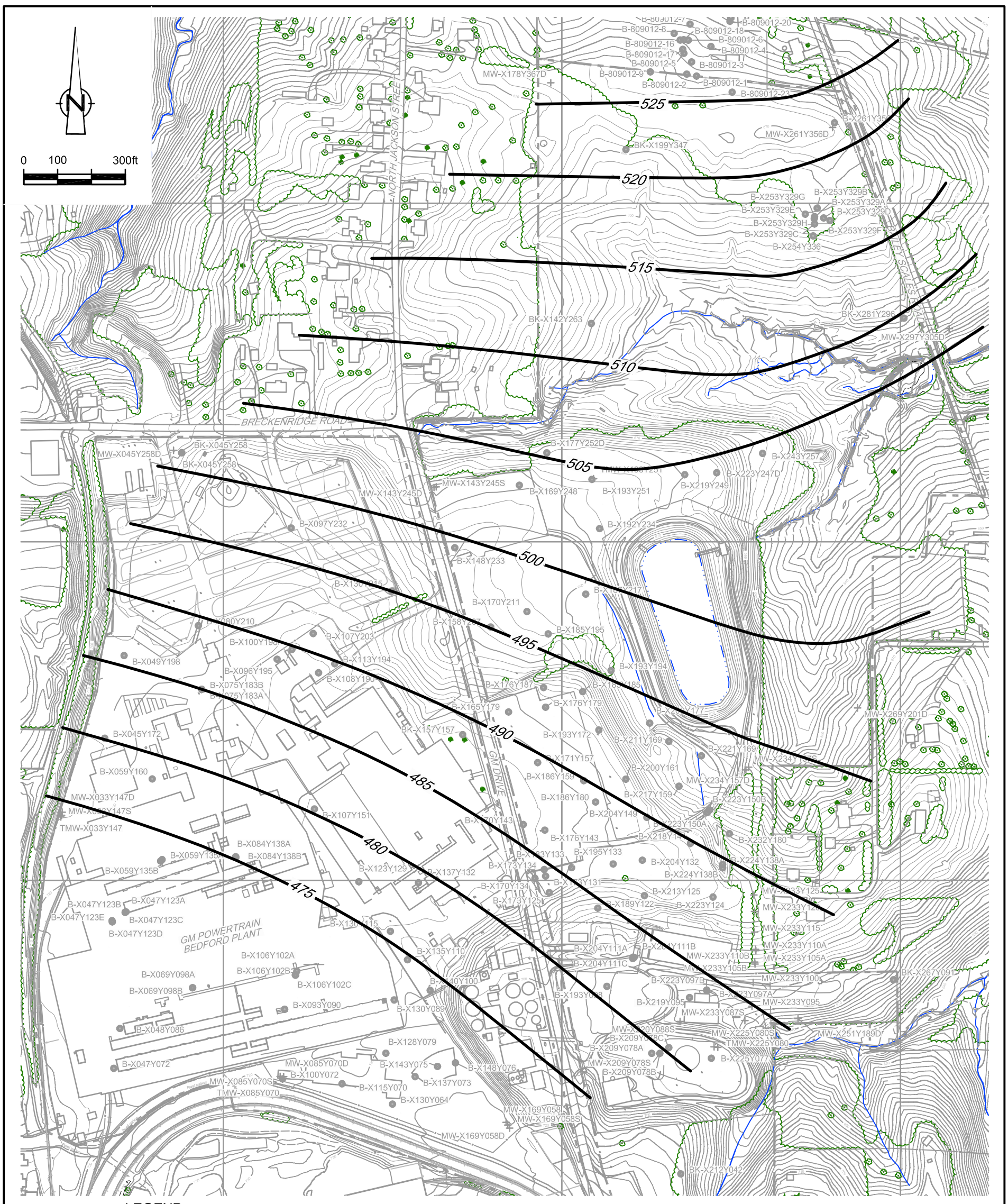
- EXISTING GROUND SURFACE ELEVATION CONTOURS (feet AMSL)
- EXISTING BUILDINGS
- RAILROAD TRACKS
- DIRT ROADS
- ROADS / UNPAVED AREAS
- ROADS / PAVED AREAS
- APPROXIMATE SURFACE WATER LOCATION
- APPROXIMATE GM PROPERTY BOUNDARY
- TOP OF BEDROCK ELEVATION COUNTOUR (ft AMSL)
- APPROXIMATE NORTHERN EXTENT OF ST. LOUIS FM.

figure 3.6

BEDROCK ELEVATION ON-SITE RFI INVESTIGATION GM POWERTRAIN BEDFORD PLANT

Bedford, Indiana

SOURCE:
BASE MAP COMPLETED BY AIR-LAND SURVEYS, FLINT, MI. APRIL 2001



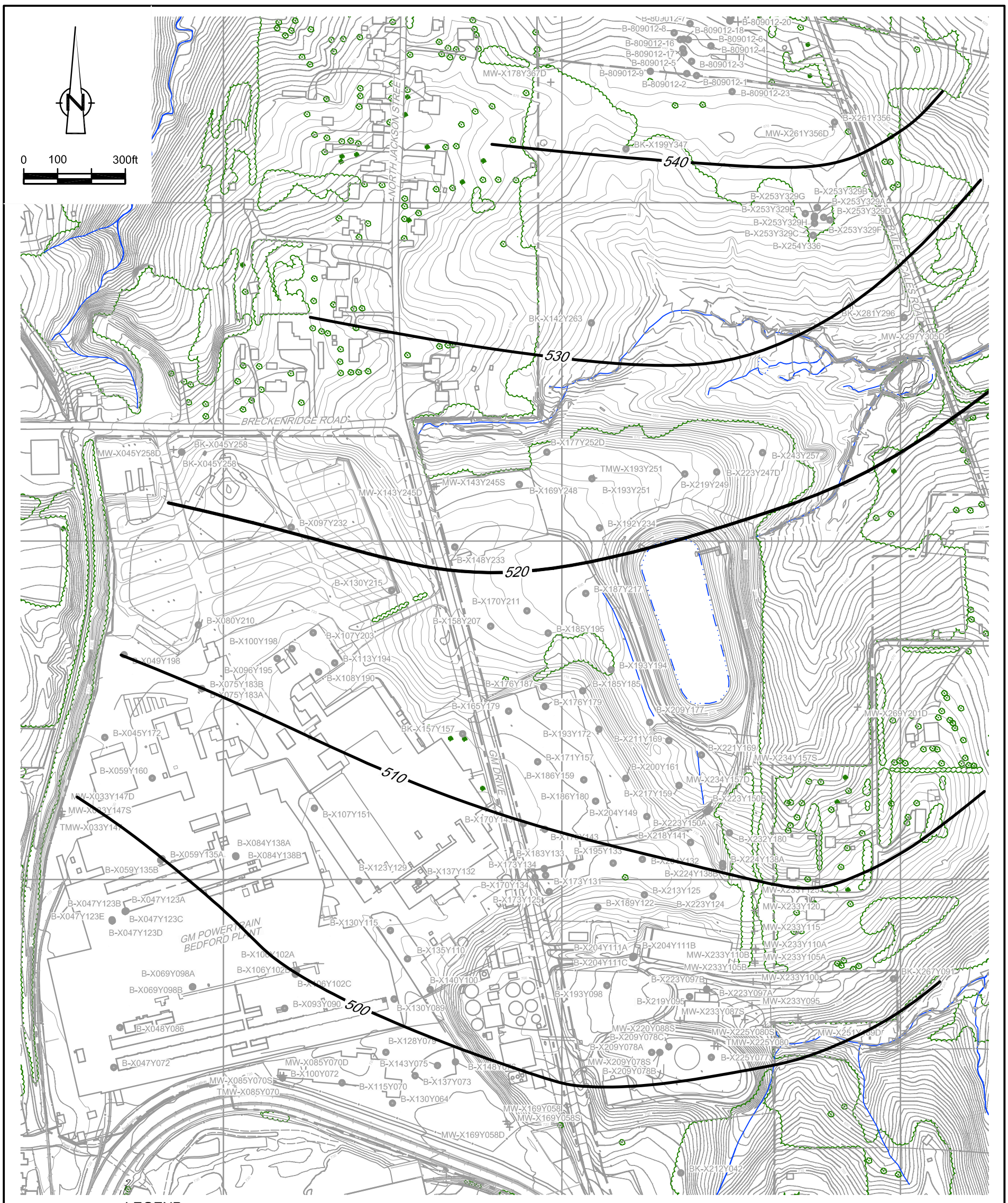
LEGEND

- EXISTING GROUND SURFACE ELEVATION CONTOURS (feet AMSL) (610)
- EXISTING VEGETATION
- EXISTING BUILDINGS
- FENCE LINE
- RAILROAD TRACKS
- DIRT ROADS
- ROADS / PAVED AREAS
- APPROXIMATE SURFACE WATER LOCATION
- APPROXIMATE GM PROPERTY BOUNDARY
- B-X115Y070 — RFI SOIL BORING SAMPLE LOCATION
- MW-X261Y356 — MONITORING WELL LOCATION
- 500 — TOP OF FORMATION ELEVATION CONTOUR (ft AMSL)

figure 3.7

EDWARDSVILLE FORMATION STRUCTURE MAP
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

13968-00(045)GN-WA059 APR 13/2004



LEGEND

- EXISTING GROUND SURFACE ELEVATION CONTOURS (feet AMSL) (610)
- EXISTING VEGETATION
- EXISTING BUILDINGS
- FENCE LINE
- RAILROAD TRACKS
- DIRT ROADS
- ROADS / PAVED AREAS
- APPROXIMATE SURFACE WATER LOCATION
- APPROXIMATE GM PROPERTY BOUNDARY
- B-X115Y070 — RFI SOIL BORING SAMPLE LOCATION
- MW-X261Y356 — MONITORING WELL LOCATION
- 500 — TOP OF FORMATION ELEVATION CONTOUR (ft AMSL)

figure 3.8

RAMP CREEK FORMATION STRUCTURE MAP
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

13968-00(045)GN-WA060 APR 13/2004

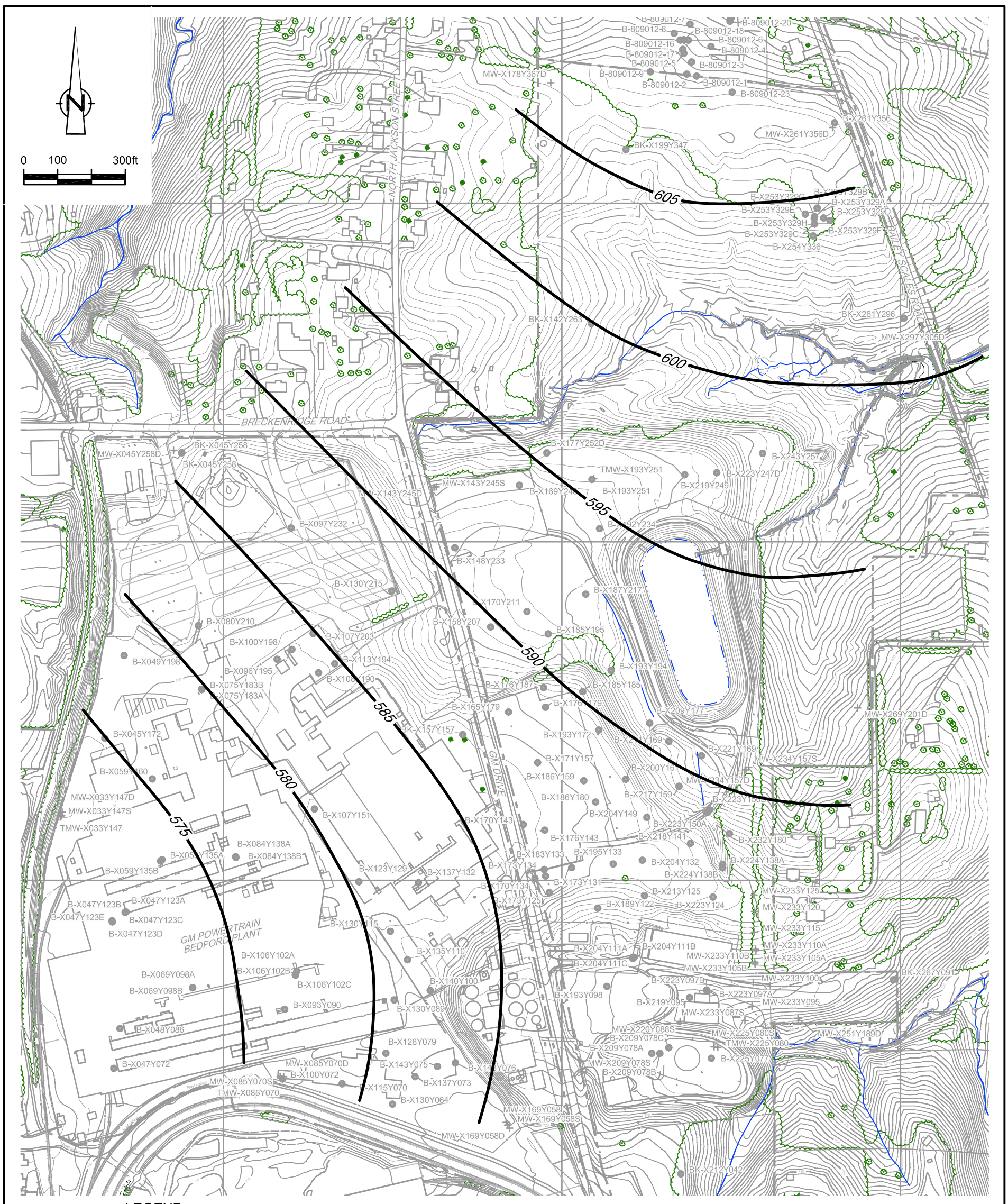


figure 3.9

HARRODSBURG FORMATION STRUCTURE MAP
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

13968-00(045)GN-WA061 APR 13/2004

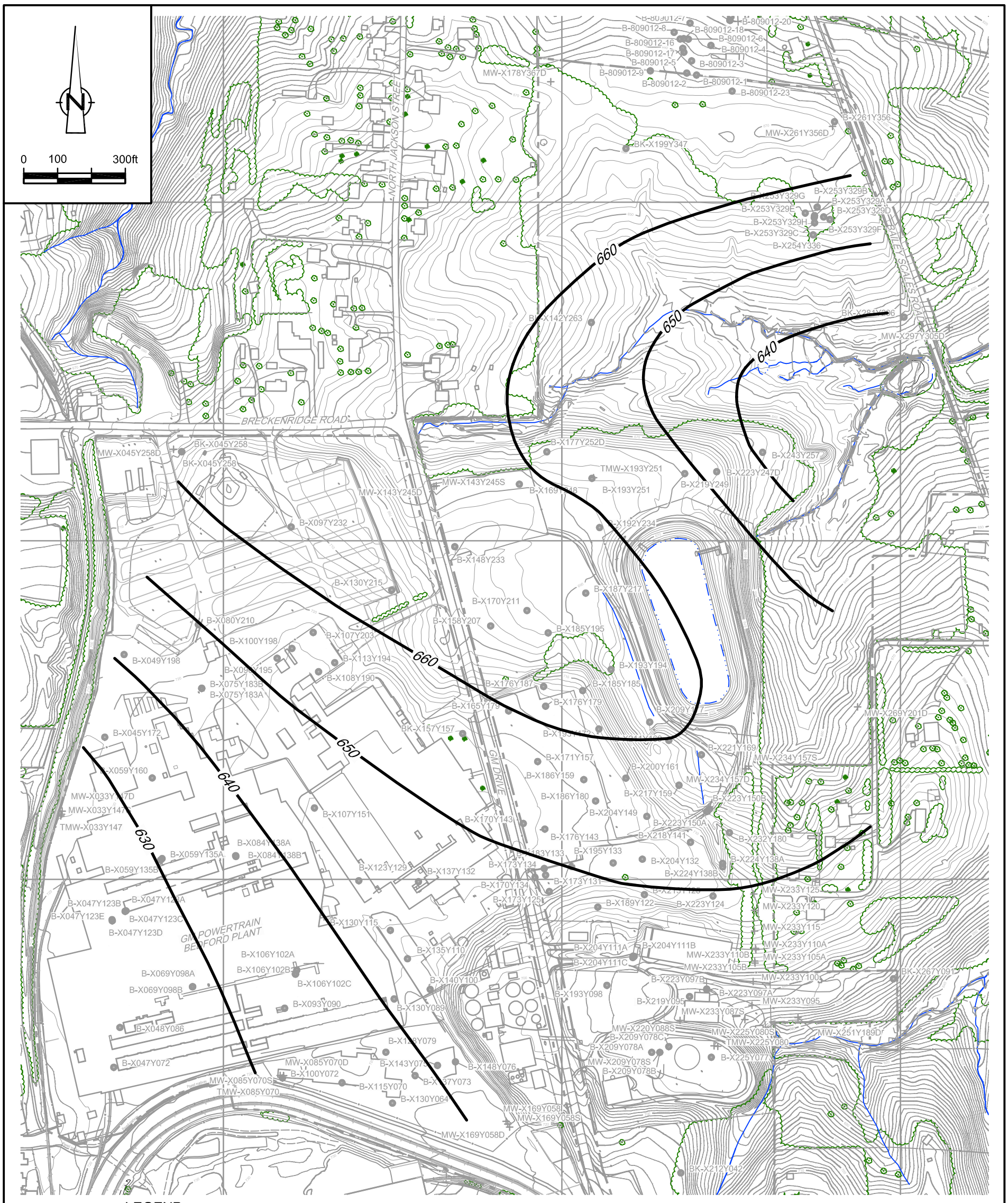


figure 3.10

SALEM FORMATION STRUCTURE MAP
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

13968-00(045)GN-WA068 APR 13/2004

A
WEST

A'
EAST

B-X049Y198
B-X096Y195
B-X100Y198
B-X107Y203
B-X130Y215
B-X148Y233
B-X169Y248
B-X193Y251
TMW-X193Y251
B-X219Y249
B-X223Y247D*
B-X243Y257
MW-X297Y305D

WASTE STORAGE PAD (CONCRETE)
AOI 19
AOI 21
AOI 2
AOI 15
AOI 4
GM DRIVE
EXISTING GRADE
OUTFALL #003 DISCHARGE DRAINAGE
BAILEY SCALES ROAD

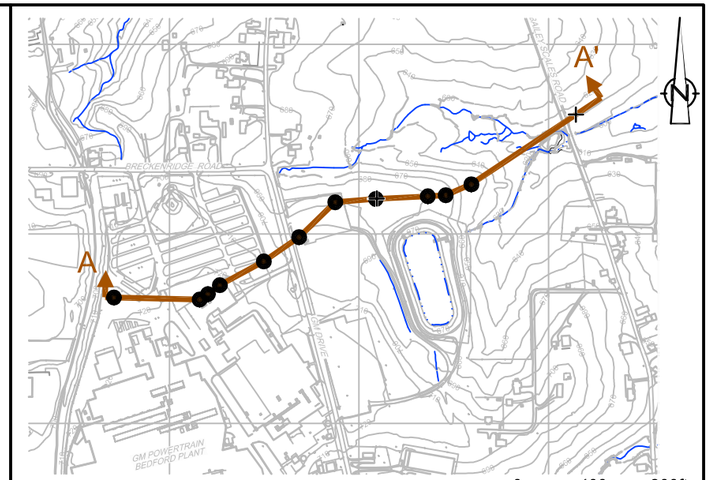
FILL & GRAVEL
FILL & SAND
CLAY & FILL
FILL & GRAVEL
FILL & SAND
LIMESTONE (ST. LOUIS FORMATION)
CLAY & FILL
FILL & SAND
TOPSOIL
FILL & SAND
CLAY
LIMESTONE (SALEM FORMATION)
LIMESTONE (ST. LOUIS FORMATION)
LIMESTONE (SALEM FORMATION)
LIMESTONE (SALEM FORMATION)

ELEVATION (ft AMSL)
730
720
710
700
690
680
670
660
650
640
630
620
610
600

0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800

DISTANCE (ft)

SCALE: HORIZONTAL 1" = 200'
VERTICAL, 1" = 20'



KEY MAP

B-X130Y215 — BORING DESIGNATION
GROUND SURFACE
BORING LOCATION
APPROXIMATE CONTACT LOCATION (ACTUAL CONTACT IS GRADATIONAL)
APPROXIMATE STATIC WATER LEVEL
STRATIGRAPHIC BOUNDARY
SCREENED INTERVAL
END OF BOREHOLE

NOTE:
* BORING ADVANCED 30° TO VERTICAL.

figure 3.11
OVERBURDEN GEOLOGIC CROSS-SECTION A - A'
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

13968-00(045)GN-WA069 APR 13/2004

B
WEST

B'
EAST

TMW-X033Y147
MW-X033Y147S
MW-X033Y147D
B-X059Y160
B-X107Y151
BK-X157Y157
B-X165Y179
B-X176Y179
B-X193Y172
B-X209Y177
MW-X269Y201D

AOI 21
AOI 5
GM DRIVE
NORTH DIE CAST BUILDING
PISTON BUILDING
SOUTH EDGE OF STORMWATER POND (AOI 10)

TOPSOIL
FILL & GRAVEL
FILL & SAND
FILL & CLAY
CONCRETE

LIMESTONE (ST. LOUIS FORMATION)
LIMESTONE (SALEM FORMATION)
LIMESTONE (UPPER HARRODSBURG FORMATION)

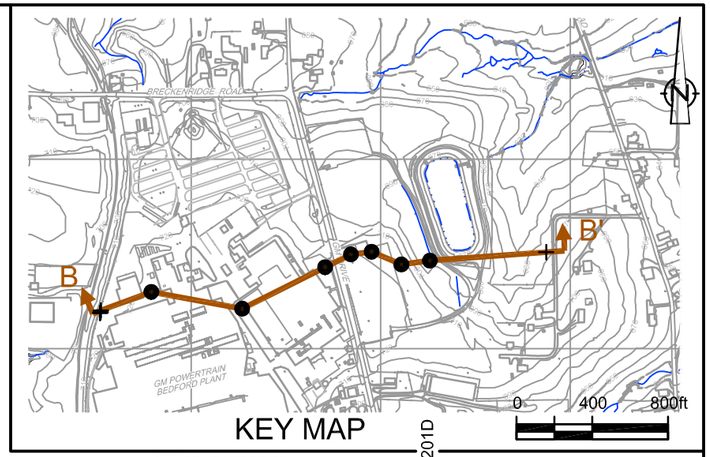
ELEVATION (ft AMSL)
730 720 710 700 690 680 670 660 650 640 630 620 610 600 590 580 570 560

0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800

DISTANCE (ft)

SCALE: HORIZONTAL 1" = 200'
VERTICAL, 1" = 20'

B-X059Y160
BORING DESIGNATION
GROUND SURFACE
BORING LOCATION
APPROXIMATE CONTACT LOCATION (ACTUAL CONTACT IS GRADATIONAL)
STRATIGRAPHIC BOUNDARY
SCREENED INTERVAL
OPEN HOLE/MULTI-LEVEL PORT

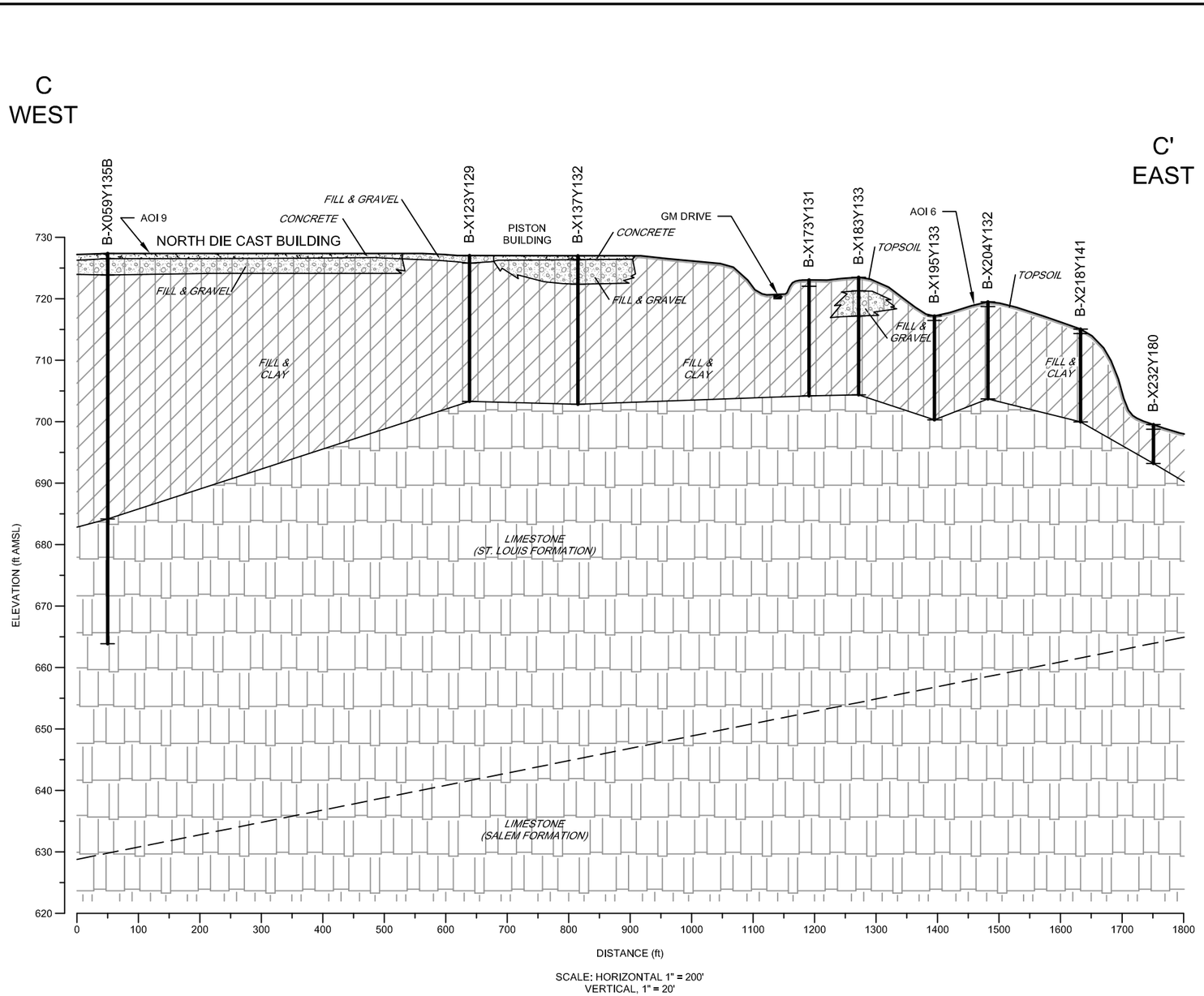


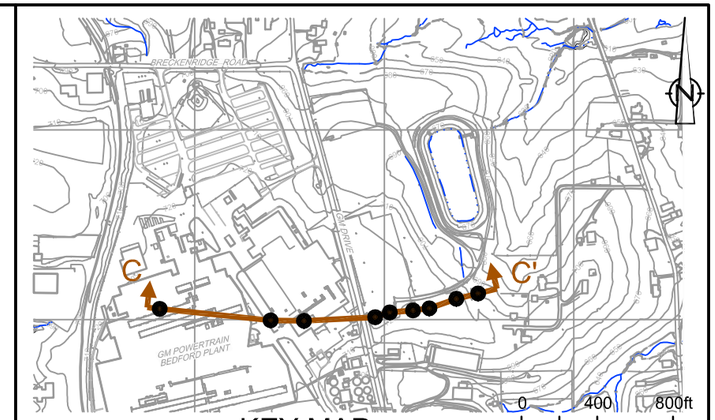
KEY MAP

figure 3.12

OVERBURDEN GEOLOGIC CROSS-SECTION B - B'
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

13968-00(045)GN-WA002 APR 13/2004





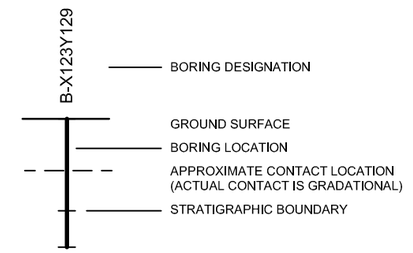


figure 3.13

OVERBURDEN GEOLOGIC CROSS-SECTION C - C'
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

13968-00(045)GN-WA003 APR 13/2004

D
WEST

D'
EAST

B-X048Y086
B-X069Y098B
B-X106Y102B
B-X130Y089
B-X140Y100
B-X193Y098
B-X219Y095
MW-X251Y189D

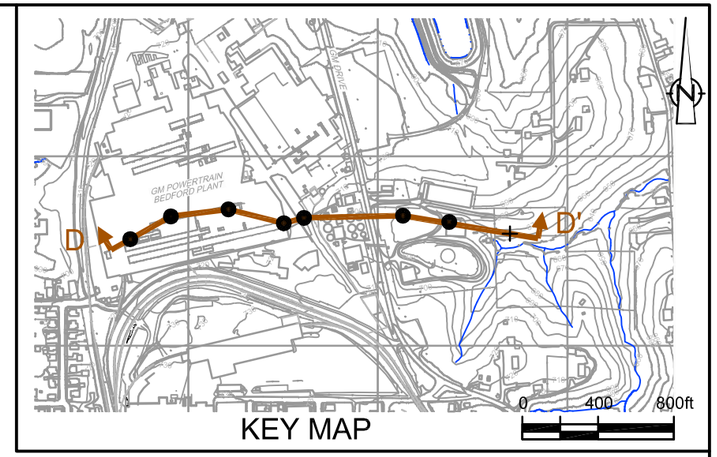
SOUTH DIE CAST BUILDING
AOI 9
CONCRETE
GM DRIVE
AOI 8

FILL & GRAVEL
FILL & CLAY
FILL & SAND
LIMESTONE (ST. LOUIS FORMATION)
LIMESTONE (SALEM FORMATION)
LIMESTONE (UPPER HARRODSBURG FORMATION)

ELEVATION (ft AMSL)
730
720
710
700
690
680
670
660
650
640
630
620
610
600
590
580
570
560

0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800
DISTANCE (ft)

SCALE: HORIZONTAL 1" = 200'
VERTICAL, 1" = 20'

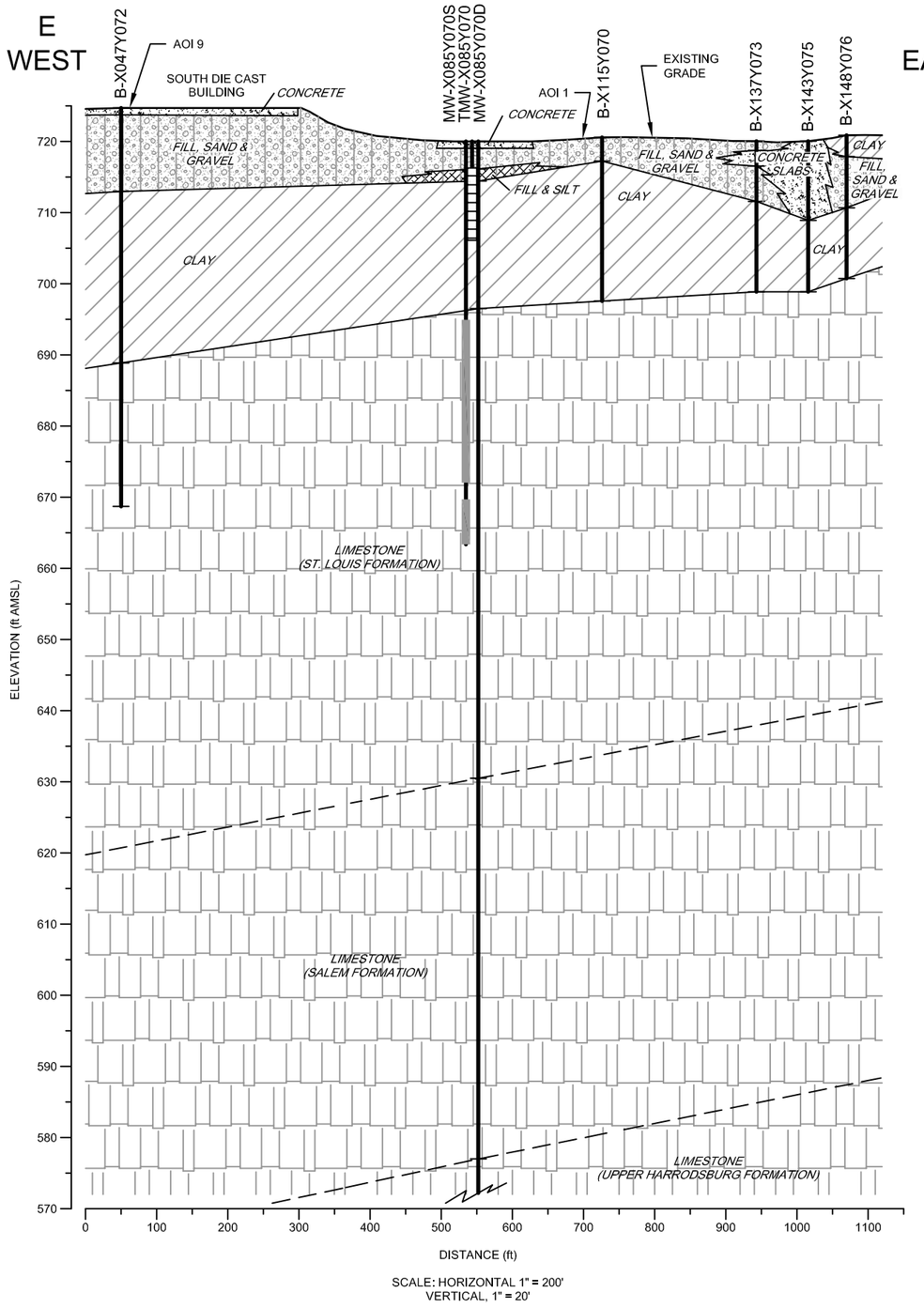


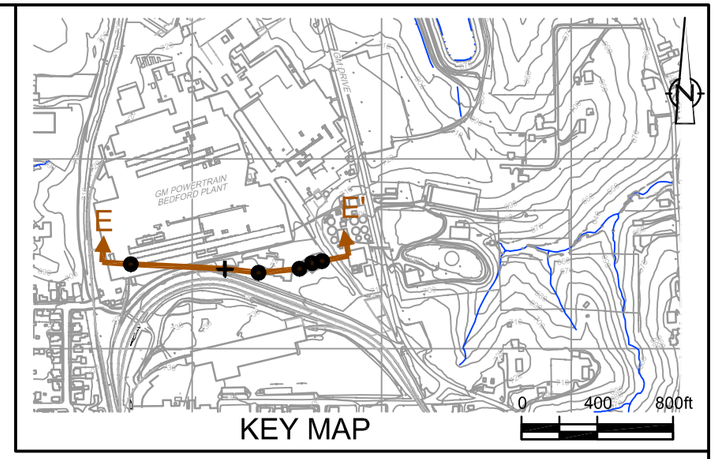
KEY MAP

BORING DESIGNATION
GROUND SURFACE
BORING LOCATION
APPROXIMATE CONTACT LOCATION (ACTUAL CONTACT IS GRADATIONAL)
STRATIGRAPHIC BOUNDARY
OPEN HOLE/MULTI-LEVEL PORT

figure 3.14
OVERBURDEN GEOLOGIC CROSS-SECTION D - D'
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

13968-00(045)GN-WA004 APR 13/2004





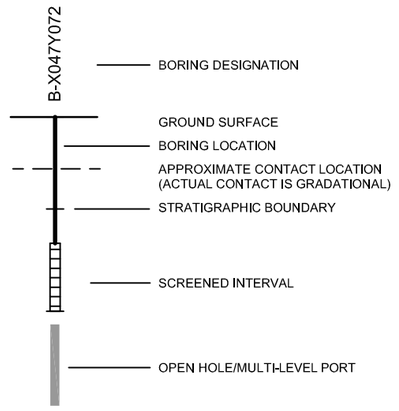
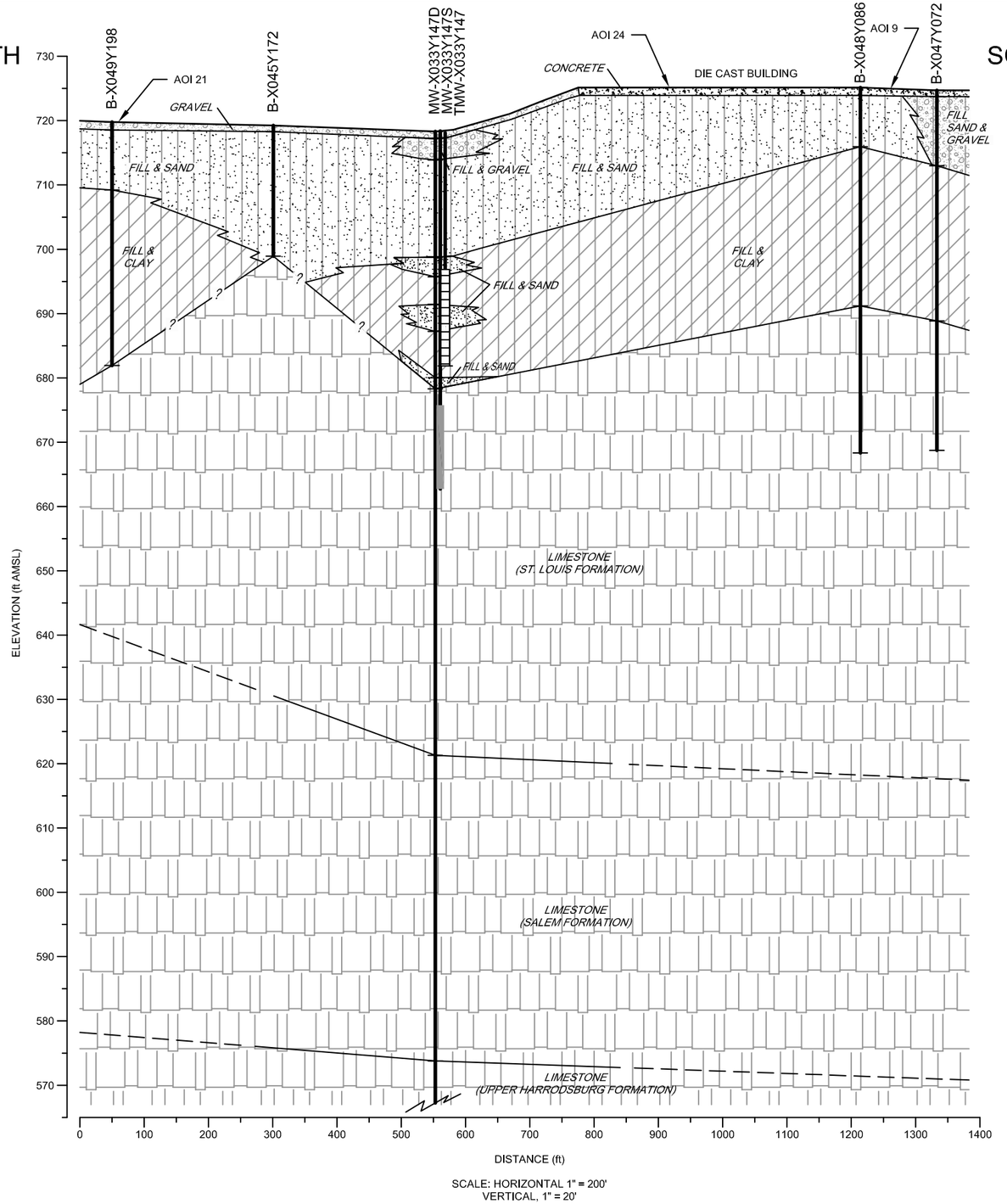


figure 3.15

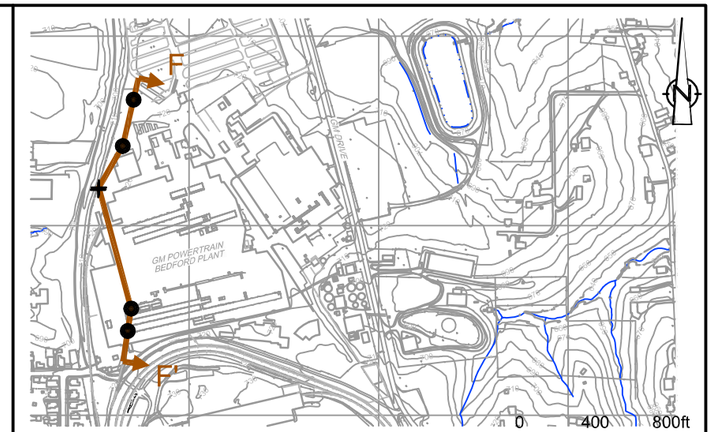
OVERBURDEN GEOLOGIC CROSS-SECTION E - E'
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

F NORTH

F' SOUTH



SCALE: HORIZONTAL 1" = 200'
VERTICAL, 1" = 20'



KEY MAP

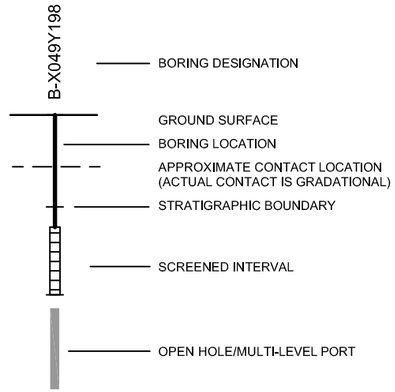


figure 3.16

OVERBURDEN GEOLOGIC CROSS-SECTION F - F'
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

13968-00(045)GN-WA006 APR 13/2004

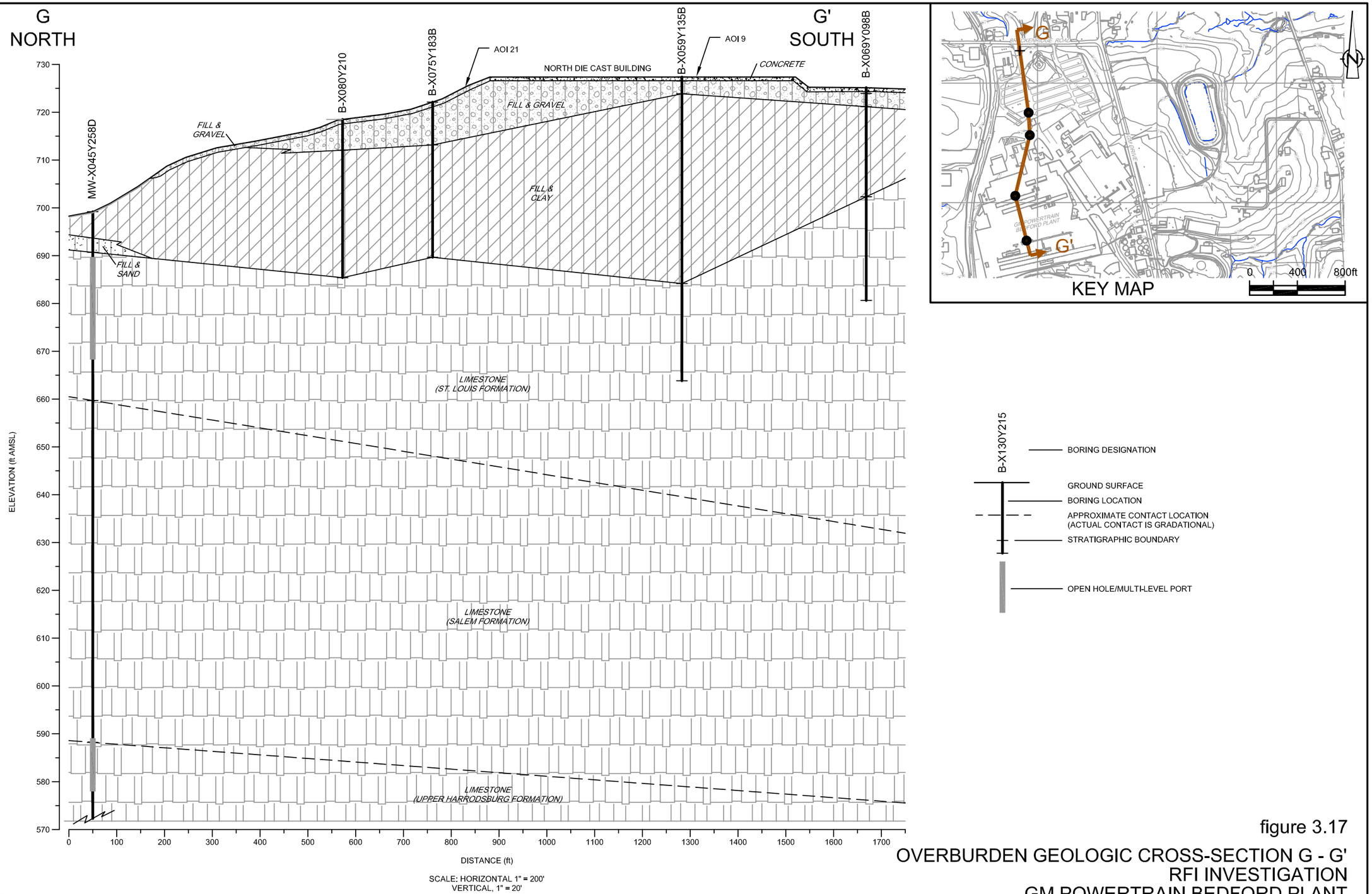


figure 3.17

OVERBURDEN GEOLOGIC CROSS-SECTION G - G'
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

13968-00(045)GN-WA007 APR 13/2004

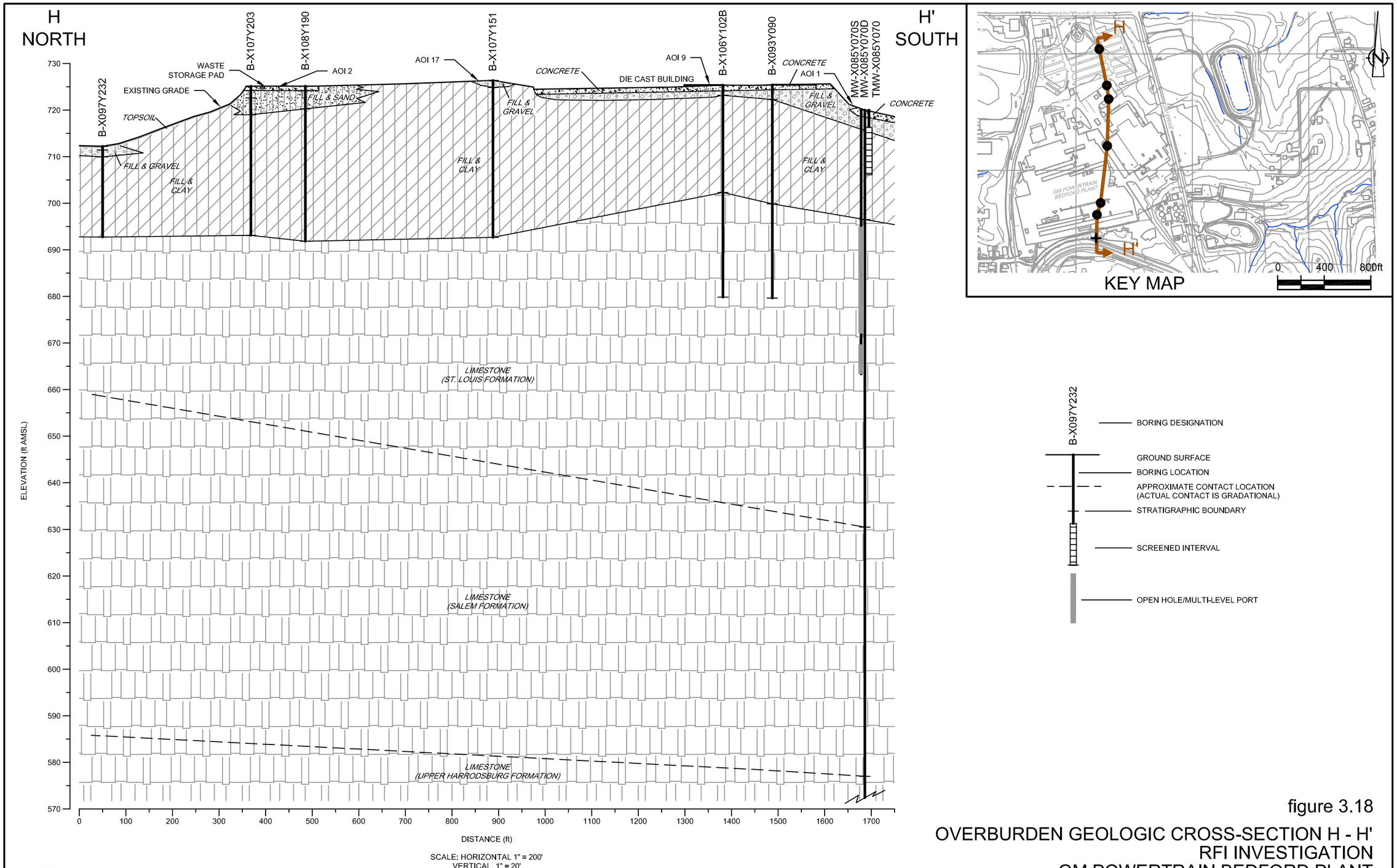


figure 3.18

OVERBURDEN GEOLOGIC CROSS-SECTION H - H'
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

13968-00(045)GN-WA008 APR 13/2004

I
NORTH

I'
SOUTH

EXISTING GRADE
CONCRETE
PISTON BUILDING
AOI 1
GRAVEL

MW-X143Y245S
MW-X143Y245D
B-X130Y215
B-X137Y132
B-X130Y115
B-X135Y110
B-X140Y100
B-X148Y076
MW-X169Y058I
MW-X169Y058S
MW-X169Y058D

GM DRIVE

FILL & GRAVEL
FILL & CLAY
SAND & GRAVEL

LIMESTONE
(ST. LOUIS FORMATION)

LIMESTONE
(SALEM FORMATION)

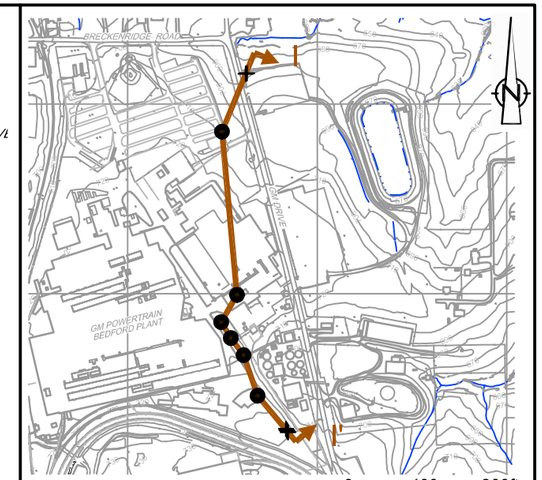
LIMESTONE
(UPPER HARRODSBURG FORMATION)

ELEVATION (ft AMSL)
730
720
710
700
690
680
670
660
650
640
630
620
610
600
590
580
570

0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100

DISTANCE (ft)

SCALE: HORIZONTAL 1" = 200'
VERTICAL, 1" = 20'



KEY MAP

B-X130Y215
BORING DESIGNATION
GROUND SURFACE
BORING LOCATION
APPROXIMATE CONTACT LOCATION
(ACTUAL CONTACT IS GRADATIONAL)
STRATIGRAPHIC BOUNDARY
OPEN HOLE/MULTI-LEVEL PORT

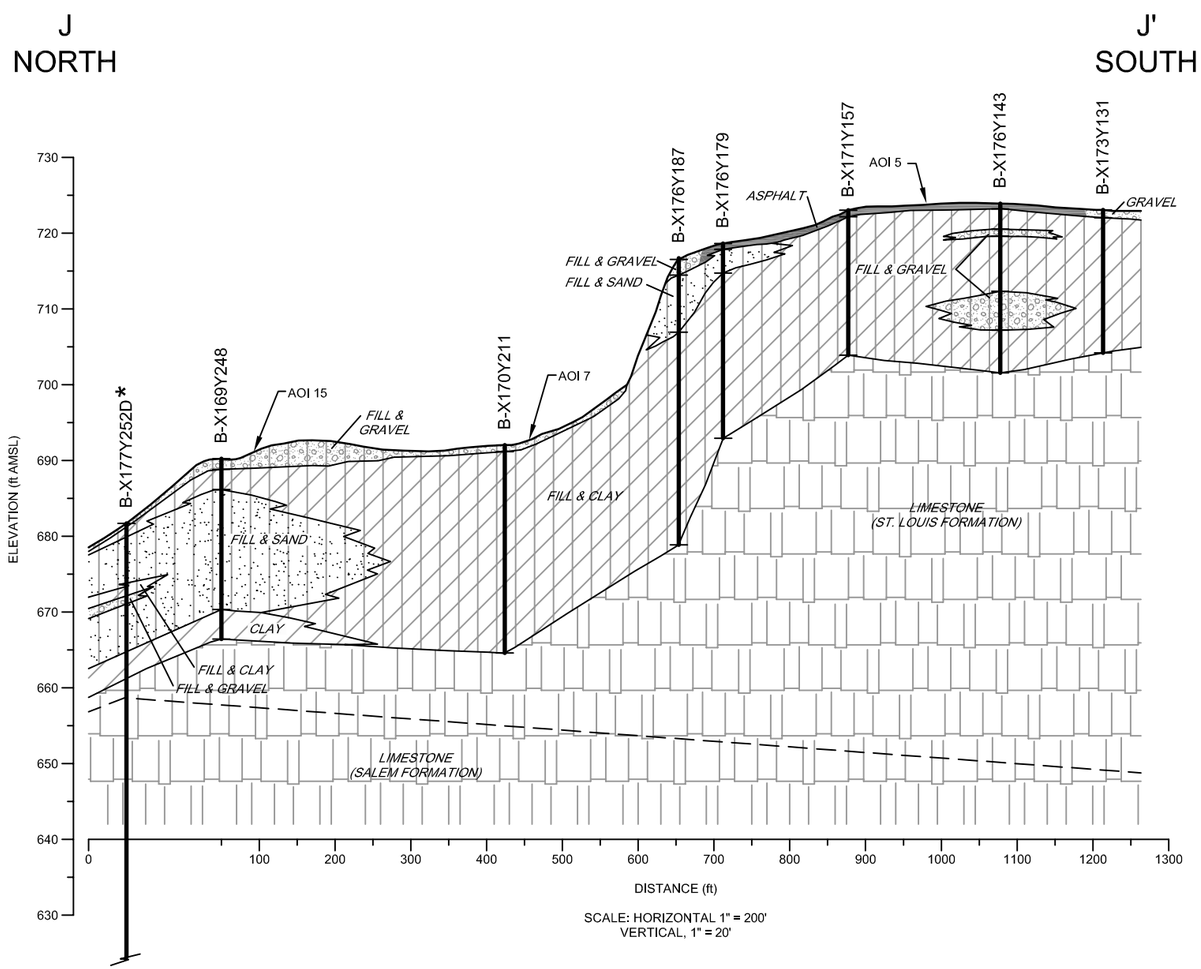
figure 3.19

OVERBURDEN GEOLOGIC CROSS-SECTION I - I'
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

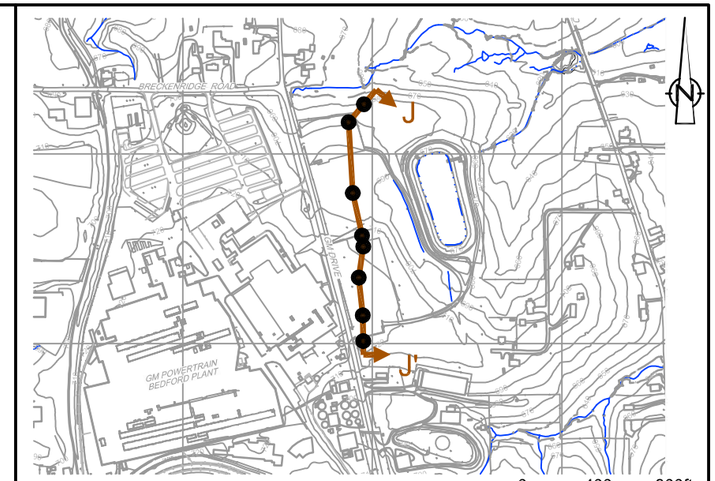
13968-00(045)GN-WA009 APR 13/2004

J
NORTH

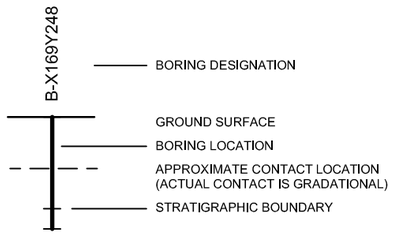
J'
SOUTH



SCALE: HORIZONTAL 1" = 200'
VERTICAL, 1" = 20'



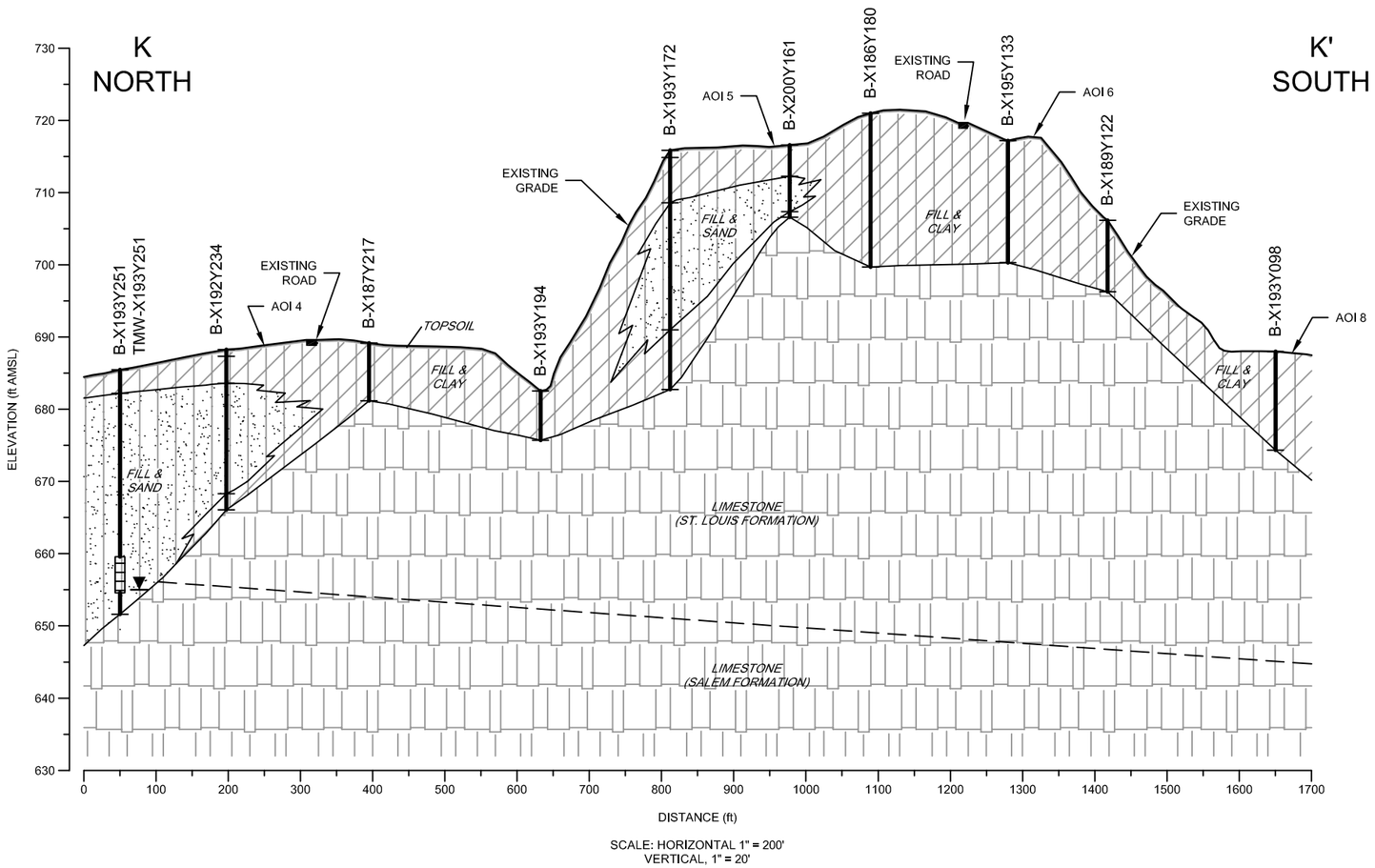
KEY MAP

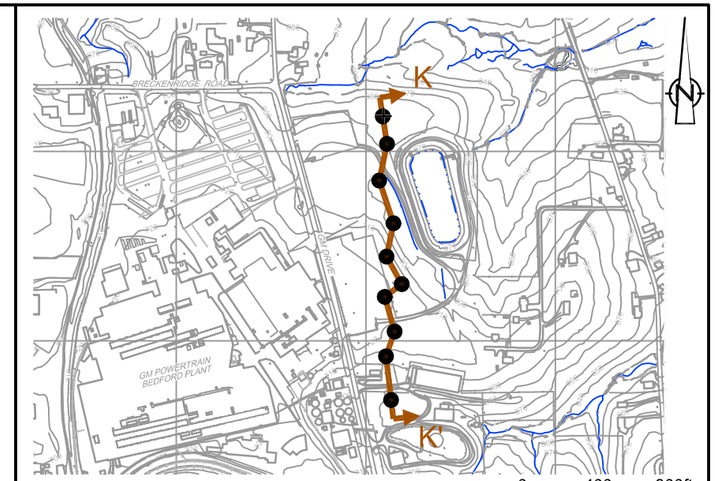


NOTE:
* BORING ADVANCED 30° TO VERTICAL.

figure 3.20

OVERBURDEN GEOLOGIC CROSS-SECTION J - J'
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana





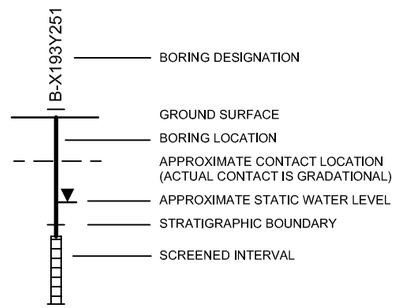
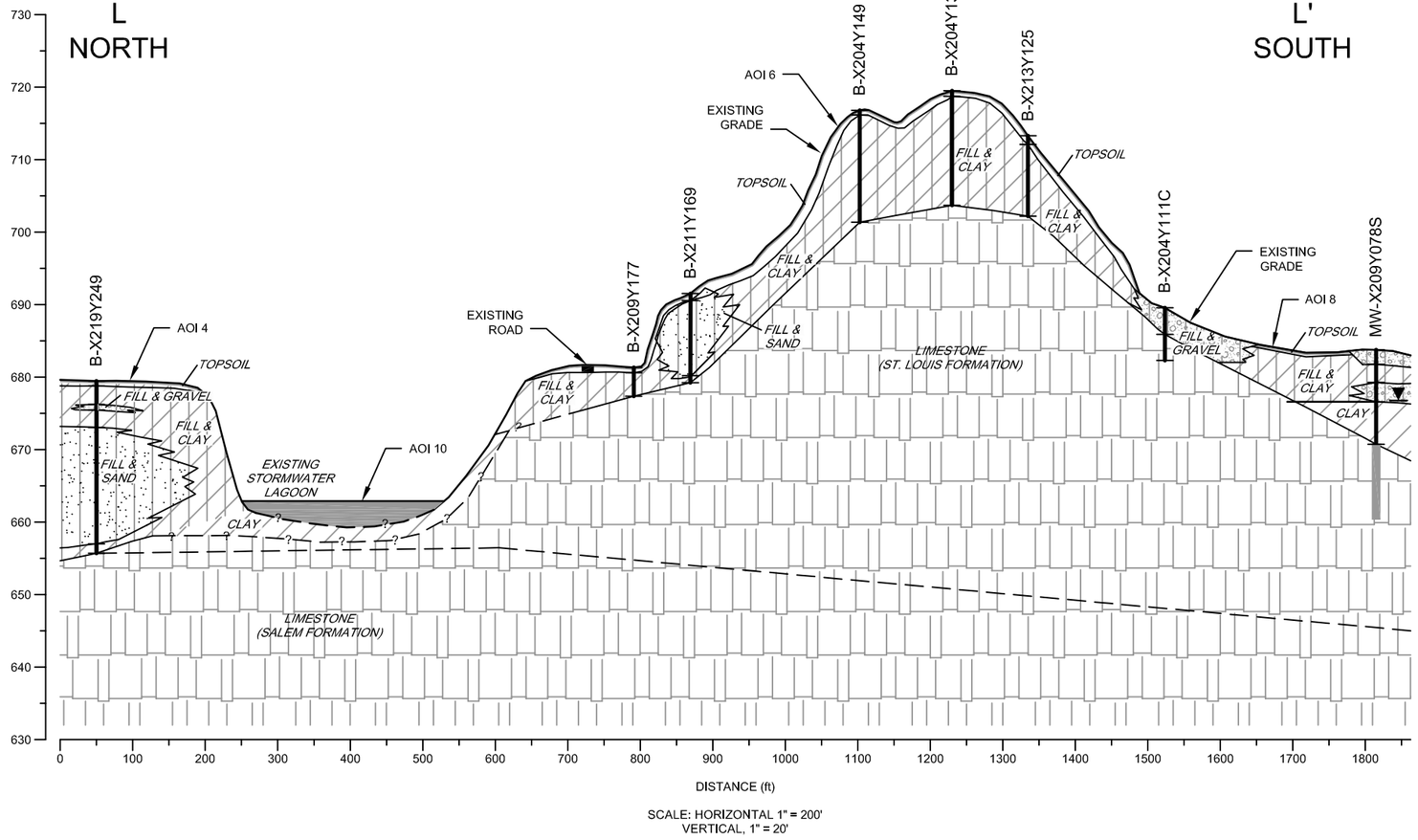


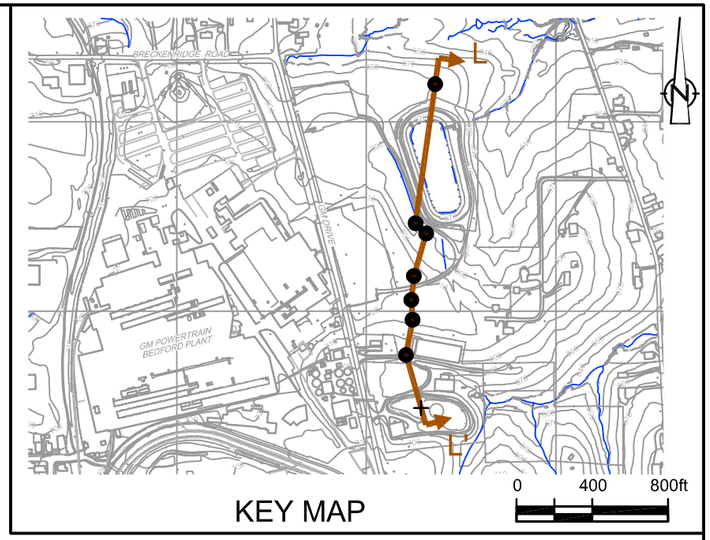
figure 3.21

OVERBURDEN GEOLOGIC CROSS-SECTION K - K'
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

13968-00(045)GN-WA011 APR 13/2004



SCALE: HORIZONTAL 1" = 200'
VERTICAL, 1" = 20'



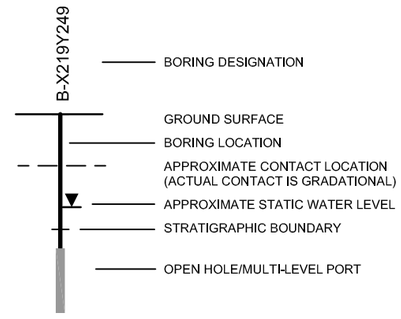
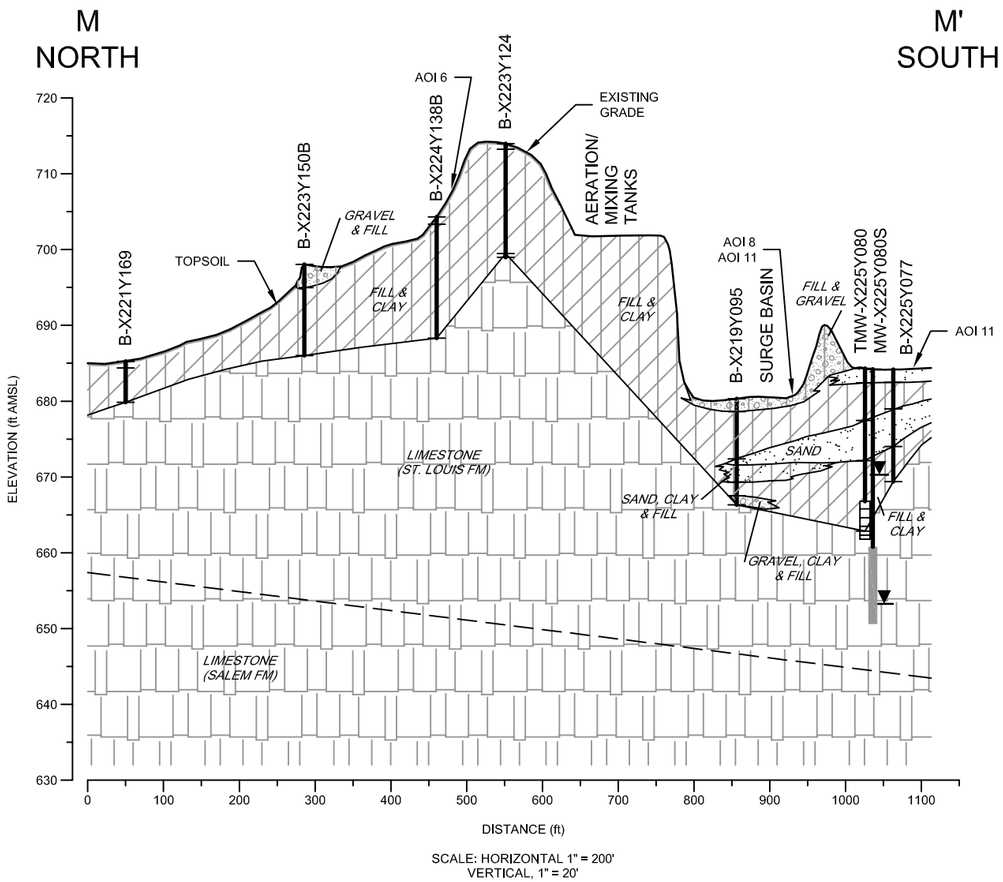


figure 3.22

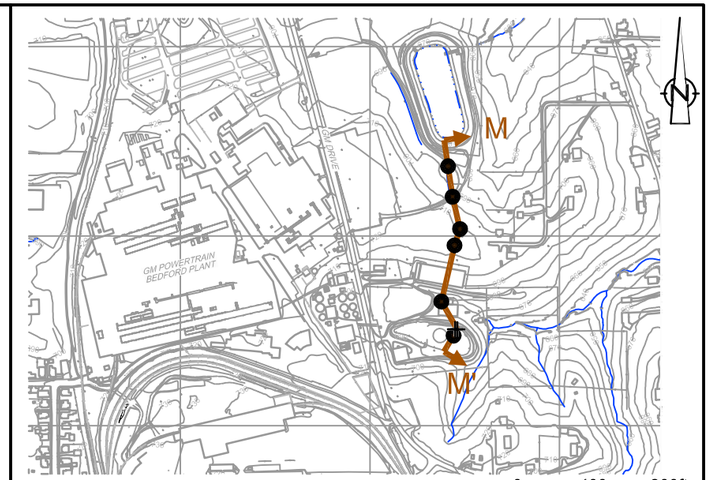
OVERBURDEN GEOLOGIC CROSS-SECTION L - L'
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

CRA

13968-00(045)GN-WA012 APR 13/2004



SCALE: HORIZONTAL 1" = 200'
VERTICAL, 1" = 20'



KEY MAP

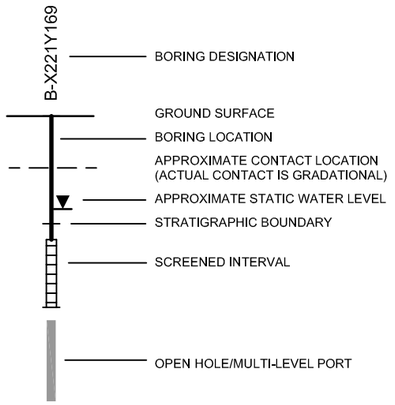
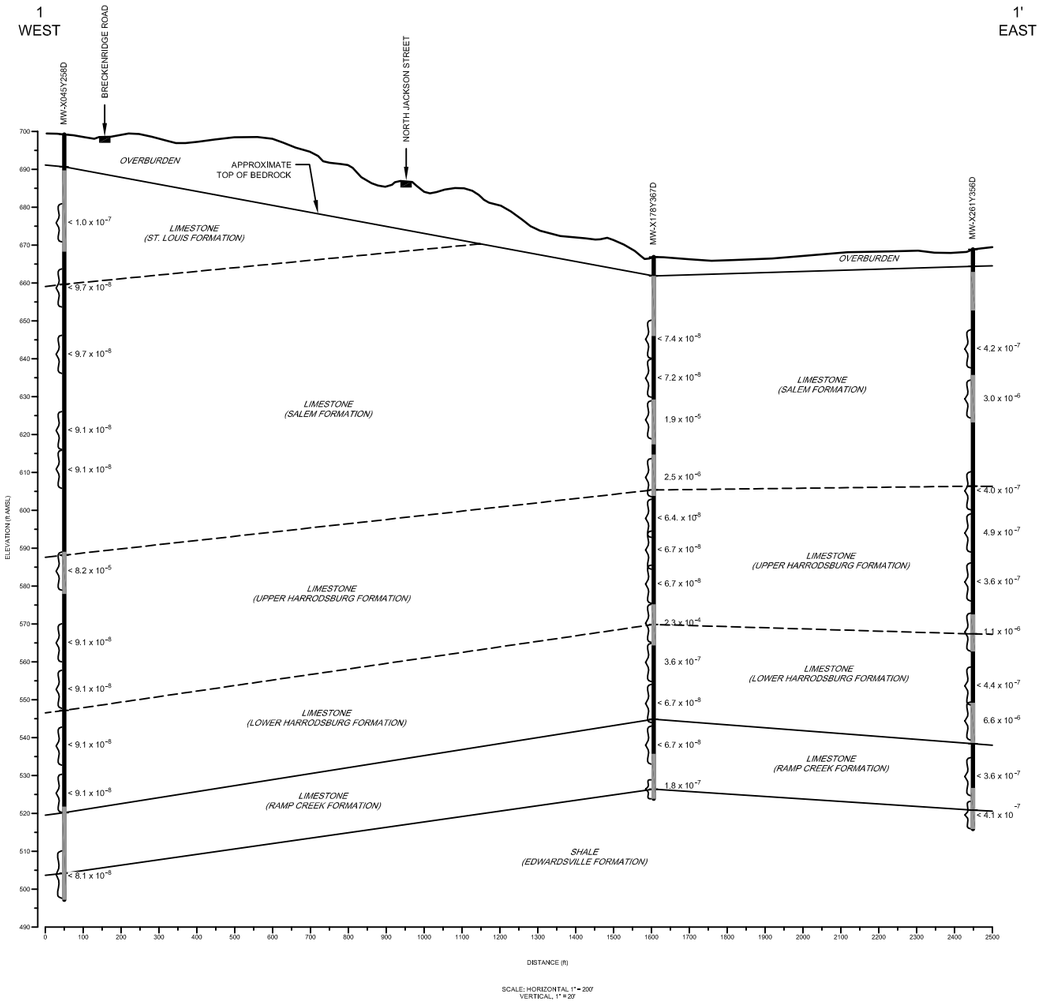
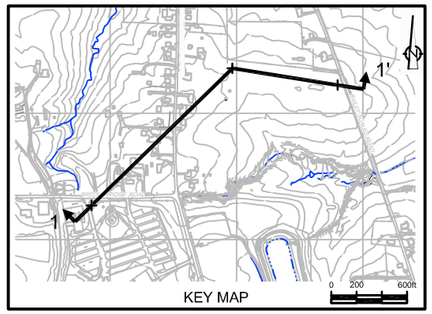
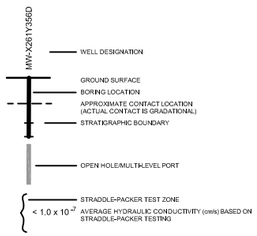


figure 3.23

OVERBURDEN GEOLOGIC CROSS-SECTION M - M'
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana







No	Revision	Date	Initial

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

DRAWING STATUS

Status	Date	Initial

GM POWERTRAIN BEDFORD PLANT
BEDFORD, INDIANA

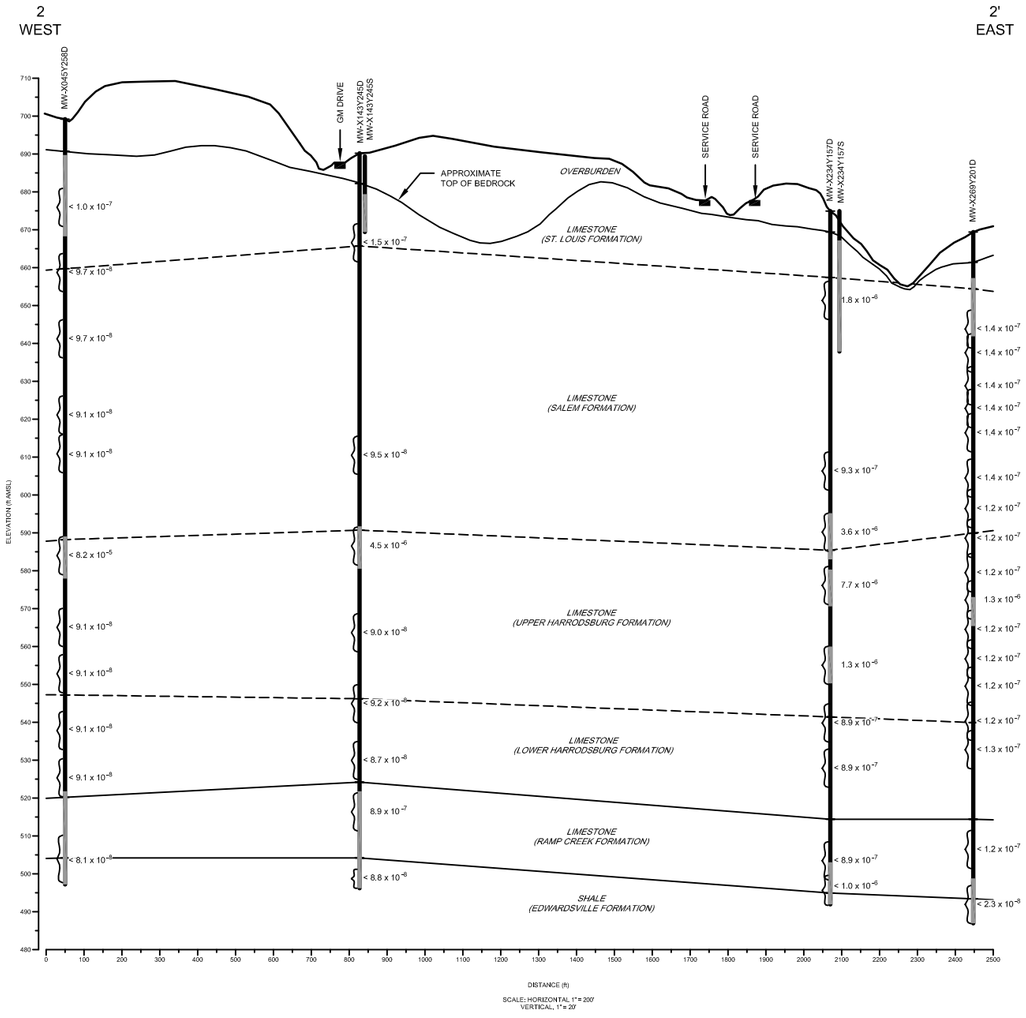
RFI INVESTIGATION

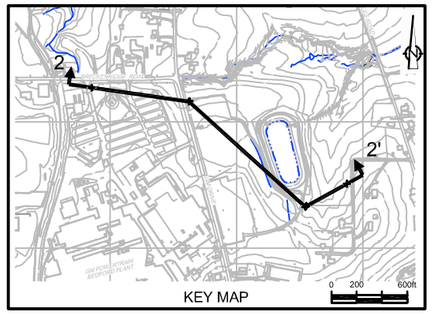
BEDROCK
GEOLOGIC CROSS-SECTION 1 - 1'

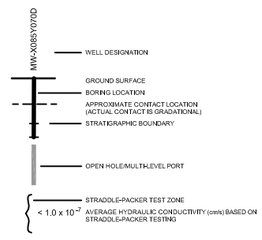
CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
BASE MAP COMPLETED BY AIR-LAND SURVEYS, FLINT, MI, APRIL 2001.

Project Manager:	Reviewed By:	Date:	
J.M.	D.M.	NOVEMBER 2003	
Scale: AS SHOWN	Project No.: 13968-00	Report No.: 045	Drawing No.: figure 3.24







No.	Revision	Date	Initial

SCALE VERIFICATION

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Approved

DRAWING STATUS

Status	Date	Initial

GM POWERTRAIN BEDFORD PLANT
BEDFORD, INDIANA

RFI INVESTIGATION

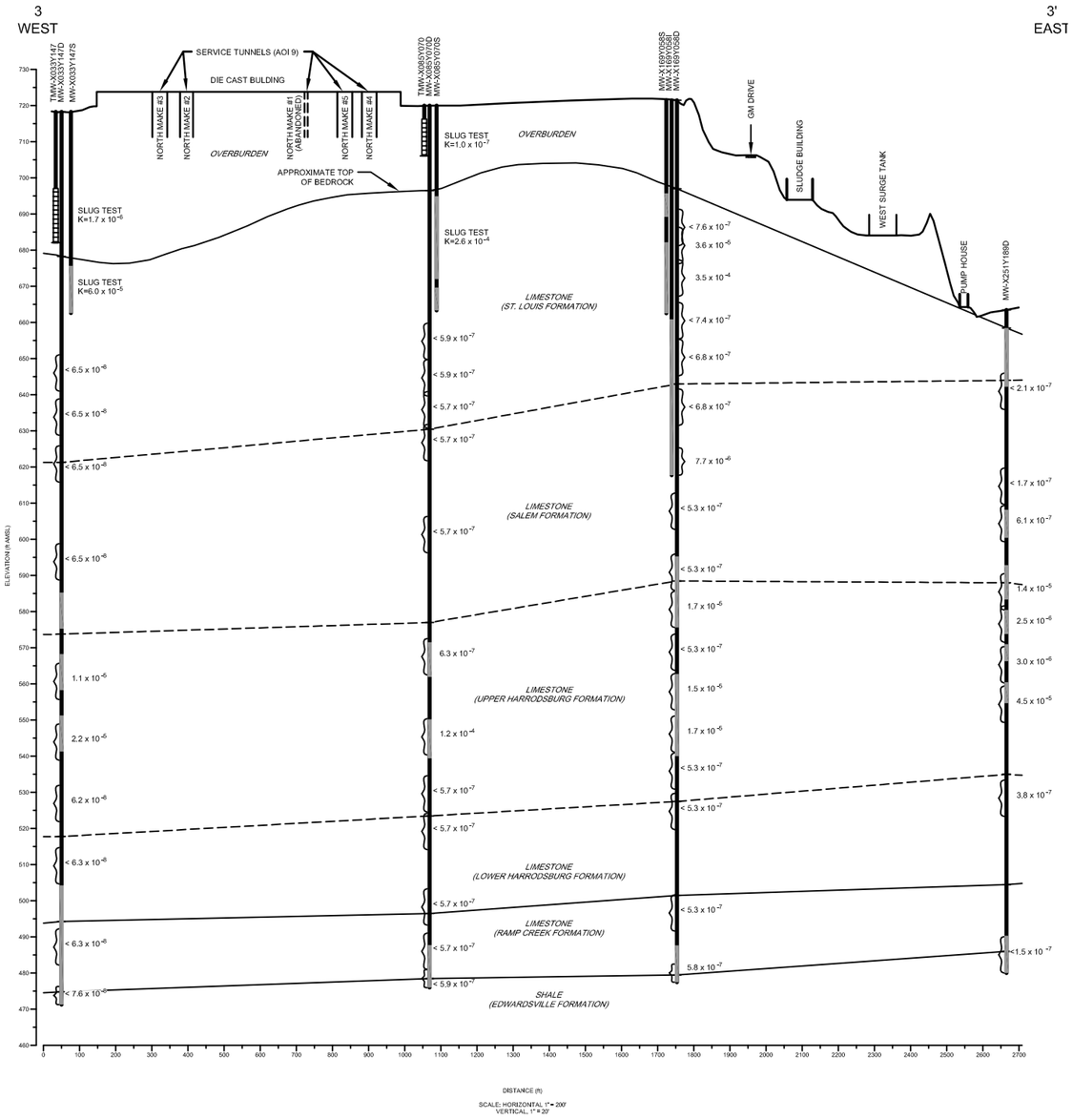
BEDROCK
GEOLOGIC CROSS-SECTION 2 - 2'

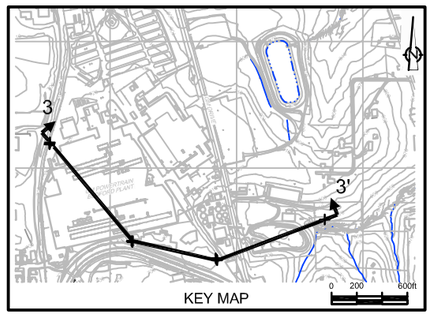
CONESTOGA-ROVERS & ASSOCIATES

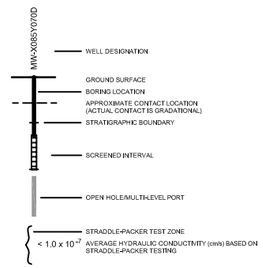
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Project Manager:	Reviewed By:	Date:	
J.M.	D.M.	NOVEMBER 2003	
Scale: AS SHOWN	Project No.: 13968-00	Report No.: 045	Drawing No.: figure 3.25

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No.	Revision	Date	Initial

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Status	Date	Initial

GM POWERTRAIN BEDFORD PLANT
BEDFORD, INDIANA

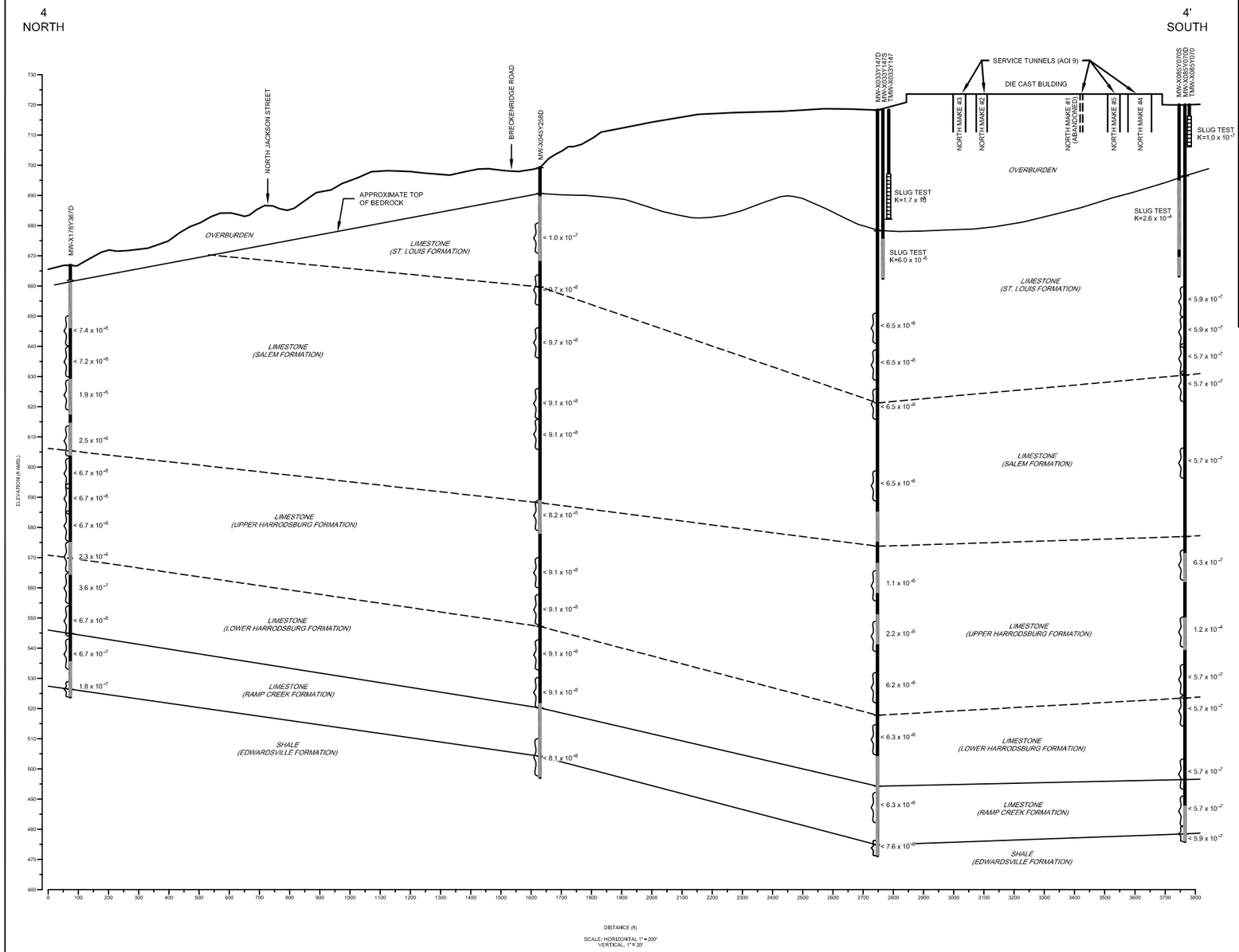
RFI INVESTIGATION

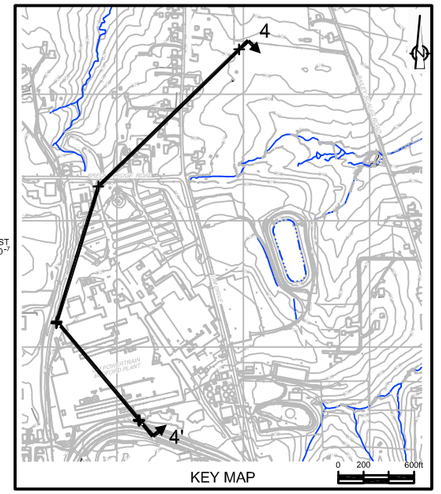
BEDROCK
GEOLOGIC CROSS-SECTION 3 - 3'

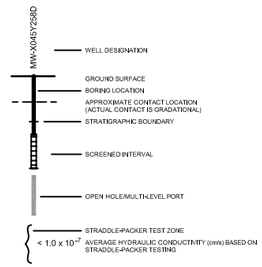
CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
BASE MAP COMPLETED BY AIR-LAND SURVEYS, FLINT, MI, APRIL 2001.

Project Manager:	Reviewed By:	Date:	
J.M.	D.M.	NOVEMBER 2003	
Scale: AS SHOWN	Project No.: 13968-00	Report No.: 045	Drawing No.: figure 3.26







No.	Revision	Date	Initial

SCALE VERIFICATION

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DRAWING STATUS

Status	Date	Initial

GM POWERTRAIN BEDFORD PLANT
BEDFORD, INDIANA

RFI INVESTIGATION

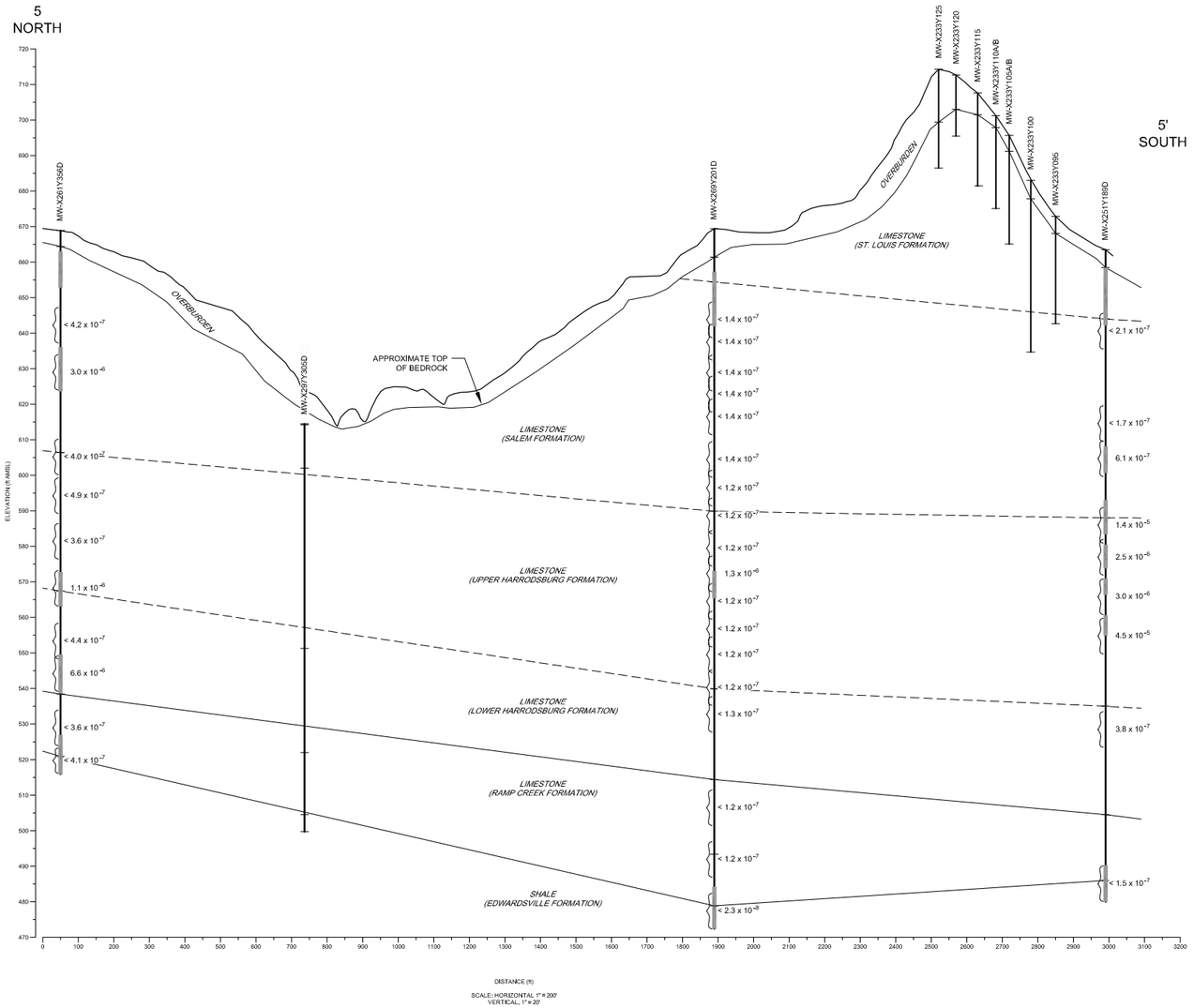
BEDROCK
GEOLOGIC CROSS-SECTION 4 - 4'

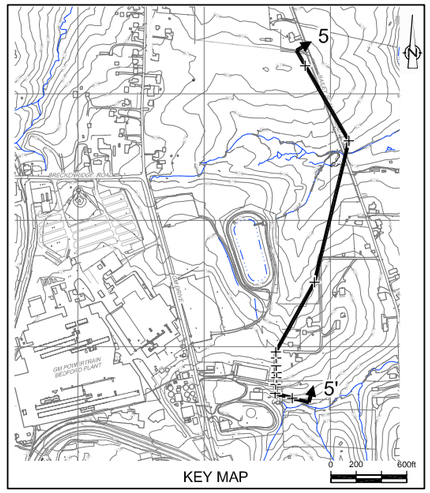
CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
BASE MAP COMPLETED BY AIR-LAND SURVEYS, FLINT, MI, APRIL 2001.

Project Manager:	Reviewed By:	Date:	
J.M.	D.M.	NOVEMBER 2003	
Scale: AS SHOWN	Project No.: 13968-00	Report No.: 045	Drawing No.: figure 3.27

13968-00(045)GN-WA037 APR 13/2004





MW-X261Y356D — WELL DESIGNATION

GROUND SURFACE

BORING LOCATION

APPROXIMATE CONTACT LOCATION (ACTUAL CONTACT IS GRADATIONAL)

STRATIGRAPHIC BOUNDARY

OPEN HOLE/MULTI-LEVEL PORT

STRADDLE-PACKER TEST ZONE

< 1.0 x 10-7 AVERAGE HYDRAULIC CONDUCTIVITY (cm/s) BASED ON STRADDLE-PACKER TESTING

NO	Revision	Date	Initial

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

DRAWING STATUS

Status	Date	Initial

GM POWERTRAIN BEDFORD PLANT BEDFORD, INDIANA

RFI INVESTIGATION

BEDROCK GEOLOGIC CROSS-SECTION 5 - 5'

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:

BASE MAP COMPLETED BY AIR-LAND SURVEYS, FLINT, MI, APRIL 2001.

Project Manager:	Reviewed By:	Date:	
J.M.	D.M.	NOVEMBER 2003	
Scale: AS SHOWN	Project No: 13968-00	Report No: 045	Drawing No: figure 3.28

13968-00(045)GN-WA062 APR 13/2004

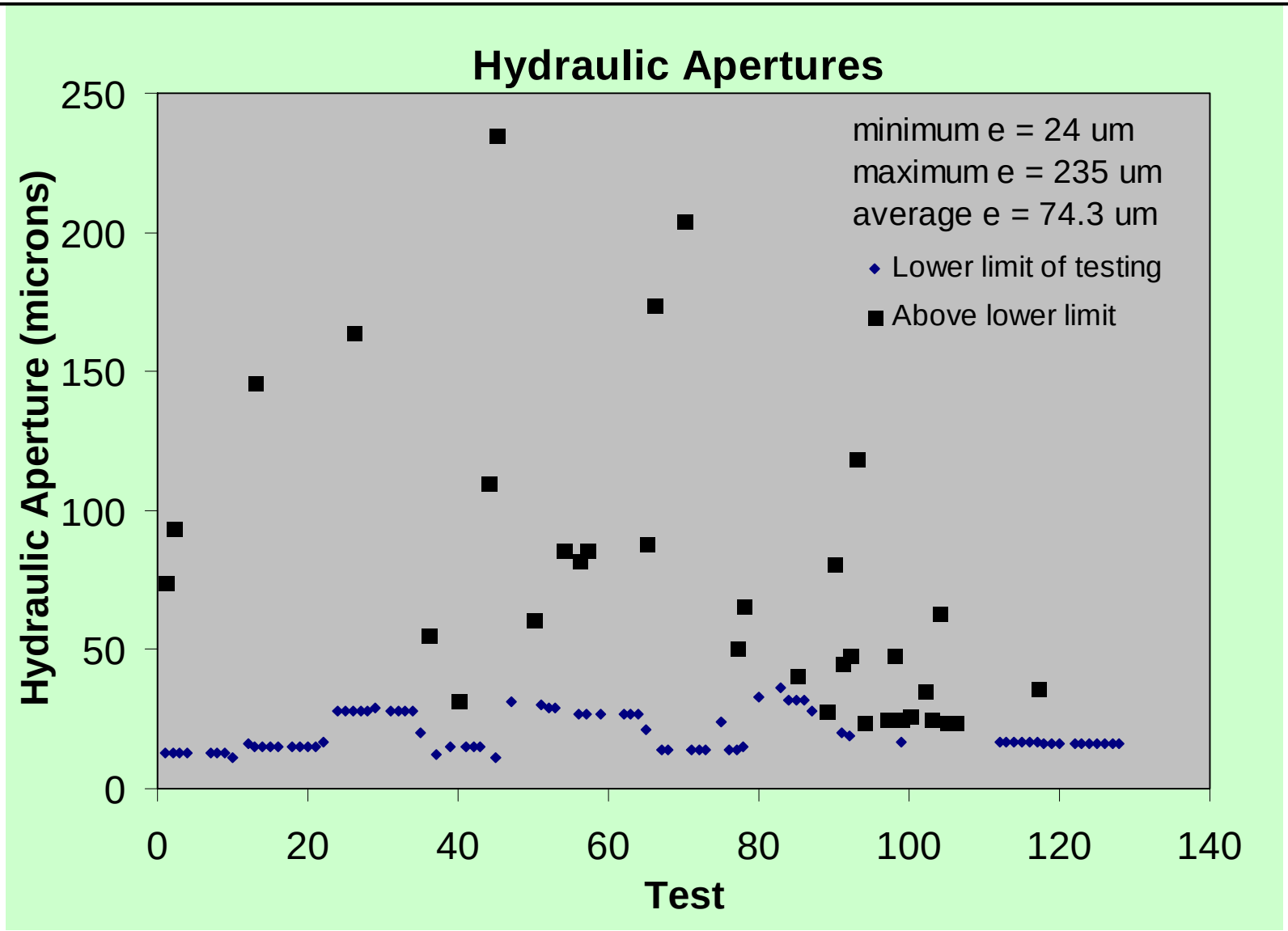
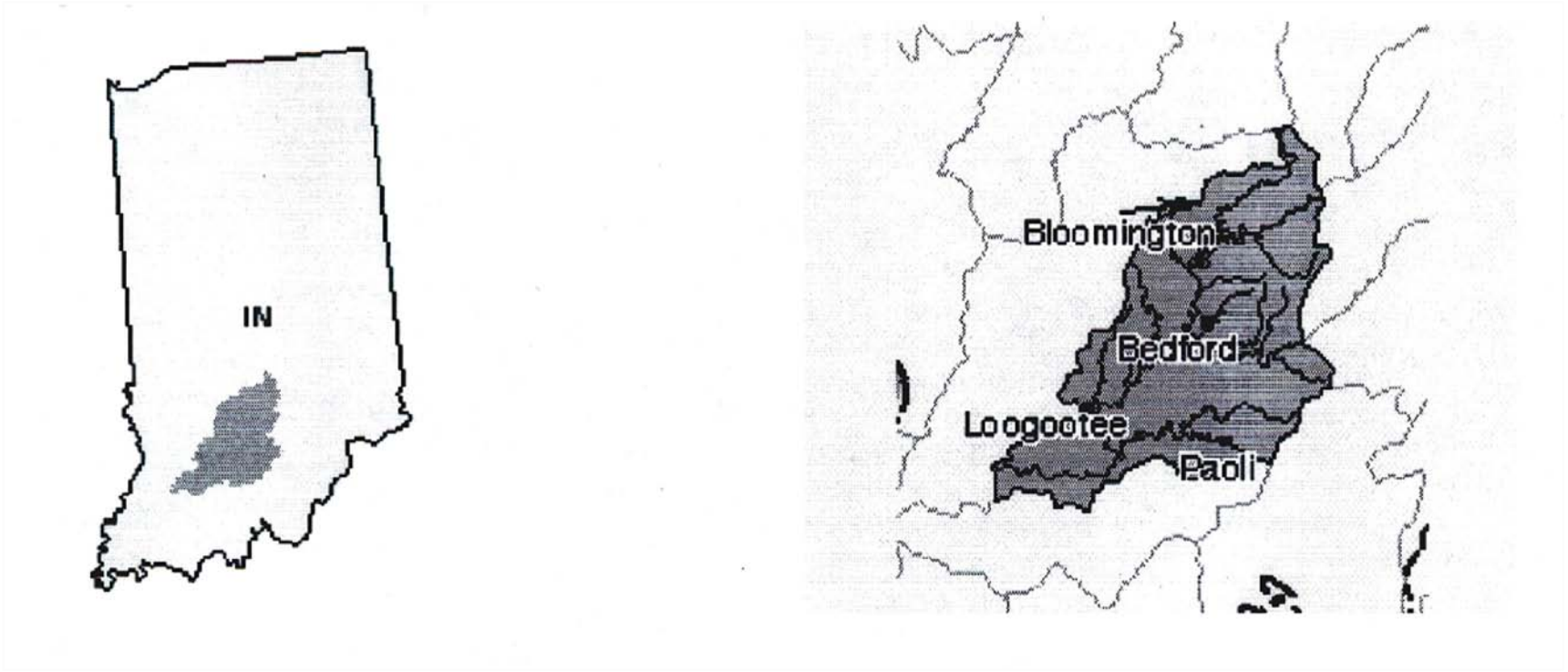


figure 3.29

HYDRAULIC APERTURE GRAPH
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana



SOURCE: U.S. EPA, UNDATED

N

NOT TO SCALE

figure 3.30

LOWER EAST FORK WHITE RIVER DRAINAGE MAP
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

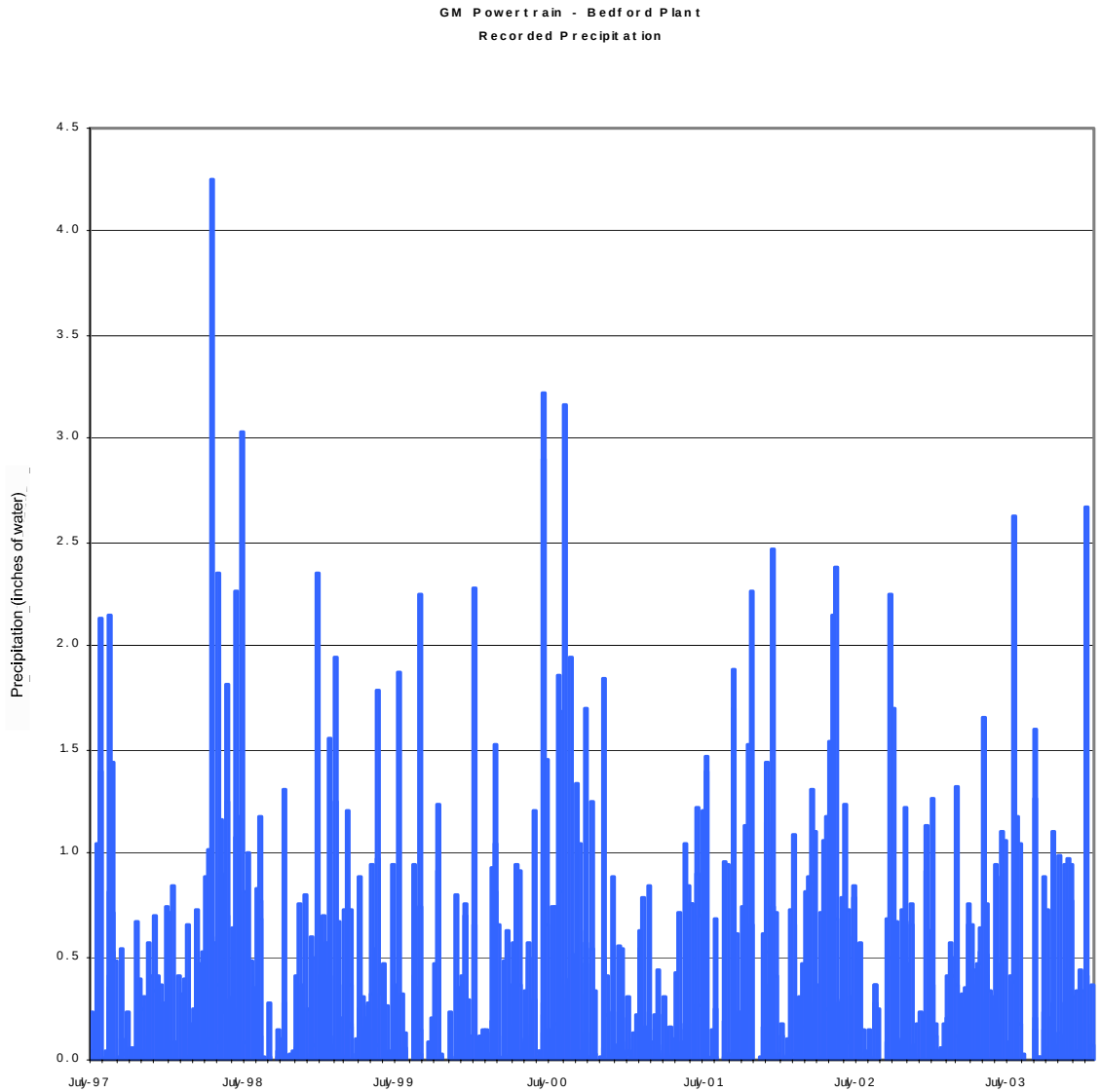
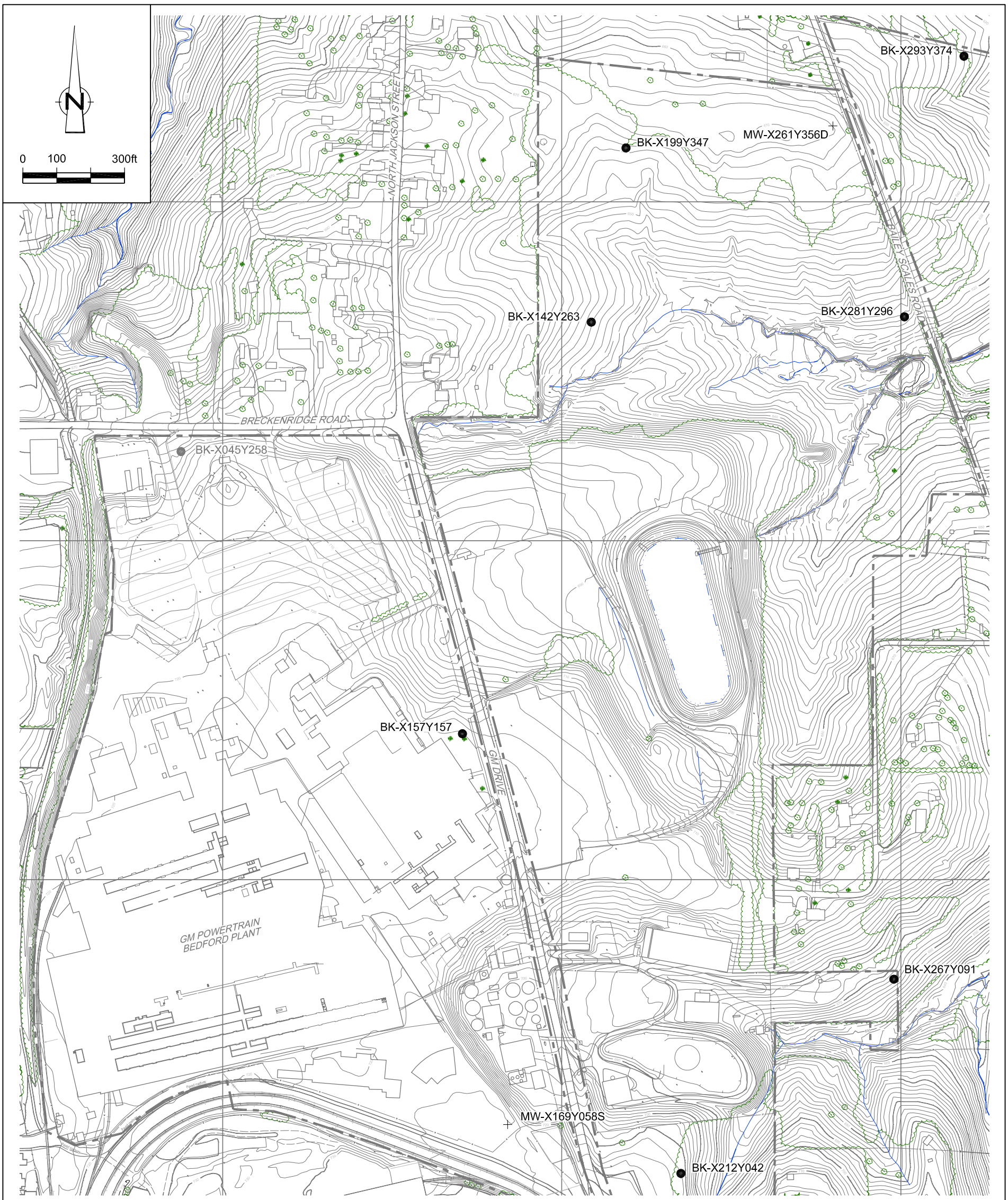


figure 3.31

PRECIPITATION GRAPH FROM THE GM BEDFORD FACILITY
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana



LEGEND

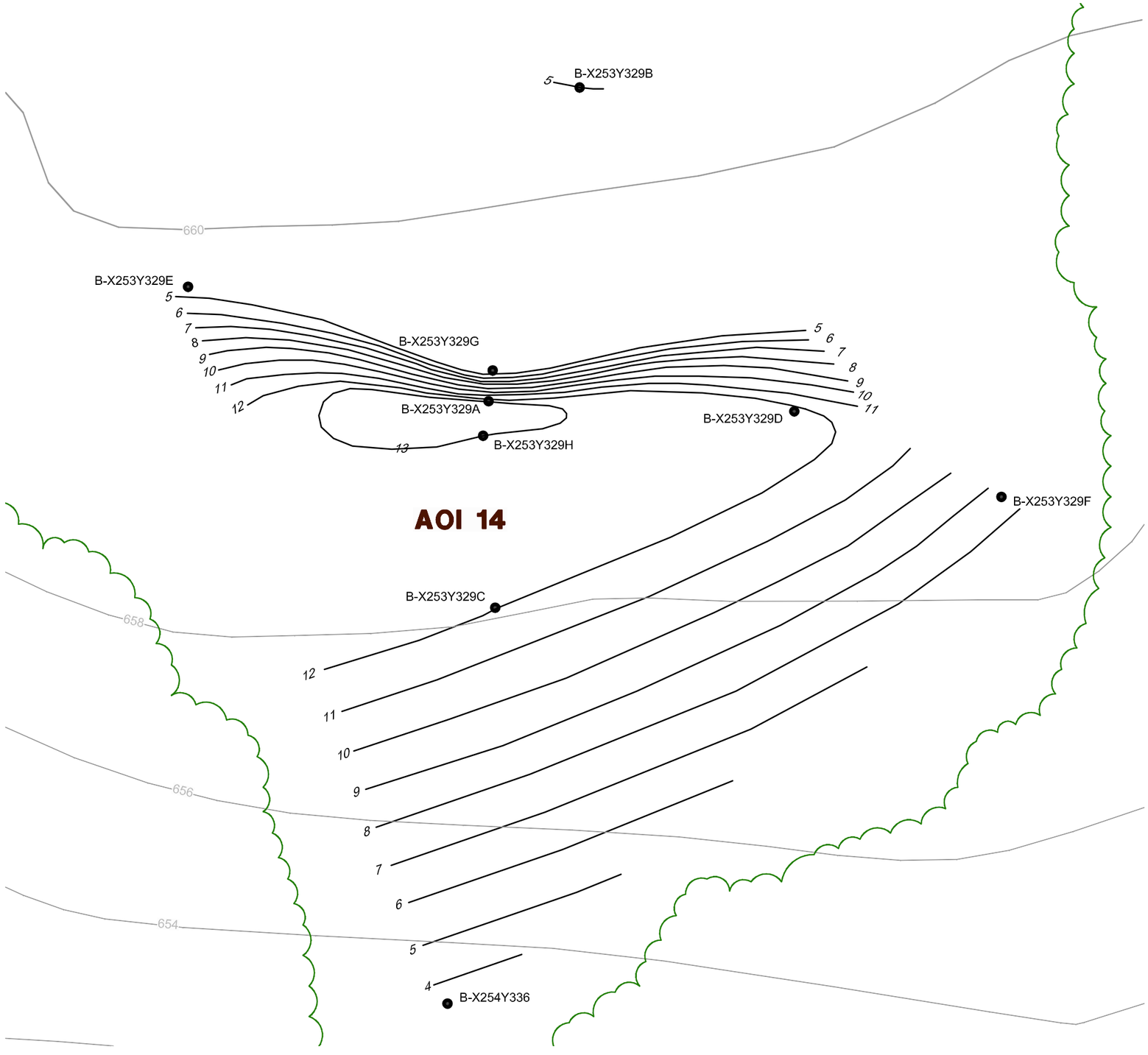
- EXISTING GROUND SURFACE ELEVATION CONTOURS (feet AMSL)
- EXISTING VEGETATION
- EXISTING BUILDINGS
- FENCE LINE
- RAILROAD TRACKS
- DIRT ROADS
- ROADS / PAVED AREAS
- APPROXIMATE SURFACE WATER LOCATION
- APPROXIMATE GM PROPERTY BOUNDARY

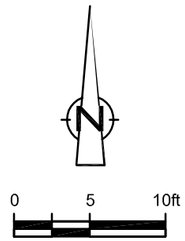
- BK-X045Y258 — BACKGROUND SOIL SAMPLE LOCATION NOT USED
- MW-X261Y356D — MONITORING WELL AND BACKGROUND SOIL SAMPLE LOCATION
- BK-X142Y263 — BACKGROUND SOIL SAMPLE LOCATION

figure 5.1

BACKGROUND SOIL SAMPLE LOCATIONS
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

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LEGEND

610 — EXISTING GROUND SURFACE ELEVATION CONTOURS (feet AMSL)

EXISTING VEGETATION

B-X253Y329B ● SOIL BORING LOCATION

10 — OVERBURDEN THICKNESS CONTOUR (ft)

figure 5.2

OVERBURDEN THICKNESS AT AOI 14
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

13968-00(045)GN-WA048 APR 13/2004

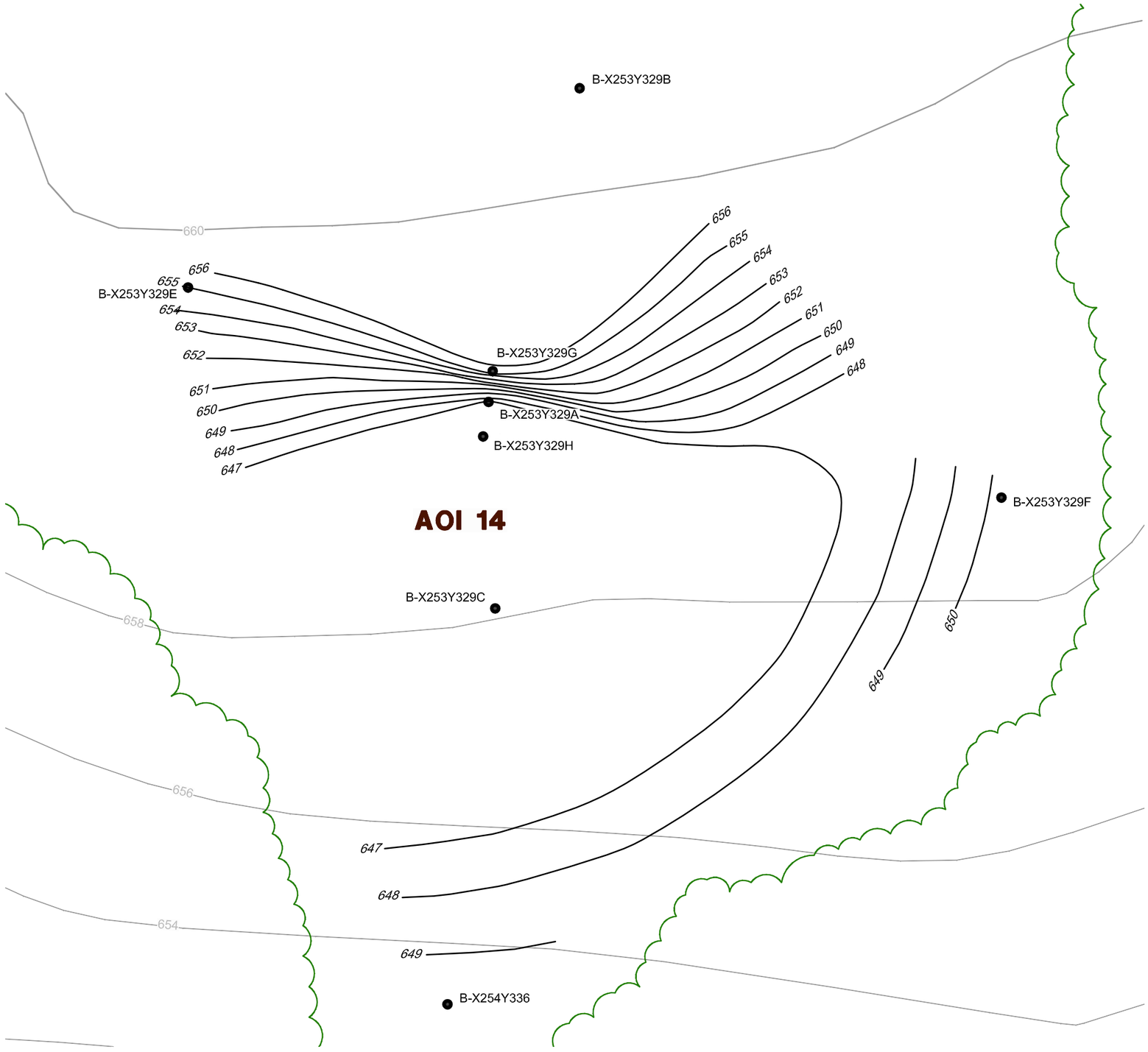


figure 5.3

BEDROCK ELEVATION AT AOI 14
RFI INVESTIGATION
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

13968-00(045)GN-WA049 APR 13/2004

TABLE 2.1

SUMMARY OF RFI SAMPLES
GM POWERTRAIN - BEDFORD PLANT
BEDFORD, INDIANA

Area of Interest	*Sample ID*	*Location ID*	*Collection Date*	*Sample Interval (ft bgs)*		*Sample Type*
				Top	*Bottom*	
Soil Samples						
A001	S-030502-KMV-540	B-X100Y072	05-Mar-02	0	2	N
A001	S-030502-KMV-541	B-X100Y072	05-Mar-02	0	2	FD
A001	S-030502-KMV-542	B-X100Y072	05-Mar-02	6	8	N
A001	S-030502-KMV-543	B-X100Y072	05-Mar-02	24	26	N
A001	S-030602-KMV-544	B-X115Y070	06-Mar-02	0	2	N
A001	S-030602-KMV-545	B-X115Y070	06-Mar-02	0	2	FD
A001	S-030602-KMV-546	B-X115Y070	06-Mar-02	6	8	N
A001	S-030602-KMV-547	B-X115Y070	06-Mar-02	22	23	N
A001	S-030702-MG-164	B-X128Y079	07-Mar-02	2	4	N
A001	S-030702-MG-165	B-X128Y079	07-Mar-02	6	8	N
A001	S-030702-MG-166	B-X128Y079	07-Mar-02	14	15	N
A001	S-030702-MG-167	B-X128Y079	07-Mar-02	21	23	N
A001	S-030702-MG-168	B-X128Y079	07-Mar-02	21	23	FD
A001	S-030702-MG-169	B-X130Y064	07-Mar-02	2	4	N
A001	S-030702-MG-170	B-X130Y064	07-Mar-02	6	8	N
A001	S-030702-MG-171	B-X130Y064	07-Mar-02	20	22	N
A001	S-071502-CLM-004	B-X130Y115	15-Jul-02	0	2	N
A001	S-071502-CLM-005	B-X130Y115	15-Jul-02	6	8	N
A001	S-071502-CLM-010	B-X130Y115	15-Jul-02	13	15	FD
A001	S-071502-CLM-006	B-X130Y115	15-Jul-02	13	15	N
A001	S-071502-CLM-007	B-X135Y110	15-Jul-02	0	2	N
A001	S-071502-CLM-008	B-X135Y110	15-Jul-02	6	8	N
A001	S-071502-CLM-009	B-X135Y110	15-Jul-02	13	15	N
A001	S-030802-KMV-548	B-X137Y073	08-Mar-02	8	10	N
A001	S-031202-KMV-549	B-X137Y073	12-Mar-02	18	20	N
A001	S-071502-CLM-001	B-X140Y100	15-Jul-02	0	2	N
A001	S-071502-CLM-002	B-X140Y100	15-Jul-02	6	8	N
A001	S-071502-CLM-003	B-X140Y100	15-Jul-02	13	15	N
A001	S-031302-MG-179	B-X143Y075	13-Mar-02	11	13	FD
A001	S-031302-MG-178	B-X143Y075	13-Mar-02	11	13	N
A001	S-031302-MG-180	B-X143Y075	13-Mar-02	19	21	N
A001	S-030802-MG-172	B-X148Y076	08-Mar-02	0	2	N
A001	S-030802-MG-173	B-X148Y076	08-Mar-02	6	8	N
A001	S-030802-MG-174	B-X148Y076	08-Mar-02	18	20	N
A001	S-020402-KMV-520	MW-X085Y070S	04-Feb-02	0	2	FD
A001	S-020402-KMV-519	MW-X085Y070S	04-Feb-02	0	2	N
A001	S-020402-KMV-521	MW-X085Y070S	04-Feb-02	8	10	N
A001	S-020402-KMV-522	MW-X085Y070S	04-Feb-02	22	23	N
A001	S-020602-MG-099	MW-X169Y058S	06-Feb-02	0	2	N
A001	S-020602-MG-100	MW-X169Y058S	06-Feb-02	6	8	N
A001	S-020602-MG-101	MW-X169Y058S	06-Feb-02	22	24	N
A001	S-020602-MG-102	MW-X169Y058S	06-Feb-02	22	24	FD
A002	S-012302-MG-065	B-X100Y198	23-Jan-02	0	2	N
A002	S-012302-MG-066	B-X100Y198	23-Jan-02	6	8	N
A002	S-012302-MG-068	B-X100Y198	23-Jan-02	33	35	FD
A002	S-012302-MG-067	B-X100Y198	23-Jan-02	33	35	N
A002	S-012302-MG-069	B-X107Y203	23-Jan-02	0	2	N
A002	S-012302-MG-070	B-X107Y203	23-Jan-02	6	8	N
A002	S-012302-MG-071	B-X107Y203	23-Jan-02	31	32	N
A002	S-012402-MG-075	B-X108Y190	24-Jan-02	0	2	N
A002	S-012402-MG-076	B-X108Y190	24-Jan-02	6	8	N
A002	S-012402-MG-077	B-X108Y190	24-Jan-02	31	32	N
A002	S-012402-MG-072	B-X113Y194	24-Jan-02	0	2	N
A002	S-012402-MG-073	B-X113Y194	24-Jan-02	6	8	N
A002	S-012402-MG-074	B-X113Y194	24-Jan-02	32	34	N
A004	S-022003-MG-242	B-X177Y252D	20-Feb-03	6	8	FD
A004	S-022003-MG-240	B-X177Y252D	20-Feb-03	0	2	N
A004	S-022003-MG-241	B-X177Y252D	20-Feb-03	6	8	N

TABLE 2.1

SUMMARY OF RFI SAMPLES
GM POWERTRAIN - BEDFORD PLANT
BEDFORD, INDIANA

Area of Interest	*Sample ID*	*Location ID*	*Collection Date*	*Sample Interval (ft bgs)*		*Sample Type*
				Top	*Bottom*	
A004	S-022003-MG-243	B-X177Y252D	20-Feb-03	18	20	N
A004	S-022003-MG-244	B-X177Y252D	20-Feb-03	24	25	N
A004	S-030602-MG-156	B-X187Y217	06-Mar-02	0	2	N
A004	S-030602-MG-157	B-X187Y217	06-Mar-02	6	8	N
A004	S-030502-MG-153	B-X192Y234	05-Mar-02	0	2	N
A004	S-030502-MG-154	B-X192Y234	05-Mar-02	6	8	N
A004	S-030502-MG-155	B-X192Y234	05-Mar-02	20	22	N
A004	S-030402-MG-146	B-X193Y251	04-Mar-02	0	2	N
A004	S-030402-MG-147	B-X193Y251	04-Mar-02	0	2	FD
A004	S-030402-MG-148	B-X193Y251	04-Mar-02	6	8	N
A004	S-030402-MG-149	B-X193Y251	04-Mar-02	26	28	N
A004	S-022502-KMV-536	B-X219Y249	25-Feb-02	0	2	N
A004	S-022502-KMV-537	B-X219Y249	25-Feb-02	0	2	FD
A004	S-022602-KMV-538	B-X219Y249	26-Feb-02	6	8	N
A004	S-022602-KMV-539	B-X219Y249	26-Feb-02	22	23	N
A004	S-012203-MG-236	B-X233Y247D	22-Jan-03	0	2	N
A004	S-012203-MG-237	B-X233Y247D	22-Jan-03	8	10	N
A004	S-012203-MG-238	B-X233Y247D	22-Jan-03	22	24	N
A004	S-012203-MG-239	B-X233Y247D	22-Jan-03	34	35	N
A004	S-030502-MG-150	B-X243Y257	05-Mar-02	0	2	N
A004	S-030502-MG-151	B-X243Y257	05-Mar-02	6	8	N
A004	S-030502-MG-152	B-X243Y257	05-Mar-02	14	16	N
A005	S-010902-MG-021	B-X165Y179	09-Jan-02	0	2	N
A005	S-010902-MG-022	B-X165Y179	09-Jan-02	6	8	N
A005	S-010902-MG-023	B-X165Y179	09-Jan-02	16	18	N
A005	S-032102-MG-203	B-X170Y143	21-Mar-02	0	2	N
A005	S-032102-MG-204	B-X170Y143	21-Mar-02	6	8	N
A005	S-032102-MG-205	B-X170Y143	21-Mar-02	19.5	21.5	N
A005	S-032202-MG-206	B-X171Y157	22-Mar-02	0	2	N
A005	S-032202-MG-207	B-X171Y157	22-Mar-02	6	8	N
A005	S-032202-MG-209	B-X171Y157	22-Mar-02	18	20	FD
A005	S-032202-MG-208	B-X171Y157	22-Mar-02	18	20	N
A005	S-060302-MG-214	B-X173Y134	03-Jun-02	2	4	N
A005	S-060302-MG-215	B-X173Y134	03-Jun-02	4	6	N
A005	S-010902-MG-017	B-X176Y143	09-Jan-02	0	2	N
A005	S-010902-MG-018	B-X176Y143	09-Jan-02	6	8	N
A005	S-010902-MG-019	B-X176Y143	09-Jan-02	21	23	N
A005	S-010902-MG-020	B-X176Y143	09-Jan-02	21	23	FD
A005	S-022202-MG-128	B-X176Y179	22-Feb-02	3.5	5	N
A005	S-022202-MG-129	B-X176Y179	22-Feb-02	6	8	N
A005	S-022202-MG-130	B-X176Y179	22-Feb-02	24	26	N
A005	S-022102-MG-122	B-X176Y187	21-Feb-02	0	2	N
A005	S-022102-MG-123	B-X176Y187	21-Feb-02	0	2	FD
A005	S-022102-MG-124	B-X176Y187	21-Feb-02	8	10	N
A005	S-022102-MG-125	B-X176Y187	21-Feb-02	36	38	N
A005	S-011002-MG-024	B-X185Y185	10-Jan-02	0	2	N
A005	S-011002-MG-025	B-X185Y185	10-Jan-02	6	8	N
A005	S-011002-MG-026	B-X185Y185	10-Jan-02	14	15	N
A005	S-011002-MG-027	B-X185Y185	10-Jan-02	33.5	35.5	N
A005	S-031502-MG-186	B-X185Y195	15-Mar-02	0	2	N
A005	S-031502-MG-187	B-X185Y195	15-Mar-02	6	8	N
A005	S-031502-MG-188	B-X185Y195	15-Mar-02	11	12.5	N
A005	S-032002-MG-196	B-X186Y159	20-Mar-02	1	3	FD
A005	S-032002-MG-195	B-X186Y159	20-Mar-02	1	3	N
A005	S-032002-MG-197	B-X186Y159	20-Mar-02	6	8	N
A005	S-032002-MG-198	B-X186Y159	20-Mar-02	18	20	N
A005	S-032002-MG-199	B-X186Y159	20-Mar-02	21	23	N
A005	S-032102-MG-200	B-X186Y180	21-Mar-02	0	2	N
A005	S-032102-MG-201	B-X186Y180	21-Mar-02	6	8	N
A005	S-032102-MG-202	B-X186Y180	21-Mar-02	20	22	N

TABLE 2.1

SUMMARY OF RFI SAMPLES
GM POWERTRAIN - BEDFORD PLANT
BEDFORD, INDIANA

Area of Interest	*Sample ID*	*Location ID*	*Collection Date*	*Sample Interval (ft bgs)*		*Sample Type*
				Top	*Bottom*	
A005	S-031802-MG-191	B-X193Y172	18-Mar-02	0	2	N
A005	S-031802-MG-192	B-X193Y172	18-Mar-02	6	8	N
A005	S-031802-MG-193	B-X193Y172	18-Mar-02	25	27	N
A005	S-031802-MG-194	B-X193Y172	18-Mar-02	31	33	N
A005	S-022102-MG-126	B-X193Y194	21-Feb-02	0	2	N
A005	S-022102-MG-127	B-X193Y194	21-Feb-02	5	7	N
A005	S-011002-MG-029	B-X200Y161	10-Jan-02	0	2	FD
A005	S-011002-MG-028	B-X200Y161	10-Jan-02	0	2	N
A005	S-011002-MG-030	B-X200Y161	10-Jan-02	6	8	N
A005	S-011002-MG-031	B-X200Y161	10-Jan-02	9	11	N
A005	S-071802-CLM-001	SS-X187Y177	18-Jul-02	0	2	N
A005	S-071802-CLM-005	SS-X189Y169	18-Jul-02	0	2	FD
A005	S-071802-CLM-002	SS-X189Y169	18-Jul-02	0	2	N
A005	S-071802-CLM-003	SS-X193Y160	18-Jul-02	0	2	N
A005	S-071802-CLM-004	SS-X194Y152	18-Jul-02	0	2	N
A005	S-060302-MG-222	SS-X195Y161	03-Jun-02	0	2	N
A005	S-060302-MG-221	SS-X200Y156	03-Jun-02	0	2	N
A005	S-082702-JW-006	SS-X200Y161	27-Aug-02	0	2	N
A005	S-060302-MG-223	SS-X200Y166	03-Jun-02	0	2	N
A005	S-060302-MG-224	SS-X205Y161	03-Jun-02	0	2	N
A006	S-060302-MG-216	B-X170Y134	03-Jun-02	0	2	N
A006	S-060302-MG-217	B-X170Y134	03-Jun-02	4	6	N
A006	S-060302-MG-218	B-X170Y134	03-Jun-02	4	6	FD
A006	S-060302-MG-219	B-X173Y125	03-Jun-02	0	2	N
A006	S-060302-MG-220	B-X173Y125	03-Jun-02	4	6	N
A006	S-031402-MG-181	B-X173Y131	14-Mar-02	0	2	N
A006	S-031402-MG-182	B-X173Y131	14-Mar-02	6	8	N
A006	S-031402-MG-183	B-X173Y131	14-Mar-02	18	20	N
A006	S-011102-MG-039	B-X183Y133	11-Jan-02	0	2	N
A006	S-011102-MG-040	B-X183Y133	11-Jan-02	3.5	4.5	N
A006	S-011102-MG-041	B-X183Y133	11-Jan-02	6	8	N
A006	S-011102-MG-042	B-X183Y133	11-Jan-02	6	8	FD
A006	S-011102-MG-043	B-X183Y133	11-Jan-02	18	19	N
A006	S-011502-MG-054	B-X189Y122	15-Jan-02	0	2	N
A006	S-011502-MG-055	B-X189Y122	15-Jan-02	6	8	N
A006	S-011502-MG-056	B-X189Y122	15-Jan-02	8	10	N
A006	S-031102-MG-175	B-X195Y133	11-Mar-02	0	2	N
A006	S-031102-MG-176	B-X195Y133	11-Mar-02	6	8	N
A006	S-031102-MG-177	B-X195Y133	11-Mar-02	15	17	N
A006	S-011102-MG-044	B-X204Y132	11-Jan-02	0	2	N
A006	S-011102-MG-045	B-X204Y132	11-Jan-02	6	8	N
A006	S-011102-MG-046	B-X204Y132	11-Jan-02	14	15.5	N
A006	S-011002-MG-032	B-X204Y149	10-Jan-02	0	2	N
A006	S-011002-MG-033	B-X204Y149	10-Jan-02	6	8	N
A006	S-011002-MG-034	B-X204Y149	10-Jan-02	15	16	N
A006	S-031402-MG-184	B-X209Y177	14-Mar-02	0	2	N
A006	S-031402-MG-185	B-X209Y177	14-Mar-02	2	4	N
A006	S-011402-MG-050	B-X211Y169	14-Jan-02	0	2	N
A006	S-011402-MG-051	B-X211Y169	14-Jan-02	6	8	N
A006	S-011402-MG-052	B-X211Y169	14-Jan-02	10	11	N
A006	S-011402-MG-053	B-X211Y169	14-Jan-02	12	12.5	N
A006	S-022502-MG-131	B-X213Y125	25-Feb-02	0	2	N
A006	S-022502-MG-134	B-X213Y125	25-Feb-02	5	6	N
A006	S-022502-MG-132	B-X213Y125	25-Feb-02	6	8	N
A006	S-022502-MG-133	B-X213Y125	25-Feb-02	10	11.5	N
A006	S-022702-MG-141	B-X217Y159	27-Feb-02	0	2	N
A006	S-022702-MG-142	B-X217Y159	27-Feb-02	6	7	N
A006	S-011102-MG-035	B-X218Y141	11-Jan-02	0	2	N
A006	S-011102-MG-036	B-X218Y141	11-Jan-02	6	8	N
A006	S-011102-MG-037	B-X218Y141	11-Jan-02	8	10	N

TABLE 2.1

SUMMARY OF RFI SAMPLES
GM POWERTRAIN - BEDFORD PLANT
BEDFORD, INDIANA

Area of Interest	*Sample ID*	*Location ID*	*Collection Date*	*Sample Interval (ft bgs)*		*Sample Type*
				Top	*Bottom*	
A006	S-011102-MG-038	B-X218Y141	11-Jan-02	14	15.5	N
A006	S-022702-MG-139	B-X221Y169	27-Feb-02	0	2	N
A006	S-022702-MG-140	B-X221Y169	27-Feb-02	4	5	N
A006	S-011402-MG-047	B-X223Y124	14-Jan-02	0	2	N
A006	S-011402-MG-048	B-X223Y124	14-Jan-02	6	8	N
A006	S-011402-MG-049	B-X223Y124	14-Jan-02	14	15	N
A006	S-022702-MG-143	B-X223Y150B	27-Feb-02	3	4	N
A006	S-022702-MG-144	B-X223Y150B	27-Feb-02	6	8	N
A006	S-022702-MG-145	B-X223Y150B	27-Feb-02	10	12	N
A006	S-022502-MG-135	B-X224Y138A	25-Feb-02	0	2	N
A006	S-022502-MG-136	B-X224Y138B	25-Feb-02	0	2	N
A006	S-022502-MG-137	B-X224Y138B	25-Feb-02	6	8	N
A006	S-022502-MG-138	B-X224Y138B	25-Feb-02	14	16	N
A006	S-031802-MG-189	B-X232Y180	18-Mar-02	0	2	N
A006	S-031802-MG-190	B-X232Y180	18-Mar-02	4.5	6.5	N
A006	S-012502-KMV-514	MW-X234Y157S	25-Jan-02	0	2	N
A006	S-012502-KMV-515	MW-X234Y157S	25-Jan-02	0	2	FD
A006	S-012502-KMV-516	MW-X234Y157S	25-Jan-02	4	6	N
A007	S-030602-MG-161	B-X158Y207	06-Mar-02	0	2	N
A007	S-030602-MG-162	B-X158Y207	06-Mar-02	6	8	N
A007	S-030602-MG-163	B-X158Y207	06-Mar-02	22	24	N
A007	S-030602-MG-158	B-X170Y211	06-Mar-02	0	2	N
A007	S-030602-MG-159	B-X170Y211	06-Mar-02	6	8	N
A007	S-030602-MG-160	B-X170Y211	06-Mar-02	26	28	N
A007	S-031402-JW-1429	SD-X196Y272	14-Mar-02	0	0.33	N
A008	S-010702-MG-004	B-X193Y098	07-Jan-02	0	2	N
A008	S-010702-MG-005	B-X193Y098	07-Jan-02	6	8	N
A008	S-010702-MG-006	B-X193Y098	07-Jan-02	12	13	N
A008	S-010702-MG-007	B-X193Y098	07-Jan-02	13	14	N
A008	S-010802-MG-013	B-X223Y097A	08-Jan-02	0	2	N
A008	S-010802-MG-014	B-X223Y097A	08-Jan-02	6	8	N
A008	S-010802-MG-015	B-X223Y097B	08-Jan-02	5	6	N
A008	S-042403-JM-1008	MW-X233Y095	24-Apr-03	2.6	4	N
A008	S-042403-JM-1007	MW-X233Y100	24-Apr-03	5	6	N
A008	S-041603-KMV-572	MW-X233Y115	16-Apr-03	6	7	N
A008	S-041603-KMV-571	MW-X233Y115	16-Apr-03	0	2	N
A008	S-042203-JM-1003	MW-X233Y120	22-Apr-03	8	10	N
A008	S-042203-JM-1002	MW-X233Y120	22-Apr-03	6	8	N
A008	S-042203-JM-1001	MW-X233Y120	22-Apr-03	0	2	FD
A008	S-042203-JM-1000	MW-X233Y120	22-Apr-03	0	2	N
A008	S-042203-JM-1004	MW-X233Y125	22-Apr-03	0	2	N
A008	S-042203-JM-1005	MW-X233Y125	22-Apr-03	6	8	N
A008	S-042203-JM-1006	MW-X233Y125	22-Apr-03	12	14	N
A009	S-050202-DD-009	B-X047Y072	02-May-02	0	2	N
A009	S-050202-DD-010	B-X047Y072	02-May-02	6	8	N
A009	S-050202-DD-011	B-X047Y072	02-May-02	35	36	N
A009	RC-050302-DD-012	B-X047Y072	03-May-02	39.5	40	N
A009	S-020602-MG-096	B-X048Y086	06-Feb-02	0	2	N
A009	S-020602-MG-097	B-X048Y086	06-Feb-02	6	8	N
A009	S-020602-MG-098	B-X048Y086	06-Feb-02	31	33	N
A009	S-070902-MG-232	B-X059Y135B	09-Jul-02	2	4	N
A009	S-070902-MG-233	B-X059Y135B	09-Jul-02	6	8	N
A009	S-070902-MG-234	B-X059Y135B	09-Jul-02	34	36	N
A009	S-070902-MG-235	B-X059Y135B	09-Jul-02	40	42	N
A009	S-021202-MG-103	B-X069Y098B	12-Feb-02	3.5	5.5	N
A009	S-021202-MG-104	B-X069Y098B	12-Feb-02	6	8	N
A009	S-021202-MG-105	B-X069Y098B	12-Feb-02	20	22	N
A009	S-042302-DD-001	B-X069Y098B	23-Apr-02	36.5	36.6	N
A009	S-042302-DD-002	B-X069Y098B	23-Apr-02	44.5	44.6	N
A009	S-052902-MG-213	B-X084Y138B	29-May-02	6	8	N

TABLE 2.1

SUMMARY OF RFI SAMPLES
GM POWERTRAIN - BEDFORD PLANT
BEDFORD, INDIANA

Area of Interest	*Sample ID*	*Location ID*	*Collection Date*	*Sample Interval (ft bgs)*		*Sample Type*
				Top	*Bottom*	
A009	S-050702-MG-210	B-X093Y090	07-May-02	3	5	N
A009	S-050702-MG-211	B-X093Y090	07-May-02	6	8	N
A009	S-050702-MG-212	B-X093Y090	07-May-02	23	25	N
A009	RC-050702-MG-001	B-X093Y090	07-May-02	27	27.5	N
A009	S-021202-MG-106	B-X106Y102B	12-Feb-02	2	4	N
A009	S-021202-MG-107	B-X106Y102B	12-Feb-02	6	8	N
A009	S-021202-MG-108	B-X106Y102B	12-Feb-02	6	8	FD
A009	S-021202-MG-109	B-X106Y102B	12-Feb-02	20	22	N
A009	RC-042902-DD-007	B-X106Y102C	29-Apr-02	27.8	28	N
A009	S-042902-DD-003	B-X130Y089	29-Apr-02	0	2	N
A009	S-042902-DD-004	B-X130Y089	29-Apr-02	6	8	N
A009	S-042902-DD-005	B-X130Y089	29-Apr-02	6	8	FD
A009	S-042902-DD-006	B-X130Y089	29-Apr-02	24	25.5	N
A009	S-043002-DD-008	B-X130Y089	30-Apr-02	31.33	31.83	N
A010	S-012202-KMV-512	MW-X269Y201D	22-Jan-02	0	2	FD
A010	S-012202-KMV-511	MW-X269Y201D	22-Jan-02	0	2	N
A010	S-012202-KMV-513	MW-X269Y201D	22-Jan-02	7	9	N
A011	S-010802-MG-016	B-X204Y111C	08-Jan-02	6.5	7.5	N
A011	S-071602-CLM-004	B-X209Y078A	16-Jul-02	2	4	N
A011	S-071602-CLM-005	B-X209Y078A	16-Jul-02	6	8	N
A011	S-071602-CLM-006	B-X209Y078A	16-Jul-02	10	12	N
A011	S-071602-CLM-007	B-X209Y078A	16-Jul-02	11.5	13.5	N
A011	S-071602-CLM-008	B-X209Y078B	16-Jul-02	2	4	N
A011	S-071602-CLM-001	B-X209Y078B	16-Jul-02	6	8	N
A011	S-071602-CLM-002	B-X209Y078B	16-Jul-02	10	12	N
A011	S-071602-CLM-013	B-X209Y078B	16-Jul-02	10	12	FD
A011	S-071602-CLM-003	B-X209Y078B	16-Jul-02	10.5	12.5	N
A011	S-071602-CLM-009	B-X209Y078C	16-Jul-02	2	4	N
A011	S-071602-CLM-010	B-X209Y078C	16-Jul-02	6	8	N
A011	S-071602-CLM-011	B-X209Y078C	16-Jul-02	10	12	N
A011	S-071602-CLM-012	B-X209Y078C	16-Jul-02	10.5	12.5	N
A011	S-010802-MG-008	B-X219Y095	08-Jan-02	0	2	N
A011	S-010802-MG-009	B-X219Y095	08-Jan-02	0	2	FD
A011	S-010802-MG-010	B-X219Y095	08-Jan-02	6	8	N
A011	S-010802-MG-011	B-X219Y095	08-Jan-02	8	9	N
A011	S-010802-MG-012	B-X219Y095	08-Jan-02	13	14	N
A011	S-010402-MG-001	B-X225Y077	04-Jan-02	0	2	N
A011	S-010402-MG-002	B-X225Y077	04-Jan-02	6	8	N
A011	S-010402-MG-003	B-X225Y077	04-Jan-02	13	15	N
A011	SS-012102-MG-001	SS-X030Y111	21-Jan-02	0	2	N
A011	SS-012802-MG-001	SS-X145Y106	28-Jan-02	0	2	N
A011	S-080802-JN-001	TMW-X225Y080	08-Aug-02	0	2	N
A011	S-080802-JN-002	TMW-X225Y080	08-Aug-02	6	8	N
A011	S-080802-JN-003	TMW-X225Y080	08-Aug-02	12	14	N
A012	SS-011802-MG-002	SS-X124Y115	18-Jan-02	0	2	N
A012	SS-011802-MG-001	SS-X134Y098	18-Jan-02	0	2	N
A014	S-012202-MG-063	B-X253Y329H	22-Jan-02	10	11	N
A014	S-012202-MG-064	B-X254Y336	22-Jan-02	3	3.5	N
A014	S-011102-KMV-506	B-X261Y356	11-Jan-02	0	2	N
A014	S-011102-KMV-507	B-X261Y356	11-Jan-02	0	2	FD
A014	S-011102-KMV-508	B-X261Y356	11-Jan-02	6	8	N
A014	S-011102-KMV-509	B-X261Y356	11-Jan-02	16	18	N
A014	S-010902-KMV-505	MW-X178Y367D	09-Jan-02	0	2	FD
A014	S-010902-KMV-504	MW-X178Y367D	09-Jan-02	0	2	N
A014	S-012102-KMV-509	MW-X261Y356D	21-Jan-02	0	2	N
A014	S-012102-KMV-510	MW-X261Y356D	21-Jan-02	0	2	FD
A015	S-022202-KMV-533	B-X148Y233	22-Feb-02	0	2	FD
A015	S-022202-KMV-532	B-X148Y233	22-Feb-02	0	2	N
A015	S-022202-KMV-534	B-X148Y233	22-Feb-02	6	8	N
A015	S-022202-KMV-535	B-X148Y233	22-Feb-02	12	14	N

TABLE 2.1

SUMMARY OF RFI SAMPLES
GM POWERTRAIN - BEDFORD PLANT
BEDFORD, INDIANA

Area of Interest	*Sample ID*	*Location ID*	*Collection Date*	*Sample Interval (ft bgs)*		*Sample Type*
				Top	*Bottom*	
A015	S-022102-KMV-528	B-X169Y248	21-Feb-02	0	2	N
A015	S-022102-KMV-529	B-X169Y248	21-Feb-02	0	2	FD
A015	S-022102-KMV-530	B-X169Y248	21-Feb-02	6	8	N
A015	S-022102-KMV-531	B-X169Y248	21-Feb-02	22	24	N
A015	S-010702-KMV-501	MW-X143Y245D	07-Jan-02	0	2	N
A015	S-010702-KMV-502	MW-X143Y245D	07-Jan-02	0	2	FD
A015	S-010702-KMV-503	MW-X143Y245D	07-Jan-02	6	8	N
A017	S-011502-MG-057	B-X107Y151	15-Jan-02	0	2	N
A017	S-011502-MG-058	B-X107Y151	15-Jan-02	6	8	N
A017	S-011502-MG-059	B-X107Y151	15-Jan-02	31.5	33.5	N
A017	S-011702-MG-060	B-X123Y129	17-Jan-02	0	2	N
A017	S-011702-MG-061	B-X123Y129	17-Jan-02	6	8	N
A017	S-011702-MG-062	B-X123Y129	17-Jan-02	21.5	23.5	N
A018	SS-012802-MG-002	SS-X149Y126	28-Jan-02	0	2	N
A018	SS-012802-MG-003	SS-X154Y117	28-Jan-02	0	2	N
A019	S-012502-MG-078	B-X096Y195	25-Jan-02	0	2	N
A019	S-012502-MG-079	B-X096Y195	25-Jan-02	6	8	N
A019	S-012502-MG-080	B-X096Y195	25-Jan-02	30	32	N
A020	SS-013102-MG-001	SS-X120Y177	31-Jan-02	3	4	N
A021	S-021202-KMV-524	MW-X033Y147S	12-Feb-02	1	3	FD
A021	S-021202-KMV-523	MW-X033Y147S	12-Feb-02	1	3	N
A021	S-021202-KMV-525	MW-X033Y147S	12-Feb-02	7	9	N
A021	S-021202-KMV-526	MW-X033Y147S	12-Feb-02	17	19	N
A021	S-021202-KMV-527	MW-X033Y147S	12-Feb-02	33	35	N
A021	S-013102-MG-089	B-X045Y172	31-Jan-02	0	2	N
A021	S-013102-MG-090	B-X045Y172	31-Jan-02	6	8	N
A021	S-013102-MG-091	B-X045Y172	31-Jan-02	18	20	N
A021	S-012902-MG-081	B-X049Y198	29-Jan-02	0	2	N
A021	S-012902-MG-082	B-X049Y198	29-Jan-02	6	8	N
A021	S-012902-MG-083	B-X049Y198	29-Jan-02	10.5	11.5	N
A021	S-012902-MG-084	B-X049Y198	29-Jan-02	36	38	N
A021	S-012902-MG-085	B-X049Y198	29-Jan-02	36	38	FD
A021	S-020102-MG-092	B-X059Y160	01-Feb-02	0	2	N
A021	S-020102-MG-093	B-X059Y160	01-Feb-02	6	8	N
A021	S-020102-MG-094	B-X059Y160	01-Feb-02	23	25	N
A021	S-020102-MG-095	B-X059Y160	01-Feb-02	31	33	N
A021	S-012902-MG-086	B-X075Y183A	29-Jan-02	0	2	N
A021	S-012902-MG-087	B-X075Y183A	29-Jan-02	6	8	N
A021	S-012902-MG-088	B-X075Y183B	29-Jan-02	30	32	N
A021	S-082702-JW-002	SS-X062Y257	27-Aug-02	0	2	N
A021	S-082702-JW-003	SS-X062Y257	27-Aug-02	0	2	FD
A021	S-082702-JW-004	SS-X065Y254	27-Aug-02	0	0.67	N
A021	S-082702-JW-001	SS-X065Y256	27-Aug-02	0	1.17	N
A021	S-082702-JW-005	SS-X065Y260	27-Aug-02	0	2	N
A022	SS-011802-MG-003	SS-X031Y124	18-Jan-02	0	2	N
A023	SS-010902-MG-001	SS-X203Y066	09-Jan-02	2	4	N
A024	SS-013102-MG-003	SS-X045Y114A	31-Jan-02	0	2	N
A024	SS-020402-MG-001	SS-X045Y114B	04-Feb-02	10	12	N
A024	SS-013102-MG-002	SS-X048Y112	31-Jan-02	3	4	N
BK	S-060602-MG-231	BK-X045Y258	06-Jun-02	0	2	N
BK	S-012402-MO-004	BK-X142Y263	24-Jan-02	0	2	N
BK	S-060602-MG-229	BK-X157Y157	06-Jun-02	0	2	N
BK	S-060602-MG-230	BK-X157Y157	06-Jun-02	6	8	N
BK	S-060602-MG-225	BK-X199Y347	06-Jun-02	0	2	N
BK	S-060602-MG-226	BK-X199Y347	06-Jun-02	2	4	N
BK	S-010223-MO-002	BK-X212Y042	23-Jan-02	0	2	N
BK	S-010223-MO-003	BK-X267Y091	23-Jan-02	0	2	N
BK	S-010223-MO-005	BK-X281Y296	23-Jan-02	0	2	FD
BK	S-010223-MO-001	BK-X281Y296	23-Jan-02	0	2	N
BK	S-060602-MG-227	BK-X293Y374	06-Jun-02	0	2	N

TABLE 2.1

SUMMARY OF RFI SAMPLES
GM POWERTRAIN - BEDFORD PLANT
BEDFORD, INDIANA

Area of Interest	*Sample ID*	*Location ID*	*Collection Date*	*Sample Interval (ft bgs)*		*Sample Type*
				Top	*Bottom*	
BK	S-060602-MG-228	BK-X293Y374	06-Jun-02	4.5	6.5	N
HPL	S-021402-MG-116	B-X080Y210	14-Feb-02	0	2	N
HPL	S-021402-MG-117	B-X080Y210	14-Feb-02	6	8	N
HPL	S-021402-MG-118	B-X080Y210	14-Feb-02	32	34	N
HPL	S-021402-MG-113	B-X097Y232	14-Feb-02	0	2	N
HPL	S-021402-MG-114	B-X097Y232	14-Feb-02	6	8	N
HPL	S-021402-MG-115	B-X097Y232	14-Feb-02	18	20	N
HPL	S-021302-MG-110	B-X130Y215	13-Feb-02	0	2	N
HPL	S-021302-MG-111	B-X130Y215	13-Feb-02	6	8	N
HPL	S-021302-MG-112	B-X130Y215	13-Feb-02	33	35	N
LaSalle	S-021502-MG-119	B-X137Y132	15-Feb-02	2	4	N
LaSalle	S-021502-MG-120	B-X137Y132	15-Feb-02	6	8	N
LaSalle	S-021502-MG-121	B-X137Y132	15-Feb-02	22	24	N
MW	S-013002-KMV-517	MW-X045Y258D	30-Jan-02	0	2	N
MW	S-013002-KMV-518	MW-X045Y258D	30-Jan-02	0	2	FD
Surface Water Samples						
A001	SW-052102-JW-5044	SW-X156Y082	21-May-02	---	---	N
A001	SW-042902-JW-001	SW-X156Y082	29-Apr-02	---	---	N
A001	SW-052202-JW-5045A	SW-X168Y066	22-May-02	---	---	FD
A001	SW-052202-JW-5045	SW-X168Y066	22-May-02	---	---	N
A001	SW-042902-JW-002	SW-X168Y066	29-Apr-02	---	---	N
A004	SW-052102-JW-5042	SW-X216Y274	21-May-02	---	---	N
A004	SW-031502-JW-1428	SW-X216Y274	15-Mar-02	---	---	N
A004	SW-031502-JW-1427A	SW-X256Y260	15-Mar-02	---	---	FD
A004	SW-031502-JW-1427	SW-X256Y260	15-Mar-02	---	---	N
A010	SW-041502-JW-001	SW-X217Y224	15-Apr-02	---	---	N
A010	SW-052102-JW-5041	SW-X243Y232	21-May-02	---	---	N
A010	SW-031502-JW-1426	SW-X243Y232	15-Mar-02	---	---	N
Sediment Samples						
A004	SD-031402-JW-1428	SD-X214Y275	14-Mar-02	0	0.33	N
A004	SD-031402-JW-1427	SD-X255Y267	14-Mar-02	0	0.33	N
A010	SD-041502-JW-001	SD-X220Y224	15-Apr-02	0	0.33	N
A010	SD-041502-JW-002	SD-X225Y180	15-Apr-02	0	0.33	N
A010	SD-031402-JW-1426A	SD-X245Y233	14-Mar-02	0	0.33	FD
A010	SD-031402-JW-1426	SD-X245Y233	14-Mar-02	0	0.33	N
Wipe Samples						
A003	W-021402-JW-002	W-X032Y097	14-Feb-02	---	---	N
A003	W-021402-JW-001	W-X034Y101	14-Feb-02	---	---	N
A003	W-021402-JW-003	W-X035Y090	14-Feb-02	---	---	N
A003	W-012502-MO-001	W-X197Y070	25-Jan-02	---	---	N
A003	W-012502-MO-002	W-X199Y070	25-Jan-02	---	---	N

NOTES:

N sample type is the representative sample; FD is the field duplicate
BK = Background Location
HPL = Hourly Parking Lot
LaSalle = LaSalle unit within Piston Building
MW = Perimeter monitoring well location (other MW locations were assigned to the nearest AOI)
ft bgs = feet below ground surface

TABLE 2.2

BOREHOLE/WELL CONSTRUCTION DETAILS
GM POWERTRAIN - BEDFORD FACILITY

	Elevation							Screen Information		Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6		Zone 7	
Well	*Ground (ft amsl)*	*TOC (ft amsl)*	*Manifold (ft amsl)*	*Stick-Up (feet)*	*Total Depth of 10" Casing (ft bgs)*	*Total Depth of 4" Casing (ft bgs)*	*Borehole Total Depth (ft bgs)*	*Top (ft bgs)*	*Bottom (ft bgs)*	*Top (ft bgs)*	*Bottom (ft bgs)*	*Top (ft bgs)*	*Bottom (ft bgs)*	*Top (ft bgs)*	*Bottom (ft bgs)*	*Top (ft bgs)*	*Bottom (ft bgs)*	*Top (ft bgs)*	*Bottom (ft bgs)*	*Top (ft bgs)*	*Bottom (ft bgs)*	*Top (ft bgs)*	*Bottom (ft bgs)*
MW-X033Y147D[1]	719.04	718.10	NA	-0.94	NA	60.5	248.8	NA	NA	214.1	248.8	166.6	177.1	150.1	159.6	132.6	143.1						
MW-X033Y147S[1]	719.09	718.82	NA	-0.27	NA	41.5	56.0	43.0	56.0	41.5	56.0	Open hole completion - no packer system installed											
MW-X045Y258D	699.2	701.99	702.35	2.78	9.9	NA	203.5	NA	NA	178.6	203.5	111.1	121.6	9.9	31.1								
MW-X085Y070D	720.0	722.77	723.68	2.76	NA	63.4	243.5	NA	NA	231.9	243.5	169.4	179.9	147.9	157.4								
MW-X085Y070S	720.3	722.53	722.79	2.22	25.0	NA	63.2	NA	NA	50.6	56.0	25.0	47.6										
MW-X143Y245D	690.1	693.13	694.06	2.99	9.0	23.0	193.5	NA	NA	167.4	193.5	97.9	108.4										
MW-X143Y245S	690.3	692.96	NA	2.69	NA	10.0	27.6	NA	NA	10.0	20.0	Open hole completion - no packer system installed											
MW-X169Y058D	721.5	724.01	725.07	2.48	NA	104.5	244.1	NA	NA	234.0	244.1	158.5	181.0	126.0	145.5								
MW-X169Y058I	721.3	723.93	NA	2.62	NA	60.5	103.9	NA	NA	60.5	103.9	Open hole completion - no packer system installed											
MW-X169Y058S	721.1	723.43	723.90	2.37	26.0	NA	59.0	NA	NA	39.4	59.0	26.0	32.4										
MW-X178Y367D	666.9	669.43	670.57	2.55	8.0	NA	143.5	NA	NA	131.4	143.5	91.9	102.4	52.4	62.9	37.9	49.4	8.0	19.9				
MW-X209Y078S	684.9	687.16	NA	2.29	NA	13.8	23.4	NA	NA	13.8	23.4	Open hole completion - no packer system installed											
MW-X220Y088S	682.0	684.50	NA	2.55	NA	18.5	23.8	NA	NA	18.5	23.8	Open hole completion - no packer system installed											
MW-X225Y080S	684.2	686.79	NA	2.57	NA	23.4	33.6	NA	NA	23.4	33.6	Open hole completion - no packer system installed											
MW-X233Y087S	671.8	673.49	NA	1.66	NA	11.9	21.7	NA	NA	11.9	21.7	Open hole completion - no packer system installed											
MW-X234Y157D	674.9	677.25	678.42	2.35	8.0	39.6	182.3	NA	NA	171.8	182.3	114.3	123.8	93.8	103.3	79.3	90.8						
MW-X234Y157S	674.9	677.46	NA	2.60	NA	8.4	39.4	NA	NA	8.4	37.0	Open hole completion - no packer system installed											
MW-X251Y189D	663.5	665.97	666.16	2.52	5.0	NA	183.5	NA	NA	174.0	183.5	103.5	109.0	93.0	97.5	83.5	90.0	71.0	80.5	55.5	63.0	5.0	21.5
MW-X261Y356D	668.9	671.47	672.59	2.56	6.0	NA	154.5	NA	NA	141.0	154.5	118.5	129.0	95.0	104.5	31.5	44.0	6.0	14.5				
MW-X269Y201D	669.2	671.39	670.39	2.17	10.5	NA	182.5	NA	NA	170.7	182.5	96.2	103.7	10.5	27.2								
MW-X297Y305D	614.5	616.39	615.98	1.90	NA	3.0	114.8	NA	NA	89.0	114.8	58.5	69.0										
TMW-X033Y147[1]	718.54	718.25	NA	-0.29	NA	NA	36.5	21.5	36.5	NA													
TMW-X085Y070	720.1	722.78	NA	2.69	NA	NA	14.0	4.0	14.0	NA													
TMW-X193Y251	685.5	689.66	NA	4.21	NA	NA	31.0	26.0	31.0	NA													
TMW-X225Y080	684.3	686.72	NA	2.45	NA	NA	22.5	17.5	22.5	NA													
MW-X233Y095	*672.9*	*675.15*	*NA*	*2.29*	*NA*	*6.8*	*30.1*	*NA*	*NA*	*NA*													
MW-X233Y100	*683.0*	*684.48*	*NA*	*1.44*	*NA*	*8.6*	*48.1*	*NA*	*NA*	*NA*													
MW-X233Y105A	*696.4*	*698.34*	*NA*	*1.92*	*NA*	*5.4*	*11.1*	*NA*	*NA*	*NA*													
MW-X233Y105B	*695.7*	*697.33*	*NA*	*1.63*	*NA*	*20.6*	*30.5*	*NA*	*NA*	*NA*													

TABLE 2.2

BOREHOLE/WELL CONSTRUCTION DETAILS
GM POWERTRAIN - BEDFORD FACILITY

	Elevation							Screen Information		Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6		Zone 7	
Well	*Ground (ft amsl)*	*TOC (ft amsl)*	*Manifold (ft amsl)*	*Stick-Up (feet)*	*Total Depth of 10" Casing (ft bgs)*	*Total Depth of 4" Casing (ft bgs)*	*Borehole Total Depth (ft bgs)*	*Top (ft bgs)*	*Bottom (ft bgs)*	*Top (ft bgs)*	*Bottom (ft bgs)*	*Top (ft bgs)*	*Bottom (ft bgs)*	*Top (ft bgs)*	*Bottom (ft bgs)*	*Top (ft bgs)*	*Bottom (ft bgs)*	*Top (ft bgs)*	*Bottom (ft bgs)*	*Top (ft bgs)*	*Bottom (ft bgs)*	*Top (ft bgs)*	*Bottom (ft bgs)*
MW-X033Y147D[1]	719.04	718.10	NA	-0.94	NA	60.5	248.8	NA	NA	214.1	248.8	166.6	177.1	150.1	159.6	132.6	143.1						
MW-X233Y110A	*701.4*	*703.54*	*NA*	*2.15*	*NA*	*4.9*	*13.0*	*NA*	*NA*	*NA*													
MW-X233Y110B	*701.2*	*703.29*	*NA*	*2.14*	*NA*	*15.9*	*26.0*	*NA*	*NA*	*NA*													
MW-X233Y115	*707.6*	*709.53*	*NA*	*1.91*	*NA*	*8.6*	*26.0*	*NA*	*NA*	*NA*													
MW-X233Y115B	*707.0*	*708.72*	*NA*	*1.68*	*NA*	*28.6*	*39.0*	*NA*	*NA*	*NA*													
MW-X233Y120	*712.7*	*715.75*	*NA*	*3.04*	*NA*	*11.2*	*16.3*	*NA*	*NA*	*NA*													
MW-X233Y120B	*712.6*	*715.41*	*NA*	*2.77*	*NA*	*19.9*	*43.3*	*NA*	*NA*	*NA*													
MW-X233Y125	*714.3*	*716.31*	*NA*	*2.04*	*NA*	*16.5*	*25.1*	*NA*	*NA*	*NA*													
MW-X233Y125B	*713.3*	*716.21*	*NA*	*2.91*	*NA*	*30.3*	*40.7*	*NA*	*NA*	*NA*													
MW-X242Y060	*682.5*	*684.50*	*NA*	*1.99*	*NA*	*11.3*	*34.6*	*NA*	*NA*	*NA*													
MW-X233Y071A	*685.7*	*687.69*	*NA*	*1.96*	*NA*	*26.0*	*34.6*	*NA*	*NA*	*NA*													
MW-X233Y071B	*685.6*	*687.72*	*NA*	*2.17*	*NA*	*39.0*	*52.0*	*NA*	*NA*	*NA*													
PZ08	624.08	627.06	NA	3	NA	8	12.3	8	12.3	NA													
PZ23	535.23	537.75	NA	2.52	NA	9	15	9	15	NA													
PZ31	515.86	518.51	NA	2.65	NA	NA	8	NA	NA	3.0	8.0												
PZ38	500.54	503.3	NA	2.76	NA	NA	14	NA	NA	4.0	13.0												
PZ39	494.84	497.58	NA	2.74	NA	NA	18	NA	NA	8.0	18.0												

NOTES: ft = feet; amsl = above mean sea level; bgs = below ground surface
[1] = Ground surface was raised after well installation
NA = Not applicable
MW-X233Y115 = Borings completed on 30-degree angle to vertical. All depths are in relation to true vertical

TABLE 2.3

SUMMARY OF IN SITU HYDRAULIC CONDUCTIVITY RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

	Depth Intervals		*Interval Elevations*		*Average Hydraulic*
Well ID	*Bottom (ft bgs)*	*Top (ft bgs)*	*Bottom (ft amsl)*	*Top (ft amsl)*	*Conductivity (cm/s)*
MW-X033Y147S[1]	54.0	43.0	665.1	676.1	6.0E-05
MW-X033Y147D[2]	78.0	68.0	640.3	650.3	<6.5E-08
	90.0	80.0	628.3	638.3	<6.5E-08
	103.0	93.0	615.3	625.3	<6.5E-08
	130.0	120.0	588.3	598.3	<6.5E-08
	163.0	153.0	555.3	565.3	1.1E-05
	180.0	170.0	538.3	548.3	2.2E-05
	197.0	187.0	521.3	531.3	6.2E-08
	214.0	204.0	504.3	514.3	<6.3E-08
	237.0	227.0	481.3	491.3	<6.3E-08
	248.8	243.0	469.5	475.3	<7.6E-08
	248.8	60.5	469.5	657.8	4.4E-06
MW-X045Y258D[2]	30.0	20.0	669.2	679.2	<1.0E-07
	47.0	37.0	652.2	662.2	<9.7E-08
	65.0	55.0	634.2	644.2	<9.7E-08
	85.0	75.0	614.2	624.2	<9.1E-08
	95.0	85.0	604.2	614.2	<9.1E-08
	121.0	111.0	578.2	588.2	8.2E-05
	140.0	130.0	559.2	569.2	<9.1E-08
	152.0	142.0	547.2	557.2	<9.1E-08
	167.0	157.0	532.2	542.2	<9.1E-08
	180.0	170.0	519.2	529.2	<9.1E-08
	203.5	190.0	495.7	509.2	<8.1E-08
	203.5	10.0	495.7	689.2	9.8E-06
MW-X085Y070S[1]	52.4	36.4	667.9	683.9	2.6E-04
MW-X085Y070D[2]	70.0	60.0	650.0	660.0	<5.9E-07
	80.0	70.0	640.0	650.0	<5.9E-07
	89.0	79.0	631.0	641.0	<5.7E-07
	98.0	88.0	622.0	632.0	<5.7E-07
	124.0	114.0	596.0	606.0	<5.7E-07
	158.0	148.0	562.0	572.0	6.3E-07
	180.0	170.0	540.0	550.0	1.2E-04
	196.0	186.0	524.0	534.0	<5.7E-07
	206.0	196.0	514.0	524.0	<5.7E-07
	227.0	217.0	493.0	503.0	<5.7E-07
	240.0	230.0	480.0	490.0	<5.7E-07
	243.5	240.0	476.5	480.0	<5.9E-07
	243.5	60.0	476.5	660.0	1.0E-05
MW-X143Y245S[2]	27.6	20.0	662.7	670.3	<1.5E-07
MW-X143Y245D[2]	85.0	75.0	605.1	615.1	<9.5E-08
	109.0	99.0	581.1	591.1	4.5E-06
	132.0	122.0	558.1	568.1	<9.0E-08
	151.0	141.0	539.1	549.1	<9.2E-08
	166.0	156.0	524.1	534.1	<8.7E-08
	179.0	169.0	511.1	521.1	8.9E-07
	192.0	188.0	498.1	502.1	<8.8E-08

TABLE 2.3

SUMMARY OF IN SITU HYDRAULIC CONDUCTIVITY RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Well ID	*Depth Intervals*		*Interval Elevations*		*Average Hydraulic*
	Bottom (ft bgs)	*Top (ft bgs)*	*Bottom (ft amsl)*	*Top (ft amsl)*	*Conductivity (cm/s)*
MW-X169Y058S[2]	40.0	30.0	681.1	691.1	<7.6E-07
	45.0	35.0	676.1	686.1	3.6E-05
	54.0	44.0	667.1	677.1	3.5E-04
MW-X169Y058I[2]	66.0	56.0	655.3	665.3	<7.4E-07
	103.9	64.0	617.4	657.3	2.4E-06
	76.0	66.0	645.3	655.3	<6.8E-07
	90.0	80.0	631.3	641.3	<6.8E-07
	103.9	96.0	617.4	625.3	7.7E-06
MW-X169Y058D[2]	119.0	109.0	602.5	612.5	<5.3E-07
	136.0	126.0	585.5	595.5	<5.3E-07
	146.0	136.0	575.5	585.5	1.7E-05
	158.0	148.0	563.5	573.5	<5.3E-07
	169.0	159.0	552.5	562.5	1.5E-05
	181.0	171.0	540.5	550.5	1.7E-05
	191.0	181.0	530.5	540.5	<5.3E-07
	202.0	192.0	519.5	529.5	<5.3E-07
	232.0	222.0	489.5	499.5	<5.3E-07
	244.1	240.0	477.4	481.5	5.8E-07
B-X177Y252D[4]	13	21.7	668.7	660.0	<1.5E-06
	20.8	29.4	660.9	652.3	3.4E-04
	28.6	37.2	653.1	644.5	<1.4E-06
	37.2	45.9	644.5	635.8	<1.4E-06
	45	53.6	636.7	628.1	<1.3E-06
	21.7	53.6	660.0	628.1	2.4E-04
MW-X178Y367D[2]	27.0	17.0	639.9	649.9	<7.4E-08
	37.0	27.0	629.9	639.9	<7.2E-08
	48.0	38.0	618.9	628.9	1.9E-05
	63.0	53.0	603.9	613.9	2.5E-06
	74.0	64.0	592.9	602.9	<6.7E-08
	83.0	73.0	583.9	593.9	<6.7E-08
	92.0	82.0	574.9	584.9	<6.7E-08
	102.0	92.0	564.9	574.9	2.3E-04
	112.0	102.0	554.9	564.9	3.6E-07
	123.0	113.0	543.9	553.9	<6.7E-08
	134.0	124.0	532.9	542.9	<6.7E-08
	143.5	138.0	523.4	528.9	1.8E-07
	143.5	6.0	523.4	660.9	1.7E-05
B-X223Y247D[4]	31.2	39.8	645.0	636.4	2.4E-06
	39.0	47.6	637.2	628.6	8.1E-07
	46.8	55.4	629.4	620.8	<6.1E-07
	54.6	63.2	621.6	613.0	<5.8E-07
	62.4	71.0	613.8	605.2	6.4E-07
	70.1	78.8	606.1	597.4	<5.8E-07
	77.9	86.6	598.3	589.6	<5.8E-07
	85.7	94.4	590.5	581.8	6.4E-07
	93.5	102.2	582.7	574.0	2.8E-06
	101.3	110.0	574.9	566.2	<5.8E-07
	109.1	117.8	567.1	558.4	<5.8E-07
	116.9	125.6	559.3	550.6	<5.8E-07
	124.7	133.4	551.5	542.8	6.4E-07
	132.5	141.2	543.7	535.0	8.9E-07
	140.3	149.0	535.9	527.2	2.0E-06
	148.1	156.8	528.1	519.4	8.9E-07
	155.9	164.5	520.3	511.7	<1.7E-07
	163.7	173.2	512.5	503.0	1.4E-06
	31.2	173.2	645.0	503.0	1.1E-06

TABLE 2.3

SUMMARY OF IN SITU HYDRAULIC CONDUCTIVITY RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Well ID	*Depth Intervals*		*Interval Elevations*		*Average Hydraulic*
	Bottom (ft bgs)	*Top (ft bgs)*	*Bottom (ft amsl)*	*Top (ft amsl)*	*Conductivity (cm/s)*
MW-X234Y157S[2]	29.0	19.0	645.9	655.9	1.8E-06
MW-X234Y157D[2]	74.0	64.0	600.9	610.9	<9.3E-07
	90.0	80.0	584.9	594.9	3.6E-06
	104.0	94.0	570.9	580.9	7.7E-06
	125.0	115.0	549.9	559.9	1.3E-06
	140.0	130.0	534.9	544.9	<8.9E-07
	152.0	142.0	522.9	532.9	<8.9E-07
	177.0	167.0	497.9	507.9	<8.9E-07
	182.3	176.0	492.6	498.9	<1.0E-06
MW-X251Y189D[2]	28.0	18.0	635.5	645.5	<2.1E-07
	54.0	44.0	609.5	619.5	<1.7E-07
	64.0	54.0	599.5	609.5	6.1E-07
	83.0	73.0	580.5	590.5	1.4E-05
	92.0	82.0	571.5	581.5	2.5E-06
	103.0	93.0	560.5	570.5	3.0E-06
	114.0	104.0	549.5	559.5	4.6E-05
	140.0	130.0	523.5	533.5	3.8E-07
	183.0	174.0	480.5	489.5	<1.5E-07
MW-X261Y356D[2]	32.0	22.0	636.9	646.9	<4.2E-07
	45.0	35.0	623.9	633.9	3.0E-06
	69.0	59.0	599.9	609.9	<4.0E-07
	80.0	70.0	588.9	598.9	4.9E-07
	93.0	83.0	575.9	585.9	<3.6E-07
	106.0	96.0	562.9	572.9	1.1E-06
	121.0	111.0	547.9	557.9	<4.4E-07
	130.0	120.0	538.9	548.9	6.6E-06
	145.0	135.0	523.9	533.9	<3.6E-07
	154.5	146.0	514.4	522.9	<4.1E-07
	154.5	10.0	514.4	658.9	7.8E-07
MW-X269Y201D[2]	31.0	21.0	638.2	648.2	<1.4E-07
	37.0	27.0	632.2	642.2	<1.4E-07
	46.0	36.0	623.2	633.2	<1.4E-07
	52.0	42.0	617.2	627.2	<1.4E-07
	58.0	48.0	611.2	621.2	<1.4E-07
	70.0	60.0	599.2	609.2	<1.4E-07
	78.0	68.0	591.2	601.2	<1.2E-07
	86.0	76.0	583.2	593.2	<1.2E-07
	95.0	85.0	574.2	584.2	<1.2E-07
	102.0	92.0	567.2	577.2	1.5E-06
	110.0	100.0	559.2	569.2	<1.2E-07
	118.0	108.0	551.2	561.2	<1.2E-07
	125.0	115.0	544.2	554.2	<1.2E-07
	134.0	124.0	535.2	545.2	<1.2E-07
	142.0	132.0	527.2	537.2	<1.3E-07
	167.0	157.0	502.2	512.2	<1.2E-07
	182.5	173.0	486.7	496.2	<1.2E-07
	182.5	11.6	486.7	657.6	<1.3E-07

TABLE 2.3

SUMMARY OF IN SITU HYDRAULIC CONDUCTIVITY RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

	Depth Intervals		*Interval Elevations*		*Average Hydraulic*
Well ID	*Bottom (ft bgs)*	*Top (ft bgs)*	*Bottom (ft amsl)*	*Top (ft amsl)*	*Conductivity (cm/s)*
MW-X297Y305D[2]	14.0	24.0	600.5	590.5	<4.8E-09
	23.0	33.0	591.5	581.5	<4.7E-09
	32.0	42.0	582.5	572.5	<4.7E-09
	41.0	51.0	573.5	563.5	<4.7E-09
	50.0	60.0	564.5	554.5	<4.0E-09
	59.0	69.0	555.5	545.5	2.6E-04
	68.0	78.0	546.5	536.5	<3.5E-09
	77.0	87.0	537.5	527.5	<3.5E-09
	86.0	96.0	528.5	518.5	<3.5E-09
	95.0	105.0	519.5	509.5	<3.5E-09
	104.0	114.8	510.5	499.7	<3.4E-09
TMW-X033Y147[1]	36.5	31.5	682.0	687.0	1.7E-06
TMW-X085Y070[1]	14.0	5.7	706.1	714.4	1.0E-07
TMW-X193Y251[1]	31.0	29.0	654.5	656.5	1.8E-04

NOTES: ft = feet; bgs = below ground surface; amsl = above mean sea level; cm/s = centimeter per second
[1] = Hydraulic conductivity determined through analysis of slug test data (Bouwer & Rice method)
[2] = Hydraulic conductivity determined through analysis of straddle-packer data (Hvorslev method)

TABLE 3.1

SUMMARY OF STRATIGRAPHIC CONTACTS AND FORMATION THICKNESS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

			Overburden					*St. Louis Formation*				
			Ground Surface		*Bottom of Overburden*			*Top of Bedrock Surface*		*Bottom of Formation*		
Well/Boring ID	*Ground Elevation*	*Total Depth*	*Depth*	*Elevation*	*Depth*	*Elevation*	*Thickness*	*Depth*	*Elevation*	*Depth*	*Elevation*	*Thickness*
	(ft amsl)	*(ft bgs)*	*(ft bgs)*	*(ft amsl)*	*(ft bgs)*	*(ft amsl)*	*(ft)*	*(ft bgs)*	*(ft amsl)*	*(ft bgs)*	*(ft amsl)*	*(ft)*
MW-X033Y147D[1]	718.3	248.8	0.0	718.3	40.0	678.3	40.0	40.0	678.3	97.2	621.1	57.2
MW-X045Y258D	699.2	203.0	0.0	699.2	8.0	691.2	8.0	8.0	691.2	39.0	660.2	31.0
MW-X085Y070D	720.0	243.5	0.0	720.0	23.0	697.0	23.0	23.0	697.0	89.0	631.0	66.0
MW-620013[3]	706.6	157.5	0.0	706.6	---	---	---	---	---	60.8	645.8	---
MW-514013[4]	688.9	103.0	0.0	688.9	---	---	---	---	---	32.0	656.9	---
MW-X143Y245D	690.2	193.5	0.0	690.2	8.0	682.2	8.0	8.0	682.2	24.1	666.1	16.1
MW-X169Y058D	721.5	244.1	0.0	721.5	22.0	699.5	22.0	22.0	699.5	78.0	643.5	56.0
MW-X178Y367D	666.9	143.0	0.0	666.9	4.5	662.4	4.5	---	---	---	---	---
MW-X234Y157D	674.9	182.3	0.0	674.9	6.0	668.9	6.0	6.0	668.9	17.5	657.4	11.5
MW-X251Y189D	663.5	183.5	0.0	663.5	2.5	661.0	2.5	2.5	661.0	18.5	645.0	16.0
MW-X261Y356D	668.9	154.5	0.0	668.9	4.0	664.9	4.0	---	---	---	---	---
MW-X269Y201D	669.4	182.5	0.0	669.4	8.0	661.4	8.0	8.0	661.4	14.8	654.6	6.8
MW-X297Y305D	614.5	114.8	0.0	614.5	0.3	614.2	0.3	---	---	---	---	---

			Salem Formation					*Upper Harrodsburg Formation*				
			Top of Formation		*Bottom of Formation*			*Top of Formation*		*Bottom of Formation*		
Well/Boring ID	*Ground Elevation*	*Total Depth*	*Depth*	*Elevation*	*Depth*	*Elevation*	*Thickness*	*Depth*	*Elevation*	*Depth*	*Elevation*	*Thickness*
	(ft amsl)	*(ft bgs)*	*(ft bgs)*	*(ft amsl)*	*(ft bgs)*	*(ft amsl)*	*(ft)*	*(ft bgs)*	*(ft amsl)*	*(ft bgs)*	*(ft amsl)*	*(ft)*
MW-X033Y147D[1]	718.3	248.8	97.2	621.1	144.5	573.8	47.3	144.5	573.8	200.5	517.8	56.0
MW-X045Y258D	699.2	203.0	39.0	660.2	110.9	588.3	71.9	110.9	588.3	151.9	547.3	41.0
MW-X085Y070D	720.0	243.5	89.0	631.0	143.0	577.0	54.0	143.0	577.0	198.0	522.0	55.0
MW-620013[3]	706.6	157.5	60.8	645.8	120.2	586.4	56.0	120.2	586.4	---	---	---
MW-514013[4]	688.9	103.0	32.0	656.9	---	---	---	---	---	---	---	---
MW-X143Y245D	690.2	193.5	24.1	666.1	99.5	590.7	75.4	99.5	590.7	143.6	546.6	44.1
MW-X169Y058D	721.5	244.1	78.0	643.5	132.6	588.9	54.6	132.6	588.9	193.5	528.0	60.9
MW-X178Y367D	666.9	143.0	4.5	662.4	61.0	605.9	56.5	61.0	605.9	97.2	569.7	36.2
MW-X234Y157D	674.9	182.3	17.5	657.4	84.0	590.9	66.5	84.0	590.9	133.5	541.4	49.5
MW-X251Y189D	663.5	183.5	18.5	645.0	75.3	588.2	53.2	75.3	588.2	129.0	534.5	53.7
MW-X261Y356D	668.9	154.5	4.0	664.9	63.2	605.7	59.2	63.2	605.7	100.5	568.4	37.3
MW-X269Y201D	669.4	182.5	14.8	654.6	78.8	590.6	47.0	78.8	590.6	129.0	540.4	50.2
MW-X297Y305D	614.5	114.8	0.3	614.2	12.7	601.8	12.4	12.7	601.8	62.6	551.9	49.9

TABLE 3.1

SUMMARY OF STRATIGRAPHIC CONTACTS AND FORMATION THICKNESS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

			Lower Harrodsburg Formation					*Ramp Creek Formation*				
			Top of Formation		*Bottom of Formation*			*Top of Formation*		*Bottom of Formation*		
Well/Boring ID	*Ground Elevation*	*Total Depth*	*Depth*	*Elevation*	*Depth*	*Elevation*	*Thickness*	*Depth*	*Elevation*	*Depth*	*Elevation*	*Thickness*
	(ft amsl)	*(ft bgs)*	*(ft bgs)*	*(ft amsl)*	*(ft bgs)*	*(ft amsl)*	*(ft)*	*(ft bgs)*	*(ft amsl)*	*(ft bgs)*	*(ft amsl)*	*(ft)*
MW-X033Y147D[1]	718.3	248.8	200.5	517.8	223.1	495.2	22.6	223.1	495.2	243.4	474.9	20.3
MW-X045Y258D	699.2	203.0	151.9	547.3	174.8	524.4	22.9	174.8	524.4	195.4	503.8	20.6
MW-X085Y070D	720.0	243.5	198.0	522.0	222.8	497.2	24.8	222.8	497.2	242.2	477.8	19.4
MW-620013[3]	706.6	157.5	---	---	---	---	---	---	---	---	---	---
MW-514013[4]	688.9	103.0	---	---	---	---	---	---	---	---	---	---
MW-X143Y245D	690.2	193.5	143.6	546.6	166.0	524.2	22.4	166.0	524.2	185.4	504.8	19.4
MW-X169Y058D	721.5	244.1	193.5	528.0	222.0	499.5	28.5	222.0	499.5	243.4	478.1	21.4
MW-X178Y367D	666.9	143.0	97.2	569.7	119.5	547.4	22.3	119.5	547.4	140.4	526.5	20.9
MW-X234Y157D	674.9	182.3	133.5	541.4	159.5	515.4	26.0	159.5	515.4	180.4	494.5	20.9
MW-X251Y189D	663.5	183.5	129.0	534.5	159.9	503.6	30.9	159.9	503.6	179.6	483.9	19.7
MW-X261Y356D	668.9	154.5	100.5	568.4	126.8	542.1	26.3	126.8	542.1	148.4	520.5	21.6
MW-X269Y201D	669.4	182.5	128.8	540.6	155.3	514.1	26.5	155.3	514.1	176.3	493.1	21.0
MW-X297Y305D	614.5	114.8	62.6	551.9	91.2	523.3	28.6	91.2	523.3	108.5	506.0	17.3

			Edwardsville Formation	
			Top of Formation	
Well/Boring ID	*Ground Elevation*	*Total Depth*	*Depth*	*Elevation*
	(ft amsl)	*(ft bgs)*	*(ft bgs)*	*(ft amsl)*
MW-X033Y147D[1]	718.3	248.8	243.4	474.9
MW-X045Y258D	699.2	203.0	195.4	503.8
MW-X085Y070D	720.0	243.5	242.2	477.8
MW-620013[3]	706.6	157.5	---	---
MW-514013[4]	688.9	103.0	---	---
MW-X143Y245D	690.2	193.5	185.4	504.8
MW-X169Y058D	721.5	244.1	243.4	478.1
MW-X178Y367D	666.9	143.0	140.4	526.5
MW-X234Y157D	674.9	182.3	180.4	494.5
MW-X251Y189D	663.5	183.5	179.6	483.9
MW-X261Y356D	668.9	154.5	148.4	520.5
MW-X269Y201D	669.4	182.5	176.3	493.1
MW-X297Y305D	614.5	114.8	108.6	505.9

NOTES:

ft = feet; amsl = above mean sea level; bgs = below ground surface

[1] = ground elevation at time of drilling (surface has been subsequently raised)

Formation contacts were determined through visual inspection of the core and review of the wireline geophysical logs

Table 5.0: Screening Criteria Used in Risk Evaluation GM Powertrain - Bedford Facility, Bedford, Indiana						
Chem Group	Chemical	CASRN	Carc Class	Screening Criteria at 10^{-5} Risk (mg/kg)	Screening Criteria at HQ of 1 (mg/kg)	Industrial Screening Criteria (mg/kg)
VOC	Acetone	67-64-1	ID		6.00E+03	6.00E+03
VOC	Benzene	71-43-2	A	1.30E+01	2.40E+01	1.30E+01
VOC	Bromomethane	74-83-9	D		1.30E+01	1.30E+01
VOC	2-Butanone	78-93-3	ID		2.70E+04	2.70E+04
VOC	Carbon Disulfide	75-15-0			1.20E+03	1.20E+03
VOC	Chlorobenzene	108-90-7	D		5.30E+02	5.30E+02
VOC	Chloroethane	75-00-3		6.50E+01	1.80E+04	6.50E+01
VOC	Chloroform	67-66-3	B2		1.20E+01	1.20E+01
VOC	Cumene	98-82-8	D		2.00E+03	2.00E+03
VOC	Cyclohexane	110-82-7	ID		3.20E+04	3.20E+04
VOC	1,2-Dichlorobenzene	95-50-1	D		4.10E+03	4.10E+03
VOC	1,3-Dichlorobenzene	541-73-1	D		6.30E+01	6.30E+01
VOC	1,4-Dichlorobenzene	106-46-7	C	7.90E+01	1.90E+03	7.90E+01
VOC	Dichlorodifluoromethane	75-71-8			3.10E+02	3.10E+02
VOC	1,1-Dichloroethane	75-34-3	C		1.70E+03	1.70E+03
VOC	1,2-Dichloroethane	107-06-2	B2	6.00E+00	2.80E+01	6.00E+00
VOC	cis-1,2-Dichloroethene	156-59-2	D		1.50E+02	1.50E+02
VOC	trans-1,2-Dichloroethene	156-60-5			2.30E+02	2.30E+02
VOC	Ethyl Benzene	100-41-4	D	2.00E+02	7.40E+03	2.00E+02
VOC	Methyl Acetate	79-20-9			9.20E+04	9.20E+04
VOC	4-Methyl-2-pentanone	108-10-1	ID		2.80E+03	2.80E+03
VOC	Methylcyclohexane	108-87-2			8.70E+03	8.70E+03
VOC	Methylene Chloride	75-09-2	B2	2.10E+02	9.30E+03	2.10E+02
VOC	Tetrachloroethene	127-18-4	C-B2	3.40E+01	1.80E+03	3.40E+01
VOC	Toluene	108-88-3	D		2.20E+03	2.20E+03
VOC	1,2,4-Trichlorobenzene	120-82-1	D		5.60E+03	5.60E+03
VOC	1,1,1-Trichloroethane	71-55-6	D		6.90E+03	6.90E+03
VOC	Trichloroethene	79-01-6	C-B2	1.20E+00	1.10E+02	1.20E+00
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1			6.90E+04	6.90E+04
VOC	Vinyl Chloride	75-01-4	A	7.50E+00	1.40E+02	7.50E+00
VOC	Xylenes (total)	1330-20-7	ID		9.00E+02	9.00E+02
SVOC	Acenaphthene	83-32-9			2.90E+04	2.90E+04
SVOC	Acetophenone	98-86-2	D			
SVOC	Anthracene	120-12-7	D		2.40E+05	2.40E+05
SVOC	Benzo(a)anthracene	56-55-3	B2	2.10E+01		2.10E+01
SVOC	Benzo(a)pyrene	50-32-8	B2	2.10E+00		2.10E+00
SVOC	Benzo(b)fluoranthene	205-99-2	B2	2.10E+01		2.10E+01
SVOC	Benzo(g,h,i)perylene	191-24-2	D		2.90E+04	2.90E+04
SVOC	Benzo(k)fluoranthene	207-08-9	B2	2.10E+02		2.10E+02
SVOC	Biphenyl	92-52-4	D		2.30E+04	2.30E+04
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	B2	1.20E+03	1.20E+04	1.20E+03
SVOC	Butylbenzylphthalate	85-68-7	C		1.20E+05	1.20E+05
SVOC	Carbazole	86-74-8	B2	8.60E+02		8.60E+02
SVOC	Chrysene	218-01-9	B2	2.10E+03		2.10E+03
SVOC	Dibenz(a,h)anthracene	53-70-3	B2	2.10E+00		2.10E+00
SVOC	Dibenzofuran	132-64-9	D		3.10E+03	3.10E+03
SVOC	Diethylphthalate	84-66-2	D		4.90E+05	4.90E+05
SVOC	2,4-Dimethylphenol	105-67-9			1.20E+04	1.20E+04
SVOC	Di-n-butylphthalate	84-74-2	D		6.20E+04	6.20E+04
SVOC	Di-n-octylphthalate	117-84-0			2.50E+04	2.50E+04
SVOC	Fluoranthene	206-44-0	D		2.20E+04	2.20E+04
SVOC	Fluorene	86-73-7	D		2.60E+04	2.60E+04
SVOC	Hexachlorobenzene	118-74-1	B2	1.10E+01	4.90E+02	1.10E+01

Table 5.0: Screening Criteria Used in Risk Evaluation
GM Powertrain - Bedford Facility, Bedford, Indiana

Chem Group	Chemical	CASRN	Carc Class	Screening Criteria at 10^{-5} Risk (mg/kg)	Screening Criteria at HQ of 1 (mg/kg)	Industrial Screening Criteria (mg/kg)
SVOC	Hexachlorobutadiene	87-68-3	C	2.20E+02	1.80E+02	1.80E+02
SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	B2	2.10E+01		2.10E+01
SVOC	2-Methylnaphthalene	91-57-6	ID		1.90E+02	1.90E+02
SVOC	Methylphenol (total)	1319-77-3			3.10E+03	3.10E+03
SVOC	Naphthalene	91-20-3	C		1.90E+02	1.90E+02
SVOC	Phenanthrene	85-01-8	D		2.90E+04	2.90E+04
SVOC	Phenol	108-95-2	ID		3.70E+05	3.70E+05
SVOC	Pyrene	129-00-0	D		2.90E+04	2.90E+04
P/PCB	PCBs (total)	1336-36-3	B2	7.40E+00	1.10E+01	7.40E+00
INORG	Aluminum	7429-90-5	D		9.20E+05	9.20E+05
INORG	Antimony	7440-36-0			4.10E+02	4.10E+02
INORG	Arsenic	7440-38-2	A	1.60E+01	2.60E+02	1.60E+01
INORG	Barium	7440-39-3	D		6.70E+04	6.70E+04
INORG	Beryllium	7440-41-7	B1	2.20E+04	1.90E+03	1.90E+03
INORG	Cadmium	7440-43-9	B1	3.00E+04	4.50E+02	4.50E+02
INORG	Chromium (total)	7440-47-3		4.50E+03	2.50E+03	2.50E+03
INORG	Cobalt	7440-48-4	B1	1.90E+04	1.30E+04	1.30E+04
INORG	Copper	7440-50-8	D		4.10E+04	4.10E+04
INORG	Cyanide (amenable)	57-12-5A			1.20E+04	1.20E+04
INORG	Cyanide (total)	57-12-5	D		1.20E+04	1.20E+04
INORG	Iron	7439-89-6	D		3.10E+05	3.10E+05
INORG	Lead	7439-92-1	B2		7.50E+02	7.50E+02
INORG	Manganese	7439-96-5	D		1.90E+04	1.90E+04
INORG	Mercury	7439-97-6	D		1.36E+01	1.36E+01
INORG	Nickel	7440-02-0	A		2.00E+04	2.00E+04
INORG	Selenium	7782-49-2	D		5.10E+03	5.10E+03
INORG	Silver	7440-22-4	D		5.10E+03	5.10E+03
INORG	Thallium	7440-28-0			6.80E+01	6.80E+01
INORG	Vanadium	7440-62-2			7.20E+03	7.20E+03
INORG	Zinc	7440-66-6	D		3.10E+05	3.10E+05

Notes:

The Screening Criteria for Pyrene were used as surrogates for Phenanthrene and Benzo(g,h,i)perylene.

The Screening Criteria for Naphthalene were used as surrogates for 2-Methylnaphthalene.

The Screening Criteria for Chromium (total) is based on a 1:6 ratio of Cr VI:Cr III

The concentrations for the Methylphenol (2, 3, & 4) were summed before comparing to the Screening Criteria for 4-Methylphenol.

The concentrations for all PCB isomers were summed before comparing to Polychlorinated biphenyls (PCBs) for cancer effects and Aroclor 1254 for noncancer effects.

The concentrations for the Xylene isomers (m/p and o) were summed before comparing to the Screening Criteria.

The Screening Criteria for Mercury was calculated by ENVIRON to account for the vapor inhalation pathway using: EPA Region 9 equations, RfC from IRIS, and chemical properties from EPA's Soil Screening Guidance.

Chem Group - Chemical Group

Carc Class - EPA Weight-of-Evidence Cancer Classification

Table 5.1 Metal Concentrations in Background Soil from 0 to 2 ft bgs
GM Powertrain - Bedford Facility, Bedford, Indiana

Sample ID	Location ID	Al mg/kg	Sb mg/kg	As mg/kg	Ba mg/kg	Be mg/kg	Cd mg/kg	Cr mg/kg	Co mg/kg	Cu mg/kg	Fe mg/kg	Pb mg/kg	Mn mg/kg	Hg mg/kg	Ni mg/kg	Se mg/kg	Tl mg/kg	V mg/kg	Zn mg/kg
S-012402-MO-004	BK-X142Y263	12600	0.33 UJ	8.5	118.0	0.47 J	0.11 J	28.3 J	12.2	34.9 J	18300	22.5	1200 J	0.04 J	20.8	0.65 J	1.20 J	29.5	50.4
S-060602-MG-229	BK-X157Y157	13100	0.31 U	7.6	28.6	0.43 J	0.03 U	43.6	2.4 J	11.5	32600	21.1	42	0.01 U	11.6	0.20 U	0.31 U	69.8	55.2
S-060602-MG-225	BK-X199Y347	17700	0.32 U	11.5	67.7	0.27 J	0.03 U	19.8	7.1	14.8	24500	13.3	246	0.05 J	13.0	0.20 U	0.32 U	38.8	45.7
S-010223-MO-002	BK-X212Y042	10700	0.31 UJ	5.9	43.2	0.18 J	0.03 U	14.7	8.7	12.3	17000	13.2	271 J	0.01 U	10.6	0.20 U	0.32 U	27.1	30.2 J
S-010223-MO-003	BK-X267Y091	10200	0.31 UJ	6.8	45.5	0.24 J	0.06 J	16.0	7.3	15.3	16200	20.3	161 J	0.01 U	18.2	0.39 J	0.32 U	23.0	39.5 J
S-010223-MO-001*	BK-X281Y296	12650	0.32 UJ	11.5	65.7	0.31 J	0.07 J	20.0	10.2	13.5	22800	17.3	517 J	0.01 U	12.3	0.56	0.32 U	39.1	43.2 J
S-060602-MG-227	BK-X293Y374	11200	0.29 U	9.9	93.9	0.38 J	0.11 J	21.6	10.5	10.9	19400	16.2	918	0.03 J	12.0	0.19 U	0.30 U	32.6	41.5
S-020602-MG-099	MW-X169Y058S	9680	0.31 UJ	8.0	44.2 J	0.03 U	0.13 J	28.9	6.1 J	9.6	20000	14.6	193 J	0.05 J	7.7	0.20 U	0.32 U	31.2	26.0
S-012102-KMV-509*	MW-X261Y356D	15650	1.01 J	10.5	91.4	0.37 J	0.05 J	19.4	10.1	20.9	23900	19.1	511	0.05 J	14.8	0.68 J	0.32 U	34.1	49.5
Count		**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**
Detected		**9**	**1**	**9**	**9**	**8**	**6**	**9**	**9**	**9**	**9**	**9**	**9**	**5**	**9**	**4**	**1**	**9**	**9**
Minimum		9680.0	0.3	5.9	29	0.03	0.03	14.7	2.4	9.6	16200.0	13.2	42	0.01	7.7	0.19	0.3	23	26
Median		12600.0	0.3	8.5	66	0.31	0.06	20.0	8.7	13.5	20000.0	17.3	271	0.03	12.3	0.20	0.3	33	43
Maximum		17700.0	1.0	11.5	118	0.47	0.13	43.6	12.2	34.9	32600.0	22.5	1200	0.05	20.8	0.68	1.2	70	55
Mean		12608.9	0.4	8.9	66	0.30	0.07	23.6	8.3	16.0	21633.3	17.5	451	0.03	13.4	0.36	0.4	36	42
SD		2632.0	0.2	2.0	29	0.14	0.04	8.9	2.9	7.8	5058.9	3.4	384	0.02	4.0	0.21	0.3	14	9
RSD		21%	60%	23%	44%	46%	59%	38%	35%	49%	23%	20%	85%	78%	30%	59%	72%	38%	22%
0.95 Bootstrap UCL		**14200**		**10.0**	**83.9**	**0.36**	**0.09**	**29.8**	**9.6**	**22.5**	**25000**	**19.3**	**689**	**0.04**	**16.0**	**0.48**		**47.0**	**46.8**
Background		**14200**	**1.01**	**10.0**	**83.9**	**0.36**	**0.09**	**29.8**	**9.6**	**22.5**	**25000**	**19.3**	**689**	**0.04**	**16.0**	**0.48**	**1.20**	**47.0**	**46.8**

Notes:
1. Concentrations for Sample IDs with * represent average of duplicate samples.
2. Concentrations for nondetects (U-qualified data) are 0.5 the quantitation limits.
3. The data from MW-X045Y258D were determined to be outside of the expected range of concentrations from the literature for multiple metals and thus were excluded from background calculations.

SD - Standard Deviation
RSD - Relative Standard Deviation

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*
Sample Location:		*B-X100Y072*	*B-X100Y072*	*B-X100Y072*	*B-X100Y072*	*B-X115Y070*	*B-X115Y070*	*B-X115Y070*	*B-X115Y070*	*B-X128Y079*	*B-X128Y079*	*B-X128Y079*	*B-X128Y079*	*B-X128Y079*
Sample ID:		*S-030502-KMV-540*	*S-030502-KMV-541*	*S-030502-KMV-542*	*S-030502-KMV-543*	*S-030602-KMV-544*	*S-030602-KMV-545*	*S-030602-KMV-546*	*S-030602-KMV-547*	*S-030702-MG-164*	*S-030702-MG-165*	*S-030702-MG-166*	*S-030702-MG-167*	*S-030702-MG-168*
Sample Date:		*3/5/2002*	*3/5/2002*	*3/5/2002*	*3/5/2002*	*3/6/2002*	*3/6/2002*	*3/6/2002*	*3/6/2002*	*3/7/2002*	*3/7/2002*	*3/7/2002*	*3/7/2002*	*3/7/2002*
Sample Depth:		*(0-2)*	*(0-2)*	*(6-8)*	*(24-26)*	*(0-2)*	*(0-2)*	*(6-8)*	*(22-23)*	*(2-4)*	*(6-8)*	*(14-15)*	*(21-23)*	*(21-23)*
			Duplicate				*Duplicate*							*Duplicate*
Parameters	***Units***													
Metals														
Aluminum	mg/kg	20600	9680	11000	2990	3680	11800	13500	8710 J	34700	10500	6100	7400	11400
Antimony	mg/kg	ND (6.7) UJ	ND (6.6) UJ	ND (7.8) UJ	ND (7.3) UJ	0.81 J	ND (6.3) UJ	ND (7.5) UJ	ND (7.7) UJ	1.1 J	ND (7.2) UJ	ND (7.5) UJ	ND (8.0) UJ	ND (8.9) UJ
Arsenic	mg/kg	3.0	3.4	10.0	12.0	4.6	2.9	19.6	3.5	3.0	4.5	4.3	7.8	3.5
Barium	mg/kg	35.8	61.8	80.7	33.2	31.1	32.0	17.0 J	38.0 J	123	61.1	69.1	56.4	155
Beryllium	mg/kg	ND (0.69) U	1.2	ND (0.79) U	ND (0.61) U	0.99	ND (0.53) U	ND (0.74) U	1.5 J	ND (0.55) U	ND (0.60) U	ND (0.71) U	2.0	2.2
Cadmium	mg/kg	0.46 J	0.27 J	ND (0.65)	0.99	0.46 J	1.2	ND (0.62)	0.43 J	1.6	0.61	ND (0.63)	ND (0.67) U	ND (0.74)
Chromium Total	mg/kg	19.8	14.3	32.6	6.6	7.1 J	15.7 J	33.5 J	13.3 J	39.2 J	17.3 J	11.9 J	14.0 J	17.1 J
Cobalt	mg/kg	2.8 J	4.2 J	5.0 J	2.2 J	3.6 J	3.3 J	2.4 J	9.7 J	3.9 J	4.5 J	11.5	14.9	9.0
Copper	mg/kg	384	105	11.7	7.6	68.6 J	322 J	9.4 J	16.8 J	1160	335	6.5	18.3	25.0
Cyanide (amenable)	mg/kg	13.6	2.4	ND (0.65)	ND (0.61)	ND (0.54)	ND (0.53)	ND (0.62)	ND (0.64)	ND (0.55)	ND (0.60)	ND (0.63)	ND (0.67)	ND (0.74)
Cyanide (total)	mg/kg	14.9	2.4	ND (0.65)	ND (0.61)	ND (0.54)	ND (0.53)	ND (0.62)	ND (0.64)	0.34 J	ND (0.60)	ND (0.63)	ND (0.67)	ND (0.74)
Iron	mg/kg	6610	6870	45000	16000	21800 J	8770 J	45900 J	13300 J	11100	8890	12600	28200	17600
Lead	mg/kg	29.7	19.2	20.2	4.1	56.7 J	32.2 J	20.9 J	17.5 J	164 J	33.2 J	13.8 J	19.2 J	17.8 J
Manganese	mg/kg	190	167	37.0	318	131 J	186 J	44.6 J	127 J	329	603	1040	419	283
Mercury	mg/kg	ND (0.11)	ND (0.11)	ND (0.13)	ND (0.12)	0.16	ND (0.11) U	ND (0.12)	ND (0.13) U	0.036 J	0.033 J	ND (0.13)	0.044 J	0.12 J
Nickel	mg/kg	21.7	15.0	26.2	10.4	12.2 J	18.5 J	9.4 J	27.1 J	53.0 J	17.0 J	6.9 J	36.8 J	27.3 J
Selenium	mg/kg	ND (0.56)	ND (0.55)	ND (0.65)	ND (0.61)	ND (0.54)	ND (0.53)	ND (0.62)	ND (0.64) U	ND (0.72) U	ND (0.82) U	ND (0.77) U	0.70	ND (0.74)
Silver	mg/kg	0.18 J	ND (1.1)	ND (1.3)	ND (1.2)	ND (1.1)	ND (1.1)	ND (1.2)	ND (1.3)	ND (1.1) U	ND (1.2)	ND (1.3)	ND (1.3)	ND (1.5)
Thallium	mg/kg	ND (1.1)	ND (1.1)	ND (1.3)	ND (1.2)	ND (1.1)	ND (1.1)	ND (1.2)	0.85 J	ND (1.1)	ND (1.2)	ND (1.3)	1.1 J	ND (1.5)
Vanadium	mg/kg	11.5	14.4	77.1	7.8	11.3 J	12.1 J	61.2 J	15.7 J	16.2	14.4	20.9	21.7	19.7
Zinc	mg/kg	182	107	35.0	15.9	131 J	152 J	26.2 J	41.0 J	711	147	21.8	41.4	39.8
PCBs														
Aroclor-1016 (PCB-1016)	ug/kg	ND (37)	ND (36)	ND (43)	ND (40)	ND (36)	ND (35)	ND (41)	ND (42)	ND (36)	ND (40)	ND (41)	ND (44)	ND (49)
Aroclor-1221 (PCB-1221)	ug/kg	ND (37)	ND (36)	ND (43)	ND (40)	ND (36)	ND (35)	ND (41)	ND (42)	ND (36)	ND (40)	ND (41)	ND (44)	ND (49)
Aroclor-1232 (PCB-1232)	ug/kg	ND (37)	ND (36)	ND (43)	ND (40)	ND (36)	ND (35)	ND (41)	ND (42)	ND (36)	ND (40)	ND (41)	ND (44)	ND (49)
Aroclor-1242 (PCB-1242)	ug/kg	51	ND (36)	ND (43)	ND (40)	ND (36)	ND (35)	ND (41)	ND (42)	ND (36)	ND (40)	ND (41)	27 J	ND (49)
Aroclor-1248 (PCB-1248)	ug/kg	ND (37)	29 J	ND (43)	ND (40)	ND (36)	ND (35)	ND (41)	ND (42)	61	ND (40)	ND (41)	ND (44)	ND (49)
Aroclor-1254 (PCB-1254)	ug/kg	ND (37)	ND (36)	ND (43)	ND (40)	ND (36)	ND (35)	ND (41)	ND (42)	ND (36)	ND (40)	ND (41)	ND (44)	ND (49)
Aroclor-1260 (PCB-1260)	ug/kg	ND (37)	12 J	ND (43)	ND (40)	ND (36) UJ	ND (35) UJ	ND (41) UJ	ND (42) UJ	19 J	ND (40)	ND (41)	ND (44)	ND (49)
Semi - Volatiles														
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
2,4,5-Trichlorophenol	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	R	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
2,4,6-Trichlorophenol	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	R	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
2,4-Dichlorophenol	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	R	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
2,4-Dimethylphenol	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	R	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
2,4-Dinitrophenol	ug/kg	ND (1800)	ND (1800)	ND (2100)	ND (2000)	ND (3500)	R	ND (2000)	ND (2100)	ND (1800)	ND (1900)	ND (2000)	ND (2100)	ND (2400)
2,4-Dinitrotoluene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
2,6-Dinitrotoluene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
2-Chloronaphthalene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
2-Chlorophenol	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	R	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
2-Methylnaphthalene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	110 J	160 J	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
2-Methylphenol	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	R	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
2-Nitroaniline	ug/kg	ND (1800)	ND (1800)	ND (2100)	ND (2000)	ND (3500)	ND (1700)	ND (2000)	ND (2100)	ND (1800)	ND (1900)	ND (2000)	ND (2100)	ND (2400)
2-Nitrophenol	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	R	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
3,3'-Dichlorobenzidine	ug/kg	ND (1800)	ND (1800)	ND (2100)	ND (2000)	ND (3500)	ND (1700)	ND (2000)	ND (2100)	ND (1800)	ND (1900)	ND (2000)	ND (2100)	ND (2400)
3-Nitroaniline	ug/kg	ND (1800)	ND (1800)	ND (2100)	ND (2000)	ND (3500)	ND (1700)	ND (2000)	ND (2100)	ND (1800)	ND (1900)	ND (2000)	ND (2100)	ND (2400)
4,6-Dinitro-2-methylphenol	ug/kg	ND (1800)	ND (1800)	ND (2100)	ND (2000)	ND (3500)	R	ND (2000)	ND (2100)	ND (1800)	ND (1900)	ND (2000)	ND (2100)	ND (2400)
4-Bromophenyl phenyl ether	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
4-Chloro-3-methylphenol	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	R	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
4-Chloroaniline	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
4-Chlorophenyl phenyl ether	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*
Sample Location:		*B-X100Y072*	*B-X100Y072*	*B-X100Y072*	*B-X100Y072*	*B-X115Y070*	*B-X115Y070*	*B-X115Y070*	*B-X115Y070*	*B-X128Y079*	*B-X128Y079*	*B-X128Y079*	*B-X128Y079*	*B-X128Y079*
Sample ID:		*S-030502-KMV-540*	*S-030502-KMV-541*	*S-030502-KMV-542*	*S-030502-KMV-543*	*S-030602-KMV-544*	*S-030602-KMV-545*	*S-030602-KMV-546*	*S-030602-KMV-547*	*S-030702-MG-164*	*S-030702-MG-165*	*S-030702-MG-166*	*S-030702-MG-167*	*S-030702-MG-168*
Sample Date:		*3/5/2002*	*3/5/2002*	*3/5/2002*	*3/5/2002*	*3/6/2002*	*3/6/2002*	*3/6/2002*	*3/6/2002*	*3/7/2002*	*3/7/2002*	*3/7/2002*	*3/7/2002*	*3/7/2002*
Sample Depth:		*(0-2)*	*(0-2)*	*(6-8)*	*(24-26)*	*(0-2)*	*(0-2)*	*(6-8)*	*(22-23)*	*(2-4)*	*(6-8)*	*(14-15)*	*(21-23)*	*(21-23)*
			Duplicate				*Duplicate*							*Duplicate*
Parameters	***Units***													
4-Methylphenol	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	R	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
4-Nitroaniline	ug/kg	ND (1800)	ND (1800)	ND (2100)	ND (2000)	ND (3500)	ND (1700)	ND (2000)	ND (2100)	ND (1800)	ND (1900)	ND (2000)	ND (2100)	ND (2400)
4-Nitrophenol	ug/kg	ND (1800)	ND (1800)	ND (2100)	ND (2000)	ND (3500)	R	ND (2000)	ND (2100)	ND (1800)	ND (1900)	ND (2000)	ND (2100)	ND (2400)
Acenaphthene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Acenaphthylene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Acetophenone	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Anthracene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	240 J	82 J	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Atrazine	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Benzaldehyde	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Benzo(a)anthracene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	1400	490	ND (410)	ND (420)	99 J	ND (400)	ND (410)	ND (440)	ND (490)
Benzo(a)pyrene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	1500	500	ND (410)	ND (420)	140 J	ND (400)	ND (410)	ND (440)	ND (490)
Benzo(b)fluoranthene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	1700	690	ND (410)	ND (420)	150 J	ND (400)	ND (410)	ND (440)	ND (490)
Benzo(g,h,i)perylene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	1100	360	ND (410)	ND (420)	95 J	ND (400)	ND (410)	ND (440)	ND (490)
Benzo(k)fluoranthene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	900	200 J	ND (410)	ND (420)	84 J	ND (400)	ND (410)	ND (440)	ND (490)
Biphenyl	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
bis(2-Chloroethoxy)methane	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
bis(2-Chloroethyl)ether	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (370)	150 J	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	10000	ND (400)	ND (410)	ND (440)	ND (490)
Butyl benzylphthalate	ug/kg	ND (370)	100 J	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Caprolactam	ug/kg	ND (370) UJ	ND (360) UJ	ND (430) UJ	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360) UJ	ND (400) UJ	ND (410) UJ	ND (440) UJ	ND (490) UJ
Carbazole	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	180 J	73 J	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Chrysene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	1700	650	ND (410)	ND (420)	140 J	ND (400)	ND (410)	ND (440)	ND (490)
Dibenz(a,h)anthracene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	250 J	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Dibenzofuran	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Diethyl phthalate	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Dimethyl phthalate	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Di-n-butylphthalate	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Di-n-octyl phthalate	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Fluoranthene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	2900	910	ND (410)	ND (420)	240 J	ND (400)	ND (410)	ND (440)	ND (490)
Fluorene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Hexachlorobenzene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Hexachlorobutadiene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Hexachlorocyclopentadiene	ug/kg	ND (1800)	ND (1800)	ND (2100)	ND (2000)	ND (3500)	ND (1700)	ND (2000)	ND (2100)	ND (1800)	ND (1900)	ND (2000)	ND (2100)	ND (2400)
Hexachloroethane	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	910	350	ND (410)	ND (420)	85 J	ND (400)	ND (410)	ND (440)	ND (490)
Isophorone	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Naphthalene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	64 J	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Nitrobenzene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
N-Nitrosodi-n-propylamine	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
N-Nitrosodiphenylamine	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	ND (350)	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Pentachlorophenol	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	R	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Phenanthrene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	1900	840	ND (410)	ND (420)	130 J	ND (400)	ND (410)	75 J	82 J
Phenol	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	ND (710)	R	ND (410)	ND (420)	ND (360)	ND (400)	ND (410)	ND (440)	ND (490)
Pyrene	ug/kg	ND (370)	ND (360)	ND (430)	ND (400)	4000	840	ND (410)	ND (420)	180 J	ND (400)	ND (410)	ND (440)	ND (490)
Volatiles														
1,1,1-Trichloroethane	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
1,1,2,2-Tetrachloroethane	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
1,1,2-Trichloroethane	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
1,1-Dichloroethane	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
1,1-Dichloroethene	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
1,2,4-Trichlorobenzene	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9) U	ND (6.8) UJ	ND (8.5) UJ	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (13)	ND (14)	ND (11)	ND (9.8)	ND (14) UJ	ND (17) UJ	ND (11)	ND (14)	ND (13)	ND (17)	ND (12)	ND (14)	ND (16)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
1,2-Dichlorobenzene	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8) UJ	ND (8.5) UJ	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
1,2-Dichloroethane	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*
Sample Location:		*B-X100Y072*	*B-X100Y072*	*B-X100Y072*	*B-X100Y072*	*B-X115Y070*	*B-X115Y070*	*B-X115Y070*	*B-X115Y070*	*B-X128Y079*	*B-X128Y079*	*B-X128Y079*	*B-X128Y079*	*B-X128Y079*
Sample ID:		*S-030502-KMV-540*	*S-030502-KMV-541*	*S-030502-KMV-542*	*S-030502-KMV-543*	*S-030602-KMV-544*	*S-030602-KMV-545*	*S-030602-KMV-546*	*S-030602-KMV-547*	*S-030702-MG-164*	*S-030702-MG-165*	*S-030702-MG-166*	*S-030702-MG-167*	*S-030702-MG-168*
Sample Date:		*3/5/2002*	*3/5/2002*	*3/5/2002*	*3/5/2002*	*3/6/2002*	*3/6/2002*	*3/6/2002*	*3/6/2002*	*3/7/2002*	*3/7/2002*	*3/7/2002*	*3/7/2002*	*3/7/2002*
Sample Depth:		*(0-2)*	*(0-2)*	*(6-8)*	*(24-26)*	*(0-2)*	*(0-2)*	*(6-8)*	*(22-23)*	*(2-4)*	*(6-8)*	*(14-15)*	*(21-23)*	*(21-23)*
			Duplicate				*Duplicate*							*Duplicate*
Parameters	***Units***													
1,2-Dichloropropane	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
1,3-Dichlorobenzene	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8) UJ	ND (8.5) UJ	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
1,4-Dichlorobenzene	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8) UJ	1.3 J	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (25)	ND (27)	ND (22)	ND (20)	ND (27)	ND (34)	ND (22)	ND (27)	ND (25)	ND (35)	7 J	ND (29)	ND (33)
2-Hexanone	ug/kg	ND (25)	ND (27)	ND (22)	ND (20)	ND (27)	ND (34)	ND (22)	ND (27)	ND (25)	ND (35)	ND (24)	ND (29)	ND (33)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (25)	ND (27)	ND (22)	ND (20)	ND (27)	ND (34)	ND (22)	ND (27)	ND (25)	ND (35)	ND (24)	ND (29)	ND (33)
Acetone	ug/kg	ND (25) UJ	ND (27) UJ	ND (22) UJ	ND (20) UJ	ND (27)	ND (34)	ND (22) UJ	ND (27) UJ	ND (25) UJ	ND (35) UJ	24 J	10 J	19 J
Benzene	ug/kg	ND (6.3)	ND (6.8)	0.73 J	ND (4.9)	ND (6.8)	1.1 J	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
Bromodichloromethane	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
Bromoform	ug/kg	ND (6.3) UJ	ND (6.8) UJ	ND (5.5) UJ	ND (4.9) UJ	ND (6.8)	ND (8.5)	ND (5.5) UJ	ND (6.8) UJ	ND (6.3) UJ	ND (8.7) UJ	ND (6.1) UJ	ND (7.2) UJ	ND (8.2) UJ
Bromomethane (Methyl Bromide)	ug/kg	ND (6.3) UJ	ND (6.8) UJ	ND (5.5) UJ	ND (4.9) UJ	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
Carbon disulfide	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
Carbon tetrachloride	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
Chlorobenzene	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
Chloroethane	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
Chloroform (Trichloromethane)	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
Chloromethane (Methyl Chloride)	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
cis-1,2-Dichloroethene	ug/kg	ND (3.1)	ND (3.4)	ND (2.8)	ND (2.4)	ND (3.4)	ND (4.3)	ND (2.7)	ND (3.4)	ND (3.2)	ND (4.3)	1 J	ND (3.6)	ND (4.1)
cis-1,3-Dichloropropene	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
Cyclohexane	ug/kg	ND (13)	ND (14)	ND (11)	ND (9.8)	ND (14)	ND (17)	ND (11)	ND (14)	ND (13)	ND (17)	ND (12)	ND (14)	ND (16)
Dibromochloromethane	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
Ethylbenzene	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
Isopropylbenzene	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	1.4 J	ND (7.2)	ND (8.2)
Methyl acetate	ug/kg	ND (13)	ND (14)	ND (11)	ND (9.8)	1.9 J	2 J	ND (11)	ND (14)	ND (13)	ND (17)	ND (12)	ND (14)	ND (16)
Methyl cyclohexane	ug/kg	ND (13)	ND (14)	ND (11)	ND (9.8)	ND (14)	ND (17)	ND (11)	ND (14)	ND (13)	ND (17)	2.5 J	ND (14)	4.8 J
Methyl Tert Butyl Ether	ug/kg	ND (25)	ND (27)	ND (22)	ND (20)	ND (27)	ND (34)	ND (22)	ND (27)	ND (25)	ND (35)	ND (24)	ND (29)	ND (33)
Methylene chloride	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
Styrene	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
Tetrachloroethene	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
Toluene	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	0.82 J	2.2 J	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	1.4 J	ND (7.2)	ND (8.2)
trans-1,2-Dichloroethene	ug/kg	ND (3.1)	ND (3.4)	ND (2.8)	ND (2.4)	ND (3.4)	ND (4.3)	ND (2.7)	ND (3.4)	ND (3.2)	ND (4.3)	ND (3)	ND (3.6)	ND (4.1)
trans-1,3-Dichloropropene	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
Trichloroethene	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	2.3 J	ND (7.2)	ND (8.2)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
Vinyl chloride	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	ND (6.1)	ND (7.2)	ND (8.2)
Xylene (total)	ug/kg	ND (6.3)	ND (6.8)	ND (5.5)	ND (4.9)	ND (6.8)	ND (8.5)	ND (5.5)	ND (6.8)	ND (6.3)	ND (8.7)	6.4	ND (7.2)	ND (8.2)
General Chemistry														
Chloride	mg/kg	2260	2470	2800	1410	795	1090	1590	1810	32.1	151	2050	4450	4970
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Solids	%	89.1	91.0	76.9	82.0	92.3	94.5	80.1	78.0	91.1	83.0	79.8	74.7	67.8

Notes:

* Reported in units of ug/L.

UJ Non-detect at associated value. The associated value is estimated.

J Estimated.

U Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*
Sample Location:		*B-X130Y064*	*B-X130Y064*	*B-X130Y064*	*B-X130Y115*	*B-X130Y115*	*B-X130Y115*	*B-X130Y115*	*B-X135Y110*	*B-X135Y110*	*B-X135Y110*	*B-X137Y073*	*B-X137Y073*	*B-X140Y100*
Sample ID:		*S-030702-MG-169*	*S-030702-MG-170*	*S-030702-MG-171*	*S-071502-CLM-004*	*S-071502-CLM-005*	*S-071502-CLM-006*	*S-071502-CLM-010*	*S-071502-CLM-007*	*S-071502-CLM-008*	*S-071502-CLM-009*	*S-030802-KMV-548*	*S-031202-KMV-549*	*S-071502-CLM-001*
Sample Date:		*3/7/2002*	*3/7/2002*	*3/7/2002*	*7/15/2002*	*7/15/2002*	*7/15/2002*	*7/15/2002*	*7/15/2002*	*7/15/2002*	*7/15/2002*	*3/8/2002*	*3/12/2002*	*7/15/2002*
Sample Depth:		*(2-4)*	*(6-8)*	*(20-22)*	*(0-2)*	*(6-8)*	*(13-15)*	*(13-15) Duplicate*	*(0-2)*	*(6-8)*	*(13-15)*	*(8-10)*	*(18-20)*	*(0-2)*
Parameters	***Units***													
Metals														
Aluminum	mg/kg	5140	9970	8690	14000	12000	11700	11300	9880	13100	11200	11600	6430 J	1320
Antimony	mg/kg	ND (7.3) UJ	ND (7.6) UJ	ND (37.3) UJ	ND (7.5)	R	ND (7.6)	ND (7.8)	ND (7.3)	ND (7.5)	ND (7.7)	ND (7.6)	R	ND (6.6)
Arsenic	mg/kg	10.0	9.2	8.1	8.4	7.3	6.5	7.3	7.3	7.1	9.4	7.7	4.4 J	2.2
Barium	mg/kg	69.3	97.2	52.4 J	74.6	49.3	14.1 J	18.5 J	74.3	75.3	105	27.7	13.1 J	46.5
Beryllium	mg/kg	1.2	ND (0.82) U	5.5	0.74	0.58 J	1.2	1.2	0.60 J	0.56 J	0.69	ND (0.64) U	1.2	0.30 J
Cadmium	mg/kg	ND (0.60) U	ND (0.63)	ND (3.1)	0.35 J	ND (0.59)	ND (0.64)	ND (0.65)	ND (0.61) U	ND (0.63)	ND (0.65)	ND (0.64) U	0.33 J	0.36 J
Chromium Total	mg/kg	7.3 J	11.2 J	15.1 J	17.7	34.8	27.9	23.5	13.9	16.9	12.3	17.0	11.5 J	4.8
Cobalt	mg/kg	6.8	11.1	31.0 J	7.7	1.8 J	7.6	8.1	11.0	9.8	15.6	4.2 J	7.0 J	1.6 J
Copper	mg/kg	22.3	5.9	18.3	21.6	7.8	27.4	25.5	9.7	13.1	8.6	129	13.0 J	11.3
Cyanide (amenable)	mg/kg	ND (0.60)	ND (0.63)	ND (0.62)	ND (0.63)	ND (0.59)	1.1	ND (0.65)	ND (0.61)	ND (0.63)	ND (0.65)	ND (0.64)	ND (0.67)	ND (0.55)
Cyanide (total)	mg/kg	ND (0.60)	ND (0.63)	ND (0.62)	ND (0.63)	ND (0.59)	1.1	ND (0.65)	0.12 J	ND (0.63)	ND (0.65)	ND (0.64)	ND (0.67)	ND (0.55)
Iron	mg/kg	16900	17100	39400	22000	35300	28500	31700	15200	18600	17800	19800	18300 J	5590
Lead	mg/kg	16.1 J	15.4 J	34.2 J	17.0	13.7	13.3	14.3	22.6	15.2	29.7	11.6	11.2 J	6.7
Manganese	mg/kg	147	1550	450	281	120	75.2	79.8	740	237	457	159	126 J	67.2 J
Mercury	mg/kg	0.049 J	0.045 J	0.046 J	0.063 J	ND (0.12)	ND (0.13)	ND (0.13)	0.044 J	0.032 J	0.043 J	0.053 J	ND (0.13) U	ND (0.11)
Nickel	mg/kg	14.5 J	8.4 J	102 J	15.3	6.6	36.4	41.2	9.1	10.2	9.0	10.3	23.3 J	6.6
Selenium	mg/kg	1.8	0.93	ND (3.1)	ND (0.63)	ND (0.59)	ND (0.64)	ND (0.65)	ND (0.61)	ND (0.63)	ND (0.65)	ND (0.64)	ND (0.67) UJ	ND (0.55)
Silver	mg/kg	ND (1.2)	ND (1.3)	ND (6.2)	ND (1.3)	ND (1.2)	ND (1.3)	ND (1.3)	ND (1.2)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.1)
Thallium	mg/kg	0.67 J	ND (1.3)	ND (6.2)	ND (1.3)	ND (1.2)	ND (1.3)	ND (1.3)	ND (1.2)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3) UJ	ND (1.1)
Vanadium	mg/kg	16.2	28.5	32.6	29.4	63.8	36.3	39.9	24.7	29.6	30.5	28.0	18.7 J	3.8 J
Zinc	mg/kg	49.9	22.2	87.8	102	18.8	95.2	122	59.8	36.3	31.1	110	44.9 J	105
PCBs														
Aroclor-1016 (PCB-1016)	ug/kg	ND (40)	ND (42)	ND (41)	ND (41)	ND (39)	ND (42)	ND (43)	ND (40)	ND (41)	ND (43)	ND (42)	ND (44)	ND (37)
Aroclor-1221 (PCB-1221)	ug/kg	ND (40)	ND (42)	ND (41)	ND (41)	ND (39)	ND (42)	ND (43)	ND (40)	ND (41)	ND (43)	ND (42)	ND (44)	ND (37)
Aroclor-1232 (PCB-1232)	ug/kg	ND (40)	ND (42)	ND (41)	ND (41)	ND (39)	ND (42)	ND (43)	ND (40)	ND (41)	ND (43)	ND (42)	ND (44)	ND (37)
Aroclor-1242 (PCB-1242)	ug/kg	ND (40)	ND (42) UJ	ND (41)	ND (41)	ND (39)	ND (42)	ND (43)	ND (40)	ND (41)	ND (43)	ND (42)	ND (44)	ND (37)
Aroclor-1248 (PCB-1248)	ug/kg	ND (40)	ND (42)	ND (41)	ND (41)	ND (39)	18 J	28 J	ND (40)	ND (41)	ND (43)	ND (42) U	ND (44)	ND (37)
Aroclor-1254 (PCB-1254)	ug/kg	ND (40)	ND (42)	ND (41)	ND (41)	ND (39)	ND (42)	ND (43)	ND (40)	ND (41)	ND (43)	ND (42)	ND (44)	ND (37)
Aroclor-1260 (PCB-1260)	ug/kg	ND (40)	ND (42)	ND (41)	ND (41) UJ	ND (39) UJ	ND (42) UJ	ND (43) UJ	ND (40) UJ	ND (41) UJ	ND (43) UJ	ND (42)	ND (44)	ND (37) UJ
Semi - Volatiles														
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
2,4,5-Trichlorophenol	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
2,4,6-Trichlorophenol	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
2,4-Dichlorophenol	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
2,4-Dimethylphenol	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
2,4-Dinitrophenol	ug/kg	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (1900)	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (1800)
2,4-Dinitrotoluene	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
2,6-Dinitrotoluene	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
2-Chloronaphthalene	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
2-Chlorophenol	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
2-Methylnaphthalene	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
2-Methylphenol	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
2-Nitroaniline	ug/kg	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (1900)	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (1800)
2-Nitrophenol	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
3,3'-Dichlorobenzidine	ug/kg	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (1900)	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (1800)
3-Nitroaniline	ug/kg	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (1900)	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (1800)
4,6-Dinitro-2-methylphenol	ug/kg	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (1900)	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (1800)
4-Bromophenyl phenyl ether	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
4-Chloro-3-methylphenol	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
4-Chloroaniline	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
4-Chlorophenyl phenyl ether	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*
Sample Location:		*B-X130Y064*	*B-X130Y064*	*B-X130Y064*	*B-X130Y115*	*B-X130Y115*	*B-X130Y115*	*B-X130Y115*	*B-X135Y110*	*B-X135Y110*	*B-X135Y110*	*B-X137Y073*	*B-X137Y073*	*B-X140Y100*
Sample ID:		*S-030702-MG-169*	*S-030702-MG-170*	*S-030702-MG-171*	*S-071502-CLM-004*	*S-071502-CLM-005*	*S-071502-CLM-006*	*S-071502-CLM-010*	*S-071502-CLM-007*	*S-071502-CLM-008*	*S-071502-CLM-009*	*S-030802-KMV-548*	*S-031202-KMV-549*	*S-071502-CLM-001*
Sample Date:		*3/7/2002*	*3/7/2002*	*3/7/2002*	*7/15/2002*	*7/15/2002*	*7/15/2002*	*7/15/2002*	*7/15/2002*	*7/15/2002*	*7/15/2002*	*3/8/2002*	*3/12/2002*	*7/15/2002*
Sample Depth:		*(2-4)*	*(6-8)*	*(20-22)*	*(0-2)*	*(6-8)*	*(13-15)*	*(13-15) Duplicate*	*(0-2)*	*(6-8)*	*(13-15)*	*(8-10)*	*(18-20)*	*(0-2)*
Parameters	***Units***													
4-Methylphenol	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
4-Nitroaniline	ug/kg	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (1900)	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (1800)
4-Nitrophenol	ug/kg	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (1900)	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (1800)
Acenaphthene	ug/kg	110 J	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
Acenaphthylene	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
Acetophenone	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
Anthracene	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	95 J	ND (430)	ND (420)	ND (440)	ND (370)
Atrazine	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
Benzaldehyde	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
Benzo(a)anthracene	ug/kg	320 J	ND (420)	ND (410)	53 J	ND (390)	ND (420)	ND (430)	ND (400)	370 J	ND (430)	ND (420)	ND (440)	ND (370)
Benzo(a)pyrene	ug/kg	ND (400)	ND (420)	ND (410)	110 J	ND (390)	ND (420)	ND (430)	ND (400)	370 J	ND (430)	ND (420)	ND (440)	ND (370)
Benzo(b)fluoranthene	ug/kg	ND (400)	ND (420)	ND (410)	140 J	49 J	ND (420)	ND (430)	53 J	440	ND (430)	ND (420)	ND (440)	ND (370)
Benzo(g,h,i)perylene	ug/kg	85 J	ND (420)	ND (410)	51 J	ND (390)	ND (420)	ND (430)	ND (400)	180 J	ND (430)	ND (420)	ND (440)	ND (370)
Benzo(k)fluoranthene	ug/kg	ND (400)	ND (420)	ND (410)	64 J	ND (390)	ND (420)	ND (430)	ND (400)	210 J	ND (430)	ND (420)	ND (440)	ND (370)
Biphenyl	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
bis(2-Chloroethoxy)methane	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
bis(2-Chloroethyl)ether	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	42 J	ND (420)	52 J	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	44 J
Butyl benzylphthalate	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430) UJ	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
Caprolactam	ug/kg	ND (400) UJ	ND (420) UJ	ND (410) UJ	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
Carbazole	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	46 J	ND (430)	ND (420)	ND (440)	ND (370)
Chrysene	ug/kg	470	ND (420)	ND (410)	71 J	50 J	ND (420)	ND (430)	42 J	460	ND (430)	ND (420)	ND (440)	ND (370)
Dibenz(a,h)anthracene	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	42 J	ND (430)	ND (420)	ND (440)	ND (370)
Dibenzofuran	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
Diethyl phthalate	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
Dimethyl phthalate	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
Di-n-butylphthalate	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
Di-n-octyl phthalate	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
Fluoranthene	ug/kg	810	ND (420)	ND (410)	67 J	88 J	ND (420)	ND (430)	ND (400)	1200	ND (430)	ND (420)	ND (440)	38 J
Fluorene	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
Hexachlorobenzene	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
Hexachlorobutadiene	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
Hexachlorocyclopentadiene	ug/kg	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (1900)	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (1800)
Hexachloroethane	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (400)	ND (420)	ND (410)	49 J	ND (390)	ND (420)	ND (430)	ND (400)	180 J	ND (430)	ND (420)	ND (440)	ND (370)
Isophorone	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
Naphthalene	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
Nitrobenzene	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
N-Nitrosodi-n-propylamine	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
N-Nitrosodiphenylamine	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
Pentachlorophenol	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
Phenanthrene	ug/kg	ND (400)	ND (420)	ND (410)	69 J	56 J	ND (420)	ND (430)	ND (400)	740	ND (430)	ND (420)	ND (440)	67 J
Phenol	ug/kg	ND (400)	ND (420)	ND (410)	ND (410)	ND (390)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (420)	ND (440)	ND (370)
Pyrene	ug/kg	720	ND (420)	ND (410)	68 J	110 J	ND (420)	ND (430) UJ	53 J	1100	ND (430)	ND (420)	ND (440)	40 J
Volatiles														
1,1,1-Trichloroethane	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
1,1,2,2-Tetrachloroethane	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
1,1,2-Trichloroethane	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
1,1-Dichloroethane	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
1,1-Dichloroethene	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
1,2,4-Trichlorobenzene	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (11)	ND (14)	ND (14)	ND (11)	ND (12)	ND (12)	ND (11)	ND (11)	ND (12)	ND (12)	ND (11)	ND (15)	ND (10)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
1,2-Dichlorobenzene	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
1,2-Dichloroethane	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*
Sample Location:		*B-X130Y064*	*B-X130Y064*	*B-X130Y064*	*B-X130Y115*	*B-X130Y115*	*B-X130Y115*	*B-X130Y115*	*B-X135Y110*	*B-X135Y110*	*B-X135Y110*	*B-X137Y073*	*B-X137Y073*	*B-X140Y100*
Sample ID:		*S-030702-MG-169*	*S-030702-MG-170*	*S-030702-MG-171*	*S-071502-CLM-004*	*S-071502-CLM-005*	*S-071502-CLM-006*	*S-071502-CLM-010*	*S-071502-CLM-007*	*S-071502-CLM-008*	*S-071502-CLM-009*	*S-030802-KMV-548*	*S-031202-KMV-549*	*S-071502-CLM-001*
Sample Date:		*3/7/2002*	*3/7/2002*	*3/7/2002*	*7/15/2002*	*7/15/2002*	*7/15/2002*	*7/15/2002*	*7/15/2002*	*7/15/2002*	*7/15/2002*	*3/8/2002*	*3/12/2002*	*7/15/2002*
Sample Depth:		*(2-4)*	*(6-8)*	*(20-22)*	*(0-2)*	*(6-8)*	*(13-15)*	*(13-15)* *Duplicate*	*(0-2)*	*(6-8)*	*(13-15)*	*(8-10)*	*(18-20)*	*(0-2)*
Parameters	***Units***													
1,2-Dichloropropane	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
1,3-Dichlorobenzene	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
1,4-Dichlorobenzene	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	4.1 J	11 J	3.7 J	3.6 J	ND (24) UJ	ND (25) UJ	ND (22) UJ	3.7 J	ND (24) UJ	ND (25) UJ	ND (23)	ND (31)	ND (20) UJ
2-Hexanone	ug/kg	ND (22)	ND (28)	ND (27)	ND (22)	ND (24)	ND (25)	ND (22) UJ	ND (21)	ND (24) UJ	ND (25) UJ	ND (23)	ND (31)	ND (20) UJ
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (22)	ND (28)	ND (27)	ND (22)	ND (24)	ND (25)	ND (22) UJ	ND (21)	ND (24) UJ	ND (25) UJ	ND (23)	ND (31)	ND (20) UJ
Acetone	ug/kg	15 J	45 J	18 J	ND (22) UJ	ND (24) UJ	ND (25) UJ	ND (22) UJ	ND (21) UJ	ND (24) UJ	ND (25) UJ	ND (23) U	ND (31)	ND (20) UJ
Benzene	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
Bromodichloromethane	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
Bromoform	ug/kg	ND (5.6)	ND (7.1) UJ	ND (6.8) UJ	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7) UJ	ND (7.6) UJ	ND (5.1)
Bromomethane (Methyl Bromide)	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6) UJ	ND (5.1)
Carbon disulfide	ug/kg	1.3 J	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
Carbon tetrachloride	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
Chlorobenzene	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
Chloroethane	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
Chloroform (Trichloromethane)	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
Chloromethane (Methyl Chloride)	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
cis-1,2-Dichloroethene	ug/kg	ND (2.8)	ND (3.5)	ND (3.4)	ND (2.8)	ND (3.0)	31	44	ND (2.7)	ND (2.9)	ND (3.1)	ND (2.9)	ND (3.8)	ND (2.5)
cis-1,3-Dichloropropene	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
Cyclohexane	ug/kg	ND (11)	ND (14)	ND (14)	ND (11)	ND (12)	ND (12)	ND (11)	ND (11)	ND (12)	ND (12)	ND (11)	ND (15)	ND (10)
Dibromochloromethane	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7) UJ	ND (7.6)	ND (5.1)
Ethylbenzene	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
Isopropylbenzene	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
Methyl acetate	ug/kg	ND (11)	ND (14)	ND (14)	ND (11)	ND (12)	ND (12)	ND (11)	ND (11)	ND (12)	ND (12)	ND (11)	ND (15)	ND (10)
Methyl cyclohexane	ug/kg	ND (11)	ND (14)	ND (14)	ND (11)	ND (12)	ND (12)	ND (11)	ND (11)	ND (12)	ND (12)	ND (11)	ND (15)	ND (10)
Methyl Tert Butyl Ether	ug/kg	ND (22)	ND (28)	ND (27)	ND (22)	ND (24)	ND (25)	ND (22)	ND (21)	ND (24)	ND (25)	ND (23)	ND (31)	ND (20)
Methylene chloride	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	1.5 J	1.9 J	1.6 J	ND (5.6)	ND (5.3)	ND (5.9) U	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1) U
Styrene	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
Tetrachloroethene	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
Toluene	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
trans-1,2-Dichloroethene	ug/kg	ND (2.8)	ND (3.5)	ND (3.4)	ND (2.8)	ND (3.0)	ND (3.1)	ND (2.8)	ND (2.7)	ND (2.9)	ND (3.1)	ND (2.9)	ND (3.8)	ND (2.5)
trans-1,3-Dichloropropene	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
Trichloroethene	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	3.4 J	4.7 J	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
Vinyl chloride	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	3.1 J	4.9 J	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
Xylene (total)	ug/kg	ND (5.6)	ND (7.1)	ND (6.8)	ND (5.6)	ND (5.9)	ND (6.2)	ND (5.6)	ND (5.3)	ND (5.9)	ND (6.2)	ND (5.7)	ND (7.6)	ND (5.1)
General Chemistry														
Chloride	mg/kg	3060	1210	2330	4.4 J	3.2 J	13.5	17.0	3.2 J	5.3 J	7.7 J	1870	2020	1.2 J
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Solids	%	82.7	79.2	80.5	79.6	84.2	78.5	76.6	82.4	79.9	77.4	78.6	74.7	90.3

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*
Sample Location:		*B-X140Y100*	*B-X140Y100*	*B-X143Y075*	*B-X143Y075*	*B-X143Y075*	*B-X148Y076*	*B-X148Y076*	*B-X148Y076*	*MW-X085Y070S*	*MW-X085Y070S*	*MW-X085Y070S*
Sample ID:		*S-071502-CLM-002*	*S-071502-CLM-003*	*S-031302-MG-178*	*S-031302-MG-179*	*S-031302-MG-180*	*S-030802-MG-172*	*S-030802-MG-173*	*S-030802-MG-174*	*S-020402-KMV-519*	*S-020402-KMV-520*	*S-020402-KMV-521*
Sample Date:		*7/15/2002*	*7/15/2002*	*3/13/2002*	*3/13/2002*	*3/13/2002*	*3/8/2002*	*3/8/2002*	*3/8/2002*	*2/4/2002*	*2/4/2002*	*2/4/2002*
Sample Depth:		*(6-8)*	*(13-15)*	*(11-13)*	*(11-13)*	*(19-21)*	*(0-2)*	*(6-8)*	*(18-20)*	*(0-2)*	*(0-2)*	*(8-10)*
					Duplicate						*Duplicate*	
Parameters	***Units***											
Metals												
Aluminum	mg/kg	493	9760	7660	9290	9800	15300	2120	10500	4920	4380	9890
Antimony	mg/kg	ND (6.5)	ND (7.6)	ND (7.3)	ND (7.3)	ND (39.3)	0.63 J	5.9 J	ND (77.7)	7.5	8.5	ND (7.2)
Arsenic	mg/kg	0.90 J	9.2	7.8	8.8	12.5	11.2	5.3	7.2 J	22	21.1	3.7
Barium	mg/kg	4.6 J	27.7	21.4 J	19.6 J	121 J	101	37.2	279	69.5	66	14.2 J
Beryllium	mg/kg	ND (0.54)	0.51 J	0.85	1.1	3.4	ND (0.86) U	ND (0.64) U	3.2 J	1.5	2	0.34 J
Cadmium	mg/kg	0.30 J	ND (0.63)	ND (0.61) U	ND (0.61) U	5.0	1.5	0.83	1.7 J	0.68	0.45 J	ND (0.60)
Chromium Total	mg/kg	5.2	48.6	44.4	53.9	24.2	35.9	4.6	27.6	16.4	11.6	12.6
Cobalt	mg/kg	0.38 J	1.9 J	6.7	8.4	20.1 J	7.4	2.6 J	6.7 J	11.1	9.6	1.6 J
Copper	mg/kg	2.0 J	9.4	10.8	13.4	21.6	207	315	16.1 J	217	120	3.3
Cyanide (amenable)	mg/kg	ND (0.54)	ND (0.63)	ND (0.61)	ND (0.61)	ND (0.66)	ND (0.61)	ND (0.53)	ND (0.65)	ND (0.60)	ND (0.62)	ND (0.60)
Cyanide (total)	mg/kg	ND (0.54)	ND (0.63)	ND (0.61)	ND (0.61)	ND (0.66)	ND (0.61)	ND (0.53)	ND (0.65)	0.22 J	0.43 J	ND (0.60)
Iron	mg/kg	1680	37400	45000	54100	28500	27000	13600	22500	39100	43900	15400
Lead	mg/kg	1.5	19.7	18.1	24.5	23.5	72.2	401	14.1	334	327	8.6
Manganese	mg/kg	50.1	63.8	203	219	1690	493	140	1350	249	294	7.3
Mercury	mg/kg	ND (0.11)	0.057 J	0.027 J	0.030 J	0.059 J	0.058 J	0.097 J	0.52	0.074 J	0.21	0.031 J
Nickel	mg/kg	2.3 J	6.8	8.5 J	11.0 J	111 J	30.4	6.7	66.7	39.7	28	4.4 J
Selenium	mg/kg	ND (0.54)	ND (0.63)	ND (0.61)	ND (0.61)	ND (3.3)	0.90	0.52 J	ND (6.5)	3.9	3.5	1
Silver	mg/kg	ND (1.1)	ND (1.3)	ND (1.2)	ND (1.2)	ND (6.6)	ND (1.2)	ND (1.1) U	0.60 J	ND (1.2)	ND (1.2)	ND (1.2)
Thallium	mg/kg	ND (1.1)	ND (1.3)	ND (1.2) U	ND (1.2)	ND (6.6)	ND (1.2)	0.85 J	4.0 J	0.71 J	ND (1.2)	ND (1.2)
Vanadium	mg/kg	2.4 J	71.0	70.6	85.2	33.1	37.9	6.9	33.7 J	24.8	23.2	29.5
Zinc	mg/kg	18.3	19.9	32.6	40.7	110	258	591	86.7	332	246	9.6
PCBs												
Aroclor-1016 (PCB-1016)	ug/kg	ND (36)	ND (42)	ND (40)	ND (40)	ND (43)	ND (40)	ND (35)	ND (43)	ND (40)	ND (41)	ND (40)
Aroclor-1221 (PCB-1221)	ug/kg	ND (36)	ND (42)	ND (40)	ND (40)	ND (43)	ND (40)	ND (35)	ND (43)	ND (40)	ND (41)	ND (40)
Aroclor-1232 (PCB-1232)	ug/kg	ND (36)	ND (42)	ND (40)	ND (40)	ND (43)	ND (40)	ND (35)	ND (43)	ND (40)	ND (41)	ND (40)
Aroclor-1242 (PCB-1242)	ug/kg	ND (36)	ND (42)	ND (40)	ND (40)	ND (43)	ND (40)	ND (35)	ND (43)	ND (40)	ND (41)	ND (40)
Aroclor-1248 (PCB-1248)	ug/kg	ND (36)	ND (42)	ND (40)	ND (40)	ND (43)	ND (51) U	ND (35)	ND (43) U	200	7.2 J	ND (40)
Aroclor-1254 (PCB-1254)	ug/kg	ND (36)	ND (42)	ND (40)	ND (40)	ND (43)	ND (40)	ND (35)	ND (43)	ND (40)	ND (41)	ND (40)
Aroclor-1260 (PCB-1260)	ug/kg	ND (36) UJ	ND (42) UJ	ND (40)	ND (40)	ND (43)	ND (40)	ND (35)	ND (43)	89	ND (41)	ND (40)
Semi - Volatiles												
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
2,4,5-Trichlorophenol	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
2,4,6-Trichlorophenol	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
2,4-Dichlorophenol	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
2,4-Dimethylphenol	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
2,4-Dinitrophenol	ug/kg	ND (1700)	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (1900)	ND (1700)	ND (2100)	ND (1900)	ND (2000)	ND (1900)
2,4-Dinitrotoluene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
2,6-Dinitrotoluene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
2-Chloronaphthalene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
2-Chlorophenol	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
2-Methylnaphthalene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	100 J	130 J	ND (400)
2-Methylphenol	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
2-Nitroaniline	ug/kg	ND (1700)	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (1900)	ND (1700)	ND (2100)	ND (1900)	ND (2000)	ND (1900)
2-Nitrophenol	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
3,3'-Dichlorobenzidine	ug/kg	ND (1700)	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (1900)	ND (1700)	ND (2100)	ND (1900)	ND (2000)	ND (1900)
3-Nitroaniline	ug/kg	ND (1700)	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (1900)	ND (1700)	ND (2100)	ND (1900)	ND (2000)	ND (1900)
4,6-Dinitro-2-methylphenol	ug/kg	ND (1700)	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (1900)	ND (1700)	ND (2100)	ND (1900)	ND (2000)	ND (1900)
4-Bromophenyl phenyl ether	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
4-Chloro-3-methylphenol	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
4-Chloroaniline	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
4-Chlorophenyl phenyl ether	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*
Sample Location:		*B-X140Y100*	*B-X140Y100*	*B-X143Y075*	*B-X143Y075*	*B-X143Y075*	*B-X148Y076*	*B-X148Y076*	*B-X148Y076*	*MW-X085Y070S*	*MW-X085Y070S*	*MW-X085Y070S*
Sample ID:		*S-071502-CLM-002*	*S-071502-CLM-003*	*S-031302-MG-178*	*S-031302-MG-179*	*S-031302-MG-180*	*S-030802-MG-172*	*S-030802-MG-173*	*S-030802-MG-174*	*S-020402-KMV-519*	*S-020402-KMV-520*	*S-020402-KMV-521*
Sample Date:		*7/15/2002*	*7/15/2002*	*3/13/2002*	*3/13/2002*	*3/13/2002*	*3/8/2002*	*3/8/2002*	*3/8/2002*	*2/4/2002*	*2/4/2002*	*2/4/2002*
Sample Depth:		*(6-8)*	*(13-15)*	*(11-13)*	*(11-13)*	*(19-21)*	*(0-2)*	*(6-8)*	*(18-20)*	*(0-2)*	*(0-2)*	*(8-10)*
					Duplicate						*Duplicate*	
Parameters	***Units***											
4-Methylphenol	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
4-Nitroaniline	ug/kg	ND (1700)	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (1900)	ND (1700)	ND (2100)	ND (1900)	ND (2000)	ND (1900)
4-Nitrophenol	ug/kg	ND (1700)	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (1900)	ND (1700)	ND (2100)	ND (1900)	ND (2000)	ND (1900)
Acenaphthene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Acenaphthylene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Acetophenone	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Anthracene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Atrazine	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Benzaldehyde	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Benzo(a)anthracene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	59 J	ND (430)	120 J	190 J	ND (400)
Benzo(a)pyrene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	68 J	ND (430)	120 J	200 J	ND (400)
Benzo(b)fluoranthene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	110 J	86 J	ND (430)	250 J	380 J	ND (400)
Benzo(g,h,i)perylene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	84 J	120 J	ND (400)
Benzo(k)fluoranthene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	58 J	ND (430)	97 J	120 J	ND (400)
Biphenyl	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
bis(2-Chloroethoxy)methane	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
bis(2-Chloroethyl)ether	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	99 J	ND (400)	ND (410)	ND (400)
Butyl benzylphthalate	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Caprolactam	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Carbazole	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Chrysene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	99 J	80 J	ND (430)	220 J	310 J	ND (400)
Dibenz(a,h)anthracene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Dibenzofuran	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Diethyl phthalate	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Dimethyl phthalate	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Di-n-butylphthalate	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Di-n-octyl phthalate	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Fluoranthene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	110 J	120 J	ND (430)	340 J	400 J	ND (400)
Fluorene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Hexachlorobenzene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Hexachlorobutadiene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Hexachlorocyclopentadiene	ug/kg	ND (1700)	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (1900)	ND (1700)	ND (2100)	ND (1900)	ND (2000)	ND (1900)
Hexachloroethane	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	110 J	ND (400)
Isophorone	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Naphthalene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Nitrobenzene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
N-Nitrosodi-n-propylamine	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
N-Nitrosodiphenylamine	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Pentachlorophenol	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Phenanthrene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	77 J	95 J	ND (430)	340 J	430	ND (400)
Phenol	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	ND (400)	ND (350)	ND (430)	ND (400)	ND (410)	ND (400)
Pyrene	ug/kg	ND (360)	ND (420)	ND (400)	ND (400)	ND (430)	140 J	160 J	ND (430)	220 J	360 J	ND (400)
Volatiles												
1,1,1-Trichloroethane	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7)	ND (6.8)	ND (5)
1,1,2,2-Tetrachloroethane	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	R	ND (6.8) UJ	ND (5)
1,1,2-Trichloroethane	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7) UJ	ND (6.8)	ND (5)
1,1-Dichloroethane	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7)	ND (6.8)	ND (5)
1,1-Dichloroethene	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7)	ND (6.8)	ND (5)
1,2,4-Trichlorobenzene	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	R	ND (6.8) UJ	ND (5)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (11)	ND (13)	ND (12)	ND (13)	ND (13)	ND (13)	ND (18)	ND (14)	R	ND (14) UJ	ND (9.9)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7) UJ	ND (6.8)	ND (5)
1,2-Dichlorobenzene	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	R	ND (6.8) UJ	ND (5)
1,2-Dichloroethane	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7)	ND (6.8)	ND (5)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*	*A001*
Sample Location:		*B-X140Y100*	*B-X140Y100*	*B-X143Y075*	*B-X143Y075*	*B-X143Y075*	*B-X148Y076*	*B-X148Y076*	*B-X148Y076*	*MW-X085Y070S*	*MW-X085Y070S*	*MW-X085Y070S*
Sample ID:		*S-071502-CLM-002*	*S-071502-CLM-003*	*S-031302-MG-178*	*S-031302-MG-179*	*S-031302-MG-180*	*S-030802-MG-172*	*S-030802-MG-173*	*S-030802-MG-174*	*S-020402-KMV-519*	*S-020402-KMV-520*	*S-020402-KMV-521*
Sample Date:		*7/15/2002*	*7/15/2002*	*3/13/2002*	*3/13/2002*	*3/13/2002*	*3/8/2002*	*3/8/2002*	*3/8/2002*	*2/4/2002*	*2/4/2002*	*2/4/2002*
Sample Depth:		*(6-8)*	*(13-15)*	*(11-13)*	*(11-13)*	*(19-21)*	*(0-2)*	*(6-8)*	*(18-20)*	*(0-2)*	*(0-2)*	*(8-10)*
					Duplicate						*Duplicate*	
Parameters	***Units***											
1,2-Dichloropropane	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7)	ND (6.8)	ND (5)
1,3-Dichlorobenzene	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	R	ND (6.8) UJ	ND (5)
1,4-Dichlorobenzene	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	R	ND (6.8) UJ	ND (5)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (22) UJ	ND (26) UJ	ND (24)	ND (27)	ND (26)	ND (27)	ND (35)	ND (27)	ND (23)	ND (27)	ND (20)
2-Hexanone	ug/kg	ND (22)	ND (26)	ND (24)	ND (27)	ND (26)	ND (27)	ND (35)	ND (27)	ND (23) UJ	ND (27)	ND (20)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (22)	ND (26)	ND (24)	ND (27)	ND (26)	ND (27)	ND (35)	ND (27)	ND (23)	ND (27)	ND (20)
Acetone	ug/kg	ND (22) UJ	ND (26) UJ	ND (24) UJ	ND (27) UJ	ND (26) UJ	ND (27)	ND (35)	ND (27)	ND (23) U	ND (27) U	ND (20)
Benzene	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7)	ND (6.8)	ND (5)
Bromodichloromethane	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7)	ND (6.8)	ND (5)
Bromoform	ug/kg	ND (5.6)	ND (6.4)	ND (6.1) UJ	ND (6.7) UJ	ND (6.6) UJ	ND (6.7) UJ	ND (8.8) UJ	ND (6.9) UJ	ND (5.7) UJ	ND (6.8)	ND (5)
Bromomethane (Methyl Bromide)	ug/kg	ND (5.6)	ND (6.4)	ND (6.1) UJ	ND (6.7) UJ	ND (6.6) UJ	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7)	ND (6.8)	ND (5)
Carbon disulfide	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	1.7 J	ND (8.8)	ND (6.9)	3.1 J	3.3 J	ND (5)
Carbon tetrachloride	ug/kg	ND (5.6)	ND (6.4)	ND (6.1) UJ	ND (6.7) UJ	ND (6.6) UJ	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7)	ND (6.8)	ND (5)
Chlorobenzene	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7) UJ	ND (6.8)	ND (5)
Chloroethane	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7)	ND (6.8)	ND (5)
Chloroform (Trichloromethane)	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	8	2.3 J	ND (5)
Chloromethane (Methyl Chloride)	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7)	ND (6.8)	ND (5)
cis-1,2-Dichloroethene	ug/kg	ND (2.8)	ND (3.2)	ND (3)	ND (3.4)	ND (3.3)	ND (3.4)	ND (4.4)	ND (3.4)	ND (2.9)	ND (3.4)	ND (2.5)
cis-1,3-Dichloropropene	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7)	ND (6.8)	ND (5)
Cyclohexane	ug/kg	ND (11)	ND (13)	ND (12)	ND (13)	ND (13)	ND (13)	ND (18)	ND (14)	R	ND (14) UJ	ND (9.9)
Dibromochloromethane	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7) UJ	ND (6.8)	ND (5)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7) UJ	ND (8.8) UJ	ND (6.9) UJ	ND (5.7)	ND (6.8)	ND (5)
Ethylbenzene	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7) UJ	ND (6.8)	ND (5)
Isopropylbenzene	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7) UJ	ND (6.8)	ND (5)
Methyl acetate	ug/kg	ND (11)	ND (13)	ND (12)	ND (13)	ND (13)	ND (13)	ND (18)	ND (14)	ND (11) UJ	ND (14) UJ	ND (9.9)
Methyl cyclohexane	ug/kg	ND (11)	ND (13)	ND (12)	ND (13)	ND (13)	ND (13)	1.3 J	ND (14)	1.7 J	1.5 J	ND (9.9)
Methyl Tert Butyl Ether	ug/kg	ND (22)	ND (26)	ND (24)	ND (27)	ND (26)	ND (27)	ND (35)	ND (27)	ND (23)	ND (27)	ND (20)
Methylene chloride	ug/kg	2.1 J	2.8 J	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7)	ND (6.8)	ND (5)
Styrene	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7) UJ	ND (6.8)	ND (5)
Tetrachloroethene	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7) UJ	ND (6.8)	ND (5)
Toluene	ug/kg	ND (5.6) U	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	2.1 J	ND (6.9)	ND (5.7) UJ	ND (6.8)	ND (5)
trans-1,2-Dichloroethene	ug/kg	ND (2.8)	ND (3.2)	ND (3)	ND (3.4)	ND (3.3)	ND (3.4)	ND (4.4)	ND (3.4)	ND (2.9)	ND (3.4)	ND (2.5)
trans-1,3-Dichloropropene	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7) UJ	ND (6.8)	ND (5)
Trichloroethene	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7)	ND (6.8)	ND (5)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7)	ND (6.8)	ND (5)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7)	ND (6.8)	ND (5)
Vinyl chloride	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7)	ND (6.8)	ND (5)
Xylene (total)	ug/kg	ND (5.6)	ND (6.4)	ND (6.1)	ND (6.7)	ND (6.6)	ND (6.7)	ND (8.8)	ND (6.9)	ND (5.7) UJ	ND (6.8)	ND (5)
General Chemistry												
Chloride	mg/kg	3.9 J	1.6 J	1950	2210	1830	3.5 J	37.6	994	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	28000	33000	ND (120)
Total Solids	%	92.7	79.3	82.5	82.0	76.2	82.3	94.1	77.3	82.8	81.2	83.5

Notes:

* Reported in units of ug/L.

UJ Non-detect at associated value. The associated value is estimated.

J Estimated.

U Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A001*	*A002*	*A002*	*A002*	*A002*	*A002*	*A002*	*A002*	*A002*	*A002*	*A002*	*A002*
Sample Location:		*MW-X085Y070S*	*B-X100Y198*	*B-X100Y198*	*B-X100Y198*	*B-X100Y198*	*B-X107Y203*	*B-X107Y203*	*B-X107Y203*	*B-X108Y190*	*B-X108Y190*	*B-X108Y190*	*B-X113Y194*
Sample ID:		*S-020402-KMV-522*	*S-012302-MG-065*	*S-012302-MG-066*	*S-012302-MG-067*	*S-012302-MG-068*	*S-012302-MG-069*	*S-012302-MG-070*	*S-012302-MG-071*	*S-012402-MG-075*	*S-012402-MG-076*	*S-012402-MG-077*	*S-012402-MG-072*
Sample Date:		*2/4/2002*	*1/23/2002*	*1/23/2002*	*1/23/2002*	*1/23/2002*	*1/23/2002*	*1/23/2002*	*1/23/2002*	*1/24/2002*	*1/24/2002*	*1/24/2002*	*1/24/2002*
Sample Depth:		*(22-23)*	*(0-2)*	*(6-8)*	*(33-35)*	*(33-35)* *Duplicate*	*(0-2)*	*(6-8)*	*(31-32)*	*(0-2)*	*(6-8)*	*(31-32)*	*(0-2)*
Parameters	***Units***												
Metals													
Aluminum	mg/kg	8090	2010	13200	5950	9890	461	7590	7860	13100	33100	6630	83400
Antimony	mg/kg	ND (15.4) U	ND (7.3) UJ	ND (7.7) UJ	ND (7.7) UJ	ND (7.7) UJ	ND (6.4) UJ	ND (7.5) UJ	ND (7.6) UJ	ND (7.1) UJ	ND (7.7) UJ	ND (15.3) UJ	4.5 J
Arsenic	mg/kg	12.7	1.6	12.0	5.5	3.0	0.76 J	4.2	6.2	1.8	1.9	10.6	2.1
Barium	mg/kg	25.7 J	6.0 J	69.8	39.3	46.7	1.6 J	40.6	31.3	6.7 J	18.2 J	29.6 J	51.5
Beryllium	mg/kg	1.5	ND (0.61)	0.16 J	1.9	2.3	ND (0.54)	0.21 J	1.5	ND (0.59)	ND (0.64)	1.8	ND (0.59) U
Cadmium	mg/kg	2.6	ND (0.61)	ND (0.64)	0.75	0.59 J	0.050 J	0.11 J	0.45 J	0.34 J	0.21 J	1.4	1.6
Chromium Total	mg/kg	12.5	4.0	16.6	11.0	15.8	24.2	14.9	11.7	11.8 J	30.4 J	13.1 J	39.1 J
Cobalt	mg/kg	12.6 J	1.6 J	5.8 J	10.2	8.7	19.8	5.4 J	9.7	2.1 J	3.0 J	9.5 J	4.0 J
Copper	mg/kg	11.3	27.5	17.5	20.3	19.1	18.8	22.1	13.2	442 J	559 J	13.1 J	6360 J
Cyanide (amenable)	mg/kg	ND (0.64)	ND (0.61)	ND (0.64)	ND (0.64)	ND (0.64)	ND (0.54)	ND (0.63)	ND (0.63)	ND (0.59)	ND (0.64)	ND (0.64)	ND (0.59)
Cyanide (total)	mg/kg	ND (0.64)	ND (0.61)	ND (0.64)	ND (0.64)	ND (0.64)	ND (0.54)	ND (0.63)	ND (0.63)	ND (0.59)	ND (0.64)	ND (0.64)	ND (0.59)
Iron	mg/kg	34100	2780	25800	25300	19600	1880	12500	19400	3970	5910	23800	2990
Lead	mg/kg	22.5	5.3	15.3	13.5	14.5	7.9	11.7	13.5	21.5	25.9	13.2	49.7
Manganese	mg/kg	175	22.6 J	153 J	501 J	438 J	9.1 J	163 J	256 J	80.6 J	117 J	283 J	384 J
Mercury	mg/kg	0.019 J	ND (0.12) U	ND (0.13) U	0.23	ND (0.13) U	0.30	ND (0.13) U	ND (0.13) U	0.038 J	0.038 J	0.066 J	ND (0.12)
Nickel	mg/kg	45.5	7.9	11.4	45.7	36.1	83.5	14.2	37.2	38.8	60.3	38.9	91.0
Selenium	mg/kg	0.61 J	ND (0.61)	0.68	ND (0.64)	ND (0.64)	ND (0.54)	0.50 J	ND (0.63)	0.40 J	0.53 J	ND (1.3)	ND (1.2)
Silver	mg/kg	ND (2.6)	ND (1.2)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.1)	ND (1.3)	ND (1.3)	ND (1.2)	ND (1.3)	ND (2.6)	0.74 J
Thallium	mg/kg	1.8 J	ND (1.2)	ND (1.3)	ND (1.3) U	ND (1.3) U	ND (1.1)	ND (1.3) U	ND (1.3) U	ND (1.2)	ND (1.3)	ND (2.6)	0.77 J
Vanadium	mg/kg	25.3	3.7 J	30.6	22.6	26.3	0.55 J	19.8	16.1	5.2 J	6.8	16.9	13.7
Zinc	mg/kg	91.7	17.4 J	41.2 J	229 J	135 J	6.8 J	37.5 J	85.6 J	88.7	60.3	106	339
PCBs													
Aroclor-1016 (PCB-1016)	ug/kg	ND (84)	ND (40)	ND (42)	ND (42)	ND (42)	ND (350)	ND (41)	ND (42)	ND (39)	ND (42)	ND (42)	ND (39)
Aroclor-1221 (PCB-1221)	ug/kg	240	ND (40)	ND (42)	ND (42)	ND (42)	ND (350)	ND (41)	ND (42)	ND (39)	ND (42)	ND (42)	ND (39)
Aroclor-1232 (PCB-1232)	ug/kg	ND (84)	ND (40)	ND (42)	ND (42)	ND (42)	ND (350)	ND (41)	ND (42)	ND (39)	ND (42)	ND (42)	ND (39)
Aroclor-1242 (PCB-1242)	ug/kg	340	ND (40)	ND (42)	ND (42)	ND (42)	ND (350)	ND (41)	ND (42)	ND (39)	ND (42)	ND (42)	ND (39)
Aroclor-1248 (PCB-1248)	ug/kg	ND (84)	ND (40)	ND (42)	ND (42)	ND (42)	ND (350)	ND (41)	ND (42)	ND (39)	ND (42)	ND (42)	ND (39)
Aroclor-1254 (PCB-1254)	ug/kg	ND (84)	ND (40)	ND (42)	ND (42)	ND (42)	2500	ND (41)	ND (42)	ND (39)	ND (42)	ND (42)	ND (39)
Aroclor-1260 (PCB-1260)	ug/kg	ND (84)	ND (40)	ND (42)	ND (42)	ND (42)	ND (350)	ND (41)	ND (42)	ND (39)	ND (42)	ND (42)	ND (39)
Semi - Volatiles													
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
2,4,5-Trichlorophenol	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
2,4,6-Trichlorophenol	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
2,4-Dichlorophenol	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
2,4-Dimethylphenol	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
2,4-Dinitrophenol	ug/kg	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (2100)	ND (1700)	ND (2000)	ND (2000)	ND (1900)	ND (2000)	ND (2000)	ND (1900)
2,4-Dinitrotoluene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
2,6-Dinitrotoluene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
2-Chloronaphthalene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
2-Chlorophenol	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
2-Methylnaphthalene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
2-Methylphenol	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
2-Nitroaniline	ug/kg	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (2100)	ND (1700)	ND (2000)	ND (2000)	ND (1900)	ND (2000)	ND (2000)	ND (1900)
2-Nitrophenol	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
3,3'-Dichlorobenzidine	ug/kg	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (2100)	ND (1700)	ND (2000)	ND (2000)	ND (1900)	ND (2000)	ND (2000)	ND (1900)
3-Nitroaniline	ug/kg	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (2100)	ND (1700)	ND (2000)	ND (2000)	ND (1900)	ND (2000)	ND (2000)	ND (1900)
4,6-Dinitro-2-methylphenol	ug/kg	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (2100)	ND (1700)	ND (2000)	ND (2000)	ND (1900)	ND (2000)	ND (2000)	ND (1900)
4-Bromophenyl phenyl ether	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
4-Chloro-3-methylphenol	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
4-Chloroaniline	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
4-Chlorophenyl phenyl ether	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A001*	*A002*	*A002*	*A002*	*A002*	*A002*	*A002*	*A002*	*A002*	*A002*	*A002*	*A002*
Sample Location:		*MW-X085Y070S*	*B-X100Y198*	*B-X100Y198*	*B-X100Y198*	*B-X100Y198*	*B-X107Y203*	*B-X107Y203*	*B-X107Y203*	*B-X108Y190*	*B-X108Y190*	*B-X108Y190*	*B-X113Y194*
Sample ID:		*S-020402-KMV-522*	*S-012302-MG-065*	*S-012302-MG-066*	*S-012302-MG-067*	*S-012302-MG-068*	*S-012302-MG-069*	*S-012302-MG-070*	*S-012302-MG-071*	*S-012402-MG-075*	*S-012402-MG-076*	*S-012402-MG-077*	*S-012402-MG-072*
Sample Date:		*2/4/2002*	*1/23/2002*	*1/23/2002*	*1/23/2002*	*1/23/2002*	*1/23/2002*	*1/23/2002*	*1/23/2002*	*1/24/2002*	*1/24/2002*	*1/24/2002*	*1/24/2002*
Sample Depth:		*(22-23)*	*(0-2)*	*(6-8)*	*(33-35)*	*(33-35) Duplicate*	*(0-2)*	*(6-8)*	*(31-32)*	*(0-2)*	*(6-8)*	*(31-32)*	*(0-2)*
Parameters	***Units***												
4-Methylphenol	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
4-Nitroaniline	ug/kg	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (2100)	ND (1700)	ND (2000)	ND (2000)	ND (1900)	ND (2000)	ND (2000)	ND (1900)
4-Nitrophenol	ug/kg	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (2100)	ND (1700)	ND (2000)	ND (2000)	ND (1900)	ND (2000)	ND (2000)	ND (1900)
Acenaphthene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Acenaphthylene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Acetophenone	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Anthracene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Atrazine	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Benzaldehyde	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Benzo(a)anthracene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Benzo(a)pyrene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Benzo(b)fluoranthene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Benzo(g,h,i)perylene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Benzo(k)fluoranthene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Biphenyl	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
bis(2-Chloroethoxy)methane	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
bis(2-Chloroethyl)ether	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Butyl benzylphthalate	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Caprolactam	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Carbazole	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Chrysene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Dibenz(a,h)anthracene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Dibenzofuran	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Diethyl phthalate	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Dimethyl phthalate	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Di-n-butylphthalate	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Di-n-octyl phthalate	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Fluoranthene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Fluorene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Hexachlorobenzene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Hexachlorobutadiene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Hexachlorocyclopentadiene	ug/kg	ND (2000)	ND (1900)	ND (2000)	ND (2100)	ND (2100)	ND (1700)	ND (2000)	ND (2000)	ND (1900)	ND (2000)	ND (2000)	ND (1900)
Hexachloroethane	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Isophorone	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Naphthalene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Nitrobenzene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
N-Nitrosodi-n-propylamine	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
N-Nitrosodiphenylamine	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Pentachlorophenol	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Phenanthrene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Phenol	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	91 J	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Pyrene	ug/kg	ND (420)	ND (400)	ND (420)	ND (420)	ND (420)	ND (350)	ND (410)	ND (420)	ND (390)	ND (420)	ND (420)	ND (390)
Volatiles													
1,1,1-Trichloroethane	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	7.7 J
1,1,2,2-Tetrachloroethane	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
1,1,2-Trichloroethane	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
1,1-Dichloroethane	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	210
1,1-Dichloroethene	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
1,2,4-Trichlorobenzene	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (12)	ND (16)	ND (11)	ND (12)	ND (12)	ND (13)	ND (11)	ND (11)	ND (11) UJ	ND (13) UJ	ND (14) UJ	ND (19) UJ
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
1,2-Dichlorobenzene	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
1,2-Dichloroethane	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A001*	*A002*	*A002*	*A002*	*A002*	*A002*	*A002*	*A002*	*A002*	*A002*	*A002*	*A002*
Sample Location:		*MW-X085Y070S*	*B-X100Y198*	*B-X100Y198*	*B-X100Y198*	*B-X100Y198*	*B-X107Y203*	*B-X107Y203*	*B-X107Y203*	*B-X108Y190*	*B-X108Y190*	*B-X108Y190*	*B-X113Y194*
Sample ID:		*S-020402-KMV-522*	*S-012302-MG-065*	*S-012302-MG-066*	*S-012302-MG-067*	*S-012302-MG-068*	*S-012302-MG-069*	*S-012302-MG-070*	*S-012302-MG-071*	*S-012402-MG-075*	*S-012402-MG-076*	*S-012402-MG-077*	*S-012402-MG-072*
Sample Date:		*2/4/2002*	*1/23/2002*	*1/23/2002*	*1/23/2002*	*1/23/2002*	*1/23/2002*	*1/23/2002*	*1/23/2002*	*1/24/2002*	*1/24/2002*	*1/24/2002*	*1/24/2002*
Sample Depth:		*(22-23)*	*(0-2)*	*(6-8)*	*(33-35)*	*(33-35) Duplicate*	*(0-2)*	*(6-8)*	*(31-32)*	*(0-2)*	*(6-8)*	*(31-32)*	*(0-2)*
Parameters	***Units***												
1,2-Dichloropropane	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
1,3-Dichlorobenzene	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
1,4-Dichlorobenzene	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (24)	7.8 J	3.2 J	ND (24)	ND (23)	ND (26)	ND (22)	ND (23)	7.7 J	3.6 J	ND (28)	27 J
2-Hexanone	ug/kg	ND (24)	ND (32)	ND (23)	ND (24)	ND (23)	ND (26)	ND (22)	ND (23)	ND (23)	ND (25)	ND (28)	ND (38)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (24)	ND (32)	ND (23)	ND (24)	ND (23)	ND (26)	ND (22)	ND (23)	ND (23)	ND (25)	ND (28)	ND (38)
Acetone	ug/kg	ND (24) U	ND (54) U	ND (26) U	ND (24) U	ND (23) U	ND (26) U	ND (22) U	ND (23)	55	ND (33) U	ND (28) U	230
Benzene	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
Bromodichloromethane	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
Bromoform	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
Bromomethane (Methyl Bromide)	ug/kg	ND (6)	ND (8) UJ	ND (5.7) UJ	ND (6) UJ	ND (5.8) UJ	ND (6.4) UJ	ND (5.4) UJ	ND (5.7) UJ	ND (5.7) UJ	ND (6.3) UJ	ND (7.1) UJ	ND (9.6) UJ
Carbon disulfide	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	9.8
Carbon tetrachloride	ug/kg	ND (6)	ND (8) UJ	ND (5.7) UJ	ND (6) UJ	ND (5.8) UJ	ND (6.4) UJ	ND (5.4) UJ	ND (5.7) UJ	ND (5.7) UJ	ND (6.3) UJ	ND (7.1) UJ	ND (9.6) UJ
Chlorobenzene	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
Chloroethane	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	12
Chloroform (Trichloromethane)	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
Chloromethane (Methyl Chloride)	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
cis-1,2-Dichloroethene	ug/kg	ND (3)	ND (4)	ND (2.8)	ND (3)	ND (2.9)	ND (3.2)	ND (2.7)	ND (2.9)	ND (2.8)	ND (3.1)	ND (3.5)	ND (4.8)
cis-1,3-Dichloropropene	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
Cyclohexane	ug/kg	ND (12)	ND (16)	ND (11)	ND (12)	ND (12)	ND (13)	ND (11)	ND (11)	ND (11)	ND (13)	ND (14)	ND (19)
Dibromochloromethane	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
Ethylbenzene	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
Isopropylbenzene	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
Methyl acetate	ug/kg	ND (12)	ND (16)	ND (11)	ND (12)	ND (12)	ND (13)	1.3 J	ND (11)	ND (11)	ND (13)	ND (14)	ND (19)
Methyl cyclohexane	ug/kg	ND (12)	ND (16)	ND (11)	ND (12)	ND (12)	ND (13)	ND (11)	ND (11)	ND (11)	ND (13)	ND (14)	ND (19)
Methyl Tert Butyl Ether	ug/kg	ND (24)	ND (32)	ND (23)	ND (24)	ND (23)	ND (26)	ND (22)	ND (23)	ND (23)	ND (25)	ND (28)	ND (38)
Methylene chloride	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	4.3 J	4.8 J	5 J	6.5 J
Styrene	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
Tetrachloroethene	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
Toluene	ug/kg	2.1 J	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	2.2 J
trans-1,2-Dichloroethene	ug/kg	ND (3)	ND (4)	ND (2.8)	ND (3)	ND (2.9)	ND (3.2)	ND (2.7)	ND (2.9)	ND (2.8)	ND (3.1)	ND (3.5)	ND (4.8)
trans-1,3-Dichloropropene	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
Trichloroethene	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (6)	ND (8) UJ	ND (5.7) UJ	ND (6) UJ	ND (5.8) UJ	ND (6.4) UJ	ND (5.4) UJ	ND (5.7) UJ	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
Vinyl chloride	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	ND (6.4)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
Xylene (total)	ug/kg	ND (6)	ND (8)	ND (5.7)	ND (6)	ND (5.8)	9	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.3)	ND (7.1)	ND (9.6)
General Chemistry													
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	ND (130)	-	-	-	-	-	-	-	-	-	-	-
Total Solids	%	78.1	82.3	78.2	77.9	77.9	93.2	80.0	79.3	84.4	78.2	78.3	84.1

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A002*	*A002*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*
Sample Location:		*B-X113Y194*	*B-X113Y194*	*B-X177Y252D*	*B-X177Y252D*	*B-X177Y252D*	*B-X177Y252D*	*B-X177Y252D*	*B-X187Y217*	*B-X187Y217*	*B-X192Y234*	*B-X192Y234*	*B-X192Y234*	*B-X193Y251*
Sample ID:		*S-012402-MG-073*	*S-012402-MG-074*	*S-022003-MG-240*	*S-022003-MG-241*	*S-022003-MG-242*	*S-022003-MG-243*	*S-022003-MG-244*	*S-030602-MG-156*	*S-030602-MG-157*	*S-030502-MG-153*	*S-030502-MG-154*	*S-030502-MG-155*	*S-030402-MG-146*
Sample Date:		*1/24/2002*	*1/24/2002*	*2/20/2003*	*2/20/2003*	*2/20/2003*	*2/20/2003*	*2/20/2003*	*3/6/2002*	*3/6/2002*	*3/5/2002*	*3/5/2002*	*3/5/2002*	*3/4/2002*
Sample Depth:		*(6-8)*	*(32-34)*	*(0-2)*	*(6-8)*	*(6-8)*	*(18-20)*	*(24-25)*	*(0-2)*	*(6-8)*	*(0-2)*	*(6-8)*	*(20-22)*	*(0-2)*
						Duplicate								
Parameters	***Units***													
Metals														
Aluminum	mg/kg	1970	3790	13200	5220	3910	3720	19200	13200	15200	12200	4710	22500	16800
Antimony	mg/kg	ND (7.2) UJ	ND (38.7) UJ	R	R	R	R	R	ND (7.5) UJ	ND (7.8) UJ	ND (7.9) UJ	ND (6.7) UJ	ND (6.9) UJ	R
Arsenic	mg/kg	2.7	9.3	8.1	1.1	1.3	1.3	22.8	10.2	12.8	8.3	2.5	3.9	10.3
Barium	mg/kg	33.3	30.9 J	85.6	26.4	23.7	51.8	103	50.3	192	49.4	25.5	93.3	137
Beryllium	mg/kg	ND (0.60) U	1.8 J	1.1	ND (0.55)	ND (0.55)	ND (0.56)	0.82	ND (0.62) U	1.6	1.4	ND (0.56) U	ND (0.58) U	0.95
Cadmium	mg/kg	0.27 J	2.5 J	ND (0.65)	0.31 J	0.42 J	ND (0.56)	0.16 J	ND (0.62)	0.081 J	ND (0.66)	0.11 J	ND (0.58)	ND (0.64)
Chromium Total	mg/kg	15.0 J	8.0 J	22.6	78.2	74.6	15.2	33.1	23.6 J	21.2 J	31.0	19.7	15.3	22.9
Cobalt	mg/kg	1.5 J	8.8 J	10.9	88.5	67.1	13.5	8.2	4.3 J	8.3 J	20.8	15.2	7.8	12.9
Copper	mg/kg	14.6 J	11.9 J	15.3	141	72.5	42.8	17.4	15.1 J	21.2 J	23.3	52.7	256	30.7 J
Cyanide (amenable)	mg/kg	ND (0.60)	ND (0.64)	ND (0.65)	ND (0.55)	ND (0.55)	ND (0.56)	ND (0.63)	ND (0.62)	ND (0.65)	ND (0.66)	ND (0.56)	ND (0.58)	ND (0.64)
Cyanide (total)	mg/kg	ND (0.60)	ND (0.64)	ND (0.65)	ND (0.55)	ND (0.55)	ND (0.56)	ND (0.63)	ND (0.62)	ND (0.65)	ND (0.66)	ND (0.56)	0.27 J	ND (0.64)
Iron	mg/kg	6650	25000	26900	4440	4770	8290	36000	26000 J	30400 J	28700	6660	9540	29000
Lead	mg/kg	79.4	12.2	20.1 J	36.0 J	27.9 J	19.6 J	15.5 J	17.8 J	29.5 J	19.6	19.0	26.4	15.2
Manganese	mg/kg	218 J	271 J	323	42.4	47.5	51.4	254	145 J	402 J	190	138	330	573
Mercury	mg/kg	0.027 J	0.054 J	0.025 J	39.7	20.2	6.9	ND (0.13)	0.20	0.14	0.47	0.15	0.089 J	0.071 J
Nickel	mg/kg	5.7	50.8	15.1	167	174	36.2	19.3	13.2 J	51.7 J	31.0	24.3	82.4	35.8
Selenium	mg/kg	ND (0.60)	ND (3.2)	0.81	0.58	ND (0.55)	ND (0.56)	1.2	ND (0.62)	ND (0.65)	ND (0.66)	ND (0.56)	ND (0.58)	ND (0.64)
Silver	mg/kg	ND (1.2)	ND (6.4)	ND (1.3)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.3)	ND (1.2)	ND (1.3)	ND (1.3)	ND (1.1)	ND (1.2)	ND (1.3)
Thallium	mg/kg	ND (1.2)	ND (6.4)	ND (1.3)	0.69 J	ND (1.1)	ND (1.1)	ND (1.3)	0.64 J	1.1 J	ND (1.3)	ND (1.1)	ND (1.2)	0.78 J
Vanadium	mg/kg	7.5	13.4 J	38.3	4.2 J	5.1 J	2.8 J	60.7	38.0 J	31.4 J	43.3	8.8	16.1	32.6
Zinc	mg/kg	43.3	165	43.6	51.9	39.1	29.2	76.1	45.5 J	72.9 J	66.0	57.3	32.9	77.3
PCBs														
Aroclor-1016 (PCB-1016)	ug/kg	ND (40)	ND (43)	ND (43)	ND (720)	ND (1800)	ND (740)	ND (42)	ND (41)	ND (43)	ND (44)	ND (180)	ND (38)	ND (43)
Aroclor-1221 (PCB-1221)	ug/kg	ND (40)	ND (43)	ND (43)	ND (720)	ND (1800)	ND (740)	ND (42)	ND (41)	ND (43)	ND (44)	ND (180)	ND (38)	ND (43)
Aroclor-1232 (PCB-1232)	ug/kg	ND (40)	ND (43)	ND (43)	ND (720)	ND (1800)	ND (740)	ND (42)	ND (41)	ND (43)	ND (44)	ND (180)	ND (38)	ND (43)
Aroclor-1242 (PCB-1242)	ug/kg	ND (40)	ND (43)	ND (43)	ND (720)	ND (1800)	ND (740)	ND (42)	ND (41)	ND (43)	ND (44)	ND (180)	ND (38)	ND (43)
Aroclor-1248 (PCB-1248)	ug/kg	ND (40)	ND (43)	ND (43)	4100	7700	3100	150	170	25 J	11 J	1600	ND (38)	ND (43)
Aroclor-1254 (PCB-1254)	ug/kg	ND (40)	ND (43)	ND (43)	ND (720)	ND (1800)	ND (740)	ND (42)	ND (41)	ND (43)	ND (44)	ND (180)	190	ND (43)
Aroclor-1260 (PCB-1260)	ug/kg	ND (40)	ND (43)	ND (43)	580 J	2100	720 J	36 J	27 J	ND (43)	ND (44)	100 J	ND (38)	ND (43)
Semi - Volatiles														
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
2,4,5-Trichlorophenol	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
2,4,6-Trichlorophenol	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
2,4-Dichlorophenol	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
2,4-Dimethylphenol	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
2,4-Dinitrophenol	ug/kg	ND (1900)	ND (2100)	ND (2100)	ND (1800)	ND (1800)	ND (1800)	ND (2000)	ND (2000)	ND (2100)	ND (2100)	ND (1800)	ND (1800)	ND (2100)
2,4-Dinitrotoluene	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
2,6-Dinitrotoluene	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
2-Chloronaphthalene	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
2-Chlorophenol	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
2-Methylnaphthalene	ug/kg	ND (400)	ND (430)	ND (430)	73 J	51 J	92 J	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
2-Methylphenol	ug/kg	ND (400)	ND (430)	ND (430)	24 J	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
2-Nitroaniline	ug/kg	ND (1900)	ND (2100)	ND (2100)	ND (1800)	ND (1800)	ND (1800)	ND (2000)	ND (2000)	ND (2100)	ND (2100)	ND (1800)	ND (1800)	ND (2100)
2-Nitrophenol	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
3,3'-Dichlorobenzidine	ug/kg	ND (1900)	ND (2100)	ND (2100)	ND (1800)	ND (1800)	ND (1800)	ND (2000)	ND (2000)	ND (2100)	ND (2100)	ND (1800)	ND (1800)	ND (2100)
3-Nitroaniline	ug/kg	ND (1900)	ND (2100)	ND (2100)	ND (1800)	ND (1800)	ND (1800)	ND (2000)	ND (2000)	ND (2100)	ND (2100)	ND (1800)	ND (1800)	ND (2100)
4,6-Dinitro-2-methylphenol	ug/kg	ND (1900)	ND (2100)	ND (2100)	ND (1800)	ND (1800)	ND (1800)	ND (2000)	ND (2000)	ND (2100)	ND (2100)	ND (1800)	ND (1800)	ND (2100)
4-Bromophenyl phenyl ether	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
4-Chloro-3-methylphenol	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
4-Chloroaniline	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
4-Chlorophenyl phenyl ether	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A002*	*A002*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*
Sample Location:		*B-X113Y194*	*B-X113Y194*	*B-X177Y252D*	*B-X177Y252D*	*B-X177Y252D*	*B-X177Y252D*	*B-X177Y252D*	*B-X187Y217*	*B-X187Y217*	*B-X192Y234*	*B-X192Y234*	*B-X192Y234*	*B-X193Y251*
Sample ID:		*S-012402-MG-073*	*S-012402-MG-074*	*S-022003-MG-240*	*S-022003-MG-241*	*S-022003-MG-242*	*S-022003-MG-243*	*S-022003-MG-244*	*S-030602-MG-156*	*S-030602-MG-157*	*S-030502-MG-153*	*S-030502-MG-154*	*S-030502-MG-155*	*S-030402-MG-146*
Sample Date:		*1/24/2002*	*1/24/2002*	*2/20/2003*	*2/20/2003*	*2/20/2003*	*2/20/2003*	*2/20/2003*	*3/6/2002*	*3/6/2002*	*3/5/2002*	*3/5/2002*	*3/5/2002*	*3/4/2002*
Sample Depth:		*(6-8)*	*(32-34)*	*(0-2)*	*(6-8)*	*(6-8)*	*(18-20)*	*(24-25)*	*(0-2)*	*(6-8)*	*(0-2)*	*(6-8)*	*(20-22)*	*(0-2)*
						Duplicate								
Parameters	***Units***													
4-Methylphenol	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	32 J#	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
4-Nitroaniline	ug/kg	ND (1900)	ND (2100)	ND (2100)	ND (1800)	ND (1800)	ND (1800)	ND (2000)	ND (2000)	ND (2100)	ND (2100)	ND (1800)	ND (1800)	ND (2100)
4-Nitrophenol	ug/kg	ND (1900)	ND (2100)	ND (2100)	ND (1800)	ND (1800)	ND (1800)	ND (2000)	ND (2000)	ND (2100)	ND (2100)	ND (1800)	ND (1800)	ND (2100)
Acenaphthene	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	34 J	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Acenaphthylene	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Acetophenone	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	66 J	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Anthracene	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	110 J	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Atrazine	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Benzaldehyde	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Benzo(a)anthracene	ug/kg	ND (400)	ND (430)	ND (430)	58 J	350 J	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Benzo(a)pyrene	ug/kg	ND (400)	ND (430)	ND (430)	71 J	390	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Benzo(b)fluoranthene	ug/kg	ND (400)	ND (430)	ND (430)	80 J	510	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	74 J	ND (380)	ND (430)
Benzo(g,h,i)perylene	ug/kg	ND (400)	ND (430)	ND (430)	46 J	180 J	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Benzo(k)fluoranthene	ug/kg	ND (400)	ND (430)	ND (430)	48 J	230 J	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Biphenyl	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	57 J	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
bis(2-Chloroethoxy)methane	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
bis(2-Chloroethyl)ether	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (400)	ND (430)	150 J	77 J	100 J	97 J	20 J	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Butyl benzylphthalate	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Caprolactam	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Carbazole	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	140 J	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Chrysene	ug/kg	ND (400)	ND (430)	ND (430)	67 J	350 J	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	59 J	ND (380)	ND (430)
Dibenz(a,h)anthracene	ug/kg	ND (400)	ND (430)	ND (430)	ND (360) UJ	57 J	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Dibenzofuran	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	22 J	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Diethyl phthalate	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Dimethyl phthalate	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Di-n-butylphthalate	ug/kg	ND (400)	ND (430)	ND (430)	530	500	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Di-n-octyl phthalate	ug/kg	ND (400)	ND (430)	ND (430)	ND (360) UJ	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Fluoranthene	ug/kg	ND (400)	ND (430)	ND (430)	91 J	680	21 J	ND (420)	ND (410)	ND (430)	ND (440)	80 J	ND (380)	ND (430)
Fluorene	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	34 J	18 J	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Hexachlorobenzene	ug/kg	ND (400)	ND (430)	ND (430)	90 J	48 J	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Hexachlorobutadiene	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Hexachlorocyclopentadiene	ug/kg	ND (1900)	ND (2100)	ND (2100)	ND (1800)	ND (1800)	ND (1800)	ND (2000)	ND (2000)	ND (2100)	ND (2100)	ND (1800)	ND (1800)	ND (2100)
Hexachloroethane	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (400)	ND (430)	ND (430)	39 J	180 J	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Isophorone	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Naphthalene	ug/kg	ND (400)	ND (430)	ND (430)	29 J	29 J	93 J	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Nitrobenzene	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
N-Nitrosodi-n-propylamine	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
N-Nitrosodiphenylamine	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Pentachlorophenol	ug/kg	ND (400)	ND (430)	ND (430)	ND (360)	ND (370)	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Phenanthrene	ug/kg	ND (400)	ND (430)	ND (430)	80 J	460	ND (370)	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Phenol	ug/kg	ND (400)	ND (430)	ND (430)	400	230 J	190 J	ND (420)	ND (410)	ND (430)	ND (440)	ND (370)	ND (380)	ND (430)
Pyrene	ug/kg	ND (400)	ND (430)	ND (430)	91 J	650	27 J	ND (420)	ND (410)	ND (430)	ND (440)	71 J	ND (380)	ND (430)
Volatiles														
1,1,1-Trichloroethane	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
1,1,2,2-Tetrachloroethane	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
1,1,2-Trichloroethane	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
1,1-Dichloroethane	ug/kg	13	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
1,1-Dichloroethene	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
1,2,4-Trichlorobenzene	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1) U	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (12) UJ	ND (12) UJ	ND (12)	ND (15)	ND (12)	ND (13)	ND (12)	ND (12)	ND (18)	ND (15)	ND (17)	ND (11)	ND (12)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
1,2-Dichlorobenzene	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
1,2-Dichloroethane	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A002*	*A002*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*
Sample Location:		*B-X113Y194*	*B-X113Y194*	*B-X177Y252D*	*B-X177Y252D*	*B-X177Y252D*	*B-X177Y252D*	*B-X177Y252D*	*B-X187Y217*	*B-X187Y217*	*B-X192Y234*	*B-X192Y234*	*B-X192Y234*	*B-X193Y251*
Sample ID:		*S-012402-MG-073*	*S-012402-MG-074*	*S-022003-MG-240*	*S-022003-MG-241*	*S-022003-MG-242*	*S-022003-MG-243*	*S-022003-MG-244*	*S-030602-MG-156*	*S-030602-MG-157*	*S-030502-MG-153*	*S-030502-MG-154*	*S-030502-MG-155*	*S-030402-MG-146*
Sample Date:		*1/24/2002*	*1/24/2002*	*2/20/2003*	*2/20/2003*	*2/20/2003*	*2/20/2003*	*2/20/2003*	*3/6/2002*	*3/6/2002*	*3/5/2002*	*3/5/2002*	*3/5/2002*	*3/4/2002*
Sample Depth:		*(6-8)*	*(32-34)*	*(0-2)*	*(6-8)*	*(6-8)*	*(18-20)*	*(24-25)*	*(0-2)*	*(6-8)*	*(0-2)*	*(6-8)*	*(20-22)*	*(0-2)*
						Duplicate								
Parameters	***Units***													
1,2-Dichloropropane	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
1,3-Dichlorobenzene	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
1,4-Dichlorobenzene	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	1.3 J	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	3.3 J	ND (25)	ND (25)	ND (30)	ND (24)	5.5 J	ND (24)	ND (24)	ND (36)	ND (29)	7.3 J	5.7 J	ND (24)
2-Hexanone	ug/kg	ND (24)	ND (25)	ND (25)	ND (30)	ND (24)	ND (26)	ND (24)	ND (24)	ND (36)	ND (29)	ND (33)	ND (23)	ND (24)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (24)	ND (25)	ND (25)	ND (30)	ND (24)	ND (26)	ND (24)	ND (24)	ND (36)	ND (29)	ND (33)	ND (23)	ND (24)
Acetone	ug/kg	ND (24) U	ND (25) U	ND (25)	ND (30)	ND (24)	ND (26) U	ND (24) U	ND (24) UJ	ND (36) UJ	ND (29) UJ	40 J	28 J	ND (24) UJ
Benzene	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
Bromodichloromethane	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
Bromoform	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6) UJ	ND (9.1) UJ	ND (7.3) UJ	ND (8.3) UJ	ND (5.6) UJ	ND (5.9) UJ
Bromomethane (Methyl Bromide)	ug/kg	ND (6) UJ	ND (6.2) UJ	R	R	R	ND (6.5)	R	ND (6)	ND (9.1)	ND (7.3) UJ	ND (8.3) UJ	ND (5.6) UJ	ND (5.9) UJ
Carbon disulfide	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	7.9	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	5.3 J	ND (5.6)	ND (5.9)
Carbon tetrachloride	ug/kg	ND (6) UJ	ND (6.2) UJ	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
Chlorobenzene	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
Chloroethane	ug/kg	3.3 J	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
Chloroform (Trichloromethane)	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
Chloromethane (Methyl Chloride)	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
cis-1,2-Dichloroethene	ug/kg	ND (3)	ND (3.1)	ND (3.1)	ND (3.7)	ND (3.0)	ND (3.2)	ND (3.0)	ND (3)	ND (4.5)	ND (3.6)	ND (4.2)	ND (2.8)	ND (3)
cis-1,3-Dichloropropene	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
Cyclohexane	ug/kg	ND (12)	ND (12)	ND (12)	ND (15)	ND (12)	ND (13)	ND (12)	ND (12)	ND (18)	ND (15)	ND (17)	ND (11)	ND (12)
Dibromochloromethane	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (6)	ND (6.2)	ND (6.2) UJ	ND (7.4) UJ	ND (6.0) UJ	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
Ethylbenzene	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
Isopropylbenzene	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
Methyl acetate	ug/kg	ND (12)	ND (12)	5.6 J	1.7 J	2.3 J	2.7 J	ND (12)	ND (12)	ND (18)	ND (15)	ND (17)	ND (11)	ND (12)
Methyl cyclohexane	ug/kg	ND (12)	ND (12)	ND (12)	ND (15)	ND (12)	ND (13)	ND (12)	ND (12)	ND (18)	ND (15)	ND (17)	ND (11)	ND (12)
Methyl Tert Butyl Ether	ug/kg	ND (24)	ND (25)	ND (25)	ND (30)	ND (24)	ND (26)	ND (24)	ND (24)	ND (36)	ND (29)	ND (33)	ND (23)	ND (24)
Methylene chloride	ug/kg	3.7 J	4.3 J	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	3.0 J	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
Styrene	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
Tetrachloroethene	ug/kg	ND (6)	ND (6.2)	ND (6.2)	8.2	2.5 J	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
Toluene	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
trans-1,2-Dichloroethene	ug/kg	ND (3)	ND (3.1)	ND (3.1)	ND (3.7)	ND (3.0)	ND (3.2)	ND (3.0)	ND (3)	ND (4.5)	ND (3.6)	ND (4.2)	ND (2.8)	ND (3)
trans-1,3-Dichloropropene	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
Trichloroethene	ug/kg	ND (6)	1.2 J	ND (6.2)	2.4 J	ND (6.0)	0.98 J	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
Vinyl chloride	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
Xylene (total)	ug/kg	ND (6)	ND (6.2)	ND (6.2)	ND (7.4)	ND (6.0)	ND (6.5)	ND (6.1)	ND (6)	ND (9.1)	ND (7.3)	ND (8.3)	ND (5.6)	ND (5.9)
General Chemistry														
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	1500	3300	3600	4900	920	-	-	-	-	-	-
Total Solids	%	83.3	77.5	77.0	91.3	90.2	89.5	78.9	80.2	76.7	75.8	90.0	86.7	77.6

Notes:

* Reported in units of ug/L.

UJ Non-detect at associated value. The associated value is estimated.

J Estimated.

U Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*
Sample Location:		*B-X193Y251*	*B-X193Y251*	*B-X193Y251*	*B-X219Y249*	*B-X219Y249*	*B-X219Y249*	*B-X219Y249*	*B-X223Y247D*	*B-X223Y247D*	*B-X223Y247D*	*B-X223Y247D*	*B-X243Y257*	*B-X243Y257*
Sample ID:		*S-030402-MG-147*	*S-030402-MG-148*	*S-030402-MG-149*	*S-022502-KMV-536*	*S-022502-KMV-537*	*S-022602-KMV-538*	*S-022602-KMV-539*	*S-012203-MG-236*	*S-012203-MG-237*	*S-012203-MG-238*	*S-012303-MG-239*	*S-030502-MG-150*	*S-030502-MG-151*
Sample Date:		*3/4/2002*	*3/4/2002*	*3/4/2002*	*2/25/2002*	*2/25/2002*	*2/26/2002*	*2/26/2002*	*1/22/2003*	*1/22/2003*	*1/22/2003*	*1/23/2003*	*3/5/2002*	*3/5/2002*
Sample Depth:		*(0-2)*	*(6-8)*	*(26-28)*	*(0-2)*	*(0-2)*	*(6-8)*	*(22-23)*	*(0-2)*	*(8-10)*	*(22-24)*	*(34-35)*	*(0-2)*	*(6-8)*
		Duplicate				*Duplicate*								
Parameters	***Units***													
Metals														
Aluminum	mg/kg	13500	2020	4650	11400	11800	7190	8990	11300	4940	14900	16300	15100	11100
Antimony	mg/kg	R	R	R	ND (7.5) UJ	ND (7.2) UJ	ND (6.8) UJ	ND (7.1) UJ	ND (7.4)	ND (6.9)	0.63 J	0.33 J	ND (7.9) UJ	ND (6.9) UJ
Arsenic	mg/kg	10.5	0.87 J	1.1	7.7	7.2	1.8	5	8.1	6.8	3.2	15.3	10.7	2.0
Barium	mg/kg	86.1	20.8 J	11.2 J	67.6	66.8	379 J	68.3 J	81.1	43.9	95.8	133	65.6	64.5
Beryllium	mg/kg	1.1	ND (0.54)	ND (0.56) U	0.52 J	0.25 J	ND (0.57) U	ND (0.59) U	0.53 J	0.34 J	ND (0.65) U	1.1	ND (0.88) U	ND (0.58) U
Cadmium	mg/kg	ND (0.64)	ND (0.54)	0.51 J	ND (0.62)	ND (0.60)	0.37 J	0.29 J	ND (0.62)	0.30 J	0.49 J	0.80	ND (0.66)	0.60
Chromium Total	mg/kg	31	441	97.1	22.8	16.7	97.4	22	19.2	10.8	226	32.0	32.3	176
Cobalt	mg/kg	12.3	718	104	7	6.7	103 J	34.4 J	9.1	4.3 J	417	13.0	5.4 J	218
Copper	mg/kg	23.2 J	38.6 J	98.2 J	14.3	16.5	115	83.7	12.5	30.2	485	23.9	16.1	400
Cyanide (amenable)	mg/kg	ND (0.64)	ND (0.54)	ND (0.56)	ND (0.62)	ND (0.60)	ND (0.57)	ND (0.59)	ND (0.62)	ND (0.58)	ND (0.65)	ND (0.68)	ND (0.66)	ND (0.58)
Cyanide (total)	mg/kg	ND (0.64)	ND (0.54)	ND (0.56)	ND (0.62)	ND (0.60)	ND (0.57)	ND (0.59)	ND (0.62)	ND (0.58)	0.15 J	ND (0.68)	ND (0.66)	0.27 J
Iron	mg/kg	33700	12000	6060	24700	20300	12100	11300	22200	13500	13400	31900	34100	9190
Lead	mg/kg	16.5	47.5	18.4	11.4	12.4	66.6 J	32.2 J	14.5	10	72.6	15.0	15.9	63.2
Manganese	mg/kg	358	140	56.5	215	357	125 J	757 J	544	293	225	231	211	159
Mercury	mg/kg	0.038 J	23.9 J	1.7 J	0.032 J	0.035 J	8.2	0.87	0.038 J	0.036 J	4.8	0.13 J	0.13	33.7
Nickel	mg/kg	25.6	984	184	14.2	11.9	267	33.5	13.8	16.1	456	49.4	12.9	476
Selenium	mg/kg	ND (0.64)	0.69	0.43 J	ND (0.62)	ND (0.60)	0.59	ND (0.59)	ND (0.62)	ND (0.58)	ND (0.65)	ND (0.68)	ND (0.66)	ND (0.58)
Silver	mg/kg	ND (1.3)	0.25 J	ND (1.1)	ND (1.2)	ND (1.2)	0.23 J	ND (1.2)	ND (1.2)	ND (1.2)	2.4	ND (1.4)	ND (1.3)	2.9
Thallium	mg/kg	0.8 J	2.6	0.69 J	ND (1.2)	0.81 J	ND (1.1) U	ND (1.2)	ND (1.2)	1.1 J	2.1	0.96 J	ND (1.3)	0.59 J
Vanadium	mg/kg	43.5	2.2 J	2.9 J	34.5	28.1	6.1	16.2	30.1	10.7	11.4	43.9	53.3	5.6 J
Zinc	mg/kg	62.7	47.4	44.8	36.4	35.6	63.3	71.7	43.3	54.5	232	102	37.8	122
PCBs														
Aroclor-1016 (PCB-1016)	ug/kg	ND (42)	ND (3500)	ND (19000)	ND (41)	ND (39)	ND (1900)	ND (390)	ND (41)	ND (760)	ND (210000)	ND (2200)	ND (43)	ND (15000)
Aroclor-1221 (PCB-1221)	ug/kg	ND (42)	ND (3500)	ND (19000)	ND (41)	ND (39)	ND (1900)	ND (390)	ND (41)	ND (760)	ND (210000)	ND (2200)	ND (43)	ND (15000)
Aroclor-1232 (PCB-1232)	ug/kg	ND (42)	ND (3500)	ND (19000)	ND (41)	ND (39)	ND (1900)	ND (390)	ND (41)	ND (760)	ND (210000)	ND (2200)	ND (43)	ND (15000)
Aroclor-1242 (PCB-1242)	ug/kg	ND (42)	ND (3500)	ND (19000)	ND (41)	ND (39)	ND (1900)	ND (390)	ND (41)	ND (760)	1100000	14000	ND (43)	170000
Aroclor-1248 (PCB-1248)	ug/kg	8.1 J	69000	ND (19000)	ND (41)	ND (39)	19000	3100	ND (41)	3700	ND (210000)	ND (2200)	62	ND (15000)
Aroclor-1254 (PCB-1254)	ug/kg	ND (42)	ND (3500)	280000	ND (41)	ND (39)	ND (1900)	ND (390)	ND (41)	ND (760)	ND (210000)	ND (2200)	ND (43)	ND (15000)
Aroclor-1260 (PCB-1260)	ug/kg	ND (42)	13000	ND (19000)	ND (41)	ND (39)	3000	290 J	ND (41)	ND (760)	ND (210000)	ND (2200)	ND (43)	ND (15000)
Semi - Volatiles														
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
2,4,5-Trichlorophenol	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
2,4,6-Trichlorophenol	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
2,4-Dichlorophenol	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
2,4-Dimethylphenol	ug/kg	ND (420)	6100	ND (1500)	ND (410)	ND (390)	320 J	ND (390)	ND (410)	ND (380)	1100 J	ND (450)	ND (430)	ND (380)
2,4-Dinitrophenol	ug/kg	ND (2100)	ND (1700)	ND (7200)	ND (2000)	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (1800)	ND (41000)	ND (2200)	ND (2100)	ND (1800)
2,4-Dinitrotoluene	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
2,6-Dinitrotoluene	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
2-Chloronaphthalene	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
2-Chlorophenol	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
2-Methylnaphthalene	ug/kg	ND (420)	270 J	ND (1500)	ND (410)	ND (390)	260 J	ND (390)	ND (410)	56 J	ND (8500)	ND (450)	ND (430)	58 J
2-Methylphenol	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
2-Nitroaniline	ug/kg	ND (2100)	ND (1700)	ND (7200)	ND (2000)	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (1800)	ND (41000)	ND (2200)	ND (2100)	ND (1800)
2-Nitrophenol	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
3,3'-Dichlorobenzidine	ug/kg	ND (2100)	ND (1700)	ND (7200)	ND (2000)	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (1800)	ND (41000)	ND (2200)	ND (2100)	ND (1800)
3-Nitroaniline	ug/kg	ND (2100)	ND (1700)	ND (7200)	ND (2000)	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (1800)	ND (41000)	ND (2200)	ND (2100)	ND (1800)
4,6-Dinitro-2-methylphenol	ug/kg	ND (2100)	ND (1700)	ND (7200)	ND (2000)	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (1800)	ND (41000)	ND (2200)	ND (2100)	ND (1800)
4-Bromophenyl phenyl ether	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
4-Chloro-3-methylphenol	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
4-Chloroaniline	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
4-Chlorophenyl phenyl ether	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*
Sample Location:		*B-X193Y251*	*B-X193Y251*	*B-X193Y251*	*B-X219Y249*	*B-X219Y249*	*B-X219Y249*	*B-X219Y249*	*B-X223Y247D*	*B-X223Y247D*	*B-X223Y247D*	*B-X223Y247D*	*B-X243Y257*	*B-X243Y257*
Sample ID:		*S-030402-MG-147*	*S-030402-MG-148*	*S-030402-MG-149*	*S-022502-KMV-536*	*S-022502-KMV-537*	*S-022602-KMV-538*	*S-022602-KMV-539*	*S-012203-MG-236*	*S-012203-MG-237*	*S-012203-MG-238*	*S-012303-MG-239*	*S-030502-MG-150*	*S-030502-MG-151*
Sample Date:		*3/4/2002*	*3/4/2002*	*3/4/2002*	*2/25/2002*	*2/25/2002*	*2/26/2002*	*2/26/2002*	*1/22/2003*	*1/22/2003*	*1/22/2003*	*1/23/2003*	*3/5/2002*	*3/5/2002*
Sample Depth:		*(0-2)*	*(6-8)*	*(26-28)*	*(0-2)*	*(0-2)*	*(6-8)*	*(22-23)*	*(0-2)*	*(8-10)*	*(22-24)*	*(34-35)*	*(0-2)*	*(6-8)*
		Duplicate				*Duplicate*								
Parameters	***Units***													
4-Methylphenol	ug/kg	ND (420)	270 J	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
4-Nitroaniline	ug/kg	ND (2100)	ND (1700)	ND (7200)	ND (2000)	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (1800)	ND (41000)	ND (2200)	ND (2100)	ND (1800)
4-Nitrophenol	ug/kg	ND (2100)	ND (1700)	ND (7200)	ND (2000)	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (1800)	ND (41000)	ND (2200)	ND (2100)	ND (1800)
Acenaphthene	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	150 J	ND (390)	ND (410)	ND (380)	430 J	ND (450)	ND (430)	520
Acenaphthylene	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
Acetophenone	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
Anthracene	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	98 J	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	57 J
Atrazine	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
Benzaldehyde	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
Benzo(a)anthracene	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	320 J	79 J	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	120 J
Benzo(a)pyrene	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	360 J	74 J	ND (410)	ND (380)	940 J	ND (450)	ND (430)	120 J
Benzo(b)fluoranthene	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	410	88 J	ND (410)	ND (380)	1400 J	ND (450)	ND (430)	150 J
Benzo(g,h,i)perylene	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	240 J	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	83 J
Benzo(k)fluoranthene	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	220 J	ND (390)	ND (410)	ND (380)	480 J	ND (450)	ND (430)	78 J
Biphenyl	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
bis(2-Chloroethoxy)methane	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
bis(2-Chloroethyl)ether	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (420)	570	ND (1500)	ND (410)	120 J	ND (370)	64 J	ND (410)	52 J	18000	53 J	ND (430)	200 J
Butyl benzylphthalate	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
Caprolactam	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
Carbazole	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	110 J	ND (390)	ND (410)	430	ND (8500)	ND (450)	ND (430)	ND (380)
Chrysene	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	390	88 J	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	170 J
Dibenz(a,h)anthracene	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	69 J	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
Dibenzofuran	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	130 J	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
Diethyl phthalate	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
Dimethyl phthalate	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
Di-n-butylphthalate	ug/kg	ND (420)	2900	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
Di-n-octyl phthalate	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	29000	ND (450)	ND (430)	ND (380)
Fluoranthene	ug/kg	ND (420)	73 J	ND (1500)	ND (410)	ND (390)	630	200 J	ND (410)	ND (380)	1800 J	ND (450)	ND (430)	230 J
Fluorene	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	150 J	ND (390)	ND (410)	ND (380)	1800 J	ND (450)	ND (430)	82 J
Hexachlorobenzene	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
Hexachlorobutadiene	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
Hexachlorocyclopentadiene	ug/kg	ND (2100)	ND (1700)	ND (7200)	ND (2000) UJ	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (1800)	ND (41000)	ND (2200)	ND (2100)	ND (1800)
Hexachloroethane	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	210 J	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
Isophorone	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
Naphthalene	ug/kg	ND (420)	160 J	ND (1500)	ND (410)	ND (390)	290 J	ND (390)	ND (410)	ND (380)	440 J	ND (450)	ND (430)	ND (380)
Nitrobenzene	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
N-Nitrosodi-n-propylamine	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
N-Nitrosodiphenylamine	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
Pentachlorophenol	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	ND (370)	ND (390)	ND (410)	ND (380)	ND (8500)	ND (450)	ND (430)	ND (380)
Phenanthrene	ug/kg	ND (420)	190 J	ND (1500)	ND (410)	ND (390)	440	180 J	ND (410)	ND (380)	1800 J	ND (450)	ND (430)	410
Phenol	ug/kg	ND (420)	ND (350)	ND (1500)	ND (410)	ND (390)	340 J	ND (390)	ND (410)	250 J	ND (8500)	ND (450)	ND (430)	ND (380)
Pyrene	ug/kg	ND (420)	86 J	ND (1500)	ND (410)	ND (390)	530	160 J	ND (410)	ND (380)	1600 J	ND (450)	ND (430)	240 J
Volatiles														
1,1,1-Trichloroethane	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)
1,1,2,2-Tetrachloroethane	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)
1,1,2-Trichloroethane	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)
1,1-Dichloroethane	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)
1,1-Dichloroethene	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)
1,2,4-Trichlorobenzene	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2) U	ND (6.7)	ND (6.4)	ND (6.9)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (12)	ND (12)	ND (680)	ND (9.8)	ND (9.7)	ND (13)	ND (11)	ND (14) UJ	ND (10) UJ	ND (18) UJ	ND (13)	ND (13)	ND (14)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)
1,2-Dichlorobenzene	ug/kg	ND (6)	ND (6.2)	550	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)
1,2-Dichloroethane	ug/kg	ND (6)	ND (6.2)	16 J	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*	*A004*
Sample Location:		*B-X193Y251*	*B-X193Y251*	*B-X193Y251*	*B-X219Y249*	*B-X219Y249*	*B-X219Y249*	*B-X219Y249*	*B-X223Y247D*	*B-X223Y247D*	*B-X223Y247D*	*B-X223Y247D*	*B-X243Y257*	*B-X243Y257*
Sample ID:		*S-030402-MG-147*	*S-030402-MG-148*	*S-030402-MG-149*	*S-022502-KMV-536*	*S-022502-KMV-537*	*S-022602-KMV-538*	*S-022602-KMV-539*	*S-012203-MG-236*	*S-012203-MG-237*	*S-012203-MG-238*	*S-012303-MG-239*	*S-030502-MG-150*	*S-030502-MG-151*
Sample Date:		*3/4/2002*	*3/4/2002*	*3/4/2002*	*2/25/2002*	*2/25/2002*	*2/26/2002*	*2/26/2002*	*1/22/2003*	*1/22/2003*	*1/22/2003*	*1/23/2003*	*3/5/2002*	*3/5/2002*
Sample Depth:		*(0-2)*	*(6-8)*	*(26-28)*	*(0-2)*	*(0-2)*	*(6-8)*	*(22-23)*	*(0-2)*	*(8-10)*	*(22-24)*	*(34-35)*	*(0-2)*	*(6-8)*
		Duplicate				*Duplicate*								
Parameters	***Units***													
1,2-Dichloropropane	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)
1,3-Dichlorobenzene	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	7.2 J	2.2 J	ND (6.4)	ND (6.9)
1,4-Dichlorobenzene	ug/kg	ND (6)	ND (6.2)	ND (340) U	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	1.4 J	5.5 J	ND (6.4)	0.93 J
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (24)	3.4 J	ND (1400)	ND (20)	ND (19)	8.5 J	ND (23)	ND (29)	ND (20)	30 J	ND (27) UJ	ND (26)	36
2-Hexanone	ug/kg	ND (24)	ND (25)	ND (1400)	ND (20)	ND (19)	ND (26)	ND (23)	ND (29)	ND (20)	ND (37)	ND (27)	ND (26)	ND (28)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (24)	ND (25)	ND (1400)	ND (20)	ND (19)	ND (26)	ND (23)	ND (29)	ND (20)	ND (37)	ND (27)	ND (26)	ND (28)
Acetone	ug/kg	ND (24) UJ	18 J	ND (1400)	ND (20) UJ	ND (19) UJ	ND (26) UJ	ND (23) UJ	ND (29)	ND (20) U	190	23 J	56 J	170 J
Benzene	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	1.4 J	ND (6.7)	ND (6.4)	ND (6.9)
Bromodichloromethane	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)
Bromoform	ug/kg	ND (6) UJ	ND (6.2) UJ	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4) UJ	ND (6.9) UJ
Bromomethane (Methyl Bromide)	ug/kg	ND (6) UJ	ND (6.2) UJ	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7) UJ	ND (6.4) UJ	ND (6.9) UJ
Carbon disulfide	ug/kg	ND (6)	ND (6.2)	340	ND (4.9)	ND (4.8)	1.8 J	ND (5.7)	ND (7.2)	ND (5.1)	6.4 J	ND (6.7)	ND (6.4)	8.2
Carbon tetrachloride	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7) UJ	ND (6.4)	ND (6.9)
Chlorobenzene	ug/kg	ND (6)	0.93 J	3500	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	1.3 J	ND (6.4)	ND (6.9)
Chloroethane	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)
Chloroform (Trichloromethane)	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)
Chloromethane (Methyl Chloride)	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)
cis-1,2-Dichloroethene	ug/kg	ND (3)	ND (3.1)	ND (170)	ND (2.5)	ND (2.4)	1.3 J	ND (2.9)	ND (3.6)	ND (2.5)	ND (4.6)	ND (3.3)	ND (3.2)	ND (3.4)
cis-1,3-Dichloropropene	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)
Cyclohexane	ug/kg	ND (12)	ND (12)	ND (680)	ND (9.8)	ND (9.7)	2 J	ND (11)	ND (14)	ND (10)	2.6 J	ND (13)	ND (13)	1.9 J
Dibromochloromethane	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2) UJ	ND (5.1) UJ	ND (9.2) UJ	ND (6.7)	ND (6.4)	ND (6.9)
Ethylbenzene	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	0.88 J	ND (5.7)	ND (7.2)	ND (5.1)	1.8 J	ND (6.7)	ND (6.4)	ND (6.9)
Isopropylbenzene	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	2.1 J	ND (6.7)	ND (6.4)	3.4 J
Methyl acetate	ug/kg	ND (12)	ND (12)	74 J	ND (9.8)	ND (9.7)	ND (13)	ND (11)	4.4 J	1.4 J	7.6 J	ND (13)	ND (13)	ND (14)
Methyl cyclohexane	ug/kg	ND (12)	ND (12)	28 J	ND (9.8)	ND (9.7)	3.8 J	ND (11)	ND (14)	ND (10)	3.6 J	ND (13)	ND (13)	1.6 J
Methyl Tert Butyl Ether	ug/kg	ND (24)	ND (25)	ND (1400)	ND (20)	ND (19)	ND (26)	ND (23)	ND (29)	ND (20)	ND (37)	ND (27)	ND (26)	ND (28)
Methylene chloride	ug/kg	ND (6)	ND (6.2)	ND (340)	4 J	4.8	ND (6.4)	8.6	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)
Styrene	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)
Tetrachloroethene	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)
Toluene	ug/kg	ND (6)	ND (6.2)	14 J	ND (4.9)	ND (4.8)	1.5 J	ND (5.7)	ND (7.2)	ND (5.1)	5.6 J	ND (6.7)	ND (6.4)	3.2 J
trans-1,2-Dichloroethene	ug/kg	ND (3)	ND (3.1)	ND (170)	ND (2.5)	ND (2.4)	ND (3.2)	ND (2.9)	ND (3.6)	ND (2.5)	ND (4.6)	ND (3.3)	ND (3.2)	ND (3.4)
trans-1,3-Dichloropropene	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)
Trichloroethene	ug/kg	ND (6)	ND (6.2)	26 J	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7) UJ	ND (6.4)	ND (6.9)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)
Vinyl chloride	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	ND (6.4)	ND (5.7)	ND (7.2)	ND (5.1)	ND (9.2)	ND (6.7)	ND (6.4)	ND (6.9)
Xylene (total)	ug/kg	ND (6)	ND (6.2)	ND (340)	ND (4.9)	ND (4.8)	3.1 J	ND (5.7)	ND (7.2)	ND (5.1)	7.4 J	ND (6.7)	ND (6.4)	ND (6.9)
General Chemistry														
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	2300 J	9800 J	9800 J	1600 J	-	-
Total Solids	%	78	93.4	89	80.3	83.8	88.4	84.9	80.7	86.7	77.5	73.4	76.1	86.5

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A004*	*A004*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*
Sample Location:		*B-X243Y257*	*SD-X196Y272*	*B-X165Y179*	*B-X165Y179*	*B-X165Y179*	*B-X170Y143*	*B-X170Y143*	*B-X170Y143*	*B-X171Y157*	*B-X171Y157*	*B-X171Y157*	*B-X171Y157*	*B-X176Y143*
Sample ID:		*S-030502-MG-152*	*S-031402-JW-1429*	*S-010902-MG-021*	*S-010902-MG-022*	*S-010902-MG-023*	*S-032102-MG-203*	*S-032102-MG-204*	*S-032102-MG-205*	*S-032202-MG-206*	*S-032202-MG-207*	*S-032202-MG-208*	*S-032202-MG-209*	*S-010902-MG-017*
Sample Date:		*3/5/2002*	*3/14/2002*	*1/9/2002*	*1/9/2002*	*1/9/2002*	*3/21/2002*	*3/21/2002*	*3/21/2002*	*3/22/2002*	*3/22/2002*	*3/22/2002*	*3/22/2002*	*1/9/2002*
Sample Depth:		*(14-16)*	*(0-0.33)*	*(0-2)*	*(6-8)*	*(16-18)*	*(0-2)*	*(6-8)*	*(19.5-21.5)*	*(0-2)*	*(6-8)*	*(18-20)*	*(18-20) Duplicate*	*(0-2)*
Parameters	***Units***													
Metals														
Aluminum	mg/kg	16900	31800	14800	12500	3410	1570	1200	10900	14400	4650	8200	6400	2170
Antimony	mg/kg	ND (7.5) UJ	ND (7.7)	ND (7.6) UJ	ND (8.0) UJ	ND (8.0) UJ	ND (6.6)	ND (7.0)	ND (39.6)	0.79 J	R	R	R	ND (6.8) UJ
Arsenic	mg/kg	20.2	7.3	8.5	7.4	9.6	1.5	1.1 J	12.9	8.2	3.1	5.1	5.6	1.3
Barium	mg/kg	65.5	69.8	76.5	25.1 J	15.3 J	12.2 J	8.9 J	87.9 J	38.9	13.6 J	17.1 J	37.5 J	9.2 J
Beryllium	mg/kg	ND (0.83) U	ND (0.68) U	0.26 J	0.58 J	0.48 J	ND (0.55)	ND (0.58)	2.4 J	0.21 J	0.19 J	2.3	1.6	ND (0.57) U
Cadmium	mg/kg	ND (0.62)	ND (0.64)	0.16 J	0.25 J	1.5	0.28 J	0.24 J	0.41 J	ND (0.66) UJ	ND (0.62) UJ	1.2 J	2.0 J	0.58
Chromium Total	mg/kg	26.0	39.1	23.0 J	37.8 J	6.9 J	7.7	4.5	26.6	44.9 J	15.8 J	32.7 J	11.1 J	6.3 J
Cobalt	mg/kg	15.3	31.9	5.1 J	3.2 J	4.5 J	1.1 J	0.84 J	6.9 J	1.9 J	1.4 J	10.1	10.6 J	2.7 J
Copper	mg/kg	15.7	184	16.2 J	15.0 J	8.8 J	16.7	12.9	18.1	11.3	4.9	22.4	20.3	18.2 J
Cyanide (amenable)	mg/kg	ND (0.62)	ND (0.64)	ND (0.63)	ND (0.67)	ND (0.67)	ND (0.55)	ND (0.58)	ND (0.66)	ND (0.66)	ND (0.62)	ND (0.63)	ND (0.61)	ND (0.57)
Cyanide (total)	mg/kg	ND (0.62)	ND (0.64)	ND (0.63)	ND (0.67)	ND (0.67)	ND (0.55)	ND (0.58)	ND (0.66)	ND (0.66)	ND (0.62)	ND (0.63)	ND (0.61)	ND (0.57)
Iron	mg/kg	33500	20900	24200 J	39700 J	17000 J	3330	2550	19800	31100	13900	25200	16600	3030 J
Lead	mg/kg	20.0	26.9	13.4 J	15.5 J	8.5 J	56.5	30.1	16.3	14.0	8.7	29.2	44.8	5.8 J
Manganese	mg/kg	590	523	181 J	27.1 J	308 J	39.9	30.3	215	65.1	48.3	403	562	70.0 J
Mercury	mg/kg	0.089 J	ND (0.13) U	0.17 J	0.030 J	0.013 J	0.030 J	0.023 J	0.086 J	0.12 J	ND (0.12)	0.036 J	0.041 J	0.048 J
Nickel	mg/kg	17.5	86.8	12.9 J	12.9 J	20.6 J	11.5	7.2	103	9.5	6.0	42.0	37.2	9.1 J
Selenium	mg/kg	ND (0.62)	ND (0.64)	ND (0.63)	ND (0.67)	ND (0.67)	ND (0.55)	ND (0.58)	0.52 J	0.81	0.73	0.55 J	0.90 J	ND (0.57)
Silver	mg/kg	ND (1.2)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	0.17 J	ND (1.2)	ND (6.6)	ND (1.3)	ND (1.2)	ND (1.3)	ND (2.4)	ND (1.1)
Thallium	mg/kg	ND (1.2)	1.0 J	ND (1.3)	ND (1.3)	ND (1.3) U	0.57 J	ND (1.2)	3.3 J	ND (1.3)	ND (1.2)	1.1 J	0.98 J	ND (1.1) U
Vanadium	mg/kg	55.3	26.7	34.0	57.1	6.6 J	3.1 J	2.1 J	23.4 J	77.5	27.1	28.2	17.7	5.8
Zinc	mg/kg	68.6	122	45.6 J	42.6 J	22.3 J	40.3	38.3	110	31.8	19.7	151	113	37.9 J
PCBs														
Aroclor-1016 (PCB-1016)	ug/kg	ND (41)	ND (42)	ND (42)	ND (44)	ND (44)	ND (180)	ND (77)	ND (44)	ND (43)	ND (41)	ND (41)	ND (40)	ND (1900)
Aroclor-1221 (PCB-1221)	ug/kg	ND (41)	ND (42)	ND (42)	ND (44)	ND (44)	ND (180)	ND (77)	ND (44)	ND (43)	ND (41)	ND (41)	ND (40)	ND (1900)
Aroclor-1232 (PCB-1232)	ug/kg	ND (41)	ND (42)	ND (42)	ND (44)	ND (44)	ND (180)	ND (77)	ND (44)	ND (43)	ND (41)	ND (41)	ND (40)	ND (1900)
Aroclor-1242 (PCB-1242)	ug/kg	24 J	ND (42)	ND (42)	ND (44)	ND (44)	ND (180)	ND (77)	93	ND (43)	130	ND (41)	ND (40)	ND (1900)
Aroclor-1248 (PCB-1248)	ug/kg	ND (41)	490	10 J	ND (44)	6.4 J	ND (180)	ND (77)	ND (44)	ND (43)	ND (41)	ND (41)	ND (40)	7200
Aroclor-1254 (PCB-1254)	ug/kg	ND (41)	ND (42)	ND (42)	ND (44)	ND (44)	910	550	ND (44)	ND (43)	ND (41)	ND (41)	ND (40)	ND (1900)
Aroclor-1260 (PCB-1260)	ug/kg	ND (41)	84	ND (42)	ND (44)	ND (44)	ND (180)	ND (77)	ND (44)	ND (43)	ND (41)	ND (41)	ND (40)	5900
Semi - Volatiles														
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
2,4,5-Trichlorophenol	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
2,4,6-Trichlorophenol	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
2,4-Dichlorophenol	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
2,4-Dimethylphenol	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
2,4-Dinitrophenol	ug/kg	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (1800)	ND (1900)	ND (2100)	ND (2100)	ND (2000)	ND (2000)	ND (1900)	ND (1800)
2,4-Dinitrotoluene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
2,6-Dinitrotoluene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
2-Chloronaphthalene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
2-Chlorophenol	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
2-Methylnaphthalene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
2-Methylphenol	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
2-Nitroaniline	ug/kg	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (1800)	ND (1900)	ND (2100)	ND (2100)	ND (2000)	ND (2000)	ND (1900)	ND (1800)
2-Nitrophenol	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
3,3'-Dichlorobenzidine	ug/kg	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (1800)	ND (1900)	ND (2100)	ND (2100)	ND (2000)	ND (2000)	ND (1900)	ND (1800)
3-Nitroaniline	ug/kg	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (1800)	ND (1900)	ND (2100)	ND (2100)	ND (2000)	ND (2000)	ND (1900)	ND (1800)
4,6-Dinitro-2-methylphenol	ug/kg	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (1800)	ND (1900)	ND (2100)	ND (2100)	ND (2000)	ND (2000)	ND (1900)	ND (1800)
4-Bromophenyl phenyl ether	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
4-Chloro-3-methylphenol	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
4-Chloroaniline	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
4-Chlorophenyl phenyl ether	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A004*	*A004*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*
Sample Location:		*B-X243Y257*	*SD-X196Y272*	*B-X165Y179*	*B-X165Y179*	*B-X165Y179*	*B-X170Y143*	*B-X170Y143*	*B-X170Y143*	*B-X171Y157*	*B-X171Y157*	*B-X171Y157*	*B-X171Y157*	*B-X176Y143*
Sample ID:		*S-030502-MG-152*	*S-031402-JW-1429*	*S-010902-MG-021*	*S-010902-MG-022*	*S-010902-MG-023*	*S-032102-MG-203*	*S-032102-MG-204*	*S-032102-MG-205*	*S-032202-MG-206*	*S-032202-MG-207*	*S-032202-MG-208*	*S-032202-MG-209*	*S-010902-MG-017*
Sample Date:		*3/5/2002*	*3/14/2002*	*1/9/2002*	*1/9/2002*	*1/9/2002*	*3/21/2002*	*3/21/2002*	*3/21/2002*	*3/22/2002*	*3/22/2002*	*3/22/2002*	*3/22/2002*	*1/9/2002*
Sample Depth:		*(14-16)*	*(0-0.33)*	*(0-2)*	*(6-8)*	*(16-18)*	*(0-2)*	*(6-8)*	*(19.5-21.5)*	*(0-2)*	*(6-8)*	*(18-20)*	*(18-20) Duplicate*	*(0-2)*
Parameters	***Units***													
4-Methylphenol	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
4-Nitroaniline	ug/kg	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (1800)	ND (1900)	ND (2100)	ND (2100)	ND (2000)	ND (2000)	ND (1900)	ND (1800)
4-Nitrophenol	ug/kg	ND (2000)	ND (2100)	ND (2000) UJ	ND (2100) UJ	ND (2100) UJ	ND (1800)	ND (1900)	ND (2100)	ND (2100)	ND (2000)	ND (2000)	ND (1900)	ND (1800)
Acenaphthene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Acenaphthylene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Acetophenone	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Anthracene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Atrazine	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Benzaldehyde	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Benzo(a)anthracene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Benzo(a)pyrene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Benzo(b)fluoranthene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	66 J
Benzo(g,h,i)perylene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Benzo(k)fluoranthene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Biphenyl	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
bis(2-Chloroethoxy)methane	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
bis(2-Chloroethyl)ether	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Butyl benzylphthalate	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Caprolactam	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Carbazole	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Chrysene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Dibenz(a,h)anthracene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Dibenzofuran	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Diethyl phthalate	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Dimethyl phthalate	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Di-n-butylphthalate	ug/kg	ND (410)	530	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Di-n-octyl phthalate	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Fluoranthene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Fluorene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Hexachlorobenzene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Hexachlorobutadiene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Hexachlorocyclopentadiene	ug/kg	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (1800)	ND (1900)	ND (2100)	ND (2100)	ND (2000)	ND (2000)	ND (1900)	ND (1800)
Hexachloroethane	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Isophorone	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Naphthalene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Nitrobenzene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
N-Nitrosodi-n-propylamine	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
N-Nitrosodiphenylamine	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Pentachlorophenol	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Phenanthrene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Phenol	ug/kg	ND (410)	220 J	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Pyrene	ug/kg	ND (410)	ND (420)	ND (420)	ND (440)	ND (440)	ND (360)	ND (390)	ND (440)	ND (430)	ND (410)	ND (410)	ND (400)	ND (370)
Volatiles														
1,1,1-Trichloroethane	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
1,1,2,2-Tetrachloroethane	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
1,1,2-Trichloroethane	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
1,1-Dichloroethane	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
1,1-Dichloroethene	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
1,2,4-Trichlorobenzene	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6) UJ	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (16)	ND (12)	ND (11) UJ	ND (12) UJ	ND (12) UJ	ND (12) UJ	ND (11)	ND (16)	ND (13)	ND (12)	ND (14)	ND (13)	ND (10) UJ
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
1,2-Dichlorobenzene	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6) UJ	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
1,2-Dichloroethane	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A004*	*A004*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*
Sample Location:		*B-X243Y257*	*SD-X196Y272*	*B-X165Y179*	*B-X165Y179*	*B-X165Y179*	*B-X170Y143*	*B-X170Y143*	*B-X170Y143*	*B-X171Y157*	*B-X171Y157*	*B-X171Y157*	*B-X171Y157*	*B-X176Y143*
Sample ID:		*S-030502-MG-152*	*S-031402-JW-1429*	*S-010902-MG-021*	*S-010902-MG-022*	*S-010902-MG-023*	*S-032102-MG-203*	*S-032102-MG-204*	*S-032102-MG-205*	*S-032202-MG-206*	*S-032202-MG-207*	*S-032202-MG-208*	*S-032202-MG-209*	*S-010902-MG-017*
Sample Date:		*3/5/2002*	*3/14/2002*	*1/9/2002*	*1/9/2002*	*1/9/2002*	*3/21/2002*	*3/21/2002*	*3/21/2002*	*3/22/2002*	*3/22/2002*	*3/22/2002*	*3/22/2002*	*1/9/2002*
Sample Depth:		*(14-16)*	*(0-0.33)*	*(0-2)*	*(6-8)*	*(16-18)*	*(0-2)*	*(6-8)*	*(19.5-21.5)*	*(0-2)*	*(6-8)*	*(18-20)*	*(18-20) Duplicate*	*(0-2)*
Parameters	***Units***													
1,2-Dichloropropane	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
1,3-Dichlorobenzene	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6) UJ	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
1,4-Dichlorobenzene	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6) UJ	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (32)	ND (25)	3.6 J	ND (24)	ND (24)	ND (24)	ND (23)	ND (31)	ND (27)	ND (25)	ND (27)	ND (27)	ND (20)
2-Hexanone	ug/kg	ND (32)	ND (25)	ND (23)	ND (24)	ND (24)	ND (24)	ND (23)	ND (31)	ND (27)	ND (25)	ND (27)	ND (27)	ND (20)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (32)	ND (25)	ND (23)	ND (24)	ND (24)	ND (24)	ND (23)	ND (31)	ND (27)	ND (25)	ND (27)	ND (27)	ND (20)
Acetone	ug/kg	23 J	ND (25) U	ND (24) U	ND (24) U	ND (24) U	ND (24)	ND (23)	ND (31)	ND (27) U	ND (25) U	ND (27)	ND (27)	ND (20) U
Benzene	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
Bromodichloromethane	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
Bromoform	ug/kg	ND (8) UJ	ND (6.2) UJ	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
Bromomethane (Methyl Bromide)	ug/kg	ND (8) UJ	ND (6.2) UJ	ND (5.6) UJ	ND (5.9) UJ	ND (6) UJ	ND (6)	ND (5.7)	ND (7.9)	ND (6.6) UJ	ND (6.1) UJ	ND (6.8) UJ	ND (6.7) UJ	ND (5.1) UJ
Carbon disulfide	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
Carbon tetrachloride	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
Chlorobenzene	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
Chloroethane	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
Chloroform (Trichloromethane)	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
Chloromethane (Methyl Chloride)	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
cis-1,2-Dichloroethene	ug/kg	ND (4)	ND (3.1)	ND (2.8)	ND (3)	1.6 J	ND (3)	ND (2.9)	ND (3.9)	ND (3.3)	ND (3.1)	ND (3.4)	ND (3.3)	ND (2.5)
cis-1,3-Dichloropropene	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
Cyclohexane	ug/kg	ND (16)	ND (12)	ND (11)	ND (12)	ND (12)	ND (12)	ND (11)	ND (16)	ND (13)	ND (12)	ND (14)	ND (13)	ND (10)
Dibromochloromethane	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (8)	ND (6.2)	ND (5.6) U	ND (5.9) U	ND (6) U	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1) U
Ethylbenzene	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
Isopropylbenzene	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
Methyl acetate	ug/kg	ND (16)	ND (12)	ND (11)	ND (12)	ND (12)	ND (12)	ND (11)	ND (16)	ND (13)	ND (12)	ND (14)	ND (13)	ND (10)
Methyl cyclohexane	ug/kg	ND (16)	ND (12)	ND (11)	ND (12)	ND (12)	ND (12)	1.5 J	ND (16)	ND (13)	ND (12)	ND (14)	ND (13)	ND (10)
Methyl Tert Butyl Ether	ug/kg	ND (32)	ND (25)	ND (23)	ND (24)	ND (24)	ND (24)	ND (23)	ND (31)	ND (27)	ND (25)	ND (27)	ND (27)	ND (20)
Methylene chloride	ug/kg	ND (8)	ND (6.2)	ND (5.6) U	ND (5.9) U	ND (6) U	ND (6)	ND (5.7) U	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1) U
Styrene	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
Tetrachloroethene	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	12	8.1	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
Toluene	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
trans-1,2-Dichloroethene	ug/kg	ND (4)	ND (3.1)	ND (2.8)	ND (3)	ND (3)	ND (3)	ND (2.9)	ND (3.9)	ND (3.3)	ND (3.1)	ND (3.4)	ND (3.3)	ND (2.5)
trans-1,3-Dichloropropene	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
Trichloroethene	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
Vinyl chloride	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
Xylene (total)	ug/kg	ND (8)	ND (6.2)	ND (5.6)	ND (5.9)	ND (6)	ND (6)	ND (5.7)	ND (7.9)	ND (6.6)	ND (6.1)	ND (6.8)	ND (6.7)	ND (5.1)
General Chemistry														
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Solids	%	80.2	77.7	79.1	75.2	74.6	90.6	85.7	75.8	76.0	80.8	79.9	82.3	88.1

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*
Sample Location:		*B-X176Y143*	*B-X176Y143*	*B-X176Y143*	*B-X176Y179*	*B-X176Y179*	*B-X176Y179*	*B-X176Y187*	*B-X176Y187*	*B-X176Y187*	*B-X176Y187*	*B-X185Y185*	*B-X185Y185*	*B-X185Y185*
Sample ID:		*S-010902-MG-018*	*S-010902-MG-019*	*S-010902-MG-020*	*S-022202-MG-128*	*S-022202-MG-129*	*S-022202-MG-130*	*S-022102-MG-122*	*S-022102-MG-123*	*S-022102-MG-124*	*S-022102-MG-125*	*S-011002-MG-024*	*S-011002-MG-025*	*S-011002-MG-026*
Sample Date:		*1/9/2002*	*1/9/2002*	*1/9/2002*	*2/22/2002*	*2/22/2002*	*2/22/2002*	*2/21/2002*	*2/21/2002*	*2/21/2002*	*2/21/2002*	*1/10/2002*	*1/10/2002*	*1/10/2002*
Sample Depth:		*(6-8)*	*(21-23)*	*(21-23)* *Duplicate*	*(3.5-5)*	*(6-8)*	*(24-26)*	*(0-2)*	*(0-2)* *Duplicate*	*(8-10)*	*(36-38)*	*(0-2)*	*(6-8)*	*(14-15)*
Parameters	***Units***													
Metals														
Aluminum	mg/kg	5240	7170	12000	2330	6190	14600	12600	4090	2600	2090	11800	6770	8860
Antimony	mg/kg	2.5 J	ND (7.3) UJ	ND (7.6) UJ	ND (7.0)	0.91 J	ND (15.9)	ND (7.5)	ND (7.6)	0.81 J	ND (7.9)	ND (8.0)	ND (7.0)	ND (7.2)
Arsenic	mg/kg	3.9	5.9	5.4	2.3	1.5	9.7	7.1	5.6	2.3	2.1	9.4	5.0	6.5
Barium	mg/kg	26.0	68.8	55.9	13 J	23.6	91.7	103	105	21.5 J	52.1	130	47.8	50.3
Beryllium	mg/kg	ND (0.59) U	0.82	0.38 J	ND (0.59) U	ND (0.59)	1.5	0.61 J	0.67	ND (0.60) U	0.42 J	1.1	ND (0.58) U	0.37 J
Cadmium	mg/kg	0.54 J	0.16 J	0.075 J	0.68	0.89	0.53 J	ND (0.63) U	ND (0.63) U	0.91	0.39 J	ND (0.67)	ND (0.58) U	ND (0.60)
Chromium Total	mg/kg	12.9 J	15.6 J	28.3 J	8.3	92.1	27.1	13.2	6.6	11.7	3.8	22.9	14.4	18.7
Cobalt	mg/kg	3.9 J	8.2 J	3.4 J	4 J	37.3	18.8	11.2	15	3.2 J	7.7	17.9	3.5 J	4.1 J
Copper	mg/kg	107 J	11.9 J	6.1 J	34.2	228	18.1	12.5	8.4	65.4	6.6	23.5	12.7	13.8
Cyanide (amenable)	mg/kg	ND (0.59)	ND (0.60)	ND (0.63)	ND (0.59)	ND (0.59)	ND (0.66)	ND (0.63)	ND (0.63)	ND (0.60)	ND (0.66)	ND (0.67)	ND (0.58)	ND (0.60)
Cyanide (total)	mg/kg	ND (0.59)	ND (0.60)	ND (0.63)	ND (0.59)	ND (0.59)	ND (0.66)	ND (0.63)	ND (0.63)	ND (0.60)	ND (0.66)	ND (0.67)	ND (0.58)	ND (0.60)
Iron	mg/kg	10600 J	19100 J	12100 J	6500	4650	31100	16600	8360	6700	6530	20700	15000	19300
Lead	mg/kg	71.0 J	10.6 J	15.4 J	79.6	125	25.8	13.2	15.5	108	4.6	20.1	15.5	13.7
Manganese	mg/kg	117 J	162 J	89.2 J	154	135	320	947	1490	111	186	1640 J	202 J	219 J
Mercury	mg/kg	0.11 J	0.062 J	0.064 J	0.1 J	0.065 J	0.087 J	0.068 J	0.065 J	0.073 J	0.016 J	0.075 J	0.019 J	0.035 J
Nickel	mg/kg	19.3 J	17.6 J	6.6 J	360	18	38.6	12.8	4.7 J	31.8	11.7	16.3	6.7	6.8
Selenium	mg/kg	ND (0.59)	ND (0.60)	ND (0.63)	ND (0.59)	ND (0.59)	ND (1.3)	ND (0.63)	ND (0.63)	ND (0.60)	ND (0.66)	ND (0.67) U	ND (0.58) U	ND (0.60) U
Silver	mg/kg	ND (1.2)	ND (1.2)	ND (1.3)	ND (1.2)	ND (1.2)	ND (2.6)	ND (1.3)	ND (1.3)	ND (1.2)	ND (1.3)	ND (1.3)	ND (1.2)	ND (1.2)
Thallium	mg/kg	ND (1.2) U	ND (1.2) U	ND (1.3)	ND (1.2)	ND (1.2)	ND (2.6)	ND (1.3)	ND (1.3)	ND (1.2)	ND (1.3)	ND (1.3)	ND (1.2)	ND (1.2)
Vanadium	mg/kg	9.6	16.9	30.8	6.3	3.5 J	37.2	26.8	16	4.3 J	5.4 J	32.4	24.5	33.1
Zinc	mg/kg	86.0 J	25.9 J	17.8 J	85.9	132	92	39.9	14.5	98	14.1	46.0 J	32.4 J	27.5 J
PCBs														
Aroclor-1016 (PCB-1016)	ug/kg	ND (19000)	ND (40)	ND (42)	ND (77)	ND (190)	ND (44)	ND (83)	ND (83)	ND (40)	ND (44)	ND (44)	ND (380)	ND (2000)
Aroclor-1221 (PCB-1221)	ug/kg	ND (19000)	ND (40)	ND (42)	ND (77)	ND (190)	ND (44)	ND (83)	ND (83)	ND (40)	ND (44)	ND (44)	ND (380)	ND (2000)
Aroclor-1232 (PCB-1232)	ug/kg	ND (19000)	ND (40)	ND (42)	ND (77)	ND (190)	ND (44)	ND (83)	ND (83)	ND (40)	ND (44)	ND (44)	ND (380)	ND (2000)
Aroclor-1242 (PCB-1242)	ug/kg	210000	ND (40)	ND (42)	ND (77)	ND (190)	ND (44)	ND (83)	ND (83)	ND (40)	ND (44)	ND (44)	ND (380)	ND (2000)
Aroclor-1248 (PCB-1248)	ug/kg	ND (19000)	5.8 J	ND (42)	900	ND (190)	ND (44)	730	580	ND (40)	ND (44)	690	2400	10000
Aroclor-1254 (PCB-1254)	ug/kg	ND (19000)	ND (40)	ND (42)	ND (77)	1400	ND (44)	ND (83)	ND (83)	500	ND (44)	ND (44)	ND (380)	ND (2000)
Aroclor-1260 (PCB-1260)	ug/kg	29000	ND (40)	ND (42)	430	ND (190)	ND (44) UJ	66 J	32 J	ND (40)	ND (44)	ND (44)	ND (380)	ND (2000)
Semi - Volatiles														
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
2,4,5-Trichlorophenol	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
2,4,6-Trichlorophenol	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
2,4-Dichlorophenol	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
2,4-Dimethylphenol	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
2,4-Dinitrophenol	ug/kg	ND (19000)	ND (1900)	ND (2000)	ND (1900)	ND (1900)	ND (2100)	ND (2000)	ND (2000)	ND (1900)	ND (2100)	ND (2100)	ND (1900)	ND (1900)
2,4-Dinitrotoluene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
2,6-Dinitrotoluene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
2-Chloronaphthalene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
2-Chlorophenol	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
2-Methylnaphthalene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
2-Methylphenol	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
2-Nitroaniline	ug/kg	ND (19000)	ND (1900)	ND (2000)	ND (1900)	ND (1900)	ND (2100)	ND (2000)	ND (2000)	ND (1900)	ND (2100)	ND (2100)	ND (1900)	ND (1900)
2-Nitrophenol	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
3,3'-Dichlorobenzidine	ug/kg	ND (19000)	ND (1900)	ND (2000)	ND (1900)	ND (1900)	ND (2100)	ND (2000)	ND (2000)	ND (1900)	ND (2100)	ND (2100)	ND (1900)	ND (1900)
3-Nitroaniline	ug/kg	ND (19000)	ND (1900)	ND (2000)	ND (1900)	ND (1900)	ND (2100)	ND (2000)	ND (2000)	ND (1900)	ND (2100)	ND (2100)	ND (1900)	ND (1900)
4,6-Dinitro-2-methylphenol	ug/kg	ND (19000)	ND (1900)	ND (2000)	ND (1900)	ND (1900)	ND (2100)	ND (2000)	ND (2000)	ND (1900)	ND (2100)	ND (2100)	ND (1900)	ND (1900)
4-Bromophenyl phenyl ether	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
4-Chloro-3-methylphenol	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
4-Chloroaniline	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
4-Chlorophenyl phenyl ether	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*
Sample Location:		*B-X176Y143*	*B-X176Y143*	*B-X176Y143*	*B-X176Y179*	*B-X176Y179*	*B-X176Y179*	*B-X176Y187*	*B-X176Y187*	*B-X176Y187*	*B-X176Y187*	*B-X185Y185*	*B-X185Y185*	*B-X185Y185*
Sample ID:		*S-010902-MG-018*	*S-010902-MG-019*	*S-010902-MG-020*	*S-022202-MG-128*	*S-022202-MG-129*	*S-022202-MG-130*	*S-022102-MG-122*	*S-022102-MG-123*	*S-022102-MG-124*	*S-022102-MG-125*	*S-011002-MG-024*	*S-011002-MG-025*	*S-011002-MG-026*
Sample Date:		*1/9/2002*	*1/9/2002*	*1/9/2002*	*2/22/2002*	*2/22/2002*	*2/22/2002*	*2/21/2002*	*2/21/2002*	*2/21/2002*	*2/21/2002*	*1/10/2002*	*1/10/2002*	*1/10/2002*
Sample Depth:		*(6-8)*	*(21-23)*	*(21-23)*	*(3.5-5)*	*(6-8)*	*(24-26)*	*(0-2)*	*(0-2)*	*(8-10)*	*(36-38)*	*(0-2)*	*(6-8)*	*(14-15)*
				Duplicate					*Duplicate*					
Parameters	***Units***													
4-Methylphenol	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
4-Nitroaniline	ug/kg	ND (19000)	ND (1900)	ND (2000)	ND (1900)	ND (1900)	ND (2100)	ND (2000)	ND (2000)	ND (1900)	ND (2100)	ND (2100)	ND (1900)	ND (1900)
4-Nitrophenol	ug/kg	ND (19000) UJ	ND (1900) UJ	ND (2000) UJ	ND (1900)	ND (1900)	ND (2100)	ND (2000)	ND (2000)	ND (1900)	ND (2100)	ND (2100)	ND (1900)	ND (1900)
Acenaphthene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Acenaphthylene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Acetophenone	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Anthracene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Atrazine	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Benzaldehyde	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Benzo(a)anthracene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Benzo(a)pyrene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Benzo(b)fluoranthene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Benzo(g,h,i)perylene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Benzo(k)fluoranthene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Biphenyl	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
bis(2-Chloroethoxy)methane	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
bis(2-Chloroethyl)ether	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390) U	ND (390) U	ND (440) U	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Butyl benzylphthalate	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Caprolactam	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Carbazole	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Chrysene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Dibenz(a,h)anthracene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Dibenzofuran	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Diethyl phthalate	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Dimethyl phthalate	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Di-n-butylphthalate	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Di-n-octyl phthalate	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	67 J
Fluoranthene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Fluorene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Hexachlorobenzene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Hexachlorobutadiene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Hexachlorocyclopentadiene	ug/kg	ND (19000)	ND (1900)	ND (2000)	ND (1900)	ND (1900)	ND (2100)	ND (2000)	ND (2000)	ND (1900)	ND (2100)	ND (2100)	ND (1900)	ND (1900)
Hexachloroethane	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Isophorone	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Naphthalene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Nitrobenzene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
N-Nitrosodi-n-propylamine	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
N-Nitrosodiphenylamine	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Pentachlorophenol	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Phenanthrene	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Phenol	ug/kg	ND (3900)	ND (400)	ND (420)	ND (390)	ND (390)	ND (440)	ND (410)	ND (420)	150 J	ND (440)	ND (440)	ND (380)	ND (400)
Pyrene	ug/kg	ND (3900)	ND (400)	ND (420)	61 J	ND (390)	ND (440)	ND (410)	ND (420)	ND (400)	ND (440)	ND (440)	ND (380)	ND (400)
Volatiles														
1,1,1-Trichloroethane	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
1,1,2,2-Tetrachloroethane	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4) UJ	ND (6.7) UJ	ND (7.2)	ND (7.1)	ND (6)	R	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
1,1,2-Trichloroethane	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
1,1-Dichloroethane	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
1,1-Dichloroethene	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
1,2,4-Trichlorobenzene	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4) UJ	ND (6.7) UJ	ND (7.2)	ND (7.1)	ND (6)	R	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (11) UJ	ND (11) UJ	ND (13) UJ	ND (13) UJ	ND (13) UJ	ND (14)	ND (14)	ND (12)	R	ND (13)	ND (13)	ND (11)	ND (10)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
1,2-Dichlorobenzene	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4) UJ	ND (6.7) UJ	ND (7.2)	ND (7.1)	ND (6)	R	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
1,2-Dichloroethane	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*
Sample Location:		*B-X176Y143*	*B-X176Y143*	*B-X176Y143*	*B-X176Y179*	*B-X176Y179*	*B-X176Y179*	*B-X176Y187*	*B-X176Y187*	*B-X176Y187*	*B-X176Y187*	*B-X185Y185*	*B-X185Y185*	*B-X185Y185*
Sample ID:		*S-010902-MG-018*	*S-010902-MG-019*	*S-010902-MG-020*	*S-022202-MG-128*	*S-022202-MG-129*	*S-022202-MG-130*	*S-022102-MG-122*	*S-022102-MG-123*	*S-022102-MG-124*	*S-022102-MG-125*	*S-011002-MG-024*	*S-011002-MG-025*	*S-011002-MG-026*
Sample Date:		*1/9/2002*	*1/9/2002*	*1/9/2002*	*2/22/2002*	*2/22/2002*	*2/22/2002*	*2/21/2002*	*2/21/2002*	*2/21/2002*	*2/21/2002*	*1/10/2002*	*1/10/2002*	*1/10/2002*
Sample Depth:		*(6-8)*	*(21-23)*	*(21-23)*	*(3.5-5)*	*(6-8)*	*(24-26)*	*(0-2)*	*(0-2)*	*(8-10)*	*(36-38)*	*(0-2)*	*(6-8)*	*(14-15)*
				Duplicate					*Duplicate*					
Parameters	***Units***													
1,2-Dichloropropane	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
1,3-Dichlorobenzene	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4) UJ	ND (6.7) UJ	ND (7.2)	ND (7.1)	ND (6)	R	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
1,4-Dichlorobenzene	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4) UJ	ND (6.7) UJ	ND (7.2)	ND (7.1)	ND (6)	R	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (22)	ND (23)	ND (26)	25 J	ND (27) U	ND (29)	ND (28)	ND (24)	ND (25)	ND (25)	ND (26)	ND (21)	ND (20)
2-Hexanone	ug/kg	ND (22)	ND (23)	ND (26)	ND (26)	ND (27)	ND (29)	ND (28)	ND (24)	ND (25)	ND (25)	ND (26)	ND (21)	ND (20)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (22)	ND (23)	ND (26)	ND (26)	ND (27)	ND (29)	ND (28)	ND (24)	ND (25)	ND (25)	ND (26) UJ	ND (21) UJ	ND (20) UJ
Acetone	ug/kg	ND (22) U	ND (23) U	ND (26) U	130 J	ND (27) UJ	ND (29) UJ	ND (28) UJ	ND (24) UJ	ND (25) UJ	ND (25) UJ	ND (26)	ND (21) U	ND (20) U
Benzene	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
Bromodichloromethane	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
Bromoform	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7) UJ	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
Bromomethane (Methyl Bromide)	ug/kg	ND (5.4) UJ	ND (5.7) UJ	ND (6.6) UJ	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6) UJ	ND (5.4) UJ	ND (5) UJ
Carbon disulfide	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
Carbon tetrachloride	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
Chlorobenzene	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
Chloroethane	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
Chloroform (Trichloromethane)	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
Chloromethane (Methyl Chloride)	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4) UJ	ND (6.7)	ND (7.2) UJ	ND (7.1) UJ	ND (6) UJ	ND (6.4) UJ	ND (6.4) UJ	ND (6.6) UJ	ND (5.4) UJ	ND (5) UJ
cis-1,2-Dichloroethene	ug/kg	ND (2.7)	ND (2.8)	ND (3.3)	ND (3.2)	ND (3.4)	1.6 J	ND (3.5)	ND (3)	ND (3.2)	ND (3.2)	ND (3.3)	ND (2.7)	ND (2.5)
cis-1,3-Dichloropropene	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
Cyclohexane	ug/kg	ND (11)	ND (11)	ND (13)	ND (13) UJ	ND (13) UJ	ND (14)	ND (14)	ND (12)	R	ND (13)	ND (13)	ND (11)	ND (10)
Dibromochloromethane	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (5.4) U	ND (5.7) U	ND (6.6) U	ND (6.4) UJ	ND (6.7)	ND (7.2) UJ	ND (7.1) UJ	ND (6) UJ	ND (6.4) UJ	ND (6.4) UJ	ND (6.6) UJ	ND (5.4) UJ	ND (5) UJ
Ethylbenzene	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
Isopropylbenzene	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	2.9 J
Methyl acetate	ug/kg	ND (11)	ND (11)	ND (13)	ND (13) UJ	ND (13) UJ	ND (14)	ND (14)	ND (12)	R	ND (13)	ND (13) UJ	ND (11) UJ	ND (10) UJ
Methyl cyclohexane	ug/kg	ND (11)	ND (11)	ND (13)	ND (13) UJ	ND (13) UJ	ND (14)	ND (14)	ND (12)	R	ND (13)	ND (13)	ND (11)	ND (10)
Methyl Tert Butyl Ether	ug/kg	ND (22)	ND (23)	ND (26)	ND (26)	ND (27)	ND (29)	ND (28)	ND (24)	ND (25)	ND (25)	ND (26)	ND (21)	ND (20)
Methylene chloride	ug/kg	ND (5.4)	ND (5.7) U	ND (6.6) U	16	12	10	14	23	4.1 J	3.7 J	ND (6.6)	ND (5.4) U	ND (5) U
Styrene	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
Tetrachloroethene	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
Toluene	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	1.1 J	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
trans-1,2-Dichloroethene	ug/kg	ND (2.7)	ND (2.8)	ND (3.3)	ND (3.2)	ND (3.4)	ND (3.6)	ND (3.5)	ND (3)	ND (3.2)	ND (3.2)	ND (3.3)	ND (2.7)	ND (2.5)
trans-1,3-Dichloropropene	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
Trichloroethene	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6) UJ	ND (5.4) UJ	ND (5) UJ
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6) UJ	ND (5.4) UJ	ND (5) UJ
Vinyl chloride	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
Xylene (total)	ug/kg	ND (5.4)	ND (5.7)	ND (6.6)	ND (6.4)	ND (6.7)	ND (7.2)	ND (7.1)	ND (6)	ND (6.4)	ND (6.4)	ND (6.6)	ND (5.4)	ND (5)
General Chemistry														
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Solids	%	84.8	82.7	78.9	85.4	84.7	75.7	79.9	79.4	83.4	75.5	75.1	85.9	82.9

Notes:

* Reported in units of ug/L.

UJ Non-detect at associated value. The associated value is estimated.

J Estimated.

U Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*
Sample Location:		*B-X185Y185*	*B-X186Y159*	*B-X186Y159*	*B-X186Y159*	*B-X186Y159*	*B-X186Y159*	*B-X186Y180*	*B-X186Y180*	*B-X186Y180*	*B-X193Y172*	*B-X193Y172*	*B-X193Y172*	*B-X193Y172*
Sample ID:		*S-011002-MG-027*	*S-032002-MG-195*	*S-032002-MG-196*	*S-032002-MG-197*	*S-032002-MG-198*	*S-032002-MG-199*	*S-032102-MG-200*	*S-032102-MG-201*	*S-032102-MG-202*	*S-031802-MG-191*	*S-031802-MG-192*	*S-031802-MG-193*	*S-031802-MG-194*
Sample Date:		*1/10/2002*	*3/20/2002*	*3/20/2002*	*3/20/2002*	*3/20/2002*	*3/20/2002*	*3/21/2002*	*3/21/2002*	*3/21/2002*	*3/18/2002*	*3/18/2002*	*3/18/2002*	*3/18/2002*
Sample Depth:		*(33.5-35.5)*	*(1-3)*	*(1-3)* *Duplicate*	*(6-8)*	*(18-20)*	*(21-23)*	*(0-2)*	*(6-8)*	*(20-22)*	*(0-2)*	*(6-8)*	*(25-27)*	*(31-33)*
Parameters	***Units***													
Metals														
Aluminum	mg/kg	9960	10000	8510	6280	10700	8980	4040	5630	11100	13000	4680	15800	6560
Antimony	mg/kg	ND (7.5)	0.59 J	0.71 J	2.8 J	0.78 J	0.68 J	ND (6.9)	ND (7.7)	ND (15.0)	ND (8.0) UJ	ND (6.8) UJ	ND (7.5) UJ	ND (8.7) UJ
Arsenic	mg/kg	4.2	7.0	6.1	3.6	9.9	6.8	3.1	4.2	7.5	5.7	0.56 J	7.2	5.3
Barium	mg/kg	97.6	46.0	49.0	40.6	81.9	79.1	31.6	44.5	106	104	8.3 J	61.2	52.1
Beryllium	mg/kg	0.91	0.44 J	0.36 J	0.37 J	0.68	0.37 J	0.25 J	0.18 J	3.4	ND (0.91) U	ND (0.57) U	ND (0.62) U	ND (0.81) U
Cadmium	mg/kg	ND (0.62) U	0.34 J	0.33 J	0.53 J	0.81	0.31 J	0.41 J	0.63 J	0.23 J	ND (0.66) U	ND (0.57) U	ND (0.62)	0.36 J
Chromium Total	mg/kg	12.4	25.4	18.7	12.1	30.1	18.7	11.5	29.0	13.5	15.2	14.1	14.2	10
Cobalt	mg/kg	10.2	10.2	8.7	5.6 J	22.2	6.1 J	4.1 J	6.6	26.1	13.8	0.98 J	11.4	4.5 J
Copper	mg/kg	10.1	44.8	27.5	78.8	77.3	24.4	25.9	69.2	25.4	98.6	189	13.7	18.1
Cyanide (amenable)	mg/kg	ND (0.62)	ND (0.60)	ND (0.61)	ND (0.61)	ND (0.63)	ND (0.68)	ND (0.58)	ND (0.64)	ND (0.62)	ND (0.66)	ND (0.57)	ND (0.62)	ND (0.72)
Cyanide (total)	mg/kg	ND (0.62)	ND (0.60)	ND (0.61)	ND (0.61)	ND (0.63)	ND (0.68)	ND (0.58)	ND (0.64)	ND (0.62)	0.25 J	ND (0.57)	ND (0.62)	ND (0.72)
Iron	mg/kg	17900	19000 J	20400 J	11400 J	20400 J	23100 J	7710	11900	22700	12600	2520	18800	15000
Lead	mg/kg	15.4	36.7	24.9	80.8	60.0	26.8	35.5	81.2	17.1	25.4	41.7	13.2	21.0
Manganese	mg/kg	273 J	179	230	885	212	762	224	107	210	909	47.0	242	247
Mercury	mg/kg	0.024 J	0.014 J	0.081 J	0.28	0.072 J	0.068 J	0.15	0.36	ND (0.12)	0.11 J	ND (0.11) U	ND (0.12) U	0.16
Nickel	mg/kg	22.9	39.1	17.8	12.6	39.4	15.9	8.7	64.2	40.8	16.1	6.2	11.7	29.1
Selenium	mg/kg	ND (0.62) U	ND (0.60)	ND (0.61)	ND (0.61)	ND (0.63)	ND (0.68)	ND (0.58)	0.48 J	0.71 J	ND (0.66)	ND (0.57)	ND (0.62) U	ND (0.72)
Silver	mg/kg	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.3)	ND (1.4)	ND (1.2)	1.8	ND (2.5)	ND (1.3)	ND (1.1)	ND (1.2)	ND (1.4)
Thallium	mg/kg	0.81 J	ND (1.2)	0.62 J	ND (1.2)	0.84 J	0.72 J	0.66 J	ND (1.3)	0.79 J	ND (1.3)	ND (1.1)	ND (1.2)	ND (1.4)
Vanadium	mg/kg	12.0	28.4	27.4	15.8	31.1	30.0	10.7	14.7	16.8	22.0	2.4 J	29.3	12.2
Zinc	mg/kg	42.3 J	72.8	70.5	105	154	55.1	106	134	47.3	85.7	60.7	42.0	83.2
PCBs														
Aroclor-1016 (PCB-1016)	ug/kg	ND (41)	ND (2000)	ND (2000)	ND (8000)	ND (210000)	ND (180000)	ND (190000)	ND (1100000)	ND (41)	ND (44)	ND (370)	ND (41)	ND (48)
Aroclor-1221 (PCB-1221)	ug/kg	ND (41)	ND (2000)	ND (2000)	ND (8000)	ND (210000)	ND (180000)	ND (190000)	ND (1100000)	ND (41)	ND (44)	ND (370)	ND (41)	ND (48)
Aroclor-1232 (PCB-1232)	ug/kg	ND (41)	ND (2000)	ND (2000)	ND (8000)	ND (210000)	2300000	ND (190000)	ND (1100000)	ND (41)	ND (44)	ND (370)	ND (41)	ND (48)
Aroclor-1242 (PCB-1242)	ug/kg	ND (41)	ND (2000)	ND (2000)	82000	3200000	ND (180000)	2300000	8600000	29 J	ND (44)	2400	ND (41)	ND (48)
Aroclor-1248 (PCB-1248)	ug/kg	ND (41)	26000	19000	ND (8000)	ND (210000)	ND (180000)	ND (190000)	ND (1100000)	ND (41)	140	ND (370)	93	ND (48)
Aroclor-1254 (PCB-1254)	ug/kg	ND (41)	ND (2000)	ND (2000)	ND (8000)	ND (210000)	ND (180000)	ND (190000)	ND (1100000)	ND (41)	ND (44)	ND (370)	ND (41)	ND (48)
Aroclor-1260 (PCB-1260)	ug/kg	ND (41)	1300 J	1300 J	20000	73000 J	ND (180000)	ND (190000)	ND (1100000)	ND (41)	ND (44)	ND (370)	ND (41)	ND (48)
Semi - Volatiles														
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
2,4,5-Trichlorophenol	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
2,4,6-Trichlorophenol	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
2,4-Dichlorophenol	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
2,4-Dimethylphenol	ug/kg	ND (410)	ND (390)	ND (400)	4900	ND (21000)	ND (450)	ND (3800)	150000	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
2,4-Dinitrophenol	ug/kg	ND (2000)	ND (1900)	ND (2000)	ND (1900)	ND (100000) UJ	ND (2200)	ND (18000)	ND (21000)	ND (2000)	ND (2100)	ND (1800)	ND (2000)	ND (2300)
2,4-Dinitrotoluene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
2,6-Dinitrotoluene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
2-Chloronaphthalene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
2-Chlorophenol	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
2-Methylnaphthalene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	620 J	ND (410)	ND (440)	640 J	ND (410)	ND (480)
2-Methylphenol	ug/kg	ND (410)	ND (390)	ND (400)	61 J	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	130 J	ND (410)	ND (480)
2-Nitroaniline	ug/kg	ND (2000)	ND (1900)	ND (2000)	ND (1900)	ND (100000)	ND (2200)	ND (18000)	ND (21000)	ND (2000)	ND (2100)	ND (1800)	ND (2000)	ND (2300)
2-Nitrophenol	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
3,3'-Dichlorobenzidine	ug/kg	ND (2000)	ND (1900)	ND (2000)	ND (1900)	ND (100000)	ND (2200)	ND (18000)	ND (21000)	ND (2000)	ND (2100)	ND (1800)	ND (2000)	ND (2300)
3-Nitroaniline	ug/kg	ND (2000)	ND (1900)	ND (2000)	ND (1900)	ND (100000)	ND (2200)	ND (18000)	ND (21000)	ND (2000)	ND (2100)	ND (1800)	ND (2000)	ND (2300)
4,6-Dinitro-2-methylphenol	ug/kg	ND (2000)	ND (1900)	ND (2000)	ND (1900)	ND (100000)	ND (2200)	ND (18000) UJ	ND (21000) UJ	ND (2000)	ND (2100)	ND (1800)	ND (2000)	ND (2300)
4-Bromophenyl phenyl ether	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800) UJ	ND (4300) UJ	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
4-Chloro-3-methylphenol	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
4-Chloroaniline	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
4-Chlorophenyl phenyl ether	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*
Sample Location:		*B-X185Y185*	*B-X186Y159*	*B-X186Y159*	*B-X186Y159*	*B-X186Y159*	*B-X186Y159*	*B-X186Y159*	*B-X186Y180*	*B-X186Y180*	*B-X186Y180*	*B-X193Y172*	*B-X193Y172*	*B-X193Y172*	*B-X193Y172*
Sample ID:		*S-011002-MG-027*	*S-032002-MG-195*	*S-032002-MG-196*	*S-032002-MG-197*	*S-032002-MG-198*	*S-032002-MG-199*	*S-032102-MG-200*	*S-032102-MG-201*	*S-032102-MG-202*	*S-031802-MG-191*	*S-031802-MG-192*	*S-031802-MG-193*	*S-031802-MG-194*
Sample Date:		*1/10/2002*	*3/20/2002*	*3/20/2002*	*3/20/2002*	*3/20/2002*	*3/20/2002*	*3/21/2002*	*3/21/2002*	*3/21/2002*	*3/18/2002*	*3/18/2002*	*3/18/2002*	*3/18/2002*
Sample Depth:		*(33.5-35.5)*	*(1-3)*	*(1-3)* *Duplicate*	*(6-8)*	*(18-20)*	*(21-23)*	*(0-2)*	*(6-8)*	*(20-22)*	*(0-2)*	*(6-8)*	*(25-27)*	*(31-33)*
Parameters	***Units***													
4-Methylphenol	ug/kg	ND (410)	ND (390)	ND (400)	110 J	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	140 J	ND (410)	ND (480)
4-Nitroaniline	ug/kg	ND (2000)	ND (1900)	ND (2000)	ND (1900)	ND (100000)	ND (2200)	ND (18000)	ND (21000)	ND (2000)	ND (2100)	ND (1800)	ND (2000)	ND (2300)
4-Nitrophenol	ug/kg	ND (2000)	ND (1900)	ND (2000)	ND (1900)	ND (100000)	ND (2200)	ND (18000)	ND (21000)	ND (2000)	ND (2100)	ND (1800)	ND (2000)	ND (2300)
Acenaphthene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Acenaphthylene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Acetophenone	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Anthracene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800) UJ	ND (4300) UJ	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Atrazine	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Benzaldehyde	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Benzo(a)anthracene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	64 J	ND (410)	ND (480)
Benzo(a)pyrene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Benzo(b)fluoranthene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Benzo(g,h,i)perylene	ug/kg	ND (410)	ND (390) UJ	ND (400) UJ	ND (400) UJ	ND (21000)	ND (450) UJ	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Benzo(k)fluoranthene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Biphenyl	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
bis(2-Chloroethoxy)methane	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
bis(2-Chloroethyl)ether	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	9900 J	1700	ND (3800)	ND (4300)	ND (410)	ND (440)	200 J	ND (410)	ND (480)
Butyl benzylphthalate	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Caprolactam	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Carbazole	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800) UJ	ND (4300) UJ	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Chrysene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	82 J	ND (410)	ND (480)
Dibenz(a,h)anthracene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Dibenzofuran	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Diethyl phthalate	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Dimethyl phthalate	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Di-n-butylphthalate	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800) UJ	ND (4300) UJ	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Di-n-octyl phthalate	ug/kg	ND (410)	ND (390)	81 J	ND (400)	9500 J	1900	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Fluoranthene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800) UJ	ND (4300) UJ	ND (410)	ND (440)	140 J	ND (410)	ND (480)
Fluorene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Hexachlorobenzene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800) UJ	ND (4300) UJ	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Hexachlorobutadiene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Hexachlorocyclopentadiene	ug/kg	ND (2000)	ND (1900)	ND (2000)	ND (1900)	ND (100000)	ND (2200)	ND (18000)	ND (21000)	ND (2000)	ND (2100)	ND (1800)	ND (2000)	ND (2300)
Hexachloroethane	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Isophorone	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Naphthalene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	760 J	ND (410)	ND (440)	93 J	ND (410)	ND (480)
Nitrobenzene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
N-Nitrosodi-n-propylamine	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
N-Nitrosodiphenylamine	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800) UJ	ND (4300) UJ	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Pentachlorophenol	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800) UJ	ND (4300) UJ	ND (410)	ND (440)	ND (370)	ND (410)	ND (480)
Phenanthrene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800) UJ	ND (4300) UJ	ND (410)	ND (440)	99 J	ND (410)	ND (480)
Phenol	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	7500	ND (410)	ND (480)
Pyrene	ug/kg	ND (410)	ND (390)	ND (400)	ND (400)	ND (21000)	ND (450)	ND (3800)	ND (4300)	ND (410)	ND (440)	160 J	ND (410)	ND (480)
Volatiles														
1,1,1-Trichloroethane	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
1,1,2,2-Tetrachloroethane	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
1,1,2-Trichloroethane	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
1,1-Dichloroethane	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
1,1-Dichloroethene	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
1,2,4-Trichlorobenzene	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	210 J	60 J	17 J	300 J	ND (6.5)	ND (6.8)	ND (7.2) U	ND (7.3)	ND (7.4)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (11)	ND (11)	ND (11)	ND (11)	ND (4500)	ND (740)	ND (10) UJ	ND (680)	ND (13)	ND (14)	ND (14)	ND (15)	ND (15)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
1,2-Dichlorobenzene	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	1200 J	58 J	1.2 J	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
1,2-Dichloroethane	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*
Sample Location:		*B-X185Y185*	*B-X186Y159*	*B-X186Y159*	*B-X186Y159*	*B-X186Y159*	*B-X186Y159*	*B-X186Y180*	*B-X186Y180*	*B-X186Y180*	*B-X193Y172*	*B-X193Y172*	*B-X193Y172*	*B-X193Y172*
Sample ID:		*S-011002-MG-027*	*S-032002-MG-195*	*S-032002-MG-196*	*S-032002-MG-197*	*S-032002-MG-198*	*S-032002-MG-199*	*S-032102-MG-200*	*S-032102-MG-201*	*S-032102-MG-202*	*S-031802-MG-191*	*S-031802-MG-192*	*S-031802-MG-193*	*S-031802-MG-194*
Sample Date:		*1/10/2002*	*3/20/2002*	*3/20/2002*	*3/20/2002*	*3/20/2002*	*3/20/2002*	*3/21/2002*	*3/21/2002*	*3/21/2002*	*3/18/2002*	*3/18/2002*	*3/18/2002*	*3/18/2002*
Sample Depth:		*(33.5-35.5)*	*(1-3)*	*(1-3)* *Duplicate*	*(6-8)*	*(18-20)*	*(21-23)*	*(0-2)*	*(6-8)*	*(20-22)*	*(0-2)*	*(6-8)*	*(25-27)*	*(31-33)*
Parameters	***Units***													
1,2-Dichloropropane	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
1,3-Dichlorobenzene	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	20000	590	7.1 J	79 J	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
1,4-Dichlorobenzene	ug/kg	ND (5.7)	0.95 J	ND (5.6)	ND (5.6)	54000	2100	2.8 J	51 J	ND (6.5)	ND (6.8)	1.4 J	ND (7.3)	ND (7.4)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (23) U	ND (22)	ND (22)	3.2 J	ND (8900)	ND (1500)	13 J	ND (1400)	ND (26)	ND (27)	15 J	16 J	6.4 J
2-Hexanone	ug/kg	ND (23)	ND (22)	ND (22)	ND (23)	ND (8900)	ND (1500)	ND (20)	ND (1400)	ND (26)	ND (27)	ND (29)	ND (29)	ND (30)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (23) UJ	ND (22)	ND (22)	ND (23)	ND (8900)	ND (1500)	ND (20)	ND (1400)	ND (26)	ND (27)	ND (29)	ND (29)	ND (30)
Acetone	ug/kg	ND (23) U	4.7 J	6.9 J	8.5 J	ND (8900)	ND (1500) UJ	36	ND (1400)	12 J	ND (27)	190	54	ND (30) U
Benzene	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	1.3 J	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	1.2 J	ND (7.4)
Bromodichloromethane	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
Bromoform	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370) UJ	ND (5.1)	ND (340)	ND (6.5)	ND (6.8) UJ	ND (7.2) UJ	ND (7.3) UJ	ND (7.4) UJ
Bromomethane (Methyl Bromide)	ug/kg	ND (5.7) UJ	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370) UJ	ND (5.1)	ND (340)	ND (6.5)	ND (6.8) UJ	ND (7.2) UJ	ND (7.3) UJ	ND (7.4) UJ
Carbon disulfide	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	1 J	ND (2200)	ND (370)	1.5 J	ND (340)	ND (6.5)	ND (6.8)	2.5 J	ND (7.3)	ND (7.4)
Carbon tetrachloride	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370) UJ	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
Chlorobenzene	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	2000 J	180 J	0.78 J	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
Chloroethane	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
Chloroform (Trichloromethane)	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
Chloromethane (Methyl Chloride)	ug/kg	ND (5.7) UJ	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
cis-1,2-Dichloroethene	ug/kg	ND (2.9)	ND (2.8)	ND (2.8)	ND (2.8)	ND (1100)	ND (180)	ND (2.5)	ND (170)	ND (3.2)	ND (3.4)	ND (3.6)	ND (3.7)	ND (3.7)
cis-1,3-Dichloropropene	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
Cyclohexane	ug/kg	ND (11)	ND (11)	ND (11)	ND (11)	ND (4500)	ND (740)	ND (10)	ND (680)	ND (13)	ND (14)	ND (14)	ND (15)	ND (15)
Dibromochloromethane	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (5.7) UJ	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
Ethylbenzene	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	4.4 J	ND (2200)	ND (370)	0.64 J	43 J	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
Isopropylbenzene	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	7.8	ND (2200)	ND (370)	ND (5.1)	14 J	ND (6.5)	ND (6.8)	ND (7.2)	3.5 J	ND (7.4)
Methyl acetate	ug/kg	ND (11) UJ	ND (11)	ND (11)	ND (11)	ND (4500)	ND (740)	1.7 J	200 J	ND (13)	ND (14)	ND (14)	ND (15)	ND (15)
Methyl cyclohexane	ug/kg	ND (11)	ND (11)	ND (11)	29	ND (4500)	ND (740)	ND (10)	ND (680)	ND (13)	ND (14)	1.2 J	ND (15)	ND (15)
Methyl Tert Butyl Ether	ug/kg	ND (23)	ND (22)	ND (22)	ND (23)	ND (8900)	ND (1500)	ND (20)	ND (1400)	ND (26)	ND (27)	ND (29)	ND (29)	ND (30)
Methylene chloride	ug/kg	ND (5.7) U	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1) U	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
Styrene	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
Tetrachloroethene	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
Toluene	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	140 J	ND (370)	1.6 J	61 J	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
trans-1,2-Dichloroethene	ug/kg	ND (2.9)	ND (2.8)	ND (2.8)	ND (2.8)	ND (1100)	ND (180)	ND (2.5)	ND (170)	ND (3.2)	ND (3.4)	ND (3.6)	ND (3.7)	ND (3.7)
trans-1,3-Dichloropropene	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
Trichloroethene	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (5.7) UJ	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (5.7) UJ	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
Vinyl chloride	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	ND (5.6)	ND (2200)	ND (370)	ND (5.1)	ND (340)	ND (6.5)	ND (6.8)	ND (7.2)	ND (7.3)	ND (7.4)
Xylene (total)	ug/kg	ND (5.7)	ND (5.5)	ND (5.6)	3 J	170 J	ND (370)	2.1 J	190 J	ND (6.5)	ND (6.8)	ND (7.2)	3.1 J	ND (7.4)
General Chemistry														
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Solids	%	80.1	83.9	81.9	82.6	78.9	73.7	86.7	77.5	80.1	75.2	88.1	80.0	69.1

Notes:

* Reported in units of ug/L.

UJ Non-detect at associated value. The associated value is estimated.

J Estimated.

U Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*
Sample Location:		*B-X193Y194*	*B-X193Y194*	*SS-X195Y161*	*SS-X200Y156*	*B-X200Y161*	*B-X200Y161*	*B-X200Y161*	*B-X200Y161*	*SS-X200Y166*	*SS-X205Y161*	*B-X209Y177*	*B-X209Y177*	*SS-X187Y177*
Sample ID:		*S-022102-MG-126*	*S-022102-MG-127*	*S-060302-MG-222*	*S-060302-MG-221*	*S-011002-MG-028*	*S-011002-MG-029*	*S-011002-MG-030*	*S-011002-MG-031*	*S-060302-MG-223*	*S-060302-MG-224*	*S-031402-MG-184*	*S-031402-MG-185*	*S-071802-CLM-001*
Sample Date:		*2/21/2002*	*2/21/2002*	*6/3/2002*	*6/3/2002*	*1/10/2002*	*1/10/2002*	*1/10/2002*	*1/10/2002*	*6/3/2002*	*6/3/2002*	*3/14/2002*	*3/14/2002*	*7/18/2002*
Sample Depth:		*(0-2)*	*(5-7)*	*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)* *Duplicate*	*(6-8)*	*(9-11)*	*(0-2)*	*(0-2)*	*(0-2)*	*(2-4)*	*(0-2)*
Parameters	***Units***													
Metals														
Aluminum	mg/kg	11600	6540	-	-	9550	8150	2700	17700	-	-	16400	10600	-
Antimony	mg/kg	ND (7.7)	ND (8.2)	-	-	ND (7.1)	ND (7.1)	ND (6.4)	ND (7.2) U	-	-	ND (7.7)	ND (7.9)	-
Arsenic	mg/kg	6.3	7.5	-	-	6.0	5.5	0.47 J	5.5	-	-	9.2	9.6	-
Barium	mg/kg	76.4	70.5	-	-	45.6	55.2	1.1 J	53.9	-	-	71.5	69.7	-
Beryllium	mg/kg	0.56 J	0.51 J	-	-	1.0	0.95	ND (0.53)	0.59 J	-	-	ND (0.71) U	ND (0.88) U	-
Cadmium	mg/kg	ND (0.65) U	ND (0.68) U	-	-	ND (0.59) U	0.20 J	ND (0.53) U	0.82	-	-	ND (0.64)	ND (0.66) U	-
Chromium Total	mg/kg	11.7	13.4	-	-	21.3	18.4	35.7	25.3	-	-	25.2	16.9	-
Cobalt	mg/kg	26.5	1.6 J	-	-	9.9	7.2	24.0	14.5	-	-	7.8	12.8	-
Copper	mg/kg	11.4	6.4	-	-	17.4	22.6	65.9	406	-	-	16.2	20.9	-
Cyanide (amenable)	mg/kg	ND (0.65)	ND (0.68)	-	-	ND (0.59)	ND (0.59)	ND (0.53)	ND (0.60)	-	-	ND (0.64)	ND (0.66)	-
Cyanide (total)	mg/kg	ND (0.65)	ND (0.68)	-	-	ND (0.59)	ND (0.59)	ND (0.53)	ND (0.60)	-	-	ND (0.64)	ND (0.66)	-
Iron	mg/kg	15700	12900	-	-	24300	22600	3490	17000	-	-	24100	21300	-
Lead	mg/kg	13.3	12.7	-	-	12.8	14.0	5.3	68.2	-	-	13.2	20.1	-
Manganese	mg/kg	1010	75	-	-	120 J	159 J	44.3 J	465 J	-	-	402	521	-
Mercury	mg/kg	0.039 J	0.086 J	-	-	0.021 J	0.046 J	0.026 J	0.79	-	-	ND (0.13) U	ND (0.13) U	-
Nickel	mg/kg	10.3	2.2 J	-	-	22.2	22.0	19.2	48.4	-	-	18.3	22.5	-
Selenium	mg/kg	ND (0.65)	ND (0.68)	-	-	ND (0.59) U	ND (0.59) U	ND (0.53) U	0.49 J	-	-	ND (0.64)	ND (0.66)	-
Silver	mg/kg	ND (1.3)	ND (1.4)	-	-	ND (1.2)	ND (1.2)	ND (1.1)	0.20 J	-	-	ND (1.3)	ND (1.3)	-
Thallium	mg/kg	ND (1.3)	ND (1.4)	-	-	ND (1.2)	ND (1.2)	ND (1.1)	ND (1.2)	-	-	ND (1.3)	ND (1.3)	-
Vanadium	mg/kg	24.1	32.1	-	-	32.1	30.4	3.0 J	25.6	-	-	40.9	27.4	-
Zinc	mg/kg	33.6	8.8	-	-	54.1 J	55.5 J	27.5 J	133 J	-	-	56.4	52.5	-
PCBs														
Aroclor-1016 (PCB-1016)	ug/kg	ND (43)	ND (45)	ND (42)	ND (41)	ND (78000)	ND (2000)	ND (70)	ND (20000)	ND (40)	ND (41)	ND (43)	ND (4400)	ND (41)
Aroclor-1221 (PCB-1221)	ug/kg	ND (43)	ND (45)	ND (42)	ND (41)	ND (78000)	ND (2000)	ND (70)	ND (20000)	ND (40)	ND (41)	ND (43)	ND (4400)	ND (41)
Aroclor-1232 (PCB-1232)	ug/kg	ND (43)	ND (45)	ND (42)	ND (41)	ND (78000)	ND (2000)	ND (70)	ND (20000)	ND (40)	ND (41)	ND (43)	ND (4400)	ND (41)
Aroclor-1242 (PCB-1242)	ug/kg	ND (43)	ND (45)	ND (42)	ND (41)	ND (78000)	ND (2000)	ND (70)	ND (20000)	ND (40)	ND (41)	ND (43)	ND (4400)	ND (41)
Aroclor-1248 (PCB-1248)	ug/kg	15 J	ND (45)	60	380	1000000	10000	880	300000	ND (40)	120	57	32000	42
Aroclor-1254 (PCB-1254)	ug/kg	ND (43)	ND (45)	ND (42)	ND (41)	ND (78000)	ND (2000)	ND (70)	ND (20000)	ND (40)	ND (41)	ND (43)	ND (4400)	ND (41)
Aroclor-1260 (PCB-1260)	ug/kg	ND (43)	ND (45)	ND (42)	16 J	25000 J	ND (2000)	ND (70)	8000 J	ND (40)	ND (41)	ND (43)	2600 J	ND (41)
Semi - Volatiles														
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
2,4,5-Trichlorophenol	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
2,4,6-Trichlorophenol	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
2,4-Dichlorophenol	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
2,4-Dimethylphenol	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	730 J	-	-	ND (430)	ND (440)	-
2,4-Dinitrophenol	ug/kg	ND (2100)	ND (2200)	-	-	ND (1900)	ND (1900)	ND (1700)	ND (13000)	-	-	ND (2100)	ND (2100)	-
2,4-Dinitrotoluene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
2,6-Dinitrotoluene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
2-Chloronaphthalene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
2-Chlorophenol	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
2-Methylnaphthalene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
2-Methylphenol	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
2-Nitroaniline	ug/kg	ND (2100)	ND (2200)	-	-	ND (1900)	ND (1900)	ND (1700)	ND (13000)	-	-	ND (2100)	ND (2100)	-
2-Nitrophenol	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
3,3'-Dichlorobenzidine	ug/kg	ND (2100)	ND (2200)	-	-	ND (1900)	ND (1900)	ND (1700)	ND (13000)	-	-	ND (2100)	ND (2100)	-
3-Nitroaniline	ug/kg	ND (2100)	ND (2200)	-	-	ND (1900)	ND (1900)	ND (1700)	ND (13000)	-	-	ND (2100)	ND (2100)	-
4,6-Dinitro-2-methylphenol	ug/kg	ND (2100)	ND (2200)	-	-	ND (1900)	ND (1900)	ND (1700)	ND (13000)	-	-	ND (2100)	ND (2100)	-
4-Bromophenyl phenyl ether	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
4-Chloro-3-methylphenol	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
4-Chloroaniline	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
4-Chlorophenyl phenyl ether	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*
Sample Location:		*B-X193Y194*	*B-X193Y194*	*SS-X195Y161*	*SS-X200Y156*	*B-X200Y161*	*B-X200Y161*	*B-X200Y161*	*B-X200Y161*	*SS-X200Y166*	*SS-X205Y161*	*B-X209Y177*	*B-X209Y177*	*SS-X187Y177*
Sample ID:		*S-022102-MG-126*	*S-022102-MG-127*	*S-060302-MG-222*	*S-060302-MG-221*	*S-011002-MG-028*	*S-011002-MG-029*	*S-011002-MG-030*	*S-011002-MG-031*	*S-060302-MG-223*	*S-060302-MG-224*	*S-031402-MG-184*	*S-031402-MG-185*	*S-071802-CLM-001*
Sample Date:		*2/21/2002*	*2/21/2002*	*6/3/2002*	*6/3/2002*	*1/10/2002*	*1/10/2002*	*1/10/2002*	*1/10/2002*	*6/3/2002*	*6/3/2002*	*3/14/2002*	*3/14/2002*	*7/18/2002*
Sample Depth:		*(0-2)*	*(5-7)*	*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(6-8)*	*(9-11)*	*(0-2)*	*(0-2)*	*(0-2)*	*(2-4)*	*(0-2)*
							Duplicate							
Parameters	***Units***													
4-Methylphenol	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
4-Nitroaniline	ug/kg	ND (2100)	ND (2200)	-	-	ND (1900)	ND (1900)	ND (1700)	ND (13000)	-	-	ND (2100)	ND (2100)	-
4-Nitrophenol	ug/kg	ND (2100)	ND (2200)	-	-	ND (1900)	ND (1900)	ND (1700)	ND (13000)	-	-	ND (2100)	ND (2100)	-
Acenaphthene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Acenaphthylene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Acetophenone	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Anthracene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Atrazine	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Benzaldehyde	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Benzo(a)anthracene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	790 J	-	-	ND (430)	78 J	-
Benzo(a)pyrene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	740 J	-	-	ND (430)	ND (440)	-
Benzo(b)fluoranthene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	71 J	ND (350)	780 J	-	-	ND (430)	99 J	-
Benzo(g,h,i)perylene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Benzo(k)fluoranthene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	430 J	-	-	ND (430)	ND (440)	-
Biphenyl	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
bis(2-Chloroethoxy)methane	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
bis(2-Chloroethyl)ether	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
bis(2-Ethylhexyl)phthalate	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	2000 J	-	-	ND (430)	ND (440)	-
Butyl benzylphthalate	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Caprolactam	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Carbazole	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Chrysene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	72 J	ND (350)	1000 J	-	-	ND (430)	120 J	-
Dibenz(a,h)anthracene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Dibenzofuran	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Diethyl phthalate	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Dimethyl phthalate	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Di-n-butylphthalate	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Di-n-octyl phthalate	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	2900	-	-	ND (430)	ND (440)	-
Fluoranthene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	120 J	ND (350)	1200 J	-	-	ND (430)	170 J	-
Fluorene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Hexachlorobenzene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Hexachlorobutadiene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Hexachlorocyclopentadiene	ug/kg	ND (2100)	ND (2200)	-	-	ND (1900)	ND (1900)	ND (1700)	ND (13000)	-	-	ND (2100)	ND (2100)	-
Hexachloroethane	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Indeno(1,2,3-cd)pyrene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Isophorone	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Naphthalene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Nitrobenzene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
N-Nitrosodi-n-propylamine	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
N-Nitrosodiphenylamine	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Pentachlorophenol	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	ND (440)	-
Phenanthrene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	ND (350)	ND (2600)	-	-	ND (430)	210 J	-
Phenol	ug/kg	ND (430)	ND (450)	-	-	ND (390)	ND (390)	1000	ND (2600)	-	-	ND (430)	ND (440)	-
Pyrene	ug/kg	ND (430)	ND (450)	-	-	ND (390)	100 J	ND (350)	1200 J	-	-	ND (430)	210 J	-
Volatiles														
1,1,1-Trichloroethane	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
1,1,2,2-Tetrachloroethane	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
1,1,2-Trichloroethane	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
1,1-Dichloroethane	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
1,1-Dichloroethene	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
1,2,4-Trichlorobenzene	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8) U	ND (6.1)	68 J	-	-	ND (6.4)	ND (6.9)	-
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (14)	ND (13)	-	-	ND (9.8)	ND (9.6)	ND (12)	ND (540) UJ	-	-	ND (13)	ND (14)	-
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
1,2-Dichlorobenzene	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	42 J	-	-	ND (6.4)	ND (6.9)	-
1,2-Dichloroethane	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	13 J	-	-	ND (6.4)	ND (6.9)	-

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*	*A005*
Sample Location:		*B-X193Y194*	*B-X193Y194*	*SS-X195Y161*	*SS-X200Y156*	*B-X200Y161*	*B-X200Y161*	*B-X200Y161*	*B-X200Y161*	*SS-X200Y166*	*SS-X205Y161*	*B-X209Y177*	*B-X209Y177*	*SS-X187Y177*
Sample ID:		*S-022102-MG-126*	*S-022102-MG-127*	*S-060302-MG-222*	*S-060302-MG-221*	*S-011002-MG-028*	*S-011002-MG-029*	*S-011002-MG-030*	*S-011002-MG-031*	*S-060302-MG-223*	*S-060302-MG-224*	*S-031402-MG-184*	*S-031402-MG-185*	*S-071802-CLM-001*
Sample Date:		*2/21/2002*	*2/21/2002*	*6/3/2002*	*6/3/2002*	*1/10/2002*	*1/10/2002*	*1/10/2002*	*1/10/2002*	*6/3/2002*	*6/3/2002*	*3/14/2002*	*3/14/2002*	*7/18/2002*
Sample Depth:		*(0-2)*	*(5-7)*	*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)* *Duplicate*	*(6-8)*	*(9-11)*	*(0-2)*	*(0-2)*	*(0-2)*	*(2-4)*	*(0-2)*
Parameters	***Units***													
1,2-Dichloropropane	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
1,3-Dichlorobenzene	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	670	-	-	ND (6.4)	ND (6.9)	-
1,4-Dichlorobenzene	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	870	-	-	ND (6.4)	ND (6.9)	-
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (29)	ND (25)	-	-	ND (20)	ND (19)	ND (24)	ND (1100)	-	-	ND (26)	ND (28)	-
2-Hexanone	ug/kg	ND (29)	ND (25)	-	-	ND (20)	ND (19)	ND (24)	ND (1100)	-	-	ND (26)	ND (28)	-
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (29)	ND (25)	-	-	ND (20) UJ	ND (19) UJ	ND (24) UJ	ND (1100)	-	-	ND (26)	ND (28)	-
Acetone	ug/kg	ND (29) UJ	ND (25) UJ	-	-	ND (20)	ND (19) U	ND (24)	ND (1100) U	-	-	ND (26)	ND (28)	-
Benzene	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
Bromodichloromethane	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
Bromoform	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
Bromomethane (Methyl Bromide)	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9) UJ	ND (4.8) UJ	ND (6.1) UJ	ND (270) UJ	-	-	ND (6.4)	ND (6.9)	-
Carbon disulfide	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
Carbon tetrachloride	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
Chlorobenzene	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	40 J	-	-	ND (6.4)	ND (6.9)	-
Chloroethane	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
Chloroform (Trichloromethane)	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
Chloromethane (Methyl Chloride)	ug/kg	ND (7.2) UJ	ND (6.3) UJ	-	-	ND (4.9) UJ	ND (4.8) UJ	ND (6.1) UJ	ND (270)	-	-	ND (6.4)	ND (6.9)	-
cis-1,2-Dichloroethene	ug/kg	ND (3.6)	ND (3.1)	-	-	ND (2.5)	ND (2.4)	ND (3)	ND (130)	-	-	ND (3.2)	ND (3.4)	-
cis-1,3-Dichloropropene	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
Cyclohexane	ug/kg	ND (14)	ND (13)	-	-	ND (9.8)	ND (9.6)	ND (12)	ND (540)	-	-	ND (13)	ND (14)	-
Dibromochloromethane	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (7.2) UJ	ND (6.3) UJ	-	-	ND (4.9) UJ	ND (4.8) UJ	ND (6.1) UJ	58 J	-	-	ND (6.4)	ND (6.9)	-
Ethylbenzene	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
Isopropylbenzene	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
Methyl acetate	ug/kg	ND (14)	ND (13)	-	-	ND (9.8) UJ	ND (9.6) UJ	ND (12) UJ	66 J	-	-	ND (13)	1.9 J	-
Methyl cyclohexane	ug/kg	ND (14)	ND (13)	-	-	ND (9.8)	ND (9.6)	ND (12)	ND (540)	-	-	ND (13)	ND (14)	-
Methyl Tert Butyl Ether	ug/kg	ND (29)	ND (25)	-	-	ND (20)	ND (19)	ND (24)	ND (1100)	-	-	ND (26)	ND (28)	-
Methylene chloride	ug/kg	17	2.5 J	-	-	ND (4.9) U	ND (4.8) U	ND (6.1) U	ND (270) U	-	-	ND (6.4)	ND (6.9)	-
Styrene	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
Tetrachloroethene	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
Toluene	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270) U	-	-	ND (6.4)	ND (6.9)	-
trans-1,2-Dichloroethene	ug/kg	ND (3.6)	ND (3.1)	-	-	ND (2.5)	ND (2.4)	ND (3)	ND (130)	-	-	ND (3.2)	ND (3.4)	-
trans-1,3-Dichloropropene	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
Trichloroethene	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
Trichlorofluoromethane (CFC-11)	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9) UJ	ND (4.8) UJ	ND (6.1) UJ	ND (270)	-	-	ND (6.4)	ND (6.9)	-
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9) UJ	ND (4.8) UJ	ND (6.1) UJ	ND (270)	-	-	ND (6.4)	ND (6.9)	-
Vinyl chloride	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270)	-	-	ND (6.4)	ND (6.9)	-
Xylene (total)	ug/kg	ND (7.2)	ND (6.3)	-	-	ND (4.9)	ND (4.8)	ND (6.1)	ND (270) U	-	-	ND (6.4)	ND (6.9)	-
General Chemistry														
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Solids	%	77.4	73.2	79.0	79.7	84.3	84.5	94.3	83.1	82.2	81.2	77.6	75.6	79.6

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A005*	*A005*	*A005*	*A005*	*A005*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*
Sample Location:		*SS-X189Y169*	*SS-X189Y169*	*SS-X193Y160*	*SS-X194Y152*	*SS-X200Y161*	*B-X170Y134*	*B-X170Y134*	*B-X170Y134*	*B-X173Y131*	*B-X173Y131*	*B-X173Y131*	*B-X173Y134*	*B-X173Y134*
Sample ID:		*S-071802-CLM-002*	*S-071802-CLM-005*	*S-071802-CLM-003*	*S-071802-CLM-004*	*S-082702-JW-006*	*S-060302-MG-216*	*S-060302-MG-217*	*S-060302-MG-218*	*S-031402-MG-181*	*S-031402-MG-182*	*S-031402-MG-183*	*S-060302-MG-214*	*S-060302-MG-215*
Sample Date:		*7/18/2002*	*7/18/2002*	*7/18/2002*	*7/18/2002*	*8/27/2002*	*6/3/2002*	*6/3/2002*	*6/3/2002*	*3/14/2002*	*3/14/2002*	*3/14/2002*	*6/3/2002*	*6/3/2002*
Sample Depth:		*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(4-6)*	*(4-6)*	*(0-2)*	*(6-8)*	*(18-20)*	*(2-4)*	*(4-6)*
			Duplicate						*Duplicate*					
Parameters	***Units***													
Metals														
Aluminum	mg/kg	-	-	-	-	-	-	-	-	8600	13500	8050	-	-
Antimony	mg/kg	-	-	-	-	-	-	-	-	ND (6.8) U	ND (7.4) U	ND (15.6)	-	-
Arsenic	mg/kg	-	-	-	-	-	-	-	-	8.7	10.2	11.0	-	-
Barium	mg/kg	-	-	-	-	-	-	-	-	39.6	9.6 J	17.6 J	-	-
Beryllium	mg/kg	-	-	-	-	-	-	-	-	ND (0.57) U	ND (0.62) U	1.5	-	-
Cadmium	mg/kg	-	-	-	-	-	-	-	-	ND (0.57)	ND (0.62)	3.6	-	-
Chromium Total	mg/kg	-	-	-	-	-	-	-	-	12.1	35.2	21.2	-	-
Cobalt	mg/kg	-	-	-	-	-	-	-	-	4.6 J	1.9 J	10.9 J	-	-
Copper	mg/kg	-	-	-	-	-	-	-	-	16.4	8.8	21.2	-	-
Cyanide (amenable)	mg/kg	-	-	-	-	-	-	-	-	ND (0.57)	ND (0.62)	ND (0.65)	-	-
Cyanide (total)	mg/kg	-	-	-	-	-	-	-	-	ND (0.57)	ND (0.62)	ND (0.65)	-	-
Iron	mg/kg	-	-	-	-	-	-	-	-	18100	39800	39300	-	-
Lead	mg/kg	-	-	-	-	-	-	-	-	22.5	12.1	36.4	-	-
Manganese	mg/kg	-	-	-	-	-	-	-	-	170	18.3	180	-	-
Mercury	mg/kg	-	-	-	-	-	-	-	-	ND (0.11) U	ND (0.12)	ND (0.13) U	-	-
Nickel	mg/kg	-	-	-	-	-	-	-	-	8.7	4.1 J	60.3	-	-
Selenium	mg/kg	-	-	-	-	-	-	-	-	ND (0.57)	ND (0.62)	ND (1.3)	-	-
Silver	mg/kg	-	-	-	-	-	-	-	-	ND (1.1)	ND (1.2)	ND (2.6)	-	-
Thallium	mg/kg	-	-	-	-	-	-	-	-	ND (1.1)	0.96 J	1.2 J	-	-
Vanadium	mg/kg	-	-	-	-	-	-	-	-	22.5	68.8	26.9	-	-
Zinc	mg/kg	-	-	-	-	-	-	-	-	36.7	11.2	135	-	-
PCBs														
Aroclor-1016 (PCB-1016)	ug/kg	ND (41)	ND (39)	ND (81)	ND (370)	ND (38)	ND (200)	ND (43)	ND (48)	ND (190000)	ND (41)	ND (43)	ND (42)	ND (42)
Aroclor-1221 (PCB-1221)	ug/kg	ND (41)	ND (39)	ND (81)	ND (370)	ND (38)	ND (200)	ND (43)	ND (48)	ND (190000)	ND (41)	ND (43)	ND (42)	ND (42)
Aroclor-1232 (PCB-1232)	ug/kg	ND (41)	ND (39)	ND (81)	ND (370)	ND (38)	ND (200)	ND (43)	ND (48)	ND (190000)	ND (41)	ND (43)	ND (42)	ND (42)
Aroclor-1242 (PCB-1242)	ug/kg	ND (41)	ND (39)	ND (81)	ND (370)	ND (38)	ND (200)	ND (43)	ND (48)	ND (190000)	ND (41)	ND (43)	ND (42)	ND (42)
Aroclor-1248 (PCB-1248)	ug/kg	39 J	210	390	4000	180	1300	ND (43)	ND (48)	1100000	24 J	39 J	590	ND (42)
Aroclor-1254 (PCB-1254)	ug/kg	ND (41)	ND (39)	ND (81)	ND (370)	ND (38)	ND (200)	ND (43)	ND (48)	ND (190000)	ND (41)	ND (43)	ND (42)	ND (42)
Aroclor-1260 (PCB-1260)	ug/kg	ND (41)	ND (39)	ND (81)	ND (370)	27 J	170 J	ND (43)	ND (48)	260000	ND (41)	ND (43)	66	ND (42)
Semi - Volatiles														
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
2,4,5-Trichlorophenol	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
2,4,6-Trichlorophenol	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
2,4-Dichlorophenol	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
2,4-Dimethylphenol	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
2,4-Dinitrophenol	ug/kg	-	-	-	-	-	-	-	-	ND (1800)	ND (2000)	ND (2100)	-	-
2,4-Dinitrotoluene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
2,6-Dinitrotoluene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
2-Chloronaphthalene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
2-Chlorophenol	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
2-Methylnaphthalene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
2-Methylphenol	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
2-Nitroaniline	ug/kg	-	-	-	-	-	-	-	-	ND (1800)	ND (2000)	ND (2100)	-	-
2-Nitrophenol	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
3,3'-Dichlorobenzidine	ug/kg	-	-	-	-	-	-	-	-	ND (1800)	ND (2000)	ND (2100)	-	-
3-Nitroaniline	ug/kg	-	-	-	-	-	-	-	-	ND (1800)	ND (2000)	ND (2100)	-	-
4,6-Dinitro-2-methylphenol	ug/kg	-	-	-	-	-	-	-	-	ND (1800)	ND (2000)	ND (2100)	-	-
4-Bromophenyl phenyl ether	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
4-Chloro-3-methylphenol	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
4-Chloroaniline	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
4-Chlorophenyl phenyl ether	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A005*	*A005*	*A005*	*A005*	*A005*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*
Sample Location:		*SS-X189Y169*	*SS-X189Y169*	*SS-X193Y160*	*SS-X194Y152*	*SS-X200Y161*	*B-X170Y134*	*B-X170Y134*	*B-X170Y134*	*B-X173Y131*	*B-X173Y131*	*B-X173Y131*	*B-X173Y134*	*B-X173Y134*
Sample ID:		*S-071802-CLM-002*	*S-071802-CLM-005*	*S-071802-CLM-003*	*S-071802-CLM-004*	*S-082702-JW-006*	*S-060302-MG-216*	*S-060302-MG-217*	*S-060302-MG-218*	*S-031402-MG-181*	*S-031402-MG-182*	*S-031402-MG-183*	*S-060302-MG-214*	*S-060302-MG-215*
Sample Date:		*7/18/2002*	*7/18/2002*	*7/18/2002*	*7/18/2002*	*8/27/2002*	*6/3/2002*	*6/3/2002*	*6/3/2002*	*3/14/2002*	*3/14/2002*	*3/14/2002*	*6/3/2002*	*6/3/2002*
Sample Depth:		*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(4-6)*	*(4-6)*	*(0-2)*	*(6-8)*	*(18-20)*	*(2-4)*	*(4-6)*
			Duplicate						*Duplicate*					
Parameters	***Units***													
4-Methylphenol	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
4-Nitroaniline	ug/kg	-	-	-	-	-	-	-	-	ND (1800)	ND (2000)	ND (2100)	-	-
4-Nitrophenol	ug/kg	-	-	-	-	-	-	-	-	ND (1800)	ND (2000)	ND (2100)	-	-
Acenaphthene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Acenaphthylene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Acetophenone	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Anthracene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Atrazine	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Benzaldehyde	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Benzo(a)anthracene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Benzo(a)pyrene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Benzo(b)fluoranthene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Benzo(g,h,i)perylene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Benzo(k)fluoranthene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Biphenyl	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
bis(2-Chloroethoxy)methane	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
bis(2-Chloroethyl)ether	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
bis(2-Ethylhexyl)phthalate	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Butyl benzylphthalate	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Caprolactam	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Carbazole	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Chrysene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Dibenz(a,h)anthracene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Dibenzofuran	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Diethyl phthalate	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Dimethyl phthalate	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Di-n-butylphthalate	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Di-n-octyl phthalate	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Fluoranthene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Fluorene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Hexachlorobenzene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Hexachlorobutadiene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Hexachlorocyclopentadiene	ug/kg	-	-	-	-	-	-	-	-	ND (1800)	ND (2000)	ND (2100)	-	-
Hexachloroethane	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Indeno(1,2,3-cd)pyrene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Isophorone	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Naphthalene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Nitrobenzene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
N-Nitrosodi-n-propylamine	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
N-Nitrosodiphenylamine	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Pentachlorophenol	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Phenanthrene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Phenol	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Pyrene	ug/kg	-	-	-	-	-	-	-	-	ND (380)	ND (410)	ND (430)	-	-
Volatiles														
1,1,1-Trichloroethane	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
1,1,2,2-Tetrachloroethane	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
1,1,2-Trichloroethane	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
1,1-Dichloroethane	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
1,1-Dichloroethene	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
1,2,4-Trichlorobenzene	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	-	-	-	-	-	-	-	-	ND (12)	ND (14)	ND (12)	-	-
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
1,2-Dichlorobenzene	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
1,2-Dichloroethane	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A005*	*A005*	*A005*	*A005*	*A005*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*
Sample Location:		*SS-X189Y169*	*SS-X189Y169*	*SS-X193Y160*	*SS-X194Y152*	*SS-X200Y161*	*B-X170Y134*	*B-X170Y134*	*B-X170Y134*	*B-X173Y131*	*B-X173Y131*	*B-X173Y131*	*B-X173Y134*	*B-X173Y134*
Sample ID:		*S-071802-CLM-002*	*S-071802-CLM-005*	*S-071802-CLM-003*	*S-071802-CLM-004*	*S-082702-JW-006*	*S-060302-MG-216*	*S-060302-MG-217*	*S-060302-MG-218*	*S-031402-MG-181*	*S-031402-MG-182*	*S-031402-MG-183*	*S-060302-MG-214*	*S-060302-MG-215*
Sample Date:		*7/18/2002*	*7/18/2002*	*7/18/2002*	*7/18/2002*	*8/27/2002*	*6/3/2002*	*6/3/2002*	*6/3/2002*	*3/14/2002*	*3/14/2002*	*3/14/2002*	*6/3/2002*	*6/3/2002*
Sample Depth:		*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(4-6)*	*(4-6)*	*(0-2)*	*(6-8)*	*(18-20)*	*(2-4)*	*(4-6)*
			Duplicate						*Duplicate*					
Parameters	***Units***													
1,2-Dichloropropane	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
1,3-Dichlorobenzene	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
1,4-Dichlorobenzene	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
2-Butanone (Methyl Ethyl Ketone)	ug/kg	-	-	-	-	-	-	-	-	ND (24)	ND (28)	ND (24)	-	-
2-Hexanone	ug/kg	-	-	-	-	-	-	-	-	ND (24)	ND (28)	ND (24)	-	-
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	-	-	-	-	-	-	-	-	ND (24)	ND (28)	ND (24)	-	-
Acetone	ug/kg	-	-	-	-	-	-	-	-	ND (24)	ND (28)	ND (24)	-	-
Benzene	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Bromodichloromethane	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Bromoform	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Bromomethane (Methyl Bromide)	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Carbon disulfide	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Carbon tetrachloride	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Chlorobenzene	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Chloroethane	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Chloroform (Trichloromethane)	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Chloromethane (Methyl Chloride)	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
cis-1,2-Dichloroethene	ug/kg	-	-	-	-	-	-	-	-	ND (3)	ND (3.5)	ND (3)	-	-
cis-1,3-Dichloropropene	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Cyclohexane	ug/kg	-	-	-	-	-	-	-	-	ND (12)	ND (14)	ND (12)	-	-
Dibromochloromethane	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Dichlorodifluoromethane (CFC-12)	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Ethylbenzene	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Isopropylbenzene	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Methyl acetate	ug/kg	-	-	-	-	-	-	-	-	ND (12)	ND (14)	ND (12)	-	-
Methyl cyclohexane	ug/kg	-	-	-	-	-	-	-	-	ND (12)	ND (14)	ND (12)	-	-
Methyl Tert Butyl Ether	ug/kg	-	-	-	-	-	-	-	-	ND (24)	ND (28)	ND (24)	-	-
Methylene chloride	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Styrene	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Tetrachloroethene	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Toluene	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
trans-1,2-Dichloroethene	ug/kg	-	-	-	-	-	-	-	-	ND (3)	ND (3.5)	ND (3)	-	-
trans-1,3-Dichloropropene	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Trichloroethene	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Trichlorofluoromethane (CFC-11)	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Trifluorotrichloroethane (Freon 113)	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Vinyl chloride	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
Xylene (total)	ug/kg	-	-	-	-	-	-	-	-	ND (5.9)	ND (7)	ND (5.9)	-	-
General Chemistry														
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Solids	%	80.4	85.5	81.8	88.8	86.5	80.6	76.0	69.3	87.8	81.3	77.0	78.8	78.1

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*
Sample Location:		*B-X183Y133*	*B-X183Y133*	*B-X183Y133*	*B-X183Y133*	*B-X183Y133*	*B-X195Y133*	*B-X195Y133*	*B-X195Y133*	*B-X204Y132*	*B-X204Y132*	*B-X204Y132*	*B-X204Y149*	*B-X204Y149*
Sample ID:		*S-011102-MG-039*	*S-011102-MG-040*	*S-011102-MG-041*	*S-011102-MG-042*	*S-011102-MG-043*	*S-031102-MG-175*	*S-031102-MG-176*	*S-031102-MG-177*	*S-011102-MG-044*	*S-011102-MG-045*	*S-011102-MG-046*	*S-011002-MG-032*	*S-011002-MG-033*
Sample Date:		*1/11/2002*	*1/11/2002*	*1/11/2002*	*1/11/2002*	*1/11/2002*	*3/11/2002*	*3/11/2002*	*3/11/2002*	*1/11/2002*	*1/11/2002*	*1/11/2002*	*1/10/2002*	*1/10/2002*
Sample Depth:		*(0-2)*	*(3.5-4.5)*	*(6-8)*	*(6-8)* *Duplicate*	*(18-19)*	*(0-2)*	*(6-8)*	*(15-17)*	*(0-2)*	*(6-8)*	*(14-15.5)*	*(0-2)*	*(6-8)*
Parameters	***Units***													
Metals														
Aluminum	mg/kg	12400	2800	18300	10400	8470	15300	9760	6050	8600	8800	6470	10800	13400
Antimony	mg/kg	R	R	R	R	R	ND (7.2) UJ	ND (7.5) UJ	ND (38.9) UJ	R	R	R	ND (7.2)	ND (7.6)
Arsenic	mg/kg	7.9	3.6	6.9	7.0	7.0	9.6	6.7	4.5 J	6.8	5.9	7.5	7.4	10.4
Barium	mg/kg	56.4	17.9 J	52.4	62.6	34.2	46.3	46.3	43.0 J	95.8	13.1 J	49.4 J	60.5	63.0
Beryllium	mg/kg	ND (0.60) U	0.17 J	0.37 J	0.58 J	1.2	ND (0.60) U	ND (0.62) U	1.2 J	0.63	0.99	5.1	0.58 J	0.50 J
Cadmium	mg/kg	0.35 J	0.51 J	ND (0.64)	ND (0.64)	2.1	0.27 J	0.39 J	0.91 J	ND (0.62)	ND (0.62)	0.72 J	0.55 J	ND (0.63)
Chromium Total	mg/kg	20.6	15.9	21.1	12.8	12.7	23.0	19.9	8.6	41.3	20.3	65.2	31.0	15.6
Cobalt	mg/kg	7.4	7.2	5.3 J	12.1	11.4	4.4 J	5.8 J	7.0 J	3.4 J	5.7 J	11.5 J	12.4	7.5
Copper	mg/kg	42.6	38.6	19.5	10.5	11.9	15.9	10.2	14.4 J	16.9	18.2	14.9	77.1	13.5
Cyanide (amenable)	mg/kg	ND (0.60)	ND (0.65)	ND (0.64)	ND (0.64)	ND (0.65)	ND (0.60)	ND (0.62)	ND (0.65)	ND (0.62)	ND (0.62)	ND (0.63)	ND (0.60)	ND (0.63)
Cyanide (total)	mg/kg	ND (0.60)	ND (0.65)	ND (0.64)	ND (0.64)	ND (0.65)	ND (0.60)	ND (0.62)	ND (0.65)	ND (0.62)	ND (0.62)	ND (0.63)	ND (0.60)	ND (0.63)
Iron	mg/kg	19900	7600	23900	14900	21600	25100	24900	17500	36600	28400	27200	20200	21800
Lead	mg/kg	20.4	35.5	10.5	20.9	27.7	12.9 J	53.2	9.4	24.6	16.9	13.6	38.0	14.5
Manganese	mg/kg	182	51.8	267	138	246	102 J	529 J	385 J	114	123	288	237 J	164 J
Mercury	mg/kg	0.12	0.076 J	0.18	0.10 J	0.052 J	0.086 J	0.028 J	0.051 J	0.021 J	0.020 J	0.055 J	0.22	0.053 J
Nickel	mg/kg	24.8	24.8	11.2	9.7	42.2	10.7	21.4	55.2	13.2	22.3	43.7	38.6	11.9
Selenium	mg/kg	ND (0.60)	0.63 J	1.3	1.6	0.80	ND (0.60)	ND (0.62)	ND (3.2)	0.87	1.1	0.63 J	0.80	1.2
Silver	mg/kg	ND (1.2)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.2)	ND (1.2)	ND (6.5)	ND (1.2)	ND (1.2)	ND (2.5)	ND (1.2)	ND (1.3)
Thallium	mg/kg	ND (1.2)	ND (1.3)	ND (1.3)	0.64 J	ND (1.3)	ND (1.2)	ND (1.2)	ND (6.5)	ND (1.2)	0.70 J	ND (2.5)	0.72 J	ND (1.3)
Vanadium	mg/kg	28.9	10.1	28.8	24.6	15.8	32.7	39.8	9.7 J	60.1	37.3	36.6	29.4	30.4
Zinc	mg/kg	51.6	68.5	48.3	38.5	94.6	38.4	46.4	85.4	51.7	73.4	102	123 J	42.8 J
PCBs														
Aroclor-1016 (PCB-1016)	ug/kg	ND (39000)	ND (43000)	ND (42)	ND (42)	ND (43)	ND (40)	ND (41)	ND (43)	ND (81000)	ND (82)	ND (41)	ND (400)	ND (830)
Aroclor-1221 (PCB-1221)	ug/kg	ND (39000)	ND (43000)	ND (42)	ND (42)	ND (43)	ND (40)	ND (41)	ND (43)	ND (81000)	ND (82)	ND (41)	ND (400)	ND (830)
Aroclor-1232 (PCB-1232)	ug/kg	ND (39000)	ND (43000)	ND (42)	ND (42)	ND (43)	ND (40)	ND (41)	ND (43)	ND (81000)	ND (82)	ND (41)	ND (400)	ND (830)
Aroclor-1242 (PCB-1242)	ug/kg	ND (39000)	670000	ND (42)	ND (42)	26 J	ND (40)	ND (41)	ND (43)	1300000	490	24 J	ND (400)	ND (830)
Aroclor-1248 (PCB-1248)	ug/kg	ND (39000)	ND (43000)	230	ND (42)	ND (43)	34 J	ND (41)	ND (43)	ND (81000)	ND (82)	ND (41)	4300	13000
Aroclor-1254 (PCB-1254)	ug/kg	ND (39000)	ND (43000)	ND (42)	ND (42)	ND (43)	ND (40)	ND (41)	ND (43)	ND (81000)	ND (82)	ND (41)	ND (400)	ND (830)
Aroclor-1260 (PCB-1260)	ug/kg	ND (39000)	95000	33 J	ND (42)	ND (43)	ND (40)	ND (41)	ND (43)	ND (81000)	ND (82)	ND (41)	460	ND (830)
Semi - Volatiles														
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
2,4,5-Trichlorophenol	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
2,4,6-Trichlorophenol	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
2,4-Dichlorophenol	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
2,4-Dimethylphenol	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	100 J	ND (420)
2,4-Dinitrophenol	ug/kg	ND (1900)	ND (100000)	ND (2100)	ND (2000)	ND (2100)	ND (1900)	ND (2000)	ND (2100)	ND (39000)	ND (2000)	ND (2000)	ND (1900)	ND (2000)
2,4-Dinitrotoluene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
2,6-Dinitrotoluene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
2-Chloronaphthalene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
2-Chlorophenol	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
2-Methylnaphthalene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
2-Methylphenol	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
2-Nitroaniline	ug/kg	ND (1900)	ND (100000)	ND (2100)	ND (2000)	ND (2100)	ND (1900)	ND (2000)	ND (2100)	ND (39000)	ND (2000)	ND (2000)	ND (1900)	ND (2000)
2-Nitrophenol	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
3,3'-Dichlorobenzidine	ug/kg	ND (1900)	ND (100000)	ND (2100)	ND (2000)	ND (2100)	ND (1900)	ND (2000)	ND (2100)	ND (39000)	ND (2000)	ND (2000)	ND (1900)	ND (2000)
3-Nitroaniline	ug/kg	ND (1900)	ND (100000)	ND (2100)	ND (2000)	ND (2100)	ND (1900)	ND (2000)	ND (2100)	ND (39000)	ND (2000)	ND (2000)	ND (1900)	ND (2000)
4,6-Dinitro-2-methylphenol	ug/kg	ND (1900)	ND (100000)	ND (2100)	ND (2000)	ND (2100)	ND (1900)	ND (2000)	ND (2100)	ND (39000)	ND (2000)	ND (2000)	ND (1900)	ND (2000)
4-Bromophenyl phenyl ether	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
4-Chloro-3-methylphenol	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
4-Chloroaniline	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
4-Chlorophenyl phenyl ether	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*
Sample Location:		*B-X183Y133*	*B-X183Y133*	*B-X183Y133*	*B-X183Y133*	*B-X183Y133*	*B-X195Y133*	*B-X195Y133*	*B-X195Y133*	*B-X204Y132*	*B-X204Y132*	*B-X204Y132*	*B-X204Y149*	*B-X204Y149*
Sample ID:		*S-011102-MG-039*	*S-011102-MG-040*	*S-011102-MG-041*	*S-011102-MG-042*	*S-011102-MG-043*	*S-031102-MG-175*	*S-031102-MG-176*	*S-031102-MG-177*	*S-011102-MG-044*	*S-011102-MG-045*	*S-011102-MG-046*	*S-011002-MG-032*	*S-011002-MG-033*
Sample Date:		*1/11/2002*	*1/11/2002*	*1/11/2002*	*1/11/2002*	*1/11/2002*	*3/11/2002*	*3/11/2002*	*3/11/2002*	*1/11/2002*	*1/11/2002*	*1/11/2002*	*1/10/2002*	*1/10/2002*
Sample Depth:		*(0-2)*	*(3.5-4.5)*	*(6-8)*	*(6-8)* *Duplicate*	*(18-19)*	*(0-2)*	*(6-8)*	*(15-17)*	*(0-2)*	*(6-8)*	*(14-15.5)*	*(0-2)*	*(6-8)*
Parameters	***Units***													
4-Methylphenol	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
4-Nitroaniline	ug/kg	ND (1900)	ND (100000)	ND (2100)	ND (2000)	ND (2100)	ND (1900)	ND (2000)	ND (2100)	ND (39000)	ND (2000)	ND (2000)	ND (1900)	ND (2000)
4-Nitrophenol	ug/kg	ND (1900)	ND (100000)	ND (2100)	ND (2000)	ND (2100)	ND (1900) UJ	ND (2000) UJ	ND (2100) UJ	ND (39000)	ND (2000)	ND (2000)	ND (1900)	ND (2000)
Acenaphthene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Acenaphthylene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Acetophenone	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Anthracene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Atrazine	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Benzaldehyde	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Benzo(a)anthracene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Benzo(a)pyrene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Benzo(b)fluoranthene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Benzo(g,h,i)perylene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Benzo(k)fluoranthene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Biphenyl	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
bis(2-Chloroethoxy)methane	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
bis(2-Chloroethyl)ether	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	2000 J	ND (410)	ND (410)	1400	ND (420)
Butyl benzylphthalate	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Caprolactam	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Carbazole	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Chrysene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Dibenz(a,h)anthracene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Dibenzofuran	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Diethyl phthalate	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Dimethyl phthalate	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Di-n-butylphthalate	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Di-n-octyl phthalate	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	3400 J	ND (410)	ND (410)	3900	ND (420)
Fluoranthene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Fluorene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Hexachlorobenzene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Hexachlorobutadiene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Hexachlorocyclopentadiene	ug/kg	ND (1900)	ND (100000)	ND (2100)	ND (2000)	ND (2100)	ND (1900)	ND (2000)	ND (2100)	ND (39000)	ND (2000)	ND (2000)	ND (1900)	ND (2000)
Hexachloroethane	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Isophorone	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Naphthalene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Nitrobenzene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
N-Nitrosodi-n-propylamine	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
N-Nitrosodiphenylamine	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Pentachlorophenol	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Phenanthrene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Phenol	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Pyrene	ug/kg	ND (390)	ND (21000)	ND (420)	ND (420)	ND (430)	ND (400)	ND (410)	ND (430)	ND (8100)	ND (410)	ND (410)	ND (400)	ND (420)
Volatiles														
1,1,1-Trichloroethane	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
1,1,2,2-Tetrachloroethane	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
1,1,2-Trichloroethane	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
1,1-Dichloroethane	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
1,1-Dichloroethene	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
1,2,4-Trichlorobenzene	ug/kg	ND (5.9)	220 J	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	700	ND (6.6)	ND (5.9)	7.3	98 J
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (12)	ND (840) UJ	ND (13)	ND (14)	ND (13)	ND (13)	ND (13)	ND (12)	ND (570) UJ	ND (13) UJ	ND (12) UJ	ND (10)	ND (12) UJ
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
1,2-Dichlorobenzene	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	35 J	ND (6.6)	ND (5.9)	ND (5.2)	14 J
1,2-Dichloroethane	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	17 J	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*
Sample Location:		*B-X183Y133*	*B-X183Y133*	*B-X183Y133*	*B-X183Y133*	*B-X183Y133*	*B-X195Y133*	*B-X195Y133*	*B-X195Y133*	*B-X204Y132*	*B-X204Y132*	*B-X204Y132*	*B-X204Y149*	*B-X204Y149*
Sample ID:		*S-011102-MG-039*	*S-011102-MG-040*	*S-011102-MG-041*	*S-011102-MG-042*	*S-011102-MG-043*	*S-031102-MG-175*	*S-031102-MG-176*	*S-031102-MG-177*	*S-011102-MG-044*	*S-011102-MG-045*	*S-011102-MG-046*	*S-011002-MG-032*	*S-011002-MG-033*
Sample Date:		*1/11/2002*	*1/11/2002*	*1/11/2002*	*1/11/2002*	*1/11/2002*	*3/11/2002*	*3/11/2002*	*3/11/2002*	*1/11/2002*	*1/11/2002*	*1/11/2002*	*1/10/2002*	*1/10/2002*
Sample Depth:		*(0-2)*	*(3.5-4.5)*	*(6-8)*	*(6-8)* *Duplicate*	*(18-19)*	*(0-2)*	*(6-8)*	*(15-17)*	*(0-2)*	*(6-8)*	*(14-15.5)*	*(0-2)*	*(6-8)*
Parameters	***Units***													
1,2-Dichloropropane	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
1,3-Dichlorobenzene	ug/kg	ND (5.9)	50 J	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	450	1.1 J	ND (5.9)	ND (5.2)	8.2 J
1,4-Dichlorobenzene	ug/kg	ND (5.9)	49 J	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	490	1.8 J	1.1 J	ND (5.2)	12 J
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (24)	170 J	ND (25) U	ND (27) U	ND (26) U	ND (27)	ND (26)	ND (24)	ND (1100)	ND (26)	ND (24)	ND (21)	ND (23) U
2-Hexanone	ug/kg	ND (24)	ND (1700)	ND (25)	ND (27)	ND (26)	ND (27)	ND (26)	ND (24)	ND (1100)	ND (26)	ND (24)	ND (21)	ND (23)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (24) UJ	ND (1700)	ND (25) UJ	ND (27) UJ	ND (26) UJ	ND (27)	ND (26)	ND (24)	ND (1100)	ND (26)	ND (24)	ND (21) UJ	ND (23) UJ
Acetone	ug/kg	ND (24)	ND (1700) U	ND (30) U	ND (27) U	ND (26) U	ND (27)	ND (26)	ND (24)	ND (1100) U	ND (26) U	ND (24) U	ND (21)	ND (25) U
Benzene	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
Bromodichloromethane	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
Bromoform	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6) UJ	ND (6.5) UJ	ND (6.1) UJ	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
Bromomethane (Methyl Bromide)	ug/kg	ND (5.9) UJ	ND (420) UJ	ND (6.4) UJ	ND (6.8) UJ	ND (6.5) UJ	ND (6.6) UJ	ND (6.5) UJ	ND (6.1) UJ	ND (280) UJ	ND (6.6) UJ	ND (5.9) UJ	ND (5.2) UJ	ND (5.8) UJ
Carbon disulfide	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
Carbon tetrachloride	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
Chlorobenzene	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	27
Chloroethane	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
Chloroform (Trichloromethane)	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
Chloromethane (Methyl Chloride)	ug/kg	ND (5.9) UJ	ND (420)	ND (6.4) UJ	ND (6.8) UJ	ND (6.5) UJ	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2) UJ	ND (5.8) UJ
cis-1,2-Dichloroethene	ug/kg	ND (3)	ND (210)	ND (3.2)	ND (3.4)	ND (3.3)	ND (3.3)	ND (3.2)	ND (3)	ND (140)	ND (3.3)	ND (2.9)	ND (2.6)	ND (2.9)
cis-1,3-Dichloropropene	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
Cyclohexane	ug/kg	ND (12)	ND (840)	ND (13)	ND (14)	ND (13)	ND (13)	ND (13)	ND (12)	ND (570)	ND (13)	ND (12)	ND (10)	ND (12)
Dibromochloromethane	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (5.9) UJ	ND (420) U	ND (6.4) UJ	ND (6.8) UJ	ND (6.5) UJ	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6) U	ND (5.9) U	ND (5.2) UJ	ND (5.8) UJ
Ethylbenzene	ug/kg	ND (5.9)	62 J	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
Isopropylbenzene	ug/kg	ND (5.9)	14 J	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	1.3 J
Methyl acetate	ug/kg	ND (12) UJ	200 J	ND (13) UJ	ND (14) UJ	ND (13) UJ	ND (13)	ND (13)	ND (12)	ND (570)	ND (13)	ND (12)	ND (10) UJ	ND (12) UJ
Methyl cyclohexane	ug/kg	ND (12)	ND (840)	ND (13)	ND (14)	ND (13)	ND (13)	ND (13)	ND (12)	ND (570)	ND (13)	ND (12)	ND (10)	ND (12)
Methyl Tert Butyl Ether	ug/kg	ND (24)	ND (1700)	ND (25)	ND (27)	ND (26)	ND (27)	ND (26)	ND (24)	ND (1100)	ND (26)	ND (24)	ND (21)	ND (23)
Methylene chloride	ug/kg	ND (5.9) U	ND (420) U	ND (6.4) U	ND (6.8)	ND (6.5) U	ND (6.6)	ND (6.5)	ND (6.1)	ND (280) U	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8) U
Styrene	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
Tetrachloroethene	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
Toluene	ug/kg	ND (5.9)	ND (420) U	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280) U	ND (6.6)	ND (5.9)	ND (5.2)	2.8 J
trans-1,2-Dichloroethene	ug/kg	ND (3)	ND (210)	ND (3.2)	ND (3.4)	ND (3.3)	ND (3.3)	ND (3.2)	ND (3)	ND (140)	ND (3.3)	ND (2.9)	ND (2.6)	ND (2.9)
trans-1,3-Dichloropropene	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
Trichloroethene	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (5.9) UJ	ND (420)	ND (6.4) UJ	ND (6.8) UJ	ND (6.5) UJ	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2) UJ	ND (5.8) UJ
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (5.9) UJ	ND (420)	ND (6.4) UJ	ND (6.8) UJ	ND (6.5) UJ	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2) UJ	ND (5.8) UJ
Vinyl chloride	ug/kg	ND (5.9)	ND (420)	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280)	ND (6.6)	ND (5.9)	ND (5.2)	ND (5.8)
Xylene (total)	ug/kg	ND (5.9)	ND (420) U	ND (6.4)	ND (6.8)	ND (6.5)	ND (6.6)	ND (6.5)	ND (6.1)	ND (280) U	ND (6.6)	ND (5.9)	ND (5.2)	2.7 J
General Chemistry														
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Solids	%	83.7	76.8	77.7	78.2	77.2	82.9	80.3	77.1	81.0	80.5	79.9	83.4	79.4

Notes:

* Reported in units of ug/L.
UJ Non-detect at associated value. The associated value is estimated.
J Estimated.
U Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*
Sample Location:		*B-X204Y149*	*B-X211Y169*	*B-X211Y169*	*B-X211Y169*	*B-X211Y169*	*B-X217Y159*	*B-X217Y159*	*B-X218Y141*	*B-X218Y141*	*B-X218Y141*	*B-X218Y141*	*B-X221Y169*	*B-X221Y169*
Sample ID:		*S-011002-MG-034*	*S-011402-MG-050*	*S-011402-MG-051*	*S-011402-MG-052*	*S-011402-MG-053*	*S-022702-MG-141*	*S-022702-MG-142*	*S-011102-MG-035*	*S-011102-MG-036*	*S-011102-MG-037*	*S-011102-MG-038*	*S-022702-MG-139*	*S-022702-MG-140*
Sample Date:		*1/10/2002*	*1/14/2002*	*1/14/2002*	*1/14/2002*	*1/14/2002*	*2/27/2002*	*2/27/2002*	*1/11/2002*	*1/11/2002*	*1/11/2002*	*1/11/2002*	*2/27/2002*	*2/27/2002*
Sample Depth:		*(15-16)*	*(0-2)*	*(6-8)*	*(10-11)*	*(12-12.5)*	*(0-2)*	*(6-7)*	*(0-2)*	*(6-8)*	*(8-10)*	*(14-15.5)*	*(0-2)*	*(4-5)*
Parameters	***Units***													
Metals														
Aluminum	mg/kg	7200	6430	7910	13300	13400	12200	15600	15600	19300	20000	11600	8740	15800
Antimony	mg/kg	ND (7.5)	ND (6.6)	ND (6.9)	ND (9.8)	ND (8.2)	ND (7.3) UJ	ND (8.0) UJ	R	R	R	R	ND (7.9) UJ	ND (7.9) UJ
Arsenic	mg/kg	6.9	4.7	4.1	5.2	15.5	9.4	13.8	9.2	9.9	3.9	13.6	7.1	12.8
Barium	mg/kg	75.6	39.7	41.0	65.1	55.4	66.9	123	77.3	62.3	54.0	118	57.3	89.8
Beryllium	mg/kg	1.4	0.29 J	0.23 J	0.41 J	0.92	0.36 J	1.6	ND (0.60) U	ND (0.62) U	ND (0.62) U	3.9	0.63 J	1.3
Cadmium	mg/kg	0.39 J	0.32 J	0.38 J	2.1	0.72	0.24 J	1.2	0.46 J	0.28 J	1.7	0.72 J	0.35 J	0.56 J
Chromium Total	mg/kg	11.2	11.9	11.0	26.5	33.0	33.5	27.2	16.9	19.3	43.9	19.9	11.1	24.1
Cobalt	mg/kg	4.0 J	5.7	5.1 J	8.4	9.2	6.1	9.9	14.2	6.2	33.9	11.1 J	8.0	8.4
Copper	mg/kg	15.0	27.3	26.4	107	26.6	12.3	24.8	19.5	19.1	633	17.6	15.3	17.1
Cyanide (amenable)	mg/kg	ND (0.63)	ND (0.55)	ND (0.58)	ND (0.82)	ND (0.68)	ND (0.61)	ND (0.67)	ND (0.60)	ND (0.62)	ND (0.62)	ND (0.65)	ND (0.66)	ND (0.66)
Cyanide (total)	mg/kg	0.24 J	ND (0.55)	ND (0.58)	0.30 J	ND (0.68)	ND (0.61)	ND (0.67)	ND (0.60)	ND (0.62)	0.38 J	ND (0.65)	ND (0.66)	ND (0.66)
Iron	mg/kg	13600	11900	10800	10900	26100	23500	34300	24100	24000	11800	30900	29100	33000
Lead	mg/kg	9.2	14.6	14.1	39.8	37.3	17.2	17.6	14.7	15.0	107	23.9	11.8	19.2
Manganese	mg/kg	145 J	275	273	180	349	338 J	344 J	547	201	144	280	180 J	349 J
Mercury	mg/kg	0.036 J	0.026 J	0.033 J	0.12 J	0.022 J	0.046 J	0.12 J	0.059 J	0.090 J	0.24	0.13	0.052 J	0.090 J
Nickel	mg/kg	36.8	27.7	16.4	19.0	27.2	11.1	44.2	16.5	14.2	68.7	81.8	32.6	37.4
Selenium	mg/kg	0.41 J	ND (0.55)	ND (0.58)	ND (0.82)	ND (0.68)	ND (0.61)	ND (0.67)	ND (0.60)	ND (0.62)	ND (0.62)	1.2 J	ND (0.66)	ND (0.66)
Silver	mg/kg	ND (1.3)	ND (1.1)	ND (1.2)	ND (1.6)	ND (1.4)	ND (1.2)	ND (1.3)	ND (1.2)	ND (1.2)	0.43 J	ND (2.6)	ND (1.3)	ND (1.3)
Thallium	mg/kg	0.92 J	ND (1.1) U	ND (1.2) U	ND (1.6)	ND (1.4)	ND (1.2)	ND (1.3)	ND (1.2)	ND (1.2)	ND (1.2)	2.1 J	ND (1.3)	ND (1.3)
Vanadium	mg/kg	12.2	13.6	15.5	18.3	40.2	33.8	31.0	30.2	35.3	13.2	24.9	11.7	35.0
Zinc	mg/kg	22.2 J	43.4	47.4	643	94.7	42.4 J	141 J	48.1	52.2	650	84.6	44.8 J	106 J
PCBs														
Aroclor-1016 (PCB-1016)	ug/kg	ND (41)	ND (1800)	ND (7600)	ND (110000)	ND (45000)	ND (40)	ND (44)	ND (400)	ND (410000)	6900000	ND (43000)	ND (44)	ND (44)
Aroclor-1221 (PCB-1221)	ug/kg	ND (41)	ND (1800)	ND (7600)	ND (110000)	ND (45000)	ND (40)	ND (44)	ND (400)	ND (410000)	ND (4100000)	ND (43000)	ND (44)	ND (44)
Aroclor-1232 (PCB-1232)	ug/kg	ND (41)	ND (1800)	ND (7600)	ND (110000)	ND (45000)	ND (40)	ND (44)	ND (400)	ND (410000)	ND (4100000)	ND (43000)	ND (44)	ND (44)
Aroclor-1242 (PCB-1242)	ug/kg	ND (41)	ND (1800)	ND (7600)	1200000	400000	ND (40)	ND (44)	ND (400)	5100000	8600000	580000	ND (44)	ND (44)
Aroclor-1248 (PCB-1248)	ug/kg	120	18000	56000	ND (110000)	ND (45000)	ND (40)	ND (44)	2000	ND (410000)	ND (4100000)	ND (43000)	32 J	ND (44)
Aroclor-1254 (PCB-1254)	ug/kg	ND (41)	ND (1800)	ND (7600)	ND (110000)	ND (45000)	ND (40)	ND (44)	ND (400)	ND (410000)	ND (4100000)	ND (43000)	ND (44)	ND (44)
Aroclor-1260 (PCB-1260)	ug/kg	ND (41)	1100 J	2900 J	ND (110000)	ND (45000)	ND (40)	ND (44)	ND (400)	ND (410000)	ND (4100000)	ND (43000)	ND (44)	ND (44)
Semi - Volatiles														
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
2,4,5-Trichlorophenol	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
2,4,6-Trichlorophenol	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
2,4-Dichlorophenol	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
2,4-Dimethylphenol	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
2,4-Dinitrophenol	ug/kg	ND (2000)	ND (1700)	ND (1800)	ND (260000)	ND (44000)	ND (1900)	ND (2100)	ND (1900)	ND (98000)	ND (99000)	ND (2100)	ND (2100)	ND (2100)
2,4-Dinitrotoluene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
2,6-Dinitrotoluene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
2-Chloronaphthalene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
2-Chlorophenol	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
2-Methylnaphthalene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
2-Methylphenol	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
2-Nitroaniline	ug/kg	ND (2000)	ND (1700)	ND (1800)	ND (260000)	ND (44000)	ND (1900)	ND (2100)	ND (1900)	ND (98000)	ND (99000)	ND (2100)	ND (2100)	ND (2100)
2-Nitrophenol	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
3,3'-Dichlorobenzidine	ug/kg	ND (2000)	ND (1700)	ND (1800)	ND (260000)	ND (44000)	ND (1900)	ND (2100)	ND (1900)	ND (98000)	ND (99000)	ND (2100)	ND (2100)	ND (2100)
3-Nitroaniline	ug/kg	ND (2000)	ND (1700)	ND (1800)	ND (260000)	ND (44000)	ND (1900)	ND (2100)	ND (1900)	ND (98000)	ND (99000)	ND (2100)	ND (2100)	ND (2100)
4,6-Dinitro-2-methylphenol	ug/kg	ND (2000)	ND (1700)	ND (1800)	ND (260000)	ND (44000)	ND (1900)	ND (2100)	ND (1900)	ND (98000)	ND (99000)	ND (2100)	ND (2100)	ND (2100)
4-Bromophenyl phenyl ether	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
4-Chloro-3-methylphenol	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
4-Chloroaniline	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
4-Chlorophenyl phenyl ether	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*
Sample Location:		*B-X204Y149*	*B-X211Y169*	*B-X211Y169*	*B-X211Y169*	*B-X211Y169*	*B-X217Y159*	*B-X217Y159*	*B-X218Y141*	*B-X218Y141*	*B-X218Y141*	*B-X218Y141*	*B-X221Y169*	*B-X221Y169*
Sample ID:		*S-011002-MG-034*	*S-011402-MG-050*	*S-011402-MG-051*	*S-011402-MG-052*	*S-011402-MG-053*	*S-022702-MG-141*	*S-022702-MG-142*	*S-011102-MG-035*	*S-011102-MG-036*	*S-011102-MG-037*	*S-011102-MG-038*	*S-022702-MG-139*	*S-022702-MG-140*
Sample Date:		*1/10/2002*	*1/14/2002*	*1/14/2002*	*1/14/2002*	*1/14/2002*	*2/27/2002*	*2/27/2002*	*1/11/2002*	*1/11/2002*	*1/11/2002*	*1/11/2002*	*2/27/2002*	*2/27/2002*
Sample Depth:		*(15-16)*	*(0-2)*	*(6-8)*	*(10-11)*	*(12-12.5)*	*(0-2)*	*(6-7)*	*(0-2)*	*(6-8)*	*(8-10)*	*(14-15.5)*	*(0-2)*	*(4-5)*
Parameters	***Units***													
4-Methylphenol	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
4-Nitroaniline	ug/kg	ND (2000)	ND (1700)	ND (1800)	ND (260000)	ND (44000)	ND (1900)	ND (2100)	ND (1900)	ND (98000)	ND (99000)	ND (2100)	ND (2100)	ND (2100)
4-Nitrophenol	ug/kg	ND (2000)	ND (1700)	ND (1800)	ND (260000)	ND (44000)	ND (1900)	ND (2100)	ND (1900)	ND (98000)	ND (99000)	ND (2100)	ND (2100)	ND (2100)
Acenaphthene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Acenaphthylene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Acetophenone	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Anthracene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Atrazine	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Benzaldehyde	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Benzo(a)anthracene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Benzo(a)pyrene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Benzo(b)fluoranthene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Benzo(g,h,i)perylene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Benzo(k)fluoranthene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Biphenyl	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
bis(2-Chloroethoxy)methane	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
bis(2-Chloroethyl)ether	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000) U	ND (9000) U	ND (400)	ND (440)	ND (400)	4500 J	42000	1200	ND (440)	ND (440)
Butyl benzylphthalate	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Caprolactam	ug/kg	ND (410)	ND (360)	ND (380) UJ	ND (54000) UJ	ND (9000) UJ	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Carbazole	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Chrysene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Dibenz(a,h)anthracene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Dibenzofuran	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Diethyl phthalate	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Dimethyl phthalate	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Di-n-butylphthalate	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Di-n-octyl phthalate	ug/kg	ND (410)	ND (360)	68 J	18000 J	2900 J	ND (400)	ND (440)	ND (400)	5700 J	63000	2300	ND (440)	ND (440)
Fluoranthene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Fluorene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Hexachlorobenzene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Hexachlorobutadiene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Hexachlorocyclopentadiene	ug/kg	ND (2000)	ND (1700)	ND (1800)	ND (260000)	ND (44000)	ND (1900)	ND (2100)	ND (1900)	ND (98000)	ND (99000)	ND (2100)	ND (2100)	ND (2100)
Hexachloroethane	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Isophorone	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Naphthalene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Nitrobenzene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
N-Nitrosodi-n-propylamine	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
N-Nitrosodiphenylamine	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Pentachlorophenol	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Phenanthrene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Phenol	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Pyrene	ug/kg	ND (410)	ND (360)	ND (380)	ND (54000)	ND (9000)	ND (400)	ND (440)	ND (400)	ND (20000)	ND (20000)	ND (430)	ND (440)	ND (440)
Volatiles														
1,1,1-Trichloroethane	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
1,1,2,2-Tetrachloroethane	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
1,1,2-Trichloroethane	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
1,1-Dichloroethane	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
1,1-Dichloroethene	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
1,2,4-Trichlorobenzene	ug/kg	ND (6.2) U	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390) U	ND (5.7)	ND (7.9)	ND (5.9)	780	460 J	92 J	ND (7)	ND (8.1)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (12)	ND (11)	ND (11)	ND (1200) UJ	ND (780)	ND (11)	ND (16)	ND (12)	ND (820) UJ	ND (4900) UJ	ND (640) UJ	ND (14)	ND (16)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
1,2-Dichlorobenzene	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	140 J	38 J	ND (5.7)	ND (7.9)	ND (5.9)	320 J	2200 J	110 J	ND (7)	ND (8.1)
1,2-Dichloroethane	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390) U	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*
Sample Location:		*B-X204Y149*	*B-X211Y169*	*B-X211Y169*	*B-X211Y169*	*B-X211Y169*	*B-X217Y159*	*B-X217Y159*	*B-X218Y141*	*B-X218Y141*	*B-X218Y141*	*B-X218Y141*	*B-X221Y169*	*B-X221Y169*
Sample ID:		*S-011002-MG-034*	*S-011402-MG-050*	*S-011402-MG-051*	*S-011402-MG-052*	*S-011402-MG-053*	*S-022702-MG-141*	*S-022702-MG-142*	*S-011102-MG-035*	*S-011102-MG-036*	*S-011102-MG-037*	*S-011102-MG-038*	*S-022702-MG-139*	*S-022702-MG-140*
Sample Date:		*1/10/2002*	*1/14/2002*	*1/14/2002*	*1/14/2002*	*1/14/2002*	*2/27/2002*	*2/27/2002*	*1/11/2002*	*1/11/2002*	*1/11/2002*	*1/11/2002*	*2/27/2002*	*2/27/2002*
Sample Depth:		*(15-16)*	*(0-2)*	*(6-8)*	*(10-11)*	*(12-12.5)*	*(0-2)*	*(6-7)*	*(0-2)*	*(6-8)*	*(8-10)*	*(14-15.5)*	*(0-2)*	*(4-5)*
Parameters	***Units***													
1,2-Dichloropropane	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
1,3-Dichlorobenzene	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	220 J	45 J	ND (5.7)	ND (7.9)	ND (5.9)	5000	32000	1100	ND (7)	ND (8.1)
1,4-Dichlorobenzene	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	450 J	100 J	ND (5.7)	ND (7.9)	ND (5.9)	13000	84000	2600	ND (7)	ND (8.1)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (25) U	ND (22)	ND (22)	250 J	ND (1600)	ND (23)	ND (32)	ND (23)	140 J	ND (9800)	ND (1300)	ND (28)	ND (32)
2-Hexanone	ug/kg	ND (25)	ND (22)	ND (22)	ND (2500) UJ	ND (1600)	ND (23)	ND (32)	ND (23)	ND (1600)	ND (9800)	ND (1300)	ND (28)	ND (32)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (25) UJ	ND (22)	ND (22)	ND (2500) UJ	ND (1600)	ND (23)	ND (32)	ND (23) UJ	ND (1600)	ND (9800)	ND (1300)	ND (28)	ND (32)
Acetone	ug/kg	ND (25) U	ND (22) UJ	ND (22) UJ	ND (2500) UJ	ND (1600) UJ	ND (23)	ND (32)	ND (23)	ND (1600) U	ND (9800) U	ND (1300) U	ND (28)	ND (32)
Benzene	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
Bromodichloromethane	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
Bromoform	ug/kg	ND (6.2)	ND (5.5) UJ	ND (5.5) UJ	ND (620) UJ	ND (390) UJ	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
Bromomethane (Methyl Bromide)	ug/kg	ND (6.2) UJ	ND (5.5) UJ	ND (5.5) UJ	ND (620) UJ	ND (390) UJ	ND (5.7)	ND (7.9)	ND (5.9) UJ	ND (410) UJ	500 J	ND (320) UJ	ND (7)	ND (8.1)
Carbon disulfide	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
Carbon tetrachloride	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
Chlorobenzene	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	300 J	1800 J	27 J	ND (7)	ND (8.1)
Chloroethane	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
Chloroform (Trichloromethane)	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
Chloromethane (Methyl Chloride)	ug/kg	ND (6.2) UJ	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9) UJ	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
cis-1,2-Dichloroethene	ug/kg	ND (3.1)	ND (2.7)	ND (2.8)	ND (310) UJ	ND (200)	ND (2.8)	ND (4)	ND (2.9)	ND (210)	ND (1200)	ND (160)	ND (3.5)	ND (4)
cis-1,3-Dichloropropene	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
Cyclohexane	ug/kg	ND (12)	ND (11)	ND (11)	ND (1200) UJ	ND (780)	ND (11)	ND (16)	ND (12)	ND (820)	ND (4900)	ND (640)	ND (14)	ND (16)
Dibromochloromethane	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (6.2) UJ	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9) UJ	ND (410)	ND (2500)	ND (320) U	ND (7)	ND (8.1)
Ethylbenzene	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	40 J	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
Isopropylbenzene	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	780 J	200 J	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
Methyl acetate	ug/kg	ND (12) UJ	1.3 J	1.4 J	180 J	110 J	ND (11)	ND (16)	ND (12) UJ	ND (820)	ND (4900)	ND (640)	1.7 J	ND (16)
Methyl cyclohexane	ug/kg	ND (12)	ND (11)	ND (11)	120 J	ND (780)	ND (11)	ND (16)	ND (12)	ND (820)	ND (4900)	ND (640)	ND (14)	ND (16)
Methyl Tert Butyl Ether	ug/kg	ND (25)	ND (22)	ND (22)	ND (2500) UJ	ND (1600)	ND (23)	ND (32)	ND (23)	ND (1600)	ND (9800)	ND (1300)	ND (28)	ND (32)
Methylene chloride	ug/kg	ND (6.2) U	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9) U	ND (410) U	ND (2500) U	ND (320) U	ND (7)	ND (8.1)
Styrene	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
Tetrachloroethene	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
Toluene	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	340 J	110 J	ND (5.7)	ND (7.9)	ND (5.9)	77 J	730 J	ND (320)	ND (7)	ND (8.1)
trans-1,2-Dichloroethene	ug/kg	ND (3.1)	ND (2.7)	ND (2.8)	ND (310) UJ	ND (200)	ND (2.8)	ND (4)	ND (2.9)	ND (210)	ND (1200)	ND (160)	ND (3.5)	ND (4)
trans-1,3-Dichloropropene	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
Trichloroethene	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (6.2) UJ	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9) UJ	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (6.2) UJ	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9) UJ	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
Vinyl chloride	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	ND (620) UJ	ND (390)	ND (5.7)	ND (7.9)	ND (5.9)	ND (410)	ND (2500)	ND (320)	ND (7)	ND (8.1)
Xylene (total)	ug/kg	ND (6.2)	ND (5.5)	ND (5.5)	260 J	90 J	ND (5.7)	ND (7.9)	ND (5.9)	ND (410) U	300 J	ND (320)	ND (7)	ND (8.1)
General Chemistry														
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Solids	%	79.6	91.6	86.9	61.1	73.3	82.2	75.0	82.8	81.3	80.7	76.5	75.8	75.8

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		***A006***	***A006***	***A006***	***A006***	***A006***	***A006***	***A006***	***A006***	***A006***	***A006 P200(GM)***	***A006 P200(GM)***	***A006 P200(GM)***	***A006 P200(GM)***
Sample Location:		***B-X223Y150B***	***B-X223Y150B***	***B-X223Y150B***	***B-X224Y138A***	***B-X224Y138B***	***B-X224Y138B***	***B-X224Y138B***	***B-X232Y180***	***B-X232Y180***	***B-X173Y125***	***B-X173Y125***	***B-X189Y122***	***B-X189Y122***
Sample ID:		***S-022702-MG-143***	***S-022702-MG-144***	***S-022702-MG-145***	***S-022502-MG-135***	***S-022502-MG-136***	***S-022502-MG-137***	***S-022502-MG-138***	***S-031802-MG-189***	***S-031802-MG-190***	***S-060302-MG-219***	***S-060302-MG-220***	***S-011502-MG-054***	***S-011502-MG-055***
Sample Date:		***2/27/2002***	***2/27/2002***	***2/27/2002***	***2/25/2002***	***2/25/2002***	***2/25/2002***	***2/25/2002***	***3/18/2002***	***3/18/2002***	***6/3/2002***	***6/3/2002***	***1/15/2002***	***1/15/2002***
Sample Depth:		***(3-4)***	***(6-8)***	***(10-12)***	***(0-2)***	***(0-2)***	***(6-8)***	***(14-16)***	***(0-2)***	***(4.5-6.5)***	***(0-2)***	***(4-6)***	***(0-2)***	***(6-8)***
Parameters	***Units***													
Metals														
Aluminum	mg/kg	10800	9620	12800	4130	14300	7700	10700	11000	13600	-	-	9080	11900
Antimony	mg/kg	ND (7.6) UJ	ND (7.6) UJ	ND (16.5) UJ	ND (7.8) UJ	ND (7.7) UJ	ND (7.2) UJ	ND (8.5) UJ	ND (7.5) UJ	ND (7.5) UJ	-	-	ND (7.4)	ND (7.8)
Arsenic	mg/kg	9.7	5.5	13.6	11.2	11.2	6	7.5	4.9	6.7	-	-	8.3	7.3
Barium	mg/kg	92.5	90.2	174	67.2	43.4	235	45.5	54.2	66.7	-	-	42.5	68.0
Beryllium	mg/kg	1.8	0.50 J	2.4	0.72	ND (0.64)	1.1	2.5	ND (0.63) U	ND (0.63) U	-	-	0.67	1.1
Cadmium	mg/kg	0.82	0.26 J	1.5	3.3	ND (0.64)	0.14 J	0.68 J	ND (0.63)	ND (0.63)	-	-	0.34 J	ND (0.65)
Chromium Total	mg/kg	17.4	13.6	24.6	5.8	20	29.8	22	11.2	19.9	-	-	23.4	25.5
Cobalt	mg/kg	10.6	14.3	13.9	7.2	5 J	46	12.1	11.8	3.3 J	-	-	8.0	13.9
Copper	mg/kg	21.0	11.9	19.0	6	16.6	16.4	19.1	9.2	10.9	-	-	15.5	27.7
Cyanide (amenable)	mg/kg	ND (0.63)	ND (0.64)	ND (0.69)	ND (0.65)	ND (0.64)	ND (0.60)	ND (0.70)	ND (0.63)	ND (0.63)	-	-	ND (0.61)	ND (0.65)
Cyanide (total)	mg/kg	ND (0.63)	ND (0.64)	ND (0.69)	ND (0.65)	ND (0.64)	ND (0.60)	ND (0.70)	ND (0.63)	ND (0.63)	-	-	ND (0.61)	ND (0.65)
Iron	mg/kg	24500	14000	29400	19200	27600	28200	24000	14200	17000	-	-	25200	21100
Lead	mg/kg	18.5	17.8	22.1	12.7	13.2	58.1	13.2	13.2	9.2	-	-	22.7	24.0
Manganese	mg/kg	285 J	946 J	336 J	1000	172	1880	148	848	99.3	-	-	219	279
Mercury	mg/kg	0.088 J	0.042 J	0.16	0.026 J	0.13	0.016 J	0.04 J	ND (0.13) U	0.069 J	-	-	0.16	0.12 J
Nickel	mg/kg	30.5	12.5	55.7	187	12	48	33.8	8.8 J	9.6	-	-	21.0	66.2
Selenium	mg/kg	ND (0.63)	ND (0.64)	ND (1.4)	1.6	0.8	ND (0.60)	ND (0.70)	ND (0.63)	ND (0.63) U	-	-	1.2	ND (0.65)
Silver	mg/kg	ND (1.3)	ND (1.3)	ND (2.8)	ND (1.3)	ND (1.3)	ND (1.2)	ND (1.4)	ND (1.3)	ND (1.3)	-	-	ND (1.2)	ND (1.3)
Thallium	mg/kg	ND (1.3)	ND (1.3)	ND (2.8)	1.3	ND (1.3)	0.94 J	0.73 J	ND (1.3)	ND (1.3)	-	-	0.72 J	ND (1.3)
Vanadium	mg/kg	26.6	23.0	34.0	7	32.6	47.3	28.7	22.7	34.6	-	-	35.2	25.0
Zinc	mg/kg	82.9 J	39.3 J	122 J	67.4	45.6	81	40.5	33.8	30.1	-	-	47.6	43.8
PCBs														
Aroclor-1016 (PCB-1016)	ug/kg	ND (8300)	ND (4200)	ND (45)	ND (43)	ND (42)	ND (40)	ND (47)	ND (41)	ND (41)	ND (38)	ND (42)	ND (81)	ND (430)
Aroclor-1221 (PCB-1221)	ug/kg	ND (8300)	ND (4200)	ND (45)	ND (43)	ND (42)	ND (40)	ND (47)	ND (41)	ND (41)	ND (38)	ND (42)	ND (81)	ND (430)
Aroclor-1232 (PCB-1232)	ug/kg	ND (8300)	ND (4200)	ND (45)	ND (43)	ND (42)	ND (40)	ND (47)	ND (41)	ND (41)	ND (38)	ND (42)	ND (81)	ND (430)
Aroclor-1242 (PCB-1242)	ug/kg	110000	32000	320	ND (43)	ND (42)	ND (40)	ND (47)	ND (41)	ND (41)	ND (38)	ND (42)	ND (81)	ND (430)
Aroclor-1248 (PCB-1248)	ug/kg	ND (8300)	ND (4200)	ND (45)	19 J	240	ND (40)	ND (47)	8 J	ND (41)	220	120	1400	2700
Aroclor-1254 (PCB-1254)	ug/kg	ND (8300)	ND (4200)	ND (45)	ND (43)	ND (42)	ND (40)	ND (47)	ND (41)	ND (41)	ND (38)	ND (42)	ND (81)	ND (430)
Aroclor-1260 (PCB-1260)	ug/kg	ND (8300)	ND (4200)	ND (45)	ND (43)	ND (42)	ND (40)	ND (47)	ND (41)	ND (41)	45	24 J	120	ND (430)
Semi - Volatiles														
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
2,4,5-Trichlorophenol	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
2,4,6-Trichlorophenol	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
2,4-Dichlorophenol	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
2,4-Dimethylphenol	ug/kg	5900	13000	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
2,4-Dinitrophenol	ug/kg	ND (2000)	ND (8100)	ND (2200)	ND (2100)	ND (2000)	ND (1900)	ND (2300)	ND (2000)	ND (2000)	-	-	ND (2000)	ND (2100)
2,4-Dinitrotoluene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
2,6-Dinitrotoluene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
2-Chloronaphthalene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
2-Chlorophenol	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
2-Methylnaphthalene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
2-Methylphenol	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
2-Nitroaniline	ug/kg	ND (2000)	ND (8100)	ND (2200)	ND (2100)	ND (2000)	ND (1900)	ND (2300)	ND (2000)	ND (2000)	-	-	ND (2000)	ND (2100)
2-Nitrophenol	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
3,3'-Dichlorobenzidine	ug/kg	ND (2000)	ND (8100)	ND (2200)	ND (2100)	ND (2000)	ND (1900)	ND (2300)	ND (2000)	ND (2000)	-	-	ND (2000)	ND (2100)
3-Nitroaniline	ug/kg	ND (2000)	ND (8100)	ND (2200)	ND (2100)	ND (2000)	ND (1900)	ND (2300)	ND (2000)	ND (2000)	-	-	ND (2000)	ND (2100)
4,6-Dinitro-2-methylphenol	ug/kg	ND (2000)	ND (8100)	ND (2200)	ND (2100)	ND (2000)	ND (1900)	ND (2300)	ND (2000)	ND (2000)	-	-	ND (2000)	ND (2100)
4-Bromophenyl phenyl ether	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
4-Chloro-3-methylphenol	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
4-Chloroaniline	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
4-Chlorophenyl phenyl ether	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006 P200(GM)*	*A006 P200(GM)*	*A006 P200(GM)*	*A006 P200(GM)*
Sample Location:		*B-X223Y150B*	*B-X223Y150B*	*B-X223Y150B*	*B-X224Y138A*	*B-X224Y138B*	*B-X224Y138B*	*B-X224Y138B*	*B-X232Y180*	*B-X232Y180*	*B-X173Y125*	*B-X173Y125*	*B-X189Y122*	*B-X189Y122*
Sample ID:		*S-022702-MG-143*	*S-022702-MG-144*	*S-022702-MG-145*	*S-022502-MG-135*	*S-022502-MG-136*	*S-022502-MG-137*	*S-022502-MG-138*	*S-031802-MG-189*	*S-031802-MG-190*	*S-060302-MG-219*	*S-060302-MG-220*	*S-011502-MG-054*	*S-011502-MG-055*
Sample Date:		*2/27/2002*	*2/27/2002*	*2/27/2002*	*2/25/2002*	*2/25/2002*	*2/25/2002*	*2/25/2002*	*3/18/2002*	*3/18/2002*	*6/3/2002*	*6/3/2002*	*1/15/2002*	*1/15/2002*
Sample Depth:		*(3-4)*	*(6-8)*	*(10-12)*	*(0-2)*	*(0-2)*	*(6-8)*	*(14-16)*	*(0-2)*	*(4.5-6.5)*	*(0-2)*	*(4-6)*	*(0-2)*	*(6-8)*
Parameters	***Units***													
4-Methylphenol	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
4-Nitroaniline	ug/kg	ND (2000)	ND (8100)	ND (2200)	ND (2100)	ND (2000)	ND (1900)	ND (2300)	ND (2000)	ND (2000)	-	-	ND (2000)	ND (2100)
4-Nitrophenol	ug/kg	ND (2000)	ND (8100)	ND (2200)	ND (2100)	ND (2000)	ND (1900)	ND (2300)	ND (2000)	ND (2000)	-	-	ND (2000)	ND (2100)
Acenaphthene	ug/kg	360 J	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Acenaphthylene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Acetophenone	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Anthracene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Atrazine	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Benzaldehyde	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Benzo(a)anthracene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Benzo(a)pyrene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Benzo(b)fluoranthene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Benzo(g,h,i)perylene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Benzo(k)fluoranthene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Biphenyl	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
bis(2-Chloroethoxy)methane	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
bis(2-Chloroethyl)ether	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
bis(2-Ethylhexyl)phthalate	ug/kg	1500	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Butyl benzylphthalate	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Caprolactam	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Carbazole	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Chrysene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Dibenz(a,h)anthracene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Dibenzofuran	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Diethyl phthalate	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Dimethyl phthalate	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Di-n-butylphthalate	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Di-n-octyl phthalate	ug/kg	1900	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Fluoranthene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	89 J
Fluorene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Hexachlorobenzene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Hexachlorobutadiene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Hexachlorocyclopentadiene	ug/kg	ND (2000)	ND (8100)	ND (2200)	ND (2100)	ND (2000)	ND (1900)	ND (2300)	ND (2000)	ND (2000)	-	-	ND (2000)	ND (2100)
Hexachloroethane	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Isophorone	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Naphthalene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Nitrobenzene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
N-Nitrosodi-n-propylamine	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
N-Nitrosodiphenylamine	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Pentachlorophenol	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Phenanthrene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Phenol	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Pyrene	ug/kg	ND (420)	ND (1700)	ND (450)	ND (430)	ND (420)	ND (400)	ND (470)	ND (410)	ND (410)	-	-	ND (410)	ND (430)
Volatiles														
1,1,1-Trichloroethane	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
1,1,2,2-Tetrachloroethane	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
1,1,2-Trichloroethane	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
1,1-Dichloroethane	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
1,1-Dichloroethene	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
1,2,4-Trichlorobenzene	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (710)	ND (14)	ND (14)	ND (14)	ND (13)	ND (11)	ND (12)	ND (18)	ND (12)	-	-	ND (12)	ND (12)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
1,2-Dichlorobenzene	ug/kg	180 J	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
1,2-Dichloroethane	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006*	*A006 P200(GM)*	*A006 P200(GM)*	*A006 P200(GM)*	*A006 P200(GM)*
Sample Location:		*B-X223Y150B*	*B-X223Y150B*	*B-X223Y150B*	*B-X224Y138A*	*B-X224Y138B*	*B-X224Y138B*	*B-X224Y138B*	*B-X232Y180*	*B-X232Y180*	*B-X173Y125*	*B-X173Y125*	*B-X189Y122*	*B-X189Y122*
Sample ID:		*S-022702-MG-143*	*S-022702-MG-144*	*S-022702-MG-145*	*S-022502-MG-135*	*S-022502-MG-136*	*S-022502-MG-137*	*S-022502-MG-138*	*S-031802-MG-189*	*S-031802-MG-190*	*S-060302-MG-219*	*S-060302-MG-220*	*S-011502-MG-054*	*S-011502-MG-055*
Sample Date:		*2/27/2002*	*2/27/2002*	*2/27/2002*	*2/25/2002*	*2/25/2002*	*2/25/2002*	*2/25/2002*	*3/18/2002*	*3/18/2002*	*6/3/2002*	*6/3/2002*	*1/15/2002*	*1/15/2002*
Sample Depth:		*(3-4)*	*(6-8)*	*(10-12)*	*(0-2)*	*(0-2)*	*(6-8)*	*(14-16)*	*(0-2)*	*(4.5-6.5)*	*(0-2)*	*(4-6)*	*(0-2)*	*(6-8)*
Parameters	***Units***													
1,2-Dichloropropane	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
1,3-Dichlorobenzene	ug/kg	1700	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
1,4-Dichlorobenzene	ug/kg	5000	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (1400)	13 J	ND (28)	ND (27)	ND (25)	ND (21)	ND (25)	ND (37)	ND (25)	-	-	ND (24)	ND (25)
2-Hexanone	ug/kg	ND (1400)	ND (28)	ND (28)	ND (27)	ND (25)	ND (21)	ND (25)	ND (37)	ND (25)	-	-	ND (24)	ND (25)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (1400)	ND (28)	ND (28)	ND (27)	ND (25)	ND (21)	ND (25)	ND (37)	ND (25)	-	-	ND (24)	ND (25)
Acetone	ug/kg	ND (1400)	ND (28) U	ND (28)	ND (27) UJ	ND (25) UJ	ND (21) UJ	ND (25) UJ	ND (37) U	ND (25) U	-	-	ND (24) UJ	ND (25) UJ
Benzene	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
Bromodichloromethane	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
Bromoform	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2) UJ	ND (6.1) UJ	-	-	ND (6) UJ	ND (6.2) UJ
Bromomethane (Methyl Bromide)	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2) UJ	ND (6.1) UJ	-	-	ND (6) UJ	ND (6.2) UJ
Carbon disulfide	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
Carbon tetrachloride	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
Chlorobenzene	ug/kg	250 J	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
Chloroethane	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
Chloroform (Trichloromethane)	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
Chloromethane (Methyl Chloride)	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
cis-1,2-Dichloroethene	ug/kg	ND (180)	ND (3.5)	ND (3.5)	ND (3.4)	ND (3.1)	ND (2.6)	ND (3.1)	ND (4.6)	ND (3.1)	-	-	ND (3)	ND (3.1)
cis-1,3-Dichloropropene	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
Cyclohexane	ug/kg	ND (710)	ND (14)	ND (14)	ND (14)	ND (13)	ND (11)	ND (12)	ND (18)	ND (12)	-	-	ND (12)	ND (12)
Dibromochloromethane	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
Ethylbenzene	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
Isopropylbenzene	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
Methyl acetate	ug/kg	96 J	3.3 J	ND (14)	ND (14)	ND (13)	ND (11)	ND (12)	ND (18)	ND (12)	-	-	2.4 J	ND (12)
Methyl cyclohexane	ug/kg	ND (710)	ND (14)	ND (14)	ND (14)	ND (13)	ND (11)	ND (12)	ND (18)	ND (12)	-	-	ND (12)	ND (12)
Methyl Tert Butyl Ether	ug/kg	ND (1400)	ND (28)	ND (28)	ND (27)	ND (25)	ND (21)	ND (25)	ND (37)	ND (25)	-	-	ND (24)	ND (25)
Methylene chloride	ug/kg	ND (350)	ND (6.9)	ND (7)	5.9 J	7.4	6	9	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
Styrene	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
Tetrachloroethene	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
Toluene	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
trans-1,2-Dichloroethene	ug/kg	ND (180)	ND (3.5)	ND (3.5)	ND (3.4)	ND (3.1)	ND (2.6)	ND (3.1)	ND (4.6)	ND (3.1)	-	-	ND (3)	ND (3.1)
trans-1,3-Dichloropropene	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
Trichloroethene	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
Vinyl chloride	ug/kg	ND (350)	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
Xylene (total)	ug/kg	ND (350) U	ND (6.9)	ND (7)	ND (6.8)	ND (6.3)	ND (5.3)	ND (6.2)	ND (9.2)	ND (6.1)	-	-	ND (6)	ND (6.2)
General Chemistry														
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Solids	%	79.1	78.5	72.7	76.6	78.1	83.2	71	79.7	79.7	86.4	78.4	81.4	76.9

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A006 P200(GM)*	*A006 P200(GM)*	*A006 P200(GM)*	*A006 P200(GM)*	*A006 P200(GM)*	*A006 P200(GM)*	*A006 P200(GM)*	*A006 P200(GM)*	*A007*	*A007*	*A007*	*A007*	*A007*
Sample Location:		*B-X189Y122*	*B-X213Y125*	*B-X213Y125*	*B-X213Y125*	*B-X213Y125*	*B-X223Y124*	*B-X223Y124*	*B-X223Y124*	*B-X158Y207*	*B-X158Y207*	*B-X158Y207*	*B-X170Y211*	*B-X170Y211*
Sample ID:		*S-011502-MG-056*	*S-022502-MG-131*	*S-022502-MG-134*	*S-022502-MG-132*	*S-022502-MG-133*	*S-011402-MG-047*	*S-011402-MG-048*	*S-011402-MG-049*	*S-030602-MG-161*	*S-030602-MG-162*	*S-030602-MG-163*	*S-030602-MG-158*	*S-030602-MG-159*
Sample Date:		*1/15/2002*	*2/25/2002*	*2/25/2002*	*2/25/2002*	*2/25/2002*	*1/14/2002*	*1/14/2002*	*1/14/2002*	*3/6/2002*	*3/6/2002*	*3/6/2002*	*3/6/2002*	*3/6/2002*
Sample Depth:		*(8-10)*	*(0-2)*	*(5-6)*	*(6-8)*	*(10-11.5)*	*(0-2)*	*(6-8)*	*(14-15)*	*(0-2)*	*(6-8)*	*(22-24)*	*(0-2)*	*(6-8)*
Parameters	***Units***													
Metals														
Aluminum	mg/kg	6770	11300	8200	8680	7260	12300	9660	10800	11100	11800	12600	11400	13400
Antimony	mg/kg	ND (16.2)	ND (7.3) UJ	ND (14.7)	ND (15.0)	ND (39.0)	ND (7.5)	ND (38.1)	ND (7.9)	ND (7.5) UJ	ND (7.7) UJ	ND (7.5) UJ	ND (7.2) UJ	ND (7.7) UJ
Arsenic	mg/kg	37.0	7.3	5.7	8.8	10.3	9.1	8.9	9.3	8.4	7.6	10.2	9.9	7.9
Barium	mg/kg	216	25.5	230	374	533	56.7	67.7 J	29.5	52.1	87.7	65.1	45.9	57.2
Beryllium	mg/kg	ND (1.3) U	ND (0.61) U	3.7	7.8	2.5 J	ND (0.62) U	7.0	1.4	1.1	1.1	1.7	ND (0.68) U	ND (0.85) U
Cadmium	mg/kg	1.6	ND (0.61)	0.68 J	1.5	15.4	0.12 J	5.1	0.70	ND (0.62)	ND (0.65)	ND (0.62)	ND (0.60)	ND (0.64)
Chromium Total	mg/kg	8.4	23.4	16.7	14.6	13.4	17.9	14.3	22.7	36.2 J	17.3 J	34.7 J	23.3 J	19.7 J
Cobalt	mg/kg	6.8 J	3.2 J	307	14.5	22.3 J	6.2	10.8 J	7.8	11.0 J	8.6 J	29.8 J	8.4 J	10.0 J
Copper	mg/kg	29.1	12.2	9.8	11.7	40.6	17.1	33.6	12.0	14.9 J	15.4 J	15.8 J	13.0 J	13.2 J
Cyanide (amenable)	mg/kg	ND (0.67)	ND (0.61)	ND (0.61)	ND (0.62)	ND (0.65)	ND (0.62)	ND (0.64)	ND (0.66)	ND (0.62)	ND (0.65)	ND (0.62)	ND (0.60)	ND (0.64)
Cyanide (total)	mg/kg	ND (0.67)	ND (0.61)	ND (0.61)	ND (0.62)	ND (0.65)	ND (0.62)	ND (0.64)	ND (0.66)	ND (0.62)	ND (0.65)	ND (0.62)	ND (0.60)	ND (0.64)
Iron	mg/kg	31800	26800	12600	25400	31200	23800	22100	21900	25300 J	19200 J	27900 J	27400 J	21700 J
Lead	mg/kg	50.2	12.5	9.6	17.8	76.9	15.5	14.0	14.8	20.1 J	20.0 J	27.5 J	16.7 J	14.8 J
Manganese	mg/kg	137	67.5	1790	1320	3390	219	1170	221	178 J	120 J	328 J	202 J	148 J
Mercury	mg/kg	0.14	0.029 J	0.096 J	0.025 J	0.093 J	0.019 J	0.13	0.072 J	ND (0.12) U	0.095 J	ND (0.12) U	ND (0.12) U	ND (0.13) U
Nickel	mg/kg	52.5	8	76.5	63.4	111	12.2	149	19.6	20.3 J	22.8 J	30.7 J	16.5 J	14.3 J
Selenium	mg/kg	ND (1.3)	0.5 J	ND (1.2)	ND (1.2)	ND (3.3)	ND (0.62)	0.86 J	ND (0.66)	ND (0.62)	ND (0.65)	ND (0.62)	ND (0.60)	ND (0.64)
Silver	mg/kg	ND (2.7)	ND (1.2)	ND (2.4)	ND (2.5)	ND (6.5)	ND (1.2)	ND (6.4)	ND (1.3)	ND (1.2)	ND (1.3)	ND (1.2)	ND (1.2)	ND (1.3)
Thallium	mg/kg	3.7	ND (1.2)	3.6	1.7 J	4 J	ND (1.2) U	ND (6.4)	ND (1.3)	ND (1.2)	ND (1.3)	ND (1.2)	ND (1.2)	ND (1.3)
Vanadium	mg/kg	7.4 J	35.7	15.8	21.2	37.5	29.6	15.5 J	27.4	34.5 J	29.4 J	37.0 J	35.7 J	32.9 J
Zinc	mg/kg	375	26.7	120	121	154	51.1	179	34.6	41.2 J	41.3 J	51.2 J	42.7 J	35.7 J
PCBs														
Aroclor-1016 (PCB-1016)	ug/kg	ND (220)	ND (40)	ND (40)	ND (41)	ND (43)	ND (41)	ND (42)	ND (43)	ND (41)	ND (43)	ND (41)	ND (39)	ND (43)
Aroclor-1221 (PCB-1221)	ug/kg	ND (220)	ND (40)	ND (40)	ND (41)	ND (43)	ND (41)	ND (42)	ND (43)	ND (41)	ND (43)	ND (41)	ND (39)	ND (43)
Aroclor-1232 (PCB-1232)	ug/kg	ND (220)	ND (40)	ND (40)	ND (41)	ND (43)	ND (41)	ND (42)	ND (43)	ND (41)	ND (43)	ND (41)	ND (39)	ND (43)
Aroclor-1242 (PCB-1242)	ug/kg	530	ND (40)	ND (40)	ND (41)	ND (43)	ND (41)	ND (42)	ND (43)	ND (41)	ND (43)	ND (41)	ND (39)	ND (43)
Aroclor-1248 (PCB-1248)	ug/kg	ND (220)	ND (40)	ND (40)	ND (41)	ND (43)	23 J	ND (42)	ND (43)	88	ND (43)	ND (41)	ND (39)	ND (43)
Aroclor-1254 (PCB-1254)	ug/kg	ND (220)	ND (40)	ND (40)	ND (41)	ND (43)	ND (41)	ND (42)	ND (43)	ND (41)	ND (43)	ND (41)	ND (39)	ND (43)
Aroclor-1260 (PCB-1260)	ug/kg	ND (220)	ND (40) UJ	ND (40)	ND (41) UJ	ND (43)	ND (41)	ND (42)	ND (43)	ND (41)	ND (43) UJ	ND (41) UJ	ND (39)	ND (43)
Semi - Volatiles														
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
2,4,5-Trichlorophenol	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
2,4,6-Trichlorophenol	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
2,4-Dichlorophenol	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
2,4-Dimethylphenol	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
2,4-Dinitrophenol	ug/kg	ND (2200)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (2000)	ND (1900)	ND (2100)
2,4-Dinitrotoluene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
2,6-Dinitrotoluene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
2-Chloronaphthalene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
2-Chlorophenol	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
2-Methylnaphthalene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
2-Methylphenol	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
2-Nitroaniline	ug/kg	ND (2200)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (2000)	ND (1900)	ND (2100)
2-Nitrophenol	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
3,3'-Dichlorobenzidine	ug/kg	ND (2200)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (2000)	ND (1900)	ND (2100)
3-Nitroaniline	ug/kg	ND (2200)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (2000)	ND (1900)	ND (2100)
4,6-Dinitro-2-methylphenol	ug/kg	ND (2200)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (2000)	ND (1900)	ND (2100)
4-Bromophenyl phenyl ether	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
4-Chloro-3-methylphenol	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
4-Chloroaniline	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
4-Chlorophenyl phenyl ether	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		***A006 P200(GM)***	***A006 P200(GM)***	***A006 P200(GM)***	***A006 P200(GM)***	***A006 P200(GM)***	***A006 P200(GM)***	***A006 P200(GM)***	***A006 P200(GM)***	***A007***	***A007***	***A007***	***A007***	***A007***
Sample Location:		***B-X189Y122***	***B-X213Y125***	***B-X213Y125***	***B-X213Y125***	***B-X213Y125***	***B-X223Y124***	***B-X223Y124***	***B-X223Y124***	***B-X158Y207***	***B-X158Y207***	***B-X158Y207***	***B-X170Y211***	***B-X170Y211***
Sample ID:		***S-011502-MG-056***	***S-022502-MG-131***	***S-022502-MG-134***	***S-022502-MG-132***	***S-022502-MG-133***	***S-011402-MG-047***	***S-011402-MG-048***	***S-011402-MG-049***	***S-030602-MG-161***	***S-030602-MG-162***	***S-030602-MG-163***	***S-030602-MG-158***	***S-030602-MG-159***
Sample Date:		***1/15/2002***	***2/25/2002***	***2/25/2002***	***2/25/2002***	***2/25/2002***	***1/14/2002***	***1/14/2002***	***1/14/2002***	***3/6/2002***	***3/6/2002***	***3/6/2002***	***3/6/2002***	***3/6/2002***
Sample Depth:		***(8-10)***	***(0-2)***	***(5-6)***	***(6-8)***	***(10-11.5)***	***(0-2)***	***(6-8)***	***(14-15)***	***(0-2)***	***(6-8)***	***(22-24)***	***(0-2)***	***(6-8)***
Parameters	***Units***													
4-Methylphenol	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
4-Nitroaniline	ug/kg	ND (2200)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (2000)	ND (1900)	ND (2100)
4-Nitrophenol	ug/kg	ND (2200)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (2000)	ND (1900)	ND (2100)
Acenaphthene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Acenaphthylene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Acetophenone	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Anthracene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Atrazine	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Benzaldehyde	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Benzo(a)anthracene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Benzo(a)pyrene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Benzo(b)fluoranthene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Benzo(g,h,i)perylene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Benzo(k)fluoranthene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Biphenyl	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
bis(2-Chloroethoxy)methane	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
bis(2-Chloroethyl)ether	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Butyl benzylphthalate	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Caprolactam	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Carbazole	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Chrysene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Dibenz(a,h)anthracene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Dibenzofuran	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Diethyl phthalate	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Dimethyl phthalate	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Di-n-butylphthalate	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Di-n-octyl phthalate	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Fluoranthene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Fluorene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Hexachlorobenzene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Hexachlorobutadiene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Hexachlorocyclopentadiene	ug/kg	ND (2200)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2100)	ND (2000)	ND (1900)	ND (2100)
Hexachloroethane	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Isophorone	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Naphthalene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Nitrobenzene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
N-Nitrosodi-n-propylamine	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
N-Nitrosodiphenylamine	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Pentachlorophenol	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Phenanthrene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Phenol	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Pyrene	ug/kg	ND (440)	ND (400)	ND (400)	ND (410)	ND (430)	ND (410)	ND (420)	ND (430)	ND (410)	ND (430)	ND (410)	ND (390)	ND (430)
Volatiles														
1,1,1-Trichloroethane	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
1,1,2,2-Tetrachloroethane	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
1,1,2-Trichloroethane	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
1,1-Dichloroethane	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
1,1-Dichloroethene	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
1,2,4-Trichlorobenzene	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (14)	ND (12)	ND (12)	ND (11)	ND (15)	ND (11)	ND (12)	ND (12)	ND (13)	ND (13)	ND (11)	ND (10)	ND (16)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
1,2-Dichlorobenzene	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
1,2-Dichloroethane	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A006 P200(GM)*	*A006 P200(GM)*	*A006 P200(GM)*	*A006 P200(GM)*	*A006 P200(GM)*	*A006 P200(GM)*	*A006 P200(GM)*	*A006 P200(GM)*	*A007*	*A007*	*A007*	*A007*	*A007*
Sample Location:		*B-X189Y122*	*B-X213Y125*	*B-X213Y125*	*B-X213Y125*	*B-X213Y125*	*B-X223Y124*	*B-X223Y124*	*B-X223Y124*	*B-X158Y207*	*B-X158Y207*	*B-X158Y207*	*B-X170Y211*	*B-X170Y211*
Sample ID:		*S-011502-MG-056*	*S-022502-MG-131*	*S-022502-MG-134*	*S-022502-MG-132*	*S-022502-MG-133*	*S-011402-MG-047*	*S-011402-MG-048*	*S-011402-MG-049*	*S-030602-MG-161*	*S-030602-MG-162*	*S-030602-MG-163*	*S-030602-MG-158*	*S-030602-MG-159*
Sample Date:		*1/15/2002*	*2/25/2002*	*2/25/2002*	*2/25/2002*	*2/25/2002*	*1/14/2002*	*1/14/2002*	*1/14/2002*	*3/6/2002*	*3/6/2002*	*3/6/2002*	*3/6/2002*	*3/6/2002*
Sample Depth:		*(8-10)*	*(0-2)*	*(5-6)*	*(6-8)*	*(10-11.5)*	*(0-2)*	*(6-8)*	*(14-15)*	*(0-2)*	*(6-8)*	*(22-24)*	*(0-2)*	*(6-8)*
Parameters	***Units***													
1,2-Dichloropropane	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
1,3-Dichlorobenzene	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	4 J	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
1,4-Dichlorobenzene	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	13	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (28)	ND (24)	ND (24)	ND (23)	ND (30)	ND (22)	ND (25)	ND (23)	ND (27)	5.8 J	ND (23)	ND (20)	ND (31)
2-Hexanone	ug/kg	ND (28)	ND (24)	ND (24)	ND (23)	ND (30)	ND (22)	ND (25)	ND (23)	ND (27)	ND (27)	ND (23)	ND (20)	ND (31)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (28)	ND (24)	ND (24)	ND (23)	ND (30)	ND (22)	ND (25)	ND (23)	ND (27)	ND (27)	ND (23)	ND (20)	ND (31)
Acetone	ug/kg	ND (28) UJ	ND (24) UJ	ND (24) UJ	ND (23) UJ	ND (30) UJ	ND (22) UJ	ND (25) UJ	ND (23) UJ	ND (27) UJ	26 J	ND (23) UJ	ND (20) UJ	ND (31) UJ
Benzene	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
Bromodichloromethane	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
Bromoform	ug/kg	ND (6.9) UJ	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6) UJ	ND (6.2) UJ	ND (5.8) UJ	ND (6.7) UJ	ND (6.7) UJ	ND (5.7) UJ	ND (5.1) UJ	ND (7.8) UJ
Bromomethane (Methyl Bromide)	ug/kg	ND (6.9) UJ	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6) UJ	ND (6.2) UJ	ND (5.8) UJ	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
Carbon disulfide	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
Carbon tetrachloride	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
Chlorobenzene	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	2.2 J	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
Chloroethane	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
Chloroform (Trichloromethane)	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
Chloromethane (Methyl Chloride)	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
cis-1,2-Dichloroethene	ug/kg	ND (3.4)	ND (2.9)	ND (2.9)	ND (2.9)	ND (3.7)	ND (2.8)	ND (3.1)	ND (2.9)	ND (3.3)	ND (3.3)	1.7 J	ND (2.5)	ND (3.9)
cis-1,3-Dichloropropene	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
Cyclohexane	ug/kg	ND (14)	ND (12)	ND (12)	ND (11)	ND (15)	ND (11)	ND (12)	ND (12)	ND (13)	ND (13)	ND (11)	ND (10)	ND (16)
Dibromochloromethane	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
Ethylbenzene	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
Isopropylbenzene	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
Methyl acetate	ug/kg	ND (14)	ND (12)	ND (12)	ND (11)	ND (15)	ND (11)	ND (12)	ND (12)	ND (13)	ND (13)	ND (11)	ND (10)	ND (16)
Methyl cyclohexane	ug/kg	ND (14)	ND (12)	ND (12)	ND (11)	ND (15)	ND (11)	ND (12)	ND (12)	ND (13)	ND (13)	ND (11)	ND (10)	ND (16)
Methyl Tert Butyl Ether	ug/kg	ND (28)	ND (24)	ND (24)	ND (23)	ND (30)	ND (22)	ND (25)	ND (23)	ND (27)	ND (27)	ND (23)	ND (20)	ND (31)
Methylene chloride	ug/kg	ND (6.9)	12	11	14	7.5	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
Styrene	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
Tetrachloroethene	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
Toluene	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
trans-1,2-Dichloroethene	ug/kg	ND (3.4)	ND (2.9)	ND (2.9)	ND (2.9)	ND (3.7)	ND (2.8)	ND (3.1)	ND (2.9)	ND (3.3)	ND (3.3)	ND (2.8)	ND (2.5)	ND (3.9)
trans-1,3-Dichloropropene	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
Trichloroethene	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
Vinyl chloride	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
Xylene (total)	ug/kg	ND (6.9)	ND (5.9)	ND (5.9)	ND (5.7)	ND (7.4)	ND (5.6)	ND (6.2)	ND (5.8)	ND (6.7)	ND (6.7)	ND (5.7)	ND (5.1)	ND (7.8)
General Chemistry														
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Solids	%	74.2	81.7	81.7	80	76.9	80.1	78.7	76.1	80.1	77.4	80.5	83.7	77.6

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A007*	*A007*	*A007*	*A007*	*A008*	*A008*	*A008*	*A008*	*A008*	*A008*	*A008*	*A008*	*A008*
Sample Location:		*B-X170Y211*	*B-X185Y195*	*B-X185Y195*	*B-X185Y195*	*MW-X233Y095*	*MW-X233Y100*	*MW-X233Y115*	*MW-X233Y115*	*MW-X233Y120*	*MW-X233Y120*	*MW-X233Y120*	*MW-X233Y120*	*MW-X233Y125*
Sample ID:		*S-030602-MG-160*	*S-031502-MG-186*	*S-031502-MG-187*	*S-031502-MG-188*	*S-042403-JM-1008*	*S-042403-JM-1007*	*S-041603-KMV-571*	*S-041603-KMV-572*	*S-042203-JM-1000*	*S-042203-JM-1001*	*S-042203-JM-1002*	*S-042203-JM-1003*	*S-042203-JM-1004*
Sample Date:		*3/6/2002*	*3/15/2002*	*3/15/2002*	*3/15/2002*	*4/24/2003*	*4/24/2003*	*4/16/2003*	*4/16/2003*	*4/22/2003*	*4/22/2003*	*4/22/2003*	*4/22/2003*	*4/22/2003*
Sample Depth:		*(26-28)*	*(0-2)*	*(6-8)*	*(11-12.5)*	*(2.6-4)*	*(5-6)*	*(0-2)*	*(6-7)*	*(0-2)*	*(0-2) Duplicate*	*(6-8)*	*(8-10)*	*(0-2)*
Parameters	***Units***													
Metals														
Aluminum	mg/kg	12700	13000 J	9050 J	19800 J	9050	4920	12500	10500	15600	16300	9200	5450	14700
Antimony	mg/kg	ND (7.6) UJ	ND (7.7) UJ	ND (38.0) UJ	ND (17.5) UJ	ND (7.3)	ND (6.8)	ND (7.3)	ND (30.6)	0.76 J	0.65 J	ND (38.7) UJ	ND (67.2) UJ	0.56 J
Arsenic	mg/kg	7.5	10.2	9.0	15.7	4.0	4.5	8.1	27.3	11.3	9.6	6.4	5.8 J	6.6
Barium	mg/kg	66.3	58.1 J	47.2 J	79.8 J	90.3	50.6	51.9	78.8 J	48.2 J	50.0 J	85.7 J	49.6 J	28.6 J
Beryllium	mg/kg	2.4	ND (0.67) UJ	1.4 J	1.9 J	0.56 J	ND (0.57) U	0.58 J	2.3 J	0.26 J	0.29 J	6.7	1.5 J	0.55 J
Cadmium	mg/kg	ND (0.63)	ND (0.64)	ND (3.2)	ND (1.5)	0.85	0.36 J	0.29 J	0.61 J	0.24 J	0.23 J	1.6 J	1.4 J	0.37 J
Chromium Total	mg/kg	18.4 J	22.5 J	9.8 J	32.9 J	11.4	6.9	16.1	18.1	21.8	18.0	14.5	7.2 J	30.9
Cobalt	mg/kg	12.1 J	5.8 J	17.8 J	18.5 J	2.2 J	4.6 J	5.7 J	15.2 J	5.6 J	6.3 J	14.9 J	10 J	5.8 J
Copper	mg/kg	17.0 J	13.7 J	9.1 J	24.0 J	6.6	8.4	14.8	35.6	18.7	16.2	15.4 J	ND (28.0) U	17.4
Cyanide (amenable)	mg/kg	ND (0.63)	ND (0.64)	ND (0.63)	ND (0.73)	ND (0.61)	ND (0.57)	ND (0.61)	ND (0.64)	ND (0.62)	ND (0.63)	ND (0.64)	ND (0.56)	ND (0.63)
Cyanide (total)	mg/kg	ND (0.63)	ND (0.64)	ND (0.63)	ND (0.73)	ND (0.61)	ND (0.57)	ND (0.61)	ND (0.64)	ND (0.62)	ND (0.63)	ND (0.64)	ND (0.56)	ND (0.63)
Iron	mg/kg	24700 J	27100 J	28600 J	34400 J	10700	11700	19900	36300	28600	24000	19500	19000	32800
Lead	mg/kg	15.2 J	18.1 J	14.9 J	41.2 J	7.2	5.4	15.0	50.1	12.7 J	14.3 J	13.5 J	20.9 J	15.7 J
Manganese	mg/kg	425 J	204 J	250 J	387 J	118	201	146	313	114	163	643	261	57.9
Mercury	mg/kg	0.064 J	ND (0.13) U	ND (0.13) U	ND (0.16) U	0.069 J	ND (0.11)	0.036 J	0.088 J	0.12	0.064 J	0.069 J	0.045 J	ND (0.13)
Nickel	mg/kg	38.9 J	12.1 J	47.7 J	48.1 J	11.3	14.7	17.3	59.2	12.4 J	13.4 J	128 J	46.1 J	11.9 J
Selenium	mg/kg	ND (0.63)	ND (0.64)	ND (3.2)	ND (1.5)	ND (0.61)	0.82	ND (0.61)	ND (2.5)	1.0	1.3	ND (3.2)	ND (5.6)	0.94
Silver	mg/kg	ND (1.3)	ND (1.3)	ND (6.3)	ND (2.9)	ND (1.2)	ND (1.1)	ND (1.2)	ND (5.1)	ND (1.2)	ND (1.3)	ND (6.4)	ND (11.2)	ND (1.3)
Thallium	mg/kg	ND (1.3)	ND (1.3) U	ND (6.3)	ND (2.9) U	ND (1.2)	ND (1.1)	ND (1.2)	ND (5.1)	ND (1.2)	ND (1.3)	ND (6.4)	ND (11.2)	ND (1.3)
Vanadium	mg/kg	23.6 J	38.4 J	10.3 J	49.5 J	16.4	8.8	26.7	25.7	34.9	33.6	18.8 J	10.6 J	39.7
Zinc	mg/kg	42.9 J	36.1 J	47.1 J	62.6 J	36.6	21.9	42.1	69.8	47.0 J	48.4 J	119 J	62.5 J	40.3 J
PCBs														
Aroclor-1016 (PCB-1016)	ug/kg	ND (42)	ND (42)	ND (42)	ND (48)	ND (40)	ND (38)	ND (200)	ND (42)	ND (41)	ND (42)	ND (43)	ND (37)	ND (83)
Aroclor-1221 (PCB-1221)	ug/kg	ND (42)	ND (42)	ND (42)	ND (48)	ND (40)	ND (38)	ND (200)	ND (42)	ND (41)	ND (42)	ND (43)	ND (37)	ND (83)
Aroclor-1232 (PCB-1232)	ug/kg	ND (42)	ND (42)	ND (42)	ND (48)	ND (40)	ND (38)	ND (200)	ND (42)	ND (41)	ND (42)	ND (43)	ND (37)	ND (83)
Aroclor-1242 (PCB-1242)	ug/kg	ND (42)	ND (42)	ND (42)	ND (48)	ND (40)	ND (38)	ND (200)	ND (42)	ND (41)	ND (42)	ND (43)	ND (37)	ND (83)
Aroclor-1248 (PCB-1248)	ug/kg	ND (42)	ND (42)	ND (42)	ND (48)	19 J	25 J	1200	ND (42)	ND (41)	ND (42)	ND (43)	ND (37)	540
Aroclor-1254 (PCB-1254)	ug/kg	ND (42)	ND (42)	ND (42)	ND (48)	ND (40)	ND (38)	ND (200)	ND (42)	ND (41)	ND (42)	ND (43)	ND (37)	ND (83)
Aroclor-1260 (PCB-1260)	ug/kg	ND (42)	ND (42)	ND (42)	ND (48)	ND (40)	ND (38)	ND (200)	ND (42)	ND (41)	ND (42)	ND (43)	ND (37)	ND (83)
Semi - Volatiles														
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
2,4,5-Trichlorophenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
2,4,6-Trichlorophenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
2,4-Dichlorophenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
2,4-Dimethylphenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
2,4-Dinitrophenol	ug/kg	ND (2000)	ND (2000)	ND (2000)	ND (2300)	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (1800)	ND (2000)
2,4-Dinitrotoluene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
2,6-Dinitrotoluene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
2-Chloronaphthalene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
2-Chlorophenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
2-Methylnaphthalene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
2-Methylphenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
2-Nitroaniline	ug/kg	ND (2000)	ND (2000)	ND (2000)	ND (2300)	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (1800)	ND (2000)
2-Nitrophenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
3,3'-Dichlorobenzidine	ug/kg	ND (2000)	ND (2000)	ND (2000)	ND (2300)	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (1800)	ND (2000)
3-Nitroaniline	ug/kg	ND (2000)	ND (2000)	ND (2000)	ND (2300)	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (1800)	ND (2000)
4,6-Dinitro-2-methylphenol	ug/kg	ND (2000)	ND (2000)	ND (2000)	ND (2300)	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (1800)	ND (2000)
4-Bromophenyl phenyl ether	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
4-Chloro-3-methylphenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
4-Chloroaniline	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
4-Chlorophenyl phenyl ether	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A007*	*A007*	*A007*	*A007*	*A008*	*A008*	*A008*	*A008*	*A008*	*A008*	*A008*	*A008*	*A008*
Sample Location:		*B-X170Y211*	*B-X185Y195*	*B-X185Y195*	*B-X185Y195*	*MW-X233Y095*	*MW-X233Y100*	*MW-X233Y115*	*MW-X233Y115*	*MW-X233Y120*	*MW-X233Y120*	*MW-X233Y120*	*MW-X233Y120*	*MW-X233Y125*
Sample ID:		*S-030602-MG-160*	*S-031502-MG-186*	*S-031502-MG-187*	*S-031502-MG-188*	*S-042403-JM-1008*	*S-042403-JM-1007*	*S-041603-KMV-571*	*S-041603-KMV-572*	*S-042203-JM-1000*	*S-042203-JM-1001*	*S-042203-JM-1002*	*S-042203-JM-1003*	*S-042203-JM-1004*
Sample Date:		*3/6/2002*	*3/15/2002*	*3/15/2002*	*3/15/2002*	*4/24/2003*	*4/24/2003*	*4/16/2003*	*4/16/2003*	*4/22/2003*	*4/22/2003*	*4/22/2003*	*4/22/2003*	*4/22/2003*
Sample Depth:		*(26-28)*	*(0-2)*	*(6-8)*	*(11-12.5)*	*(2.6-4)*	*(5-6)*	*(0-2)*	*(6-7)*	*(0-2)*	*(0-2)* *Duplicate*	*(6-8)*	*(8-10)*	*(0-2)*
Parameters	***Units***													
4-Methylphenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
4-Nitroaniline	ug/kg	ND (2000)	ND (2000)	ND (2000)	ND (2300)	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (1800)	ND (2000)
4-Nitrophenol	ug/kg	ND (2000)	ND (2000)	ND (2000)	ND (2300)	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (1800)	ND (2000)
Acenaphthene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Acenaphthylene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Acetophenone	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Anthracene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Atrazine	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Benzaldehyde	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Benzo(a)anthracene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Benzo(a)pyrene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Benzo(b)fluoranthene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Benzo(g,h,i)perylene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Benzo(k)fluoranthene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Biphenyl	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
bis(2-Chloroethoxy)methane	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
bis(2-Chloroethyl)ether	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (420)	ND (420)	200 J	ND (480)	47 J	40 J	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Butyl benzylphthalate	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Caprolactam	ug/kg	ND (420)	ND (420) UJ	ND (420) UJ	ND (480) UJ	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Carbazole	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Chrysene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Dibenz(a,h)anthracene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Dibenzofuran	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Diethyl phthalate	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Dimethyl phthalate	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Di-n-butylphthalate	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Di-n-octyl phthalate	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Fluoranthene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Fluorene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Hexachlorobenzene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Hexachlorobutadiene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Hexachlorocyclopentadiene	ug/kg	ND (2000)	ND (2000)	ND (2000)	ND (2300)	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (1800)	ND (2000)
Hexachloroethane	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Isophorone	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Naphthalene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Nitrobenzene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
N-Nitrosodi-n-propylamine	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
N-Nitrosodiphenylamine	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Pentachlorophenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Phenanthrene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Phenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Pyrene	ug/kg	ND (420)	ND (420)	ND (420)	ND (480)	ND (400)	ND (380)	ND (400)	ND (420)	ND (410)	ND (420)	ND (430)	ND (370)	ND (410)
Volatiles														
1,1,1-Trichloroethane	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
1,1,2,2-Tetrachloroethane	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
1,1,2-Trichloroethane	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
1,1-Dichloroethane	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
1,1-Dichloroethene	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
1,2,4-Trichlorobenzene	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (15)	ND (11)	ND (16)	ND (14)	ND (11)	ND (9.7)	ND (9.5)	ND (11)	ND (11)	ND (12)	ND (10)	ND (12)	ND (10)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
1,2-Dichlorobenzene	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
1,2-Dichloroethane	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A007*	*A007*	*A007*	*A007*	*A008*	*A008*	*A008*	*A008*	*A008*	*A008*	*A008*	*A008*	*A008*
Sample Location:		*B-X170Y211*	*B-X185Y195*	*B-X185Y195*	*B-X185Y195*	*MW-X233Y095*	*MW-X233Y100*	*MW-X233Y115*	*MW-X233Y115*	*MW-X233Y120*	*MW-X233Y120*	*MW-X233Y120*	*MW-X233Y120*	*MW-X233Y125*
Sample ID:		*S-030602-MG-160*	*S-031502-MG-186*	*S-031502-MG-187*	*S-031502-MG-188*	*S-042403-JM-1008*	*S-042403-JM-1007*	*S-041603-KMV-571*	*S-041603-KMV-572*	*S-042203-JM-1000*	*S-042203-JM-1001*	*S-042203-JM-1002*	*S-042203-JM-1003*	*S-042203-JM-1004*
Sample Date:		*3/6/2002*	*3/15/2002*	*3/15/2002*	*3/15/2002*	*4/24/2003*	*4/24/2003*	*4/16/2003*	*4/16/2003*	*4/22/2003*	*4/22/2003*	*4/22/2003*	*4/22/2003*	*4/22/2003*
Sample Depth:		*(26-28)*	*(0-2)*	*(6-8)*	*(11-12.5)*	*(2.6-4)*	*(5-6)*	*(0-2)*	*(6-7)*	*(0-2)*	*(0-2) Duplicate*	*(6-8)*	*(8-10)*	*(0-2)*
Parameters	***Units***													
1,2-Dichloropropane	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
1,3-Dichlorobenzene	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
1,4-Dichlorobenzene	ug/kg	1 J	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (31)	ND (23)	ND (32)	ND (29)	ND (21) UJ	ND (19) UJ	ND (19) UJ	ND (22) UJ	ND (21) UJ	ND (23) UJ	ND (20) UJ	ND (24) UJ	ND (21) UJ
2-Hexanone	ug/kg	ND (31)	ND (23)	ND (32)	ND (29)	ND (21) UJ	ND (19) UJ	ND (19) UJ	ND (22) UJ	ND (21) UJ	ND (23)	ND (20)	ND (24)	ND (21)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (31)	ND (23)	ND (32)	ND (29)	ND (21)	ND (19)	ND (19)	ND (22)	ND (21)	ND (23)	ND (20)	ND (24)	ND (21)
Acetone	ug/kg	ND (31) UJ	ND (23)	ND (32)	3.3 J	ND (21) UJ	ND (19) UJ	ND (19) UJ	ND (22) UJ	ND (21) UJ	ND (23) UJ	ND (20) UJ	ND (24) UJ	ND (21) UJ
Benzene	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Bromodichloromethane	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Bromoform	ug/kg	ND (7.7) UJ	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Bromomethane (Methyl Bromide)	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Carbon disulfide	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Carbon tetrachloride	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4) UJ	ND (4.8) UJ	ND (4.7)	ND (5.6)	ND (5.3) UJ	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Chlorobenzene	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Chloroethane	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Chloroform (Trichloromethane)	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Chloromethane (Methyl Chloride)	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
cis-1,2-Dichloroethene	ug/kg	ND (3.9)	ND (2.8)	ND (4.1)	ND (3.6)	ND (2.7)	ND (2.4)	ND (2.4)	ND (2.8)	ND (2.6)	ND (2.9)	ND (2.5)	ND (3.0)	ND (2.6)
cis-1,3-Dichloropropene	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Cyclohexane	ug/kg	ND (15)	ND (11)	ND (16)	ND (14)	ND (11)	ND (9.7)	ND (9.5)	ND (11)	ND (11)	ND (12)	ND (10)	ND (12)	ND (10)
Dibromochloromethane	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Ethylbenzene	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Isopropylbenzene	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Methyl acetate	ug/kg	ND (15)	ND (11)	ND (16)	ND (14)	ND (11)	ND (9.7)	ND (9.5)	ND (11)	ND (11)	ND (12)	ND (10)	ND (12)	ND (10)
Methyl cyclohexane	ug/kg	ND (15)	ND (11)	ND (16)	ND (14)	ND (11)	ND (9.7)	ND (9.5)	ND (11)	ND (11)	ND (12)	ND (10)	ND (12)	ND (10)
Methyl Tert Butyl Ether	ug/kg	ND (31)	ND (23)	ND (32)	ND (29)	ND (21)	ND (19)	ND (19)	ND (22)	ND (21)	ND (23)	ND (20)	ND (24)	ND (21)
Methylene chloride	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Styrene	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Tetrachloroethene	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Toluene	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
trans-1,2-Dichloroethene	ug/kg	ND (3.9)	ND (2.8)	ND (4.1)	ND (3.6)	ND (2.7)	ND (2.4)	ND (2.4)	ND (2.8)	ND (2.6)	ND (2.9)	ND (2.5)	ND (3.0)	ND (2.6)
trans-1,3-Dichloropropene	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Trichloroethene	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4) UJ	ND (4.8) UJ	ND (4.7) UJ	ND (5.6) UJ	ND (5.3) UJ	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Vinyl chloride	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
Xylene (total)	ug/kg	ND (7.7)	ND (5.7)	ND (8.1)	ND (7.1)	ND (5.4)	ND (4.8)	ND (4.7)	ND (5.6)	ND (5.3)	ND (5.8)	ND (5.1)	ND (5.9)	ND (5.1)
General Chemistry														
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Solids	%	79.0	78.1	78.9	68.7	82.2	87.8	82.2	78.5	80.7	78.8	77.6	89.3	79.8

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A008*	*A008*	*A008 P200(GM)*	*A008 P200(GM)*	*A008 P200(GM)*	*A008 P200(GM)*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*
Sample Location:		*MW-X233Y125*	*MW-X233Y125*	*B-X193Y098*	*B-X193Y098*	*B-X193Y098*	*B-X193Y098*	*B-X047Y072*	*B-X047Y072*	*B-X047Y072*	*B-X048Y086*	*B-X048Y086*	*B-X048Y086*	*B-X059Y135B*
Sample ID:		*S-042203-JM-1005*	*S-042203-JM-1006*	*S-010702-MG-004*	*S-010702-MG-005*	*S-010702-MG-006*	*S-010702-MG-007*	*S-050202-DD-009*	*S-050202-DD-010*	*S-050202-DD-011*	*S-020602-MG-096*	*S-020602-MG-097*	*S-020602-MG-098*	*S-070902-MG-232*
Sample Date:		*4/22/2003*	*4/22/2003*	*1/7/2002*	*1/7/2002*	*1/7/2002*	*1/7/2002*	*5/2/2002*	*5/2/2002*	*5/2/2002*	*2/6/2002*	*2/6/2002*	*2/6/2002*	*7/9/2002*
Sample Depth:		*(6-8)*	*(12-14)*	*(0-2)*	*(6-8)*	*(12-13)*	*(13-14)*	*(0-2)*	*(6-8)*	*(35-36)*	*(0-2)*	*(6-8)*	*(31-33)*	*(2-4)*
Parameters	***Units***													
Metals														
Aluminum	mg/kg	10700	4440	12000	14200	9510	9210	1420	1700	12700	1880	2430	9550	11800
Antimony	mg/kg	ND (7.2) UJ	0.33 J	ND (7.5) UJ	ND (8.6) UJ	ND (7.7) UJ	ND (7.6) UJ	ND (6.2)	ND (6.3)	ND (8.0)	ND (6.2) UJ	ND (6.2) UJ	R	0.42 J
Arsenic	mg/kg	5.4	16.1	7.6	7.9	6.9	8.2	0.85 J	0.61 J	4.8	1.4	0.9 J	2.5	3.4
Barium	mg/kg	300 J	98.2 J	85.4 J	171 J	142 J	122 J	40.7	156	29.8	75.5 J	136 J	414 J	33.4
Beryllium	mg/kg	0.63	0.33 J	0.66	0.88	0.60 J	0.70	ND (0.51)	ND (0.52)	1.8	ND (0.52) U	0.19 J	1.4	0.091 J
Cadmium	mg/kg	2.2	1.1	0.53 J	0.57 J	0.65	0.72	0.28 J	0.35 J	0.94	0.37 J	0.34 J	2.4	0.25 J
Chromium Total	mg/kg	26.0	8.4	17.5	18.0	12.0	15.1	4.8	4.4	21.3	4.9	4.3	15.2	17.9
Cobalt	mg/kg	85.6 J	6.8 J	6.8	10.5	10.8	12.2	0.74 J	1.0 J	8.2	1.9 J	2.4 J	11.1	5.4 J
Copper	mg/kg	20.6	44.4	13.1	14.9	20.0	18.8	7.2	4.7	22.1	4.5	6.1	7.8	220
Cyanide (amenable)	mg/kg	ND (0.60)	ND (0.61)	ND (0.62)	ND (0.72)	ND (0.64)	ND (0.63)	ND (0.51)	ND (0.52)	ND (0.67)	ND (0.52)	ND (0.52)	ND (0.71)	ND (0.56)
Cyanide (total)	mg/kg	ND (0.60)	ND (0.61)	ND (0.62)	ND (0.72)	ND (0.64)	ND (0.63)	ND (0.51)	ND (0.52)	ND (0.67)	0.2 J	ND (0.52)	ND (0.71)	ND (0.56)
Iron	mg/kg	25200	22900	23800	25000	26600	32400	2490	5670	26300	4070	4690	17200	7160
Lead	mg/kg	35.0 J	37.1 J	13.4	14.0	17.3	19.6	2.9	2.5	20.0	2.7	2.6	12.2	22.3
Manganese	mg/kg	2900	64.6	742	665	197	219	75.0	125	142	106 J	156 J	353 J	105 J
Mercury	mg/kg	0.034 J	0.12	ND (0.12) U	ND (0.14) U	ND (0.13) U	ND (0.13) U	0.0097 J	ND (0.1)	0.11 J	0.011 J	ND (0.10)	0.31	0.092 J
Nickel	mg/kg	52.0 J	44.1 J	14.9	23.4	25.8	34.5	5.4	6.9	28.8	5.2	10	30.6	14.6
Selenium	mg/kg	0.62	1.1	ND (0.62)	ND (0.72)	ND (0.64)	ND (0.63)	ND (0.51)	ND (0.52)	ND (0.67)	ND (0.52)	ND (0.52)	ND (0.71)	ND (0.56)
Silver	mg/kg	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.4)	ND (1.3)	ND (1.3)	ND (1.0)	ND (1.0)	ND (1.3)	ND (1.0)	ND (1.0)	ND (1.4)	ND (1.1)
Thallium	mg/kg	ND (1.2)	3.8	ND (1.2)	1.2 J	0.66 J	1.5	ND (1.0)	ND (1.0)	0.75 J	1	0.58 J	0.81 J	ND (1.1)
Vanadium	mg/kg	41.3	4.6 J	29.5	29.4	14.3	17.8	2.9 J	3.3 J	32.4	4.7 J	3.2 J	20.3	11.1
Zinc	mg/kg	73.2 J	113 J	32.7	43.6	41.6	38.0	25.5	30.6	110	28	33.4	44.9	56.6
PCBs														
Aroclor-1016 (PCB-1016)	ug/kg	ND (40)	ND (40)	ND (41)	ND (47)	ND (85000)	ND (170000)	ND (340)	ND (35)	ND (44)	ND (34)	ND (34)	ND (47)	ND (7400)
Aroclor-1221 (PCB-1221)	ug/kg	ND (40)	ND (40)	ND (41)	ND (47)	ND (85000)	ND (170000)	ND (340)	ND (35)	ND (44)	ND (34)	ND (34)	ND (47)	ND (7400)
Aroclor-1232 (PCB-1232)	ug/kg	ND (40)	ND (40)	ND (41)	ND (47)	760000	1700000	ND (340)	ND (35)	ND (44)	ND (34)	ND (34)	ND (47)	ND (7400)
Aroclor-1242 (PCB-1242)	ug/kg	ND (40)	ND (40)	ND (41)	ND (47)	ND (85000)	ND (170000)	ND (340)	ND (35)	ND (44)	ND (34)	ND (34)	ND (47)	ND (7400)
Aroclor-1248 (PCB-1248)	ug/kg	37 J	ND (40)	ND (41)	ND (47)	ND (85000)	ND (170000)	1000	ND (35)	ND (44)	400	ND (34)	ND (47)	97000
Aroclor-1254 (PCB-1254)	ug/kg	ND (40)	ND (40)	ND (41)	ND (47)	ND (85000)	ND (170000)	ND (340)	ND (35)	ND (44)	ND (34)	ND (34)	ND (47)	ND (7400)
Aroclor-1260 (PCB-1260)	ug/kg	ND (40)	ND (40)	ND (41)	ND (47)	ND (85000)	ND (170000)	140 J	ND (35)	ND (44)	25 J	ND (34)	ND (47)	12000
Semi - Volatiles														
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
2,4,5-Trichlorophenol	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
2,4,6-Trichlorophenol	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
2,4-Dichlorophenol	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
2,4-Dimethylphenol	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
2,4-Dinitrophenol	ug/kg	ND (1900)	ND (2000)	ND (2000)	ND (2300)	ND (2100)	ND (2000)	ND (1600)	ND (1700)	ND (2100)	ND (1700)	ND (1700)	ND (2300)	ND (1800) UJ
2,4-Dinitrotoluene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
2,6-Dinitrotoluene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
2-Chloronaphthalene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
2-Chlorophenol	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
2-Methylnaphthalene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
2-Methylphenol	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
2-Nitroaniline	ug/kg	ND (1900)	ND (2000)	ND (2000)	ND (2300)	ND (2100)	ND (2000)	ND (1600)	ND (1700)	ND (2100)	ND (1700)	ND (1700)	ND (2300)	ND (1800)
2-Nitrophenol	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
3,3'-Dichlorobenzidine	ug/kg	ND (1900)	ND (2000)	ND (2000)	ND (2300)	ND (2100)	ND (2000)	ND (1600)	ND (1700)	ND (2100)	ND (1700)	ND (1700)	ND (2300)	ND (1800)
3-Nitroaniline	ug/kg	ND (1900)	ND (2000)	ND (2000)	ND (2300)	ND (2100)	ND (2000)	ND (1600)	ND (1700)	ND (2100)	ND (1700)	ND (1700)	ND (2300)	ND (1800)
4,6-Dinitro-2-methylphenol	ug/kg	ND (1900)	ND (2000)	ND (2000)	ND (2300)	ND (2100)	ND (2000)	ND (1600)	ND (1700)	ND (2100)	ND (1700)	ND (1700)	ND (2300)	ND (1800)
4-Bromophenyl phenyl ether	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
4-Chloro-3-methylphenol	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
4-Chloroaniline	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
4-Chlorophenyl phenyl ether	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A008*	*A008*	*A008 P200(GM)*	*A008 P200(GM)*	*A008 P200(GM)*	*A008 P200(GM)*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*
Sample Location:		*MW-X233Y125*	*MW-X233Y125*	*B-X193Y098*	*B-X193Y098*	*B-X193Y098*	*B-X193Y098*	*B-X047Y072*	*B-X047Y072*	*B-X047Y072*	*B-X048Y086*	*B-X048Y086*	*B-X048Y086*	*B-X059Y135B*
Sample ID:		*S-042203-JM-1005*	*S-042203-JM-1006*	*S-010702-MG-004*	*S-010702-MG-005*	*S-010702-MG-006*	*S-010702-MG-007*	*S-050202-DD-009*	*S-050202-DD-010*	*S-050202-DD-011*	*S-020602-MG-096*	*S-020602-MG-097*	*S-020602-MG-098*	*S-070902-MG-232*
Sample Date:		*4/22/2003*	*4/22/2003*	*1/7/2002*	*1/7/2002*	*1/7/2002*	*1/7/2002*	*5/2/2002*	*5/2/2002*	*5/2/2002*	*2/6/2002*	*2/6/2002*	*2/6/2002*	*7/9/2002*
Sample Depth:		*(6-8)*	*(12-14)*	*(0-2)*	*(6-8)*	*(12-13)*	*(13-14)*	*(0-2)*	*(6-8)*	*(35-36)*	*(0-2)*	*(6-8)*	*(31-33)*	*(2-4)*
Parameters	***Units***													
4-Methylphenol	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
4-Nitroaniline	ug/kg	ND (1900)	ND (2000)	ND (2000)	ND (2300)	ND (2100)	ND (2000)	ND (1600)	ND (1700)	ND (2100)	ND (1700)	ND (1700)	ND (2300)	ND (1800)
4-Nitrophenol	ug/kg	ND (1900) UJ	ND (2000)	ND (2000) UJ	ND (2300) UJ	ND (2100) UJ	ND (2000) UJ	ND (1600) UJ	ND (1700) UJ	ND (2100) UJ	ND (1700)	ND (1700)	ND (2300)	ND (1800)
Acenaphthene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
Acenaphthylene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
Acetophenone	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
Anthracene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	110 J	ND (340)	ND (470)	39 J
Atrazine	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
Benzaldehyde	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
Benzo(a)anthracene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	86 J	ND (350)	ND (440)	330 J	ND (340)	ND (470)	200 J
Benzo(a)pyrene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	88 J	ND (350)	ND (440)	310 J	ND (340)	ND (470)	210 J
Benzo(b)fluoranthene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	110 J	ND (350)	ND (440)	450	ND (340)	ND (470)	310 J
Benzo(g,h,i)perylene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	75 J	ND (350)	ND (440)	170 J	ND (340)	ND (470)	150 J
Benzo(k)fluoranthene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	150 J	ND (340)	ND (470)	120 J
Biphenyl	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
bis(2-Chloroethoxy)methane	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
bis(2-Chloroethyl)ether	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	4300	4500 J	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
Butyl benzylphthalate	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
Caprolactam	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
Carbazole	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	63 J	ND (340)	ND (470)	ND (370)
Chrysene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	81 J	ND (350)	ND (440)	380	ND (340)	ND (470)	200 J
Dibenz(a,h)anthracene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	40 J
Dibenzofuran	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	73 J	ND (340)	ND (470)	ND (370)
Diethyl phthalate	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
Dimethyl phthalate	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
Di-n-butylphthalate	ug/kg	ND (400)	ND (400)	ND (410) UJ	ND (470) UJ	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
Di-n-octyl phthalate	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	3600 J	3600 J	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
Fluoranthene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	220 J	ND (350)	ND (440)	760	ND (340)	ND (470)	350 J
Fluorene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	190 J	ND (340)	ND (470)	ND (370)
Hexachlorobenzene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
Hexachlorobutadiene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
Hexachlorocyclopentadiene	ug/kg	ND (1900)	ND (2000)	ND (2000)	ND (2300)	ND (2100)	ND (2000)	ND (1600)	ND (1700)	ND (2100)	ND (1700)	ND (1700)	ND (2300)	ND (1800)
Hexachloroethane	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	170 J	ND (340)	ND (470)	130 J
Isophorone	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
Naphthalene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
Nitrobenzene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
N-Nitrosodi-n-propylamine	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340) UJ	ND (350) UJ	ND (440) UJ	ND (340)	ND (340)	ND (470)	ND (370)
N-Nitrosodiphenylamine	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
Pentachlorophenol	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
Phenanthrene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	150 J	ND (350)	ND (440)	660	ND (340)	ND (470)	180 J
Phenol	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	ND (340)	ND (350)	ND (440)	ND (340)	ND (340)	ND (470)	ND (370)
Pyrene	ug/kg	ND (400)	ND (400)	ND (410)	ND (470)	ND (430)	ND (420)	180 J	ND (350)	ND (440)	640	ND (340)	ND (470)	280 J
Volatiles														
1,1,1-Trichloroethane	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
1,1,2,2-Tetrachloroethane	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
1,1,2-Trichloroethane	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
1,1-Dichloroethane	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
1,1-Dichloroethene	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
1,2,4-Trichlorobenzene	ug/kg	ND (4.9)	ND (5.0) U	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (9.8)	ND (10)	ND (12)	ND (13)	ND (2400)	ND (12) UJ	ND (7.7)	ND (8.6)	ND (12)	ND (17)	ND (16)	ND (15)	ND (11)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
1,2-Dichlorobenzene	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	790 J	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
1,2-Dichloroethane	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A008*	*A008*	*A008 P200(GM)*	*A008 P200(GM)*	*A008 P200(GM)*	*A008 P200(GM)*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*
Sample Location:		*MW-X233Y125*	*MW-X233Y125*	*B-X193Y098*	*B-X193Y098*	*B-X193Y098*	*B-X193Y098*	*B-X047Y072*	*B-X047Y072*	*B-X047Y072*	*B-X048Y086*	*B-X048Y086*	*B-X048Y086*	*B-X059Y135B*
Sample ID:		*S-042203-JM-1005*	*S-042203-JM-1006*	*S-010702-MG-004*	*S-010702-MG-005*	*S-010702-MG-006*	*S-010702-MG-007*	*S-050202-DD-009*	*S-050202-DD-010*	*S-050202-DD-011*	*S-020602-MG-096*	*S-020602-MG-097*	*S-020602-MG-098*	*S-070902-MG-232*
Sample Date:		*4/22/2003*	*4/22/2003*	*1/7/2002*	*1/7/2002*	*1/7/2002*	*1/7/2002*	*5/2/2002*	*5/2/2002*	*5/2/2002*	*2/6/2002*	*2/6/2002*	*2/6/2002*	*7/9/2002*
Sample Depth:		*(6-8)*	*(12-14)*	*(0-2)*	*(6-8)*	*(12-13)*	*(13-14)*	*(0-2)*	*(6-8)*	*(35-36)*	*(0-2)*	*(6-8)*	*(31-33)*	*(2-4)*
Parameters	***Units***													
1,2-Dichloropropane	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
1,3-Dichlorobenzene	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	6500	14	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
1,4-Dichlorobenzene	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	34000	23	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (20) UJ	ND (20) UJ	ND (23)	ND (27)	ND (4800) U	4.1 J	ND (15)	ND (17)	ND (25)	ND (33)	ND (31)	ND (31)	ND (22) UJ
2-Hexanone	ug/kg	ND (20)	ND (20)	ND (23)	ND (27)	ND (4800)	ND (24)	ND (15)	ND (17)	ND (25)	ND (33)	ND (31)	ND (31)	ND (22)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (20)	ND (20)	ND (23)	ND (27)	ND (4800)	ND (24)	ND (15)	ND (17)	ND (25)	ND (33)	ND (31)	ND (31)	ND (22)
Acetone	ug/kg	ND (20) UJ	ND (20) UJ	ND (23)	ND (27)	ND (4800) U	ND (24) U	ND (15) U	ND (17) UJ	ND (25) UJ	ND (33) U	ND (31) U	ND (31)	ND (22) UJ
Benzene	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
Bromodichloromethane	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
Bromoform	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9) UJ	ND (4.3) UJ	ND (6.1) UJ	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
Bromomethane (Methyl Bromide)	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
Carbon disulfide	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
Carbon tetrachloride	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
Chlorobenzene	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	9000	130	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
Chloroethane	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
Chloroform (Trichloromethane)	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
Chloromethane (Methyl Chloride)	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
cis-1,2-Dichloroethene	ug/kg	ND (2.4)	ND (2.5)	ND (2.9)	ND (3.4)	ND (600)	ND (3)	ND (1.9)	ND (2.2)	ND (3.1)	ND (4.2)	ND (3.9)	ND (3.9)	ND (2.7)
cis-1,3-Dichloropropene	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
Cyclohexane	ug/kg	ND (9.8)	ND (10)	ND (12)	ND (13)	ND (2400)	ND (12)	ND (7.7)	ND (8.6)	ND (12)	ND (17)	ND (16)	ND (15)	ND (11)
Dibromochloromethane	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9) U	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
Ethylbenzene	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
Isopropylbenzene	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
Methyl acetate	ug/kg	ND (9.8)	ND (10)	ND (12)	ND (13)	ND (2400)	ND (12)	ND (7.7)	ND (8.6)	ND (12)	ND (17)	ND (16)	ND (15)	ND (11)
Methyl cyclohexane	ug/kg	ND (9.8)	ND (10)	ND (12)	ND (13)	ND (2400)	ND (12)	ND (7.7)	ND (8.6)	ND (12)	ND (17)	ND (16)	ND (15)	ND (11)
Methyl Tert Butyl Ether	ug/kg	ND (20)	ND (20)	ND (23)	ND (27)	ND (4800)	ND (24)	ND (15)	ND (17)	ND (25)	ND (33)	ND (31)	ND (31)	ND (22)
Methylene chloride	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4) U
Styrene	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
Tetrachloroethene	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
Toluene	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
trans-1,2-Dichloroethene	ug/kg	ND (2.4)	ND (2.5)	ND (2.9)	ND (3.4)	ND (600)	ND (3)	ND (1.9)	ND (2.2)	ND (3.1)	ND (4.2)	ND (3.9)	ND (3.9)	ND (2.7)
trans-1,3-Dichloropropene	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
Trichloroethene	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9) UJ	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
Vinyl chloride	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
Xylene (total)	ug/kg	ND (4.9)	ND (5.0)	ND (5.9)	ND (6.7)	ND (1200)	ND (5.9)	ND (3.9)	ND (4.3)	ND (6.1)	ND (8.4)	ND (7.9)	ND (7.7)	ND (5.4)
General Chemistry														
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Solids	%	82.8	81.8	80.2	69.7	77.6	79.1	97.2	95.3	74.8	96.3	96.6	70.4	88.9

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*
Sample Location:		*B-X059Y135B*	*B-X059Y135B*	*B-X059Y135B*	*B-X069Y098B*	*B-X069Y098B*	*B-X069Y098B*	*B-X084Y138B*	*B-X093Y090*	*B-X093Y090*	*B-X093Y090*	*B-X106Y102B*
Sample ID:		*S-070902-MG-233*	*S-070902-MG-234*	*S-070902-MG-235*	*S-021202-MG-104*	*S-021202-MG-103*	*S-021202-MG-105*	*S-052902-MG-213*	*S-050702-MG-210*	*S-050702-MG-211*	*S-050702-MG-212*	*S-021202-MG-106*
Sample Date:		*7/9/2002*	*7/9/2002*	*7/9/2002*	*2/12/2002*	*2/12/2002*	*2/12/2002*	*5/29/2002*	*5/7/2002*	*5/7/2002*	*5/7/2002*	*2/12/2002*
Sample Depth:		*(6-8)*	*(34-36)*	*(40-42)*	*(6-8)*	*(3.5-5.5)*	*(20-22)*	*(6-8)*	*(3-5)*	*(6-8)*	*(23-25)*	*(2-4)*
Parameters	***Units***											
Metals												
Aluminum	mg/kg	9100	4980	9450	7260 J	12600 J	9660 J	1710	1330	2290	7480	7200 J
Antimony	mg/kg	ND (7.1) UJ	ND (14.9) UJ	ND (8.1) UJ	R	R	0.79 J	ND (6.5)	ND (6.2)	ND (6.3)	ND (7.7)	R
Arsenic	mg/kg	6.7	5.2	4.9	5.2	8.4	7.6	1.5	0.79 J	1.2	6.2	7.8
Barium	mg/kg	33.2	51.5	131	15.7 J	25 J	3110 J	10.9 J	39.4	64.5	71.1	51.3 J
Beryllium	mg/kg	0.15 J	2.4	1.4	0.28 J	0.11 J	7.7	ND (0.55) U	ND (0.52) U	ND (0.52) U	1.1	0.55 J
Cadmium	mg/kg	0.034 J	ND (1.2)	0.75	0.21 J	0.17 J	6 J	ND (0.55)	0.31 J	0.28 J	3.8	0.28 J
Chromium Total	mg/kg	16.1	8.8	14.5	14 J	16.4 J	22 J	4.3	4.5	5.5	13.8	15.6 J
Cobalt	mg/kg	3.9 J	69.4	4.3 J	2.1 J	3.3 J	44.1	1.7 J	1.0 J	1.2 J	8.6	4.1 J
Copper	mg/kg	14.9	6.1 J	30.5	5.7	12.4	30	8.9	4.1	8.9	14.7	10.6
Cyanide (amenable)	mg/kg	ND (0.59)	ND (0.62)	ND (0.68)	ND (0.60)	ND (0.63)	ND (0.68)	ND (0.55)	ND (0.52)	ND (0.52)	ND (0.64)	ND (0.60)
Cyanide (total)	mg/kg	ND (0.59)	ND (0.62)	ND (0.68)	ND (0.60)	ND (0.63)	ND (0.68)	ND (0.55)	ND (0.52)	ND (0.52)	ND (0.64)	ND (0.60)
Iron	mg/kg	18200	16900	17000	21300 J	20900 J	22700 J	4410	2630	3700	20200	25000 J
Lead	mg/kg	16.3	13.2	8.0	7.4	10.9	36.6	6.9	2.7	3.1	14.5	14.2
Manganese	mg/kg	67.3 J	172 J	297 J	28.5 J	72.1 J	14800 J	34.6	101	117	869	183 J
Mercury	mg/kg	ND (0.12)	ND (0.12)	0.22	ND (0.12)	0.068 J	1.1 J	ND (0.11) U	ND (0.1)	0.014 J	0.093 J	ND (0.12)
Nickel	mg/kg	6.5	45.1	23.3	4.2 J	8.4 J	120 J	6.7	5.1	5.9	32.4	6.5 J
Selenium	mg/kg	ND (0.59)	ND (1.2)	ND (0.68)	0.48 J	0.59 J	ND (3.4)	ND (0.55)	ND (0.52)	ND (0.52)	ND (0.76) U	0.48 J
Silver	mg/kg	ND (1.2)	ND (2.5)	ND (1.4)	ND (1.2)	ND (1.3)	ND (6.8)	ND (1.1)	ND (1.0)	ND (1.0)	ND (1.3)	ND (1.2)
Thallium	mg/kg	0.74 J	1.5 J	ND (1.4)	ND (1.2)	ND (1.3)	5.2 J	0.89 J	0.7 J	0.6 J	ND (1.3)	ND (1.2)
Vanadium	mg/kg	32.0	9.0 J	22.5	33.5 J	29.8 J	41.9 J	5.6	3.7 J	4.9 J	25.2	30.7 J
Zinc	mg/kg	23.5	91.4	49.4	8.1 J	31.6 J	159 J	19.4	33.5	28.5	79.0	22.7 J
PCBs												
Aroclor-1016 (PCB-1016)	ug/kg	ND (39)	ND (41)	ND (45)	ND (400)	ND (42)	ND (45)	ND (36)	ND (69)	ND (35)	ND (43)	ND (400000)
Aroclor-1221 (PCB-1221)	ug/kg	ND (39)	ND (41)	ND (45)	ND (400)	ND (42)	ND (45)	ND (36)	ND (69)	ND (35)	ND (43)	1800000
Aroclor-1232 (PCB-1232)	ug/kg	ND (39)	ND (41)	ND (45)	ND (400)	ND (42)	ND (45)	ND (36)	ND (69)	ND (35)	ND (43)	ND (400000)
Aroclor-1242 (PCB-1242)	ug/kg	ND (39)	ND (41)	ND (45)	1900	ND (42)	140	ND (36)	ND (69)	ND (35)	ND (43)	1600000
Aroclor-1248 (PCB-1248)	ug/kg	140	11 J	14 J	ND (400)	ND (42)	ND (45)	6.5 J	630	200	ND (43)	ND (400000)
Aroclor-1254 (PCB-1254)	ug/kg	ND (39)	ND (41)	ND (45)	ND (400)	ND (42)	ND (45)	ND (36)	ND (69)	ND (35)	ND (43)	ND (400000)
Aroclor-1260 (PCB-1260)	ug/kg	20 J	ND (41)	ND (45)	ND (400)	ND (42)	ND (45)	23 J	ND (69)	ND (35)	ND (43)	ND (400000)
Semi - Volatiles												
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
2,4,5-Trichlorophenol	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
2,4,6-Trichlorophenol	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
2,4-Dichlorophenol	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
2,4-Dimethylphenol	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
2,4-Dinitrophenol	ug/kg	ND (1900)	ND (2000)	ND (2200)	ND (1900) UJ	ND (2000) UJ	ND (2200) UJ	ND (1700) UJ	ND (1700)	ND (1700)	ND (2100)	ND (1900) UJ
2,4-Dinitrotoluene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
2,6-Dinitrotoluene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
2-Chloronaphthalene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
2-Chlorophenol	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
2-Methylnaphthalene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
2-Methylphenol	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
2-Nitroaniline	ug/kg	ND (1900)	ND (2000)	ND (2200)	ND (1900)	ND (2000)	ND (2200)	ND (1700)	ND (1700)	ND (1700)	ND (2100)	ND (1900)
2-Nitrophenol	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
3,3'-Dichlorobenzidine	ug/kg	ND (1900)	ND (2000)	ND (2200)	ND (1900)	ND (2000)	ND (2200)	ND (1700)	ND (1700)	ND (1700)	ND (2100)	ND (1900)
3-Nitroaniline	ug/kg	ND (1900)	ND (2000)	ND (2200)	ND (1900)	ND (2000)	ND (2200)	ND (1700)	ND (1700)	ND (1700)	ND (2100)	ND (1900)
4,6-Dinitro-2-methylphenol	ug/kg	ND (1900)	ND (2000)	ND (2200)	ND (1900)	ND (2000)	ND (2200)	ND (1700)	ND (1700)	ND (1700)	ND (2100)	ND (1900)
4-Bromophenyl phenyl ether	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
4-Chloro-3-methylphenol	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
4-Chloroaniline	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
4-Chlorophenyl phenyl ether	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*
Sample Location:		*B-X059Y135B*	*B-X059Y135B*	*B-X059Y135B*	*B-X069Y098B*	*B-X069Y098B*	*B-X069Y098B*	*B-X084Y138B*	*B-X093Y090*	*B-X093Y090*	*B-X093Y090*	*B-X106Y102B*
Sample ID:		*S-070902-MG-233*	*S-070902-MG-234*	*S-070902-MG-235*	*S-021202-MG-104*	*S-021202-MG-103*	*S-021202-MG-105*	*S-052902-MG-213*	*S-050702-MG-210*	*S-050702-MG-211*	*S-050702-MG-212*	*S-021202-MG-106*
Sample Date:		*7/9/2002*	*7/9/2002*	*7/9/2002*	*2/12/2002*	*2/12/2002*	*2/12/2002*	*5/29/2002*	*5/7/2002*	*5/7/2002*	*5/7/2002*	*2/12/2002*
Sample Depth:		*(6-8)*	*(34-36)*	*(40-42)*	*(6-8)*	*(3.5-5.5)*	*(20-22)*	*(6-8)*	*(3-5)*	*(6-8)*	*(23-25)*	*(2-4)*
Parameters	***Units***											
4-Methylphenol	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	240 J#	ND (350)	ND (430)	ND (400)
4-Nitroaniline	ug/kg	ND (1900)	ND (2000)	ND (2200)	ND (1900)	ND (2000)	ND (2200)	ND (1700)	ND (1700)	ND (1700)	ND (2100)	ND (1900)
4-Nitrophenol	ug/kg	ND (1900)	ND (2000)	ND (2200)	ND (1900)	ND (2000)	ND (2200)	ND (1700)	ND (1700)	ND (1700)	ND (2100)	ND (1900)
Acenaphthene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Acenaphthylene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Acetophenone	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Anthracene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Atrazine	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Benzaldehyde	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Benzo(a)anthracene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Benzo(a)pyrene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Benzo(b)fluoranthene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Benzo(g,h,i)perylene	ug/kg	64 J	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Benzo(k)fluoranthene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Biphenyl	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
bis(2-Chloroethoxy)methane	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
bis(2-Chloroethyl)ether	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	270 J
Butyl benzylphthalate	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Caprolactam	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Carbazole	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Chrysene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Dibenz(a,h)anthracene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Dibenzofuran	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Diethyl phthalate	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Dimethyl phthalate	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Di-n-butylphthalate	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Di-n-octyl phthalate	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	330 J
Fluoranthene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Fluorene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Hexachlorobenzene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Hexachlorobutadiene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Hexachlorocyclopentadiene	ug/kg	ND (1900)	ND (2000)	ND (2200)	ND (1900)	ND (2000)	ND (2200)	ND (1700)	ND (1700)	ND (1700)	ND (2100)	ND (1900)
Hexachloroethane	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Isophorone	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Naphthalene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Nitrobenzene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
N-Nitrosodi-n-propylamine	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
N-Nitrosodiphenylamine	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Pentachlorophenol	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Phenanthrene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Phenol	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	3700	ND (350)	ND (430)	ND (400)
Pyrene	ug/kg	ND (390)	ND (410)	ND (450)	ND (400)	ND (420)	ND (450)	ND (360)	ND (340)	ND (350)	ND (430)	ND (400)
Volatiles												
1,1,1-Trichloroethane	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
1,1,2,2-Tetrachloroethane	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
1,1,2-Trichloroethane	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
1,1-Dichloroethane	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
1,1-Dichloroethene	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
1,2,4-Trichlorobenzene	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (14)	ND (12)	ND (17)	ND (12)	ND (14)	ND (14)	ND (12)	ND (13)	ND (12)	ND (14)	ND (11)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
1,2-Dichlorobenzene	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
1,2-Dichloroethane	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*
Sample Location:		*B-X059Y135B*	*B-X059Y135B*	*B-X059Y135B*	*B-X069Y098B*	*B-X069Y098B*	*B-X069Y098B*	*B-X084Y138B*	*B-X093Y090*	*B-X093Y090*	*B-X093Y090*	*B-X106Y102B*
Sample ID:		*S-070902-MG-233*	*S-070902-MG-234*	*S-070902-MG-235*	*S-021202-MG-104*	*S-021202-MG-103*	*S-021202-MG-105*	*S-052902-MG-213*	*S-050702-MG-210*	*S-050702-MG-211*	*S-050702-MG-212*	*S-021202-MG-106*
Sample Date:		*7/9/2002*	*7/9/2002*	*7/9/2002*	*2/12/2002*	*2/12/2002*	*2/12/2002*	*5/29/2002*	*5/7/2002*	*5/7/2002*	*5/7/2002*	*2/12/2002*
Sample Depth:		*(6-8)*	*(34-36)*	*(40-42)*	*(6-8)*	*(3.5-5.5)*	*(20-22)*	*(6-8)*	*(3-5)*	*(6-8)*	*(23-25)*	*(2-4)*
Parameters	***Units***											
1,2-Dichloropropane	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
1,3-Dichlorobenzene	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
1,4-Dichlorobenzene	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	4 J	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	2.3 J
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (28)	ND (24)	ND (34)	ND (23)	ND (27)	ND (29)	ND (25) UJ	ND (27)	ND (23)	ND (28)	13 J
2-Hexanone	ug/kg	ND (28)	ND (24)	ND (34)	ND (23)	ND (27)	ND (29)	ND (25) UJ	ND (27)	ND (23)	ND (28)	ND (21)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (28)	ND (24)	ND (34)	ND (23)	ND (27)	ND (29)	ND (25)	ND (27)	ND (23)	ND (28)	ND (21)
Acetone	ug/kg	ND (28) UJ	ND (24) UJ	ND (34) UJ	ND (23) UJ	ND (27) UJ	ND (29) UJ	ND (25) UJ	ND (27) U	ND (23)	ND (28) U	46 J
Benzene	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
Bromodichloromethane	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
Bromoform	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
Bromomethane (Methyl Bromide)	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6) UJ	ND (5.8) UJ	ND (7) UJ	ND (5.4)
Carbon disulfide	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
Carbon tetrachloride	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
Chlorobenzene	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
Chloroethane	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
Chloroform (Trichloromethane)	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
Chloromethane (Methyl Chloride)	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
cis-1,2-Dichloroethene	ug/kg	ND (3.4)	ND (3.0)	ND (4.2)	ND (2.9)	ND (3.4)	ND (3.6)	ND (3.1)	ND (3.3)	ND (2.9)	ND (3.5)	ND (2.7)
cis-1,3-Dichloropropene	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
Cyclohexane	ug/kg	ND (14)	ND (12)	ND (17)	ND (12)	ND (14)	ND (14)	ND (12)	ND (13)	ND (12)	ND (14)	ND (11)
Dibromochloromethane	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
Ethylbenzene	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
Isopropylbenzene	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
Methyl acetate	ug/kg	ND (14)	ND (12)	ND (17)	ND (12)	ND (14)	ND (14)	ND (12)	ND (13)	ND (12)	ND (14)	ND (11)
Methyl cyclohexane	ug/kg	ND (14)	ND (12)	ND (17)	ND (12)	ND (14)	ND (14)	ND (12)	ND (13)	ND (12)	ND (14)	ND (11)
Methyl Tert Butyl Ether	ug/kg	ND (28)	ND (24)	ND (34)	ND (23)	ND (27)	ND (29)	ND (25)	ND (27)	ND (23)	ND (28)	ND (21)
Methylene chloride	ug/kg	3.0 J	2.6 J	3.8 J	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
Styrene	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
Tetrachloroethene	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
Toluene	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
trans-1,2-Dichloroethene	ug/kg	ND (3.4)	ND (3.0)	ND (4.2)	ND (2.9)	ND (3.4)	ND (3.6)	ND (3.1)	ND (3.3)	ND (2.9)	ND (3.5)	ND (2.7)
trans-1,3-Dichloropropene	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
Trichloroethene	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
Vinyl chloride	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
Xylene (total)	ug/kg	ND (6.9)	ND (6.1)	ND (8.4)	ND (5.8)	ND (6.8)	ND (7.2)	ND (6.2)	ND (6.6)	ND (5.8)	ND (7)	ND (5.4)
General Chemistry												
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Total Solids	%	84.2	80.5	74.1	83.1	79.3	73.5	91.6	96.3	95.6	77.6	82.8

Notes:

* Reported in units of ug/L.
UJ Non-detect at associated value. The associated value is estimated.
J Estimated.
U Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*
Sample Location:		*B-X106Y102B*	*B-X106Y102B*	*B-X106Y102B*	*B-X130Y089*	*B-X130Y089*	*B-X130Y089*	*B-X130Y089*	*B-X047Y072*	*B-X069Y098B*	*B-X069Y098B*	*B-X093Y090*	*B-X106Y102C*	*B-X130Y089*
Sample ID:		*S-021202-MG-107*	*S-021202-MG-108*	*S-021202-MG-109*	*S-042902-DD-003*	*S-042902-DD-004*	*S-042902-DD-005*	*S-042902-DD-006*	*RC-050302-DD-012*	*S-042302-DD-001*	*S-042302-DD-002*	*RC-050702-MG-001*	*RC-042902-DD-007*	*S-043002-DD-008*
Sample Date:		*2/12/2002*	*2/12/2002*	*2/12/2002*	*4/29/2002*	*4/29/2002*	*4/29/2002*	*4/29/2002*	*5/3/2002*	*4/23/2002*	*4/23/2002*	*5/7/2002*	*4/29/2002*	*4/30/2002*
Sample Depth:		*(6-8)*	*(6-8)*	*(20-22)*	*(0-2)*	*(6-8)*	*(6-8)*	*(24-25.5)*	*39.5-40*	*36.5-36.6*	*44.5-44.6*	*27-27.5*	*27.8-28*	*31.33-31.83*
			Duplicate				*Duplicate*							
Parameters	***Units***													
Metals														
									716	4690	2450	1530	2860	4960
Aluminum	mg/kg	8530 J	7690 J	10500 J	1370	1810	1570	4520	ND (6.6)	ND (7.9)	ND (7.1)	ND (7.2)	R	1.2 J
Antimony	mg/kg	R	R	R	R	R	R	1.6 J	0.76 J	29.0	7.9	1.3	6.3 J	22.5
Arsenic	mg/kg	7.8	6.1	18.4	0.56 J	0.78 J	0.67 J	8.3 J	5.8 J	21.2 J	12.4 J	25.0	14.1 J	25.7
Barium	mg/kg	44.1 J	37.5 J	217 J	45.8	106	87.8	16.8 J	ND (0.55) U	0.24 J	ND (0.59) U	ND (0.6) U	ND (0.54) UJ	0.22 J
Beryllium	mg/kg	0.41 J	0.3 J	2.5 J	ND (0.53) UJ	ND (0.52) UJ	ND (0.52) UJ	1.6 J	0.062 J	1.1	3.6	0.47 J	0.98 J	2.0
Cadmium	mg/kg	0.41 J	0.35 J	6.2 J	0.36 J	0.3 J	0.34 J	0.39 J	1.7	6.4	6.4	2.6	3.9 J	6.6
Chromium Total	mg/kg	33.6 J	18.4 J	37.1 J	4.5 J	4.5 J	4.5 J	22.4 J	0.47 J	26.8	5.1 J	2.3 J	2.7 J	8.7
Cobalt	mg/kg	2.3 J	1.7 J	7.2 J	1.1 J	0.6 J	0.64 J	17.0	2.0 J	182	12.3	3.7	8.2	47.2 J
Copper	mg/kg	6	5.1	20.2	6.7	47.7	24.0	9.6	ND (0.55)	ND (0.66)	ND (0.59)	ND (0.6)	ND (0.54)	ND (0.62)
Cyanide (amenable)	mg/kg	ND (0.62)	ND (0.61)	ND (0.70)	ND (0.53)	ND (0.52)	ND (0.52)	ND (0.61)	ND (0.55)	ND (0.66)	ND (0.59)	ND (0.6)	ND (0.54)	ND (0.62)
Cyanide (total)	mg/kg	ND (0.62)	ND (0.61)	ND (0.70)	ND (0.53)	ND (0.52)	ND (0.52)	ND (0.61)	2430	29800	12400	5010	14000	29300
Iron	mg/kg	39900 J	34900 J	43500 J	2550	2180	2650	44100	0.53	111	10.6	2.0	3.2	66.4 J
Lead	mg/kg	11.8	10.6	15.8	2.8	3.3	2.8	17.8	71.2	95.7	135	92.6	138	125
Manganese	mg/kg	33.7 J	33.7 J	1530 J	90.6	75.1	116	660	ND (0.11)	0.11 J	ND (0.12) U	ND (0.12)	0.032 J	0.07 J
Mercury	mg/kg	0.075 J	0.032 J	0.095 J	ND (0.11)	0.013 J	ND (0.1)	0.018 J	1.5 J	117	39.5	7.2	12.7 J	61.7 J
Nickel	mg/kg	5.2 J	3.8 J	82.2 J	4.7 J	5.2 J	4.6 J	32.9 J	ND (0.55) U	39.2	4.2	ND (0.6) U	ND (0.54) UJ	2.7
Selenium	mg/kg	0.88	0.65	0.58 J	ND (0.53) UJ	ND (0.52) UJ	ND (0.52) UJ	ND (0.61) UJ	ND (1.1)	5.5	ND (1.2)	ND (1.2)	ND (1.1)	0.59 J
Silver	mg/kg	ND (1.2)	ND (1.2)	ND (7.0)	ND (1.1)	ND (1.0)	ND (1.0)	ND (1.2)	0.78 J	3.4	0.99 J	0.74 J	ND (1.1)	1.1 J
Thallium	mg/kg	ND (1.2)	ND (1.2)	ND (7.0)	ND (1.1)	ND (1.0)	ND (1.0)	ND (1.2)	1.2 J	8.5	10.3	3.2 J	5.1 J	9.3
Vanadium	mg/kg	54.8 J	36.2 J	58.1 J	2.7 J	2.3 J	2.6 J	37.8 J	11.6	117	190	18.8	21.2 J	185 J
Zinc	mg/kg	15.2 J	9.7 J	141 J	35.5 J	31.9 J	32.1 J	80.9 J						
PCBs														
									ND (36)	ND (44)	ND (39)	ND (40)	ND (360)	ND (41)
Aroclor-1016 (PCB-1016)	ug/kg	ND (8100)	ND (20000)	ND (46000)	ND (35)	ND (35)	ND (34)	ND (40)	ND (36)	ND (44)	ND (39)	ND (40)	ND (360)	ND (41)
Aroclor-1221 (PCB-1221)	ug/kg	38000	85000	160000	ND (35)	ND (35)	ND (34)	ND (40)	ND (36)	ND (44)	ND (39)	ND (40)	ND (360)	ND (41)
Aroclor-1232 (PCB-1232)	ug/kg	ND (8100)	ND (20000)	ND (46000)	ND (35)	ND (35)	ND (34)	ND (40)	ND (36)	ND (44)	38 J	ND (40)	4300	ND (41)
Aroclor-1242 (PCB-1242)	ug/kg	53000	160000	310000	ND (35)	ND (35)	ND (34)	ND (40)	ND (36)	ND (44)	ND (39)	ND (40)	ND (360)	ND (41)
Aroclor-1248 (PCB-1248)	ug/kg	ND (8100)	ND (20000)	ND (46000)	8.1 J	34 J	52	ND (40)	ND (36)	ND (44)	ND (39)	ND (40)	ND (360)	ND (41)
Aroclor-1254 (PCB-1254)	ug/kg	ND (8100)	ND (20000)	ND (46000)	ND (35)	ND (35)	ND (34)	ND (40)	ND (36)	ND (44)	ND (39)	ND (40)	ND (360)	ND (41)
Aroclor-1260 (PCB-1260)	ug/kg	ND (8100)	ND (20000)	ND (46000)	ND (35)	8.5 J	19 J	ND (40)						
Semi - Volatiles														
									ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
2,4,5-Trichlorophenol	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
2,4,6-Trichlorophenol	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
2,4-Dichlorophenol	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
2,4-Dimethylphenol	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (1800)	ND (2100)	ND (1900)	ND (1900)	ND (1700)	ND (2000)
2,4-Dinitrophenol	ug/kg	ND (2000) UJ	ND (2000) UJ	ND (2200) UJ	ND (1700)	ND (1700)	ND (1700)	ND (1900)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
2,4-Dinitrotoluene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
2,6-Dinitrotoluene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
2-Chloronaphthalene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
2-Chlorophenol	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	260 J	ND (390)	ND (400)	ND (360)	120 J
2-Methylnaphthalene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
2-Methylphenol	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (1800)	ND (2100)	ND (1900)	ND (1900)	ND (1700)	ND (2000)
2-Nitroaniline	ug/kg	ND (2000)	ND (2000)	ND (2200)	ND (1700)	ND (1700)	ND (1700)	ND (1900)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
2-Nitrophenol	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (1800)	ND (2100)	ND (1900)	ND (1900)	ND (1700)	ND (2000)
3,3'-Dichlorobenzidine	ug/kg	ND (2000)	ND (2000)	ND (2200)	ND (1700)	ND (1700)	ND (1700)	ND (1900)	ND (1800)	ND (2100)	ND (1900)	ND (1900)	ND (1700)	ND (2000)
3-Nitroaniline	ug/kg	ND (2000)	ND (2000)	ND (2200)	ND (1700)	ND (1700)	ND (1700)	ND (1900)	ND (1800)	ND (2100)	ND (1900)	ND (1900)	ND (1700)	ND (2000)
4,6-Dinitro-2-methylphenol	ug/kg	ND (2000)	ND (2000)	ND (2200)	ND (1700)	ND (1700)	ND (1700)	ND (1900)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
4-Bromophenyl phenyl ether	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
4-Chloro-3-methylphenol	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
4-Chloroaniline	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
4-Chlorophenyl phenyl ether	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*
Sample Location:		*B-X106Y102B*	*B-X106Y102B*	*B-X106Y102B*	*B-X130Y089*	*B-X130Y089*	*B-X130Y089*	*B-X130Y089*	*B-X047Y072*	*B-X069Y098B*	*B-X069Y098B*	*B-X093Y090*	*B-X106Y102C*	*B-X130Y089*
Sample ID:		*S-021202-MG-107*	*S-021202-MG-108*	*S-021202-MG-109*	*S-042902-DD-003*	*S-042902-DD-004*	*S-042902-DD-005*	*S-042902-DD-006*	*RC-050302-DD-012*	*S-042302-DD-001*	*S-042302-DD-002*	*RC-050702-MG-001*	*RC-042902-DD-007*	*S-043002-DD-008*
Sample Date:		*2/12/2002*	*2/12/2002*	*2/12/2002*	*4/29/2002*	*4/29/2002*	*4/29/2002*	*4/29/2002*	*5/3/2002*	*4/23/2002*	*4/23/2002*	*5/7/2002*	*4/29/2002*	*4/30/2002*
Sample Depth:		*(6-8)*	*(6-8)*	*(20-22)*	*(0-2)*	*(6-8)*	*(6-8)*	*(24-25.5)*	*39.5-40*	*36.5-36.6*	*44.5-44.6*	*27-27.5*	*27.8-28*	*31.33-31.83*
			Duplicate				*Duplicate*							
Parameters	***Units***													
4-Methylphenol	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (1800)	ND (2100)	ND (1900)	ND (1900)	ND (1700)	ND (2000)
4-Nitroaniline	ug/kg	ND (2000)	ND (2000)	ND (2200)	ND (1700)	ND (1700)	ND (1700)	ND (1900)	ND (1800)	ND (2100)	ND (1900)	ND (1900)	ND (1700)	ND (2000)
4-Nitrophenol	ug/kg	ND (2000)	ND (2000)	ND (2200)	ND (1700)	ND (1700)	ND (1700)	ND (1900)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Acenaphthene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Acenaphthylene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Acetophenone	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Anthracene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Atrazine	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Benzaldehyde	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Benzo(a)anthracene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Benzo(a)pyrene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Benzo(b)fluoranthene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	62 J	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Benzo(g,h,i)perylene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Benzo(k)fluoranthene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Biphenyl	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
bis(2-Chloroethoxy)methane	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
bis(2-Chloroethyl)ether	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
bis(2-Ethylhexyl)phthalate	ug/kg	380 J	790	1500	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Butyl benzylphthalate	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Caprolactam	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Carbazole	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	75 J	ND (400)	ND (360)	140 J
Chrysene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	54 J	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Dibenz(a,h)anthracene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	170 J	ND (390)	ND (400)	ND (360)	150 J
Dibenzofuran	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Diethyl phthalate	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Dimethyl phthalate	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Di-n-butylphthalate	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Di-n-octyl phthalate	ug/kg	660	1200	2300	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Fluoranthene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	97 J	ND (340)	ND (400)	ND (360)	86 J	ND (390)	ND (400)	ND (360)	160 J
Fluorene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Hexachlorobenzene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Hexachlorobutadiene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (1800)	ND (2100)	ND (1900)	ND (1900)	ND (1700)	ND (2000)
Hexachlorocyclopentadiene	ug/kg	ND (2000)	ND (2000)	ND (2200)	ND (1700)	ND (1700)	ND (1700)	ND (1900)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Hexachloroethane	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Isophorone	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Naphthalene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Nitrobenzene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
N-Nitrosodi-n-propylamine	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
N-Nitrosodiphenylamine	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Pentachlorophenol	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	260 J	ND (390)	ND (400)	ND (360)	85 J
Phenanthrene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	ND (390)	ND (400)	ND (360)	ND (410)
Phenol	ug/kg	ND (410)	70 J	130 J	ND (350)	ND (350)	ND (340)	ND (400)	ND (360)	ND (440)	94 J	ND (400)	ND (360)	88 J
Pyrene	ug/kg	ND (410)	ND (410)	ND (460)	ND (350)	110 J	54 J	ND (400)						
Volatiles														
									-	-	-	-	-	ND (5)
1,1,1-Trichloroethane	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5)
1,1,2,2-Tetrachloroethane	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5)
1,1,2-Trichloroethane	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5)
1,1-Dichloroethane	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5)
1,1-Dichloroethene	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	2.2 J
1,2,4-Trichlorobenzene	ug/kg	ND (7.8)	ND (5.8) U	ND (380) U	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (10) UJ
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (16)	ND (12)	ND (770) UJ	ND (10)	ND (8.3)	ND (8.2)	ND (11)	-	-	-	-	-	ND (5)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5) UJ
1,2-Dichlorobenzene	ug/kg	5.3 J	8	ND (380) U	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5)
1,2-Dichloroethane	ug/kg	ND (7.8)	ND (5.8)	ND (380) U	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*	*A009*
Sample Location:		*B-X106Y102B*	*B-X106Y102B*	*B-X106Y102B*	*B-X130Y089*	*B-X130Y089*	*B-X130Y089*	*B-X130Y089*	*B-X047Y072*	*B-X069Y098B*	*B-X069Y098B*	*B-X093Y090*	*B-X106Y102C*	*B-X130Y089*
Sample ID:		*S-021202-MG-107*	*S-021202-MG-108*	*S-021202-MG-109*	*S-042902-DD-003*	*S-042902-DD-004*	*S-042902-DD-005*	*S-042902-DD-006*	*RC-050302-DD-012*	*S-042302-DD-001*	*S-042302-DD-002*	*RC-050702-MG-001*	*RC-042902-DD-007*	*S-043002-DD-008*
Sample Date:		*2/12/2002*	*2/12/2002*	*2/12/2002*	*4/29/2002*	*4/29/2002*	*4/29/2002*	*4/29/2002*	*5/3/2002*	*4/23/2002*	*4/23/2002*	*5/7/2002*	*4/29/2002*	*4/30/2002*
Sample Depth:		*(6-8)*	*(6-8)*	*(20-22)*	*(0-2)*	*(6-8)*	*(6-8)*	*(24-25.5)*	*39.5-40*	*36.5-36.6*	*44.5-44.6*	*27-27.5*	*27.8-28*	*31.33-31.83*
			Duplicate				*Duplicate*							
Parameters	***Units***													
1,2-Dichloropropane	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5) UJ
1,3-Dichlorobenzene	ug/kg	14	21	230 J	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5) UJ
1,4-Dichlorobenzene	ug/kg	61	92	670	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (20)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (31)	3.5 J	ND (1500)	ND (20)	ND (17)	ND (16)	ND (23)	-	-	-	-	-	ND (20)
2-Hexanone	ug/kg	ND (31)	ND (23)	ND (1500)	ND (20) UJ	ND (17) UJ	ND (16) UJ	ND (23) UJ	-	-	-	-	-	ND (20)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (31)	ND (23)	ND (1500)	ND (20)	ND (17)	2.3 J	ND (23)	-	-	-	-	-	ND (20) U
Acetone	ug/kg	ND (31) UJ	ND (23) UJ	ND (1500) U	3.8 J	2 J	3.7 J	2.9 J	-	-	-	-	-	ND (5) UJ
Benzene	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5)
Bromodichloromethane	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5) UJ
Bromoform	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1) UJ	ND (4.1) UJ	ND (4.1) UJ	ND (5.7) UJ	-	-	-	-	-	ND (5)
Bromomethane (Methyl Bromide)	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1) UJ	ND (4.1) UJ	ND (4.1) UJ	ND (5.7) UJ	-	-	-	-	-	1.2 J
Carbon disulfide	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5) UJ
Carbon tetrachloride	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1) UJ	ND (4.1) UJ	ND (4.1) UJ	ND (5.7) UJ	-	-	-	-	-	ND (5) UJ
Chlorobenzene	ug/kg	16	18	33 J	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5)
Chloroethane	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	1.6 J
Chloroform (Trichloromethane)	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5)
Chloromethane (Methyl Chloride)	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (2.5)
cis-1,2-Dichloroethene	ug/kg	ND (3.9)	ND (2.9)	ND (190)	ND (2.5)	ND (2.1)	ND (2.1)	ND (2.9)	-	-	-	-	-	ND (5)
cis-1,3-Dichloropropene	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	1.4 J
Cyclohexane	ug/kg	ND (16)	ND (12)	ND (770)	ND (10)	ND (8.3)	ND (8.2)	ND (11)	-	-	-	-	-	ND (5)
Dibromochloromethane	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5)
Ethylbenzene	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5)
Isopropylbenzene	ug/kg	ND (7.8)	1.1 J	12 J	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (10)
Methyl acetate	ug/kg	ND (16)	ND (12)	ND (770)	ND (10)	ND (8.3)	ND (8.2)	ND (11)	-	-	-	-	-	ND (10)
Methyl cyclohexane	ug/kg	ND (16)	ND (12)	ND (770)	ND (10)	ND (8.3)	ND (8.2)	ND (11)	-	-	-	-	-	ND (20)
Methyl Tert Butyl Ether	ug/kg	ND (31)	ND (23)	ND (1500)	ND (20)	ND (17)	ND (16)	ND (23)	-	-	-	-	-	1.7 J
Methylene chloride	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5)
Styrene	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5)
Tetrachloroethene	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	1.4 J
Toluene	ug/kg	ND (7.8)	ND (5.8)	ND (380) U	ND (5.1)	ND (4.1)	0.68 J	ND (5.7)	-	-	-	-	-	ND (2.5)
trans-1,2-Dichloroethene	ug/kg	ND (3.9)	ND (2.9)	ND (190)	ND (2.5)	ND (2.1)	ND (2.1)	ND (2.9)	-	-	-	-	-	ND (5)
trans-1,3-Dichloropropene	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5)
Trichloroethene	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5)
Vinyl chloride	ug/kg	ND (7.8)	ND (5.8)	ND (380)	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)	-	-	-	-	-	ND (5)
Xylene (total)	ug/kg	ND (7.8)	ND (5.8)	ND (380) U	ND (5.1)	ND (4.1)	ND (4.1)	ND (5.7)						
General Chemistry														
									91.3	75.5	84.9	82.8	92.4	80.0
Chloride	mg/kg	-	-	-	-	-	-	-						
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-						
Total Solids	%	81.2	81.4	71.8	94.3	95.6	96.1	82.1						
									-	-	-	-	-	-
									-	-	-	-	-	-
									-	-	-	-	-	-

Notes:

* Reported in units of ug/L.

UJ Non-detect at associated value. The associated value is estimated.

J Estimated.

U Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A011*	*A011*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*
Sample Location:		*SS-X030Y111*	*SS-X145Y106*	*B-X204Y111C*	*B-X219Y095*	*B-X219Y095*	*B-X219Y095*	*B-X219Y095*	*B-X219Y095*	*B-X223Y097A*	*B-X223Y097A*	*B-X223Y097B*	*B-X225Y077*	*B-X225Y077*
Sample ID:		*SS-012102-MG-001*	*SS-012802-MG-001*	*S-010802-MG-016*	*S-010802-MG-008*	*S-010802-MG-009*	*S-010802-MG-010*	*S-010802-MG-011*	*S-010802-MG-012*	*S-010802-MG-013*	*S-010802-MG-014*	*S-010802-MG-015*	*S-010402-MG-001*	*S-010402-MG-002*
Sample Date:		*1/21/2002*	*1/28/2002*	*1/8/2002*	*1/8/2002*	*1/8/2002*	*1/8/2002*	*1/8/2002*	*1/8/2002*	*1/8/2002*	*1/8/2002*	*1/8/2002*	*1/4/2002*	*1/4/2002*
Sample Depth:		*(0-2)*	*(0-2)*	*(6.5-7.5)*	*(0-2)*	*(0-2)*	*(6-8)*	*(8-9)*	*(13-14)*	*(0-2)*	*(6-8)*	*(5-6)*	*(0-2)*	*(6-8)*
						Duplicate								
Parameters	***Units***													
Metals														
Aluminum	mg/kg	5570	5490	2640	11900	11000	15400	10100	1760	5790	20700	9680	10700	1170
Antimony	mg/kg	7.0	ND (6.7)	ND (7.0) UJ	ND (7.5) UJ	ND (7.4) UJ	10.8 J	11.2 J	ND (6.6) UJ	ND (7.4) UJ	ND (9.1) UJ	ND (8.4) UJ	ND (7.8)	ND (6.3)
Arsenic	mg/kg	5.7	3.1	3.2	8.4	7.7	13.9	44.2	2.1	4.7	11.1	27.8	7.1	0.78 J
Barium	mg/kg	48.0	61.4	23.0 J	86.9	69.4	65.7	21.5 J	131	60.1	136	86.7	88.6	50.6
Beryllium	mg/kg	0.49 J	0.29 J	0.16 J	0.27 J	0.30 J	0.18 J	ND (0.59)	0.16 J	0.36 J	1.3	0.62 J	0.43 J	ND (0.52) U
Cadmium	mg/kg	0.36 J	0.36 J	0.77	ND (0.62)	ND (0.62)	0.20 J	ND (5.9)	0.33 J	0.67	0.53 J	0.71	0.23 J	0.35 J
Chromium Total	mg/kg	11.6	12.6	6.2 J	15.6 J	15.6 J	114 J	1080 J	8.9 J	10.2 J	24.4 J	14.3 J	25.0	4.2
Cobalt	mg/kg	3.6 J	4.7 J	2.0 J	11.5	11.1	32.2	56.1	3.6 J	8.5	7.5 J	10.4	4.4 J	0.86 J
Copper	mg/kg	20.0	70.4	6.9	13.5	24.4	485	1960	13.6	11.6	19.9	34.1	10.1	2.9
Cyanide (amenable)	mg/kg	ND (0.59)	ND (0.56)	ND (0.58)	ND (0.62)	ND (0.62)	ND (0.64)	ND (0.59)	ND (0.55)	ND (0.61)	ND (0.76)	ND (0.70)	-	-
Cyanide (total)	mg/kg	ND (0.59)	ND (0.56)	ND (0.58)	ND (0.62)	ND (0.62)	ND (0.64)	0.25 J	ND (0.55)	ND (0.61)	ND (0.76)	ND (0.70)	ND (0.65)	ND (0.52)
Iron	mg/kg	13800	9220	5390	20200	17700	87000	336000	5640	11100	27300	27300	23400	2890
Lead	mg/kg	54.9	18.4	6.6	15.0	16.6	191	173	3.4	34.9	20.3	51.8	12.4	1.4
Manganese	mg/kg	180	96.8	111	1390	717	1580	2810	147	540	118	681	364	136
Mercury	mg/kg	0.030 J	ND (0.11)	0.022 J	0.051 J	0.17	0.31	0.29	0.014 J	0.075 J	0.079 J	0.041 J	ND (0.13) U	ND (0.10) U
Nickel	mg/kg	7.3	16.4	5.7	13.7	24.2	495	1830	19.0	9.0	35.8	29.8	9.5	5.2
Selenium	mg/kg	0.37 J	ND (0.56)	ND (0.58)	0.54 J	0.50 J	1.5	3.7 J	ND (0.55)	ND (0.61)	ND (0.76)	ND (0.70)	0.48 J	ND (0.52)
Silver	mg/kg	ND (1.2)	ND (1.1)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.3)	ND (1.2)	ND (1.1)	ND (1.2)	ND (1.5)	ND (1.4)	ND (1.3)	ND (1.0)
Thallium	mg/kg	ND (1.2)	ND (1.1)	0.80 J	0.70 J	1.3	ND (2.6)	ND (11.8)	ND (1.1)	0.76 J	0.77 J	1.4	ND (1.3)	ND (1.0)
Vanadium	mg/kg	19.6	11.1	6.6	28.9	26.3	25.6	44.3 J	4.5 J	14.9	36.2	28.5	37.0	2.6 J
Zinc	mg/kg	55.5	76.1	48.2	39.5	39.2	126	445	33.4	282	76.7	69.1	33.3	27.9
PCBs														
Aroclor-1016 (PCB-1016)	ug/kg	ND (39)	ND (370)	ND (190)	ND (82)	ND (82)	ND (420)	ND (39000)	ND (7300)	ND (41)	ND (10000)	ND (230)	ND (43)	ND (34)
Aroclor-1221 (PCB-1221)	ug/kg	ND (39)	ND (370)	ND (190)	ND (82)	ND (82)	2400	380000	49000	ND (41)	61000	1200	ND (43)	ND (34)
Aroclor-1232 (PCB-1232)	ug/kg	ND (39)	ND (370)	ND (190)	ND (82)	ND (82)	ND (420)	ND (39000)	ND (7300)	ND (41)	ND (10000)	ND (230)	ND (43)	ND (34)
Aroclor-1242 (PCB-1242)	ug/kg	ND (39)	ND (370)	ND (190)	1000	670	ND (420)	290000	98000	ND (41)	120000	1400	ND (43)	ND (34)
Aroclor-1248 (PCB-1248)	ug/kg	23 J	3800	1100	ND (82)	ND (82)	620	ND (39000)	ND (7300)	290	ND (10000)	ND (230)	95	ND (34)
Aroclor-1254 (PCB-1254)	ug/kg	ND (39)	ND (370)	ND (190)	ND (82)	ND (82)	ND (420)	ND (39000)	ND (7300)	ND (41)	ND (10000)	ND (230)	ND (43)	ND (34)
Aroclor-1260 (PCB-1260)	ug/kg	ND (39)	630	ND (190)	ND (82)	ND (82)	ND (420)	ND (39000)	ND (7300)	ND (41)	ND (10000)	ND (230)	180	ND (34)
Semi - Volatiles														
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
2,4,5-Trichlorophenol	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
2,4,6-Trichlorophenol	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
2,4-Dichlorophenol	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
2,4-Dimethylphenol	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
2,4-Dinitrophenol	ug/kg	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (7500)	ND (1800)	ND (2000)	ND (2400)	ND (2200)	ND (2100)	ND (1700)
2,4-Dinitrotoluene	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
2,6-Dinitrotoluene	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
2-Chloronaphthalene	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
2-Chlorophenol	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
2-Methylnaphthalene	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
2-Methylphenol	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
2-Nitroaniline	ug/kg	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (7500)	ND (1800)	ND (2000)	ND (2400)	ND (2200)	ND (2100)	ND (1700)
2-Nitrophenol	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
3,3'-Dichlorobenzidine	ug/kg	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (7500)	ND (1800)	ND (2000)	ND (2400)	ND (2200)	ND (2100)	ND (1700)
3-Nitroaniline	ug/kg	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (7500)	ND (1800)	ND (2000)	ND (2400)	ND (2200)	ND (2100)	ND (1700)
4,6-Dinitro-2-methylphenol	ug/kg	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (7500)	ND (1800)	ND (2000)	ND (2400)	ND (2200)	ND (2100)	ND (1700)
4-Bromophenyl phenyl ether	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
4-Chloro-3-methylphenol	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
4-Chloroaniline	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
4-Chlorophenyl phenyl ether	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A011*	*A011*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*
Sample Location:		*SS-X030Y111*	*SS-X145Y106*	*B-X204Y111C*	*B-X219Y095*	*B-X219Y095*	*B-X219Y095*	*B-X219Y095*	*B-X219Y095*	*B-X223Y097A*	*B-X223Y097A*	*B-X223Y097B*	*B-X225Y077*	*B-X225Y077*
Sample ID:		*SS-012102-MG-001*	*SS-012802-MG-001*	*S-010802-MG-016*	*S-010802-MG-008*	*S-010802-MG-009*	*S-010802-MG-010*	*S-010802-MG-011*	*S-010802-MG-012*	*S-010802-MG-013*	*S-010802-MG-014*	*S-010802-MG-015*	*S-010402-MG-001*	*S-010402-MG-002*
Sample Date:		*1/21/2002*	*1/28/2002*	*1/8/2002*	*1/8/2002*	*1/8/2002*	*1/8/2002*	*1/8/2002*	*1/8/2002*	*1/8/2002*	*1/8/2002*	*1/8/2002*	*1/4/2002*	*1/4/2002*
Sample Depth:		*(0-2)*	*(0-2)*	*(6.5-7.5)*	*(0-2)*	*(0-2)*	*(6-8)*	*(8-9)*	*(13-14)*	*(0-2)*	*(6-8)*	*(5-6)*	*(0-2)*	*(6-8)*
						Duplicate								
Parameters	***Units***													
4-Methylphenol	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
4-Nitroaniline	ug/kg	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (7500)	ND (1800)	ND (2000)	ND (2400)	ND (2200)	ND (2100)	ND (1700)
4-Nitrophenol	ug/kg	ND (1900)	ND (1800)	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (7500) UJ	ND (1800)	ND (2000)	ND (2400)	ND (2200)	ND (2100)	ND (1700)
Acenaphthene	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Acenaphthylene	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Acetophenone	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Anthracene	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Atrazine	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Benzaldehyde	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Benzo(a)anthracene	ug/kg	89 J	97 J	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Benzo(a)pyrene	ug/kg	110 J	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600) UJ	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Benzo(b)fluoranthene	ug/kg	160 J	95 J	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600) UJ	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Benzo(g,h,i)perylene	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600) UJ	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Benzo(k)fluoranthene	ug/kg	ND (390)	96 J	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600) UJ	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Biphenyl	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
bis(2-Chloroethoxy)methane	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
bis(2-Chloroethyl)ether	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	5100	620	ND (410)	510	ND (460)	ND (430)	ND (340)
Butyl benzylphthalate	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Caprolactam	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340) UJ
Carbazole	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Chrysene	ug/kg	110 J	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Dibenz(a,h)anthracene	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600) UJ	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Dibenzofuran	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Diethyl phthalate	ug/kg	ND (390)	ND (370)	180 J	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Dimethyl phthalate	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Di-n-butylphthalate	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Di-n-octyl phthalate	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	6000 J	740	ND (410)	650	ND (460)	ND (430)	ND (340)
Fluoranthene	ug/kg	190 J	100 J	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Fluorene	ug/kg	ND (390)	ND (370) UJ	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Hexachlorobenzene	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Hexachlorobutadiene	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Hexachlorocyclopentadiene	ug/kg	ND (1900)	ND (1800) UJ	ND (1900)	ND (2000)	ND (2000)	ND (2000)	ND (7500)	ND (1800)	ND (2000)	ND (2400)	ND (2200)	ND (2100)	ND (1700)
Hexachloroethane	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600) UJ	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Isophorone	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Naphthalene	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Nitrobenzene	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
N-Nitrosodi-n-propylamine	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
N-Nitrosodiphenylamine	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Pentachlorophenol	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Phenanthrene	ug/kg	140 J	67 J	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Phenol	ug/kg	ND (390)	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	230 J	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Pyrene	ug/kg	160 J	ND (370)	ND (380)	ND (410)	ND (410)	ND (420)	ND (1600)	ND (360)	ND (410)	ND (500)	ND (460)	ND (430)	ND (340)
Volatiles														
1,1,1-Trichloroethane	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
1,1,2,2-Tetrachloroethane	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
1,1,2-Trichloroethane	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
1,1-Dichloroethane	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
1,1-Dichloroethene	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
1,2,4-Trichlorobenzene	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (9.8)	ND (11)	ND (11) UJ	ND (11) UJ	ND (11) UJ	ND (11) UJ	ND (11) UJ	ND (450) UJ	ND (12) UJ	ND (16) UJ	ND (16) UJ	ND (14)	ND (11)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
1,2-Dichlorobenzene	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	83 J	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
1,2-Dichloroethane	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A011*	*A011*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*	*A011 P200(GM)*
Sample Location:		*SS-X030Y111*	*SS-X145Y106*	*B-X204Y111C*	*B-X219Y095*	*B-X219Y095*	*B-X219Y095*	*B-X219Y095*	*B-X219Y095*	*B-X223Y097A*	*B-X223Y097A*	*B-X223Y097B*	*B-X225Y077*	*B-X225Y077*
Sample ID:		*SS-012102-MG-001*	*SS-012802-MG-001*	*S-010802-MG-016*	*S-010802-MG-008*	*S-010802-MG-009*	*S-010802-MG-010*	*S-010802-MG-011*	*S-010802-MG-012*	*S-010802-MG-013*	*S-010802-MG-014*	*S-010802-MG-015*	*S-010402-MG-001*	*S-010402-MG-002*
Sample Date:		*1/21/2002*	*1/28/2002*	*1/8/2002*	*1/8/2002*	*1/8/2002*	*1/8/2002*	*1/8/2002*	*1/8/2002*	*1/8/2002*	*1/8/2002*	*1/8/2002*	*1/4/2002*	*1/4/2002*
Sample Depth:		*(0-2)*	*(0-2)*	*(6.5-7.5)*	*(0-2)*	*(0-2)* *Duplicate*	*(6-8)*	*(8-9)*	*(13-14)*	*(0-2)*	*(6-8)*	*(5-6)*	*(0-2)*	*(6-8)*
Parameters	***Units***													
1,2-Dichloropropane	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
1,3-Dichlorobenzene	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	2.5 J	890	ND (5.8)	7.2 J	ND (8)	ND (6.9)	ND (5.5)
1,4-Dichlorobenzene	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	4.2 J	1700	ND (5.8)	19	ND (8)	ND (6.9)	ND (5.5)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	2.7 J	8.6 J	ND (22)	3.3 J	3.9 J	ND (23)	4.6 J	ND (890)	4.8 J	6.3 J	ND (32)	ND (28)	ND (22)
2-Hexanone	ug/kg	ND (20)	ND (21)	ND (22)	ND (23)	ND (23)	ND (23)	ND (23)	ND (890)	ND (23)	ND (32)	ND (32)	ND (28)	ND (22)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (20)	ND (21)	ND (22)	ND (23)	ND (23)	ND (23)	ND (23)	ND (890)	ND (23)	ND (32)	ND (32)	ND (28)	ND (22)
Acetone	ug/kg	ND (20) U	ND (43) UJ	ND (22) U	ND (23) U	ND (23) U	ND (23) U	ND (23) U	ND (890) U	ND (32) U	ND (36) U	ND (32) U	ND (28) U	ND (22) U
Benzene	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
Bromodichloromethane	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
Bromoform	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
Bromomethane (Methyl Bromide)	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
Carbon disulfide	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
Carbon tetrachloride	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
Chlorobenzene	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	11	2200	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
Chloroethane	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
Chloroform (Trichloromethane)	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
Chloromethane (Methyl Chloride)	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
cis-1,2-Dichloroethene	ug/kg	ND (2.5)	7.9	ND (2.8)	ND (2.9)	ND (2.8)	ND (2.8)	ND (2.8)	ND (110)	ND (2.9)	ND (3.9)	ND (4)	ND (3.4)	ND (2.8)
cis-1,3-Dichloropropene	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
Cyclohexane	ug/kg	ND (9.8)	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (450)	ND (12)	ND (16)	ND (16)	ND (14)	ND (11)
Dibromochloromethane	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7) U	ND (5.7) U	ND (5.7) U	ND (5.6)	ND (220) U	ND (5.8) U	ND (7.9) U	ND (8)	ND (6.9)	ND (5.5)
Ethylbenzene	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
Isopropylbenzene	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	21 J	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
Methyl acetate	ug/kg	ND (9.8)	1.7 J	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (450)	ND (12)	2.1 J	ND (16)	ND (14)	ND (11)
Methyl cyclohexane	ug/kg	ND (9.8)	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (450)	ND (12)	ND (16)	ND (16)	ND (14)	ND (11)
Methyl Tert Butyl Ether	ug/kg	ND (20)	ND (21)	ND (22)	ND (23)	ND (23)	ND (23)	ND (23)	ND (890)	ND (23)	ND (32)	ND (32)	ND (28)	ND (22)
Methylene chloride	ug/kg	ND (4.9)	2.8 J	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
Styrene	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
Tetrachloroethene	ug/kg	ND (4.9)	21	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
Toluene	ug/kg	ND (4.9)	1.6 J	0.78 J	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220) U	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
trans-1,2-Dichloroethene	ug/kg	ND (2.5)	ND (2.7)	ND (2.8)	ND (2.9)	ND (2.8)	ND (2.8)	ND (2.8)	ND (110)	ND (2.9)	ND (3.9)	ND (4)	ND (3.4)	ND (2.8)
trans-1,3-Dichloropropene	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
Trichloroethene	ug/kg	ND (4.9)	2.8 J	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (4.9)	ND (5.3)	ND (5.6) UJ	ND (5.7) UJ	ND (5.7) UJ	ND (5.7) UJ	ND (5.6) UJ	ND (220) UJ	ND (5.8) UJ	ND (7.9) UJ	ND (8) UJ	ND (6.9)	ND (5.5)
Vinyl chloride	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
Xylene (total)	ug/kg	ND (4.9)	ND (5.3)	ND (5.6)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.6)	ND (220)	ND (5.8)	ND (7.9)	ND (8)	ND (6.9)	ND (5.5)
Wet														
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Solids	%	85.5	90.1	86.2	80.1	80.8	78.4	85.0	90.6	81.4	65.8	71.2	76.9	95.8

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A011 P200(GM)*	*A012*	*A012*	*A014*	*A014*	*A015*	*A015*	*A015*	*A015*	*A015*	*A015*	*A015*	*A015*
Sample Location:		*B-X225Y077*	*SS-X124Y115*	*SS-X134Y098*	*B-X253Y329H*	*B-X254Y336*	*B-X148Y233*	*B-X148Y233*	*B-X148Y233*	*B-X148Y233*	*B-X148Y233*	*B-X169Y248*	*B-X169Y248*	*B-X169Y248*	*B-X169Y248*
Sample ID:		*S-010402-MG-003*	*SS-011802-MG-002*	*SS-011802-MG-001*	*S-012202-MG-063*	*S-012202-MG-064*	*S-022202-KMV-532*	*S-022202-KMV-533*	*S-022202-KMV-534*	*S-022202-KMV-535*	*S-022102-KMV-528*	*S-022102-KMV-529*	*S-022102-KMV-530*	*S-022102-KMV-531*
Sample Date:		*1/4/2002*	*1/18/2002*	*1/18/2002*	*1/22/2002*	*1/22/2002*	*2/22/2002*	*2/22/2002*	*2/22/2002*	*2/22/2002*	*2/21/2002*	*2/21/2002*	*2/21/2002*	*2/21/2002*
Sample Depth:		*(13-15)*	*(0-2)*	*(0-2)*	*(10-11)*	*(3-3.5)*	*(0-2)*	*(0-2)*	*(6-8)*	*(12-14)*	*(0-2)*	*(0-2)*	*(6-8)*	*(22-24)*
								Duplicate				*Duplicate*		
Parameters	***Units***													
Metals														
Aluminum	mg/kg	11700	8670	6510	-	-	2530	1720	2280	2800	2660	1380	21400	17100
Antimony	mg/kg	ND (7.7)	ND (7.2)	ND (7.9)	-	-	ND (6.8)	ND (6.5)	ND (7.8)	ND (8.4)	ND (6.3)	ND (6.4)	1.6 J	ND (7.3)
Arsenic	mg/kg	9.9	5.5	10.9	-	-	0.36 J	1.1	2.1	7.4	1.2	0.71 J	3.2	11.8
Barium	mg/kg	89.9	24.3	48.2	-	-	14.3 J	15.1 J	37.1	42.8	69.6	33.1	19.7 J	64
Beryllium	mg/kg	1.2	ND (0.60) U	ND (0.65)	-	-	ND (0.56)	ND (0.55) U	ND (0.65) U	1.3	ND (0.53) U	ND (0.53) U	ND (0.55) U	0.7
Cadmium	mg/kg	ND (0.64)	ND (0.60)	ND (0.65)	-	-	ND (0.56) U	ND (0.55) U	ND (0.65) U	0.29 J	0.73	0.66	0.82	0.43 J
Chromium Total	mg/kg	15.6	22.9	19.3	-	-	25.7	15.9	3.1	8.4	12.7	9.8	109	31.2
Cobalt	mg/kg	11.4	2.5 J	1.4 J	-	-	37.2	16.5	20.7	5.6 J	7.6	5.9	14.8	10.2
Copper	mg/kg	16.3	7.3	20.5	-	-	54.4	42.1	5.7	7.3	61.6	41.3	541	17.6
Cyanide (amenable)	mg/kg	-	ND (0.60)	ND (0.65)	-	-	ND (0.56)	ND (0.55)	ND (0.65)	ND (0.70)	ND (0.53)	ND (0.53)	ND (0.55)	ND (0.61)
Cyanide (total)	mg/kg	ND (0.64)	ND (0.60)	ND (0.65)	-	-	ND (0.56)	ND (0.55)	ND (0.65)	ND (0.70)	ND (0.53)	ND (0.53)	ND (0.55)	ND (0.61)
Iron	mg/kg	25400	20700	59600	-	-	1040	1710	6510	11700	7740	5760	11200	33900
Lead	mg/kg	15.0	11.4	13.6	-	-	ND (0.34) U	21	ND (0.39) U	ND (0.42) U	12.8	9.1	160	17.8
Manganese	mg/kg	242	118	26.4	-	-	55.3	51.8	1120	373	154	124	236	335
Mercury	mg/kg	0.070 J	0.029 J	0.020 J	-	-	0.31 J	0.33 J	0.02 J	0.11 J	0.45	0.38	5	0.12
Nickel	mg/kg	27.9	5.5	4.0 J	-	-	37.3	38.2	10.5	19.3	22.4	22.2	1130	26.7
Selenium	mg/kg	0.92	ND (0.60)	0.89	-	-	ND (0.56)	ND (0.55)	ND (0.65)	ND (0.70)	ND (0.53)	ND (0.53)	ND (0.55)	ND (0.61)
Silver	mg/kg	ND (1.3)	ND (1.2)	ND (1.3)	-	-	0.26 J	ND (1.1)	ND (1.3)	ND (1.4)	ND (1.1)	ND (1.1)	0.48 J	ND (1.2)
Thallium	mg/kg	ND (1.3)	ND (1.2)	ND (1.3)	-	-	ND (1.1)	ND (1.1)	ND (1.3)	ND (1.4)	ND (1.1)	ND (1.1)	ND (1.1) U	ND (1.2) U
Vanadium	mg/kg	26.3	37.2	40.1	-	-	1.8 J	2.7 J	9.5	25.8	4.4 J	2.1 J	8.3	53.9
Zinc	mg/kg	46.6	15.2	19.1	-	-	17.6	16.3	10.3	25	48.1	32.7	160	42.1
PCBs														
Aroclor-1016 (PCB-1016)	ug/kg	ND (42)	ND (39)	ND (43)	ND (45)	ND (44)	ND (3700)	ND (360)	ND (43)	ND (46)	ND (690)	ND (710)	ND (730)	ND (40)
Aroclor-1221 (PCB-1221)	ug/kg	ND (42)	ND (39)	ND (43)	ND (45)	ND (44)	ND (3700)	ND (360)	ND (43)	ND (46)	ND (690)	ND (710)	ND (730)	ND (40)
Aroclor-1232 (PCB-1232)	ug/kg	ND (42)	ND (39)	ND (43)	ND (45)	ND (44)	ND (3700)	ND (360)	ND (43)	ND (46)	ND (690)	ND (710)	ND (730)	ND (40)
Aroclor-1242 (PCB-1242)	ug/kg	ND (42)	ND (39)	ND (43)	ND (45)	ND (44)	ND (3700)	ND (360)	ND (43)	ND (46)	ND (690)	ND (710)	ND (730)	ND (40)
Aroclor-1248 (PCB-1248)	ug/kg	ND (42)	ND (39)	ND (43)	84	ND (44)	48000	3300	7.1 J	ND (46)	4900	5100	ND (730)	ND (40)
Aroclor-1254 (PCB-1254)	ug/kg	ND (42)	ND (39)	ND (43)	ND (45)	ND (44)	ND (3700)	ND (360)	ND (43)	ND (46)	ND (690)	ND (710)	9100	62
Aroclor-1260 (PCB-1260)	ug/kg	ND (42)	ND (39)	ND (43)	ND (45)	ND (44)	4700	310 J	ND (43)	ND (46)	570 J	650 J	ND (730)	ND (40)
Semi - Volatiles														
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
2,4,5-Trichlorophenol	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
2,4,6-Trichlorophenol	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
2,4-Dichlorophenol	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
2,4-Dimethylphenol	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
2,4-Dinitrophenol	ug/kg	ND (2000)	ND (1900) UJ	ND (2100) UJ	-	-	ND (1800)	ND (1700)	ND (2100)	ND (2200)	ND (1700)	ND (1700)	ND (1800)	ND (1900)
2,4-Dinitrotoluene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
2,6-Dinitrotoluene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
2-Chloronaphthalene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
2-Chlorophenol	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
2-Methylnaphthalene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
2-Methylphenol	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
2-Nitroaniline	ug/kg	ND (2000)	ND (1900)	ND (2100)	-	-	ND (1800)	ND (1700)	ND (2100)	ND (2200)	ND (1700)	ND (1700)	ND (1800)	ND (1900)
2-Nitrophenol	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
3,3'-Dichlorobenzidine	ug/kg	ND (2000)	ND (1900)	ND (2100)	-	-	ND (1800)	ND (1700)	ND (2100)	ND (2200)	ND (1700)	ND (1700)	ND (1800)	ND (1900)
3-Nitroaniline	ug/kg	ND (2000)	ND (1900)	ND (2100)	-	-	ND (1800)	ND (1700)	ND (2100)	ND (2200)	ND (1700)	ND (1700)	ND (1800)	ND (1900)
4,6-Dinitro-2-methylphenol	ug/kg	ND (2000)	ND (1900)	ND (2100)	-	-	ND (1800)	ND (1700)	ND (2100)	ND (2200)	ND (1700)	ND (1700)	ND (1800)	ND (1900)
4-Bromophenyl phenyl ether	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
4-Chloro-3-methylphenol	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
4-Chloroaniline	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
4-Chlorophenyl phenyl ether	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A011 P200(GM)*	*A012*	*A012*	*A014*	*A014*	*A015*	*A015*	*A015*	*A015*	*A015*	*A015*	*A015*	*A015*
Sample Location:		*B-X225Y077*	*SS-X124Y115*	*SS-X134Y098*	*B-X253Y329H*	*B-X254Y336*	*B-X148Y233*	*B-X148Y233*	*B-X148Y233*	*B-X148Y233*	*B-X169Y248*	*B-X169Y248*	*B-X169Y248*	*B-X169Y248*
Sample ID:		*S-010402-MG-003*	*SS-011802-MG-002*	*SS-011802-MG-001*	*S-012202-MG-063*	*S-012202-MG-064*	*S-022202-KMV-532*	*S-022202-KMV-533*	*S-022202-KMV-534*	*S-022202-KMV-535*	*S-022102-KMV-528*	*S-022102-KMV-529*	*S-022102-KMV-530*	*S-022102-KMV-531*
Sample Date:		*1/4/2002*	*1/18/2002*	*1/18/2002*	*1/22/2002*	*1/22/2002*	*2/22/2002*	*2/22/2002*	*2/22/2002*	*2/22/2002*	*2/21/2002*	*2/21/2002*	*2/21/2002*	*2/21/2002*
Sample Depth:		*(13-15)*	*(0-2)*	*(0-2)*	*(10-11)*	*(3-3.5)*	*(0-2)*	*(0-2)*	*(6-8)*	*(12-14)*	*(0-2)*	*(0-2)*	*(6-8)*	*(22-24)*
								Duplicate				*Duplicate*		
Parameters	***Units***													
4-Methylphenol	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
4-Nitroaniline	ug/kg	ND (2000)	ND (1900)	ND (2100)	-	-	ND (1800)	ND (1700)	ND (2100)	ND (2200)	ND (1700)	ND (1700)	ND (1800)	ND (1900)
4-Nitrophenol	ug/kg	ND (2000)	ND (1900)	ND (2100)	-	-	ND (1800)	ND (1700)	ND (2100)	ND (2200)	ND (1700)	ND (1700)	ND (1800)	ND (1900)
Acenaphthene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	73 J	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Acenaphthylene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Acetophenone	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Anthracene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	83 J	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Atrazine	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Benzaldehyde	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Benzo(a)anthracene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	350 J	61 J	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Benzo(a)pyrene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	400 J	74 J	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Benzo(b)fluoranthene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	590 J	99 J	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Benzo(g,h,i)perylene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	280 J	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Benzo(k)fluoranthene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	190 J	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Biphenyl	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
bis(2-Chloroethoxy)methane	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
bis(2-Chloroethyl)ether	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370) U	ND (360) U	ND (430) U	ND (460) U	ND (350)	ND (350)	ND (370)	ND (400)
Butyl benzylphthalate	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Caprolactam	ug/kg	ND (420) UJ	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Carbazole	ug/kg	ND (420)	ND (390)	ND (430)	-	-	66 J	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Chrysene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	440 J	77 J	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Dibenz(a,h)anthracene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	71 J	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Dibenzofuran	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Diethyl phthalate	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Dimethyl phthalate	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Di-n-butylphthalate	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	430	320 J	ND (370)	ND (400)
Di-n-octyl phthalate	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Fluoranthene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	940 J	110 J	ND (430)	ND (460)	ND (350)	ND (350)	160 J	ND (400)
Fluorene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Hexachlorobenzene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Hexachlorobutadiene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Hexachlorocyclopentadiene	ug/kg	ND (2000)	ND (1900)	ND (2100)	-	-	ND (1800)	ND (1700)	ND (2100)	ND (2200)	ND (1700)	ND (1700)	ND (1800)	ND (1900)
Hexachloroethane	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	270 J	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Isophorone	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Naphthalene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	57 J	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Nitrobenzene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
N-Nitrosodi-n-propylamine	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
N-Nitrosodiphenylamine	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Pentachlorophenol	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	ND (360)	ND (430)	ND (460)	ND (350)	ND (350)	ND (370)	ND (400)
Phenanthrene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	510 J	63 J	ND (430)	ND (460)	ND (350)	ND (350)	150 J	ND (400)
Phenol	ug/kg	ND (420)	ND (390)	ND (430)	-	-	ND (370)	99 J	ND (430)	ND (460)	180 J	110 J	ND (370)	ND (400)
Pyrene	ug/kg	ND (420)	ND (390)	ND (430)	-	-	740 J	120 J	ND (430)	ND (460)	ND (350)	ND (350)	140 J	ND (400)
Volatiles														
1,1,1-Trichloroethane	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
1,1,2,2-Tetrachloroethane	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
1,1,2-Trichloroethane	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
1,1-Dichloroethane	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
1,1-Dichloroethene	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
1,2,4-Trichlorobenzene	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (13)	ND (10)	ND (13)	-	-	ND (11)	ND (15)	ND (13)	ND (15)	ND (9.9)	ND (9.5)	ND (600)	ND (11)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
1,2-Dichlorobenzene	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
1,2-Dichloroethane	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A011 P200(GM)*	*A012*	*A012*	*A014*	*A014*	*A015*	*A015*	*A015*	*A015*	*A015*	*A015*	*A015*	*A015*
Sample Location:		*B-X225Y077*	*SS-X124Y115*	*SS-X134Y098*	*B-X253Y329H*	*B-X254Y336*	*B-X148Y233*	*B-X148Y233*	*B-X148Y233*	*B-X148Y233*	*B-X169Y248*	*B-X169Y248*	*B-X169Y248*	*B-X169Y248*
Sample ID:		*S-010402-MG-003*	*SS-011802-MG-002*	*SS-011802-MG-001*	*S-012202-MG-063*	*S-012202-MG-064*	*S-022202-KMV-532*	*S-022202-KMV-533*	*S-022202-KMV-534*	*S-022202-KMV-535*	*S-022102-KMV-528*	*S-022102-KMV-529*	*S-022102-KMV-530*	*S-022102-KMV-531*
Sample Date:		*1/4/2002*	*1/18/2002*	*1/18/2002*	*1/22/2002*	*1/22/2002*	*2/22/2002*	*2/22/2002*	*2/22/2002*	*2/22/2002*	*2/21/2002*	*2/21/2002*	*2/21/2002*	*2/21/2002*
Sample Depth:		*(13-15)*	*(0-2)*	*(0-2)*	*(10-11)*	*(3-3.5)*	*(0-2)*	*(0-2)*	*(6-8)*	*(12-14)*	*(0-2)*	*(0-2)*	*(6-8)*	*(22-24)*
								Duplicate				*Duplicate*		
Parameters	***Units***													
1,2-Dichloropropane	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
1,3-Dichlorobenzene	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
1,4-Dichlorobenzene	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	23 J	ND (5.5)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (26)	ND (20)	ND (26)	-	-	ND (21)	ND (30)	ND (26)	ND (30)	ND (20)	ND (19)	ND (1200) U	3 J
2-Hexanone	ug/kg	ND (26)	ND (20)	ND (26)	-	-	ND (21)	ND (30)	ND (26)	ND (30)	ND (20)	ND (19)	ND (1200)	ND (22)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (26)	ND (20)	ND (26)	-	-	ND (21)	ND (30)	ND (26)	ND (30)	ND (20)	ND (19)	ND (1200)	ND (22)
Acetone	ug/kg	ND (26) U	ND (20)	4.1 J	-	-	ND (21) UJ	ND (30) UJ	ND (26) UJ	ND (30) UJ	ND (20) UJ	ND (19) UJ	ND (1200) UJ	ND (22) UJ
Benzene	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	31 J	ND (5.5)
Bromodichloromethane	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
Bromoform	ug/kg	ND (6.4)	ND (5.1) UJ	ND (6.4) UJ	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300) UJ	ND (5.5)
Bromomethane (Methyl Bromide)	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
Carbon disulfide	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
Carbon tetrachloride	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
Chlorobenzene	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
Chloroethane	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
Chloroform (Trichloromethane)	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
Chloromethane (Methyl Chloride)	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4) UJ	ND (7.6) UJ	ND (6.5) UJ	ND (7.5) UJ	ND (4.9) UJ	ND (4.8) UJ	ND (300)	ND (5.5) UJ
cis-1,2-Dichloroethene	ug/kg	ND (3.2)	1.7 J	ND (3.2)	-	-	ND (2.7)	ND (3.8)	ND (3.3)	ND (3.8)	ND (2.5)	ND (2.4)	900	ND (2.8)
cis-1,3-Dichloropropene	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
Cyclohexane	ug/kg	ND (13)	ND (10)	ND (13)	-	-	ND (11)	ND (15)	ND (13)	ND (15)	ND (9.9)	ND (9.5)	ND (600)	ND (11)
Dibromochloromethane	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4) UJ	ND (7.6) UJ	ND (6.5) UJ	ND (7.5) UJ	ND (4.9) UJ	ND (4.8) UJ	ND (300)	ND (5.5) UJ
Ethylbenzene	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	19 J	ND (5.5)
Isopropylbenzene	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
Methyl acetate	ug/kg	ND (13)	ND (10)	ND (13)	-	-	ND (11)	ND (15)	ND (13)	ND (15)	ND (9.9)	ND (9.5)	ND (600)	ND (11)
Methyl cyclohexane	ug/kg	ND (13)	ND (10)	ND (13)	-	-	ND (11)	ND (15)	ND (13)	ND (15)	ND (9.9)	ND (9.5)	ND (600)	ND (11)
Methyl Tert Butyl Ether	ug/kg	ND (26)	ND (20)	ND (26)	-	-	ND (21)	ND (30)	ND (26)	ND (30)	ND (20)	ND (19)	ND (1200)	ND (22)
Methylene chloride	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	10	7.5 J	4.6 J	21	4.6 J	13	ND (300)	7
Styrene	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
Tetrachloroethene	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	920	ND (5.5)
Toluene	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	220 J	ND (5.5)
trans-1,2-Dichloroethene	ug/kg	ND (3.2)	ND (2.5)	ND (3.2)	-	-	ND (2.7)	ND (3.8)	ND (3.3)	ND (3.8)	ND (2.5)	ND (2.4)	110 J	ND (2.8)
trans-1,3-Dichloropropene	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
Trichloroethene	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	280 J	ND (5.5)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
Vinyl chloride	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	320	6.9
Xylene (total)	ug/kg	ND (6.4)	ND (5.1)	ND (6.4)	-	-	ND (5.4)	ND (7.6)	ND (6.5)	ND (7.5)	ND (4.9)	ND (4.8)	ND (300)	ND (5.5)
Wet														
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Solids	%	78.2	83.6	76.4	72.6	75.2	88.8	91.7	76.8	71.8	95	93.5	90.2	82.5

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A015*	*A015*	*A015*	*A017*	*A017*	*A017*	*A017*	*A017*	*A017*	*A018*	*A018*
Sample Location:		*MW-X143Y245D*	*MW-X143Y245D*	*MW-X143Y245D*	*B-X107Y151*	*B-X107Y151*	*B-X107Y151*	*B-X123Y129*	*B-X123Y129*	*B-X123Y129*	*SS-X149Y126*	*SS-X154Y117*
Sample ID:		*S-010702-KMV-501*	*S-010702-KMV-502*	*S-010702-KMV-503*	*S-011502-MG-057*	*S-011502-MG-058*	*S-011502-MG-059*	*S-011702-MG-060*	*S-011702-MG-061*	*S-011702-MG-062*	*SS-012802-MG-002*	*SS-012802-MG-003*
Sample Date:		*1/7/2002*	*1/7/2002*	*1/7/2002*	*1/15/2002*	*1/15/2002*	*1/15/2002*	*1/17/2002*	*1/17/2002*	*1/17/2002*	*1/28/2002*	*1/28/2002*
Sample Depth:		*(0-2)*	*(0-2)*	*(6-8)*	*(0-2)*	*(6-8)*	*(31.5-33.5)*	*(0-2)*	*(6-8)*	*(21.5-23.5)*	*(0-2)*	*(0-2)*
			Duplicate									
Parameters	***Units***											
Metals												
Aluminum	mg/kg	7420	6440	16800	1320	8960	3750	9830	10300	5430	16300	9700
Antimony	mg/kg	ND (7.1) UJ	ND (6.8) UJ	1.4 J	ND (7.1)	0.59 J	ND (16.0)	0.61 J	ND (7.8)	ND (7.8)	1.2 J	1.1 J
Arsenic	mg/kg	1.8	1.6	17.5	1.8	10.4	9.1	5.8	ND (1.3)	3.7	11.3	8.3
Barium	mg/kg	871 J	232 J	142 J	13.5 J	90.7	35.5 J	45.1	20.0 J	39.8	38.0	40.4
Beryllium	mg/kg	ND (0.59) U	ND (0.56) U	6.7	ND (0.59) U	0.49 J	2.7	ND (0.62) U	ND (0.65) U	0.68	0.37 J	0.51 J
Cadmium	mg/kg	0.88	0.46 J	ND (2.8) U	0.29 J	ND (0.59)	1.1 J	ND (0.62)	ND (0.65)	3.0	ND (0.67)	1.2
Chromium Total	mg/kg	27.4	33.0	29.1	6.1	69.2	5.6	35.8	6.7	6.6	61.9	117
Cobalt	mg/kg	28.2	34.6	15.3 J	1.2 J	5.0 J	14.8	6.9	1.2 J	6.1 J	2.4 J	70.3
Copper	mg/kg	194	161	17.7	3.3	7.0	26.9	41.9	4.0	6.6	14.2	224
Cyanide (amenable)	mg/kg	ND (0.59)	ND (0.56)	ND (0.69)	ND (0.59)	ND (0.59)	ND (0.67)	ND (0.62)	ND (0.65)	ND (0.65)	ND (0.67)	ND (0.54)
Cyanide (total)	mg/kg	ND (0.59)	ND (0.56)	ND (0.69)	ND (0.59)	ND (0.59)	ND (0.67)	ND (0.62)	ND (0.65)	ND (0.65)	ND (0.67)	ND (0.54)
Iron	mg/kg	6730	5590	36900	4010	26800	14300	29200	1530	14000	53200	32900
Lead	mg/kg	23.6	17.1	25.7	8.2	16.1	14.4	31.2	4.1	13.8	24.4	67.1
Manganese	mg/kg	129	79.3	379	1180	188	713	70.4	10.4	194	43.3	266
Mercury	mg/kg	2.2	1.0	0.20	0.060 J	0.021 J	0.047 J	0.13	0.028 J	0.052 J	ND (0.13)	0.15
Nickel	mg/kg	43.0	47.5	94.9	1.8 J	3.9 J	41.2	23.7	3.4 J	21.1	11.7	312
Selenium	mg/kg	ND (0.59)	ND (0.56)	1.2 J	ND (0.59)	0.83	ND (1.3)	1.3	0.69	0.51 J	1.7	0.90
Silver	mg/kg	0.23 J	0.37 J	ND (5.5)	ND (1.2)	ND (1.2)	ND (2.7)	ND (1.2)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.1)
Thallium	mg/kg	ND (1.2)	1.2	4.4 J	ND (1.2)	ND (1.2)	2.3 J	0.78 J	0.78 J	ND (1.3)	ND (1.3)	ND (1.1)
Vanadium	mg/kg	5.7 J	7.5	49.1	4.5 J	52.0	5.3 J	49.8	5.1 J	10.1	106	16.2
Zinc	mg/kg	131	61.4	83.8	14.1	12.5	44.3	97.3	13.1	38.4	43.2	315
PCBs												
Aroclor-1016 (PCB-1016)	ug/kg	ND (3900)	ND (3700)	ND (46)	ND (39)	ND (39)	ND (44)	ND (410)	ND (43)	ND (43)	ND (44)	ND (1800)
Aroclor-1221 (PCB-1221)	ug/kg	ND (3900)	ND (3700)	ND (46)	ND (39)	ND (39)	ND (44)	ND (410)	ND (43)	ND (43)	ND (44)	ND (1800)
Aroclor-1232 (PCB-1232)	ug/kg	ND (3900)	ND (3700)	ND (46)	ND (39)	ND (39)	ND (44)	ND (410)	ND (43)	ND (43)	ND (44)	ND (1800)
Aroclor-1242 (PCB-1242)	ug/kg	ND (3900)	ND (3700)	ND (46)	270	ND (39)	ND (44)	ND (410)	ND (43)	ND (43)	ND (44)	ND (1800)
Aroclor-1248 (PCB-1248)	ug/kg	30000	36000	87	ND (39)	ND (39)	ND (44)	3100	ND (43)	ND (43)	ND (44)	17000
Aroclor-1254 (PCB-1254)	ug/kg	ND (3900)	ND (3700)	ND (46)	ND (39)	ND (39)	ND (44)	ND (410)	ND (43)	ND (43)	ND (44)	ND (1800)
Aroclor-1260 (PCB-1260)	ug/kg	ND (3900)	ND (3700)	ND (46)	29 J	ND (39)	ND (44)	ND (410)	ND (43)	ND (43)	ND (44)	ND (1800)
Semi - Volatiles												
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
2,4,5-Trichlorophenol	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
2,4,6-Trichlorophenol	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
2,4-Dichlorophenol	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
2,4-Dimethylphenol	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
2,4-Dinitrophenol	ug/kg	ND (1900)	ND (1800)	ND (2200)	ND (1900)	ND (1900)	ND (2100)	ND (2000) UJ	ND (2100) UJ	ND (2100) UJ	ND (2100)	ND (1700)
2,4-Dinitrotoluene	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
2,6-Dinitrotoluene	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
2-Chloronaphthalene	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
2-Chlorophenol	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
2-Methylnaphthalene	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
2-Methylphenol	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
2-Nitroaniline	ug/kg	ND (1900)	ND (1800)	ND (2200)	ND (1900)	ND (1900)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (2100)	ND (1700)
2-Nitrophenol	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
3,3'-Dichlorobenzidine	ug/kg	ND (1900)	ND (1800)	ND (2200)	ND (1900)	ND (1900)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (2100)	ND (1700)
3-Nitroaniline	ug/kg	ND (1900)	ND (1800)	ND (2200)	ND (1900)	ND (1900)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (2100)	ND (1700)
4,6-Dinitro-2-methylphenol	ug/kg	ND (1900)	ND (1800)	ND (2200)	ND (1900)	ND (1900)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (2100)	ND (1700)
4-Bromophenyl phenyl ether	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
4-Chloro-3-methylphenol	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
4-Chloroaniline	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
4-Chlorophenyl phenyl ether	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		***A015***	***A015***	***A015***	***A017***	***A017***	***A017***	***A017***	***A017***	***A017***	***A018***	***A018***
Sample Location:		***MW-X143Y245D***	***MW-X143Y245D***	***MW-X143Y245D***	***B-X107Y151***	***B-X107Y151***	***B-X107Y151***	***B-X123Y129***	***B-X123Y129***	***B-X123Y129***	***SS-X149Y126***	***SS-X154Y117***
Sample ID:		***S-010702-KMV-501***	***S-010702-KMV-502***	***S-010702-KMV-503***	***S-011502-MG-057***	***S-011502-MG-058***	***S-011502-MG-059***	***S-011702-MG-060***	***S-011702-MG-061***	***S-011702-MG-062***	***SS-012802-MG-002***	***SS-012802-MG-003***
Sample Date:		***1/7/2002***	***1/7/2002***	***1/7/2002***	***1/15/2002***	***1/15/2002***	***1/15/2002***	***1/17/2002***	***1/17/2002***	***1/17/2002***	***1/28/2002***	***1/28/2002***
Sample Depth:		***(0-2)***	***(0-2)***	***(6-8)***	***(0-2)***	***(6-8)***	***(31.5-33.5)***	***(0-2)***	***(6-8)***	***(21.5-23.5)***	***(0-2)***	***(0-2)***
			Duplicate									
Parameters	***Units***											
4-Methylphenol	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
4-Nitroaniline	ug/kg	ND (1900)	ND (1800)	ND (2200)	ND (1900)	ND (1900)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (2100)	ND (1700)
4-Nitrophenol	ug/kg	ND (1900) UJ	ND (1800) UJ	ND (2200) UJ	ND (1900)	ND (1900)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (2100)	ND (1700)
Acenaphthene	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
Acenaphthylene	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
Acetophenone	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
Anthracene	ug/kg	100 J	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	69 J
Atrazine	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
Benzaldehyde	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
Benzo(a)anthracene	ug/kg	370 J	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	210 J
Benzo(a)pyrene	ug/kg	360 J	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	200 J
Benzo(b)fluoranthene	ug/kg	410 J	71 J	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	320 J
Benzo(g,h,i)perylene	ug/kg	220 J	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	130 J
Benzo(k)fluoranthene	ug/kg	210 J	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	210 J
Biphenyl	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
bis(2-Chloroethoxy)methane	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
bis(2-Chloroethyl)ether	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
bis(2-Ethylhexyl)phthalate	ug/kg	69 J	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	120 J
Butyl benzylphthalate	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	120 J
Caprolactam	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
Carbazole	ug/kg	72 J	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	57 J
Chrysene	ug/kg	440	52 J	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	200 J
Dibenz(a,h)anthracene	ug/kg	62 J	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
Dibenzofuran	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
Diethyl phthalate	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
Dimethyl phthalate	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
Di-n-butylphthalate	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
Di-n-octyl phthalate	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
Fluoranthene	ug/kg	960	77 J	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	360
Fluorene	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440) UJ	ND (360) UJ
Hexachlorobenzene	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
Hexachlorobutadiene	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
Hexachlorocyclopentadiene	ug/kg	ND (1900)	ND (1800)	ND (2200)	ND (1900)	ND (1900)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (2100) UJ	ND (1700) UJ
Hexachloroethane	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
Indeno(1,2,3-cd)pyrene	ug/kg	210 J	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	120 J
Isophorone	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
Naphthalene	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
Nitrobenzene	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
N-Nitrosodi-n-propylamine	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
N-Nitrosodiphenylamine	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
Pentachlorophenol	ug/kg	ND (390)	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
Phenanthrene	ug/kg	440	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	170 J
Phenol	ug/kg	70 J	300 J	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	ND (360)
Pyrene	ug/kg	610	ND (370)	ND (460)	ND (390)	ND (390)	ND (440)	ND (410)	ND (430)	ND (430)	ND (440)	280 J
Volatiles												
1,1,1-Trichloroethane	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
1,1,2,2-Tetrachloroethane	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
1,1,2-Trichloroethane	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
1,1-Dichloroethane	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
1,1-Dichloroethene	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
1,2,4-Trichlorobenzene	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	5.3 J	ND (330) U	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (9.5) UJ	ND (9.3)	ND (11)	ND (10)	ND (11)	ND (650)	ND (11)	ND (12)	ND (13)	ND (16)	ND (11)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
1,2-Dichlorobenzene	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
1,2-Dichloroethane	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A015*	*A015*	*A015*	*A017*	*A017*	*A017*	*A017*	*A017*	*A017*	*A018*	*A018*
Sample Location:		*MW-X143Y245D*	*MW-X143Y245D*	*MW-X143Y245D*	*B-X107Y151*	*B-X107Y151*	*B-X107Y151*	*B-X123Y129*	*B-X123Y129*	*B-X123Y129*	*SS-X149Y126*	*SS-X154Y117*
Sample ID:		*S-010702-KMV-501*	*S-010702-KMV-502*	*S-010702-KMV-503*	*S-011502-MG-057*	*S-011502-MG-058*	*S-011502-MG-059*	*S-011702-MG-060*	*S-011702-MG-061*	*S-011702-MG-062*	*SS-012802-MG-002*	*SS-012802-MG-003*
Sample Date:		*1/7/2002*	*1/7/2002*	*1/7/2002*	*1/15/2002*	*1/15/2002*	*1/15/2002*	*1/17/2002*	*1/17/2002*	*1/17/2002*	*1/28/2002*	*1/28/2002*
Sample Depth:		*(0-2)*	*(0-2)*	*(6-8)*	*(0-2)*	*(6-8)*	*(31.5-33.5)*	*(0-2)*	*(6-8)*	*(21.5-23.5)*	*(0-2)*	*(0-2)*
			Duplicate									
Parameters	***Units***											
1,2-Dichloropropane	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
1,3-Dichlorobenzene	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	2.4 J	16 J	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
1,4-Dichlorobenzene	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	3.9 J	27 J	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	4 J	3.6 J	ND (22)	ND (20)	ND (21)	ND (1300)	ND (22)	ND (25)	ND (26)	ND (32)	ND (22)
2-Hexanone	ug/kg	ND (19)	ND (19)	ND (22)	ND (20)	ND (21)	ND (1300)	ND (22)	ND (25)	ND (26)	ND (32)	ND (22)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (19)	ND (19)	ND (22)	ND (20)	ND (21)	ND (1300)	ND (22)	ND (25)	ND (26)	ND (32)	ND (22)
Acetone	ug/kg	ND (34) U	ND (21) U	ND (22)	ND (20) UJ	ND (21) UJ	ND (1300) UJ	9.9 J	ND (25)	ND (26)	ND (32) UJ	ND (22) UJ
Benzene	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
Bromodichloromethane	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
Bromoform	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5) UJ	ND (5.4) UJ	ND (330) UJ	ND (5.5) UJ	ND (6.2) UJ	ND (6.5) UJ	ND (7.9)	ND (5.6)
Bromomethane (Methyl Bromide)	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5) UJ	ND (5.4) UJ	ND (330) UJ	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
Carbon disulfide	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
Carbon tetrachloride	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
Chlorobenzene	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
Chloroethane	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
Chloroform (Trichloromethane)	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
Chloromethane (Methyl Chloride)	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
cis-1,2-Dichloroethene	ug/kg	ND (2.4)	ND (2.3)	ND (2.7)	ND (2.5)	1.3 J	62 J	ND (2.7)	ND (3.1)	ND (3.2)	ND (4)	ND (2.8)
cis-1,3-Dichloropropene	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
Cyclohexane	ug/kg	ND (9.5)	ND (9.3)	ND (11)	ND (10)	ND (11)	ND (650)	ND (11)	ND (12)	ND (13)	ND (16)	ND (11)
Dibromochloromethane	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (4.8) U	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
Ethylbenzene	ug/kg	ND (4.8)	1 J	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
Isopropylbenzene	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
Methyl acetate	ug/kg	2.3 J	ND (9.3)	ND (11)	ND (10)	ND (11)	ND (650)	ND (11)	ND (12)	ND (13)	ND (16)	2.6 J
Methyl cyclohexane	ug/kg	ND (9.5)	ND (9.3)	ND (11)	ND (10)	ND (11)	ND (650)	ND (11)	ND (12)	ND (13)	ND (16)	ND (11)
Methyl Tert Butyl Ether	ug/kg	ND (19)	ND (19)	ND (22)	ND (20)	ND (21)	ND (1300)	ND (22)	ND (25)	ND (26)	ND (32)	ND (22)
Methylene chloride	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	4 J	7.3
Styrene	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
Tetrachloroethene	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
Toluene	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
trans-1,2-Dichloroethene	ug/kg	ND (2.4)	ND (2.3)	ND (2.7)	ND (2.5)	ND (2.7)	ND (160)	ND (2.7)	ND (3.1)	ND (3.2)	ND (4)	ND (2.8)
trans-1,3-Dichloropropene	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
Trichloroethene	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	0.78 J	17	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (4.8) UJ	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
Vinyl chloride	ug/kg	ND (4.8)	ND (4.7)	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
Xylene (total)	ug/kg	3.3 J	6.7	ND (5.4)	ND (5)	ND (5.4)	ND (330)	ND (5.5)	ND (6.2)	ND (6.5)	ND (7.9)	ND (5.6)
Wet												
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	5900 J	2700 J	-	-	-	-	-	-	-	-	-
Total Solids	%	85.0	88.8	72.5	85.0	84.9	75.1	81.1	77.0	77.2	74.9	91.9

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A018*	*A018*	*A018*	*A018*	*A018*	*A018*	*A018*	*A018*	*A018*	*A018*	*A019*	*A019*	*A019*	*A020*
Sample Location:		*B-X154Y117*	*B-X154Y117*	*B-X154Y117*	*B-X154Y117A*	*B-X154Y117A*	*B-X154Y117A*	*B-X154Y117B*	*B-X154Y117B*	*B-X154Y117B*	*B-X154Y117B*	*B-X096Y195*	*B-X096Y195*	*B-X096Y195*	*SS-X120Y177*
Sample ID:		*S-111203-JC-024*	*S-111203-JC-025*	*S-111203-JC-026*	*S-111203-JC-021*	*S-111203-JC-022*	*S-111203-JC-023*	*S-111003-JC-017*	*S-111003-JC-018*	*S-111003-JC-019*	*S-111003-JC-020*	*S-012502-MG-078*	*S-012502-MG-079*	*S-012502-MG-080*	*SS-013102-MG-001*
Sample Date:		*11/12/2003*	*11/12/2003*	*11/12/2003*	*11/12/2003*	*11/12/2003*	*11/12/2003*	*11/10/2003*	*11/10/2003*	*11/10/2003*	*11/10/2003*	*1/25/2002*	*1/25/2002*	*1/25/2002*	*1/31/2002*
Sample Depth:		*0-2*	*6-8*	*24-25*	*0-2*	*6-8*	*24-25*	*0-2*	*6-8*	*6-8 Duplicate*	*24-25*	*(0-2)*	*(6-8)*	*(30-32)*	*(3-4)*
Parameters	***Units***														
Metals															
		6770	13700	4950	633	9760	6500	6920	7800	4540	8050				
Aluminum	mg/kg	ND (6.9) UJ	1.1 J	ND (8.1) UJ	ND (6.9) UJ	1.6 J	0.56 J	ND (6.7) UJ	0.75 J	0.95 J	0.28 J	-	-	-	1550
Antimony	mg/kg	3.9	5.7	5.9	2.3	7.8	4.0	11.1	4.8	5.3	6.7	-	-	-	ND (6.4)
Arsenic	mg/kg	31.9	41.8	13.5 J	14.9 J	57.7	25.0 J	121	45.3	43.1	58.1	-	-	-	2.7
Barium	mg/kg	0.21 J	0.85	2.7	ND (0.58) U	0.60 J	1.1	0.097 J	0.32 J	0.27 J	3.8	-	-	-	206
Beryllium	mg/kg	0.22 J	0.17 J	0.42 J	0.84	0.49 J	0.37 J	0.99	0.37 J	0.50 J	0.68	-	-	-	0.14 J
Cadmium	mg/kg	213 J	28.6 J	11.2 J	5.1 J	19.3 J	26.9 J	248 J	13.4 J	15.0 J	44.2 J	-	-	-	0.30 J
Chromium Total	mg/kg	346	3.4 J	12.3	0.80 J	4.2 J	9.8	7.4	3.3 J	3.2 J	36.8	-	-	-	3.8
Cobalt	mg/kg	30.1	53.7	17.5	16.3	41.0	14.0	86.7	24.5	24.7	17.7	-	-	-	1.9 J
Copper	mg/kg	ND (0.57)	ND (0.68)	ND (0.68)	ND (0.58)	ND (0.61)	ND (0.65)	ND (0.56)	ND (0.62)	ND (0.62)	ND (0.63)	-	-	-	6.8 J
Cyanide (amenable)	mg/kg	ND (0.57)	ND (0.68)	ND (0.68)	ND (0.58)	ND (0.61)	ND (0.65)	ND (0.56)	ND (0.62)	ND (0.62)	ND (0.63)	-	-	-	ND (0.53)
Cyanide (total)	mg/kg	11600	29500	12800	3370	26200	17300	14500	15400	15100	29100	-	-	-	ND (0.53)
Iron	mg/kg	28.1 J	15.4 J	12.0 J	21.0 J	73.6 J	13.7 J	213 J	33.9 J	39.4 J	36.8 J	-	-	-	7800
Lead	mg/kg	98.4 J	53.7 J	308 J	69.6 J	198 J	408 J	464 J	68.2 J	152 J	1170 J	-	-	-	2.7
Manganese	mg/kg	0.23	0.039 J	0.12 J	0.042 J	0.049 J	0.053 J	1.1	0.043 J	0.048 J	0.027 J	-	-	-	377
Mercury	mg/kg	35.1	22.1	55.8	3.0 J	10.8	27.3	26.2	7.1	6.0	65.4	-	-	-	ND (0.11)
Nickel	mg/kg	ND (0.57)	0.63 J	ND (0.68)	ND (0.58)	ND (0.61)	ND (0.65)	2.5	ND (0.62)	ND (0.62)	ND (0.63)	-	-	-	8.8
Selenium	mg/kg	ND (1.1)	ND (1.4)	ND (1.4)	ND (1.2)	ND (1.2)	ND (1.3)	0.33 J	ND (1.2)	ND (1.2)	ND (1.3)	-	-	-	ND (0.53)
Silver	mg/kg	2.0	ND (1.4)	0.61 J	ND (1.2)	ND (1.2)	ND (1.3)	1.1	ND (1.2)	ND (1.2)	ND (1.3)	-	-	-	ND (1.1)
Thallium	mg/kg	18.6	30.8	14.0	3.7 J	29.7	25.3	15.4	21.7	20.0	35.9	-	-	-	ND (1.1)
Vanadium	mg/kg	43.1 J	111 J	46.5 J	80.4 J	96.4 J	43.8 J	241 J	73.7 J	81.6 J	88.5 J	-	-	-	4.7 J
Zinc	mg/kg											-	-	-	34.6 J
PCBs															
		ND (38)	ND (45)	ND (45)	ND (38)	ND (40) UJ	ND (43)	ND (37)	ND (41)	ND (41)	ND (41)				
Aroclor-1016 (PCB-1016)	ug/kg	ND (38)	ND (45)	ND (45)	ND (38)	ND (40) UJ	ND (43)	ND (37)	ND (41)	ND (41)	ND (41)	ND (42)	ND (41)	ND (42)	ND (35)
Aroclor-1221 (PCB-1221)	ug/kg	ND (38)	ND (45)	ND (45)	ND (38)	ND (40) UJ	ND (43)	ND (37)	ND (41)	ND (41)	ND (41)	ND (42)	ND (41)	ND (42)	ND (35)
Aroclor-1232 (PCB-1232)	ug/kg	ND (38)	ND (45)	ND (45)	ND (38)	ND (40) UJ	ND (43)	ND (37)	ND (41)	ND (41)	ND (41)	ND (42)	ND (41)	ND (42)	ND (35)
Aroclor-1242 (PCB-1242)	ug/kg	79	ND (45)	ND (45)	19 J	ND (40) UJ	ND (43)	18 J	ND (41)	ND (41)	ND (41)	ND (42)	ND (41)	ND (42)	ND (35)
Aroclor-1248 (PCB-1248)	ug/kg	ND (38)	ND (45)	ND (45)	ND (38)	ND (40) UJ	ND (43)	ND (37)	ND (41)	ND (41)	ND (41)	ND (42)	ND (41)	ND (42)	ND (35)
Aroclor-1254 (PCB-1254)	ug/kg	ND (38)	ND (45)	ND (45)	ND (38)	ND (40) UJ	ND (43)	ND (37)	ND (41)	ND (41)	ND (41)	ND (42)	ND (41)	ND (42)	ND (35)
Aroclor-1260 (PCB-1260)	ug/kg											ND (42)	ND (41)	ND (42)	ND (35)
Semi - Volatiles															
		ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)				
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
2,4,5-Trichlorophenol	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
2,4,6-Trichlorophenol	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
2,4-Dichlorophenol	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
2,4-Dimethylphenol	ug/kg	ND (1800)	ND (2200)	ND (2200)	ND (1800)	ND (2000)	ND (2100)	ND (1800)	ND (2000)	ND (2000)	ND (2000)	-	-	-	ND (350)
2,4-Dinitrophenol	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (1700)
2,4-Dinitrotoluene	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
2,6-Dinitrotoluene	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
2-Chloronaphthalene	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
2-Chlorophenol	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
2-Methylnaphthalene	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
2-Methylphenol	ug/kg	ND (1800)	ND (2200)	ND (2200)	ND (1800)	ND (2000)	ND (2100)	ND (1800)	ND (2000)	ND (2000)	ND (2000)	-	-	-	ND (350)
2-Nitroaniline	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (1700)
2-Nitrophenol	ug/kg	ND (1800)	ND (2200)	ND (2200)	ND (1800)	ND (2000)	ND (2100)	ND (1800)	ND (2000) UJ	ND (2000) UJ	ND (2000)	-	-	-	ND (350)
3,3'-Dichlorobenzidine	ug/kg	ND (1800)	ND (2200)	ND (2200)	ND (1800)	ND (2000)	ND (2100)	ND (1800)	ND (2000)	ND (2000)	ND (2000)	-	-	-	ND (1700)
3-Nitroaniline	ug/kg	ND (1800)	ND (2200)	ND (2200)	ND (1800)	ND (2000)	ND (2100)	ND (1800)	ND (2000)	ND (2000)	ND (2000)	-	-	-	ND (1700)
4,6-Dinitro-2-methylphenol	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (1700)
4-Bromophenyl phenyl ether	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
4-Chloro-3-methylphenol	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
4-Chloroaniline	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
4-Chlorophenyl phenyl ether	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A018*	*A018*	*A018*	*A018*	*A018*	*A018*	*A018*	*A018*	*A018*	*A018*	*A019*	*A019*	*A019*	*A020*
Sample Location:		*B-X154Y117*	*B-X154Y117*	*B-X154Y117*	*B-X154Y117A*	*B-X154Y117A*	*B-X154Y117A*	*B-X154Y117B*	*B-X154Y117B*	*B-X154Y117B*	*B-X154Y117B*	*B-X096Y195*	*B-X096Y195*	*B-X096Y195*	*SS-X120Y177*
Sample ID:		*S-111203-JC-024*	*S-111203-JC-025*	*S-111203-JC-026*	*S-111203-JC-021*	*S-111203-JC-022*	*S-111203-JC-023*	*S-111003-JC-017*	*S-111003-JC-018*	*S-111003-JC-019*	*S-111003-JC-020*	*S-012502-MG-078*	*S-012502-MG-079*	*S-012502-MG-080*	*SS-013102-MG-001*
Sample Date:		*11/12/2003*	*11/12/2003*	*11/12/2003*	*11/12/2003*	*11/12/2003*	*11/12/2003*	*11/10/2003*	*11/10/2003*	*11/10/2003*	*11/10/2003*	*1/25/2002*	*1/25/2002*	*1/25/2002*	*1/31/2002*
Sample Depth:		*0-2*	*6-8*	*24-25*	*0-2*	*6-8*	*24-25*	*0-2*	*6-8*	*6-8*	*24-25*	*(0-2)*	*(6-8)*	*(30-32)*	*(3-4)*
										Duplicate					
Parameters	***Units***														
4-Methylphenol	ug/kg	ND (1800)	ND (2200)	ND (2200)	ND (1800)	ND (2000)	ND (2100)	ND (1800)	ND (2000)	ND (2000)	ND (2000)	-	-	-	ND (350)
4-Nitroaniline	ug/kg	ND (1800) UJ	ND (2200) UJ	ND (2200) UJ	ND (1800)	ND (2000) UJ	ND (2100)	ND (1800)	ND (2000)	ND (2000)	ND (2000)	-	-	-	ND (1700)
4-Nitrophenol	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (1700)
Acenaphthene	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	74 J	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
Acenaphthylene	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
Acetophenone	ug/kg	ND (380)	ND (450)	ND (450)	72 J	ND (400)	ND (430)	73 J	ND (410)	130 J	ND (410)	-	-	-	ND (350)
Anthracene	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
Atrazine	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
Benzaldehyde	ug/kg	21 J	80 J	ND (450)	80 J	ND (400)	ND (430)	40 J	ND (410) UJ	ND (410) UJ	ND (410)	-	-	-	ND (350)
Benzo(a)anthracene	ug/kg	33 J	98 J	ND (450)	98 J	24 J	ND (430)	84 J	110 J	110 J	ND (410)	-	-	-	ND (350)
Benzo(a)pyrene	ug/kg	31 J	110 J	ND (450)	190 J	32 J	ND (430)	110 J	110 J	130 J	ND (410)	-	-	-	ND (350)
Benzo(b)fluoranthene	ug/kg	29 J	70 J	ND (450)	89 J	ND (400)	ND (430)	88 J	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
Benzo(g,h,i)perylene	ug/kg	ND (380)	35 J	ND (450)	130 J	ND (400)	ND (430)	30 J	ND (410)	120 J	ND (410)	-	-	-	ND (350)
Benzo(k)fluoranthene	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
Biphenyl	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
bis(2-Chloroethoxy)methane	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
bis(2-Chloroethyl)ether	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410) UJ	ND (410) UJ	ND (410)	-	-	-	ND (350)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410) UJ	ND (410) UJ	ND (410)	-	-	-	ND (350)
Butyl benzylphthalate	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
Caprolactam	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
Carbazole	ug/kg	27 J	100 J	ND (450)	120 J	33 J	ND (430)	71 J	ND (410) UJ	28 J	ND (410)	-	-	-	ND (350)
Chrysene	ug/kg	ND (380)	ND (450)	ND (450)	82 J	ND (400)	ND (430)	25 J	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
Dibenz(a,h)anthracene	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	70 J	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
Dibenzofuran	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
Diethyl phthalate	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
Dimethyl phthalate	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	65 J	ND (370)	96 J	95 J	ND (410)	-	-	-	ND (350)
Di-n-butylphthalate	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
Di-n-octyl phthalate	ug/kg	49 J	220 J	ND (450)	220 J	40 J	ND (430)	63 J	140 J	150 J	ND (410)	-	-	-	ND (350)
Fluoranthene	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
Fluorene	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
Hexachlorobenzene	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
Hexachlorobutadiene	ug/kg	ND (1800)	ND (2200)	ND (2200)	ND (1800) UJ	ND (2000) UJ	ND (2100) UJ	ND (1800)	ND (2000)	ND (2000)	ND (2000)	-	-	-	ND (350)
Hexachlorocyclopentadiene	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (1700)
Hexachloroethane	ug/kg	26 J	58 J	ND (450)	130 J	ND (400)	ND (430)	72 J	ND (410)	95 J	ND (410)	-	-	-	ND (350)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
Isophorone	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
Naphthalene	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
Nitrobenzene	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
N-Nitrosodi-n-propylamine	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
N-Nitrosodiphenylamine	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
Pentachlorophenol	ug/kg	28 J	110 J	ND (450)	140 J	35 J	ND (430)	100 J	130 J	140 J	ND (410)	-	-	-	ND (350)
Phenanthrene	ug/kg	ND (380)	ND (450)	ND (450)	ND (380)	ND (400)	ND (430)	ND (370)	ND (410)	ND (410)	ND (410)	-	-	-	ND (350)
Phenol	ug/kg	47 J	210 J	ND (450)	180 J	34 J	ND (430)	61 J	ND (410) UJ	34 J	ND (410)	-	-	-	ND (350)
Pyrene	ug/kg											-	-	-	ND (350)
Volatiles															
		ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)				
1,1,1-Trichloroethane	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
1,1,2,2-Tetrachloroethane	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
1,1,2-Trichloroethane	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
1,1-Dichloroethane	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
1,1-Dichloroethene	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
1,2,4-Trichlorobenzene	ug/kg	ND (8.9)	ND (13)	ND (13)	ND (530)	ND (12)	ND (14)	ND (9.6)	ND (13)	ND (12)	ND (13)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (12) UJ	ND (12) UJ	ND (11) UJ	ND (11)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
1,2-Dichlorobenzene	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
1,2-Dichloroethane	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A018*	*A018*	*A018*	*A018*	*A018*	*A018*	*A018*	*A018*	*A018*	*A018*	*A019*	*A019*	*A019*	*A020*
Sample Location:		*B-X154Y117*	*B-X154Y117*	*B-X154Y117*	*B-X154Y117A*	*B-X154Y117A*	*B-X154Y117A*	*B-X154Y117B*	*B-X154Y117B*	*B-X154Y117B*	*B-X154Y117B*	*B-X096Y195*	*B-X096Y195*	*B-X096Y195*	*SS-X120Y177*
Sample ID:		*S-111203-JC-024*	*S-111203-JC-025*	*S-111203-JC-026*	*S-111203-JC-021*	*S-111203-JC-022*	*S-111203-JC-023*	*S-111003-JC-017*	*S-111003-JC-018*	*S-111003-JC-019*	*S-111003-JC-020*	*S-012502-MG-078*	*S-012502-MG-079*	*S-012502-MG-080*	*SS-013102-MG-001*
Sample Date:		*11/12/2003*	*11/12/2003*	*11/12/2003*	*11/12/2003*	*11/12/2003*	*11/12/2003*	*11/10/2003*	*11/10/2003*	*11/10/2003*	*11/10/2003*	*1/25/2002*	*1/25/2002*	*1/25/2002*	*1/31/2002*
Sample Depth:		*0-2*	*6-8*	*24-25*	*0-2*	*6-8*	*24-25*	*0-2*	*6-8*	*6-8* *Duplicate*	*24-25*	*(0-2)*	*(6-8)*	*(30-32)*	*(3-4)*
Parameters	***Units***														
1,2-Dichloropropane	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
1,3-Dichlorobenzene	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
1,4-Dichlorobenzene	ug/kg	ND (18)	ND (26)	ND (25)	ND (1100)	ND (24)	ND (27)	ND (19) UJ	ND (26) UJ	ND (24) UJ	ND (27) UJ	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (18)	ND (26)	ND (25)	ND (1100)	ND (24)	ND (27)	ND (19)	ND (26)	ND (24)	ND (27)	3.5 J	6.7 J	ND (23)	ND (22)
2-Hexanone	ug/kg	ND (18)	ND (26)	ND (25)	ND (1100)	ND (24)	ND (27)	ND (19)	ND (26)	ND (24)	ND (27)	ND (24)	ND (24)	ND (23)	ND (22)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (18) UJ	ND (26) UJ	12 J	340 J	11 J	17 J	ND (19) UJ	13 J	13 J	12 J	ND (24)	ND (24)	ND (23)	ND (22)
Acetone	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	0.54 J	ND (6.5)	ND (5.9)	ND (6.6)	38	36	ND (23)	ND (22) UJ
Benzene	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
Bromodichloromethane	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
Bromoform	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5) UJ
Bromomethane (Methyl Bromide)	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1) UJ	ND (6.1) UJ	ND (5.7) UJ	ND (5.5)
Carbon disulfide	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
Carbon tetrachloride	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1) UJ	ND (6.1) UJ	ND (5.7) UJ	ND (5.5)
Chlorobenzene	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
Chloroethane	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
Chloroform (Trichloromethane)	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
Chloromethane (Methyl Chloride)	ug/kg	ND (2.2)	ND (3.3)	ND (3.1)	63 J	ND (3.0)	ND (3.4)	ND (2.4)	ND (3.2)	ND (3.0)	ND (3.3)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
cis-1,2-Dichloroethene	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (3)	ND (3)	ND (2.9)	ND (2.8)
cis-1,3-Dichloropropene	ug/kg	ND (8.9)	ND (13)	ND (13)	ND (530)	ND (12)	ND (14)	ND (9.6)	ND (13)	ND (12)	ND (13)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
Cyclohexane	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (12)	ND (12)	ND (11)	ND (11)
Dibromochloromethane	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5) UJ
Ethylbenzene	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
Isopropylbenzene	ug/kg	ND (8.9)	ND (13)	ND (13)	ND (530)	ND (12)	ND (14)	ND (9.6)	ND (13)	ND (12)	ND (13)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
Methyl acetate	ug/kg	ND (8.9)	ND (13)	ND (13)	ND (530)	ND (12)	ND (14)	0.72 J	ND (13)	ND (12)	ND (13)	ND (12)	ND (12)	ND (11)	ND (11)
Methyl cyclohexane	ug/kg	ND (18)	ND (26)	ND (25)	ND (1100)	ND (24)	ND (27)	ND (19)	ND (26)	ND (24)	ND (27)	ND (12)	ND (12)	ND (11)	ND (11)
Methyl Tert Butyl Ether	ug/kg	ND (4.5)	ND (6.5) U	ND (6.3) U	ND (260)	ND (6.0)	ND (6.9) U	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (24)	ND (24)	ND (23)	ND (22)
Methylene chloride	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1) U	ND (6.1) U	ND (5.7) U	ND (5.5)
Styrene	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	1100	ND (6.0)	ND (6.9)	0.67 J	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
Tetrachloroethene	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	26 J	ND (6.0)	ND (6.9)	0.88 J	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
Toluene	ug/kg	ND (2.2)	ND (3.3)	ND (3.1)	ND (130)	ND (3.0)	ND (3.4)	ND (2.4)	ND (3.2)	ND (3.0)	ND (3.3)	ND (6.1)	ND (6.1)	ND (5.7)	1.3 J
trans-1,2-Dichloroethene	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (3)	ND (3)	ND (2.9)	ND (2.8)
trans-1,3-Dichloropropene	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	210 J	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
Trichloroethene	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
Vinyl chloride	ug/kg	ND (4.5)	ND (6.5)	ND (6.3)	ND (260)	ND (6.0)	ND (6.9)	ND (4.8)	ND (6.5)	ND (5.9)	ND (6.6)	ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
Xylene (total)	ug/kg											ND (6.1)	ND (6.1)	ND (5.7)	ND (5.5)
Wet															
		87.4	73.7	74.0	86.7	81.8	77.4	89.5	80.3	80.9	79.7				
Chloride	mg/kg											-	-	-	-
Total Organic Carbon (TOC)	mg/kg											-	-	-	-
Total Solids	%											79.1	80.9	79.5	94.2

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*
Sample Location:		*B-X045Y172*	*B-X045Y172*	*B-X045Y172*	*B-X049Y198*	*B-X049Y198*	*B-X049Y198*	*B-X049Y198*	*B-X049Y198*	*B-X059Y160*	*B-X059Y160*	*B-X059Y160*	*B-X059Y160*	*B-X075Y183A*
Sample ID:		*S-013102-MG-089*	*S-013102-MG-090*	*S-013102-MG-091*	*S-012902-MG-081*	*S-012902-MG-082*	*S-012902-MG-083*	*S-012902-MG-084*	*S-012902-MG-085*	*S-020102-MG-092*	*S-020102-MG-093*	*S-020102-MG-094*	*S-020102-MG-095*	*S-012902-MG-086*
Sample Date:		*1/31/2002*	*1/31/2002*	*1/31/2002*	*1/29/2002*	*1/29/2002*	*1/29/2002*	*1/29/2002*	*1/29/2002*	*2/1/2002*	*2/1/2002*	*2/1/2002*	*2/1/2002*	*1/29/2002*
Sample Depth:		*(0-2)*	*(6-8)*	*(18-20)*	*(0-2)*	*(6-8)*	*(10.5-11.5)*	*(36-38)*	*(36-38) Duplicate*	*(0-2)*	*(6-8)*	*(23-25)*	*(31-33)*	*(0-2)*
Parameters	***Units***													
Metals														
Aluminum	mg/kg	4270	2050	4410	1270	2060	11100	4290	5400	1810 J	1940 J	7170 J	4370 J	8690
Antimony	mg/kg	ND (6.7)	ND (6.7)	0.76 J	ND (7.2)	ND (7.0)	ND (7.6)	ND (7.4)	ND (8.6)	ND (6.9) UJ	ND (6.8) UJ	ND (7.5) UJ	ND (7.9) UJ	0.73 J
Arsenic	mg/kg	2.0	2.3	1.6	1.4	1.6	6.9	6.1	29.0	1.2	1.9	10.2	9.1	2.5
Barium	mg/kg	10.6 J	6.3 J	7.9 J	7.3 J	8.6 J	44.0	19.5 J	33.7	5.1 J	5.9 J	75.6 J	45.1 J	15.1 J
Beryllium	mg/kg	ND (0.55)	ND (0.55)	ND (0.60)	ND (0.60)	ND (0.59)	ND (0.64) U	0.28 J	0.50 J	ND (0.58)	ND (0.56)	0.49 J	0.49 J	ND (0.59)
Cadmium	mg/kg	0.13 J	ND (0.55)	0.24 J	ND (0.60)	0.062 J	ND (0.64)	ND (0.62)	ND (0.72)	0.07 J	0.19 J	ND (0.63)	0.99	0.23 J
Chromium Total	mg/kg	7.9	11.0	10.3	8.2	7.8	12.8	8.6	8.1	5.2 J	7.7 J	24.1 J	6.7 J	10.2
Cobalt	mg/kg	2.0 J	2.2 J	1.8 J	1.9 J	2.9 J	13.5	7.5	39.2	1.5 J	1.8 J	10.9 J	9.2 J	3.3 J
Copper	mg/kg	98.6 J	36.0 J	88.8 J	15.2	30.7	9.4	40.0	9.8	28.7	55.7	6.8	11.2	241
Cyanide (amenable)	mg/kg	ND (0.55)	ND (0.55)	ND (0.60)	ND (0.60)	ND (0.59)	ND (0.64)	ND (0.62)	ND (0.72)	ND (0.58)	ND (0.56)	ND (0.63)	ND (0.66)	ND (0.59)
Cyanide (total)	mg/kg	ND (0.55)	ND (0.55)	ND (0.60)	ND (0.60)	ND (0.59)	ND (0.64)	ND (0.62)	ND (0.72)	ND (0.58)	ND (0.56)	ND (0.63)	ND (0.66)	ND (0.59)
Iron	mg/kg	3180	4570	3130	2590	3050	17300	12000	24300	1840 J	2800 J	20200 J	20300 J	4290
Lead	mg/kg	7.7	5.6	10.3	3.2	3.9	13.4	6.5	8.9	3.2	11.7	14.5	13.2	38.4
Manganese	mg/kg	40.7	55.0	42.6	53.7	72.8	520	239	837	25.2 J	46.8 J	139 J	234 J	85.5
Mercury	mg/kg	0.13	ND (0.11) U	ND (0.12) U	ND (0.12)	0.046 J	0.019 J	ND (0.12)	ND (0.14)	ND (0.12) U	ND (0.11) U	ND (0.13)	0.13	ND (0.12)
Nickel	mg/kg	17.9	21.1	19.5	18.7	45.5	10.1	25.7	78.8	14.3 J	14.5 J	7.6 J	24 J	21.0
Selenium	mg/kg	ND (0.55)	ND (0.55)	ND (0.60)	ND (0.60)	0.50 J	0.85	0.52 J	0.57 J	ND (0.58)	ND (0.56)	0.65	0.82	ND (0.59)
Silver	mg/kg	ND (1.1)	ND (1.1)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.3)	ND (1.2)	ND (1.4)	ND (1.2)	ND (1.1)	ND (1.3)	ND (1.3)	ND (1.2)
Thallium	mg/kg	ND (1.1)	ND (1.1)	1.0 J	ND (1.2)	ND (1.2)	ND (1.3)	ND (1.2)	0.98 J	0.61 J	ND (1.1)	ND (1.3)	1.1 J	ND (1.2)
Vanadium	mg/kg	5.1 J	3.4 J	4.3 J	3.3 J	4.2 J	25.8	5.3 J	8.2	3.1 J	3.8 J	37 J	10.3 J	9.7
Zinc	mg/kg	83.0 J	42.2 J	183 J	24.2	27.2	33.2	22.4	26.8	22.3 J	14.4 J	22.7 J	65.6 J	139
PCBs														
Aroclor-1016 (PCB-1016)	ug/kg	ND (37)	ND (37)	ND (40)	ND (39)	ND (39)	ND (42)	ND (41)	ND (47)	ND (38)	ND (37)	ND (41)	ND (43)	ND (390)
Aroclor-1221 (PCB-1221)	ug/kg	ND (37)	ND (37)	ND (40)	ND (39)	ND (39)	ND (42)	ND (41)	ND (47)	ND (38)	ND (37)	ND (41)	ND (43)	ND (390)
Aroclor-1232 (PCB-1232)	ug/kg	ND (37)	ND (37)	ND (40)	ND (39)	ND (39)	ND (42)	ND (41)	ND (47)	ND (38)	ND (37)	ND (41)	ND (43)	ND (390)
Aroclor-1242 (PCB-1242)	ug/kg	ND (37)	ND (37)	ND (40)	ND (39)	ND (39)	ND (42)	ND (41)	ND (47)	ND (38)	ND (37)	ND (41)	ND (43)	ND (390)
Aroclor-1248 (PCB-1248)	ug/kg	ND (37)	ND (37)	ND (40)	ND (39)	ND (39)	ND (42)	ND (41)	ND (47)	ND (38)	ND (37)	ND (41)	ND (43)	2400
Aroclor-1254 (PCB-1254)	ug/kg	ND (37)	ND (37)	ND (40)	ND (39)	ND (39)	ND (42)	ND (41)	ND (47)	ND (38)	ND (37)	ND (41)	ND (43)	ND (390)
Aroclor-1260 (PCB-1260)	ug/kg	ND (37)	ND (37)	ND (40)	ND (39)	ND (39)	ND (42)	ND (41)	ND (47)	ND (38)	ND (37)	ND (41)	ND (43)	430
Semi - Volatiles														
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
2,4,5-Trichlorophenol	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
2,4,6-Trichlorophenol	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
2,4-Dichlorophenol	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
2,4-Dimethylphenol	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
2,4-Dinitrophenol	ug/kg	ND (1800)	ND (1800)	ND (1900)	ND (1900)	ND (1900)	ND (2000)	ND (2000)	ND (2300)	ND (1800)	ND (1800)	ND (2000)	ND (2100)	ND (1900)
2,4-Dinitrotoluene	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
2,6-Dinitrotoluene	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
2-Chloronaphthalene	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
2-Chlorophenol	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
2-Methylnaphthalene	ug/kg	ND (370)	140 J	110 J	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
2-Methylphenol	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
2-Nitroaniline	ug/kg	ND (1800)	ND (1800)	ND (1900)	ND (1900)	ND (1900)	ND (2000)	ND (2000)	ND (2300)	ND (1800)	ND (1800)	ND (2000)	ND (2100)	ND (1900)
2-Nitrophenol	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
3,3'-Dichlorobenzidine	ug/kg	ND (1800)	ND (1800)	ND (1900)	ND (1900)	ND (1900)	ND (2000)	ND (2000)	ND (2300)	ND (1800)	ND (1800)	ND (2000)	ND (2100)	ND (1900)
3-Nitroaniline	ug/kg	ND (1800)	ND (1800)	ND (1900)	ND (1900)	ND (1900)	ND (2000)	ND (2000)	ND (2300)	ND (1800)	ND (1800)	ND (2000)	ND (2100)	ND (1900)
4,6-Dinitro-2-methylphenol	ug/kg	ND (1800)	ND (1800)	ND (1900)	ND (1900)	ND (1900)	ND (2000)	ND (2000)	ND (2300)	ND (1800)	ND (1800)	ND (2000)	ND (2100)	ND (1900)
4-Bromophenyl phenyl ether	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
4-Chloro-3-methylphenol	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
4-Chloroaniline	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
4-Chlorophenyl phenyl ether	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*
Sample Location:		*B-X045Y172*	*B-X045Y172*	*B-X045Y172*	*B-X049Y198*	*B-X049Y198*	*B-X049Y198*	*B-X049Y198*	*B-X049Y198*	*B-X059Y160*	*B-X059Y160*	*B-X059Y160*	*B-X059Y160*	*B-X075Y183A*
Sample ID:		*S-013102-MG-089*	*S-013102-MG-090*	*S-013102-MG-091*	*S-012902-MG-081*	*S-012902-MG-082*	*S-012902-MG-083*	*S-012902-MG-084*	*S-012902-MG-085*	*S-020102-MG-092*	*S-020102-MG-093*	*S-020102-MG-094*	*S-020102-MG-095*	*S-012902-MG-086*
Sample Date:		*1/31/2002*	*1/31/2002*	*1/31/2002*	*1/29/2002*	*1/29/2002*	*1/29/2002*	*1/29/2002*	*1/29/2002*	*2/1/2002*	*2/1/2002*	*2/1/2002*	*2/1/2002*	*1/29/2002*
Sample Depth:		*(0-2)*	*(6-8)*	*(18-20)*	*(0-2)*	*(6-8)*	*(10.5-11.5)*	*(36-38)*	*(36-38) Duplicate*	*(0-2)*	*(6-8)*	*(23-25)*	*(31-33)*	*(0-2)*
Parameters	***Units***													
4-Methylphenol	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
4-Nitroaniline	ug/kg	ND (1800)	ND (1800)	ND (1900)	ND (1900)	ND (1900)	ND (2000)	ND (2000)	ND (2300)	ND (1800)	ND (1800)	ND (2000)	ND (2100)	ND (1900)
4-Nitrophenol	ug/kg	ND (1800)	ND (1800)	ND (1900)	ND (1900)	ND (1900)	ND (2000)	ND (2000)	ND (2300)	ND (1800)	ND (1800)	ND (2000)	ND (2100)	ND (1900)
Acenaphthene	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Acenaphthylene	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Acetophenone	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Anthracene	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Atrazine	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Benzaldehyde	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Benzo(a)anthracene	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	97 J	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Benzo(a)pyrene	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Benzo(b)fluoranthene	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Benzo(g,h,i)perylene	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Benzo(k)fluoranthene	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Biphenyl	ug/kg	ND (370)	210 J	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
bis(2-Chloroethoxy)methane	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
bis(2-Chloroethyl)ether	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Butyl benzylphthalate	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Caprolactam	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380) UJ	ND (370) UJ	ND (410) UJ	ND (430) UJ	ND (390)
Carbazole	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Chrysene	ug/kg	ND (370)	190 J	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Dibenz(a,h)anthracene	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Dibenzofuran	ug/kg	ND (370)	ND (370)	90 J	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Diethyl phthalate	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Dimethyl phthalate	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Di-n-butylphthalate	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Di-n-octyl phthalate	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Fluoranthene	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	77 J	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	83 J
Fluorene	ug/kg	ND (370)	220 J	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Hexachlorobenzene	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Hexachlorobutadiene	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Hexachlorocyclopentadiene	ug/kg	ND (1800)	ND (1800)	ND (1900)	ND (1900)	ND (1900)	ND (2000)	ND (2000)	ND (2300)	ND (1800)	ND (1800)	ND (2000)	ND (2100)	ND (1900)
Hexachloroethane	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Isophorone	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Naphthalene	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Nitrobenzene	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
N-Nitrosodi-n-propylamine	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
N-Nitrosodiphenylamine	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Pentachlorophenol	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Phenanthrene	ug/kg	ND (370)	340 J	ND (400)	ND (390)	62 J	ND (420)	ND (410)	ND (470)	ND (380)	65 J	ND (410)	ND (430)	ND (390)
Phenol	ug/kg	ND (370)	ND (370)	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Pyrene	ug/kg	ND (370)	90 J	ND (400)	ND (390)	ND (390)	ND (420)	ND (410)	ND (470)	ND (380)	ND (370)	ND (410)	ND (430)	ND (390)
Volatiles														
1,1,1-Trichloroethane	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
1,1,2,2-Tetrachloroethane	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
1,1,2-Trichloroethane	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
1,1-Dichloroethane	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
1,1-Dichloroethene	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
1,2,4-Trichlorobenzene	ug/kg	ND (5.5)	ND (6.8) UJ	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7) UJ
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (11)	ND (14) UJ	ND (13)	ND (15)	ND (14)	ND (14)	ND (13)	ND (15)	ND (16)	ND (11)	ND (17)	ND (12)	ND (14) UJ
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
1,2-Dichlorobenzene	ug/kg	ND (5.5)	ND (6.8) UJ	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7) UJ
1,2-Dichloroethane	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*
Sample Location:		*B-X045Y172*	*B-X045Y172*	*B-X045Y172*	*B-X049Y198*	*B-X049Y198*	*B-X049Y198*	*B-X049Y198*	*B-X049Y198*	*B-X059Y160*	*B-X059Y160*	*B-X059Y160*	*B-X059Y160*	*B-X075Y183A*
Sample ID:		*S-013102-MG-089*	*S-013102-MG-090*	*S-013102-MG-091*	*S-012902-MG-081*	*S-012902-MG-082*	*S-012902-MG-083*	*S-012902-MG-084*	*S-012902-MG-085*	*S-020102-MG-092*	*S-020102-MG-093*	*S-020102-MG-094*	*S-020102-MG-095*	*S-012902-MG-086*
Sample Date:		*1/31/2002*	*1/31/2002*	*1/31/2002*	*1/29/2002*	*1/29/2002*	*1/29/2002*	*1/29/2002*	*1/29/2002*	*2/1/2002*	*2/1/2002*	*2/1/2002*	*2/1/2002*	*1/29/2002*
Sample Depth:		*(0-2)*	*(6-8)*	*(18-20)*	*(0-2)*	*(6-8)*	*(10.5-11.5)*	*(36-38)*	*(36-38) Duplicate*	*(0-2)*	*(6-8)*	*(23-25)*	*(31-33)*	*(0-2)*
Parameters	***Units***													
1,2-Dichloropropane	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
1,3-Dichlorobenzene	ug/kg	ND (5.5)	ND (6.8) UJ	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7) UJ
1,4-Dichlorobenzene	ug/kg	ND (5.5)	ND (6.8) UJ	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7) UJ
2-Butanone (Methyl Ethyl Ketone)	ug/kg	7.9 J	ND (27)	3.7 J	ND (29)	ND (28)	5.9 J	ND (25)	ND (30)	ND (32)	12 J	7.6 J	ND (23)	ND (28)
2-Hexanone	ug/kg	ND (22)	ND (27)	ND (25)	ND (29)	ND (28)	ND (27)	ND (25)	ND (30)	ND (32)	ND (23)	ND (34)	ND (23)	ND (28)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (22)	ND (27)	ND (25)	ND (29)	ND (28)	ND (27)	ND (25)	ND (30)	ND (32)	ND (23)	ND (34)	ND (23)	ND (28)
Acetone	ug/kg	49 J	ND (27) U	ND (25) UJ	ND (29) UJ	ND (28)	ND (27) U	ND (25) U	ND (30) U	ND (32) U	57	ND (34) U	ND (23) U	ND (28)
Benzene	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
Bromodichloromethane	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
Bromoform	ug/kg	ND (5.5) UJ	ND (6.8)	ND (6.4) UJ	ND (7.3) UJ	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
Bromomethane (Methyl Bromide)	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
Carbon disulfide	ug/kg	1.6 J	39	6.5	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	8.5	ND (8.6)	ND (5.8)	ND (7)
Carbon tetrachloride	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
Chlorobenzene	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
Chloroethane	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
Chloroform (Trichloromethane)	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
Chloromethane (Methyl Chloride)	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
cis-1,2-Dichloroethene	ug/kg	ND (2.8)	ND (3.4)	ND (3.2)	ND (3.6)	ND (3.5)	ND (3.4)	ND (3.2)	ND (3.8)	ND (4)	ND (2.8)	ND (4.3)	ND (2.9)	ND (3.5)
cis-1,3-Dichloropropene	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
Cyclohexane	ug/kg	ND (11)	ND (14)	ND (13)	ND (15)	ND (14)	ND (14)	ND (13)	ND (15)	ND (16)	ND (11)	ND (17)	ND (12)	1.7 J
Dibromochloromethane	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (5.5) UJ	ND (6.8)	ND (6.4) UJ	ND (7.3) UJ	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
Ethylbenzene	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
Isopropylbenzene	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
Methyl acetate	ug/kg	ND (11)	ND (14)	ND (13)	ND (15)	ND (14)	ND (14)	ND (13)	ND (15)	ND (16)	ND (11)	ND (17)	ND (12)	ND (14)
Methyl cyclohexane	ug/kg	ND (11)	ND (14)	ND (13)	ND (15)	ND (14)	ND (14)	ND (13)	ND (15)	ND (16)	ND (11)	ND (17)	ND (12)	2.1 J
Methyl Tert Butyl Ether	ug/kg	ND (22)	ND (27)	ND (25)	ND (29)	ND (28)	ND (27)	ND (25)	ND (30)	ND (32)	ND (23)	ND (34)	ND (23)	ND (28)
Methylene chloride	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
Styrene	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
Tetrachloroethene	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
Toluene	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	1.3 J	ND (5.8)	ND (7)
trans-1,2-Dichloroethene	ug/kg	ND (2.8)	ND (3.4)	ND (3.2)	ND (3.6)	ND (3.5)	ND (3.4)	ND (3.2)	ND (3.8)	ND (4)	ND (2.8)	ND (4.3)	ND (2.9)	ND (3.5)
trans-1,3-Dichloropropene	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
Trichloroethene	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	2.1 J
Trichlorofluoromethane (CFC-11)	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7) UJ	ND (6.9) UJ	ND (6.4) UJ	ND (7.6) UJ	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7) UJ
Vinyl chloride	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
Xylene (total)	ug/kg	ND (5.5)	ND (6.8)	ND (6.4)	ND (7.3)	ND (7)	ND (6.9)	ND (6.4)	ND (7.6)	ND (7.9)	ND (5.7)	ND (8.6)	ND (5.8)	ND (7)
Wet														
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Solids	%	90.1	90.1	83.3	83.9	85.2	78.6	81.0	69.7	86.9	88.8	79.5	76.1	84.6

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A022*	*A022*	*A022*	*A022*	*A022*	*A022*	*A022*
Sample Location:		*B-X075Y183A*	*B-X075Y183B*	*SS-X062Y257*	*SS-X062Y257*	*SS-X065Y254*	*SS-X065Y256*	*SS-X065Y260*	*SS-X031Y124*	*B-X031Y124*	*B-X031Y124*	*B-X031Y124*	*B-X031Y124A*	*B-X031Y124A*	*B-X031Y124A*
Sample ID:		*S-012902-MG-087*	*S-012902-MG-088*	*S-082702-JW-002*	*S-082702-JW-003*	*S-082702-JW-004*	*S-082702-JW-001*	*S-082702-JW-005*	*SS-011802-MG-003*	*S-110403-JC-001*	*S-110403-JC-002*	*S-110403-JC-003*	*S-110503-JC-004*	*S-110503-JC-005*	*S-110503-JC-006*
Sample Date:		*1/29/2002*	*1/29/2002*	*8/27/2002*	*8/27/2002*	*8/27/2002*	*8/27/2002*	*8/27/2002*	*1/18/2002*	*11/4/2003*	*11/4/2003*	*11/4/2003*	*11/5/2003*	*11/5/2003*	*11/5/2003*
Sample Depth:		*(6-8)*	*(30-32)*	*(0-2)*	*(0-2)* *Duplicate*	*(0-0.67)*	*(0-1.17)*	*(0-2)*	*(0-2)*	*0-2*	*6-8*	*32-33*	*0-2*	*6-8*	*30-32*
Parameters	***Units***														
Metals															
										2090	4470	5890 J	5760	4910	4250
Aluminum	mg/kg	2740	8840	-	-	-	-	-	3590	ND (6.3)	ND (7.1)	ND (7.4)	ND (6.5)	1.0 J	ND (7.0)
Antimony	mg/kg	ND (6.5)	ND (8.8)	-	-	-	-	-	1410	3.6	3.6	6.8	2.9	4.7	2.0
Arsenic	mg/kg	2.6	5.5	-	-	-	-	-	24.6	19.5 J	34.9	42.1 J	45.5	59.0	70.7
Barium	mg/kg	8.4 J	50.3	-	-	-	-	-	50.3	0.19 J	0.34 J	1.6 J	0.64	0.33 J	0.69
Beryllium	mg/kg	ND (0.54)	1.1	-	-	-	-	-	0.46 J	0.35 J	0.31 J	0.95	0.32 J	0.41 J	3.7
Cadmium	mg/kg	0.17 J	2.1	-	-	-	-	-	0.42 J	5.3	10.9	13.9 J	8.4	11.8	6.8
Chromium Total	mg/kg	7.0	15.0	-	-	-	-	-	8.7	2.5 J	3.0 J	12.0 J	3.5 J	8.5	5.2 J
Cobalt	mg/kg	3.1 J	8.6	-	-	-	-	-	3.6 J	27.3	12.4	18.9	44.8	8.1	5.7
Copper	mg/kg	67.8	12.8	-	-	-	-	-	654	ND (0.53)	ND (0.59)	0.12 J	ND (0.55)	ND (0.56)	ND (0.58)
Cyanide (amenable)	mg/kg	ND (0.54)	ND (0.73)	-	-	-	-	-	ND (0.56)	0.12 J	ND (0.59)	0.12 J	ND (0.55)	ND (0.56)	ND (0.58)
Cyanide (total)	mg/kg	ND (0.54)	ND (0.73)	-	-	-	-	-	ND (0.56)	14800	8080	30400 J	8200	11300	8240
Iron	mg/kg	3720	14200	-	-	-	-	-	10400	15.3	10.0	14.9 J	16.6	28.1	6.0
Lead	mg/kg	10.7	12.3	-	-	-	-	-	10600	134	714	113 J	91.6	792	266
Manganese	mg/kg	174	319	-	-	-	-	-	158	0.031 J	0.023 J	0.031 J	0.063 J	0.026 J	0.066 J
Mercury	mg/kg	0.096 J	0.067 J	-	-	-	-	-	0.023 J	6.0	8.5	42.6 J	21.7	5.9	14.0
Nickel	mg/kg	16.4	17.3	-	-	-	-	-	9.0	ND (0.53)	ND (0.59)	ND (0.62)	ND (0.55)	ND (0.56)	ND (0.58)
Selenium	mg/kg	ND (0.54)	ND (0.73)	-	-	-	-	-	ND (0.56)	ND (1.1)	ND (1.2)	ND (1.2)	ND (1.1)	ND (1.1)	ND (1.2)
Silver	mg/kg	ND (1.1)	ND (1.5)	-	-	-	-	-	2.9	ND (1.1)	ND (1.2)	ND (1.2)	0.65 J	0.88 J	0.88 J
Thallium	mg/kg	ND (1.1)	ND (1.5)	-	-	-	-	-	ND (1.1)	7.3	11.2	24.1 J	12.8	12.6	8.4
Vanadium	mg/kg	4.7 J	15.7	-	-	-	-	-	11.1	27.9	31.7	83.4 J	54.6	42.6	40.8
Zinc	mg/kg	160	59.6	-	-	-	-	-	83.7						
PCBs															
										ND (35)	ND (39)	ND (41)	ND (36)	ND (37)	ND (38)
Aroclor-1016 (PCB-1016)	ug/kg	ND (36)	ND (48)	ND (350)	ND (380)	ND (71)	ND (37)	ND (380)	ND (37)	ND (35)	ND (39)	ND (41)	ND (36)	ND (37)	ND (38)
Aroclor-1221 (PCB-1221)	ug/kg	ND (36)	ND (48)	ND (350)	ND (380)	ND (71)	ND (37)	ND (380)	ND (37)	ND (35)	ND (39)	ND (41)	ND (36)	ND (37)	ND (38)
Aroclor-1232 (PCB-1232)	ug/kg	ND (36)	ND (48)	ND (350)	ND (380)	ND (71)	ND (37)	ND (380)	ND (37)	ND (35)	ND (39)	ND (41)	ND (36)	ND (37)	ND (38)
Aroclor-1242 (PCB-1242)	ug/kg	ND (36)	ND (48)	ND (350)	ND (380)	ND (71)	ND (37)	ND (380)	ND (37)	ND (35)	ND (39)	ND (41)	28 J	ND (37)	ND (38)
Aroclor-1248 (PCB-1248)	ug/kg	ND (36)	ND (48)	1100	1400	410	260	3100	ND (37)	ND (35)	ND (39)	ND (41)	ND (36)	ND (37)	ND (38)
Aroclor-1254 (PCB-1254)	ug/kg	ND (36)	ND (48)	ND (350)	ND (380)	ND (71)	ND (37)	ND (380)	ND (37)	ND (35)	ND (39)	ND (41)	18 J	ND (37)	ND (38)
Aroclor-1260 (PCB-1260)	ug/kg	ND (36)	ND (48)	83 J	110 J	58 J	29 J	310 J	ND (37)						
Semi - Volatiles															
										ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
2,4,5-Trichlorophenol	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
2,4,6-Trichlorophenol	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
2,4-Dichlorophenol	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
2,4-Dimethylphenol	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (1700)	ND (1900)	ND (2000)	ND (7000)	ND (1800)	ND (1900) UJ
2,4-Dinitrophenol	ug/kg	ND (1700)	ND (2300)	-	-	-	-	-	ND (1800) UJ	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
2,4-Dinitrotoluene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
2,6-Dinitrotoluene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
2-Chloronaphthalene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
2-Chlorophenol	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
2-Methylnaphthalene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
2-Methylphenol	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (1700)	ND (1900)	ND (2000)	ND (7000)	ND (1800)	ND (1900)
2-Nitroaniline	ug/kg	ND (1700)	ND (2300)	-	-	-	-	-	ND (1800)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
2-Nitrophenol	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (1700) UJ	ND (1900)	ND (2000)	ND (7000)	ND (1800)	ND (1900)
3,3'-Dichlorobenzidine	ug/kg	ND (1700)	ND (2300)	-	-	-	-	-	ND (1800)	ND (1700)	ND (1900)	ND (2000)	ND (7000)	ND (1800)	ND (1900)
3-Nitroaniline	ug/kg	ND (1700)	ND (2300)	-	-	-	-	-	ND (1800)	ND (1700) UJ	ND (1900)	ND (2000) UJ	ND (7000)	ND (1800)	ND (1900) UJ
4,6-Dinitro-2-methylphenol	ug/kg	ND (1700)	ND (2300)	-	-	-	-	-	ND (1800)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
4-Bromophenyl phenyl ether	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
4-Chloro-3-methylphenol	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
4-Chloroaniline	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
4-Chlorophenyl phenyl ether	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A022*	*A022*	*A022*	*A022*	*A022*	*A022*	*A022*
Sample Location:		*B-X075Y183A*	*B-X075Y183B*	*SS-X062Y257*	*SS-X062Y257*	*SS-X065Y254*	*SS-X065Y256*	*SS-X065Y260*	*SS-X031Y124*	*B-X031Y124*	*B-X031Y124*	*B-X031Y124*	*B-X031Y124A*	*B-X031Y124A*	*B-X031Y124A*
Sample ID:		*S-012902-MG-087*	*S-012902-MG-088*	*S-082702-JW-002*	*S-082702-JW-003*	*S-082702-JW-004*	*S-082702-JW-001*	*S-082702-JW-005*	*SS-011802-MG-003*	*S-110403-JC-001*	*S-110403-JC-002*	*S-110403-JC-003*	*S-110503-JC-004*	*S-110503-JC-005*	*S-110503-JC-006*
Sample Date:		*1/29/2002*	*1/29/2002*	*8/27/2002*	*8/27/2002*	*8/27/2002*	*8/27/2002*	*8/27/2002*	*1/18/2002*	*11/4/2003*	*11/4/2003*	*11/4/2003*	*11/5/2003*	*11/5/2003*	*11/5/2003*
Sample Depth:		*(6-8)*	*(30-32)*	*(0-2)*	*(0-2)* *Duplicate*	*(0-0.67)*	*(0-1.17)*	*(0-2)*	*(0-2)*	*0-2*	*6-8*	*32-33*	*0-2*	*6-8*	*30-32*
Parameters	***Units***														
4-Methylphenol	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (1700)	ND (1900) UJ	ND (2000)	ND (7000)	ND (1800)	ND (1900)
4-Nitroaniline	ug/kg	ND (1700)	ND (2300)	-	-	-	-	-	ND (1800)	ND (1700)	ND (1900)	ND (2000)	ND (7000)	ND (1800)	ND (1900) UJ
4-Nitrophenol	ug/kg	ND (1700)	ND (2300)	-	-	-	-	-	ND (1800)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
Acenaphthene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
Acenaphthylene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
Acetophenone	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	65 J	64 J	ND (410)	ND (1400)	ND (370)	ND (380)
Anthracene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
Atrazine	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
Benzaldehyde	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	110 J	50 J	ND (410)	75 J	ND (370)	ND (380)
Benzo(a)anthracene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	77 J	66 J	52 J	ND (410)	100 J	ND (370)	ND (380)
Benzo(a)pyrene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	78 J	220 J	160 J	ND (410)	130 J	ND (370)	ND (380)
Benzo(b)fluoranthene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	110 J	61 J	40 J	ND (410)	ND (1400)	ND (370)	ND (380)
Benzo(g,h,i)perylene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	130 J	110 J	ND (410)	ND (1400)	ND (370)	ND (380)
Benzo(k)fluoranthene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
Biphenyl	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
bis(2-Chloroethoxy)methane	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
bis(2-Chloroethyl)ether	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350) UJ	84 J	ND (410)	ND (1400)	ND (370)	ND (380)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (360)	83 J	-	-	-	-	-	ND (370)	ND (350) UJ	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
Butyl benzylphthalate	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
Caprolactam	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390) UJ	ND (410)	ND (1400)	ND (370)	ND (380)
Carbazole	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	140 J	71 J	ND (410)	95 J	ND (370)	ND (380)
Chrysene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	120 J	ND (350) UJ	87 J	ND (410)	ND (1400)	ND (370)	ND (380)
Dibenz(a,h)anthracene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
Dibenzofuran	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380) UJ
Diethyl phthalate	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
Dimethyl phthalate	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390) U	ND (410) U	ND (1400)	ND (370)	ND (380)
Di-n-butylphthalate	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350) UJ	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
Di-n-octyl phthalate	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	300 J	140 J	ND (410)	120 J	ND (370)	ND (380)
Fluoranthene	ug/kg	66 J	ND (480)	-	-	-	-	-	140 J	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
Fluorene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
Hexachlorobenzene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
Hexachlorobutadiene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (1700) UJ	ND (1900)	ND (2000) UJ	ND (7000)	ND (1800)	ND (1900) UJ
Hexachlorocyclopentadiene	ug/kg	ND (1700)	ND (2300)	-	-	-	-	-	ND (1800)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
Hexachloroethane	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	100 J	100 J	ND (410)	ND (1400)	ND (370)	ND (380)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
Isophorone	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
Naphthalene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
Nitrobenzene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
N-Nitrosodi-n-propylamine	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
N-Nitrosodiphenylamine	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
Pentachlorophenol	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	130 J	90 J	ND (410)	ND (1400)	ND (370)	ND (380)
Phenanthrene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	88 J	ND (350)	ND (390)	ND (410)	ND (1400)	ND (370)	ND (380)
Phenol	ug/kg	ND (360)	ND (480)	-	-	-	-	-	ND (370)	240 J	76 J	ND (410)	88 J	ND (370)	ND (380)
Pyrene	ug/kg	ND (360)	ND (480)	-	-	-	-	-	140 J						
Volatiles															
										ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
1,1,1-Trichloroethane	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
1,1,2,2-Tetrachloroethane	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
1,1,2-Trichloroethane	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
1,1-Dichloroethane	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
1,1-Dichloroethene	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
1,2,4-Trichlorobenzene	ug/kg	ND (6.9) UJ	ND (7.5)	-	-	-	-	-	ND (5.5) UJ	ND (8.8)	ND (9.9)	ND (11)	ND (9.7)	ND (15)	ND (9.5)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (14) UJ	ND (15)	-	-	-	-	-	ND (11) UJ	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
1,2-Dichlorobenzene	ug/kg	ND (6.9) UJ	ND (7.5)	-	-	-	-	-	ND (5.5) UJ	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
1,2-Dichloroethane	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A021*	*A022*	*A022*	*A022*	*A022*	*A022*	*A022*	*A022*
Sample Location:		*B-X075Y183A*	*B-X075Y183B*	*SS-X062Y257*	*SS-X062Y257*	*SS-X065Y254*	*SS-X065Y256*	*SS-X065Y260*	*SS-X031Y124*	*B-X031Y124*	*B-X031Y124*	*B-X031Y124*	*B-X031Y124A*	*B-X031Y124A*	*B-X031Y124A*
Sample ID:		*S-012902-MG-087*	*S-012902-MG-088*	*S-082702-JW-002*	*S-082702-JW-003*	*S-082702-JW-004*	*S-082702-JW-001*	*S-082702-JW-005*	*SS-011802-MG-003*	*S-110403-JC-001*	*S-110403-JC-002*	*S-110403-JC-003*	*S-110503-JC-004*	*S-110503-JC-005*	*S-110503-JC-006*
Sample Date:		*1/29/2002*	*1/29/2002*	*8/27/2002*	*8/27/2002*	*8/27/2002*	*8/27/2002*	*8/27/2002*	*1/18/2002*	*11/4/2003*	*11/4/2003*	*11/4/2003*	*11/5/2003*	*11/5/2003*	*11/5/2003*
Sample Depth:		*(6-8)*	*(30-32)*	*(0-2)*	*(0-2)* *Duplicate*	*(0-0.67)*	*(0-1.17)*	*(0-2)*	*(0-2)*	*0-2*	*6-8*	*32-33*	*0-2*	*6-8*	*30-32*
Parameters	***Units***														
1,2-Dichloropropane	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
1,3-Dichlorobenzene	ug/kg	ND (6.9) UJ	ND (7.5)	-	-	-	-	-	ND (5.5) UJ	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
1,4-Dichlorobenzene	ug/kg	ND (6.9) UJ	ND (7.5)	-	-	-	-	-	ND (5.5) UJ	ND (18) UJ	ND (20) UJ	ND (21) UJ	ND (19)	ND (30)	ND (19)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (28)	4.5 J	-	-	-	-	-	ND (22)	ND (18)	ND (20)	ND (21)	ND (19)	ND (30)	ND (19)
2-Hexanone	ug/kg	ND (28)	ND (30)	-	-	-	-	-	ND (22)	ND (18)	ND (20)	ND (21)	ND (19)	ND (30)	ND (19)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (28)	ND (30)	-	-	-	-	-	ND (22)	ND (18) UJ	8.4 J	ND (21) UJ	ND (19) UJ	ND (30) UJ	ND (19) UJ
Acetone	ug/kg	ND (28)	ND (30) U	-	-	-	-	-	3.7 J	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	0.78 J	ND (4.8)
Benzene	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
Bromodichloromethane	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
Bromoform	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5) UJ	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
Bromomethane (Methyl Bromide)	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
Carbon disulfide	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9) UJ	ND (7.4) UJ	ND (4.8) UJ
Carbon tetrachloride	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
Chlorobenzene	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
Chloroethane	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
Chloroform (Trichloromethane)	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
Chloromethane (Methyl Chloride)	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (2.2)	ND (2.5)	ND (2.7)	ND (2.4)	ND (3.7)	ND (2.4)
cis-1,2-Dichloroethene	ug/kg	ND (3.5)	ND (3.7)	-	-	-	-	-	ND (2.7)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
cis-1,3-Dichloropropene	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (8.8)	ND (9.9)	ND (11)	ND (9.7)	ND (15)	ND (9.5)
Cyclohexane	ug/kg	ND (14)	ND (15)	-	-	-	-	-	ND (11)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
Dibromochloromethane	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9) UJ	ND (7.4) UJ	ND (4.8) UJ
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
Ethylbenzene	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
Isopropylbenzene	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (8.8)	ND (9.9)	ND (11)	ND (9.7)	ND (15)	ND (9.5)
Methyl acetate	ug/kg	ND (14)	ND (15)	-	-	-	-	-	ND (11)	ND (8.8)	ND (9.9)	ND (11)	ND (9.7)	ND (15)	ND (9.5)
Methyl cyclohexane	ug/kg	ND (14)	ND (15)	-	-	-	-	-	ND (11)	ND (18)	ND (20)	ND (21)	ND (19)	ND (30)	ND (19)
Methyl Tert Butyl Ether	ug/kg	ND (28)	ND (30)	-	-	-	-	-	ND (22)	1.3 J	ND (4.9)	ND (5.3)	ND (4.9)	1.6 J	ND (4.8)
Methylene chloride	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
Styrene	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
Tetrachloroethene	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	0.76 J	ND (4.8)
Toluene	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (2.2)	ND (2.5)	ND (2.7)	ND (2.4)	ND (3.7)	ND (2.4)
trans-1,2-Dichloroethene	ug/kg	ND (3.5)	ND (3.7)	-	-	-	-	-	ND (2.7)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
trans-1,3-Dichloropropene	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
Trichloroethene	ug/kg	5.2 J	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9) UJ	ND (7.4) UJ	ND (4.8) UJ
Trichlorofluoromethane (CFC-11)	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (6.9) UJ	ND (7.5) UJ	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
Vinyl chloride	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)	ND (4.4)	ND (4.9)	ND (5.3)	ND (4.9)	ND (7.4)	ND (4.8)
Xylene (total)	ug/kg	ND (6.9)	ND (7.5)	-	-	-	-	-	ND (5.5)						
Wet															
										94.8	84.2	80.8	91.7	88.7	85.9
Chloride	mg/kg	-	-	-	-	-	-	-	-						
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-						
Total Solids	%	92.2	68.4	94.4	87.5	92.4	88.8	87.1	88.5						

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A022*	*A022*	*A022*	*A022*	*A022*	*A022*	*A022*	*A022*	*A022*	*A022*	*A023 P200(GM)*	*A024*	*A024*
Sample Location:		*B-X031Y124B*	*B-X031Y124B*	*B-X031Y124B*	*B-X031Y124B*	*B-X031Y124C*	*B-X031Y124C*	*B-X031Y124C*	*B-X031Y124D*	*B-X031Y124D*	*B-X031Y124D*	*SS-X203Y066*	*SS-X045Y114A*	*SS-X045Y114B*
Sample ID:		*S-110503-JC-007*	*S-110503-JC-008*	*S-110503-JC-009*	*S-110503-JC-010*	*S-110503-JC-011*	*S-110503-JC-012*	*S-110503-JC-013*	*S-110603-JC-014*	*S-110603-JC-015*	*S-110603-JC-016*	*SS-010902-MG-001*	*SS-013102-MG-003*	*SS-020402-MG-001*
Sample Date:		*11/5/2003*	*11/5/2003*	*11/5/2003*	*11/5/2003*	*11/5/2003*	*11/5/2003*	*11/5/2003*	*11/6/2003*	*11/6/2003*	*11/6/2003*	*1/9/2002*	*1/31/2002*	*2/4/2002*
Sample Depth:		*0-2*	*0-2*	*6-8*	*32-34*	*0-2*	*6-8*	*32-33*	*0-2*	*6-8*	*30-32*	*(2-4)*	*(0-2)*	*(10-12)*
			Duplicate											
Parameters	***Units***													
Metals														
		4620	3440	6130	6610	2650	4870	8850	1290	12500	7360			
Aluminum	mg/kg	0.32 J	0.59 J	ND (6.7)	ND (7.6)	ND (6.4)	1.1 J	ND (7.8)	ND (6.3)	0.41 J	0.26 J	11000	1300	14600
Antimony	mg/kg	4.8	4.5	1.3	4.5	1.4	4.5	1.5	1.3	8.1	4.3	ND (7.4) UJ	ND (6.3)	ND (8.2) U
Arsenic	mg/kg	49.7	35.4	57.8	85.8	21.7	36.3	15.6 J	6.3 J	53.3	64.9	9.9	1.0	10.2
Barium	mg/kg	ND (0.55) U	0.32 J	0.37 J	1.6	ND (0.54) U	ND (0.57) U	0.84	ND (0.52)	ND (0.63) U	1.7	72.2	49.2	48.1
Beryllium	mg/kg	0.48 J	0.33 J	0.23 J	1.0	0.21 J	0.33 J	0.88	0.049 J	0.31 J	1.2	0.74	ND (0.52) U	0.64 J
Cadmium	mg/kg	8.5	6.4	5.0	12.5	5.4	9.8	11.4	2.4	15.7	13.3	0.49 J	0.32 J	ND (0.68)
Chromium Total	mg/kg	2.3 J	3.0 J	0.88 J	10.3	1.8 J	3.3 J	8.4	1.9 J	4.9 J	12.0	18.4 J	6.7	51
Cobalt	mg/kg	22.2	15.5	1.8 J	18.7	47.9	20.8	10.9	3.7	13.4	26.1	14.1 J	0.95 J	2.2 J
Copper	mg/kg	ND (0.55)	0.13 J	0.13 J	ND (0.64)	0.22 J	ND (0.57)	ND (0.65)	ND (0.52)	ND (0.63)	ND (0.64)	14.5 J	2.7 J	12.5
Cyanide (amenable)	mg/kg	ND (0.55)	0.13 J	0.13 J	ND (0.64)	0.34 J	ND (0.57)	ND (0.65)	ND (0.52)	ND (0.63)	ND (0.64)	ND (0.62)	ND (0.52)	ND (0.68)
Cyanide (total)	mg/kg	10200	9110	3190	21700	4030	14500	8960	2830	19300	24400	ND (0.62)	ND (0.52)	ND (0.68)
Iron	mg/kg	42.3	40.6	1.3	8.6	10.6	36.6	10.7	2.9	23.5	14.5	22800 J	2900	49400
Lead	mg/kg	263	402	804	109	69.5	235	221	34.7	263	177	21.4 J	2.2	18
Manganese	mg/kg	0.029 J	0.031 J	ND (0.11)	0.052 J	ND (0.11)	0.032 J	0.11 J	ND (0.10)	0.17	0.025 J	492 J	97.4	57.4
Mercury	mg/kg	4.4	10.5	1.9 J	36.7	7.2	6.2	20.4	2.4 J	10.1	39.9	0.067 J	ND (0.10) U	0.057 J
Nickel	mg/kg	ND (0.55)	ND (0.56)	ND (0.56)	0.56 J	ND (0.54)	ND (0.57)	ND (0.65)	ND (0.52)	0.82	0.74	22.1 J	4.8	8.7
Selenium	mg/kg	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.3)	ND (1.1)	ND (1.1)	ND (1.3)	ND (1.0)	ND (1.3)	ND (1.3)	ND (0.62)	ND (0.52)	2.4
Silver	mg/kg	0.47 J	0.63 J	0.48 J	0.86 J	ND (1.1)	0.53 J	0.71 J	ND (1.0)	0.92 J	ND (1.3)	ND (1.2)	ND (1.0)	ND (1.4)
Thallium	mg/kg	13.4	9.4	3.8 J	14.8	4.6 J	13.4	11.3	4.3 J	25.4	22.3	ND (1.2) U	0.67 J	ND (1.4)
Vanadium	mg/kg	55.7	47.3	16.4	68.1	25.2	44.5	45.2	25.5	53.5	73.8	28.2	3.3 J	92.6
Zinc	mg/kg											53.6 J	28.2 J	27.3
PCBs														
		ND (36)	ND (37)	ND (37)	ND (42)	ND (35)	ND (37)	ND (43)	ND (35)	ND (42)	ND (42)			
Aroclor-1016 (PCB-1016)	ug/kg	ND (36)	ND (37)	ND (37)	ND (42)	ND (35)	ND (37)	ND (43)	ND (35)	ND (42)	ND (42)	ND (410)	ND (34)	ND (45)
Aroclor-1221 (PCB-1221)	ug/kg	ND (36)	ND (37)	ND (37)	ND (42)	ND (35)	ND (37)	ND (43)	ND (35)	ND (42)	ND (42)	ND (410)	ND (34)	ND (45)
Aroclor-1232 (PCB-1232)	ug/kg	ND (36)	ND (37)	ND (37)	ND (42)	ND (35)	ND (37)	ND (43)	ND (35)	ND (42)	ND (42)	ND (410)	ND (34)	ND (45)
Aroclor-1242 (PCB-1242)	ug/kg	44	ND (37)	ND (37)	ND (42)	7.3 J	ND (37)	ND (43)	ND (35)	ND (42)	ND (42)	ND (410)	ND (34)	ND (45)
Aroclor-1248 (PCB-1248)	ug/kg	ND (36)	ND (37)	ND (37)	ND (42)	ND (35)	ND (37)	ND (43)	ND (35)	ND (42)	ND (42)	3300	ND (34)	17 J
Aroclor-1254 (PCB-1254)	ug/kg	22 J	ND (37)	ND (37)	ND (42)	ND (35)	ND (37)	ND (43)	ND (35)	ND (42)	ND (42)	ND (410)	ND (34)	ND (45)
Aroclor-1260 (PCB-1260)	ug/kg											ND (410)	ND (34)	ND (45)
Semi - Volatiles														
		ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)			
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (360)	ND (370)	ND (370) UJ	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
2,4,5-Trichlorophenol	ug/kg	ND (360)	ND (370)	ND (370) UJ	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
2,4,6-Trichlorophenol	ug/kg	ND (360)	ND (370)	ND (370) UJ	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
2,4-Dichlorophenol	ug/kg	ND (360)	ND (370)	ND (370) UJ	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
2,4-Dimethylphenol	ug/kg	ND (1800)	ND (1800)	ND (1800) UJ	ND (2000) UJ	ND (1700)	ND (18000)	ND (2100) UJ	ND (1700)	ND (2000)	ND (2100)	ND (410)	ND (17000)	ND (450)
2,4-Dinitrophenol	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (2000)	ND (83000)	ND (2200)
2,4-Dinitrotoluene	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
2,6-Dinitrotoluene	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
2-Chloronaphthalene	ug/kg	ND (360)	ND (370)	ND (370) UJ	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
2-Chlorophenol	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
2-Methylnaphthalene	ug/kg	ND (360)	ND (370)	ND (370) UJ	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
2-Methylphenol	ug/kg	ND (1800)	ND (1800)	ND (1800)	ND (2000)	ND (1700)	ND (18000)	ND (2100)	ND (1700)	ND (2000)	ND (2100)	ND (410)	ND (17000)	ND (450)
2-Nitroaniline	ug/kg	ND (360)	ND (370)	ND (370) UJ	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (2000)	ND (83000)	ND (2200)
2-Nitrophenol	ug/kg	ND (1800)	ND (1800)	ND (1800)	ND (2000)	ND (1700)	ND (18000)	ND (2100)	ND (1700)	ND (2000)	ND (2100)	ND (410)	ND (17000)	ND (450)
3,3'-Dichlorobenzidine	ug/kg	ND (1800)	ND (1800)	ND (1800)	ND (2000)	ND (1700)	ND (18000)	ND (2100)	ND (1700)	ND (2000)	ND (2100)	ND (2000)	ND (83000)	ND (2200)
3-Nitroaniline	ug/kg	ND (1800)	ND (1800)	ND (1800) UJ	ND (2000) UJ	ND (1700)	ND (18000)	ND (2100) UJ	ND (1700)	ND (2000)	ND (2100)	ND (2000)	ND (83000)	ND (2200)
4,6-Dinitro-2-methylphenol	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (2000)	ND (83000)	ND (2200)
4-Bromophenyl phenyl ether	ug/kg	ND (360)	ND (370)	ND (370) UJ	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
4-Chloro-3-methylphenol	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
4-Chloroaniline	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
4-Chlorophenyl phenyl ether	ug/kg	ND (360)	ND (370)	ND (370) UJ	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A022*	*A022*	*A022*	*A022*	*A022*	*A022*	*A022*	*A022*	*A022*	*A022*	*A023 P200(GM)*	*A024*	*A024*
Sample Location:		*B-X031Y124B*	*B-X031Y124B*	*B-X031Y124B*	*B-X031Y124B*	*B-X031Y124C*	*B-X031Y124C*	*B-X031Y124C*	*B-X031Y124D*	*B-X031Y124D*	*B-X031Y124D*	*SS-X203Y066*	*SS-X045Y114A*	*SS-X045Y114B*
Sample ID:		*S-110503-JC-007*	*S-110503-JC-008*	*S-110503-JC-009*	*S-110503-JC-010*	*S-110503-JC-011*	*S-110503-JC-012*	*S-110503-JC-013*	*S-110603-JC-014*	*S-110603-JC-015*	*S-110603-JC-016*	*SS-010902-MG-001*	*SS-013102-MG-003*	*SS-020402-MG-001*
Sample Date:		*11/5/2003*	*11/5/2003*	*11/5/2003*	*11/5/2003*	*11/5/2003*	*11/5/2003*	*11/5/2003*	*11/6/2003*	*11/6/2003*	*11/6/2003*	*1/9/2002*	*1/31/2002*	*2/4/2002*
Sample Depth:		*0-2*	*0-2*	*6-8*	*32-34*	*0-2*	*6-8*	*32-33*	*0-2*	*6-8*	*30-32*	*(2-4)*	*(0-2)*	*(10-12)*
			Duplicate											
Parameters	***Units***													
4-Methylphenol	ug/kg	ND (1800)	ND (1800)	ND (1800)	ND (2000)	ND (1700)	ND (18000)	ND (2100)	ND (1700)	ND (2000)	ND (2100)	ND (410)	ND (17000)	ND (450)
4-Nitroaniline	ug/kg	ND (1800)	ND (1800)	ND (1800) UJ	ND (2000) UJ	ND (1700)	ND (18000)	ND (2100) UJ	ND (1700)	ND (2000)	ND (2100)	ND (2000)	ND (83000)	ND (2200)
4-Nitrophenol	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	130 J	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (2000) UJ	ND (83000)	ND (2200)
Acenaphthene	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Acenaphthylene	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Acetophenone	ug/kg	22 J	ND (370)	ND (370)	ND (420)	260 J	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Anthracene	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Atrazine	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Benzaldehyde	ug/kg	72 J	37 J	ND (370)	ND (420)	380	ND (3700)	ND (430)	22 J	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Benzo(a)anthracene	ug/kg	90 J	39 J	ND (370)	ND (420)	390	ND (3700)	ND (430)	23 J	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Benzo(a)pyrene	ug/kg	96 J	46 J	ND (370)	ND (420)	480	ND (3700)	ND (430)	29 J	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Benzo(b)fluoranthene	ug/kg	82 J	25 J	ND (370)	ND (420)	190 J	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Benzo(g,h,i)perylene	ug/kg	61 J	26 J	ND (370)	ND (420)	310 J	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Benzo(k)fluoranthene	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Biphenyl	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
bis(2-Chloroethoxy)methane	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
bis(2-Chloroethyl)ether	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Butyl benzylphthalate	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Caprolactam	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	140 J	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Carbazole	ug/kg	80 J	40 J	ND (370)	ND (420)	410	ND (3700)	ND (430)	34 J	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Chrysene	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Dibenz(a,h)anthracene	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	59 J	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Dibenzofuran	ug/kg	ND (360)	ND (370)	ND (370)	ND (420) UJ	ND (350)	ND (3700)	ND (430) UJ	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Diethyl phthalate	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Dimethyl phthalate	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Di-n-butylphthalate	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Di-n-octyl phthalate	ug/kg	120 J	61 J	ND (370)	ND (420)	1400	ND (3700)	ND (430)	28 J	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Fluoranthene	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	120 J	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Fluorene	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Hexachlorobenzene	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Hexachlorobutadiene	ug/kg	ND (1800)	ND (1800)	ND (1800)	ND (2000) UJ	ND (1700)	ND (18000)	ND (2100) UJ	ND (1700)	ND (2000)	ND (2100)	ND (410)	ND (17000)	ND (450)
Hexachlorocyclopentadiene	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (2000)	ND (83000)	ND (2200)
Hexachloroethane	ug/kg	54 J	25 J	ND (370)	ND (420)	190 J	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Isophorone	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Naphthalene	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Nitrobenzene	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
N-Nitrosodi-n-propylamine	ug/kg	ND (360)	ND (370)	ND (370)	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
N-Nitrosodiphenylamine	ug/kg	ND (360)	ND (370)	ND (370) UJ	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Pentachlorophenol	ug/kg	87 J	54 J	ND (370)	ND (420)	1300	ND (3700)	ND (430)	31 J	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Phenanthrene	ug/kg	ND (360)	ND (370)	ND (370) UJ	ND (420)	ND (350)	ND (3700)	ND (430)	ND (350)	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Phenol	ug/kg	110 J	37 J	ND (370)	ND (420)	760 J	ND (3700)	ND (430)	29 J	ND (420)	ND (420)	ND (410)	ND (17000)	ND (450)
Pyrene	ug/kg											ND (410)	ND (17000)	ND (450)
Volatiles														
		ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)			
1,1,1-Trichloroethane	ug/kg	ND (6.0)	ND (4.6)	ND (7.0) UJ	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
1,1,2,2-Tetrachloroethane	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
1,1,2-Trichloroethane	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
1,1-Dichloroethane	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
1,1-Dichloroethene	ug/kg	ND (6.0) UJ	ND (4.6) UJ	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3) UJ	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
1,2,4-Trichlorobenzene	ug/kg	ND (12) UJ	ND (9.3) UJ	ND (14)	ND (12)	ND (11)	ND (10)	ND (14)	ND (11) UJ	ND (12)	ND (13)	ND (5.4)	-	ND (6.9)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (11) UJ	-	ND (14)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (6.0) UJ	ND (4.6) UJ	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3) UJ	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
1,2-Dichlorobenzene	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
1,2-Dichloroethane	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A022*	*A022*	*A022*	*A022*	*A022*	*A022*	*A022*	*A022*	*A022*	*A022*	*A023 P200(GM)*	*A024*	*A024*
Sample Location:		*B-X031Y124B*	*B-X031Y124B*	*B-X031Y124B*	*B-X031Y124B*	*B-X031Y124C*	*B-X031Y124C*	*B-X031Y124C*	*B-X031Y124D*	*B-X031Y124D*	*B-X031Y124D*	*SS-X203Y066*	*SS-X045Y114A*	*SS-X045Y114B*
Sample ID:		*S-110503-JC-007*	*S-110503-JC-008*	*S-110503-JC-009*	*S-110503-JC-010*	*S-110503-JC-011*	*S-110503-JC-012*	*S-110503-JC-013*	*S-110603-JC-014*	*S-110603-JC-015*	*S-110603-JC-016*	*SS-010902-MG-001*	*SS-013102-MG-003*	*SS-020402-MG-001*
Sample Date:		*11/5/2003*	*11/5/2003*	*11/5/2003*	*11/5/2003*	*11/5/2003*	*11/5/2003*	*11/5/2003*	*11/6/2003*	*11/6/2003*	*11/6/2003*	*1/9/2002*	*1/31/2002*	*2/4/2002*
Sample Depth:		*0-2*	*0-2*	*6-8*	*32-34*	*0-2*	*6-8*	*32-33*	*0-2*	*6-8*	*30-32*	*(2-4)*	*(0-2)*	*(10-12)*
			Duplicate											
Parameters	***Units***													
1,2-Dichloropropane	ug/kg	ND (6.0) UJ	ND (4.6) UJ	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3) UJ	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
1,3-Dichlorobenzene	ug/kg	ND (6.0) UJ	ND (4.6) UJ	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3) UJ	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
1,4-Dichlorobenzene	ug/kg	ND (24)	ND (19)	ND (28)	ND (24)	ND (22)	ND (21)	ND (28)	ND (21)	ND (25)	ND (25)	ND (5.4)	-	ND (6.9)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (24)	ND (19)	ND (28)	ND (24)	ND (22)	ND (21)	ND (28)	ND (21)	ND (25)	ND (25)	ND (22)	-	ND (27)
2-Hexanone	ug/kg	ND (24)	ND (19)	ND (28)	ND (24)	ND (22)	ND (21)	ND (28)	ND (21)	ND (25)	ND (25)	ND (22)	-	ND (27)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (24) UJ	ND (19) UJ	ND (28)	ND (24) UJ	ND (22) UJ	ND (21) UJ	ND (28) UJ	ND (21) UJ	ND (25) UJ	ND (25) UJ	ND (22)	-	ND (27)
Acetone	ug/kg	0.66 J	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (22) U	-	ND (27) U
Benzene	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
Bromodichloromethane	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
Bromoform	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
Bromomethane (Methyl Bromide)	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4) UJ	-	ND (6.9)
Carbon disulfide	ug/kg	ND (6.0) UJ	ND (4.6) UJ	ND (7.0)	ND (6.0) UJ	ND (5.5) UJ	ND (5.2) UJ	ND (6.9) UJ	ND (5.3) UJ	ND (6.2) UJ	ND (6.3) UJ	ND (5.4)	-	ND (6.9)
Carbon tetrachloride	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
Chlorobenzene	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
Chloroethane	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
Chloroform (Trichloromethane)	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
Chloromethane (Methyl Chloride)	ug/kg	ND (3.0)	ND (2.3)	ND (3.5)	ND (3.0)	ND (2.7)	ND (2.6)	ND (3.4)	ND (2.7)	ND (3.1)	ND (3.1)	ND (5.4)	-	ND (6.9)
cis-1,2-Dichloroethene	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (2.7)	-	ND (3.4)
cis-1,3-Dichloropropene	ug/kg	ND (12)	ND (9.3)	ND (14)	ND (12)	ND (11)	ND (10)	ND (14)	ND (11)	ND (12)	ND (13)	ND (5.4)	-	ND (6.9)
Cyclohexane	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (11)	-	ND (14)
Dibromochloromethane	ug/kg	ND (6.0) UJ	ND (4.6) UJ	ND (7.0)	ND (6.0) UJ	ND (5.5) UJ	ND (5.2) UJ	ND (6.9) UJ	ND (5.3) UJ	ND (6.2) UJ	ND (6.3) UJ	ND (5.4)	-	ND (6.9)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4) U	-	ND (6.9)
Ethylbenzene	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
Isopropylbenzene	ug/kg	ND (12)	ND (9.3)	ND (14)	ND (12)	ND (11)	ND (10)	ND (14)	ND (11)	ND (12)	ND (13)	ND (5.4)	-	ND (6.9)
Methyl acetate	ug/kg	ND (12)	ND (9.3)	ND (14)	ND (12)	ND (11)	ND (10)	ND (14)	ND (11)	ND (12)	ND (13)	ND (11)	-	ND (14)
Methyl cyclohexane	ug/kg	ND (24)	ND (19)	ND (28)	ND (24)	ND (22)	ND (21)	ND (28)	ND (21)	ND (25)	ND (25)	ND (11)	-	ND (14)
Methyl Tert Butyl Ether	ug/kg	1.7 J	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (22)	-	ND (27)
Methylene chloride	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4) U	-	ND (6.9)
Styrene	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
Tetrachloroethene	ug/kg	0.73 J	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
Toluene	ug/kg	ND (3.0)	ND (2.3)	ND (3.5)	ND (3.0)	ND (2.7)	ND (2.6)	ND (3.4)	ND (2.7)	ND (3.1)	ND (3.1)	ND (5.4)	-	ND (6.9)
trans-1,2-Dichloroethene	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (2.7)	-	ND (3.4)
trans-1,3-Dichloropropene	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
Trichloroethene	ug/kg	ND (6.0) UJ	ND (4.6) UJ	ND (7.0) UJ	ND (6.0) UJ	ND (5.5) UJ	ND (5.2) UJ	ND (6.9) UJ	ND (5.3) UJ	ND (6.2) UJ	ND (6.3) UJ	ND (5.4)	-	ND (6.9)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
Vinyl chloride	ug/kg	ND (6.0)	ND (4.6)	ND (7.0)	ND (6.0)	ND (5.5)	ND (5.2)	ND (6.9)	ND (5.3)	ND (6.2)	ND (6.3)	ND (5.4)	-	ND (6.9)
Xylene (total)	ug/kg											ND (5.4)	-	ND (6.9)
Wet														
		90.7	89.7	89.4	78.6	93.3	88.2	76.9	95.6	79.0	78.0			
Chloride	mg/kg											-	-	-
Total Organic Carbon (TOC)	mg/kg											-	-	-
Total Solids	%											81.1	95.9	73.6

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A024*	*Background*	*Background*	*Background*	*Background*	*Background*	*Background*	*Background*	*Background*	*Background*	*Background*	*Background P205(GM)*	*Background RFI Boundary*
Sample Location:		*SS-X048Y112*	*BK-X142Y263*	*BK-X157Y157*	*BK-X157Y157*	*BK-X199Y347*	*BK-X199Y347*	*BK-X212Y042*	*BK-X281Y296*	*BK-X281Y296*	*BK-X293Y374*	*BK-X293Y374*	*BK-X267Y091*	*BK-X045Y258*
Sample ID:		*SS-013102-MG-002*	*S-012402-MO-004*	*S-060602-MG-229*	*S-060602-MG-230*	*S-060602-MG-225*	*S-060602-MG-226*	*S-010223-MO-002*	*S-010223-MO-001*	*S-010223-MO-005*	*S-060602-MG-227*	*S-060602-MG-228*	*S-010223-MO-003*	*S-060602-MG-231*
Sample Date:		*1/31/2002*	*1/24/2002*	*6/6/2002*	*6/6/2002*	*6/6/2002*	*6/6/2002*	*1/23/2002*	*1/23/2002*	*1/23/2002*	*6/6/2002*	*6/6/2002*	*1/23/2002*	*6/6/2002*
Sample Depth:		*(3-4)*	*(0-2)*	*(0-2)*	*(6-8)*	*(0-2)*	*(2-4)*	*(0-2)*	*(0-2)*	*(0-2) Duplicate*	*(0-2)*	*(4.5-6.5)*	*(0-2)*	*(0-2)*
Parameters	***Units***													
Metals														
Aluminum	mg/kg	7570	12600	13100	10800	17700	13700	10700	11400	13900	11200	20800	10200	-
Antimony	mg/kg	ND (7.3)	ND (7.9) UJ	ND (7.5) U	ND (7.7) U	ND (7.7) U	ND (7.8) U	ND (7.6) UJ	ND (7.7) UJ	ND (7.7) UJ	ND (7.1) U	ND (8.1) U	ND (7.5) UJ	-
Arsenic	mg/kg	5.6	8.5	7.6	5.7	11.5	15.2	5.9	10.4	12.5	9.9	18.6	6.8	-
Barium	mg/kg	45.0	118	28.6	7.7 J	67.7	43.4	43.2	64.0	67.3	93.9	146	45.5	-
Beryllium	mg/kg	0.35 J	0.47 J	0.43 J	0.79	0.27 J	0.34 J	0.18 J	0.33 J	0.28 J	0.38 J	1.4	0.24 J	-
Cadmium	mg/kg	ND (0.61)	0.11 J	ND (0.62)	ND (0.64)	ND (0.64)	ND (0.65)	ND (0.63)	0.11 J	ND (0.64)	0.11 J	0.37 J	0.062 J	-
Chromium Total	mg/kg	11.3	28.3 J	43.6	27.2	19.8	33.8	14.7	18.0	22.0	21.6	38.8	16.0	-
Cobalt	mg/kg	7.7	12.2	2.4 J	11.8	7.1	5.7 J	8.7	10.2	10.2	10.5	10	7.3	-
Copper	mg/kg	8.4 J	34.9 J	11.5	19.5	14.8	9.6	12.3	14.0	12.9	10.9	14.0	15.3	-
Cyanide (amenable)	mg/kg	ND (0.61)	ND (0.66)	ND (0.62)	ND (0.64)	ND (0.64)	ND (0.65)	ND (0.63)	ND (0.64)	ND (0.64)	ND (0.59)	ND (0.67)	ND (0.63)	-
Cyanide (total)	mg/kg	ND (0.61)	ND (0.66)	ND (0.62)	ND (0.64)	ND (0.64)	ND (0.65)	ND (0.63)	ND (0.64)	ND (0.64)	ND (0.59)	ND (0.67)	ND (0.63)	-
Iron	mg/kg	15500	18300	32600	30400	24500	25000	17000	20200	25400	19400	34700	16200	-
Lead	mg/kg	12.2	22.5	21.1	16.0	13.3	13.6	13.2	17.6	17.0	16.2	19.1	20.3	-
Manganese	mg/kg	451	1200 J	42.4	141	246	167	271 J	556 J	477 J	918	1100	161 J	-
Mercury	mg/kg	ND (0.12)	0.039 J	ND (0.12)	ND (0.13)	0.047 J	0.070 J	ND (0.13) U	ND (0.13) U	ND (0.13) U	0.033 J	0.045 J	ND (0.13) U	-
Nickel	mg/kg	8.4	20.8	11.6	19.4	13.0	10.2	10.6	11.7	12.8	12.0	25.6	18.2	-
Selenium	mg/kg	0.80	0.65 J	ND (0.62)	ND (0.64)	ND (0.64)	ND (0.65)	ND (0.63)	ND (0.64)	0.91	ND (0.59)	ND (0.67)	0.39 J	-
Silver	mg/kg	ND (1.2)	ND (1.3)	ND (1.2)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.2)	ND (1.3)	ND (1.3)	-
Thallium	mg/kg	ND (1.2)	1.2 J	ND (1.2)	ND (1.3)	ND (1.3) U	ND (1.3) U	ND (1.3)	ND (1.3) U	ND (1.3) U	ND (1.2) U	ND (1.3) U	ND (1.3)	-
Vanadium	mg/kg	21.9	29.5	69.8	40.7	38.8	48.7	27.1	34.8	43.4	32.6	59.0	23.0	-
Zinc	mg/kg	40.7 J	50.4	55.2	81.9	45.7	38.0	30.2 J	40.7 J	45.6 J	41.5	71.0	39.5 J	-
PCBs														
Aroclor-1016 (PCB-1016)	ug/kg	ND (40)	ND (44)	ND (41)	ND (43)	ND (42)	ND (43)	ND (42)	ND (42)	ND (42)	ND (39)	ND (44)	ND (41)	ND (200)
Aroclor-1221 (PCB-1221)	ug/kg	ND (40)	ND (44)	ND (41)	ND (43)	ND (42)	ND (43)	ND (42)	ND (42)	ND (42)	ND (39)	ND (44)	ND (41)	ND (200)
Aroclor-1232 (PCB-1232)	ug/kg	ND (40)	ND (44)	ND (41)	ND (43)	ND (42)	ND (43)	ND (42)	ND (42)	ND (42)	ND (39)	ND (44)	ND (41)	ND (200)
Aroclor-1242 (PCB-1242)	ug/kg	ND (40)	ND (44)	ND (41)	ND (43)	ND (42)	ND (43)	ND (42)	ND (42)	ND (42)	ND (39)	ND (44)	ND (41)	ND (200)
Aroclor-1248 (PCB-1248)	ug/kg	ND (40)	ND (44)	ND (41)	ND (43)	ND (42)	ND (43)	ND (42)	ND (42)	ND (42)	ND (39)	ND (44)	ND (41)	1900
Aroclor-1254 (PCB-1254)	ug/kg	ND (40)	ND (44)	ND (41)	ND (43)	ND (42)	ND (43)	ND (42)	ND (42)	ND (42)	ND (39)	ND (44)	ND (41)	ND (200)
Aroclor-1260 (PCB-1260)	ug/kg	ND (40)	ND (44)	ND (41) UJ	ND (43) UJ	ND (42) UJ	ND (43) UJ	ND (42)	ND (42)	ND (42)	ND (39) UJ	ND (44) UJ	ND (41)	140 J
Semi - Volatiles														
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
2,4,5-Trichlorophenol	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
2,4,6-Trichlorophenol	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
2,4-Dichlorophenol	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
2,4-Dimethylphenol	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
2,4-Dinitrophenol	ug/kg	ND (1900)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (2100)	ND (2000)	ND (2100)	ND (2000)	ND (1900)	ND (2200)	ND (2000)	-
2,4-Dinitrotoluene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
2,6-Dinitrotoluene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
2-Chloronaphthalene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
2-Chlorophenol	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
2-Methylnaphthalene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
2-Methylphenol	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
2-Nitroaniline	ug/kg	ND (1900)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (2100)	ND (2000)	ND (2100)	ND (2000)	ND (1900)	ND (2200)	ND (2000)	-
2-Nitrophenol	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
3,3'-Dichlorobenzidine	ug/kg	ND (1900)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (2100)	ND (2000)	ND (2100)	ND (2000)	ND (1900)	ND (2200)	ND (2000)	-
3-Nitroaniline	ug/kg	ND (1900)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (2100)	ND (2000)	ND (2100)	ND (2000)	ND (1900)	ND (2200)	ND (2000)	-
4,6-Dinitro-2-methylphenol	ug/kg	ND (1900)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (2100)	ND (2000)	ND (2100)	ND (2000)	ND (1900)	ND (2200)	ND (2000)	-
4-Bromophenyl phenyl ether	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
4-Chloro-3-methylphenol	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
4-Chloroaniline	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
4-Chlorophenyl phenyl ether	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A024*	*Background*	*Background*	*Background*	*Background*	*Background*	*Background*	*Background*	*Background*	*Background*	*Background*	*Background P205(GM)*	*Background RFI Boundary*
Sample Location:		*SS-X048Y112*	*BK-X142Y263*	*BK-X157Y157*	*BK-X157Y157*	*BK-X199Y347*	*BK-X199Y347*	*BK-X212Y042*	*BK-X281Y296*	*BK-X281Y296*	*BK-X293Y374*	*BK-X293Y374*	*BK-X267Y091*	*BK-X045Y258*
Sample ID:		*SS-013102-MG-002*	*S-012402-MO-004*	*S-060602-MG-229*	*S-060602-MG-230*	*S-060602-MG-225*	*S-060602-MG-226*	*S-010223-MO-002*	*S-010223-MO-001*	*S-010223-MO-005*	*S-060602-MG-227*	*S-060602-MG-228*	*S-010223-MO-003*	*S-060602-MG-231*
Sample Date:		*1/31/2002*	*1/24/2002*	*6/6/2002*	*6/6/2002*	*6/6/2002*	*6/6/2002*	*1/23/2002*	*1/23/2002*	*1/23/2002*	*6/6/2002*	*6/6/2002*	*1/23/2002*	*6/6/2002*
Sample Depth:		*(3-4)*	*(0-2)*	*(0-2)*	*(6-8)*	*(0-2)*	*(2-4)*	*(0-2)*	*(0-2)*	*(0-2) Duplicate*	*(0-2)*	*(4.5-6.5)*	*(0-2)*	*(0-2)*
Parameters	***Units***													
4-Methylphenol	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
4-Nitroaniline	ug/kg	ND (1900)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (2100)	ND (2000)	ND (2100)	ND (2000)	ND (1900)	ND (2200)	ND (2000)	-
4-Nitrophenol	ug/kg	ND (1900)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (2100)	ND (2000)	ND (2100)	ND (2000)	ND (1900)	ND (2200)	ND (2000)	-
Acenaphthene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Acenaphthylene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Acetophenone	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Anthracene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Atrazine	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Benzaldehyde	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Benzo(a)anthracene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Benzo(a)pyrene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Benzo(b)fluoranthene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Benzo(g,h,i)perylene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Benzo(k)fluoranthene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Biphenyl	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
bis(2-Chloroethoxy)methane	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
bis(2-Chloroethyl)ether	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
bis(2-Ethylhexyl)phthalate	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Butyl benzylphthalate	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Caprolactam	ug/kg	ND (400)	ND (440)	ND (410) UJ	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440) UJ	ND (410)	-
Carbazole	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Chrysene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Dibenz(a,h)anthracene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Dibenzofuran	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Diethyl phthalate	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Dimethyl phthalate	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Di-n-butylphthalate	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Di-n-octyl phthalate	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Fluoranthene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Fluorene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Hexachlorobenzene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Hexachlorobutadiene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Hexachlorocyclopentadiene	ug/kg	ND (1900)	ND (2100)	ND (2000)	ND (2100)	ND (2100)	ND (2100)	ND (2000)	ND (2100)	ND (2000)	ND (1900)	ND (2200)	ND (2000)	-
Hexachloroethane	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Indeno(1,2,3-cd)pyrene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Isophorone	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Naphthalene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Nitrobenzene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
N-Nitrosodi-n-propylamine	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
N-Nitrosodiphenylamine	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Pentachlorophenol	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Phenanthrene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Phenol	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Pyrene	ug/kg	ND (400)	ND (440)	ND (410)	ND (430)	ND (420)	ND (430)	ND (420)	ND (420)	ND (420)	ND (390)	ND (440)	ND (410)	-
Volatiles														
1,1,1-Trichloroethane	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
1,1,2,2-Tetrachloroethane	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
1,1,2-Trichloroethane	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
1,1-Dichloroethane	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
1,1-Dichloroethene	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
1,2,4-Trichlorobenzene	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7) U	ND (6.7)	ND (8.2)	ND (6.1)	-
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (13)	ND (12) UJ	ND (16)	ND (17)	ND (16)	ND (16)	ND (12)	ND (12)	ND (11)	ND (13)	ND (16)	ND (12)	-
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
1,2-Dichlorobenzene	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
1,2-Dichloroethane	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		***A024***	***Background***	***Background***	***Background***	***Background***	***Background***	***Background***	***Background***	***Background***	***Background***	***Background***	***Background P205(GM)***	***Background RFI Boundary***
Sample Location:		***SS-X048Y112***	***BK-X142Y263***	***BK-X157Y157***	***BK-X157Y157***	***BK-X199Y347***	***BK-X199Y347***	***BK-X212Y042***	***BK-X281Y296***	***BK-X281Y296***	***BK-X293Y374***	***BK-X293Y374***	***BK-X267Y091***	***BK-X045Y258***
Sample ID:		***SS-013102-MG-002***	***S-012402-MO-004***	***S-060602-MG-229***	***S-060602-MG-230***	***S-060602-MG-225***	***S-060602-MG-226***	***S-010223-MO-002***	***S-010223-MO-001***	***S-010223-MO-005***	***S-060602-MG-227***	***S-060602-MG-228***	***S-010223-MO-003***	***S-060602-MG-231***
Sample Date:		***1/31/2002***	***1/24/2002***	***6/6/2002***	***6/6/2002***	***6/6/2002***	***6/6/2002***	***1/23/2002***	***1/23/2002***	***1/23/2002***	***6/6/2002***	***6/6/2002***	***1/23/2002***	***6/6/2002***
Sample Depth:		***(3-4)***	***(0-2)***	***(0-2)***	***(6-8)***	***(0-2)***	***(2-4)***	***(0-2)***	***(0-2)***	***(0-2) Duplicate***	***(0-2)***	***(4.5-6.5)***	***(0-2)***	***(0-2)***
Parameters	***Units***													
1,2-Dichloropropane	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
1,3-Dichlorobenzene	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
1,4-Dichlorobenzene	ug/kg	ND (6.4)	ND (6.2)	ND (7.8) U	ND (8.3) U	ND (7.8) U	ND (8.0) U	ND (6.1)	ND (6)	ND (5.7)	ND (6.7) U	ND (8.2) U	ND (6.1)	-
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (26)	ND (25)	ND (31)	ND (33)	ND (31)	ND (32)	ND (24)	ND (24)	ND (23)	ND (27)	ND (33)	ND (24)	-
2-Hexanone	ug/kg	ND (26)	ND (25)	ND (31)	ND (33)	ND (31)	ND (32)	ND (24)	ND (24)	ND (23)	ND (27)	ND (33)	ND (24)	-
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (26)	ND (25)	ND (31)	ND (33)	ND (31)	ND (32)	ND (24)	ND (24)	ND (23)	ND (27)	ND (33)	ND (24)	-
Acetone	ug/kg	ND (26) UJ	ND (25) U	ND (31) UJ	ND (33) UJ	34 J	ND (32) UJ	4 J	17 J	13 J	ND (27) UJ	ND (33) UJ	12 J	-
Benzene	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Bromodichloromethane	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Bromoform	ug/kg	ND (6.4) UJ	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1) UJ	ND (6) UJ	ND (5.7) UJ	ND (6.7)	ND (8.2)	ND (6.1) UJ	-
Bromomethane (Methyl Bromide)	ug/kg	ND (6.4)	ND (6.2) UJ	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Carbon disulfide	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Carbon tetrachloride	ug/kg	ND (6.4)	ND (6.2) UJ	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Chlorobenzene	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Chloroethane	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Chloroform (Trichloromethane)	ug/kg	6.8	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Chloromethane (Methyl Chloride)	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
cis-1,2-Dichloroethene	ug/kg	ND (3.2)	ND (3.1)	ND (3.9)	ND (4.1)	ND (3.9)	ND (4.0)	ND (3)	ND (3)	ND (2.8)	ND (3.4)	ND (4.1)	ND (3)	-
cis-1,3-Dichloropropene	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Cyclohexane	ug/kg	ND (13)	ND (12)	ND (16)	ND (17)	ND (16)	ND (16)	ND (12)	ND (12)	ND (11)	ND (13)	ND (16)	ND (12)	-
Dibromochloromethane	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (6.4) UJ	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Ethylbenzene	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Isopropylbenzene	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Methyl acetate	ug/kg	ND (13)	3.5 J	ND (16)	ND (17)	ND (16)	ND (16)	ND (12)	ND (12)	ND (11)	ND (13)	ND (16)	ND (12)	-
Methyl cyclohexane	ug/kg	ND (13)	ND (12)	ND (16)	ND (17)	ND (16)	ND (16)	ND (12)	ND (12)	ND (11)	ND (13)	ND (16)	ND (12)	-
Methyl Tert Butyl Ether	ug/kg	ND (26)	ND (25)	ND (31)	ND (33)	ND (31)	ND (32)	ND (24)	ND (24)	ND (23)	ND (27)	ND (33)	ND (24)	-
Methylene chloride	ug/kg	ND (6.4)	4 J	ND (7.8)	ND (8.3) U	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Styrene	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Tetrachloroethene	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Toluene	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
trans-1,2-Dichloroethene	ug/kg	ND (3.2)	ND (3.1)	ND (3.9)	ND (4.1)	ND (3.9)	ND (4.0)	ND (3)	ND (3)	ND (2.8)	ND (3.4)	ND (4.1)	ND (3)	-
trans-1,3-Dichloropropene	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Trichloroethene	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Trichlorofluoromethane (CFC-11)	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Vinyl chloride	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Xylene (total)	ug/kg	ND (6.4)	ND (6.2)	ND (7.8)	ND (8.3)	ND (7.8)	ND (8.0)	ND (6.1)	ND (6)	ND (5.7)	ND (6.7)	ND (8.2)	ND (6.1)	-
Wet														
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	18000	1400	330	2700	1900	5300	5400	5800	8500	4500	11000	-
Total Solids	%	82.4	75.6	80.4	77.5	77.8	76.5	78.9	77.7	78.2	84.7	74.4	79.7	84.3

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*Background RFI Boundary*	*Background RFI Boundary*	*Background RFI Boundary*	*Background RFI Boundary*	*GMPT; Hourly Parking Lot*	*GMPT; Hourly Parking Lot*	*GMPT; Hourly Parking Lot*
Sample Location:		*MW-X045Y258D*	*MW-X045Y258D*	*MW-X261Y356D*	*MW-X261Y356D*	*B-X080Y210*	*B-X080Y210*	*B-X080Y210*
Sample ID:		*S-013002-KMV-517*	*S-013002-KMV-518*	*S-012102-KMV-509*	*S-012102-KMV-510*	*S-021402-MG-116*	*S-021402-MG-117*	*S-021402-MG-118*
Sample Date:		*1/30/2002*	*1/30/2002*	*1/21/2002*	*1/21/2002*	*2/14/2002*	*2/14/2002*	*2/14/2002*
Sample Depth:		*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(6-8)*	*(32-34)*
			Duplicate		*Duplicate*			
Parameters	***Units***							
Metals								
Aluminum	mg/kg	19400	19900	18700	12600	5140	8420	4360
Antimony	mg/kg	0.85 J	0.77 J	1.7 J	ND (7.8)	ND (7.0)	ND (7.5)	ND (8.7)
Arsenic	mg/kg	9.1	6.2	11.9	9.1	1.9	4.9	2.2
Barium	mg/kg	48.1	56.8	101	81.7	9.7 J	61	47.9
Beryllium	mg/kg	0.49 J	0.53 J	0.38 J	0.36 J	ND (0.58) U	0.21 J	0.41 J
Cadmium	mg/kg	ND (0.60)	ND (0.60) U	ND (0.64)	0.075 J	0.16 J	0.19 J	0.4 J
Chromium Total	mg/kg	27.1 J	34.3 J	21.6	17.2	12.4	10.5	5.1
Cobalt	mg/kg	7.0	10.8	8.6	11.5	2.3 J	8.1	4.7 J
Copper	mg/kg	363	490	18.3	23.4	96.3	8.3	6.9
Cyanide (amenable)	mg/kg	ND (0.60)	ND (0.60)	ND (0.64)	ND (0.65)	ND (0.58)	ND (0.62)	ND (0.72)
Cyanide (total)	mg/kg	ND (0.60)	ND (0.60)	ND (0.64)	ND (0.65)	ND (0.58)	ND (0.62)	ND (0.72)
Iron	mg/kg	28800	17400	27800	20000	5590	12200	19500
Lead	mg/kg	37.2 J	46.6 J	18.7	19.4	10.2	19.6	4.2
Manganese	mg/kg	181 J	243 J	422	599	48	169	440
Mercury	mg/kg	0.14	0.16	0.046 J	0.045 J	0.027 J	0.046 J	0.026 J
Nickel	mg/kg	30.9 J	46.8 J	15.5	14.0	26.2	8.5	11.6
Selenium	mg/kg	0.73	0.54 J	0.60 J	0.75	ND (0.58)	0.53 J	ND (0.72)
Silver	mg/kg	ND (1.2)	ND (1.2)	ND (1.3)	ND (1.3)	ND (1.2)	ND (1.2)	ND (1.4)
Thallium	mg/kg	ND (1.2)	ND (1.2) U	ND (1.3)	ND (1.3)	ND (1.2)	ND (1.2)	0.77 J
Vanadium	mg/kg	36.1	24.5	38.2	29.9	6.3	20.8	6 J
Zinc	mg/kg	94.5 J	111 J	55.3	43.7	65.5	35.9	38.7
PCBs								
Aroclor-1016 (PCB-1016)	ug/kg	ND (390)	ND (3900)	ND (42)	ND (43)	ND (38) UJ	ND (41) UJ	ND (48) UJ
Aroclor-1221 (PCB-1221)	ug/kg	ND (390)	ND (3900)	ND (42)	ND (43)	ND (38)	ND (41)	ND (48)
Aroclor-1232 (PCB-1232)	ug/kg	ND (390)	ND (3900)	ND (42)	ND (43)	ND (38)	ND (41)	ND (48)
Aroclor-1242 (PCB-1242)	ug/kg	ND (390)	ND (3900)	ND (42)	ND (43)	ND (38)	ND (41)	ND (48)
Aroclor-1248 (PCB-1248)	ug/kg	3400	51000	ND (42)	ND (43)	ND (38)	ND (41)	ND (48)
Aroclor-1254 (PCB-1254)	ug/kg	ND (390)	ND (3900)	ND (42)	ND (43)	ND (38)	ND (41)	ND (48)
Aroclor-1260 (PCB-1260)	ug/kg	340 J	3100 J	ND (42)	ND (43)	ND (38)	ND (41)	ND (48)
Semi - Volatiles								
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
2,4,5-Trichlorophenol	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
2,4,6-Trichlorophenol	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
2,4-Dichlorophenol	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
2,4-Dimethylphenol	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
2,4-Dinitrophenol	ug/kg	ND (1900)	ND (1900)	ND (2100)	ND (2100)	ND (1900) UJ	ND (2000) UJ	ND (2300) UJ
2,4-Dinitrotoluene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
2,6-Dinitrotoluene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
2-Chloronaphthalene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
2-Chlorophenol	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
2-Methylnaphthalene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
2-Methylphenol	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
2-Nitroaniline	ug/kg	ND (1900)	ND (1900)	ND (2100)	ND (2100)	ND (1900)	ND (2000)	ND (2300)
2-Nitrophenol	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
3,3'-Dichlorobenzidine	ug/kg	ND (1900)	ND (1900)	ND (2100)	ND (2100)	ND (1900)	ND (2000)	ND (2300)
3-Nitroaniline	ug/kg	ND (1900)	ND (1900)	ND (2100)	ND (2100)	ND (1900)	ND (2000)	ND (2300)
4,6-Dinitro-2-methylphenol	ug/kg	ND (1900)	ND (1900)	ND (2100)	ND (2100)	ND (1900)	ND (2000)	ND (2300)
4-Bromophenyl phenyl ether	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
4-Chloro-3-methylphenol	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
4-Chloroaniline	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
4-Chlorophenyl phenyl ether	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*Background RFI Boundary*	*Background RFI Boundary*	*Background RFI Boundary*	*Background RFI Boundary*	*GMPT; Hourly Parking Lot*	*GMPT; Hourly Parking Lot*	*GMPT; Hourly Parking Lot*
Sample Location:		*MW-X045Y258D*	*MW-X045Y258D*	*MW-X261Y356D*	*MW-X261Y356D*	*B-X080Y210*	*B-X080Y210*	*B-X080Y210*
Sample ID:		*S-013002-KMV-517*	*S-013002-KMV-518*	*S-012102-KMV-509*	*S-012102-KMV-510*	*S-021402-MG-116*	*S-021402-MG-117*	*S-021402-MG-118*
Sample Date:		*1/30/2002*	*1/30/2002*	*1/21/2002*	*1/21/2002*	*2/14/2002*	*2/14/2002*	*2/14/2002*
Sample Depth:		*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(6-8)*	*(32-34)*
			Duplicate		*Duplicate*			
Parameters	***Units***							
4-Methylphenol	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
4-Nitroaniline	ug/kg	ND (1900)	ND (1900)	ND (2100)	ND (2100)	ND (1900)	ND (2000)	ND (2300)
4-Nitrophenol	ug/kg	ND (1900)	ND (1900)	ND (2100)	ND (2100)	ND (1900)	ND (2000)	ND (2300)
Acenaphthene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Acenaphthylene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Acetophenone	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Anthracene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Atrazine	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Benzaldehyde	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Benzo(a)anthracene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Benzo(a)pyrene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Benzo(b)fluoranthene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Benzo(g,h,i)perylene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Benzo(k)fluoranthene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Biphenyl	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
bis(2-Chloroethoxy)methane	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
bis(2-Chloroethyl)ether	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
bis(2-Ethylhexyl)phthalate	ug/kg	67 J	72 J	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Butyl benzylphthalate	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Caprolactam	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Carbazole	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Chrysene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Dibenz(a,h)anthracene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Dibenzofuran	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Diethyl phthalate	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Dimethyl phthalate	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Di-n-butylphthalate	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Di-n-octyl phthalate	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Fluoranthene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Fluorene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Hexachlorobenzene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Hexachlorobutadiene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Hexachlorocyclopentadiene	ug/kg	ND (1900)	ND (1900)	ND (2100)	ND (2100)	ND (1900)	ND (2000)	ND (2300)
Hexachloroethane	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Isophorone	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Naphthalene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Nitrobenzene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
N-Nitrosodi-n-propylamine	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
N-Nitrosodiphenylamine	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Pentachlorophenol	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Phenanthrene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Phenol	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Pyrene	ug/kg	ND (390)	ND (390)	ND (420)	ND (430)	ND (380)	ND (410)	ND (480)
Volatiles								
1,1,1-Trichloroethane	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
1,1,2,2-Tetrachloroethane	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
1,1,2-Trichloroethane	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
1,1-Dichloroethane	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
1,1-Dichloroethene	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
1,2,4-Trichlorobenzene	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (9.7)	ND (11)	ND (11)	ND (11)	ND (14)	ND (13)	ND (18)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
1,2-Dichlorobenzene	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
1,2-Dichloroethane	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*Background RFI Boundary*	*Background RFI Boundary*	*Background RFI Boundary*	*Background RFI Boundary*	*GMPT; Hourly Parking Lot*	*GMPT; Hourly Parking Lot*	*GMPT; Hourly Parking Lot*
Sample Location:		*MW-X045Y258D*	*MW-X045Y258D*	*MW-X261Y356D*	*MW-X261Y356D*	*B-X080Y210*	*B-X080Y210*	*B-X080Y210*
Sample ID:		*S-013002-KMV-517*	*S-013002-KMV-518*	*S-012102-KMV-509*	*S-012102-KMV-510*	*S-021402-MG-116*	*S-021402-MG-117*	*S-021402-MG-118*
Sample Date:		*1/30/2002*	*1/30/2002*	*1/21/2002*	*1/21/2002*	*2/14/2002*	*2/14/2002*	*2/14/2002*
Sample Depth:		*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(6-8)*	*(32-34)*
			Duplicate		*Duplicate*			
Parameters	***Units***							
1,2-Dichloropropane	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
1,3-Dichlorobenzene	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
1,4-Dichlorobenzene	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (19)	ND (22)	ND (21)	ND (22)	ND (27)	8.3 J	ND (36)
2-Hexanone	ug/kg	ND (19)	ND (22)	ND (21)	ND (22)	ND (27)	ND (25)	ND (36)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (19)	ND (22)	ND (21)	ND (22)	ND (27)	ND (25)	ND (36)
Acetone	ug/kg	ND (19)	ND (22)	ND (21) U	ND (22) U	ND (27) UJ	ND (25) UJ	ND (36) UJ
Benzene	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Bromodichloromethane	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Bromoform	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Bromomethane (Methyl Bromide)	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Carbon disulfide	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Carbon tetrachloride	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Chlorobenzene	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Chloroethane	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Chloroform (Trichloromethane)	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Chloromethane (Methyl Chloride)	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
cis-1,2-Dichloroethene	ug/kg	ND (2.4)	ND (2.7)	ND (2.7)	ND (2.7)	ND (3.4)	ND (3.2)	ND (4.5)
cis-1,3-Dichloropropene	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Cyclohexane	ug/kg	ND (9.7)	ND (11)	ND (11)	ND (11)	ND (14)	ND (13)	ND (18)
Dibromochloromethane	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Ethylbenzene	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Isopropylbenzene	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Methyl acetate	ug/kg	ND (9.7)	ND (11)	ND (11)	ND (11)	ND (14)	ND (13)	ND (18)
Methyl cyclohexane	ug/kg	ND (9.7)	ND (11)	ND (11)	ND (11)	ND (14)	ND (13)	ND (18)
Methyl Tert Butyl Ether	ug/kg	ND (19)	ND (22)	ND (21)	ND (22)	ND (27)	ND (25)	ND (36)
Methylene chloride	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Styrene	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Tetrachloroethene	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Toluene	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
trans-1,2-Dichloroethene	ug/kg	ND (2.4)	ND (2.7)	ND (2.7)	ND (2.7)	ND (3.4)	ND (3.2)	ND (4.5)
trans-1,3-Dichloropropene	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Trichloroethene	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (4.8) UJ	ND (5.5) UJ	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Vinyl chloride	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Xylene (total)	ug/kg	ND (4.8)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.8)	ND (6.3)	ND (9)
Wet								
Chloride	mg/kg	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	1700	4000	1400 J	12000 J	-	-	-
Total Solids	%	83.9	83.7	77.7	76.8	86.3	80.1	69

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*GMPT; Hourly Parking Lot*	*GMPT; Hourly Parking Lot*	*GMPT; Hourly Parking Lot*	*GMPT; Hourly Parking Lot*	*GMPT; Hourly Parking Lot*	*GMPT; Hourly Parking Lot*	*GMPT; LaSalle*	*GMPT; LaSalle*
Sample Location:		*B-X097Y232*	*B-X097Y232*	*B-X097Y232*	*B-X130Y215*	*B-X130Y215*	*B-X130Y215*	*B-X137Y132*	*B-X137Y132*
Sample ID:		*S-021402-MG-113*	*S-021402-MG-114*	*S-021402-MG-115*	*S-021302-MG-110*	*S-021302-MG-111*	*S-021302-MG-112*	*S-021502-MG-119*	*S-021502-MG-120*
Sample Date:		*2/14/2002*	*2/14/2002*	*2/14/2002*	*2/13/2002*	*2/13/2002*	*2/13/2002*	*2/15/2002*	*2/15/2002*
Sample Depth:		*(0-2)*	*(6-8)*	*(18-20)*	*(0-2)*	*(6-8)*	*(33-35)*	*(2-4)*	*(6-8)*
Parameters	***Units***								
Metals									
Aluminum	mg/kg	13500	13400	4540	14700	11500	2060	10800	11100
Antimony	mg/kg	0.64 J	ND (7.6)	ND (7.5)	ND (7.6) UJ	ND (7.6) UJ	ND (7.6) UJ	0.75 J	ND (8.2)
Arsenic	mg/kg	10.6	9	4.4	8.3	7.4	2.7	8.0	2.6
Barium	mg/kg	59	95.3	42.9	71.8	20.4 J	11.0 J	30.9	28.4
Beryllium	mg/kg	ND (0.60) U	1.3	0.35 J	0.26 J	0.55 J	0.27 J	0.35 J	0.40 J
Cadmium	mg/kg	0.27 J	0.33 J	0.54 J	0.20 J	0.25 J	0.44 J	0.43 J	0.17 J
Chromium Total	mg/kg	17.8	23.8	5.8	15.5	23.8	4.5	35.0	18.0
Cobalt	mg/kg	5.1 J	12.3	5.5 J	13.0	4.1 J	2.1 J	3.1 J	0.92 J
Copper	mg/kg	15.1	18.5	8.4	12.2	11.5	4.4	12.0	8.6
Cyanide (amenable)	mg/kg	ND (0.60)	ND (0.63)	ND (0.62)	ND (0.63)	ND (0.64)	ND (0.63)	ND (0.69)	ND (0.69)
Cyanide (total)	mg/kg	ND (0.60)	ND (0.63)	ND (0.62)	ND (0.63)	ND (0.64)	ND (0.63)	ND (0.69)	ND (0.69)
Iron	mg/kg	30900	32700	19300	20000	28000	7440	37200	12400
Lead	mg/kg	13.4	20.9	8.9	17.9	12.9	5.6	15.4	9.8
Manganese	mg/kg	248	63	135	405	27.7	164	59.8	24.1
Mercury	mg/kg	0.063 J	0.018 J	0.026 J	0.077 J	ND (0.13)	0.095 J	0.033 J	0.072 J
Nickel	mg/kg	11.9	22.1	17.9	12.0	9.6	7.6	9.3	7.0
Selenium	mg/kg	1	0.72	0.43 J	0.61 J	0.80	0.44 J	1.1	ND (0.69)
Silver	mg/kg	ND (1.2)	ND (1.3)	ND (1.2)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.4)	ND (1.4)
Thallium	mg/kg	ND (1.2)	ND (1.3)	ND (1.2)	0.72 J	ND (1.3)	1.4	ND (1.4)	ND (1.4)
Vanadium	mg/kg	31.2	40.9	7.8	32.2	42.2	9.7	67.3	29.2
Zinc	mg/kg	42.7	43.9	20	41.9	31.8	25.5	30.2	23.2
PCBs									
Aroclor-1016 (PCB-1016)	ug/kg	ND (40)	ND (42)	ND (41) UJ	ND (42)	ND (42)	ND (42)	ND (46) UJ	ND (45) UJ
Aroclor-1221 (PCB-1221)	ug/kg	ND (40)	ND (42)	ND (41)	ND (42)	ND (42)	ND (42)	ND (46)	ND (45)
Aroclor-1232 (PCB-1232)	ug/kg	ND (40)	ND (42)	ND (41)	ND (42)	ND (42)	ND (42)	ND (46)	ND (45)
Aroclor-1242 (PCB-1242)	ug/kg	ND (40)	ND (42)	ND (41)	ND (42)	ND (42)	ND (42)	ND (46)	ND (45)
Aroclor-1248 (PCB-1248)	ug/kg	ND (40)	ND (42)	ND (41)	ND (42)	ND (42)	ND (42)	ND (46)	ND (45)
Aroclor-1254 (PCB-1254)	ug/kg	ND (40)	ND (42)	ND (41)	ND (42)	ND (42)	ND (42)	ND (46)	ND (45)
Aroclor-1260 (PCB-1260)	ug/kg	ND (40)	ND (42)	ND (41)	ND (42)	ND (42)	ND (42)	ND (46)	ND (45)
Semi - Volatiles									
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
2,4,5-Trichlorophenol	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
2,4,6-Trichlorophenol	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
2,4-Dichlorophenol	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
2,4-Dimethylphenol	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
2,4-Dinitrophenol	ug/kg	ND (1900) UJ	ND (2000) UJ	ND (2000) UJ	ND (2000)	ND (2000)	ND (2000)	ND (2200)	ND (2200)
2,4-Dinitrotoluene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
2,6-Dinitrotoluene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
2-Chloronaphthalene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
2-Chlorophenol	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
2-Methylnaphthalene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
2-Methylphenol	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
2-Nitroaniline	ug/kg	ND (1900)	ND (2000)	ND (2000) UJ	ND (2000)	ND (2000)	ND (2000)	ND (2200)	ND (2200)
2-Nitrophenol	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
3,3'-Dichlorobenzidine	ug/kg	ND (1900)	ND (2000)	ND (2000) UJ	ND (2000)	ND (2000)	ND (2000)	ND (2200)	ND (2200)
3-Nitroaniline	ug/kg	ND (1900)	ND (2000)	ND (2000) UJ	ND (2000)	ND (2000)	ND (2000)	ND (2200)	ND (2200)
4,6-Dinitro-2-methylphenol	ug/kg	ND (1900)	ND (2000)	ND (2000) UJ	ND (2000)	ND (2000)	ND (2000)	ND (2200)	ND (2200)
4-Bromophenyl phenyl ether	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
4-Chloro-3-methylphenol	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
4-Chloroaniline	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
4-Chlorophenyl phenyl ether	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
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BEDFORD, INDIANA

Area of Interest:		***GMPT; Hourly Parking Lot***	***GMPT; Hourly Parking Lot***	***GMPT; Hourly Parking Lot***	***GMPT; Hourly Parking Lot***	***GMPT; Hourly Parking Lot***	***GMPT; Hourly Parking Lot***	***GMPT; LaSalle***	***GMPT; LaSalle***
Sample Location:		***B-X097Y232***	***B-X097Y232***	***B-X097Y232***	***B-X130Y215***	***B-X130Y215***	***B-X130Y215***	***B-X137Y132***	***B-X137Y132***
Sample ID:		***S-021402-MG-113***	***S-021402-MG-114***	***S-021402-MG-115***	***S-021302-MG-110***	***S-021302-MG-111***	***S-021302-MG-112***	***S-021502-MG-119***	***S-021502-MG-120***
Sample Date:		***2/14/2002***	***2/14/2002***	***2/14/2002***	***2/13/2002***	***2/13/2002***	***2/13/2002***	***2/15/2002***	***2/15/2002***
Sample Depth:		***(0-2)***	***(6-8)***	***(18-20)***	***(0-2)***	***(6-8)***	***(33-35)***	***(2-4)***	***(6-8)***
Parameters	***Units***								
4-Methylphenol	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
4-Nitroaniline	ug/kg	ND (1900)	ND (2000)	ND (2000) UJ	ND (2000)	ND (2000)	ND (2000)	ND (2200)	ND (2200)
4-Nitrophenol	ug/kg	ND (1900)	ND (2000)	ND (2000) UJ	ND (2000)	ND (2000)	ND (2000)	ND (2200)	ND (2200)
Acenaphthene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Acenaphthylene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Acetophenone	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Anthracene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Atrazine	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Benzaldehyde	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Benzo(a)anthracene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Benzo(a)pyrene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Benzo(b)fluoranthene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Benzo(g,h,i)perylene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Benzo(k)fluoranthene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Biphenyl	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
bis(2-Chloroethoxy)methane	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
bis(2-Chloroethyl)ether	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Butyl benzylphthalate	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Caprolactam	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Carbazole	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Chrysene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Dibenz(a,h)anthracene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Dibenzofuran	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Diethyl phthalate	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Dimethyl phthalate	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Di-n-butylphthalate	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Di-n-octyl phthalate	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Fluoranthene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Fluorene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Hexachlorobenzene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Hexachlorobutadiene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Hexachlorocyclopentadiene	ug/kg	ND (1900)	ND (2000)	ND (2000) UJ	ND (2000)	ND (2000)	ND (2000)	ND (2200)	ND (2200)
Hexachloroethane	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Isophorone	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Naphthalene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Nitrobenzene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
N-Nitrosodi-n-propylamine	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
N-Nitrosodiphenylamine	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Pentachlorophenol	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Phenanthrene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Phenol	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Pyrene	ug/kg	ND (400)	ND (420)	ND (410) UJ	ND (420)	ND (420)	ND (420)	ND (460)	ND (450)
Volatiles									
1,1,1-Trichloroethane	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
1,1,2,2-Tetrachloroethane	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
1,1,2-Trichloroethane	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
1,1-Dichloroethane	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
1,1-Dichloroethene	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
1,2,4-Trichlorobenzene	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (13)	ND (11)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (16)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
1,2-Dichlorobenzene	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
1,2-Dichloroethane	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)

TABLE 5.2

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Area of Interest:		***GMPT; Hourly Parking Lot***	***GMPT; Hourly Parking Lot***	***GMPT; Hourly Parking Lot***	***GMPT; Hourly Parking Lot***	***GMPT; Hourly Parking Lot***	***GMPT; Hourly Parking Lot***	***GMPT; LaSalle***	***GMPT; LaSalle***
Sample Location:		***B-X097Y232***	***B-X097Y232***	***B-X097Y232***	***B-X130Y215***	***B-X130Y215***	***B-X130Y215***	***B-X137Y132***	***B-X137Y132***
Sample ID:		***S-021402-MG-113***	***S-021402-MG-114***	***S-021402-MG-115***	***S-021302-MG-110***	***S-021302-MG-111***	***S-021302-MG-112***	***S-021502-MG-119***	***S-021502-MG-120***
Sample Date:		***2/14/2002***	***2/14/2002***	***2/14/2002***	***2/13/2002***	***2/13/2002***	***2/13/2002***	***2/15/2002***	***2/15/2002***
Sample Depth:		***(0-2)***	***(6-8)***	***(18-20)***	***(0-2)***	***(6-8)***	***(33-35)***	***(2-4)***	***(6-8)***
Parameters	***Units***								
1,2-Dichloropropane	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
1,3-Dichlorobenzene	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
1,4-Dichlorobenzene	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	2.9 J	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	7.4 J	ND (22)	ND (26)	3.9 J	ND (26)	ND (26)	ND (27)	ND (31)
2-Hexanone	ug/kg	ND (26)	ND (22)	ND (26)	ND (25)	ND (26)	ND (26)	ND (27) UJ	ND (31) UJ
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (26)	ND (22)	ND (26)	ND (25)	ND (26)	ND (26)	ND (27)	ND (31)
Acetone	ug/kg	ND (26) UJ	ND (22) UJ	ND (26) UJ	ND (25) UJ	ND (26) UJ	ND (26) UJ	ND (27) UJ	ND (31) UJ
Benzene	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
Bromodichloromethane	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
Bromoform	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6) UJ	ND (7.8) UJ
Bromomethane (Methyl Bromide)	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
Carbon disulfide	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
Carbon tetrachloride	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
Chlorobenzene	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
Chloroethane	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
Chloroform (Trichloromethane)	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
Chloromethane (Methyl Chloride)	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
cis-1,2-Dichloroethene	ug/kg	ND (3.3)	ND (2.8)	ND (3.3)	ND (3.1)	ND (3.3)	ND (3.2)	ND (3.3)	15
cis-1,3-Dichloropropene	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
Cyclohexane	ug/kg	ND (13)	ND (11)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (16)
Dibromochloromethane	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
Ethylbenzene	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
Isopropylbenzene	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
Methyl acetate	ug/kg	ND (13)	ND (11)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (16)
Methyl cyclohexane	ug/kg	ND (13)	ND (11)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (16)
Methyl Tert Butyl Ether	ug/kg	ND (26)	ND (22)	ND (26)	ND (25)	ND (26)	ND (26)	ND (27)	ND (31)
Methylene chloride	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
Styrene	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
Tetrachloroethene	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
Toluene	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	1.9 J
trans-1,2-Dichloroethene	ug/kg	ND (3.3)	ND (2.8)	ND (3.3)	ND (3.1)	ND (3.3)	ND (3.2)	ND (3.3)	ND (3.9)
trans-1,3-Dichloropropene	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
Trichloroethene	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
Vinyl chloride	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	5.5 J
Xylene (total)	ug/kg	ND (6.5)	ND (5.5)	ND (6.6)	ND (6.3)	ND (6.6)	ND (6.4)	ND (6.6)	ND (7.8)
Wet									
Chloride	mg/kg	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-
Total Solids	%	82.9	79.3	80.1	78.8	78.6	79.0	72.4	72.8

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		***GMPT; LaSalle***	***NA NP (05-27-03)***	***NA NP (05-27-03)***	***P200 GMPT***	***P200 GMPT***	***P200 GMPT***	***P200 GMPT***	***P200 GMPT***	***P200 GMPT***	***P200 GMPT***
Sample Location:		***B-X137Y132***	***MW-X233Y105A***	***MW-X233Y110A***	***B-X209Y078A***	***B-X209Y078A***	***B-X209Y078A***	***B-X209Y078A***	***B-X209Y078B***	***B-X209Y078B***	***B-X209Y078B***
Sample ID:		***S-021502-MG-121***	***S-041503-KMV-569***	***S-041503-KMV-570***	***S-071602-CLM-004***	***S-071602-CLM-005***	***S-071602-CLM-006***	***S-071602-CLM-007***	***S-071602-CLM-008***	***S-071602-CLM-001***	***S-071602-CLM-002***
Sample Date:		***2/15/2002***	***4/15/2003***	***4/15/2003***	***7/16/2002***	***7/16/2002***	***7/16/2002***	***7/16/2002***	***7/16/2002***	***7/16/2002***	***7/16/2002***
Sample Depth:		***(22-24)***	***(0-2)***	***(0-2)***	***(2-4)***	***(6-8)***	***(10-12)***	***(11.5-13.5)***	***(2-4)***	***(6-8)***	***(10-12)***
Parameters	***Units***										
Metals											
Aluminum	mg/kg	8070	8670 J	14000 J	15400	1210	15500	16900	13100	1220	12200
Antimony	mg/kg	ND (7.2)	ND (7.5) UJ	ND (8.1) UJ	ND (7.6) UJ	ND (6.5) UJ	ND (7.2) UJ	ND (8.6) UJ	ND (7.5) UJ	ND (6.5) UJ	ND (16.0) UJ
Arsenic	mg/kg	5.3	9.0	10.2	9.5	1.4	7.2	8.0	9.1	0.61 J	9.5
Barium	mg/kg	59.0	75.7 J	48.4	65.5	75.6	72.9	151	49.8	69.5	181
Beryllium	mg/kg	1.2	1.0 J	0.87	0.69	ND (0.54) U	0.57 J	1.1	0.63	ND (0.54) U	1.2 J
Cadmium	mg/kg	3.3	0.71 J	0.20 J	ND (0.64)	0.30 J	ND (0.60)	0.19 J	ND (0.62)	0.29 J	0.52 J
Chromium Total	mg/kg	19.5	15.7 J	21.2	28.7	3.3	16.5	17.1	34.7	3.8	21.9
Cobalt	mg/kg	9.5	10.6 J	7.1 J	6.1 J	0.86 J	9.7	6.2 J	4.3 J	0.83 J	9.9 J
Copper	mg/kg	25.9	21.9	20.0	15.6	4.3	13.8	15.7	13.7	1.6 J	14.3
Cyanide (amenable)	mg/kg	ND (0.60)	ND (0.62)	ND (0.68)	ND (0.64)	ND (0.54)	ND (0.60)	ND (0.72)	ND (0.62)	ND (0.54)	ND (0.67)
Cyanide (total)	mg/kg	ND (0.60)	ND (0.62)	ND (0.68)	ND (0.64)	0.11 J	ND (0.60)	0.15 J	ND (0.62)	ND (0.54)	ND (0.67)
Iron	mg/kg	22600	18600 J	25600	32600	3040	19600	21600	33900	2460	28600
Lead	mg/kg	24.5	17.7 J	16.0 J	16.0	1.8	13.6	13.3	19.2	1.5	14.4
Manganese	mg/kg	735	205 J	67.5 J	129 J	234 J	184 J	1100 J	116 J	108 J	471 J
Mercury	mg/kg	0.060 J	0.12	0.078 J	0.038 J	ND (0.11)	0.039 J	0.080 J	0.080 J	ND (0.11)	0.058 J
Nickel	mg/kg	40.7	27.4 J	24.5	15.1	5.1	13.8	32.0	13.7	4.4	55.0
Selenium	mg/kg	0.61	0.73	ND (0.68)	ND (0.64)	ND (0.54)	ND (0.60)	ND (0.72)	ND (0.62)	ND (0.54)	ND (1.3)
Silver	mg/kg	ND (1.2)	ND (1.2)	ND (1.4)	ND (1.3)	ND (1.1)	ND (1.2)	ND (1.4)	ND (1.2)	ND (1.1)	ND (2.7)
Thallium	mg/kg	0.71 J	ND (1.2) UJ	ND (1.4) UJ	ND (1.3)	ND (1.1)	ND (1.2)	0.89 J	ND (1.2)	ND (1.1)	ND (2.7)
Vanadium	mg/kg	31.3	21.9 J	36.8	43.7	2.5 J	31.3	29.2	48.2	2.8 J	26.2
Zinc	mg/kg	97.1	58.5 J	42.8	45.3	21.9	43.5	62.6	40.6	27.4	61.2
PCBs											
Aroclor-1016 (PCB-1016)	ug/kg	ND (40) UJ	ND (210)	ND (45)	ND (42)	ND (36)	ND (200)	ND (240)	ND (41)	ND (36)	ND (44)
Aroclor-1221 (PCB-1221)	ug/kg	ND (40)	ND (210)	ND (45)	ND (42)	ND (36)	ND (200)	ND (240)	ND (41)	ND (36)	ND (44)
Aroclor-1232 (PCB-1232)	ug/kg	ND (40)	ND (210)	ND (45)	ND (42)	ND (36)	ND (200)	ND (240)	ND (41)	ND (36)	ND (44)
Aroclor-1242 (PCB-1242)	ug/kg	ND (40)	ND (210)	ND (45)	40 J	ND (36)	860	750	37 J	ND (36)	ND (44)
Aroclor-1248 (PCB-1248)	ug/kg	ND (40)	2400	51	ND (42)	ND (36)	ND (200)	ND (240)	ND (41)	ND (36)	ND (44)
Aroclor-1254 (PCB-1254)	ug/kg	ND (40)	ND (210)	ND (45)	ND (42)	ND (36)	ND (200)	ND (240)	ND (41)	ND (36)	ND (44)
Aroclor-1260 (PCB-1260)	ug/kg	ND (40)	ND (210)	ND (45)	ND (42)	ND (36)	ND (200)	ND (240)	ND (41)	ND (36)	ND (44)
Semi - Volatiles											
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
2,4,5-Trichlorophenol	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
2,4,6-Trichlorophenol	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
2,4-Dichlorophenol	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
2,4-Dimethylphenol	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	67 J	ND (470)	ND (410)	ND (360)	ND (440)
2,4-Dinitrophenol	ug/kg	ND (1900)	ND (2000) UJ	ND (2200) UJ	ND (2000)	ND (1700)	ND (1900)	ND (2300)	ND (2000)	ND (1700)	ND (2100)
2,4-Dinitrotoluene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
2,6-Dinitrotoluene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
2-Chloronaphthalene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
2-Chlorophenol	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
2-Methylnaphthalene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
2-Methylphenol	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
2-Nitroaniline	ug/kg	ND (1900)	ND (2000)	ND (2200)	ND (2000)	ND (1700)	ND (1900)	ND (2300)	ND (2000)	ND (1700)	ND (2100)
2-Nitrophenol	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
3,3'-Dichlorobenzidine	ug/kg	ND (1900)	ND (2000)	ND (2200)	ND (2000)	ND (1700)	ND (1900)	ND (2300)	ND (2000)	ND (1700)	ND (2100)
3-Nitroaniline	ug/kg	ND (1900)	ND (2000)	ND (2200)	ND (2000)	ND (1700)	ND (1900)	ND (2300)	ND (2000)	ND (1700)	ND (2100)
4,6-Dinitro-2-methylphenol	ug/kg	ND (1900)	ND (2000)	ND (2200)	ND (2000)	ND (1700)	ND (1900)	ND (2300)	ND (2000)	ND (1700)	ND (2100)
4-Bromophenyl phenyl ether	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
4-Chloro-3-methylphenol	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
4-Chloroaniline	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
4-Chlorophenyl phenyl ether	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		***GMPT; LaSalle***	***NA NP (05-27-03)***	***NA NP (05-27-03)***	***P200 GMPT***	***P200 GMPT***	***P200 GMPT***	***P200 GMPT***	***P200 GMPT***	***P200 GMPT***	***P200 GMPT***
Sample Location:		***B-X137Y132***	***MW-X233Y105A***	***MW-X233Y110A***	***B-X209Y078A***	***B-X209Y078A***	***B-X209Y078A***	***B-X209Y078A***	***B-X209Y078B***	***B-X209Y078B***	***B-X209Y078B***
Sample ID:		***S-021502-MG-121***	***S-041503-KMV-569***	***S-041503-KMV-570***	***S-071602-CLM-004***	***S-071602-CLM-005***	***S-071602-CLM-006***	***S-071602-CLM-007***	***S-071602-CLM-008***	***S-071602-CLM-001***	***S-071602-CLM-002***
Sample Date:		***2/15/2002***	***4/15/2003***	***4/15/2003***	***7/16/2002***	***7/16/2002***	***7/16/2002***	***7/16/2002***	***7/16/2002***	***7/16/2002***	***7/16/2002***
Sample Depth:		***(22-24)***	***(0-2)***	***(0-2)***	***(2-4)***	***(6-8)***	***(10-12)***	***(11.5-13.5)***	***(2-4)***	***(6-8)***	***(10-12)***
Parameters	***Units***										
4-Methylphenol	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
4-Nitroaniline	ug/kg	ND (1900)	ND (2000)	ND (2200)	ND (2000)	ND (1700)	ND (1900)	ND (2300)	ND (2000)	ND (1700)	ND (2100)
4-Nitrophenol	ug/kg	ND (1900)	ND (2000)	ND (2200)	ND (2000)	ND (1700)	ND (1900)	ND (2300)	ND (2000)	ND (1700)	ND (2100)
Acenaphthene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Acenaphthylene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Acetophenone	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Anthracene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Atrazine	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Benzaldehyde	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Benzo(a)anthracene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Benzo(a)pyrene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Benzo(b)fluoranthene	ug/kg	ND (400)	ND (410)	ND (450)	62 J	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Benzo(g,h,i)perylene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Benzo(k)fluoranthene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Biphenyl	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
bis(2-Chloroethoxy)methane	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
bis(2-Chloroethyl)ether	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Butyl benzylphthalate	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Caprolactam	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Carbazole	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Chrysene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Dibenz(a,h)anthracene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Dibenzofuran	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Diethyl phthalate	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Dimethyl phthalate	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Di-n-butylphthalate	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Di-n-octyl phthalate	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Fluoranthene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Fluorene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Hexachlorobenzene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Hexachlorobutadiene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Hexachlorocyclopentadiene	ug/kg	ND (1900)	ND (2000)	ND (2200)	ND (2000)	ND (1700)	ND (1900)	ND (2300)	ND (2000)	ND (1700)	ND (2100)
Hexachloroethane	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Isophorone	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Naphthalene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Nitrobenzene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
N-Nitrosodi-n-propylamine	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
N-Nitrosodiphenylamine	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Pentachlorophenol	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Phenanthrene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Phenol	ug/kg	ND (400)	ND (410)	ND (450)	470	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Pyrene	ug/kg	ND (400)	ND (410)	ND (450)	ND (420)	ND (360)	ND (400)	ND (470)	ND (410)	ND (360)	ND (440)
Volatiles											
1,1,1-Trichloroethane	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
1,1,2,2-Tetrachloroethane	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
1,1,2-Trichloroethane	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
1,1-Dichloroethane	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
1,1-Dichloroethene	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
1,2,4-Trichlorobenzene	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (13)	ND (10)	ND (12)	ND (10)	ND (9.3)	ND (12)	ND (13)	ND (11)	ND (8.8)	ND (11)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
1,2-Dichlorobenzene	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
1,2-Dichloroethane	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*GMPT; LaSalle*	*NA NP (05-27-03)*	*NA NP (05-27-03)*	*P200 GMPT*	*P200 GMPT*	*P200 GMPT*	*P200 GMPT*	*P200 GMPT*	*P200 GMPT*	*P200 GMPT*
Sample Location:		*B-X137Y132*	*MW-X233Y105A*	*MW-X233Y110A*	*B-X209Y078A*	*B-X209Y078A*	*B-X209Y078A*	*B-X209Y078A*	*B-X209Y078B*	*B-X209Y078B*	*B-X209Y078B*
Sample ID:		*S-021502-MG-121*	*S-041503-KMV-569*	*S-041503-KMV-570*	*S-071602-CLM-004*	*S-071602-CLM-005*	*S-071602-CLM-006*	*S-071602-CLM-007*	*S-071602-CLM-008*	*S-071602-CLM-001*	*S-071602-CLM-002*
Sample Date:		*2/15/2002*	*4/15/2003*	*4/15/2003*	*7/16/2002*	*7/16/2002*	*7/16/2002*	*7/16/2002*	*7/16/2002*	*7/16/2002*	*7/16/2002*
Sample Depth:		*(22-24)*	*(0-2)*	*(0-2)*	*(2-4)*	*(6-8)*	*(10-12)*	*(11.5-13.5)*	*(2-4)*	*(6-8)*	*(10-12)*
Parameters	***Units***										
1,2-Dichloropropane	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
1,3-Dichlorobenzene	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
1,4-Dichlorobenzene	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (26)	ND (20)	ND (23)	ND (21) UJ	3.4 J	3.5 J	4.7 J	ND (21) UJ	ND (18) UJ	ND (23) UJ
2-Hexanone	ug/kg	ND (26) UJ	ND (20)	ND (23)	ND (21)	ND (19)	ND (24)	ND (27)	ND (21)	ND (18)	ND (23)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (26)	ND (20)	ND (23)	ND (21)	ND (19)	ND (24)	ND (27)	ND (21)	ND (18)	ND (23)
Acetone	ug/kg	ND (26) UJ	ND (20) UJ	ND (23) UJ	ND (26) UJ	ND (19) UJ	ND (24) UJ	ND (27) U	ND (21) UJ	ND (18) UJ	ND (23) UJ
Benzene	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
Bromodichloromethane	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
Bromoform	ug/kg	ND (6.6) UJ	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
Bromomethane (Methyl Bromide)	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
Carbon disulfide	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
Carbon tetrachloride	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
Chlorobenzene	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
Chloroethane	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
Chloroform (Trichloromethane)	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
Chloromethane (Methyl Chloride)	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
cis-1,2-Dichloroethene	ug/kg	ND (3.3)	ND (2.5)	ND (2.9)	ND (2.6)	ND (2.3)	ND (3.0)	ND (3.4)	ND (2.7)	ND (2.2)	ND (2.9)
cis-1,3-Dichloropropene	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
Cyclohexane	ug/kg	ND (13)	ND (10)	ND (12)	ND (10)	ND (9.3)	ND (12)	ND (13)	ND (11)	ND (8.8)	ND (11)
Dibromochloromethane	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
Ethylbenzene	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
Isopropylbenzene	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
Methyl acetate	ug/kg	ND (13)	ND (10)	ND (12)	ND (10)	ND (9.3)	ND (12)	ND (13)	ND (11)	ND (8.8)	ND (11)
Methyl cyclohexane	ug/kg	ND (13)	ND (10)	ND (12)	ND (10)	ND (9.3)	ND (12)	ND (13)	ND (11)	ND (8.8)	ND (11)
Methyl Tert Butyl Ether	ug/kg	ND (26)	ND (20)	ND (23)	ND (21)	ND (19)	ND (24)	ND (27)	ND (21)	ND (18)	ND (23)
Methylene chloride	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	2.3 J	1.6 J	ND (6.0)	ND (6.7) U	ND (5.3)	1.1 J	ND (5.7)
Styrene	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
Tetrachloroethene	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
Toluene	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
trans-1,2-Dichloroethene	ug/kg	ND (3.3)	ND (2.5)	ND (2.9)	ND (2.6)	ND (2.3)	ND (3.0)	ND (3.4)	ND (2.7)	ND (2.2)	ND (2.9)
trans-1,3-Dichloropropene	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
Trichloroethene	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2) UJ	ND (4.6) UJ	ND (6.0) UJ	ND (6.7)	ND (5.3) UJ	ND (4.4) UJ	ND (5.7) UJ
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
Vinyl chloride	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
Xylene (total)	ug/kg	ND (6.6)	ND (5.0)	ND (5.8)	ND (5.2)	ND (4.6)	ND (6.0)	ND (6.7)	ND (5.3)	ND (4.4)	ND (5.7)
Wet											
Chloride	mg/kg	-	-	-	10.6 J	4.7 J	16.0	20.2	14.9	4.1 J	10.4 J
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-
Total Solids	%	82.9	80.3	73.9	78.5	92.8	83.1	69.9	80.5	92.2	75.1

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*P200 GMPT*	*P200 GMPT*	*P200 GMPT*	*P200 GMPT*	*P200 GMPT*	*P200 GMPT*	*P200(GM); GMPT*	*P200(GM); GMPT*	*P200(GM); GMPT*	*P217*	*P217*	*P217*
Sample Location:		*B-X209Y078B*	*B-X209Y078B*	*B-X209Y078C*	*B-X209Y078C*	*B-X209Y078C*	*B-X209Y078C*	*TMW-X225Y080*	*TMW-X225Y080*	*TMW-X225Y080*	*B-809012-1*	*B-809012-1*	*B-809012-1*
Sample ID:		*S-071602-CLM-013*	*S-071602-CLM-003*	*S-071602-CLM-009*	*S-071602-CLM-010*	*S-071602-CLM-011*	*S-071602-CLM-012*	*S-080802-JN-001*	*S-080802-JN-002*	*S-080802-JN-003*	*S-809-040802-MG-001*	*S-809-040802-MG-002*	*S-809-040802-MG-003*
Sample Date:		*7/16/2002*	*7/16/2002*	*7/16/2002*	*7/16/2002*	*7/16/2002*	*7/16/2002*	*8/8/2002*	*8/8/2002*	*8/8/2002*	*4/8/2002*	*4/8/2002*	*4/8/2002*
Sample Depth:		*(10-12)*	*(10.5-12.5)*	*(2-4)*	*(6-8)*	*(10-12)*	*(10.5-12.5)*	*(0-2)*	*(6-8)*	*(12-14)*	*(0-2)*	*(6-8)*	*(16-17)*
		Duplicate											
Parameters	***Units***												
Metals													
Aluminum	mg/kg	12000	17700	15100	1290	12400	15100	9480	9230	1670	8970	12400	16200
Antimony	mg/kg	ND (7.5) UJ	ND (8.1) UJ	ND (7.7) UJ	ND (6.3) UJ	ND (7.4) UJ	ND (7.4) UJ	1.6 J	0.70 J	1.3 J	ND (7.5) UJ	ND (7.6) UJ	ND (7.6) UJ
Arsenic	mg/kg	4.8	14.2	10.1	1.0 J	6.6	8.1	5.9	6.5	1.4	8.0	8.2	22.8
Barium	mg/kg	112	50.1	81.2	61.0	54.2	66.2	38.8	53.0	106	72.2	73.5	132
Beryllium	mg/kg	1.7	0.78	0.66	ND (0.53) U	0.53 J	0.70	0.28 J	0.29 J	0.12 J	0.59 J	0.79 J	1.7 J
Cadmium	mg/kg	ND (0.63)	ND (0.67)	ND (0.64)	0.30 J	ND (0.62)	ND (0.61)	ND (0.62)	0.21 J	0.19 J	ND (0.63)	ND (0.63)	0.57 J
Chromium Total	mg/kg	14.0	25.2	39.7	4.1	18.5	23.4	22.3	19.2	4.2	12.3	13.0	37.4
Cobalt	mg/kg	43.7	4.4 J	4.3 J	0.90 J	7.7	10.7	3.1 J	3.1 J	2.1 J	10.6	10.3	11.4
Copper	mg/kg	11.6	22.7	14.1	3.5	13.6	15.9	8.8	9.2	5.5	10.7	11.4	12.2
Cyanide (amenable)	mg/kg	ND (0.63)	ND (0.67)	ND (0.64)	ND (0.53)	ND (0.62)	ND (0.61)	ND (0.62)	ND (0.63)	ND (0.55)	ND (0.63)	ND (0.63)	ND (0.64)
Cyanide (total)	mg/kg	ND (0.63)	ND (0.67)	ND (0.64)	ND (0.53)	ND (0.62)	ND (0.61)	ND (0.62)	ND (0.63)	ND (0.55)	ND (0.63)	0.39 J	ND (0.64)
Iron	mg/kg	24400	37900	34900	3110	21000	23900	19000	18200	4570	16600	18800	35300
Lead	mg/kg	27.8	17.8	17.0	2.0	15.2	16.2	14.7	11.3	3.2	16.2	14.0	21.6
Manganese	mg/kg	497 J	84.5 J	141 J	161 J	266 J	292 J	126	111	155	984	1330	838
Mercury	mg/kg	ND (0.13)	0.13	0.051 J	ND (0.11)	0.048 J	0.065 J	0.086 J	0.028 J	0.023 J	0.070 J	ND (0.13)	0.076 J
Nickel	mg/kg	32.3	26.3	13.7	5.5	12.7	18.5	7.9	7.6	8.2	10.0	12.0	20.1
Selenium	mg/kg	ND (0.63)	ND (0.67)	ND (0.64)	ND (0.53)	ND (0.62)	ND (0.61)	ND (0.62)	ND (0.63)	ND (0.55)	0.59 J	ND (0.63)	ND (0.64)
Silver	mg/kg	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.1)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.3)	ND (1.1)	ND (1.3)	ND (1.3)	ND (1.3)
Thallium	mg/kg	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.1)	ND (1.2)	ND (1.2)	ND (1.2)	0.93 J	ND (1.1)	ND (1.3)	0.71 J	0.97 J
Vanadium	mg/kg	14.7	33.5	53.2	2.8 J	31.1	35.3	35.5	30.6	3.3 J	25.1	29.2	65.6
Zinc	mg/kg	41.2	66.3	40.2	27.5	33.8	44.1	27.3	28.2	26.2	39.8	49.3	71.2
PCBs													
Aroclor-1016 (PCB-1016)	ug/kg	ND (41)	ND (44)	ND (42)	ND (35)	ND (200)	ND (400)	ND (81)	ND (84)	ND (72)	ND (41)	ND (42)	ND (42)
Aroclor-1221 (PCB-1221)	ug/kg	ND (41)	ND (44)	ND (42)	ND (35)	ND (200)	ND (400)	ND (81)	ND (84)	ND (72)	ND (41)	ND (42)	ND (42)
Aroclor-1232 (PCB-1232)	ug/kg	ND (41)	ND (44)	ND (42)	ND (35)	ND (200)	ND (400)	ND (81)	ND (84)	ND (72)	ND (41)	ND (42)	ND (42)
Aroclor-1242 (PCB-1242)	ug/kg	ND (41)	ND (44)	ND (42)	ND (35)	1200	2800	84	360	ND (72)	ND (41)	ND (42)	ND (42)
Aroclor-1248 (PCB-1248)	ug/kg	ND (41)	ND (44)	ND (42)	ND (35)	ND (200)	ND (400)	ND (81)	ND (84)	750	ND (41)	ND (42)	ND (42)
Aroclor-1254 (PCB-1254)	ug/kg	ND (41)	ND (44)	ND (42)	ND (35)	ND (200)	ND (400)	ND (81)	ND (84)	ND (72)	ND (41)	ND (42)	ND (42)
Aroclor-1260 (PCB-1260)	ug/kg	ND (41)	ND (44)	ND (42)	ND (35)	ND (200)	ND (400)	810	530	350	ND (41)	ND (42)	ND (42)
Semi - Volatiles													
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
2,4,5-Trichlorophenol	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
2,4,6-Trichlorophenol	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
2,4-Dichlorophenol	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
2,4-Dimethylphenol	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
2,4-Dinitrophenol	ug/kg	ND (2000)	ND (2200)	ND (2100)	ND (1700)	ND (2000)	ND (2000)	ND (2000)	ND (2000)	ND (1800)	ND (2000)	ND (2000)	ND (2000)
2,4-Dinitrotoluene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
2,6-Dinitrotoluene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
2-Chloronaphthalene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
2-Chlorophenol	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
2-Methylnaphthalene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
2-Methylphenol	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
2-Nitroaniline	ug/kg	ND (2000)	ND (2200)	ND (2100)	ND (1700)	ND (2000)	ND (2000)	ND (2000)	ND (2000)	ND (1800)	ND (2000)	ND (2000)	ND (2000)
2-Nitrophenol	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
3,3'-Dichlorobenzidine	ug/kg	ND (2000)	ND (2200)	ND (2100)	ND (1700)	ND (2000)	ND (2000)	ND (2000)	ND (2000)	ND (1800)	ND (2000)	ND (2000)	ND (2000)
3-Nitroaniline	ug/kg	ND (2000)	ND (2200)	ND (2100)	ND (1700)	ND (2000)	ND (2000)	ND (2000)	ND (2000)	ND (1800)	ND (2000)	ND (2000)	ND (2000)
4,6-Dinitro-2-methylphenol	ug/kg	ND (2000)	ND (2200)	ND (2100)	ND (1700)	ND (2000)	ND (2000)	ND (2000)	ND (2000)	ND (1800)	ND (2000)	ND (2000)	ND (2000)
4-Bromophenyl phenyl ether	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
4-Chloro-3-methylphenol	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
4-Chloroaniline	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
4-Chlorophenyl phenyl ether	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*P200 GMPT*	*P200 GMPT*	*P200 GMPT*	*P200 GMPT*	*P200 GMPT*	*P200 GMPT*	*P200(GM); GMPT*	*P200(GM); GMPT*	*P200(GM); GMPT*	*P217*	*P217*	*P217*
Sample Location:		*B-X209Y078B*	*B-X209Y078B*	*B-X209Y078C*	*B-X209Y078C*	*B-X209Y078C*	*B-X209Y078C*	*TMW-X225Y080*	*TMW-X225Y080*	*TMW-X225Y080*	*B-809012-1*	*B-809012-1*	*B-809012-1*
Sample ID:		*S-071602-CLM-013*	*S-071602-CLM-003*	*S-071602-CLM-009*	*S-071602-CLM-010*	*S-071602-CLM-011*	*S-071602-CLM-012*	*S-080802-JN-001*	*S-080802-JN-002*	*S-080802-JN-003*	*S-809-040802-MG-001*	*S-809-040802-MG-002*	*S-809-040802-MG-003*
Sample Date:		*7/16/2002*	*7/16/2002*	*7/16/2002*	*7/16/2002*	*7/16/2002*	*7/16/2002*	*8/8/2002*	*8/8/2002*	*8/8/2002*	*4/8/2002*	*4/8/2002*	*4/8/2002*
Sample Depth:		*(10-12)*	*(10.5-12.5)*	*(2-4)*	*(6-8)*	*(10-12)*	*(10.5-12.5)*	*(0-2)*	*(6-8)*	*(12-14)*	*(0-2)*	*(6-8)*	*(16-17)*
		Duplicate											
Parameters	***Units***												
4-Methylphenol	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
4-Nitroaniline	ug/kg	ND (2000)	ND (2200)	ND (2100)	ND (1700)	ND (2000)	ND (2000)	ND (2000)	ND (2000)	ND (1800)	ND (2000)	ND (2000)	ND (2000)
4-Nitrophenol	ug/kg	ND (2000)	ND (2200)	ND (2100)	ND (1700)	ND (2000)	ND (2000)	ND (2000)	ND (2000)	ND (1800)	ND (2000)	ND (2000)	ND (2000)
Acenaphthene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Acenaphthylene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Acetophenone	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Anthracene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Atrazine	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Benzaldehyde	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Benzo(a)anthracene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	45 J	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Benzo(a)pyrene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	63 J	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Benzo(b)fluoranthene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	85 J	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Benzo(g,h,i)perylene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	44 J	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Benzo(k)fluoranthene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Biphenyl	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
bis(2-Chloroethoxy)methane	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
bis(2-Chloroethyl)ether	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Butyl benzylphthalate	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Caprolactam	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Carbazole	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Chrysene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	62 J	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Dibenz(a,h)anthracene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Dibenzofuran	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Diethyl phthalate	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Dimethyl phthalate	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Di-n-butylphthalate	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Di-n-octyl phthalate	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Fluoranthene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	65 J	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Fluorene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Hexachlorobenzene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Hexachlorobutadiene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Hexachlorocyclopentadiene	ug/kg	ND (2000)	ND (2200)	ND (2100)	ND (1700)	ND (2000)	ND (2000)	ND (2000)	ND (2000)	ND (1800)	ND (2000)	ND (2000)	ND (2000)
Hexachloroethane	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Isophorone	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Naphthalene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Nitrobenzene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
N-Nitrosodi-n-propylamine	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
N-Nitrosodiphenylamine	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Pentachlorophenol	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Phenanthrene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Phenol	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	ND (410)	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Pyrene	ug/kg	ND (410)	ND (440)	ND (420)	ND (350)	ND (410)	ND (400)	92 J	ND (420)	ND (360)	ND (410)	ND (420)	ND (420)
Volatiles													
1,1,1-Trichloroethane	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
1,1,2,2-Tetrachloroethane	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
1,1,2-Trichloroethane	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
1,1-Dichloroethane	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
1,1-Dichloroethene	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
1,2,4-Trichlorobenzene	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (10)	ND (14)	ND (11)	ND (8.7)	ND (11)	ND (11)	ND (11)	ND (13)	ND (9.0)	ND (14)	ND (11)	ND (16)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
1,2-Dichlorobenzene	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
1,2-Dichloroethane	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*P200 GMPT*	*P200 GMPT*	*P200 GMPT*	*P200 GMPT*	*P200 GMPT*	*P200 GMPT*	*P200(GM); GMPT*	*P200(GM); GMPT*	*P200(GM); GMPT*	*P217*	*P217*	*P217*
Sample Location:		*B-X209Y078B*	*B-X209Y078B*	*B-X209Y078C*	*B-X209Y078C*	*B-X209Y078C*	*B-X209Y078C*	*TMW-X225Y080*	*TMW-X225Y080*	*TMW-X225Y080*	*B-809012-1*	*B-809012-1*	*B-809012-1*
Sample ID:		*S-071602-CLM-013*	*S-071602-CLM-003*	*S-071602-CLM-009*	*S-071602-CLM-010*	*S-071602-CLM-011*	*S-071602-CLM-012*	*S-080802-JN-001*	*S-080802-JN-002*	*S-080802-JN-003*	*S-809-040802-MG-001*	*S-809-040802-MG-002*	*S-809-040802-MG-003*
Sample Date:		*7/16/2002*	*7/16/2002*	*7/16/2002*	*7/16/2002*	*7/16/2002*	*7/16/2002*	*8/8/2002*	*8/8/2002*	*8/8/2002*	*4/8/2002*	*4/8/2002*	*4/8/2002*
Sample Depth:		*(10-12)*	*(10.5-12.5)*	*(2-4)*	*(6-8)*	*(10-12)*	*(10.5-12.5)*	*(0-2)*	*(6-8)*	*(12-14)*	*(0-2)*	*(6-8)*	*(16-17)*
		Duplicate											
Parameters	***Units***												
1,2-Dichloropropane	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
1,3-Dichlorobenzene	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
1,4-Dichlorobenzene	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (20) UJ	4.9 J	ND (23)	ND (17) UJ	4.0 J	5.3 J	ND (22)	ND (27)	ND (18)	ND (28)	ND (22)	ND (32)
2-Hexanone	ug/kg	ND (20)	ND (27)	ND (23)	ND (17)	ND (22)	ND (21)	ND (22)	ND (27)	ND (18)	ND (28)	ND (22)	ND (32)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (20)	ND (27)	ND (23)	ND (17)	ND (22)	ND (21)	ND (22)	ND (27)	ND (18)	ND (28)	ND (22)	ND (32)
Acetone	ug/kg	ND (20) UJ	ND (27) UJ	ND (23)	ND (17) UJ	ND (22) UJ	ND (23) UJ	ND (22)	ND (27)	ND (18)	ND (28) UJ	ND (22) UJ	ND (32) UJ
Benzene	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
Bromodichloromethane	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
Bromoform	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1) UJ	ND (5.5) UJ	ND (8) UJ
Bromomethane (Methyl Bromide)	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1) UJ	ND (5.5) UJ	ND (8) UJ
Carbon disulfide	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
Carbon tetrachloride	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
Chlorobenzene	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
Chloroethane	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
Chloroform (Trichloromethane)	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
Chloromethane (Methyl Chloride)	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
cis-1,2-Dichloroethene	ug/kg	ND (2.5)	ND (3.4)	ND (2.9)	ND (2.2)	ND (2.7)	ND (2.6)	ND (2.7)	ND (3.4)	ND (2.3)	ND (3.6)	ND (2.7)	ND (4)
cis-1,3-Dichloropropene	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
Cyclohexane	ug/kg	ND (10)	ND (14)	ND (11)	ND (8.7)	ND (11)	ND (11)	ND (11)	ND (13)	ND (9.0)	ND (14)	ND (11)	ND (16)
Dibromochloromethane	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1) UJ	ND (5.5) UJ	ND (8) UJ
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
Ethylbenzene	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
Isopropylbenzene	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
Methyl acetate	ug/kg	ND (10)	ND (14)	ND (11)	ND (8.7)	ND (11)	ND (11)	ND (11)	ND (13)	ND (9.0)	ND (14)	ND (11)	ND (16)
Methyl cyclohexane	ug/kg	ND (10)	ND (14)	ND (11)	ND (8.7)	ND (11)	ND (11)	ND (11)	ND (13)	ND (9.0)	ND (14)	ND (11)	ND (16)
Methyl Tert Butyl Ether	ug/kg	ND (20)	ND (27)	ND (23)	ND (17)	ND (22)	ND (21)	ND (22)	ND (27)	ND (18)	ND (28)	ND (22)	ND (32)
Methylene chloride	ug/kg	2.2 J	2.9 J	ND (5.7) U	1.3 J	1.5 J	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
Styrene	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
Tetrachloroethene	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
Toluene	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
trans-1,2-Dichloroethene	ug/kg	ND (2.5)	ND (3.4)	ND (2.9)	ND (2.2)	ND (2.7)	ND (2.6)	ND (2.7)	ND (3.4)	ND (2.3)	ND (3.6)	ND (2.7)	ND (4)
trans-1,3-Dichloropropene	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
Trichloroethene	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (5.1) UJ	ND (6.9) UJ	ND (5.7)	ND (4.3) UJ	ND (5.5) UJ	ND (5.3) UJ	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
Vinyl chloride	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
Xylene (total)	ug/kg	ND (5.1)	ND (6.9)	ND (5.7)	ND (4.3)	ND (5.5)	ND (5.3)	ND (5.4)	ND (6.7)	ND (4.5)	ND (7.1)	ND (5.5)	ND (8)
Wet													
Chloride	mg/kg	9.7 J	14.9	16.3	5.1 J	16.3	12.8	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Total Solids	%	79.5	74.3	77.8	94.7	81.1	81.6	81.1	78.8	91.0	79.5	79.1	78.6

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*
Sample Location:		*B-809012-2*	*B-809012-2*	*B-809012-2*	*B-809012-3*	*B-809012-3*	*B-809012-3*	*B-809012-4*	*B-809012-4*	*B-809012-4*	*B-809012-5*	*B-809012-5*
Sample ID:		*S-809-040802-MG-004*	*S-809-040802-MG-005*	*S-809-040802-MG-006*	*S-809-040802-MG-007*	*S-809-040802-MG-008*	*S-809-040802-MG-009*	*S-809-040802-MG-010*	*S-809-040802-MG-011*	*S-809-040802-MG-012*	*S-809-040902-MG-013*	*S-809-040902-MG-014*
Sample Date:		*4/8/2002*	*4/8/2002*	*4/8/2002*	*4/8/2002*	*4/8/2002*	*4/8/2002*	*4/8/2002*	*4/8/2002*	*4/8/2002*	*4/9/2002*	*4/9/2002*
Sample Depth:		*(0-2)*	*(6-8)*	*(10.5-11.5)*	*(0-2)*	*(0-2)*	*(6-8.5)*	*(0-2)*	*(6-8)*	*(10-12)*	*(0-2)*	*(4-6)*
						Duplicate						
Parameters	***Units***											
Metals												
Aluminum	mg/kg	8810	8610	15600	18700	17900	17000	14300	22800	17800	20600	16400
Antimony	mg/kg	ND (7.7) UJ	ND (7.7) UJ	ND (7.7) UJ	ND (7.7) UJ	ND (7.6) UJ	ND (8.1) UJ	ND (7.6) UJ	ND (7.9) UJ	ND (8.3) UJ	1.5 J	1.2 J
Arsenic	mg/kg	8.7	6.0	18.0	17.3	15.2	24.3	9.7	29.6	26.6	18.3	21.8
Barium	mg/kg	95.2	67.1	88.7	73.0	89.3	103	85.7	82.0	99.8	86.9	126
Beryllium	mg/kg	0.74 J	0.63 J	0.97 J	0.92 J	0.76 J	1.6 J	0.64 J	1.1 J	1.5 J	ND (0.73) U	1.5
Cadmium	mg/kg	0.12 J	ND (0.64)	0.20 J	ND (0.64)	ND (0.64)	0.49 J	ND (0.63)	ND (0.65)	0.96	ND (0.62)	0.52 J
Chromium Total	mg/kg	14.0	10.2	29.4	29.8	23.4	64.0	14.8	54.4	50.7	37.0 J	42.5 J
Cobalt	mg/kg	11.6	10.8	9.8	11.6	14.2	7.4	10.9	9.9	8.9	7.4	7.9
Copper	mg/kg	10.4	6.7	14.0	14.2	12.9	13.0	16.9	16.9	18.7	25.2	13.5
Cyanide (amenable)	mg/kg	ND (0.64)	ND (0.64)	ND (0.64)	ND (0.64)	ND (0.64)	ND (0.68)	ND (0.63)	ND (0.65)	ND (0.69)	ND (0.62)	ND (0.69)
Cyanide (total)	mg/kg	ND (0.64)	ND (0.64)	ND (0.64)	ND (0.64)	ND (0.64)	ND (0.68)	ND (0.63)	ND (0.65)	ND (0.69)	ND (0.62)	ND (0.69)
Iron	mg/kg	17400	14000	30600	32600	29100	39100	22500	48100	38600	34200	36500
Lead	mg/kg	15.4	14.3	16.9	19.2	17.3	17.1	16.5	22.4	19.5	18.9	19.0
Manganese	mg/kg	1370	1330	651	395	609	429	733	473	596	288	489
Mercury	mg/kg	0.046 J	0.030 J	0.061 J	0.065 J	0.076 J	0.11 J	0.025 J	0.088 J	0.090 J	0.22	0.14
Nickel	mg/kg	11.9	8.9	18.2	15.7	14.7	25.9	14.0	20.5	31.4	16.6	26.1
Selenium	mg/kg	0.44 J	ND (0.64)	ND (0.64)	0.43 J	ND (0.64)	ND (0.68)	ND (0.63)	ND (0.65)	ND (0.69)	0.53 J	ND (0.69)
Silver	mg/kg	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.4)	ND (1.3)	ND (1.3)	ND (1.4)	ND (1.2)	ND (1.4)
Thallium	mg/kg	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.4)	ND (1.3)	ND (1.3)	ND (1.4)	1.1 J	1.1 J
Vanadium	mg/kg	28.5	22.0	54.4	58.3	48.5	82.4	30.1	105	78.3	62.6 J	63.8 J
Zinc	mg/kg	41.6	37.4	81.2	69.0	59.1	90.9	54.2	89.6	105	77.3	84.3
PCBs												
Aroclor-1016 (PCB-1016)	ug/kg	ND (42)	ND (42)	ND (42)	ND (42)	ND (42)	ND (45)	ND (42)	ND (43)	ND (46)	ND (41)	ND (45)
Aroclor-1221 (PCB-1221)	ug/kg	ND (42)	ND (42)	ND (42)	ND (42)	ND (42)	ND (45)	ND (42)	ND (43)	ND (46)	ND (41)	ND (45)
Aroclor-1232 (PCB-1232)	ug/kg	ND (42)	ND (42)	ND (42)	ND (42)	ND (42)	ND (45)	ND (42)	ND (43)	ND (46)	ND (41)	ND (45)
Aroclor-1242 (PCB-1242)	ug/kg	ND (42)	ND (42)	ND (42)	ND (42)	ND (42)	ND (45)	ND (42)	ND (43)	ND (46)	ND (41)	ND (45)
Aroclor-1248 (PCB-1248)	ug/kg	ND (42)	ND (42)	ND (42)	ND (42)	ND (42)	ND (45)	ND (42)	ND (43)	ND (46)	17 J	ND (45)
Aroclor-1254 (PCB-1254)	ug/kg	ND (42)	ND (42)	ND (42)	ND (42)	ND (42)	ND (45)	ND (42)	ND (43)	ND (46)	ND (41)	ND (45)
Aroclor-1260 (PCB-1260)	ug/kg	ND (42)	ND (42)	ND (42)	ND (42)	ND (42)	ND (45)	ND (42)	ND (43)	ND (46)	ND (41)	ND (45)
Semi - Volatiles												
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
2,4,5-Trichlorophenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
2,4,6-Trichlorophenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
2,4-Dichlorophenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
2,4-Dimethylphenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
2,4-Dinitrophenol	ug/kg	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2000)	ND (2200)	ND (2000)	ND (2100)	ND (2200)	ND (2000)	ND (2200)
2,4-Dinitrotoluene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
2,6-Dinitrotoluene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
2-Chloronaphthalene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
2-Chlorophenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
2-Methylnaphthalene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
2-Methylphenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
2-Nitroaniline	ug/kg	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2000)	ND (2200)	ND (2000)	ND (2100)	ND (2200)	ND (2000)	ND (2200)
2-Nitrophenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
3,3'-Dichlorobenzidine	ug/kg	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2000)	ND (2200)	ND (2000)	ND (2100)	ND (2200)	ND (2000)	ND (2200)
3-Nitroaniline	ug/kg	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2000)	ND (2200)	ND (2000)	ND (2100)	ND (2200)	ND (2000)	ND (2200)
4,6-Dinitro-2-methylphenol	ug/kg	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2000)	ND (2200)	ND (2000)	ND (2100)	ND (2200)	ND (2000)	ND (2200)
4-Bromophenyl phenyl ether	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
4-Chloro-3-methylphenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
4-Chloroaniline	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
4-Chlorophenyl phenyl ether	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*
Sample Location:		*B-809012-2*	*B-809012-2*	*B-809012-2*	*B-809012-3*	*B-809012-3*	*B-809012-3*	*B-809012-4*	*B-809012-4*	*B-809012-4*	*B-809012-5*	*B-809012-5*
Sample ID:		*S-809-040802-MG-004*	*S-809-040802-MG-005*	*S-809-040802-MG-006*	*S-809-040802-MG-007*	*S-809-040802-MG-008*	*S-809-040802-MG-009*	*S-809-040802-MG-010*	*S-809-040802-MG-011*	*S-809-040802-MG-012*	*S-809-040902-MG-013*	*S-809-040902-MG-014*
Sample Date:		*4/8/2002*	*4/8/2002*	*4/8/2002*	*4/8/2002*	*4/8/2002*	*4/8/2002*	*4/8/2002*	*4/8/2002*	*4/8/2002*	*4/9/2002*	*4/9/2002*
Sample Depth:		*(0-2)*	*(6-8)*	*(10.5-11.5)*	*(0-2)*	*(0-2)*	*(6-8.5)*	*(0-2)*	*(6-8)*	*(10-12)*	*(0-2)*	*(4-6)*
						Duplicate						
Parameters	***Units***											
4-Methylphenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
4-Nitroaniline	ug/kg	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2000)	ND (2200)	ND (2000)	ND (2100)	ND (2200)	ND (2000)	ND (2200)
4-Nitrophenol	ug/kg	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2000)	ND (2200)	ND (2000)	ND (2100)	ND (2200)	ND (2000) UJ	ND (2200) UJ
Acenaphthene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Acenaphthylene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Acetophenone	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Anthracene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Atrazine	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Benzaldehyde	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Benzo(a)anthracene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Benzo(a)pyrene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Benzo(b)fluoranthene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Benzo(g,h,i)perylene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Benzo(k)fluoranthene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Biphenyl	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
bis(2-Chloroethoxy)methane	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
bis(2-Chloroethyl)ether	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Butyl benzylphthalate	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Caprolactam	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Carbazole	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Chrysene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Dibenz(a,h)anthracene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Dibenzofuran	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Diethyl phthalate	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Dimethyl phthalate	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Di-n-butylphthalate	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Di-n-octyl phthalate	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Fluoranthene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Fluorene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Hexachlorobenzene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Hexachlorobutadiene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Hexachlorocyclopentadiene	ug/kg	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2000)	ND (2200)	ND (2000)	ND (2100)	ND (2200)	ND (2000)	ND (2200)
Hexachloroethane	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Isophorone	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Naphthalene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Nitrobenzene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
N-Nitrosodi-n-propylamine	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
N-Nitrosodiphenylamine	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Pentachlorophenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Phenanthrene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Phenol	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Pyrene	ug/kg	ND (420)	ND (420)	ND (420)	ND (420)	ND (420)	ND (450)	ND (420)	ND (430)	ND (460)	ND (410)	ND (450)
Volatiles												
1,1,1-Trichloroethane	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
1,1,2,2-Tetrachloroethane	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
1,1,2-Trichloroethane	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
1,1-Dichloroethane	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
1,1-Dichloroethene	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
1,2,4-Trichlorobenzene	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (19)	ND (13)	ND (17)	ND (14)	ND (13)	ND (17) UJ	ND (15)	ND (15)	ND (16)	ND (14)	ND (14)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
1,2-Dichlorobenzene	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
1,2-Dichloroethane	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*
Sample Location:		*B-809012-2*	*B-809012-2*	*B-809012-2*	*B-809012-3*	*B-809012-3*	*B-809012-3*	*B-809012-4*	*B-809012-4*	*B-809012-4*	*B-809012-5*	*B-809012-5*
Sample ID:		*S-809-040802-MG-004*	*S-809-040802-MG-005*	*S-809-040802-MG-006*	*S-809-040802-MG-007*	*S-809-040802-MG-008*	*S-809-040802-MG-009*	*S-809-040802-MG-010*	*S-809-040802-MG-011*	*S-809-040802-MG-012*	*S-809-040902-MG-013*	*S-809-040902-MG-014*
Sample Date:		*4/8/2002*	*4/8/2002*	*4/8/2002*	*4/8/2002*	*4/8/2002*	*4/8/2002*	*4/8/2002*	*4/8/2002*	*4/8/2002*	*4/9/2002*	*4/9/2002*
Sample Depth:		*(0-2)*	*(6-8)*	*(10.5-11.5)*	*(0-2)*	*(0-2)*	*(6-8.5)*	*(0-2)*	*(6-8)*	*(10-12)*	*(0-2)*	*(4-6)*
						Duplicate						
Parameters	***Units***											
1,2-Dichloropropane	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
1,3-Dichlorobenzene	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
1,4-Dichlorobenzene	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (37)	ND (27)	ND (35)	ND (28)	ND (25)	ND (34)	ND (30)	ND (30)	ND (32)	ND (29)	ND (29)
2-Hexanone	ug/kg	ND (37)	ND (27)	ND (35)	ND (28)	ND (25)	ND (34)	ND (30)	ND (30)	ND (32)	ND (29)	ND (29)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (37)	ND (27)	ND (35)	ND (28)	ND (25)	ND (34)	ND (30)	ND (30)	ND (32)	ND (29)	ND (29)
Acetone	ug/kg	ND (37) UJ	ND (27) UJ	ND (35) UJ	ND (28) UJ	ND (25) UJ	ND (34) UJ	ND (30) UJ	ND (30) UJ	ND (32) UJ	ND (29)	ND (29) U
Benzene	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
Bromodichloromethane	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
Bromoform	ug/kg	ND (9.3) UJ	ND (6.7) UJ	ND (8.7) UJ	ND (7) UJ	ND (6.4) UJ	ND (8.5) UJ	ND (7.4) UJ	ND (7.6) UJ	ND (8.1) UJ	ND (7.2)	ND (7.2)
Bromomethane (Methyl Bromide)	ug/kg	ND (9.3) UJ	ND (6.7) UJ	ND (8.7) UJ	ND (7) UJ	ND (6.4) UJ	ND (8.5)	ND (7.4) UJ	ND (7.6) UJ	ND (8.1) UJ	ND (7.2)	ND (7.2)
Carbon disulfide	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
Carbon tetrachloride	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
Chlorobenzene	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
Chloroethane	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
Chloroform (Trichloromethane)	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
Chloromethane (Methyl Chloride)	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
cis-1,2-Dichloroethene	ug/kg	ND (4.6)	ND (3.4)	ND (4.3)	ND (3.5)	ND (3.2)	ND (4.3)	ND (3.7)	ND (3.8)	ND (4)	ND (3.6)	ND (3.6)
cis-1,3-Dichloropropene	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
Cyclohexane	ug/kg	ND (19)	ND (13)	ND (17)	ND (14)	ND (13)	ND (17)	ND (15)	ND (15)	ND (16)	ND (14)	ND (14)
Dibromochloromethane	ug/kg	ND (9.3) UJ	ND (6.7) UJ	ND (8.7) UJ	ND (7) UJ	ND (6.4) UJ	ND (8.5)	ND (7.4) UJ	ND (7.6) UJ	ND (8.1) UJ	ND (7.2)	ND (7.2)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
Ethylbenzene	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
Isopropylbenzene	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
Methyl acetate	ug/kg	ND (19)	ND (13)	ND (17)	ND (14)	ND (13)	ND (17)	ND (15)	ND (15)	ND (16)	ND (14)	ND (14)
Methyl cyclohexane	ug/kg	ND (19)	ND (13)	ND (17)	ND (14)	ND (13)	ND (17)	ND (15)	ND (15)	ND (16)	ND (14)	ND (14)
Methyl Tert Butyl Ether	ug/kg	ND (37)	ND (27)	ND (35)	ND (28)	ND (25)	ND (34)	ND (30)	ND (30)	ND (32)	ND (29)	ND (29)
Methylene chloride	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
Styrene	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
Tetrachloroethene	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
Toluene	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
trans-1,2-Dichloroethene	ug/kg	ND (4.6)	ND (3.4)	ND (4.3)	ND (3.5)	ND (3.2)	ND (4.3)	ND (3.7)	ND (3.8)	ND (4)	ND (3.6)	ND (3.6)
trans-1,3-Dichloropropene	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
Trichloroethene	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
Vinyl chloride	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
Xylene (total)	ug/kg	ND (9.3)	ND (6.7)	ND (8.7)	ND (7)	ND (6.4)	ND (8.5)	ND (7.4)	ND (7.6)	ND (8.1)	ND (7.2)	ND (7.2)
Wet												
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Total Solids	%	78.3	78.0	78.4	78.4	78.7	74.0	79.3	76.4	72.4	80.0	72.9

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*
Sample Location:		*B-809012-6*	*B-809012-6*	*B-809012-6*	*B-809012-7*	*B-809012-7*	*B-809012-8*	*B-809012-8*	*B-809012-8*	*B-809012-9*	*B-809012-9*	*B-809012-9*
Sample ID:		*S-809-040902-MG-015*	*S-809-040902-MG-016*	*S-809-040902-MG-017*	*S-809-040902-MG-018*	*S-809-040902-MG-019*	*S-809-040902-MG-020*	*S-809-040902-MG-021*	*S-809-040902-MG-022*	*S-809-041002-MG-024*	*S-809-041002-MG-025*	*S-809-041002-MG-026*
Sample Date:		*4/9/2002*	*4/9/2002*	*4/9/2002*	*4/9/2002*	*4/9/2002*	*4/9/2002*	*4/9/2002*	*4/9/2002*	*4/10/2002*	*4/10/2002*	*4/10/2002*
Sample Depth:		*(0-2)*	*(6-8)*	*(10-12)*	*(0-2)*	*(2-4)*	*(0-2)*	*(6-8)*	*(14-16)*	*(0-2)*	*(0-2)* *Duplicate*	*(2-3.5)*
Parameters	***Units***											
Metals												
Aluminum	mg/kg	18200	15400	18400	18000	19100	16800	16900	20800	10100	10700	19100
Antimony	mg/kg	ND (7.6) UJ	ND (7.7) UJ	1.2 J	1.1 J	0.88 J	ND (7.7) UJ	1.3 J	1.3 J	ND (7.6)	ND (7.6)	ND (8.6)
Arsenic	mg/kg	10.8	11.0	26.3	14.0	13.6	9.4	17.6	33.3	10.7	9.4	24.2
Barium	mg/kg	107	96.4	104	65.6	82.9	75.7	125	102	78.6	73.5	130
Beryllium	mg/kg	ND (0.68) U	1.4	1.5	ND (0.69) U	ND (0.72) U	ND (0.64) U	2.7	1.6	0.73	0.62 J	1.7
Cadmium	mg/kg	ND (0.63)	ND (0.65)	0.23 J	ND (0.63)	ND (0.72)	ND (0.64)	ND (0.66)	ND (0.68) U	ND (0.64)	ND (0.64)	ND (0.71)
Chromium Total	mg/kg	18.7 J	31.2 J	58.3 J	31.2 J	29.0 J	15.4 J	39.7 J	54.8 J	16.8	17.1	34.2
Cobalt	mg/kg	8.7	8.2	8.9	10.2	11.6	8.2	20.1	8.1	11.3	10.9	10.5
Copper	mg/kg	19.0	11.5	24.4	15.5	16.9	13.9	14.2	19.0	14.9	50.8	14.4
Cyanide (amenable)	mg/kg	ND (0.63)	ND (0.65)	ND (0.69)	ND (0.63)	ND (0.72)	ND (0.64)	ND (0.66)	ND (0.68)	ND (0.64)	ND (0.64)	ND (0.71)
Cyanide (total)	mg/kg	ND (0.63)	ND (0.65)	ND (0.69)	ND (0.63)	ND (0.72)	ND (0.64)	ND (0.66)	ND (0.68)	ND (0.64)	ND (0.64)	ND (0.71)
Iron	mg/kg	25900	29500	40300	29900	30100	23500	37400	42900	18600	17500	35400
Lead	mg/kg	15.5	15.7	19.9	16.6	19.0	14.2	25.7	18.3	19.0	28.6	19.0
Manganese	mg/kg	488	491	633	376	486	444	397	434	980	782	1280
Mercury	mg/kg	0.094 J	0.044 J	0.20	0.067 J	0.080 J	0.048 J	0.15	0.12 J	0.024 J	0.061 J	0.057 J
Nickel	mg/kg	16.8	22.3	40.4	15.7	16.2	14.4	28.1	32.0	12.8	20.7	26.8
Selenium	mg/kg	1.0	ND (0.65)	0.49 J	ND (0.63)	0.70 J	0.44 J	ND (0.66)	0.66 J	0.45 J	ND (0.64)	ND (0.71)
Silver	mg/kg	ND (1.3)	ND (1.3)	ND (1.4)	ND (1.3)	ND (1.4)	ND (1.3)	ND (1.3)	ND (1.4)	ND (1.3)	ND (1.3)	ND (1.4)
Thallium	mg/kg	ND (1.3)	ND (1.3)	0.92 J	ND (1.3)	ND (1.4)	0.69 J	0.79 J	0.70 J	ND (1.3)	ND (1.3)	ND (1.4)
Vanadium	mg/kg	32.9 J	43.6 J	69.8 J	52.8 J	49.7 J	28.8 J	71.7 J	83.2 J	31.5	28.3	63.2
Zinc	mg/kg	60.3	57.9	134	53.5	57.6	54.7	71.6	94.5	43.1	58.8	77.3
PCBs												
Aroclor-1016 (PCB-1016)	ug/kg	ND (42)	ND (43)	ND (46)	ND (42)	ND (47)	ND (42)	ND (44)	ND (45)	ND (42)	ND (42)	ND (47)
Aroclor-1221 (PCB-1221)	ug/kg	ND (42)	ND (43)	ND (46)	ND (42)	ND (47)	ND (42)	ND (44)	ND (45)	ND (42)	ND (42)	ND (47)
Aroclor-1232 (PCB-1232)	ug/kg	ND (42)	ND (43)	ND (46)	ND (42)	ND (47)	ND (42)	ND (44)	ND (45)	ND (42)	ND (42)	ND (47)
Aroclor-1242 (PCB-1242)	ug/kg	ND (42)	ND (43)	ND (46)	ND (42)	ND (47)	ND (42)	ND (44)	ND (45)	ND (42)	ND (42)	ND (47)
Aroclor-1248 (PCB-1248)	ug/kg	18 J	ND (43)	7.8 J	ND (42)	ND (47)	ND (42)	8 J	ND (45)	ND (42)	ND (42)	ND (47)
Aroclor-1254 (PCB-1254)	ug/kg	ND (42)	ND (43)	ND (46)	ND (42)	ND (47)	ND (42)	ND (44)	ND (45)	ND (42)	ND (42)	ND (47)
Aroclor-1260 (PCB-1260)	ug/kg	ND (42)	ND (43)	ND (46)	ND (42)	ND (47)	ND (42)	ND (44)	ND (45)	ND (42)	ND (42)	ND (47)
Semi - Volatiles												
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
2,4,5-Trichlorophenol	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
2,4,6-Trichlorophenol	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
2,4-Dichlorophenol	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
2,4-Dimethylphenol	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
2,4-Dinitrophenol	ug/kg	ND (2000)	ND (2100)	ND (2200)	ND (2000)	ND (2300)	ND (2000)	ND (2100)	ND (2200)	ND (2000)	ND (2000)	ND (2300)
2,4-Dinitrotoluene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
2,6-Dinitrotoluene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
2-Chloronaphthalene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
2-Chlorophenol	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
2-Methylnaphthalene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
2-Methylphenol	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
2-Nitroaniline	ug/kg	ND (2000)	ND (2100)	ND (2200)	ND (2000)	ND (2300)	ND (2000)	ND (2100)	ND (2200)	ND (2000) UJ	ND (2000) UJ	ND (2300) UJ
2-Nitrophenol	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
3,3'-Dichlorobenzidine	ug/kg	ND (2000)	ND (2100)	ND (2200)	ND (2000)	ND (2300)	ND (2000)	ND (2100)	ND (2200)	ND (2000)	ND (2000)	ND (2300)
3-Nitroaniline	ug/kg	ND (2000)	ND (2100)	ND (2200)	ND (2000)	ND (2300)	ND (2000)	ND (2100)	ND (2200)	ND (2000) UJ	ND (2000) UJ	ND (2300) UJ
4,6-Dinitro-2-methylphenol	ug/kg	ND (2000)	ND (2100)	ND (2200)	ND (2000)	ND (2300)	ND (2000)	ND (2100)	ND (2200)	ND (2000)	ND (2000)	ND (2300)
4-Bromophenyl phenyl ether	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
4-Chloro-3-methylphenol	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
4-Chloroaniline	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
4-Chlorophenyl phenyl ether	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*
Sample Location:		*B-809012-6*	*B-809012-6*	*B-809012-6*	*B-809012-7*	*B-809012-7*	*B-809012-8*	*B-809012-8*	*B-809012-8*	*B-809012-9*	*B-809012-9*	*B-809012-9*
Sample ID:		*S-809-040902-MG-015*	*S-809-040902-MG-016*	*S-809-040902-MG-017*	*S-809-040902-MG-018*	*S-809-040902-MG-019*	*S-809-040902-MG-020*	*S-809-040902-MG-021*	*S-809-040902-MG-022*	*S-809-041002-MG-024*	*S-809-041002-MG-025*	*S-809-041002-MG-026*
Sample Date:		*4/9/2002*	*4/9/2002*	*4/9/2002*	*4/9/2002*	*4/9/2002*	*4/9/2002*	*4/9/2002*	*4/9/2002*	*4/10/2002*	*4/10/2002*	*4/10/2002*
Sample Depth:		*(0-2)*	*(6-8)*	*(10-12)*	*(0-2)*	*(2-4)*	*(0-2)*	*(6-8)*	*(14-16)*	*(0-2)*	*(0-2)* *Duplicate*	*(2-3.5)*
Parameters	***Units***											
4-Methylphenol	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
4-Nitroaniline	ug/kg	ND (2000)	ND (2100)	ND (2200)	ND (2000)	ND (2300)	ND (2000)	ND (2100)	ND (2200)	ND (2000)	ND (2000)	ND (2300)
4-Nitrophenol	ug/kg	ND (2000) UJ	ND (2100) UJ	ND (2200) UJ	ND (2000) UJ	ND (2300) UJ	ND (2000) UJ	ND (2100) UJ	ND (2200) UJ	ND (2000) UJ	ND (2000) UJ	ND (2300) UJ
Acenaphthene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Acenaphthylene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Acetophenone	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Anthracene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Atrazine	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Benzaldehyde	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Benzo(a)anthracene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Benzo(a)pyrene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Benzo(b)fluoranthene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Benzo(g,h,i)perylene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Benzo(k)fluoranthene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Biphenyl	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
bis(2-Chloroethoxy)methane	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
bis(2-Chloroethyl)ether	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Butyl benzylphthalate	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Caprolactam	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Carbazole	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Chrysene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Dibenz(a,h)anthracene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Dibenzofuran	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Diethyl phthalate	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Dimethyl phthalate	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Di-n-butylphthalate	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Di-n-octyl phthalate	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Fluoranthene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Fluorene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Hexachlorobenzene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Hexachlorobutadiene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Hexachlorocyclopentadiene	ug/kg	ND (2000)	ND (2100)	ND (2200)	ND (2000)	ND (2300)	ND (2000)	ND (2100)	ND (2200)	ND (2000)	ND (2000)	ND (2300)
Hexachloroethane	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Isophorone	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Naphthalene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Nitrobenzene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
N-Nitrosodi-n-propylamine	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
N-Nitrosodiphenylamine	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Pentachlorophenol	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Phenanthrene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Phenol	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Pyrene	ug/kg	ND (420)	ND (430)	ND (460)	ND (420)	ND (470)	ND (420)	ND (440)	ND (450)	ND (420)	ND (420)	ND (470)
Volatiles												
1,1,1-Trichloroethane	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
1,1,2,2-Tetrachloroethane	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
1,1,2-Trichloroethane	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
1,1-Dichloroethane	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
1,1-Dichloroethene	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
1,2,4-Trichlorobenzene	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (14)	ND (14)	ND (16)	ND (17)	ND (19)	ND (19)	ND (18)	ND (15)	ND (13)	ND (12)	ND (23)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
1,2-Dichlorobenzene	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
1,2-Dichloroethane	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*
Sample Location:		*B-809012-6*	*B-809012-6*	*B-809012-6*	*B-809012-7*	*B-809012-7*	*B-809012-8*	*B-809012-8*	*B-809012-8*	*B-809012-9*	*B-809012-9*	*B-809012-9*
Sample ID:		*S-809-040902-MG-015*	*S-809-040902-MG-016*	*S-809-040902-MG-017*	*S-809-040902-MG-018*	*S-809-040902-MG-019*	*S-809-040902-MG-020*	*S-809-040902-MG-021*	*S-809-040902-MG-022*	*S-809-041002-MG-024*	*S-809-041002-MG-025*	*S-809-041002-MG-026*
Sample Date:		*4/9/2002*	*4/9/2002*	*4/9/2002*	*4/9/2002*	*4/9/2002*	*4/9/2002*	*4/9/2002*	*4/9/2002*	*4/10/2002*	*4/10/2002*	*4/10/2002*
Sample Depth:		*(0-2)*	*(6-8)*	*(10-12)*	*(0-2)*	*(2-4)*	*(0-2)*	*(6-8)*	*(14-16)*	*(0-2)*	*(0-2)* *Duplicate*	*(2-3.5)*
Parameters	***Units***											
1,2-Dichloropropane	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
1,3-Dichlorobenzene	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
1,4-Dichlorobenzene	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (28)	ND (28)	ND (31)	ND (34)	ND (38)	ND (38)	ND (35)	ND (30)	ND (26)	ND (25)	ND (46)
2-Hexanone	ug/kg	ND (28)	ND (28)	ND (31)	ND (34)	ND (38)	ND (38)	ND (35)	ND (30)	ND (26)	ND (25)	ND (46)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (28)	ND (28)	ND (31)	ND (34)	ND (38)	ND (38)	ND (35)	ND (30)	ND (26)	ND (25)	ND (46)
Acetone	ug/kg	ND (28) U	ND (28)	ND (31)	ND (34)	ND (38)	ND (38) U	ND (35)	ND (30)	ND (26) U	ND (25)	ND (46)
Benzene	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Bromodichloromethane	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Bromoform	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Bromomethane (Methyl Bromide)	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Carbon disulfide	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Carbon tetrachloride	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Chlorobenzene	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Chloroethane	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Chloroform (Trichloromethane)	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Chloromethane (Methyl Chloride)	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
cis-1,2-Dichloroethene	ug/kg	ND (3.4)	ND (3.5)	ND (3.9)	ND (4.2)	ND (4.7)	ND (4.8)	ND (4.4)	ND (3.7)	ND (3.3)	ND (3.1)	ND (5.7)
cis-1,3-Dichloropropene	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Cyclohexane	ug/kg	ND (14)	ND (14)	ND (16)	ND (17)	ND (19)	ND (19)	ND (18)	ND (15)	ND (13)	ND (12)	ND (23)
Dibromochloromethane	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Ethylbenzene	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Isopropylbenzene	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Methyl acetate	ug/kg	ND (14)	ND (14)	ND (16)	ND (17)	ND (19)	ND (19)	ND (18)	ND (15)	7.3 J	5.2 J	5.2 J
Methyl cyclohexane	ug/kg	ND (14)	ND (14)	ND (16)	ND (17)	ND (19)	ND (19)	ND (18)	ND (15)	ND (13)	ND (12)	ND (23)
Methyl Tert Butyl Ether	ug/kg	ND (28)	ND (28)	ND (31)	ND (34)	ND (38)	ND (38)	ND (35)	ND (30)	ND (26)	ND (25)	ND (46)
Methylene chloride	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Styrene	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Tetrachloroethene	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Toluene	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
trans-1,2-Dichloroethene	ug/kg	ND (3.4)	ND (3.5)	ND (3.9)	ND (4.2)	ND (4.7)	ND (4.8)	ND (4.4)	ND (3.7)	ND (3.3)	ND (3.1)	ND (5.7)
trans-1,3-Dichloropropene	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Trichloroethene	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Vinyl chloride	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Xylene (total)	ug/kg	ND (6.9)	ND (7)	ND (7.9)	ND (8.4)	ND (9.5)	ND (9.6)	ND (8.8)	ND (7.4)	ND (6.6)	ND (6.2)	ND (11)
Wet												
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Total Solids	%	79.2	77.4	72.5	79.4	69.8	78.1	75.2	73.2	78.6	78.5	70.1

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*
Sample Location:		*B-809012-10*	*B-809012-10*	*B-809012-10*	*B-809012-11*	*B-809012-11*	*B-809012-12*	*B-809012-12*	*B-809012-12*	*B-809012-13*	*B-809012-13*
Sample ID:		*S-809-041002-MG-027*	*S-809-041002-MG-028*	*S-809-041002-MG-029*	*S-809-041002-MG-031*	*S-809-041002-MG-032*	*S-809-041002-MG-033*	*S-809-041002-MG-034*	*S-809-041002-MG-035*	*S-809-090302-CLM-001*	*S-809-090302-CLM-002*
Sample Date:		*4/10/2002*	*4/10/2002*	*4/10/2002*	*4/10/2002*	*4/10/2002*	*4/10/2002*	*4/10/2002*	*4/10/2002*	*9/3/2002*	*9/3/2002*
Sample Depth:		*(0-2)*	*(6-8)*	*(25.5-27.5)*	*(0-2.5)*	*(0-2.5) Duplicate*	*(0-2)*	*(6-8)*	*(26-28)*	*(0-2)*	*(4-4.75)*
Parameters	***Units***										
Metals											
Aluminum	mg/kg	95700	9520	15000	9610	11500	11500	21800	16500	9550 J	9740 J
Antimony	mg/kg	ND (8.6)	ND (7.6)	ND (7.5)	ND (7.8)	ND (7.8)	ND (7.6)	1.4 J	0.87 J	ND (6.6)	ND (6.5)
Arsenic	mg/kg	5.9	7.7	19.1	7.8	8.1	8.0	17.3	20.2	7.7	8.2
Barium	mg/kg	52.7	70.3	81.9	91.5	108	88.9	85.7	79.2	109	113
Beryllium	mg/kg	ND (0.61) U	ND (0.55) U	1.3	0.65	0.67	0.64	1.7	1.5	0.79 J	0.82 J
Cadmium	mg/kg	4.4 J	ND (0.64)	0.67	1.7	0.47 J	ND (0.64)	ND (0.63)	ND (0.66)	0.16 J	0.18 J
Chromium Total	mg/kg	85.3	16.8	32.3	19.0	20.8	15.5	47.4	45.5	13.0 J	14.6 J
Cobalt	mg/kg	7.1 J	10.4	13.6	12.0	12.8	12.1	5.2 J	9.1	12.9 J	13.2 J
Copper	mg/kg	20400	9.5	25.9	122	171	10.5	17.4	18.8	17.9	25.1
Cyanide (amenable)	mg/kg	ND (0.72)	ND (0.64)	ND (0.63)	ND (0.65)	ND (0.65)	ND (0.64)	ND (0.63)	ND (0.66)	ND (0.55)	ND (0.54)
Cyanide (total)	mg/kg	ND (0.72)	ND (0.64)	ND (0.63)	ND (0.65)	ND (0.65)	ND (0.64)	ND (0.63)	ND (0.66)	ND (0.55)	ND (0.54)
Iron	mg/kg	10400	17500	30800	17100	18500	18400	40900	37800	15200 J	16200 J
Lead	mg/kg	102	16.6	18.9	47.4	58.0	14.6	17.9	17.6	21.9 J	20.5 J
Manganese	mg/kg	736	783	1180	1160	1180	1040	127	551	1440 J	1540 J
Mercury	mg/kg	ND (0.14)	0.022 J	0.048 J	0.23	0.12 J	0.033 J	0.10 J	0.10 J	0.055 J	0.061 J
Nickel	mg/kg	46.3	10.4	20.5	34.8	41.6	13.5	23.6	36.0	14.2	15.3
Selenium	mg/kg	3.8 J	ND (0.64)	ND (0.63)	ND (0.65)	ND (0.65)	ND (0.64)	ND (0.63)	ND (0.66)	ND (0.55)	ND (0.54)
Silver	mg/kg	3.6	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.1)	ND (1.1)
Thallium	mg/kg	4.7 J	ND (1.3)	0.87 J	ND (1.3)	1.0 J	ND (1.3)	1.1 J	ND (1.3)	ND (1.1)	ND (1.1)
Vanadium	mg/kg	22.2	26.9	52.5	23.1	25.8	28.4	70.9	65.4	24.4 J	26.2 J
Zinc	mg/kg	7580	46.4	65.7	157	168	45.2	57.4	77.9	55.3 J	55.4 J
PCBs											
Aroclor-1016 (PCB-1016)	ug/kg	ND (47)	ND (42)	ND (41)	ND (43)	ND (43)	ND (42)	ND (42)	ND (44)	ND (37)	ND (36)
Aroclor-1221 (PCB-1221)	ug/kg	ND (47)	ND (42)	ND (41)	ND (43)	ND (43)	ND (42)	ND (42)	ND (44)	ND (37)	ND (36)
Aroclor-1232 (PCB-1232)	ug/kg	ND (47)	ND (42)	ND (41)	ND (43)	ND (43)	ND (42)	ND (42)	ND (44)	ND (37)	ND (36)
Aroclor-1242 (PCB-1242)	ug/kg	ND (47)	ND (42)	ND (41)	ND (43)	ND (43)	ND (42)	ND (42)	ND (44)	ND (37)	ND (36)
Aroclor-1248 (PCB-1248)	ug/kg	ND (47)	ND (42)	ND (41)	35 J	ND (43)	19 J	ND (42)	ND (44)	14 J	11 J
Aroclor-1254 (PCB-1254)	ug/kg	ND (47)	ND (42)	ND (41)	ND (43)	ND (43)	ND (42)	ND (42)	ND (44)	ND (37)	ND (36)
Aroclor-1260 (PCB-1260)	ug/kg	ND (47)	ND (42)	ND (41)	ND (43) UJ	ND (43) UJ	ND (42) UJ	ND (42) UJ	ND (44) UJ	ND (37)	ND (36)
Semi - Volatiles											
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
2,4,5-Trichlorophenol	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
2,4,6-Trichlorophenol	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
2,4-Dichlorophenol	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
2,4-Dimethylphenol	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
2,4-Dinitrophenol	ug/kg	ND (2300)	ND (2000)	ND (2000)	ND (2100)	ND (2100)	ND (2000)	ND (2000)	ND (2100)	ND (1800)	ND (1700)
2,4-Dinitrotoluene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
2,6-Dinitrotoluene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
2-Chloronaphthalene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
2-Chlorophenol	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
2-Methylnaphthalene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
2-Methylphenol	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
2-Nitroaniline	ug/kg	ND (2300) UJ	ND (2000)	ND (2000)	ND (2100)	ND (2100)	ND (2000)	ND (2000)	ND (2100)	ND (1800)	ND (1700)
2-Nitrophenol	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
3,3'-Dichlorobenzidine	ug/kg	ND (2300)	ND (2000)	ND (2000)	ND (2100)	ND (2100)	ND (2000)	ND (2000)	ND (2100)	ND (1800)	ND (1700)
3-Nitroaniline	ug/kg	ND (2300) UJ	ND (2000)	ND (2000)	ND (2100)	ND (2100)	ND (2000)	ND (2000)	ND (2100)	ND (1800)	ND (1700)
4,6-Dinitro-2-methylphenol	ug/kg	ND (2300)	ND (2000)	ND (2000)	ND (2100)	ND (2100)	ND (2000)	ND (2000)	ND (2100)	ND (1800)	ND (1700)
4-Bromophenyl phenyl ether	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
4-Chloro-3-methylphenol	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
4-Chloroaniline	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
4-Chlorophenyl phenyl ether	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*
Sample Location:		*B-809012-10*	*B-809012-10*	*B-809012-10*	*B-809012-11*	*B-809012-11*	*B-809012-12*	*B-809012-12*	*B-809012-12*	*B-809012-13*	*B-809012-13*
Sample ID:		*S-809-041002-MG-027*	*S-809-041002-MG-028*	*S-809-041002-MG-029*	*S-809-041002-MG-031*	*S-809-041002-MG-032*	*S-809-041002-MG-033*	*S-809-041002-MG-034*	*S-809-041002-MG-035*	*S-809-090302-CLM-001*	*S-809-090302-CLM-002*
Sample Date:		*4/10/2002*	*4/10/2002*	*4/10/2002*	*4/10/2002*	*4/10/2002*	*4/10/2002*	*4/10/2002*	*4/10/2002*	*9/3/2002*	*9/3/2002*
Sample Depth:		*(0-2)*	*(6-8)*	*(25.5-27.5)*	*(0-2.5)*	*(0-2.5)*	*(0-2)*	*(6-8)*	*(26-28)*	*(0-2)*	*(4-4.75)*
						Duplicate					
Parameters	***Units***										
4-Methylphenol	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
4-Nitroaniline	ug/kg	ND (2300)	ND (2000)	ND (2000)	ND (2100)	ND (2100)	ND (2000)	ND (2000)	ND (2100)	ND (1800)	ND (1700)
4-Nitrophenol	ug/kg	ND (2300) UJ	ND (2000)	ND (2000)	ND (2100)	ND (2100)	ND (2000)	ND (2000)	ND (2100)	ND (1800)	ND (1700)
Acenaphthene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Acenaphthylene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Acetophenone	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Anthracene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Atrazine	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Benzaldehyde	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Benzo(a)anthracene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Benzo(a)pyrene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Benzo(b)fluoranthene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Benzo(g,h,i)perylene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Benzo(k)fluoranthene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Biphenyl	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
bis(2-Chloroethoxy)methane	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
bis(2-Chloroethyl)ether	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Butyl benzylphthalate	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Caprolactam	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Carbazole	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Chrysene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Dibenz(a,h)anthracene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Dibenzofuran	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Diethyl phthalate	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Dimethyl phthalate	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Di-n-butylphthalate	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Di-n-octyl phthalate	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Fluoranthene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Fluorene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Hexachlorobenzene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Hexachlorobutadiene	ug/kg	480	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Hexachlorocyclopentadiene	ug/kg	ND (2300)	ND (2000)	ND (2000)	ND (2100)	ND (2100)	ND (2000)	ND (2000)	ND (2100)	ND (1800)	ND (1700)
Hexachloroethane	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Isophorone	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Naphthalene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Nitrobenzene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
N-Nitrosodi-n-propylamine	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
N-Nitrosodiphenylamine	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Pentachlorophenol	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Phenanthrene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Phenol	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Pyrene	ug/kg	ND (470)	ND (420)	ND (410)	ND (430)	ND (430)	ND (420)	ND (420)	ND (440)	ND (370)	ND (360)
Volatiles											
1,1,1-Trichloroethane	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
1,1,2,2-Tetrachloroethane	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
1,1,2-Trichloroethane	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
1,1-Dichloroethane	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
1,1-Dichloroethene	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
1,2,4-Trichlorobenzene	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (18)	ND (19)	ND (18)	ND (14)	ND (15)	ND (12)	ND (14)	ND (21)	ND (24)	ND (16)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
1,2-Dichlorobenzene	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
1,2-Dichloroethane	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*
Sample Location:		*B-809012-10*	*B-809012-10*	*B-809012-10*	*B-809012-11*	*B-809012-11*	*B-809012-12*	*B-809012-12*	*B-809012-12*	*B-809012-13*	*B-809012-13*
Sample ID:		*S-809-041002-MG-027*	*S-809-041002-MG-028*	*S-809-041002-MG-029*	*S-809-041002-MG-031*	*S-809-041002-MG-032*	*S-809-041002-MG-033*	*S-809-041002-MG-034*	*S-809-041002-MG-035*	*S-809-090302-CLM-001*	*S-809-090302-CLM-002*
Sample Date:		*4/10/2002*	*4/10/2002*	*4/10/2002*	*4/10/2002*	*4/10/2002*	*4/10/2002*	*4/10/2002*	*4/10/2002*	*9/3/2002*	*9/3/2002*
Sample Depth:		*(0-2)*	*(6-8)*	*(25.5-27.5)*	*(0-2.5)*	*(0-2.5) Duplicate*	*(0-2)*	*(6-8)*	*(26-28)*	*(0-2)*	*(4-4.75)*
Parameters	***Units***										
1,2-Dichloropropane	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
1,3-Dichlorobenzene	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
1,4-Dichlorobenzene	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (36)	ND (37)	ND (36)	ND (29)	ND (30)	ND (24)	ND (29)	ND (41)	ND (48)	ND (33)
2-Hexanone	ug/kg	ND (36)	ND (37)	ND (36)	ND (29)	ND (30)	ND (24)	ND (29)	ND (41)	ND (48)	ND (33)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (36)	ND (37)	ND (36)	ND (29)	ND (30)	ND (24)	ND (29)	ND (41)	ND (48)	ND (33)
Acetone	ug/kg	ND (36)	ND (37) U	ND (36)	ND (29) U	ND (30)	ND (24) U	ND (29)	ND (41) U	ND (48)	ND (33)
Benzene	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Bromodichloromethane	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Bromoform	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Bromomethane (Methyl Bromide)	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Carbon disulfide	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Carbon tetrachloride	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Chlorobenzene	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Chloroethane	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Chloroform (Trichloromethane)	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Chloromethane (Methyl Chloride)	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
cis-1,2-Dichloroethene	ug/kg	ND (4.5)	ND (4.7)	ND (4.5)	ND (3.6)	ND (3.8)	ND (3)	ND (3.6)	ND (5.2)	ND (6.0)	ND (4.1)
cis-1,3-Dichloropropene	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Cyclohexane	ug/kg	ND (18)	ND (19)	ND (18)	ND (14)	ND (15)	ND (12)	ND (14)	ND (21)	ND (24)	ND (16)
Dibromochloromethane	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Ethylbenzene	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Isopropylbenzene	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Methyl acetate	ug/kg	4.2 J	ND (19)	ND (18)	16	5.6 J	1.3 J	ND (14)	ND (21)	ND (24)	ND (16)
Methyl cyclohexane	ug/kg	ND (18)	ND (19)	ND (18)	ND (14)	ND (15)	ND (12)	ND (14)	ND (21)	ND (24)	ND (16)
Methyl Tert Butyl Ether	ug/kg	ND (36)	ND (37)	ND (36)	ND (29)	ND (30)	ND (24)	ND (29)	ND (41)	ND (48)	ND (33)
Methylene chloride	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Styrene	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Tetrachloroethene	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Toluene	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
trans-1,2-Dichloroethene	ug/kg	ND (4.5)	ND (4.7)	ND (4.5)	ND (3.6)	ND (3.8)	ND (3)	ND (3.6)	ND (5.2)	ND (6.0)	ND (4.1)
trans-1,3-Dichloropropene	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Trichloroethene	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Vinyl chloride	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Xylene (total)	ug/kg	ND (8.9)	ND (9.4)	ND (9)	ND (7.2)	ND (7.5)	ND (6)	ND (7.2)	ND (10)	ND (12)	ND (8.2)
Wet											
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-
Total Solids	%	69.9	78.5	79.7	77.1	76.9	78.6	79.3	75.7	90.4	92.9

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*
Sample Location:		*B-809012-15*	*B-809012-15*	*B-809012-15*	*B-809012-16*	*B-809012-16*	*B-809012-16*	*B-809012-17*	*B-809012-18*	*B-809012-18*	*B-809012-20*
Sample ID:		*S-809-090402-CLM-003*	*S-809-090402-CLM-004*	*S-809-090402-CLM-005*	*S-809-090402-CLM-006*	*S-809-090402-CLM-007*	*S-809-090402-CLM-008*	*S-809-090502-CLM-009*	*S-809-090502-CLM-010*	*S-809-090502-CLM-011*	*S-809-090502-CLM-012*
Sample Date:		*9/4/2002*	*9/4/2002*	*9/4/2002*	*9/4/2002*	*9/4/2002*	*9/4/2002*	*9/5/2002*	*9/5/2002*	*9/5/2002*	*9/5/2002*
Sample Depth:		*(0-2)*	*(6-8)*	*(26-27.75)*	*(0-2)*	*(6-8)*	*(6-8)* *Duplicate*	*(0-2)*	*(0-2)*	*(5-6)*	*(0-2)*
Parameters	***Units***										
Metals											
Aluminum	mg/kg	9950	9850	23600	11100	8140	14900	16400	16400	20600	14900
Antimony	mg/kg	ND (6.7) UJ	ND (7.3) UJ	ND (47.6) UJ	1.1 J	ND (7.4) UJ	ND (7.3) UJ	ND (6.9) UJ	ND (6.8) UJ	ND (7.6) UJ	ND (6.7) UJ
Arsenic	mg/kg	7.4	11.9	36.6	7.4	10.3	21.1	11.1	11.4	21.7	10.8
Barium	mg/kg	92.6	43.7	108 J	127	28.9	55.1	98.5	62.6	131	104
Beryllium	mg/kg	0.31 J	0.27 J	1.8 J	0.30 J	0.21 J	0.62	0.39 J	0.20 J	3.9	0.43 J
Cadmium	mg/kg	0.024 J	ND (0.61)	0.88 J	1.3	ND (0.61)	ND (0.61)	ND (0.57) U	ND (0.56) U	0.52 J	ND (0.56) U
Chromium Total	mg/kg	11.8 J	19.6 J	51.0 J	16.9 J	17.4 J	35.7 J	21.8 J	22.0 J	43.1 J	20.2 J
Cobalt	mg/kg	10.4	9.1	12.2 J	17.4	6.0 J	4.7 J	12.7	7.3	14.2	10.4
Copper	mg/kg	19.3	8.5	22.7	1080	5.5	11.3	93.1 J	100 J	15.6 J	17.1 J
Cyanide (amenable)	mg/kg	ND (0.56)	ND (0.61)	ND (0.79)	ND (0.57)	ND (0.61)	ND (0.61)	ND (0.57)	ND (0.56)	ND (0.63)	ND (0.56)
Cyanide (total)	mg/kg	ND (0.56)	0.13 J	ND (0.79)	0.18 J	ND (0.61)	ND (0.61)	ND (0.57)	ND (0.56)	ND (0.63)	ND (0.56)
Iron	mg/kg	15300	19700	41600	15600	16000	32300	24800	25500	39400	22700
Lead	mg/kg	15.5	15.0	17.6	101	9.3	17.0	19.3	29.2	22.0	16.5
Manganese	mg/kg	1100	551	856	1130	150	174	645	318	867	884
Mercury	mg/kg	0.062 J	0.031 J	0.088 J	0.30	0.036 J	0.030 J	1.3	0.071 J	0.096 J	0.049 J
Nickel	mg/kg	13.0	11.6	52.3	22.8	6.5	12.9	20.3	15.7	34.5	14.6
Selenium	mg/kg	ND (0.56)	ND (0.61)	ND (4.0)	ND (0.57)	ND (0.61)	ND (0.61)	ND (0.57)	ND (0.56)	ND (0.63)	ND (0.56)
Silver	mg/kg	ND (1.1)	ND (1.2)	ND (7.9)	ND (1.1)	ND (1.2)	ND (1.2)	ND (1.1)	ND (1.1)	ND (1.3)	ND (1.1)
Thallium	mg/kg	ND (1.1)	ND (1.2)	ND (7.9)	1.0 J	ND (1.2)	0.87 J	ND (1.1)	ND (1.1)	ND (1.3)	0.94 J
Vanadium	mg/kg	24.3 J	43.4 J	80.7 J	25.5 J	33.9 J	69.0 J	37.1	41.9	81.5	39.1
Zinc	mg/kg	46.3 J	49.8 J	159 J	226 J	27.1 J	52.4 J	61.3 J	65.7 J	79.0 J	56.9 J
PCBs											
Aroclor-1016 (PCB-1016)	ug/kg	ND (37)	ND (40)	ND (52)	ND (37)	ND (41)	ND (40)	ND (38)	ND (37)	ND (42)	ND (37)
Aroclor-1221 (PCB-1221)	ug/kg	ND (37)	ND (40)	ND (52)	ND (37)	ND (41)	ND (40)	ND (38)	ND (37)	ND (42)	ND (37)
Aroclor-1232 (PCB-1232)	ug/kg	ND (37)	ND (40)	ND (52)	ND (37)	ND (41)	ND (40)	ND (38)	ND (37)	ND (42)	ND (37)
Aroclor-1242 (PCB-1242)	ug/kg	ND (37)	ND (40)	ND (52)	ND (37)	ND (41)	ND (40)	ND (38)	ND (37)	ND (42)	ND (37)
Aroclor-1248 (PCB-1248)	ug/kg	ND (37)	ND (40)	ND (52)	77	ND (41)	ND (40)	320	190	ND (42)	ND (37)
Aroclor-1254 (PCB-1254)	ug/kg	ND (37)	ND (40)	ND (52)	ND (37)	ND (41)	ND (40)	ND (38)	ND (37)	ND (42)	ND (37)
Aroclor-1260 (PCB-1260)	ug/kg	ND (37)	ND (40)	ND (52)	17 J	ND (41)	ND (40)	28 J	26 J	ND (42)	ND (37)
Semi - Volatiles											
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
2,4,5-Trichlorophenol	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
2,4,6-Trichlorophenol	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
2,4-Dichlorophenol	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
2,4-Dimethylphenol	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
2,4-Dinitrophenol	ug/kg	ND (1800)	ND (1900)	ND (2500)	ND (1800)	ND (2000) UJ	ND (2000) UJ	ND (1800) UJ	ND (1800) UJ	ND (2000) UJ	ND (1800) UJ
2,4-Dinitrotoluene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
2,6-Dinitrotoluene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
2-Chloronaphthalene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
2-Chlorophenol	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
2-Methylnaphthalene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
2-Methylphenol	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
2-Nitroaniline	ug/kg	ND (1800)	ND (1900)	ND (2500)	ND (1800)	ND (2000)	ND (2000)	ND (1800)	ND (1800)	ND (2000)	ND (1800)
2-Nitrophenol	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
3,3'-Dichlorobenzidine	ug/kg	ND (1800)	ND (1900)	ND (2500)	ND (1800)	ND (2000)	ND (2000)	ND (1800)	ND (1800)	ND (2000)	ND (1800)
3-Nitroaniline	ug/kg	ND (1800)	ND (1900)	ND (2500)	ND (1800)	ND (2000)	ND (2000)	ND (1800)	ND (1800)	ND (2000)	ND (1800)
4,6-Dinitro-2-methylphenol	ug/kg	ND (1800)	ND (1900)	ND (2500)	ND (1800)	ND (2000)	ND (2000)	ND (1800)	ND (1800)	ND (2000)	ND (1800)
4-Bromophenyl phenyl ether	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
4-Chloro-3-methylphenol	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
4-Chloroaniline	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
4-Chlorophenyl phenyl ether	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*
Sample Location:		*B-809012-15*	*B-809012-15*	*B-809012-15*	*B-809012-16*	*B-809012-16*	*B-809012-16*	*B-809012-17*	*B-809012-18*	*B-809012-18*	*B-809012-20*
Sample ID:		*S-809-090402-CLM-003*	*S-809-090402-CLM-004*	*S-809-090402-CLM-005*	*S-809-090402-CLM-006*	*S-809-090402-CLM-007*	*S-809-090402-CLM-008*	*S-809-090502-CLM-009*	*S-809-090502-CLM-010*	*S-809-090502-CLM-011*	*S-809-090502-CLM-012*
Sample Date:		*9/4/2002*	*9/4/2002*	*9/4/2002*	*9/4/2002*	*9/4/2002*	*9/4/2002*	*9/5/2002*	*9/5/2002*	*9/5/2002*	*9/5/2002*
Sample Depth:		*(0-2)*	*(6-8)*	*(26-27.75)*	*(0-2)*	*(6-8)*	*(6-8)* *Duplicate*	*(0-2)*	*(0-2)*	*(5-6)*	*(0-2)*
Parameters	***Units***										
4-Methylphenol	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
4-Nitroaniline	ug/kg	ND (1800)	ND (1900)	ND (2500)	ND (1800)	ND (2000)	ND (2000)	ND (1800)	ND (1800)	ND (2000)	ND (1800)
4-Nitrophenol	ug/kg	ND (1800)	ND (1900)	ND (2500)	ND (1800)	ND (2000)	ND (2000)	ND (1800)	ND (1800)	ND (2000)	ND (1800)
Acenaphthene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Acenaphthylene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Acetophenone	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Anthracene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Atrazine	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Benzaldehyde	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Benzo(a)anthracene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Benzo(a)pyrene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Benzo(b)fluoranthene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Benzo(g,h,i)perylene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Benzo(k)fluoranthene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Biphenyl	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
bis(2-Chloroethoxy)methane	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
bis(2-Chloroethyl)ether	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Butyl benzylphthalate	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Caprolactam	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Carbazole	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Chrysene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Dibenz(a,h)anthracene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Dibenzofuran	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Diethyl phthalate	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Dimethyl phthalate	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Di-n-butylphthalate	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Di-n-octyl phthalate	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Fluoranthene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Fluorene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Hexachlorobenzene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Hexachlorobutadiene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Hexachlorocyclopentadiene	ug/kg	ND (1800)	ND (1900)	ND (2500)	ND (1800)	ND (2000)	ND (2000)	ND (1800)	ND (1800)	ND (2000)	ND (1800)
Hexachloroethane	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Isophorone	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Naphthalene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Nitrobenzene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
N-Nitrosodi-n-propylamine	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
N-Nitrosodiphenylamine	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Pentachlorophenol	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Phenanthrene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Phenol	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Pyrene	ug/kg	ND (370)	ND (400)	ND (520)	ND (370)	ND (410)	ND (400)	ND (380)	ND (370)	ND (420)	ND (370)
Volatiles											
1,1,1-Trichloroethane	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
1,1,2,2-Tetrachloroethane	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
1,1,2-Trichloroethane	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
1,1-Dichloroethane	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
1,1-Dichloroethene	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
1,2,4-Trichlorobenzene	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (10)	ND (11)	ND (20)	ND (11)	ND (11)	ND (11)	ND (13)	ND (10)	ND (12)	ND (14)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
1,2-Dichlorobenzene	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
1,2-Dichloroethane	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*	*P217*
Sample Location:		*B-809012-15*	*B-809012-15*	*B-809012-15*	*B-809012-16*	*B-809012-16*	*B-809012-16*	*B-809012-17*	*B-809012-18*	*B-809012-18*	*B-809012-20*
Sample ID:		*S-809-090402-CLM-003*	*S-809-090402-CLM-004*	*S-809-090402-CLM-005*	*S-809-090402-CLM-006*	*S-809-090402-CLM-007*	*S-809-090402-CLM-008*	*S-809-090502-CLM-009*	*S-809-090502-CLM-010*	*S-809-090502-CLM-011*	*S-809-090502-CLM-012*
Sample Date:		*9/4/2002*	*9/4/2002*	*9/4/2002*	*9/4/2002*	*9/4/2002*	*9/4/2002*	*9/5/2002*	*9/5/2002*	*9/5/2002*	*9/5/2002*
Sample Depth:		*(0-2)*	*(6-8)*	*(26-27.75)*	*(0-2)*	*(6-8)*	*(6-8)* *Duplicate*	*(0-2)*	*(0-2)*	*(5-6)*	*(0-2)*
Parameters	***Units***										
1,2-Dichloropropane	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
1,3-Dichlorobenzene	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
1,4-Dichlorobenzene	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (21)	ND (22)	ND (40)	ND (22)	ND (23)	ND (23)	ND (25)	ND (21)	ND (25)	ND (27)
2-Hexanone	ug/kg	ND (21)	ND (22)	ND (40)	ND (22)	ND (23)	ND (23)	ND (25)	ND (21)	ND (25)	ND (27)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (21)	ND (22)	ND (40)	ND (22)	ND (23)	ND (23)	ND (25)	2.7 J	ND (25)	ND (27)
Acetone	ug/kg	ND (21)	ND (22)	ND (40)	2.8 J	ND (23)	ND (23)	ND (25)	ND (21) U	ND (25)	ND (27)
Benzene	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Bromodichloromethane	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Bromoform	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Bromomethane (Methyl Bromide)	ug/kg	ND (5.2) UJ	ND (5.5) UJ	ND (9.9) UJ	ND (5.4) UJ	ND (5.7) UJ	ND (5.7) UJ	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Carbon disulfide	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Carbon tetrachloride	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Chlorobenzene	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Chloroethane	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Chloroform (Trichloromethane)	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Chloromethane (Methyl Chloride)	ug/kg	ND (5.2) UJ	ND (5.5) UJ	ND (9.9) UJ	ND (5.4) UJ	ND (5.7) UJ	ND (5.7) UJ	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
cis-1,2-Dichloroethene	ug/kg	ND (2.6)	ND (2.8)	ND (5.0)	ND (2.7)	ND (2.9)	ND (2.8)	ND (3.2)	ND (2.6)	ND (3.1)	ND (3.4)
cis-1,3-Dichloropropene	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Cyclohexane	ug/kg	ND (10)	ND (11)	ND (20)	ND (11)	ND (11)	ND (11)	ND (13)	ND (10)	ND (12)	ND (14)
Dibromochloromethane	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Ethylbenzene	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Isopropylbenzene	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Methyl acetate	ug/kg	1.3 J	ND (11)	ND (20)	2.0 J	ND (11)	ND (11)	ND (13)	ND (10)	ND (12)	ND (14)
Methyl cyclohexane	ug/kg	ND (10)	ND (11)	ND (20)	ND (11)	ND (11)	ND (11)	0.83 J	ND (10)	ND (12)	ND (14)
Methyl Tert Butyl Ether	ug/kg	ND (21)	ND (22)	ND (40)	ND (22)	ND (23)	ND (23)	ND (25)	ND (21)	ND (25)	ND (27)
Methylene chloride	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Styrene	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Tetrachloroethene	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Toluene	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
trans-1,2-Dichloroethene	ug/kg	ND (2.6)	ND (2.8)	ND (5.0)	ND (2.7)	ND (2.9)	ND (2.8)	ND (3.2)	ND (2.6)	ND (3.1)	ND (3.4)
trans-1,3-Dichloropropene	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Trichloroethene	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Trifluorotrichloroethane (Freon 113)	ug/kg	1.8 J	2.3 J	3.8 J	2.0 J	2.3 J	2.7 J	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Vinyl chloride	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Xylene (total)	ug/kg	ND (5.2)	ND (5.5)	ND (9.9)	ND (5.4)	ND (5.7)	ND (5.7)	ND (6.4)	ND (5.2)	ND (6.2)	ND (6.8)
Wet											
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	-	-	-	-	-
Total Solids	%	89.0	82.3	63.0	88.2	81.3	81.9	87.2	88.8	78.8	89.2

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*P217*	*P217*	*P217*	*P217*	*P217*	*RFI Boundary*	*RFI Boundary*	*RFI Boundary*	*RFI Boundary*	*RFI Boundary*
Sample Location:		*B-809012-20*	*B-809012-22*	*B-809012-23*	*B-809012-23*	*Metallic Substance*	*B-X261Y356*	*B-X261Y356*	*B-X261Y356*	*B-X261Y356*	*MW-X033Y147S*
Sample ID:		*S-809-090502-CLM-013*	*S-809-090502-CLM-014*	*S-809-090602-CLM-015*	*S-809-090602-CLM-016*	*S-809-041002-MG-030*	*S-011102-KMV-506*	*S-011102-KMV-507*	*S-011102-KMV-508*	*S-011102-KMV-509*	*S-021202-KMV-523*
Sample Date:		*9/5/2002*	*9/5/2002*	*9/6/2002*	*9/6/2002*	*4/10/2002*	*1/11/2002*	*1/11/2002*	*1/11/2002*	*1/11/2002*	*2/12/2002*
Sample Depth:		*(0-2)*	*(0-2)*	*(0-2)*	*(6-7)*	*(0-0.25)*	*(0-2)*	*(0-2)*	*(6-8)*	*(16-18)*	*(1-3)*
		Duplicate						*Duplicate*			
Parameters	***Units***										
Metals											
Aluminum	mg/kg	15400	22200	9690	10800	287000	12100	11300	15500	26100	14500 J
Antimony	mg/kg	ND (7.3) UJ	ND (6.9) UJ	ND (7.3) UJ	ND (7.6) UJ	ND (103)	R	R	R	R	0.78 J
Arsenic	mg/kg	15.8	10.9	6.8	7.7	2.6	7.9	7.9	13.6	15.5	1.8
Barium	mg/kg	114	116	80.5	82.8	6.0 J	85.5	82.2	64.9	94.8	19.3 J
Beryllium	mg/kg	1.6	0.32 J	0.35 J	0.34 J	ND (0.94) U	ND (0.66) U	ND (0.64) U	1.4	1.6	ND (0.61)
Cadmium	mg/kg	0.42 J	ND (0.57) U	ND (0.60) U	ND (0.63) U	20.4	0.23 J	0.24 J	0.43 J	0.56 J	0.24 J
Chromium Total	mg/kg	28.6 J	24.1 J	13.3 J	12.9 J	1080	16.1	13.8	32.1	47.3	10.9 J
Cobalt	mg/kg	9.8	18.5	13.0	11.1	19.0	12.8	10.7	7.8	5.1 J	1.6 J
Copper	mg/kg	31.4 J	21.8 J	32.5 J	11.3 J	85200	43.6	23.1	15.4	17.2	396
Cyanide (amenable)	mg/kg	ND (0.61)	ND (0.57)	ND (0.60)	ND (0.63)	ND (0.86)	ND (0.66)	ND (0.64)	ND (0.61)	ND (0.75)	ND (0.61)
Cyanide (total)	mg/kg	ND (0.61)	ND (0.57)	ND (0.60)	ND (0.63)	ND (0.86)	ND (0.66)	ND (0.64)	ND (0.61)	ND (0.75)	ND (0.61)
Iron	mg/kg	26100	23200	14300	16700	46600	16800	16800	32400	32900	4740 J
Lead	mg/kg	42.2	27.9	21.1	14.1	383	24.2	18.9	19.1	13.7	34.9
Manganese	mg/kg	735	1250	1150	958	3150	739	623	278	98.6	69.2 J
Mercury	mg/kg	0.078 J	0.20	0.065 J	0.039 J	0.027 J	0.051 J	0.050 J	0.090 J	0.22	0.053 J
Nickel	mg/kg	26.3	20.7	16.1	10.9	164	21.4	12.8	17.6	27.6	18.4 J
Selenium	mg/kg	ND (0.61)	ND (0.57)	ND (0.60)	ND (0.63)	ND (8.6)	ND (0.66)	ND (0.64)	ND (0.61)	ND (0.75)	ND (0.61)
Silver	mg/kg	ND (1.2)	ND (1.1)	ND (1.2)	ND (1.3)	13.6	ND (1.3)	ND (1.3)	ND (1.2)	ND (1.5)	ND (1.2)
Thallium	mg/kg	ND (1.2)	0.76 J	ND (1.2)	ND (1.3)	4.1 J	ND (1.3)	ND (1.3)	ND (1.2)	1.0 J	ND (1.2)
Vanadium	mg/kg	47.1	38.7	22.3	26.0	109	25.8	25.4	53.2	60.6	4.6 J
Zinc	mg/kg	91.5 J	63.3 J	45.8 J	39.8 J	27300	48.0	39.9	48.3	69.7	49.7 J
PCBs											
Aroclor-1016 (PCB-1016)	ug/kg	ND (40)	ND (38)	ND (40)	ND (42)	ND (57)	ND (44)	ND (42)	ND (40)	ND (50)	ND (40)
Aroclor-1221 (PCB-1221)	ug/kg	ND (40)	ND (38)	ND (40)	ND (42)	ND (57)	ND (44)	ND (42)	ND (40)	ND (50)	ND (40)
Aroclor-1232 (PCB-1232)	ug/kg	ND (40)	ND (38)	ND (40)	ND (42)	ND (57)	ND (44)	ND (42)	ND (40)	ND (50)	ND (40)
Aroclor-1242 (PCB-1242)	ug/kg	ND (40)	ND (38)	ND (40)	ND (42)	ND (57)	ND (44)	ND (42)	ND (40)	ND (50)	ND (40)
Aroclor-1248 (PCB-1248)	ug/kg	ND (40)	ND (38)	ND (40)	ND (42)	ND (57)	ND (44)	ND (42)	380	ND (50)	ND (40)
Aroclor-1254 (PCB-1254)	ug/kg	ND (40)	ND (38)	ND (40)	ND (42)	ND (57)	ND (44)	ND (42)	ND (40)	ND (50)	ND (40)
Aroclor-1260 (PCB-1260)	ug/kg	ND (40)	ND (38)	ND (40)	ND (42)	ND (57) UJ	ND (44)	ND (42)	49	ND (50)	ND (40)
Semi - Volatiles											
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
2,4,5-Trichlorophenol	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
2,4,6-Trichlorophenol	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
2,4-Dichlorophenol	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
2,4-Dimethylphenol	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
2,4-Dinitrophenol	ug/kg	ND (1900) UJ	ND (1800) UJ	ND (3900) UJ	ND (2000) UJ	ND (2700)	ND (2100)	ND (2000)	ND (1900)	ND (2400)	ND (1900) UJ
2,4-Dinitrotoluene	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
2,6-Dinitrotoluene	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
2-Chloronaphthalene	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
2-Chlorophenol	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
2-Methylnaphthalene	ug/kg	ND (400)	ND (380)	4500	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
2-Methylphenol	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
2-Nitroaniline	ug/kg	ND (1900)	ND (1800)	ND (3900)	ND (2000)	ND (2700)	ND (2100)	ND (2000)	ND (1900)	ND (2400)	ND (1900)
2-Nitrophenol	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
3,3'-Dichlorobenzidine	ug/kg	ND (1900)	ND (1800)	ND (3900)	ND (2000)	ND (2700)	ND (2100)	ND (2000)	ND (1900)	ND (2400)	ND (1900)
3-Nitroaniline	ug/kg	ND (1900)	ND (1800)	ND (3900)	ND (2000)	ND (2700)	ND (2100)	ND (2000)	ND (1900)	ND (2400)	ND (1900)
4,6-Dinitro-2-methylphenol	ug/kg	ND (1900)	ND (1800)	ND (3900)	ND (2000)	ND (2700)	ND (2100)	ND (2000)	ND (1900)	ND (2400)	ND (1900)
4-Bromophenyl phenyl ether	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
4-Chloro-3-methylphenol	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
4-Chloroaniline	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
4-Chlorophenyl phenyl ether	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*P217*	*P217*	*P217*	*P217*	*P217*	*RFI Boundary*	*RFI Boundary*	*RFI Boundary*	*RFI Boundary*	*RFI Boundary*
Sample Location:		*B-809012-20*	*B-809012-22*	*B-809012-23*	*B-809012-23*	*Metallic Substance*	*B-X261Y356*	*B-X261Y356*	*B-X261Y356*	*B-X261Y356*	*MW-X033Y147S*
Sample ID:		*S-809-090502-CLM-013*	*S-809-090502-CLM-014*	*S-809-090602-CLM-015*	*S-809-090602-CLM-016*	*S-809-041002-MG-030*	*S-011102-KMV-506*	*S-011102-KMV-507*	*S-011102-KMV-508*	*S-011102-KMV-509*	*S-021202-KMV-523*
Sample Date:		*9/5/2002*	*9/5/2002*	*9/6/2002*	*9/6/2002*	*4/10/2002*	*1/11/2002*	*1/11/2002*	*1/11/2002*	*1/11/2002*	*2/12/2002*
Sample Depth:		*(0-2)*	*(0-2)*	*(0-2)*	*(6-7)*	*(0-0.25)*	*(0-2)*	*(0-2)*	*(6-8)*	*(16-18)*	*(1-3)*
		Duplicate						*Duplicate*			
Parameters	***Units***										
4-Methylphenol	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
4-Nitroaniline	ug/kg	ND (1900)	ND (1800)	ND (3900)	ND (2000)	ND (2700)	ND (2100)	ND (2000)	ND (1900)	ND (2400)	ND (1900)
4-Nitrophenol	ug/kg	ND (1900)	ND (1800)	ND (3900)	ND (2000)	ND (2700)	ND (2100)	ND (2000)	ND (1900)	ND (2400)	ND (1900)
Acenaphthene	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Acenaphthylene	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Acetophenone	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Anthracene	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Atrazine	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Benzaldehyde	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Benzo(a)anthracene	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Benzo(a)pyrene	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Benzo(b)fluoranthene	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Benzo(g,h,i)perylene	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Benzo(k)fluoranthene	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Biphenyl	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
bis(2-Chloroethoxy)methane	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
bis(2-Chloroethyl)ether	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Butyl benzylphthalate	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Caprolactam	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Carbazole	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Chrysene	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Dibenz(a,h)anthracene	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Dibenzofuran	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Diethyl phthalate	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Dimethyl phthalate	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Di-n-butylphthalate	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Di-n-octyl phthalate	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Fluoranthene	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Fluorene	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Hexachlorobenzene	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Hexachlorobutadiene	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Hexachlorocyclopentadiene	ug/kg	ND (1900)	ND (1800)	ND (3900)	ND (2000)	ND (2700)	ND (2100)	ND (2000)	ND (1900)	ND (2400)	ND (1900)
Hexachloroethane	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Isophorone	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Naphthalene	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Nitrobenzene	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
N-Nitrosodi-n-propylamine	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
N-Nitrosodiphenylamine	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Pentachlorophenol	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Phenanthrene	ug/kg	ND (400)	ND (380)	110 J	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Phenol	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Pyrene	ug/kg	ND (400)	ND (380)	ND (800)	ND (420)	ND (570)	ND (440)	ND (420)	ND (400)	ND (500)	ND (400)
Volatiles											
1,1,1-Trichloroethane	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
1,1,2,2-Tetrachloroethane	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
1,1,2-Trichloroethane	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
1,1-Dichloroethane	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
1,1-Dichloroethene	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
1,2,4-Trichlorobenzene	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (16)	ND (11)	ND (660)	ND (11)	-	ND (11)	ND (11)	ND (11)	ND (14)	ND (11)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
1,2-Dichlorobenzene	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
1,2-Dichloroethane	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*P217*	*P217*	*P217*	*P217*	*P217*	*RFI Boundary*	*RFI Boundary*	*RFI Boundary*	*RFI Boundary*	*RFI Boundary*
Sample Location:		*B-809012-20*	*B-809012-22*	*B-809012-23*	*B-809012-23*	*Metallic Substance*	*B-X261Y356*	*B-X261Y356*	*B-X261Y356*	*B-X261Y356*	*MW-X033Y147S*
Sample ID:		*S-809-090502-CLM-013*	*S-809-090502-CLM-014*	*S-809-090602-CLM-015*	*S-809-090602-CLM-016*	*S-809-041002-MG-030*	*S-011102-KMV-506*	*S-011102-KMV-507*	*S-011102-KMV-508*	*S-011102-KMV-509*	*S-021202-KMV-523*
Sample Date:		*9/5/2002*	*9/5/2002*	*9/6/2002*	*9/6/2002*	*4/10/2002*	*1/11/2002*	*1/11/2002*	*1/11/2002*	*1/11/2002*	*2/12/2002*
Sample Depth:		*(0-2)*	*(0-2)*	*(0-2)*	*(6-7)*	*(0-0.25)*	*(0-2)*	*(0-2)*	*(6-8)*	*(16-18)*	*(1-3)*
		Duplicate						*Duplicate*			
Parameters	***Units***										
1,2-Dichloropropane	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
1,3-Dichlorobenzene	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
1,4-Dichlorobenzene	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (32)	ND (21)	ND (1300) UJ	ND (22)	-	ND (21)	ND (21)	ND (22)	ND (29)	ND (22)
2-Hexanone	ug/kg	ND (32)	ND (21)	ND (1300)	ND (22)	-	ND (21)	ND (21)	ND (22)	ND (29)	ND (22)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (32)	ND (21)	ND (1300)	ND (22)	-	ND (21) UJ	ND (21) UJ	ND (22) UJ	ND (29) UJ	ND (22)
Acetone	ug/kg	ND (32)	ND (21)	ND (1300) UJ	ND (22)	-	ND (21)	ND (21) U	ND (22)	ND (29)	ND (22) UJ
Benzene	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
Bromodichloromethane	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
Bromoform	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
Bromomethane (Methyl Bromide)	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4) UJ	ND (5.3) UJ	ND (5.4) UJ	ND (7.2) UJ	ND (5.6)
Carbon disulfide	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
Carbon tetrachloride	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
Chlorobenzene	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
Chloroethane	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
Chloroform (Trichloromethane)	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
Chloromethane (Methyl Chloride)	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4) UJ	ND (5.3) UJ	ND (5.4) UJ	ND (7.2) UJ	ND (5.6)
cis-1,2-Dichloroethene	ug/kg	ND (4.0)	ND (2.7)	ND (160)	ND (2.8)	-	ND (2.7)	ND (2.6)	ND (2.7)	ND (3.6)	ND (2.8)
cis-1,3-Dichloropropene	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
Cyclohexane	ug/kg	ND (16)	ND (11)	ND (660)	ND (11)	-	ND (11)	ND (11)	ND (11)	ND (14)	ND (11)
Dibromochloromethane	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4) UJ	ND (5.3) UJ	ND (5.4) UJ	ND (7.2) UJ	ND (5.6)
Ethylbenzene	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
Isopropylbenzene	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
Methyl acetate	ug/kg	ND (16)	ND (11)	ND (660)	ND (11)	-	ND (11) UJ	ND (11) UJ	ND (11) UJ	ND (14) UJ	ND (11)
Methyl cyclohexane	ug/kg	ND (16)	ND (11)	ND (660)	ND (11)	-	ND (11)	ND (11)	ND (11)	ND (14)	ND (11)
Methyl Tert Butyl Ether	ug/kg	ND (32)	ND (21)	ND (1300)	ND (22)	-	ND (21)	ND (21)	ND (22)	ND (29)	ND (22)
Methylene chloride	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4) U	ND (5.3) U	ND (5.4) U	ND (7.2) U	ND (5.6)
Styrene	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
Tetrachloroethene	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
Toluene	ug/kg	ND (8.0)	ND (5.3)	81 J	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
trans-1,2-Dichloroethene	ug/kg	ND (4.0)	ND (2.7)	ND (160)	ND (2.8)	-	ND (2.7)	ND (2.6)	ND (2.7)	ND (3.6)	ND (2.8)
trans-1,3-Dichloropropene	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
Trichloroethene	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4) UJ	ND (5.3) UJ	ND (5.4) UJ	ND (7.2) UJ	ND (5.6)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4) UJ	ND (5.3) UJ	ND (5.4) UJ	ND (7.2) UJ	ND (5.6)
Vinyl chloride	ug/kg	ND (8.0)	ND (5.3)	ND (330)	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
Xylene (total)	ug/kg	ND (8.0)	ND (5.3)	180 J	ND (5.6)	-	ND (5.4)	ND (5.3)	ND (5.4)	ND (7.2)	ND (5.6)
Wet											
Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	-	-	-	-	-	28000	7900	690	-	3000
Total Solids	%	82.3	87.2	82.8	79.0	58.3	75.6	78.3	82.3	66.7	82.4

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		***RFI Boundary***	***RFI Boundary***	***RFI Boundary***	***RFI Boundary***	***RFI Boundary***	***RFI Boundary***	***RFI Boundary***
Sample Location:		***MW-X033Y147S***	***MW-X033Y147S***	***MW-X033Y147S***	***MW-X033Y147S***	***MW-X169Y058S***	***MW-X169Y058S***	***MW-X169Y058S***
Sample ID:		***S-021202-KMV-524***	***S-021202-KMV-525***	***S-021202-KMV-526***	***S-021202-KMV-527***	***S-020602-MG-099***	***S-020602-MG-100***	***S-020602-MG-101***
Sample Date:		***2/12/2002***	***2/12/2002***	***2/12/2002***	***2/12/2002***	***2/6/2002***	***2/6/2002***	***2/6/2002***
Sample Depth:		***(1-3)***	***(7-9)***	***(17-19)***	***(33-35)***	***(0-2)***	***(6-8)***	***(22-24)***
		Duplicate						
Parameters	***Units***							
Metals								
Aluminum	mg/kg	11900 J	3370 J	2350 J	8550 J	9680	11400	9320
Antimony	mg/kg	R	R	R	R	ND (7.6) UJ	ND (8.0) UJ	ND (38.9) UJ
Arsenic	mg/kg	1.6	3.4	2.5	7.4	8	9.2	16.9
Barium	mg/kg	8.8 J	14.8 J	13.2 J	76.2 J	44.2 J	44.2 J	90.2 J
Beryllium	mg/kg	ND (0.60)	0.064 J	ND (0.61)	0.99 J	ND (0.63) U	0.37 J	10.5
Cadmium	mg/kg	0.1 J	0.27 J	0.31 J	0.76 J	0.13 J	0.29 J	0.71 J
Chromium Total	mg/kg	7.5 J	18 J	11.9 J	11.5 J	28.9	57.8	21.2
Cobalt	mg/kg	1.8 J	2.5 J	2.4 J	7.6 J	6.1 J	2 J	7.7 J
Copper	mg/kg	225	37.9	39.9	15.4	9.6	10.2	47.5
Cyanide (amenable)	mg/kg	ND (0.60)	ND (0.65)	ND (0.61)	ND (0.71)	ND (0.63)	ND (0.67)	ND (0.65)
Cyanide (total)	mg/kg	ND (0.60)	ND (0.65)	ND (0.61)	ND (0.71)	ND (0.63)	ND (0.67)	ND (0.65)
Iron	mg/kg	3170 J	12500 J	4090 J	21600 J	20000	41800	21500
Lead	mg/kg	28	15	16.6	19.3	14.6	17	10.8
Manganese	mg/kg	53.2 J	112 J	65.7 J	111 J	193 J	72 J	275 J
Mercury	mg/kg	0.061 J	0.065 J	0.24 J	0.088 J	0.05 J	0.043 J	0.05 J
Nickel	mg/kg	22.6 J	17.3 J	21.9 J	29.2 J	7.7	11.5	151
Selenium	mg/kg	ND (0.60)	ND (0.65)	ND (0.61)	1.5	ND (0.63)	0.65 J	ND (3.2)
Silver	mg/kg	ND (1.2)	ND (1.3)	ND (1.2)	ND (2.8)	ND (1.3)	ND (1.3)	ND (6.5)
Thallium	mg/kg	ND (1.2)	ND (1.3)	ND (1.2)	ND (2.8)	ND (1.3)	ND (1.3)	0.86 J
Vanadium	mg/kg	4.2 J	11.9 J	4.8 J	22.3 J	31.2	81.1	21.8 J
Zinc	mg/kg	54.6 J	43.5 J	37.4 J	57.2 J	26	34.2	141
PCBs								
Aroclor-1016 (PCB-1016)	ug/kg	ND (40)	ND (43)	ND (40)	ND (47)	ND (42)	ND (44)	ND (43)
Aroclor-1221 (PCB-1221)	ug/kg	ND (40)	ND (43)	ND (40)	ND (47)	ND (42)	ND (44)	ND (43)
Aroclor-1232 (PCB-1232)	ug/kg	ND (40)	ND (43)	ND (40)	100	ND (42)	ND (44)	ND (43)
Aroclor-1242 (PCB-1242)	ug/kg	ND (40)	ND (43)	ND (40)	ND (47)	ND (42)	ND (44)	ND (43)
Aroclor-1248 (PCB-1248)	ug/kg	9.1 J	20 J	ND (40)	ND (47)	ND (42)	ND (44)	ND (43)
Aroclor-1254 (PCB-1254)	ug/kg	ND (40)	ND (43)	ND (40)	ND (47)	ND (42)	ND (44)	ND (43)
Aroclor-1260 (PCB-1260)	ug/kg	ND (40)	ND (43)	ND (40)	ND (47)	ND (42)	ND (44)	ND (43)
Semi - Volatiles								
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
2,4,5-Trichlorophenol	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
2,4,6-Trichlorophenol	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
2,4-Dichlorophenol	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
2,4-Dimethylphenol	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
2,4-Dinitrophenol	ug/kg	ND (1900) UJ	ND (2100) UJ	ND (1900) UJ	ND (2300) UJ	ND (2000)	ND (2100)	ND (2100)
2,4-Dinitrotoluene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
2,6-Dinitrotoluene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
2-Chloronaphthalene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
2-Chlorophenol	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
2-Methylnaphthalene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
2-Methylphenol	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
2-Nitroaniline	ug/kg	ND (1900)	ND (2100)	ND (1900)	ND (2300)	ND (2000)	ND (2100)	ND (2100)
2-Nitrophenol	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
3,3'-Dichlorobenzidine	ug/kg	ND (1900)	ND (2100)	ND (1900)	ND (2300)	ND (2000)	ND (2100)	ND (2100)
3-Nitroaniline	ug/kg	ND (1900)	ND (2100)	ND (1900)	ND (2300)	ND (2000)	ND (2100)	ND (2100)
4,6-Dinitro-2-methylphenol	ug/kg	ND (1900)	ND (2100)	ND (1900)	ND (2300)	ND (2000)	ND (2100)	ND (2100)
4-Bromophenyl phenyl ether	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
4-Chloro-3-methylphenol	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
4-Chloroaniline	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
4-Chlorophenyl phenyl ether	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		***RFI Boundary***	***RFI Boundary***	***RFI Boundary***	***RFI Boundary***	***RFI Boundary***	***RFI Boundary***	***RFI Boundary***
Sample Location:		***MW-X033Y147S***	***MW-X033Y147S***	***MW-X033Y147S***	***MW-X033Y147S***	***MW-X169Y058S***	***MW-X169Y058S***	***MW-X169Y058S***
Sample ID:		***S-021202-KMV-524***	***S-021202-KMV-525***	***S-021202-KMV-526***	***S-021202-KMV-527***	***S-020602-MG-099***	***S-020602-MG-100***	***S-020602-MG-101***
Sample Date:		***2/12/2002***	***2/12/2002***	***2/12/2002***	***2/12/2002***	***2/6/2002***	***2/6/2002***	***2/6/2002***
Sample Depth:		***(1-3)***	***(7-9)***	***(17-19)***	***(33-35)***	***(0-2)***	***(6-8)***	***(22-24)***
		Duplicate						
Parameters	***Units***							
4-Methylphenol	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
4-Nitroaniline	ug/kg	ND (1900)	ND (2100)	ND (1900)	ND (2300)	ND (2000)	ND (2100)	ND (2100)
4-Nitrophenol	ug/kg	ND (1900)	ND (2100)	ND (1900)	ND (2300)	ND (2000)	ND (2100)	ND (2100)
Acenaphthene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Acenaphthylene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Acetophenone	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Anthracene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Atrazine	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Benzaldehyde	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Benzo(a)anthracene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Benzo(a)pyrene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Benzo(b)fluoranthene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Benzo(g,h,i)perylene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Benzo(k)fluoranthene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Biphenyl	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
bis(2-Chloroethoxy)methane	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
bis(2-Chloroethyl)ether	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Butyl benzylphthalate	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Caprolactam	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Carbazole	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Chrysene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Dibenz(a,h)anthracene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Dibenzofuran	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Diethyl phthalate	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Dimethyl phthalate	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Di-n-butylphthalate	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Di-n-octyl phthalate	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Fluoranthene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Fluorene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Hexachlorobenzene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Hexachlorobutadiene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Hexachlorocyclopentadiene	ug/kg	ND (1900)	ND (2100)	ND (1900)	ND (2300)	ND (2000)	ND (2100)	ND (2100)
Hexachloroethane	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Isophorone	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Naphthalene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Nitrobenzene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
N-Nitrosodi-n-propylamine	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
N-Nitrosodiphenylamine	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Pentachlorophenol	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Phenanthrene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Phenol	ug/kg	ND (400)	1600	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Pyrene	ug/kg	ND (400)	ND (430)	ND (400)	ND (470)	ND (420)	ND (440)	ND (430)
Volatiles								
1,1,1-Trichloroethane	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
1,1,2,2-Tetrachloroethane	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
1,1,2-Trichloroethane	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
1,1-Dichloroethane	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
1,1-Dichloroethene	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
1,2,4-Trichlorobenzene	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (9.4)	ND (11)	ND (10)	ND (13)	ND (12)	ND (14)	ND (12)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
1,2-Dichlorobenzene	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
1,2-Dichloroethane	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		***RFI Boundary***	***RFI Boundary***	***RFI Boundary***	***RFI Boundary***	***RFI Boundary***	***RFI Boundary***	***RFI Boundary***
Sample Location:		***MW-X033Y147S***	***MW-X033Y147S***	***MW-X033Y147S***	***MW-X033Y147S***	***MW-X169Y058S***	***MW-X169Y058S***	***MW-X169Y058S***
Sample ID:		***S-021202-KMV-524***	***S-021202-KMV-525***	***S-021202-KMV-526***	***S-021202-KMV-527***	***S-020602-MG-099***	***S-020602-MG-100***	***S-020602-MG-101***
Sample Date:		***2/12/2002***	***2/12/2002***	***2/12/2002***	***2/12/2002***	***2/6/2002***	***2/6/2002***	***2/6/2002***
Sample Depth:		***(1-3)***	***(7-9)***	***(17-19)***	***(33-35)***	***(0-2)***	***(6-8)***	***(22-24)***
		Duplicate						
Parameters	***Units***							
1,2-Dichloropropane	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
1,3-Dichlorobenzene	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
1,4-Dichlorobenzene	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (19)	ND (22)	ND (20)	ND (25)	ND (24)	ND (27)	ND (24)
2-Hexanone	ug/kg	ND (19)	ND (22)	ND (20)	ND (25)	ND (24)	ND (27)	ND (24)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (19)	ND (22)	ND (20)	ND (25)	ND (24)	ND (27)	ND (24)
Acetone	ug/kg	ND (19) UJ	ND (22) UJ	ND (20) UJ	ND (25) UJ	ND (24)	ND (27) U	ND (24) U
Benzene	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Bromodichloromethane	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Bromoform	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Bromomethane (Methyl Bromide)	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Carbon disulfide	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Carbon tetrachloride	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Chlorobenzene	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Chloroethane	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Chloroform (Trichloromethane)	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Chloromethane (Methyl Chloride)	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
cis-1,2-Dichloroethene	ug/kg	ND (2.4)	ND (2.7)	ND (2.6)	ND (3.2)	ND (3)	ND (3.4)	ND (3)
cis-1,3-Dichloropropene	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Cyclohexane	ug/kg	ND (9.4)	ND (11)	ND (10)	ND (13)	ND (12)	ND (14)	ND (12)
Dibromochloromethane	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Ethylbenzene	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Isopropylbenzene	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Methyl acetate	ug/kg	ND (9.4)	ND (11)	ND (10)	ND (13)	ND (12)	ND (14)	ND (12)
Methyl cyclohexane	ug/kg	ND (9.4)	ND (11)	ND (10)	ND (13)	ND (12)	ND (14)	ND (12)
Methyl Tert Butyl Ether	ug/kg	ND (19)	ND (22)	ND (20)	ND (25)	ND (24)	ND (27)	ND (24)
Methylene chloride	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Styrene	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Tetrachloroethene	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Toluene	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	2.8 J	ND (6)
trans-1,2-Dichloroethene	ug/kg	ND (2.4)	ND (2.7)	ND (2.6)	ND (3.2)	ND (3)	ND (3.4)	ND (3)
trans-1,3-Dichloropropene	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Trichloroethene	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Vinyl chloride	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Xylene (total)	ug/kg	ND (4.7)	ND (5.4)	ND (5.1)	ND (6.3)	ND (5.9)	ND (6.8)	ND (6)
Wet								
Chloride	mg/kg	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	4000	6100	5200	1600	1000	210	310
Total Solids	%	82.9	76.6	82.2	70.6	79.4	75.1	77.1

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*RFI Boundary*	*RFI Boundary*	*RFI Boundary*	*RFI Boundary*	*RFI Boundary*	*RFI Boundary*	*RFI Boundary*	*RFI Boundary*	*RFI Boundary*
Sample Location:		*MW-X169Y058S*	*MW-X178Y367D*	*MW-X178Y367D*	*MW-X234Y157D*	*MW-X234Y157D*	*MW-X234Y157D*	*MW-X269Y201D*	*MW-X269Y201D*	*MW-X269Y201D*
Sample ID:		*S-020602-MG-102*	*S-010902-KMV-504*	*S-010902-KMV-505*	*S-012502-KMV-514*	*S-012502-KMV-515*	*S-012502-KMV-516*	*S-012202-KMV-511*	*S-012202-KMV-512*	*S-012202-KMV-513*
Sample Date:		*2/6/2002*	*1/9/2002*	*1/9/2002*	*1/25/2002*	*1/25/2002*	*1/25/2002*	*1/22/2002*	*1/22/2002*	*1/22/2002*
Sample Depth:		*(22-24)*	*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(4-6)*	*(0-2)*	*(0-2)*	*(7-9)*
		Duplicate		*Duplicate*		*Duplicate*			*Duplicate*	
Parameters	***Units***									
Metals										
Aluminum	mg/kg	4820	14100	14400	9280	13000	12200	11600	13100	14100
Antimony	mg/kg	ND (15.8) UJ	ND (7.7) UJ	ND (7.7) UJ	ND (7.5)	ND (7.6)	ND (8.0)	ND (7.7)	ND (7.3)	ND (7.8)
Arsenic	mg/kg	7.4	9.9	9.1	7.3	10.4	13.6	8.3	9.9	18.0
Barium	mg/kg	54.9 J	43.3	56.6	77.7	77.6	137	68.0	85.2	114
Beryllium	mg/kg	2	ND (0.64) U	0.26 J	0.64	0.64	0.96	0.27 J	0.46 J	1.3
Cadmium	mg/kg	0.16 J	0.17 J	0.18 J	0.10 J	0.084 J	0.12 J	ND (0.64) U	0.42 J	0.75
Chromium Total	mg/kg	6.8	18.5 J	17.1 J	21.9	21.6	18.8	17.4	18.6	28.3
Cobalt	mg/kg	5.5 J	15.2 J	8.8 J	17.2	11.6	12.5	6.9	11.2	8.9
Copper	mg/kg	10	13.5 J	23.3 J	27.5	42.1	11.8	16.2	19.2	23.6
Cyanide (amenable)	mg/kg	ND (0.66)	ND (0.64)	ND (0.64)	ND (0.62)	ND (0.64)	ND (0.67)	ND (0.64)	ND (0.61)	ND (0.65)
Cyanide (total)	mg/kg	ND (0.66)	ND (0.64)	ND (0.64)	ND (0.62)	ND (0.64)	ND (0.67)	ND (0.64)	ND (0.61)	ND (0.65)
Iron	mg/kg	8710	21400 J	21000 J	16100	24200	28200	20100	22100	34600
Lead	mg/kg	7.4	16.8 J	15.0 J	28.2	22.4	21.1	22.1	37.3	20.1
Manganese	mg/kg	178 J	433 J	505 J	457	325	1260	276	484	553
Mercury	mg/kg	0.035 J	0.045 J	0.053 J	0.059 J	0.076 J	0.057 J	0.24	0.25	0.094 J
Nickel	mg/kg	50.9	10.1 J	11.6 J	43.4	23.2	24.5	12.3	15.8	65.0
Selenium	mg/kg	0.46 J	ND (0.64)	ND (0.64)	0.66	1.3	1.2	ND (0.64)	ND (0.61)	ND (0.65)
Silver	mg/kg	ND (2.6)	ND (1.3)	ND (1.3)	ND (1.2)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.2)	ND (1.3)
Thallium	mg/kg	ND (2.6)	ND (1.3)	ND (1.3)	0.77 J	ND (1.3)	1.1 J	ND (1.3)	ND (1.2)	ND (1.3)
Vanadium	mg/kg	9 J	34.9	31.6	24.9	33.0	31.8	28.1	31.4	41.0
Zinc	mg/kg	35.7	36.3 J	42.8 J	45.7	66.6	68.3	75.2	135	108
PCBs										
Aroclor-1016 (PCB-1016)	ug/kg	ND (43)	ND (42)	ND (42)	ND (4100)	ND (4200)	ND (44)	ND (42)	ND (40)	ND (43)
Aroclor-1221 (PCB-1221)	ug/kg	ND (43)	ND (42)	ND (42)	ND (4100)	ND (4200)	ND (44)	ND (42)	ND (40)	ND (43)
Aroclor-1232 (PCB-1232)	ug/kg	ND (43)	ND (42)	ND (42)	ND (4100)	ND (4200)	ND (44)	ND (42)	ND (40)	ND (43)
Aroclor-1242 (PCB-1242)	ug/kg	ND (43)	ND (42)	ND (42)	ND (4100)	ND (4200)	ND (44)	ND (42)	ND (40)	ND (43)
Aroclor-1248 (PCB-1248)	ug/kg	ND (43)	ND (42)	ND (42)	14000	12000	30 J	18 J	ND (40)	16 J
Aroclor-1254 (PCB-1254)	ug/kg	ND (43)	ND (42)	ND (42)	ND (4100)	ND (4200)	ND (44)	ND (42)	ND (40)	ND (43)
Aroclor-1260 (PCB-1260)	ug/kg	ND (43)	ND (42)	ND (42)	1100 J	ND (4200)	ND (44)	ND (42)	ND (40)	ND (43)
Semi - Volatiles										
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
2,4,5-Trichlorophenol	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
2,4,6-Trichlorophenol	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
2,4-Dichlorophenol	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
2,4-Dimethylphenol	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
2,4-Dinitrophenol	ug/kg	ND (2100)	ND (2000)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2100)
2,4-Dinitrotoluene	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
2,6-Dinitrotoluene	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
2-Chloronaphthalene	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
2-Chlorophenol	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
2-Methylnaphthalene	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
2-Methylphenol	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
2-Nitroaniline	ug/kg	ND (2100)	ND (2000)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2100)
2-Nitrophenol	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
3,3'-Dichlorobenzidine	ug/kg	ND (2100)	ND (2000)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2100)
3-Nitroaniline	ug/kg	ND (2100)	ND (2000)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2100)
4,6-Dinitro-2-methylphenol	ug/kg	ND (2100)	ND (2000)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2100)
4-Bromophenyl phenyl ether	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
4-Chloro-3-methylphenol	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
4-Chloroaniline	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
4-Chlorophenyl phenyl ether	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*RFI Boundary*	*RFI Boundary*	*RFI Boundary*	*RFI Boundary*	*RFI Boundary*	*RFI Boundary*	*RFI Boundary*	*RFI Boundary*	*RFI Boundary*
Sample Location:		*MW-X169Y058S*	*MW-X178Y367D*	*MW-X178Y367D*	*MW-X234Y157D*	*MW-X234Y157D*	*MW-X234Y157D*	*MW-X269Y201D*	*MW-X269Y201D*	*MW-X269Y201D*
Sample ID:		*S-020602-MG-102*	*S-010902-KMV-504*	*S-010902-KMV-505*	*S-012502-KMV-514*	*S-012502-KMV-515*	*S-012502-KMV-516*	*S-012202-KMV-511*	*S-012202-KMV-512*	*S-012202-KMV-513*
Sample Date:		*2/6/2002*	*1/9/2002*	*1/9/2002*	*1/25/2002*	*1/25/2002*	*1/25/2002*	*1/22/2002*	*1/22/2002*	*1/22/2002*
Sample Depth:		*(22-24)*	*(0-2)*	*(0-2)*	*(0-2)*	*(0-2)*	*(4-6)*	*(0-2)*	*(0-2)*	*(7-9)*
		Duplicate		*Duplicate*		*Duplicate*			*Duplicate*	
Parameters	***Units***									
4-Methylphenol	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
4-Nitroaniline	ug/kg	ND (2100)	ND (2000)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2100)
4-Nitrophenol	ug/kg	ND (2100)	ND (2000) UJ	ND (2000) UJ	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2100)
Acenaphthene	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Acenaphthylene	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Acetophenone	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Anthracene	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Atrazine	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Benzaldehyde	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Benzo(a)anthracene	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Benzo(a)pyrene	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Benzo(b)fluoranthene	ug/kg	ND (430)	ND (420)	ND (420)	74 J	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Benzo(g,h,i)perylene	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Benzo(k)fluoranthene	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Biphenyl	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
bis(2-Chloroethoxy)methane	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
bis(2-Chloroethyl)ether	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Butyl benzylphthalate	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Caprolactam	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Carbazole	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Chrysene	ug/kg	ND (430)	ND (420)	ND (420)	65 J	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Dibenz(a,h)anthracene	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Dibenzofuran	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Diethyl phthalate	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Dimethyl phthalate	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Di-n-butylphthalate	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Di-n-octyl phthalate	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Fluoranthene	ug/kg	ND (430)	ND (420)	ND (420)	140 J	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Fluorene	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Hexachlorobenzene	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Hexachlorobutadiene	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Hexachlorocyclopentadiene	ug/kg	ND (2100)	ND (2000)	ND (2000)	ND (2000)	ND (2000)	ND (2100)	ND (2000)	ND (2000)	ND (2100)
Hexachloroethane	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Isophorone	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Naphthalene	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Nitrobenzene	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
N-Nitrosodi-n-propylamine	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
N-Nitrosodiphenylamine	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Pentachlorophenol	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Phenanthrene	ug/kg	ND (430)	ND (420)	ND (420)	110 J	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Phenol	ug/kg	ND (430)	ND (420)	ND (420)	ND (410)	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Pyrene	ug/kg	ND (430)	ND (420)	ND (420)	100 J	ND (420)	ND (440)	ND (420)	ND (400)	ND (430)
Volatiles										
1,1,1-Trichloroethane	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
1,1,2,2-Tetrachloroethane	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
1,1,2-Trichloroethane	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
1,1-Dichloroethane	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
1,1-Dichloroethene	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
1,2,4-Trichlorobenzene	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (17)	ND (12) UJ	ND (11) UJ	ND (11) UJ	ND (11) UJ	ND (13) UJ	ND (11)	ND (12)	ND (14)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
1,2-Dichlorobenzene	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
1,2-Dichloroethane	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)

TABLE 5.2

SUMMARY OF VALIDATED SOIL ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		***RFI Boundary***	***RFI Boundary***	***RFI Boundary***	***RFI Boundary***	***RFI Boundary***	***RFI Boundary***	***RFI Boundary***	***RFI Boundary***	***RFI Boundary***
Sample Location:		***MW-X169Y058S***	***MW-X178Y367D***	***MW-X178Y367D***	***MW-X234Y157D***	***MW-X234Y157D***	***MW-X234Y157D***	***MW-X269Y201D***	***MW-X269Y201D***	***MW-X269Y201D***
Sample ID:		***S-020602-MG-102***	***S-010902-KMV-504***	***S-010902-KMV-505***	***S-012502-KMV-514***	***S-012502-KMV-515***	***S-012502-KMV-516***	***S-012202-KMV-511***	***S-012202-KMV-512***	***S-012202-KMV-513***
Sample Date:		***2/6/2002***	***1/9/2002***	***1/9/2002***	***1/25/2002***	***1/25/2002***	***1/25/2002***	***1/22/2002***	***1/22/2002***	***1/22/2002***
Sample Depth:		***(22-24)***	***(0-2)***	***(0-2)***	***(0-2)***	***(0-2)***	***(4-6)***	***(0-2)***	***(0-2)***	***(7-9)***
		Duplicate		***Duplicate***		***Duplicate***			***Duplicate***	
Parameters	***Units***									
1,2-Dichloropropane	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
1,3-Dichlorobenzene	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
1,4-Dichlorobenzene	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (35)	4.5 J	3.2 J	ND (22)	ND (22)	ND (27)	ND (22)	ND (24)	ND (27)
2-Hexanone	ug/kg	ND (35)	ND (23)	ND (22)	ND (22)	ND (22)	ND (27)	ND (22)	ND (24)	ND (27)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (35)	ND (23)	ND (22)	ND (22)	ND (22)	ND (27)	ND (22)	ND (24)	ND (27)
Acetone	ug/kg	ND (35) U	110	ND (52) U	ND (22)	ND (22)	ND (27) U	ND (22)	ND (24)	ND (27)
Benzene	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
Bromodichloromethane	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
Bromoform	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
Bromomethane (Methyl Bromide)	ug/kg	ND (8.7)	ND (5.8) UJ	ND (5.6) UJ	ND (5.5) UJ	ND (5.4) UJ	ND (6.7) UJ	ND (5.5)	ND (6.1)	ND (6.8)
Carbon disulfide	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
Carbon tetrachloride	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5) UJ	ND (5.4) UJ	ND (6.7) UJ	ND (5.5)	ND (6.1)	ND (6.8)
Chlorobenzene	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
Chloroethane	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
Chloroform (Trichloromethane)	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
Chloromethane (Methyl Chloride)	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
cis-1,2-Dichloroethene	ug/kg	ND (4.3)	ND (2.9)	ND (2.8)	ND (2.8)	ND (2.7)	ND (3.3)	ND (2.7)	ND (3.1)	ND (3.4)
cis-1,3-Dichloropropene	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
Cyclohexane	ug/kg	ND (17)	ND (12)	ND (11)	ND (11)	ND (11)	ND (13)	ND (11)	ND (12)	ND (14)
Dibromochloromethane	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (8.7)	ND (5.8) U	ND (5.6) U	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
Ethylbenzene	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
Isopropylbenzene	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
Methyl acetate	ug/kg	ND (17)	11 J	5.5 J	3.3 J	5 J	ND (13)	ND (11)	ND (12)	ND (14)
Methyl cyclohexane	ug/kg	ND (17)	ND (12)	ND (11)	ND (11)	ND (11)	ND (13)	ND (11)	ND (12)	ND (14)
Methyl Tert Butyl Ether	ug/kg	ND (35)	ND (23)	ND (22)	ND (22)	ND (22)	ND (27)	ND (22)	ND (24)	ND (27)
Methylene chloride	ug/kg	ND (8.7)	ND (5.8) U	ND (5.6) U	ND (5.5) U	ND (5.4) U	ND (6.7) U	ND (5.5)	ND (6.1)	ND (6.8)
Styrene	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
Tetrachloroethene	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
Toluene	ug/kg	ND (8.7)	0.75 J	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	0.96 J	ND (6.8)
trans-1,2-Dichloroethene	ug/kg	ND (4.3)	ND (2.9)	ND (2.8)	ND (2.8)	ND (2.7)	ND (3.3)	ND (2.7)	ND (3.1)	ND (3.4)
trans-1,3-Dichloropropene	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
Trichloroethene	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
Vinyl chloride	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
Xylene (total)	ug/kg	ND (8.7)	ND (5.8)	ND (5.6)	ND (5.5)	ND (5.4)	ND (6.7)	ND (5.5)	ND (6.1)	ND (6.8)
Wet										
Chloride	mg/kg	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/kg	ND (130)	1100 J	780 J	8000	5700	4000	4900	1300	470
Total Solids	%	76.2	78.4	78.2	80.2	78.4	74.9	78.2	81.8	76.7

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.3

SUMMARY OF VALIDATED SEDIMENT ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A004*	*A010*	*A010*	*A010*	*A010*	*P215 GMPT*
Sample Location:		*SD-X214Y275*	*SD-X220Y224*	*SD-X225Y180*	*SD-X245Y233*	*SD-X245Y233*	*SD-X255Y267*
Sample ID:		*SD-031402-JW-1428*	*SD-041502-JW-001*	*SD-041502-JW-002*	*SD-031402-JW-1426*	*SD-031402-JW-1426A*	*SD-031402-JW-1427*
Sample Date:		*3/14/2002*	*4/15/2002*	*4/15/2002*	*3/14/2002*	*3/14/2002*	*3/14/2002*
Sample Depth:							
						Duplicate	
Parameters	***Units***						
Metals							
Aluminum	mg/kg	4970	29100	12300	16300	26200	747
Antimony	mg/kg	ND (17.1)	1.2 J	0.80 J	ND (14.1)	ND (14.9)	ND (9.1)
Arsenic	mg/kg	11.6	4.9	3.8	19.2	25.1	1.7
Barium	mg/kg	112	51.2	45.9	175	184	8.3 J
Beryllium	mg/kg	ND (1.4) U	0.33 J	0.29 J	ND (1.2) U	ND (1.2) U	ND (0.76) U
Cadmium	mg/kg	ND (1.4)	1.9	1.1	ND (1.2)	ND (1.2)	1.5
Chromium Total	mg/kg	15.7	32.7	15.5	27.1	47.7	3.4
Cobalt	mg/kg	26.6	8.9 J	6.2 J	34.6	37.8	1.4 J
Copper	mg/kg	93.1	886	245	48.1	56.1	6.3
Cyanide (amenable)	mg/kg	ND (1.4)	ND (0.91)	ND (0.69)	3.5	3.8	ND (0.76)
Cyanide (total)	mg/kg	ND (1.4)	ND (0.91)	0.49 J	4.1	4.0	ND (0.76)
Iron	mg/kg	39600	13400	9600	44200	49000	4760
Lead	mg/kg	16.3	91.0	49.2	18.2	27.0	21.4
Manganese	mg/kg	6840	208	115	13800	12400	167
Mercury	mg/kg	ND (0.29) U	0.36	0.11 J	ND (0.24) U	ND (0.25) U	ND (0.15) U
Nickel	mg/kg	30.8	59.6	24.2	35.9	43.8	3.8 J
Selenium	mg/kg	ND (1.4)	0.71 J	0.45 J	ND (2.4)	ND (2.5)	ND (0.76)
Silver	mg/kg	1.0 J	1.9	3.9	ND (4.7)	ND (5.0)	0.41 J
Thallium	mg/kg	ND (2.9)	ND (1.8)	1.7	ND (4.7)	1.3 J	ND (1.5)
Vanadium	mg/kg	9.0 J	17.3	12.1	50.5	75.0	2.6 J
Zinc	mg/kg	68.0	908	379	84.3	109	151
PCBs							
Aroclor-1016 (PCB-1016)	ug/kg	ND (1900)	ND (3000)	ND (920)	ND (780)	ND (820)	ND (250)
Aroclor-1221 (PCB-1221)	ug/kg	ND (1900)	ND (3000)	ND (920)	ND (780)	ND (820)	ND (250)
Aroclor-1232 (PCB-1232)	ug/kg	ND (1900)	ND (3000)	ND (920)	ND (780)	ND (820)	ND (250)
Aroclor-1242 (PCB-1242)	ug/kg	ND (1900)	24000	16000	ND (780)	ND (820)	ND (250)
Aroclor-1248 (PCB-1248)	ug/kg	18000	ND (3000)	ND (920)	6200	5300	2300
Aroclor-1254 (PCB-1254)	ug/kg	ND (1900)	ND (3000)	ND (920)	ND (780)	ND (820)	ND (250)
Aroclor-1260 (PCB-1260)	ug/kg	1800 J	1800 J	960	740 J	350 J	280
Semi - Volatiles							
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
2,4,5-Trichlorophenol	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
2,4,6-Trichlorophenol	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
2,4-Dichlorophenol	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
2,4-Dimethylphenol	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
2,4-Dinitrophenol	ug/kg	ND (4600)	ND (2900)	ND (2200)	ND (3800)	ND (4000)	ND (2400)

TABLE 5.3

SUMMARY OF VALIDATED SEDIMENT ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A004*	*A010*	*A010*	*A010*	*A010*	*P215 GMPT*
Sample Location:		*SD-X214Y275*	*SD-X220Y224*	*SD-X225Y180*	*SD-X245Y233*	*SD-X245Y233*	*SD-X255Y267*
Sample ID:		*SD-031402-JW-1428*	*SD-041502-JW-001*	*SD-041502-JW-002*	*SD-031402-JW-1426*	*SD-031402-JW-1426A*	*SD-031402-JW-1427*
Sample Date:		*3/14/2002*	*4/15/2002*	*4/15/2002*	*3/14/2002*	*3/14/2002*	*3/14/2002*
Sample Depth:							
						Duplicate	
Parameters	***Units***						
2,4-Dinitrotoluene	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
2,6-Dinitrotoluene	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
2-Chloronaphthalene	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
2-Chlorophenol	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
2-Methylnaphthalene	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
2-Methylphenol	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
2-Nitroaniline	ug/kg	ND (4600)	ND (2900)	ND (2200)	ND (3800)	ND (4000)	ND (2400)
2-Nitrophenol	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
3,3'-Dichlorobenzidine	ug/kg	ND (4600)	ND (2900)	ND (2200)	ND (3800)	ND (4000)	ND (2400)
3-Nitroaniline	ug/kg	ND (4600)	ND (2900)	ND (2200)	ND (3800)	ND (4000)	ND (2400)
4,6-Dinitro-2-methylphenol	ug/kg	ND (4600)	ND (2900)	ND (2200)	ND (3800)	ND (4000)	ND (2400)
4-Bromophenyl phenyl ether	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
4-Chloro-3-methylphenol	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
4-Chloroaniline	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
4-Chlorophenyl phenyl ether	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
4-Methylphenol	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
4-Nitroaniline	ug/kg	ND (4600)	ND (2900)	ND (2200)	ND (3800)	ND (4000)	ND (2400)
4-Nitrophenol	ug/kg	ND (4600)	ND (2900)	ND (2200)	ND (3800)	ND (4000)	ND (2400)
Acenaphthene	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Acenaphthylene	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Acetophenone	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Anthracene	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Atrazine	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Benzaldehyde	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Benzo(a)anthracene	ug/kg	ND (940)	330 J	200 J	ND (780)	ND (820)	ND (500)
Benzo(a)pyrene	ug/kg	ND (940)	430 J	280 J	ND (780)	ND (820)	ND (500)
Benzo(b)fluoranthene	ug/kg	ND (940)	630	360 J	ND (780)	ND (820)	ND (500)
Benzo(g,h,i)perylene	ug/kg	ND (940)	270 J	190 J	ND (780)	ND (820)	ND (500)
Benzo(k)fluoranthene	ug/kg	ND (940)	260 J	160 J	ND (780)	ND (820)	ND (500)
Biphenyl	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
bis(2-Chloroethoxy)methane	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
bis(2-Chloroethyl)ether	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
bis(2-Ethylhexyl)phthalate	ug/kg	ND (940)	370 J	310 J	ND (780)	ND (820)	ND (500)
Butyl benzylphthalate	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Caprolactam	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Carbazole	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Chrysene	ug/kg	ND (940)	450 J	280 J	ND (780)	ND (820)	ND (500)
Dibenz(a,h)anthracene	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Dibenzofuran	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Diethyl phthalate	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Dimethyl phthalate	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Di-n-butylphthalate	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)

TABLE 5.3

SUMMARY OF VALIDATED SEDIMENT ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A004*	*A010*	*A010*	*A010*	*A010*	*P215 GMPT*
Sample Location:		*SD-X214Y275*	*SD-X220Y224*	*SD-X225Y180*	*SD-X245Y233*	*SD-X245Y233*	*SD-X255Y267*
Sample ID:		*SD-031402-JW-1428*	*SD-041502-JW-001*	*SD-041502-JW-002*	*SD-031402-JW-1426*	*SD-031402-JW-1426A*	*SD-031402-JW-1427*
Sample Date:		*3/14/2002*	*4/15/2002*	*4/15/2002*	*3/14/2002*	*3/14/2002*	*3/14/2002*
Sample Depth:							
						Duplicate	
Parameters	***Units***						
Di-n-octyl phthalate	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Fluoranthene	ug/kg	ND (940)	810	440 J	ND (780)	ND (820)	ND (500)
Fluorene	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Hexachlorobenzene	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Hexachlorobutadiene	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Hexachlorocyclopentadiene	ug/kg	ND (4600)	ND (2900)	ND (2200)	ND (3800)	ND (4000)	ND (2400)
Hexachloroethane	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (940)	240 J	140 J	ND (780)	ND (820)	ND (500)
Isophorone	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Naphthalene	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Nitrobenzene	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
N-Nitrosodi-n-propylamine	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
N-Nitrosodiphenylamine	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Pentachlorophenol	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Phenanthrene	ug/kg	ND (940)	460 J	260 J	ND (780)	ND (820)	ND (500)
Phenol	ug/kg	ND (940)	ND (600)	ND (460)	ND (780)	ND (820)	ND (500)
Pyrene	ug/kg	ND (940)	760	470	ND (780)	ND (820)	ND (500)
Volatiles							
1,1,1-Trichloroethane	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
1,1,2,2-Tetrachloroethane	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
1,1,2-Trichloroethane	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
1,1-Dichloroethane	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
1,1-Dichloroethene	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
1,2,4-Trichlorobenzene	ug/kg	ND (19)	ND (18)	ND (14) UJ	ND (16)	ND (18)	ND (7.6)
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	ND (39)	ND (35)	ND (28) UJ	ND (31)	ND (36)	ND (15)
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
1,2-Dichlorobenzene	ug/kg	ND (19)	ND (18)	ND (14) UJ	ND (16)	ND (18)	ND (7.6)
1,2-Dichloroethane	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
1,2-Dichloropropane	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
1,3-Dichlorobenzene	ug/kg	3.1 J	ND (18)	ND (14) UJ	ND (16)	ND (18)	ND (7.6)
1,4-Dichlorobenzene	ug/kg	5.5 J	ND (18)	ND (14) UJ	ND (16)	ND (18)	ND (7.6)
2-Butanone (Methyl Ethyl Ketone)	ug/kg	ND (77)	13 J	13 J	ND (62)	ND (71)	ND (30)
2-Hexanone	ug/kg	ND (77)	ND (70)	ND (56)	ND (62)	ND (71)	ND (30)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/kg	ND (77)	ND (70)	ND (56)	ND (62)	ND (71)	ND (30)
Acetone	ug/kg	ND (77)	ND (70) U	ND (56) U	ND (62)	ND (71) U	ND (30)
Benzene	ug/kg	ND (19)	20	16	ND (16)	ND (18)	ND (7.6)
Bromodichloromethane	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
Bromoform	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
Bromomethane (Methyl Bromide)	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
Carbon disulfide	ug/kg	ND (19)	3.1 J	ND (14)	ND (16)	ND (18)	ND (7.6)

TABLE 5.3

SUMMARY OF VALIDATED SEDIMENT ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A004*	*A010*	*A010*	*A010*	*A010*	*P215 GMPT*
Sample Location:		*SD-X214Y275*	*SD-X220Y224*	*SD-X225Y180*	*SD-X245Y233*	*SD-X245Y233*	*SD-X255Y267*
Sample ID:		*SD-031402-JW-1428*	*SD-041502-JW-001*	*SD-041502-JW-002*	*SD-031402-JW-1426*	*SD-031402-JW-1426A*	*SD-031402-JW-1427*
Sample Date:		*3/14/2002*	*4/15/2002*	*4/15/2002*	*3/14/2002*	*3/14/2002*	*3/14/2002*
Sample Depth:							
						Duplicate	
Parameters	***Units***						
Carbon tetrachloride	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
Chlorobenzene	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
Chloroethane	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
Chloroform (Trichloromethane)	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
Chloromethane (Methyl Chloride)	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
cis-1,2-Dichloroethene	ug/kg	ND (9.6)	ND (8.8)	ND (6.9)	ND (7.8)	ND (8.9)	ND (3.8)
cis-1,3-Dichloropropene	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
Cyclohexane	ug/kg	ND (39)	ND (35)	ND (28)	ND (31)	ND (36)	ND (15)
Dibromochloromethane	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
Dichlorodifluoromethane (CFC-12)	ug/kg	ND (19)	4.1 J	ND (14)	ND (16)	ND (18)	ND (7.6)
Ethylbenzene	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
Isopropylbenzene	ug/kg	ND (19)	13 J	11 J	ND (16)	ND (18)	ND (7.6)
Methyl acetate	ug/kg	41	11 J	31	18 J	53	5.8 J
Methyl cyclohexane	ug/kg	ND (39)	ND (35)	ND (28)	ND (31)	ND (36)	ND (15)
Methyl Tert Butyl Ether	ug/kg	ND (77)	ND (70)	ND (56)	ND (62)	ND (71)	ND (30)
Methylene chloride	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
Styrene	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
Tetrachloroethene	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
Toluene	ug/kg	ND (19)	3.2 J	2.9 J	ND (16)	ND (18)	ND (7.6)
trans-1,2-Dichloroethene	ug/kg	ND (9.6)	ND (8.8)	ND (6.9)	ND (7.8)	ND (8.9)	ND (3.8)
trans-1,3-Dichloropropene	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
Trichloroethene	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
Trichlorofluoromethane (CFC-11)	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
Trifluorotrichloroethane (Freon 113)	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
Vinyl chloride	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
Xylene (total)	ug/kg	ND (19)	ND (18)	ND (14)	ND (16)	ND (18)	ND (7.6)
General Chemistry							
Total Organic Carbon (TOC)	mg/kg	49000	40000	26000	17000	19000	6500
Total Solids	%	35.0	54.8	72.0	42.5	40.3	65.9

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.4

SUMMARY OF VALIDATED SURFACE WATER ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A001*	*A001*	*A001*	*A001*	*A001*	*A004*	*A004*	*A004 A010 GMPT*	*A004 A010 GMPT*	*A006*	*A010*
Sample Location:		*SW-X156Y082*	*SW-X156Y082*	*SW-X168Y066*	*SW-X168Y066*	*SW-X168Y066*	*SW-X216Y274*	*SW-X216Y274*	*SW-X256Y260*	*SW-X256Y260*	*TEMP*	*Eastern Seep Area 01*
Sample ID:		*SW-042902-JW-001*	*SW-052102-JW-5044*	*SW-042902-JW-002*	*SW-052202-JW-5045*	*SW-052202-JW-5045A*	*SW-031502-JW-1428*	*SW-052102-JW-5042*	*SW-031502-JW-1427*	*SW-031502-JW-1427A*	*AOI 6 PONDED WATER*	*GW-00-031102-GS-001*
Sample Date:		*4/29/2002*	*5/21/2002*	*4/29/2002*	*5/22/2002*	*5/22/2002*	*3/15/2002*	*5/21/2002*	*3/15/2002*	*3/15/2002*	*5/20/2003*	*3/11/2002*
Sample Depth:												
						Duplicate				*Duplicate*		
Parameters	***Units***											
Metals												
Aluminum	mg/L	ND (0.2) U	ND (0.2)	ND (0.2) U	0.034 J	0.034 J	9.7	56.2	ND (0.20)	ND (0.20)	-	-
Antimony	mg/L	0.0092 J	0.011 J	ND (0.06)	ND (0.06)	ND (0.06)	ND (0.060)	0.0043 J	ND (0.060)	ND (0.060)	-	-
Arsenic	mg/L	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	0.015	0.081	ND (0.010)	ND (0.010)	-	-
Barium	mg/L	0.041 J	0.034 J	0.056 J	0.045 J	0.044 J	0.32	0.89	0.066 J	0.066 J	-	-
Beryllium	mg/L	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.0050)	0.0014 J	ND (0.0050)	ND (0.0050)	-	-
Cadmium	mg/L	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.0050)	ND (0.005)	ND (0.0050)	ND (0.0050)	-	-
Chromium Total	mg/L	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	0.014	0.087	ND (0.010)	ND (0.010)	-	-
Cobalt	mg/L	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	0.022 J	0.12	ND (0.050)	ND (0.050)	-	-
Copper	mg/L	0.022 J	0.01 J	0.0057 J	0.0066 J	0.0058 J	0.077	0.38	ND (0.025)	ND (0.025)	-	-
Cyanide (amenable)	mg/L	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.010)	ND (0.01)	ND (0.010)	ND (0.010)	-	-
Cyanide (total)	mg/L	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.010)	ND (0.01)	ND (0.010)	ND (0.010)	-	-
Iron	mg/L	ND (0.1)	ND (0.1)	ND (0.1)	0.14	0.12	72.5	306	0.31	0.31	-	-
Lead	mg/L	ND (0.003)	ND (0.003)	ND (0.003)	ND (0.003)	ND (0.003)	0.0094	0.067	ND (0.0030)	ND (0.0030)	-	-
Manganese	mg/L	0.0056 J	0.0083 J	0.017	0.03	0.024	12.7	57.4	0.54	0.53	-	-
Mercury	mg/L	ND (0.0002)	ND (0.0002)	ND (0.0002)	ND (0.0002)	ND (0.0002)	0.0010	0.00058	ND (0.00020) UJ	ND (0.00020) UJ	-	-
Nickel	mg/L	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)	0.025 J	0.15	ND (0.040)	ND (0.040)	-	-
Selenium	mg/L	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.0050)	ND (0.025)	ND (0.0050)	ND (0.0050)	-	-
Silver	mg/L	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.010)	0.0031 J	ND (0.010)	ND (0.010)	-	-
Thallium	mg/L	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.0098 J	ND (0.001)	0.0081 J	0.0075 J	-	-
Vanadium	mg/L	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	0.016 J	0.096	ND (0.050)	ND (0.050)	-	-
Zinc	mg/L	ND (0.035) U	0.027	ND (0.02) U	0.014 J	ND (0.02)	0.071	0.42	ND (0.020)	ND (0.020)	-	-
Metals (dissolved)												
Aluminum (Dissolved)	mg/L	ND (0.2) U	ND (0.2)	ND (0.2) U	ND (0.2)	ND (0.2)	ND (0.20)	ND (0.2)	ND (0.20)	ND (0.20)	-	-
Antimony (Dissolved)	mg/L	0.0093 J	0.013 J	ND (0.06)	ND (0.06)	ND (0.06)	ND (0.060)	ND (0.06)	ND (0.060)	ND (0.060)	-	-
Arsenic (Dissolved)	mg/L	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.010)	ND (0.01)	ND (0.010)	ND (0.010)	-	-
Barium (Dissolved)	mg/L	0.04 J	0.036 J	0.061 J	0.045 J	0.047 J	0.085 J	0.093 J	0.064 J	0.064 J	-	-
Beryllium (Dissolved)	mg/L	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.0050)	ND (0.005)	ND (0.0050)	ND (0.0050)	-	-
Cadmium (Dissolved)	mg/L	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.0050)	ND (0.005)	ND (0.0050)	ND (0.0050)	-	-
Chromium Total (Dissolved)	mg/L	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.010)	ND (0.01)	ND (0.010)	ND (0.010)	-	-
Cobalt (Dissolved)	mg/L	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.050)	ND (0.05)	ND (0.050)	ND (0.050)	-	-
Copper (Dissolved)	mg/L	0.0073 J	0.0076 J	0.0056 J	0.0053 J	0.0064 J	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.025)	-	-
Iron (Dissolved)	mg/L	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.10)	ND (0.1)	ND (0.10)	ND (0.10)	-	-
Lead (Dissolved)	mg/L	ND (0.003)	ND (0.003)	ND (0.003)	ND (0.003)	ND (0.003)	ND (0.0030)	ND (0.003)	ND (0.0030)	ND (0.0030)	-	-
Manganese (Dissolved)	mg/L	0.0034 J	0.0041 J	0.017	0.025	0.025	0.26	0.71	0.52	0.51	-	-
Mercury (Dissolved)	mg/L	ND (0.0002)	ND (0.0002)	ND (0.0002)	ND (0.0002)	ND (0.0002)	ND (0.00020) UJ	ND (0.0002)	ND (0.00020) UJ	ND (0.00020) UJ	-	-
Nickel (Dissolved)	mg/L	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.040)	ND (0.04)	ND (0.040)	ND (0.040)	-	-
Selenium (Dissolved)	mg/L	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.0050)	ND (0.005)	ND (0.0050)	ND (0.0050)	-	-
Silver (Dissolved)	mg/L	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.010)	ND (0.01)	ND (0.010)	ND (0.010)	-	-
Thallium (Dissolved)	mg/L	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.0085 J	ND (0.001)	0.0075 J	0.0090 J	-	-
Vanadium (Dissolved)	mg/L	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.050)	ND (0.05)	ND (0.050)	ND (0.050)	-	-
Zinc (Dissolved)	mg/L	ND (0.026) U	0.028	ND (0.026) U	ND (0.02)	ND (0.02)	ND (0.020)	ND (0.02)	ND (0.020)	0.013 J	-	-
PCBs												
Aroclor-1016 (PCB-1016)	ug/L	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.20) UJ	ND (1) UJ	ND (0.40)	ND (0.40)	ND (0.20)	ND (2)
Aroclor-1221 (PCB-1221)	ug/L	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.20) UJ	ND (1) UJ	ND (0.40)	ND (0.40)	ND (0.20)	ND (2)
Aroclor-1232 (PCB-1232)	ug/L	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.40) UJ	ND (1) UJ	ND (0.80)	ND (0.80)	ND (0.40)	ND (4)
Aroclor-1242 (PCB-1242)	ug/L	ND (0.2)	0.97	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.20) UJ	ND (1) UJ	3.8	4.6	ND (0.20)	22
Aroclor-1248 (PCB-1248)	ug/L	1.6	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	2.4 J	4.6 J	ND (0.40)	ND (0.40)	0.61	ND (2)
Aroclor-1254 (PCB-1254)	ug/L	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.20) UJ	ND (1) UJ	ND (0.40)	ND (0.40)	ND (0.20)	ND (2)
Aroclor-1260 (PCB-1260)	ug/L	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.20) UJ	ND (1) UJ	ND (0.40)	ND (0.40)	ND (0.20)	ND (2)
PCBs (dissolved)												

TABLE 5.4

SUMMARY OF VALIDATED SURFACE WATER ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A001*	*A001*	*A001*	*A001*	*A001*	*A004*	*A004*	*A004 A010 GMPT*	*A004 A010 GMPT*	*A006*	*A010*
Sample Location:		*SW-X156Y082*	*SW-X156Y082*	*SW-X168Y066*	*SW-X168Y066*	*SW-X168Y066*	*SW-X216Y274*	*SW-X216Y274*	*SW-X256Y260*	*SW-X256Y260*	*TEMP*	*Eastern Seep Area 01*
Sample ID:		*SW-042902-JW-001*	*SW-052102-JW-5044*	*SW-042902-JW-002*	*SW-052202-JW-5045*	*SW-052202-JW-5045A*	*SW-031502-JW-1428*	*SW-052102-JW-5042*	*SW-031502-JW-1427*	*SW-031502-JW-1427A*	*AOI 6 PONDED WATER*	*GW-00-031102-GS-001*
Sample Date:		*4/29/2002*	*5/21/2002*	*4/29/2002*	*5/22/2002*	*5/22/2002*	*3/15/2002*	*5/21/2002*	*3/15/2002*	*3/15/2002*	*5/20/2003*	*3/11/2002*
Sample Depth:												
						Duplicate				*Duplicate*		
Parameters	*Units*											
Aroclor-1016 (PCB-1016) (Dissolved)	ug/L	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.20)	ND (0.2)	ND (0.20)	ND (0.20)	-	ND (0.2) UJ
Aroclor-1221 (PCB-1221) (Dissolved)	ug/L	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.20)	ND (0.2)	ND (0.20)	ND (0.20)	-	ND (0.2) UJ
Aroclor-1232 (PCB-1232) (Dissolved)	ug/L	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.40)	ND (0.4)	ND (0.40)	ND (0.40)	-	ND (0.4) UJ
Aroclor-1242 (PCB-1242) (Dissolved)	ug/L	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.20)	ND (0.2)	ND (0.20)	ND (0.20)	-	ND (0.2) UJ
Aroclor-1248 (PCB-1248) (Dissolved)	ug/L	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.20)	ND (0.2)	ND (0.20)	ND (0.20)	-	ND (0.2) UJ
Aroclor-1254 (PCB-1254) (Dissolved)	ug/L	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.20)	ND (0.2)	ND (0.20)	ND (0.20)	-	ND (0.2) UJ
Aroclor-1260 (PCB-1260) (Dissolved)	ug/L	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.20)	ND (0.2)	ND (0.20)	ND (0.20)	-	ND (0.2) UJ
Semi - Volatiles												
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
2,4,5-Trichlorophenol	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
2,4,6-Trichlorophenol	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
2,4-Dichlorophenol	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
2,4-Dimethylphenol	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
2,4-Dinitrophenol	ug/L	ND (50) UJ	ND (50)	ND (50) UJ	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	-	-
2,4-Dinitrotoluene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
2,6-Dinitrotoluene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
2-Chloronaphthalene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
2-Chlorophenol	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
2-Methylnaphthalene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
2-Methylphenol	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
2-Nitroaniline	ug/L	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	-	-
2-Nitrophenol	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
3,3'-Dichlorobenzidine	ug/L	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	-	-
3-Nitroaniline	ug/L	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	-	-
4,6-Dinitro-2-methylphenol	ug/L	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	-	-
4-Bromophenyl phenyl ether	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
4-Chloro-3-methylphenol	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
4-Chloroaniline	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
4-Chlorophenyl phenyl ether	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
4-Methylphenol	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
4-Nitroaniline	ug/L	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50) UJ	ND (50)	ND (50)	-	-
4-Nitrophenol	ug/L	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	-	-
Acenaphthene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Acenaphthylene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Acetophenone	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Anthracene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Atrazine	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Benzaldehyde	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Benzo(a)anthracene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Benzo(a)pyrene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Benzo(b)fluoranthene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Benzo(g,h,i)perylene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Benzo(k)fluoranthene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Biphenyl	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
bis(2-Chloroethoxy)methane	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
bis(2-Chloroethyl)ether	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
bis(2-Ethylhexyl)phthalate	ug/L	ND (10)	ND (10)	9.8 J	8.5 J	8 J	ND (10)	ND (10)	2.9 J	ND (10)	-	-
Butyl benzylphthalate	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Caprolactam	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Carbazole	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Chrysene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Dibenz(a,h)anthracene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Dibenzofuran	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Diethyl phthalate	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-

TABLE 5.4

SUMMARY OF VALIDATED SURFACE WATER ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A001*	*A001*	*A001*	*A001*	*A001*	*A004*	*A004*	*A004 A010 GMPT*	*A004 A010 GMPT*	*A006*	*A010*
Sample Location:		*SW-X156Y082*	*SW-X156Y082*	*SW-X168Y066*	*SW-X168Y066*	*SW-X168Y066*	*SW-X216Y274*	*SW-X216Y274*	*SW-X256Y260*	*SW-X256Y260*	*TEMP*	*Eastern Seep Area 01*
Sample ID:		*SW-042902-JW-001*	*SW-052102-JW-5044*	*SW-042902-JW-002*	*SW-052202-JW-5045*	*SW-052202-JW-5045A*	*SW-031502-JW-1428*	*SW-052102-JW-5042*	*SW-031502-JW-1427*	*SW-031502-JW-1427A*	*AOI 6 PONDED WATER*	*GW-00-031102-GS-001*
Sample Date:		*4/29/2002*	*5/21/2002*	*4/29/2002*	*5/22/2002*	*5/22/2002*	*3/15/2002*	*5/21/2002*	*3/15/2002*	*3/15/2002*	*5/20/2003*	*3/11/2002*
Sample Depth:												
						Duplicate				*Duplicate*		
Parameters	***Units***											
Dimethyl phthalate	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Di-n-butylphthalate	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Di-n-octyl phthalate	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Fluoranthene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Fluorene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Hexachlorobenzene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Hexachlorobutadiene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Hexachlorocyclopentadiene	ug/L	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	-	-
Hexachloroethane	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Indeno(1,2,3-cd)pyrene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Isophorone	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Naphthalene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Nitrobenzene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
N-Nitrosodi-n-propylamine	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
N-Nitrosodiphenylamine	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Pentachlorophenol	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Phenanthrene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Phenol	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Pyrene	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Volatiles												
1,1,1-Trichloroethane	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
1,1,2,2-Tetrachloroethane	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
1,1,2-Trichloroethane	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
1,1-Dichloroethane	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
1,1-Dichloroethene	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
1,2,4-Trichlorobenzene	ug/L	0.83 J	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	ND (2.0)	ND (2)	ND (2.0)	ND (2)	ND (2)	ND (2.0)	ND (2)	ND (2.0)	ND (2.0)	-	-
1,2-Dibromoethane (Ethylene Dibromide)	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
1,2-Dichlorobenzene	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
1,2-Dichloroethane	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
1,2-Dichloropropane	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
1,3-Dichlorobenzene	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	0.15 J	ND (1)	ND (1.0)	ND (1.0)	-	-
1,4-Dichlorobenzene	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	0.29 J	0.27 J	ND (1.0)	ND (1.0)	-	-
2-Butanone (Methyl Ethyl Ketone)	ug/L	ND (10)	ND (10)	ND (10)	ND (10) UJ	ND (10) UJ	ND (10) UJ	ND (10)	ND (10) UJ	ND (10) UJ	-	-
2-Hexanone	ug/L	ND (10)	ND (10) UJ	ND (10)	ND (10)	ND (10)	ND (10) UJ	ND (10) UJ	ND (10) UJ	ND (10) UJ	-	-
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-
Acetone	ug/L	ND (10) UJ	ND (10) UJ	ND (10) UJ	ND (10) UJ	ND (10) UJ	ND (10) UJ	ND (10) UJ	ND (10) UJ	ND (10) UJ	-	-
Benzene	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Bromodichloromethane	ug/L	ND (1.0)	ND (1)	1.3	0.33 J	0.28 J	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Bromoform	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Bromomethane (Methyl Bromide)	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Carbon disulfide	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	0.37 J	ND (1.0)	ND (1.0)	-	-
Carbon tetrachloride	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Chlorobenzene	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	0.18 J	0.29 J	ND (1.0)	ND (1.0)	-	-
Chloroethane	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Chloroform (Trichloromethane)	ug/L	ND (1.0)	ND (1)	17	1.4	1.4	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Chloromethane (Methyl Chloride)	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0) UJ	ND (1)	ND (1.0) UJ	ND (1.0) UJ	-	-
cis-1,2-Dichloroethene	ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.50)	ND (0.5)	ND (0.50)	ND (0.50)	-	-
cis-1,3-Dichloropropene	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Cyclohexane	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Dibromochloromethane	ug/L	ND (1.0)	ND (1)	0.3 J	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Dichlorodifluoromethane (CFC-12)	ug/L	ND (1.0) UJ	ND (1)	ND (1.0) UJ	ND (1)	ND (1)	ND (1.0) UJ	ND (1)	ND (1.0) UJ	ND (1.0) UJ	-	-
Ethylbenzene	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Isopropylbenzene	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Methyl acetate	ug/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	-	-

TABLE 5.4

SUMMARY OF VALIDATED SURFACE WATER ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A001*	*A001*	*A001*	*A001*	*A001*	*A004*	*A004*	*A004 A010 GMPT*	*A004 A010 GMPT*	*A006*	*A010*
Sample Location:		*SW-X156Y082*	*SW-X156Y082*	*SW-X168Y066*	*SW-X168Y066*	*SW-X168Y066*	*SW-X216Y274*	*SW-X216Y274*	*SW-X256Y260*	*SW-X256Y260*	*TEMP*	*Eastern Seep Area 01*
Sample ID:		*SW-042902-JW-001*	*SW-052102-JW-5044*	*SW-042902-JW-002*	*SW-052202-JW-5045*	*SW-052202-JW-5045A*	*SW-031502-JW-1428*	*SW-052102-JW-5042*	*SW-031502-JW-1427*	*SW-031502-JW-1427A*	*AOI 6 PONDED WATER*	*GW-00-031102-GS-001*
Sample Date:		*4/29/2002*	*5/21/2002*	*4/29/2002*	*5/22/2002*	*5/22/2002*	*3/15/2002*	*5/21/2002*	*3/15/2002*	*3/15/2002*	*5/20/2003*	*3/11/2002*
Sample Depth:												
						Duplicate				*Duplicate*		
Parameters	***Units***											
Methyl cyclohexane	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1) UJ	ND (1) UJ	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Methyl Tert Butyl Ether	ug/L	ND (5.0)	ND (5)	ND (5.0)	ND (5)	ND (5)	ND (5.0)	ND (5)	ND (5.0)	ND (5.0)	-	-
Methylene chloride	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Styrene	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Tetrachloroethene	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Toluene	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
trans-1,2-Dichloroethene	ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.50)	ND (0.5)	ND (0.50)	ND (0.50)	-	-
trans-1,3-Dichloropropene	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Trichloroethene	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Trichlorofluoromethane (CFC-11)	ug/L	ND (1.0) UJ	ND (1)	ND (1.0) UJ	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Trifluorotrichloroethane (Freon 113)	ug/L	ND (1.0) UJ	ND (1)	ND (1.0) UJ	ND (1) UJ	ND (1) UJ	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Vinyl chloride	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Xylene (total)	ug/L	ND (1.0)	ND (1)	ND (1.0)	ND (1)	ND (1)	ND (1.0)	ND (1)	ND (1.0)	ND (1.0)	-	-
Wet												
Ammonia	mg/L	-	0.07 J	-	0.04 J	0.05 J	-	0.4	-	-	-	-
Chloride	mg/L	-	182	-	42.8	43.1	-	-	-	-	-	-
pH (water)	s.u.	-	7.9	-	8.1	8.2	-	8	-	-	-	-
Total Dissolved Solids (TDS)	mg/L	-	700	-	340	280	-	890	-	-	-	-
Total Kjeldahl Nitrogen (TKN)	mg/L	-	ND (1)	-	ND (1)	0.6 J	-	2	-	-	-	-
Total Suspended Solids (TSS)	mg/L	-	ND (4)	-	4	4	-	960	-	-	-	-

Notes:
* Reported in units of ug/L.
UJ Non-detect at associated value. The associated value is estimated.
J Estimated.
U Non-detect.

TABLE 5.4

SUMMARY OF VALIDATED SURFACE WATER ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A010*	*A010*	*A010*	*A010*	*A010*	*A010*	*A010*
Sample Location:		*Eastern Seep Area 02*	*Eastern Seep Area 02*	*Spring East of Storm Pond*	*Spring East of Storm Pond-2*	*SW-X217Y224*	*SW-X243Y232*	*SW-X243Y232*
Sample ID:		*GW-00-031102-GS-002*	*GW-00-031102-GS-002A*	*GW-00-031202-JW-004*	*GW-00-031202-JW-003*	*SW-041502-JW-001*	*SW-031502-JW-1426*	*SW-052102-JW-5041*
Sample Date:		*3/11/2002*	*3/11/2002*	*3/12/2002*	*3/12/2002*	*4/15/2002*	*3/15/2002*	*5/21/2002*
Sample Depth:								
			Duplicate					
Parameters	***Units***							
Metals								
Aluminum	mg/L	-	-	-	-	0.47	ND (0.20)	ND (0.2)
Antimony	mg/L	-	-	-	-	ND (0.060) U	ND (0.060)	ND (0.06)
Arsenic	mg/L	-	-	-	-	ND (0.010)	ND (0.010)	ND (0.01)
Barium	mg/L	-	-	-	-	0.021 J	0.065 J	0.06 J
Beryllium	mg/L	-	-	-	-	ND (0.0050) U	ND (0.0050)	ND (0.005)
Cadmium	mg/L	-	-	-	-	ND (0.0050)	ND (0.0050)	ND (0.005)
Chromium Total	mg/L	-	-	-	-	ND (0.010)	ND (0.010)	ND (0.01)
Cobalt	mg/L	-	-	-	-	ND (0.050)	ND (0.050) U	0.0024 J
Copper	mg/L	-	-	-	-	0.0080 J	ND (0.025)	ND (0.025)
Cyanide (amenable)	mg/L	-	-	-	-	ND (0.010)	ND (0.010)	ND (0.01)
Cyanide (total)	mg/L	-	-	-	-	ND (0.010)	ND (0.010)	ND (0.01)
Iron	mg/L	-	-	-	-	ND (0.23) U	1.4	1.4
Lead	mg/L	-	-	-	-	ND (0.0030)	ND (0.0030)	ND (0.003)
Manganese	mg/L	-	-	-	-	ND (0.015) U	1.4	1.2
Mercury	mg/L	-	-	-	-	0.00013 J	ND (0.00020) UJ	ND (0.0002)
Nickel	mg/L	-	-	-	-	ND (0.040)	0.0024 J	0.0038 J
Selenium	mg/L	-	-	-	-	ND (0.0050)	ND (0.0050)	ND (0.005)
Silver	mg/L	-	-	-	-	ND (0.010)	ND (0.010)	ND (0.01)
Thallium	mg/L	-	-	-	-	ND (0.0010)	0.0070 J	ND (0.001)
Vanadium	mg/L	-	-	-	-	ND (0.050)	ND (0.050)	ND (0.05)
Zinc	mg/L	-	-	-	-	ND (0.027) U	ND (0.020)	ND (0.02)
Metals (dissolved)								
Aluminum (Dissolved)	mg/L	-	-	-	-	0.17 J	ND (0.20)	ND (0.2)
Antimony (Dissolved)	mg/L	-	-	-	-	ND (0.060) U	0.0027 J	ND (0.06)
Arsenic (Dissolved)	mg/L	-	-	-	-	ND (0.010)	ND (0.010)	ND (0.01)
Barium (Dissolved)	mg/L	-	-	-	-	0.022 J	0.065 J	0.059 J
Beryllium (Dissolved)	mg/L	-	-	-	-	ND (0.0050) U	ND (0.0050)	ND (0.005)
Cadmium (Dissolved)	mg/L	-	-	-	-	ND (0.0050)	ND (0.0050)	ND (0.005)
Chromium Total (Dissolved)	mg/L	-	-	-	-	ND (0.010)	ND (0.010)	ND (0.01)
Cobalt (Dissolved)	mg/L	-	-	-	-	ND (0.050)	ND (0.050) U	0.0023 J
Copper (Dissolved)	mg/L	-	-	-	-	0.0067 J	ND (0.025)	ND (0.025)
Iron (Dissolved)	mg/L	-	-	-	-	ND (0.10)	0.57	1.2
Lead (Dissolved)	mg/L	-	-	-	-	ND (0.0030)	ND (0.0030)	ND (0.003)
Manganese (Dissolved)	mg/L	-	-	-	-	ND (0.015) U	1.5	1.2
Mercury (Dissolved)	mg/L	-	-	-	-	ND (0.00020)	ND (0.00020) UJ	ND (0.0002)
Nickel (Dissolved)	mg/L	-	-	-	-	ND (0.040)	0.0025 J	0.0038 J
Selenium (Dissolved)	mg/L	-	-	-	-	ND (0.0050)	ND (0.0050)	ND (0.005)
Silver (Dissolved)	mg/L	-	-	-	-	ND (0.010)	ND (0.010)	ND (0.01)
Thallium (Dissolved)	mg/L	-	-	-	-	ND (0.0010)	0.0075 J	ND (0.001)
Vanadium (Dissolved)	mg/L	-	-	-	-	ND (0.050)	ND (0.050)	ND (0.05)
Zinc (Dissolved)	mg/L	-	-	-	-	ND (0.020)	ND (0.020)	ND (0.02)
PCBs								
Aroclor-1016 (PCB-1016)	ug/L	ND (20)	ND (10)	ND (0.2)	ND (0.2)	ND (0.20) UJ	ND (2.0)	ND (1)
Aroclor-1221 (PCB-1221)	ug/L	ND (20)	ND (10)	ND (0.2)	ND (0.2)	ND (0.20) UJ	ND (2.0)	ND (1)
Aroclor-1232 (PCB-1232)	ug/L	ND (40)	ND (20)	ND (0.4)	ND (0.4)	ND (0.40) UJ	ND (4.0)	ND (2)
Aroclor-1242 (PCB-1242)	ug/L	180	100	ND (0.2)	ND (0.2)	0.22 J	22	12
Aroclor-1248 (PCB-1248)	ug/L	ND (20)	ND (10)	ND (0.2)	ND (0.2)	ND (0.20) UJ	ND (2.0)	ND (1)
Aroclor-1254 (PCB-1254)	ug/L	ND (20)	ND (10)	ND (0.2)	ND (0.2)	ND (0.20) UJ	ND (2.0)	ND (1)
Aroclor-1260 (PCB-1260)	ug/L	ND (20)	ND (10)	ND (0.2)	ND (0.2)	ND (0.20) UJ	ND (2.0)	ND (1)
PCBs (dissolved)								

TABLE 5.4

SUMMARY OF VALIDATED SURFACE WATER ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A010*	*A010*	*A010*	*A010*	*A010*	*A010*	*A010*
Sample Location:		*Eastern Seep Area 02*	*Eastern Seep Area 02*	*Spring East of Storm Pond*	*Spring East of Storm Pond-2*	*SW-X217Y224*	*SW-X243Y232*	*SW-X243Y232*
Sample ID:		*GW-00-031102-GS-002*	*GW-00-031102-GS-002A*	*GW-00-031202-JW-004*	*GW-00-031202-JW-003*	*SW-041502-JW-001*	*SW-031502-JW-1426*	*SW-052102-JW-5041*
Sample Date:		*3/11/2002*	*3/11/2002*	*3/12/2002*	*3/12/2002*	*4/15/2002*	*3/15/2002*	*5/21/2002*
Sample Depth:								
			Duplicate					
Parameters	***Units***							
Aroclor-1016 (PCB-1016) (Dissolved)	ug/L	ND (1)	ND (4)	ND (0.2)	ND (0.2)	ND (0.20)	ND (1.0)	ND (0.2)
Aroclor-1221 (PCB-1221) (Dissolved)	ug/L	10 J	51	ND (0.2)	ND (0.2)	ND (0.20)	ND (1.0)	ND (0.2)
Aroclor-1232 (PCB-1232) (Dissolved)	ug/L	ND (2)	ND (8)	ND (0.4)	ND (0.4)	ND (0.40)	ND (2.0)	ND (0.4)
Aroclor-1242 (PCB-1242) (Dissolved)	ug/L	ND (1)	ND (4)	ND (0.2)	ND (0.2)	ND (0.20)	13	ND (0.2)
Aroclor-1248 (PCB-1248) (Dissolved)	ug/L	ND (1)	ND (4)	ND (0.2)	ND (0.2)	ND (0.20)	ND (1.0)	ND (0.2)
Aroclor-1254 (PCB-1254) (Dissolved)	ug/L	ND (1)	ND (4)	ND (0.2)	ND (0.2)	ND (0.20)	ND (1.0)	ND (0.2)
Aroclor-1260 (PCB-1260) (Dissolved)	ug/L	ND (1)	ND (4)	ND (0.2)	ND (0.2)	ND (0.20)	ND (1.0)	ND (0.2)
Semi - Volatiles								
2,2'-oxybis(1-Chloropropane) (bis(2-chloroisopropyl) ether)	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
2,4,5-Trichlorophenol	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
2,4,6-Trichlorophenol	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
2,4-Dichlorophenol	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
2,4-Dimethylphenol	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
2,4-Dinitrophenol	ug/L	-	-	-	-	ND (50)	ND (50)	ND (50)
2,4-Dinitrotoluene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
2,6-Dinitrotoluene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
2-Chloronaphthalene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
2-Chlorophenol	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
2-Methylnaphthalene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
2-Methylphenol	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
2-Nitroaniline	ug/L	-	-	-	-	ND (50)	ND (50)	ND (50)
2-Nitrophenol	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
3,3'-Dichlorobenzidine	ug/L	-	-	-	-	ND (50)	ND (50)	ND (50)
3-Nitroaniline	ug/L	-	-	-	-	ND (50)	ND (50)	ND (50)
4,6-Dinitro-2-methylphenol	ug/L	-	-	-	-	ND (50)	ND (50)	ND (50)
4-Bromophenyl phenyl ether	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
4-Chloro-3-methylphenol	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
4-Chloroaniline	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
4-Chlorophenyl phenyl ether	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
4-Methylphenol	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
4-Nitroaniline	ug/L	-	-	-	-	ND (50)	ND (50)	ND (50)
4-Nitrophenol	ug/L	-	-	-	-	ND (50)	ND (50)	ND (50)
Acenaphthene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Acenaphthylene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Acetophenone	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Anthracene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Atrazine	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Benzaldehyde	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Benzo(a)anthracene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Benzo(a)pyrene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Benzo(b)fluoranthene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Benzo(g,h,i)perylene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Benzo(k)fluoranthene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Biphenyl	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
bis(2-Chloroethoxy)methane	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
bis(2-Chloroethyl)ether	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
bis(2-Ethylhexyl)phthalate	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Butyl benzylphthalate	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Caprolactam	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Carbazole	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Chrysene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Dibenz(a,h)anthracene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Dibenzofuran	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Diethyl phthalate	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)

TABLE 5.4

SUMMARY OF VALIDATED SURFACE WATER ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A010*	*A010*	*A010*	*A010*	*A010*	*A010*	*A010*
Sample Location:		*Eastern Seep Area 02*	*Eastern Seep Area 02*	*Spring East of Storm Pond*	*Spring East of Storm Pond-2*	*SW-X217Y224*	*SW-X243Y232*	*SW-X243Y232*
Sample ID:		*GW-00-031102-GS-002*	*GW-00-031102-GS-002A*	*GW-00-031202-JW-004*	*GW-00-031202-JW-003*	*SW-041502-JW-001*	*SW-031502-JW-1426*	*SW-052102-JW-5041*
Sample Date:		*3/11/2002*	*3/11/2002*	*3/12/2002*	*3/12/2002*	*4/15/2002*	*3/15/2002*	*5/21/2002*
Sample Depth:			*Duplicate*					
Parameters	***Units***							
Dimethyl phthalate	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Di-n-butylphthalate	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Di-n-octyl phthalate	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Fluoranthene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Fluorene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Hexachlorobenzene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Hexachlorobutadiene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Hexachlorocyclopentadiene	ug/L	-	-	-	-	ND (50)	ND (50)	ND (50)
Hexachloroethane	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Indeno(1,2,3-cd)pyrene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Isophorone	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Naphthalene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Nitrobenzene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
N-Nitrosodi-n-propylamine	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
N-Nitrosodiphenylamine	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Pentachlorophenol	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Phenanthrene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Phenol	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Pyrene	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Volatiles								
1,1,1-Trichloroethane	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
1,1,2,2-Tetrachloroethane	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
1,1,2-Trichloroethane	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
1,1-Dichloroethane	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
1,1-Dichloroethene	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
1,2,4-Trichlorobenzene	ug/L	-	-	-	-	ND (1.0) UJ	ND (1.0)	ND (1)
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	-	-	-	-	ND (2.0)	ND (2.0)	ND (2)
1,2-Dibromoethane (Ethylene Dibromide)	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
1,2-Dichlorobenzene	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
1,2-Dichloroethane	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
1,2-Dichloropropane	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
1,3-Dichlorobenzene	ug/L	-	-	-	-	ND (1.0)	0.90 J	0.81 J
1,4-Dichlorobenzene	ug/L	-	-	-	-	ND (1.0)	1.6	1.5
2-Butanone (Methyl Ethyl Ketone)	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
2-Hexanone	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10) UJ
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)
Acetone	ug/L	-	-	-	-	ND (10) U	ND (10) U	ND (10) UJ
Benzene	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Bromodichloromethane	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Bromoform	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Bromomethane (Methyl Bromide)	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Carbon disulfide	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Carbon tetrachloride	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Chlorobenzene	ug/L	-	-	-	-	ND (1.0)	0.48 J	0.49 J
Chloroethane	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Chloroform (Trichloromethane)	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Chloromethane (Methyl Chloride)	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
cis-1,2-Dichloroethene	ug/L	-	-	-	-	ND (0.50)	1.2	1.9
cis-1,3-Dichloropropene	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Cyclohexane	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Dibromochloromethane	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Dichlorodifluoromethane (CFC-12)	ug/L	-	-	-	-	ND (1.0)	ND (1.0) UJ	ND (1)
Ethylbenzene	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Isopropylbenzene	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Methyl acetate	ug/L	-	-	-	-	ND (10)	ND (10)	ND (10)

TABLE 5.4

SUMMARY OF VALIDATED SURFACE WATER ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A010*	*A010*	*A010*	*A010*	*A010*	*A010*	*A010*
Sample Location:		*Eastern Seep Area 02*	*Eastern Seep Area 02*	*Spring East of Storm Pond*	*Spring East of Storm Pond-2*	*SW-X217Y224*	*SW-X243Y232*	*SW-X243Y232*
Sample ID:		*GW-00-031102-GS-002*	*GW-00-031102-GS-002A*	*GW-00-031202-JW-004*	*GW-00-031202-JW-003*	*SW-041502-JW-001*	*SW-031502-JW-1426*	*SW-052102-JW-5041*
Sample Date:		*3/11/2002*	*3/11/2002*	*3/12/2002*	*3/12/2002*	*4/15/2002*	*3/15/2002*	*5/21/2002*
Sample Depth:								
			Duplicate					
Parameters	***Units***							
Methyl cyclohexane	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Methyl Tert Butyl Ether	ug/L	-	-	-	-	ND (5.0)	ND (5.0)	ND (5)
Methylene chloride	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Styrene	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Tetrachloroethene	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Toluene	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
trans-1,2-Dichloroethene	ug/L	-	-	-	-	ND (0.50)	0.15 J	0.28 J
trans-1,3-Dichloropropene	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Trichloroethene	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Trichlorofluoromethane (CFC-11)	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Trifluorotrichloroethane (Freon 113)	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Vinyl chloride	ug/L	-	-	-	-	ND (1.0)	0.56 J	0.71 J
Xylene (total)	ug/L	-	-	-	-	ND (1.0)	ND (1.0)	ND (1)
Wet								
Ammonia	mg/L	-	-	-	-	-	-	0.1 J
Chloride	mg/L	-	-	-	-	-	-	-
pH (water)	s.u.	-	-	-	-	-	-	7.6
Total Dissolved Solids (TDS)	mg/L	-	-	-	-	-	-	980
Total Kjeldahl Nitrogen (TKN)	mg/L	-	-	-	-	-	-	3
Total Suspended Solids (TSS)	mg/L	-	-	-	-	-	-	ND (4)

Notes:

* Reported in units of ug/L.
UJ Non-detect at associated value. The associated value is estimated.
J Estimated.
U Non-detect.

TABLE 5.5

SUMMARY OF VALIDATED WIPE SAMPLE ANALYTICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Area of Interest:		*A003*	*A003*	*A003*	*A003 P200(GM)*	*A003 P200(GM)*
Sample Location:		*W-X032Y097*	*W-X034Y101*	*W-X035Y090*	*W-X197Y070*	*W-X199Y070*
Sample ID:		*W-021402-JW-002*	*W-021402-JW-001*	*W-021402-JW-003*	*W-012502-MO-002*	*W-012502-MO-001*
Sample Date:		*2/14/2002*	*2/14/2002*	*2/14/2002*	*1/25/2002*	*1/25/2002*
Sample Depth:						
Parameters	*Units*					
PCBs						
Aroclor-1016 (PCB-1016)	ug	ND (4.0)	ND (4.0)	ND (4.0)	ND (4.0)	ND (4.0)
Aroclor-1221 (PCB-1221)	ug	ND (4.0)	ND (4.0)	ND (4.0)	ND (4.0)	ND (4.0)
Aroclor-1232 (PCB-1232)	ug	ND (4.0)	ND (4.0)	ND (4.0)	ND (4.0)	ND (4.0)
Aroclor-1242 (PCB-1242)	ug	ND (4.0)	ND (4.0)	ND (4.0)	ND (4.0)	ND (4.0)
Aroclor-1248 (PCB-1248)	ug	ND (4.0)	ND (4.0)	ND (4.0)	ND (4.0)	ND (4.0)
Aroclor-1254 (PCB-1254)	ug	ND (4.0)	ND (4.0)	ND (4.0)	ND (4.0)	ND (4.0)
Aroclor-1260 (PCB-1260)	ug	ND (4.0)	ND (4.0)	ND (4.0)	ND (4.0)	ND (4.0)

Notes:

*	Reported in units of ug/L.
UJ	Non-detect at associated value. The associated value is estimated.
J	Estimated.
U	Non-detect.

TABLE 5.6

SUMMARY OF SOIL GEOTECHNICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

Well/Boring Location	*Sample ID*	*Laboratory ID*	*Parent Sample ID*	*Depth (ft bgs)*		*Sample*	*Classification*	*Bulk Density*	*Moisture Content*	*Atterberg Limits*			*Permeability*	*Maximum Dry Density*	*Optimum Moisture*
				Top	*Bottom*	*Type*		*(pcf)*	*(%)*	*LL*	*PL*	*PI*	*(cm/sec)*	*(pcf)*	*(%)*
BK-X142Y263	S-012302-MO-004	S-012302-MO-004	NA	0	2	Remolded	Silty CLAY, Trace Sand, CL	120.5	23.8	42	21	21	1.43E-08	101.2	20.6
BK-X212Y042	S-010223-MO-002	S-012302-MO-002	NA	0	2	Remolded	Silty CLAY, Trace Sand, CL	125.1	22.1	36	19	17	1.34E-08	107	18.3
BK-X267Y091	S-010223-MO-003	S-012302-MO-003	NA	0	2	Remolded	Silty CLAY, Trace Sand, CL	124.4	22.2	37	20	17	1.28E-08	104.9	19.8
BK-X281Y296	S-010223-MO-001	S-012302-MO-001	NA	0	2	Remolded	Silty CLAY, Trace Sand, CL	124.7	21.7	39	19	20	1.49E-08	106.8	19.2
BK-X281Y296	S-010223-MO-005	S-012302-MO-005	S-010223-MO-001	0	2	Remolded	Silty CLAY, Trace Sand, CL	125.3	21.4	38	19	19	1.32E-09	106.2	19.5
B-X177Y252D	S-031203-MG-245	S-031203-MG-245	NA	18	20	SS	SAND, Trace Gravel, Some Silt, SM	NT	NT	NT	NT	NT	NT	NT	NT
B-X177Y252D	S-031203-MG-246	S-031203-MG-246	NA	22	24	SS	Silty CLAY, Some Sand, Trace Gravel, CL	NT	NT	NT	NT	NT	NT	NT	NT
B-X223Y247D	S-031203-MG-247	S-031203-MG-247	NA	28	30	SS	Clayey SAND, Trace Gravel, SC	NT	NT	NT	NT	NT	NT	NT	NT
B-X033Y147	MW-X033Y147S	MW-X033Y147	NA	25	27	ST	Silty CLAY, Trace Sand, CL	117.8	31.7	NT	NT	NT	8.74E-08	NT	NT
B-X033Y147	S-021202-KMV-001	S-021202-KMV-001	NA	1	3	SS	SAND, Trace Gravel, Some Silt, SM	NT	NT	NT	NT	NT	NT	NT	NT
MW-X045Y258	S-013002-KMV-001	S-013002-KMV-001	NA	0	2	SS	Clayey SAND, Trace Gravel, SC	NT	NT	NT	NT	NT	NT	NT	NT
MW-X045Y258D	MW-X045Y258D	MW-X045Y258	NA	4	6	ST	Silty CLAY, Trace Sand, CL	122.6	24.2	NT	NT	NT	3.76R-08	NT	NT
MW-X085Y070S	MW-X085Y070S	MW-X085Y070	NA	6	8	ST	Silty CLAY, Trace Sand, Trace Gravel, CL	128.8	20.3	NT	NT	NT	1.71E-08	NT	NT
MW-X085Y070S	S-020402-KMV-001	S-020402-KMV-001	NA	0	2	SS	ASH and Cinders: SAND, Some Gravel, Little Silt, SW-SM	NT	NT	NT	NT	NT	NT	NT	NT
MW-X143Y245D	S-010702-KMV-001	S-010702-KMV-001	NA	0	2	SS	SAND, Little GravelL, Little Silt, SP-SM	NT	NT	NT	NT	NT	NT	NT	NT
MW-X169Y058S	S-020602-MG-001	S-020602-MG-001	NA	3	4	SS	CLAY, Trace Sand, CH	118.5	26.4	53	17	36	6.88E-08	NT	NT
MW-X178Y367D	MW-X178Y367D	MW-X178Y367	NA	2	3	ST	Silty CLAY, Trace Sand, CL	122.9	25.1	NT	NT	NT	2.62E-08	NT	NT
MW-X178Y367D	S-010902-KMV-001	S-010902-KMV-001	NA	0	2	SS	Silty CLAY, Some Sand, Trace Gravel, CL	NT	NT	NT	NT	NT	NT	NT	NT
MW-X234Y157	S-012502-KMV-001	S-012502-KMV-001	NA	0	2	SS	Silty CLAY, Trace Sand, Trace Gravel, CL	119.1	28.2	49	19	30	6.38E-08	NT	NT
B-X261Y356	S-011102-KMV-001	S-011102-KMV-001	NA	0	2	SS	Silty CLAY, Some Sand, CL	NT	NT	NT	NT	NT	NT	NT	NT
MW-X261Y356D	S-012102-KMV-001	S-012102-KMV-001	NA	0	2	SS	CLAY, Trace Sand, CH	120.7	24.6	50	18	32	6.50E-08	NT	NT
MW-X269Y201D	S-012202-KMV-001	S-012202-KMV-001	NA	0	2	SS	Silty CLAY, Trace Sand, CL	122.7	24.8	45	18	27	7.33E-08	NT	NT

NOTES:
ST = Shelby Tube
SS = Split Spoon
NT = Not Tested
NA = Not Available
ft bgs = feet below ground surface
cm/sec = centimeter per second
PCF = pounds per cubic foot
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index

TABLE 5.7

SUMMARY OF BEDROCK CORE GEOTECHNICAL RESULTS
GM POWERTRAIN - BEDFORD FACILITY
BEDFORD, INDIANA

				Sample Interval (ft bgs)		*Porosity (%)*					
Sample ID	*Laboratory ID*	*Location ID*	*Sample Date*	*Top*	*Bottom*	*Conventional*	*HPMI* [1]	*Grain Density (g/cm* ^{3}*)*	*Bulk Density (g/cm* ^{3}*)*	*TOC (wt%)*	*Formation*
RC-121802-KMV-550	550	MW-X269Y201D	18-Dec-02	12.33	12.58	13.33	10.5	2.739	2.405	0.24	St. Louis Fm
RC-121802-KMV-551	551	MW-X045Y258D	18-Dec-02	28.17	28.42	8.02	8.0	2.692	2.503	0.41	St. Louis Fm
RC-121802-KMV-552	552	MW-X033Y147D	18-Dec-02	90.42	90.58	12.45	12.5	2.774	2.449	0.30	St. Louis Fm
RC-121802-KMV-553	553	MW-X169Y058I	18-Dec-02	68.17	68.33	3.53	3.4	2.702	2.631	0.23	St. Louis Fm
RC-121802-KMV-554	554	MW-X269Y201D	18-Dec-02	38.00	38.25	12.03	11.9	2.701	2.391	0.04	Salem Fm
RC-121802-KMV-555	555	MW-X178Y367D	18-Dec-02	12.83	13.00	7.56	7.6	2.695	2.516	0.07	Salem Fm
RC-121802-KMV-556	556	MW-X045Y258D	18-Dec-02	65.00	65.17	7.41	7.3	2.700	2.521	0.08	Salem Fm
RC-121802-KMV-557	557	MW-X033Y147D	18-Dec-02	108.00	108.17	8.40	8.2	2.697	2.497	0.08	Salem Fm
RC-121802-KMV-558	558	MW-X169Y058I	18-Dec-02	94.33	94.50	10.31	9.9	2.695	2.444	0.10	Salem Fm
RC-121802-KMV-559	559	MW-X269Y201D	18-Dec-02	85.33	85.50	5.50	5.0	2.689	2.571	0.03	Harrodsburg Fm
RC-121802-KMV-560	560	MW-X178Y367D	18-Dec-02	64.58	64.75	4.10	3.7	2.685	2.593	0.06	Harrodsburg Fm
RC-121802-KMV-561	561	MW-X045Y258D	18-Dec-02	113.33	113.50	4.61	3.9	2.660	2.562	0.09	Harrodsburg Fm
RC-121802-KMV-562	562	MW-X033Y147D	18-Dec-02	148.00	148.17	9.75	9.0	2.691	2.456	0.06	Harrodsburg Fm
RC-121802-KMV-563	563	MW-X169Y058D	18-Dec-02	134.50	134.67	5.99	5.5	2.699	2.558	<0.02	Harrodsburg Fm
RC-121802-KMV-564	564	MW-X269Y201D	18-Dec-02	164.58	164.75	22.12	21.8	2.821	2.218	0.12	Ramp Creek Fm
RC-121802-KMV-565	565	MW-X178Y367D	18-Dec-02	124.50	124.67	21.28	21.3	2.834	2.255	0.07	Ramp Creek Fm
RC-121802-KMV-566	566	MW-X045Y258D	18-Dec-02	182.50	182.67	24.17	23.9	2.841	2.171	0.05	Ramp Creek Fm
RC-121802-KMV-567	567	MW-X033Y147D	18-Dec-02	231.08	231.25	23.75	23.8	2.836	2.182	0.06	Ramp Creek Fm
RC-121802-KMV-568	568	MW-X169Y058D	18-Dec-02	231.33	231.50	24.00	24.0	2.849	2.184	0.04	Ramp Creek Fm

NOTES:

ft bgs = feet below ground surface

[1] HPMI = High Pressure Mercury Injection

TOC = Total Organic Carbon

gl/cm^3 = grams per centimeter cubed

Table 6.1: Estimates of Cumulative Cancer Risk and Hazard Index for Industrial Exposures Based on Highest Concentrations
GM Powertrain-Bedford Facility, Bedford, Indiana

AOI	Matrix	Industrial Cumulative Risk	Industrial HI
A001	Soil	2E-05	4E-01
A002	Soil	5E-06	5E-01
A004	Soil	**2E-03**	**1E+02**
A005	Soil	**1E-02**	**9E+02**
A006	Soil	**3E-02**	**2E+03**
A007	Soil	4E-06	8E-02
A008	Soil	**3E-03**	**2E+02**
A009	Soil	**5E-03**	**3E+02**
A011	Soil	**1E-03**	**7E+01**
A012	Soil	6E-07	1E-01
A014	Soil	2E-07	1E-02
A015	Soil	6E-05	**4E+00**
A017	Soil	5E-06	4E-01
A018	Soil	3E-05	**2E+00**
A019	Soil	NA	7E-06
A020	Soil	7E-11	2E-03
A021	Soil	1E-05	4E-01
A022	Soil	1E-05	**4E+00**
A023	Soil	5E-06	3E-01
A024	Soil	3E-07	1E-01
Background	Soil	9E-06	4E-01
RFI Boundary	Soil	5E-05	**3E+00**
Notes:			

1. Cumulative cancer risks and HIs are based on the following pathways for industrial exposures to soil: ingestion, dermal contact, and inhalation.

2. Cumulative cancer risks and HIs are upper-bound estimates based on the maximum site-related concentrations for all detected chemicals in each AOI .

3. NA: Risk is not calculated because all analyzed carcinogens were not detected at the AOI, are below background levels, or do not have EPA Region 9 criteria.

Table 6.2: Cancer Risks and Hazard Quotients for Background Metals in Soil
GM Powertrain - Bedford Facility, Bedford, Indiana

Chem Group	Chemical	CASRN	Carc Class	Conc in Soil[1] (mg/kg)	Screening Criteria at 10^{-5} Risk (mg/kg)	Screening Criteria at HQ of 1 (mg/kg)	Cancer Risk	HQ
INORG	Aluminum	7429-90-5	D	1.42E+04		9.2E+05		1.5E-02
INORG	Antomony	7440-36-0		1.01E+00		4.1E+02		2.5E-03
INORG	Arsenic	7440-38-2	A	9.96E+00	1.6E+01	2.6E+02	6.2E-06	3.8E-02
INORG	Barium	7440-39-3	D	8.39E+01		6.7E+04		1.3E-03
INORG	Beryllium	7440-41-7	B1	3.59E-01	2.2E+04	1.9E+03	1.6E-10	1.9E-04
INORG	Cadmium	7440-43-9	B1	8.95E-02	3.0E+04	4.5E+02	3.0E-11	2.0E-04
INORG	Chromium (total)	7440-47-3		2.98E+01	4.5E+03	2.5E+03	6.6E-08	1.2E-02
INORG	Cobalt	7440-48-4	B1	9.56E+00	1.9E+04	1.3E+04	5.0E-09	7.4E-04
INORG	Copper	7440-50-8	D	2.25E+01		4.1E+04		5.5E-04
INORG	Iron	7439-89-6	D	2.50E+04		3.1E+05		8.1E-02
INORG	Lead	7439-92-1	B2	1.93E+01		7.5E+02		
INORG	Manganese	7439-96-5	D	6.89E+02		1.9E+04		3.6E-02
INORG	Mercury	7439-97-6	D	3.63E-02		1.4E+01		2.7E-03
INORG	Nickel	7440-02-0	A	1.60E+01		2.0E+04		8.0E-04
INORG	Selenium	7782-49-2	D	4.81E-01		5.1E+03		9.4E-05
INORG	Silver	7440-22-4	D			5.1E+03		
INORG	Thallium	7440-28-0		1.20E+00		6.8E+01		1.8E-02
INORG	Vanadium	7440-62-2		4.70E+01		7.2E+03		6.5E-03
INORG	Zinc	7440-66-6	D	4.68E+01		3.1E+05		1.5E-04
						Sum	**6E-06**	**2E-01**
Notes:								
1	The values are the background metal concentrations in Table 5.1.							
2	Only metals analyzed in background samples are shown.							
3	Lead is evaluated using EPA criterion based on blood-lead modeling, and therefore has no cancer or HQ calculation.							

Table 6.3: Estimated Cumulative Cancer Risk and Hazard Index for Industrial Exposures Based on Highest and Surface 95% UCL Concentrations GM Powertrain-Bedford Facility, Bedford, Indiana

AOI	Matrix	Industrial Cumulative Risk	Industrial HI	Locations Removed from Risk Calculation	Concentrations Contributing the Most to Risk Calculation (mg/kg) (depth in ft)
A004	Soil	8E-06	4E-01		
A005	Soil	9E-06	7E-01	B-X186Y180 B-X200Y161	2500 (0-2) 560 (0-2)
A006	Soil	1E-05	7E-01	B-X173Y131 B-X204Y132	1600 (0-2) 1400 (0-2)
A008	Soil	1E-05	5E-01		
A009	Soil	5E-06	2E-01		
A011	Soil	1E-05	7E-01		
A015	Soil	9E-06	6E-01	MW-X143Y245D B-X148Y233	38 (0-2) 30 (0-2)
A018	Soil	9E-07	1E-01	SS-X154Y117	19 (0-2)
A022	Soil	NA	NA	SS-X031Y124	1400 (0-2)(Sb)
RFI Boundary	Soil	3E-05	1E+00		
Notes:					

1. Cumulative cancer risks and HIs for soil matrices are based on surface UCLs calculated using 0-2 ft soil concentrations if 8 or more locations are available at the AOI; otherwise, the cumulative cancer risks and HIs are based on maximum detected concentrations at the AOI. The risks for metals are adjusted for site background values.

2. Concentrations contributing most to risk calculation represent values for total PCBs except where otherwise noted.

3. There is only one soil sampling location at AOI 22 and one sediment sampling location at AOI 4, thus the risk calculation for these AOIs is not applicable after removal of these locations.

Table 6.4: Estimated Cumulative Cancer Risk and Hazard Index for Industrial Exposures Based on Highest and Depth-Averaged 95% UCL Concentrations GM Powertrain-Bedford Facility, Bedford, Indiana

AOI	Matrix	Industrial Cumulative Risk	Industrial HI	Locations Removed from Risk Calculation	Concentrations Contributing the Most to Risk Calculation (mg/kg) (depth in ft)	Number of Locations Used in Risk Calculation
A004	Soil	8E-06	5E-01	B-X243Y257 B-X193Y251 B-X219Y249 B-X177Y252D	190 (6-8) 86 (6-8) 25 (6-8) 30 (6-8)(Hg)	7
A005	Soil	7E-06	6E-01	B-X186Y180 B-X200Y161 B-X176Y143 B-X186Y159	2500 (0-2), 9700 (6-8) 560 (0-2), 330 (9-11) 260 (6-8) 110 (6-8)	18
A006	Soil	7E-06	5E-01	B-X218Y141 B-X173Y131 B-X204Y132 B-X211Y169 B-X183Y133 B-X223Y150B	5500 (6-8), 19000 (8-10), 620 (14-15.5) 1600 (0-2) 1400 (0-2) 1300 (10-11), 450 (12-12.5) 800 (3.5-4.5) 120 (3-4)	13
A008	Soil	1E-05	5E-01	B-X193Y098	860 (12-13), 1900 (13-14)	7
A009	Soil	5E-06	2E-01	B-X106Y102B B-X059Y135B	3700 (2-4), 180 (6-8) 120 (2-4)	7
A011	Soil	7E-06	5E-01	B-X219Y095 B-X223Y097A	700 (8-9), 150 (13-14) 190 (6-8)	6
A015	Soil	2E-05	1E+00			3
A018	Soil	2E-05	1E+00			2
A022	Soil	NA	NA	SS-X031Y124	1400 (0-2)(Sb)	0(Sb)
RFI Boundary	Soil	1E-05	6E-01			8
Notes:						
1. Cumulative cancer risks and HIs are based on depth-averaged UCLs calculated using 0-15 ft averaged soil concentrations if 8 or more locations are available at the AOI; otherwise, the cumulative cancer risks and HIs are based on maximum detected concentrations. The risks for metals are adjusted for site background values.						
2. Concentrations contributing most to risk calculation represent values for total PCBs except where otherwise noted.						
3. The is only one sampling location at AOI 22, thus the risk calculation for the AOI is not applicable after removal of this location.						

APPENDIX A

OVERBURDEN AND BEDROCK BORING LOGS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-1
DATE COMPLETED: April 8, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	661.1						
0	CL - CLAY, trace silt, stiff, low plasticity, dark yellowish brown (10YR 4/4), moist			1	P/S	2.0		<1
2				2	P/S	2.0		<1
4				3	P/S	2.0		0
6	- medium plasticity at 6.0ft BGS			4	P/S	2.0		0
8			BENTONITE CHIPS	5	P/S	2.0		0
10				6	P/S	2.0		0
12	- yellowish red (5YR 4/6) at 11.5ft BGS			7	P/S	2.0		0
14	- very stiff at 14.5ft BGS - red (2.5YR 4/6) at 15.0ft BGS			8	P/S	2.0		0
16	- refusal at 17.0ft BGS	644.08		9	P/S	1.0		0
18	END OF BOREHOLE @ 17.0ft BGS							
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (9)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-2
DATE COMPLETED: April 8, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	661.2						
0	CL - CLAY, trace silt, stiff, low plasticity, dark yellowish brown (10YR 4/4), moist			1	P/S	2.0		0
2				2	P/S	2.0		<1
4	- soft at 4.0ft BGS			3	P/S	2.0		0
6			BENTONITE CHIPS	4	P/S	2.0		0
8	- stiff, yellowish red (5YR 4/6) at 8.0ft BGS			5	P/S	2.0		0
10				6	P/S	1.5		0
	- refusal at 11.5ft BGS	649.69						
12	END OF BOREHOLE @ 11.5ft BGS							
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-3
DATE COMPLETED: April 8, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	659.9						
0	CL - CLAY, trace silt, low plasticity, stiff, dark yellowish brown (10YR 4/4), moist			1	P/S	2.0		0
2	- stiff, red (2.5YR 4/6) at 3.0ft BGS			2	P/S	2.0		<1
4			BENTONITE CHIPS	3	P/S	2.0		<1
6				4	P/S	2.0		0
8	- refusal at 8.5ft BGS	651.43		5	P/S	0.5		0
	END OF BOREHOLE @ 8.5ft BGS							
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-4
DATE COMPLETED: April 8, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	656.5						
0	CL - CLAY, trace silt, stiff, low plasticity, dark yellowish brown (10YR 4/4), moist			1	P/S	1.5		<1
2	- yellowish red (5YR 5/8) at 3.0ft BGS			2	P/S	1.0		<1
4				3	P/S	2.0		0
6	- red (2.5YR 4/8) at 6.0ft BGS		BENTONITE CHIPS	4	P/S	2.0		0
8				5	P/S	2.0		0
10	- trace silt at 10.0ft BGS			6	P/S	2.0		0
12	- refusal at 12.0ft BGS	644.47						
	END OF BOREHOLE @ 12.0ft BGS							
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-5
DATE COMPLETED: April 9, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	660.6						
0	CL - CLAY, trace silt, soft, low plasticity, strong brown (7.5YR 4/6), moist			1	P/S	1.5		0
2	- stiff, red (2.5YR 4/6) at 2.5ft BGS		BENTONITE CHIPS	2	P/S	1.0		0
4				3	P/S	2.0		0
6	- refusal at 6.0ft BGS	654.58						
	END OF BOREHOLE @ 6.0ft BGS							
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-6
DATE COMPLETED: April 9, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	658						
0	CL - CLAY, trace silt, soft, low plasticity, dark yellowish brown (10YR 4/6), moist			1	P/S	1.5		0
2				2	P/S	1.5		<1
4	- stiff, yellowish red (5YR 5/8) at 4.0ft BGS			3	P/S	2.0		0
6	- red (2.5YR 4/6) at 6.0ft BGS		BENTONITE CHIPS	4	P/S	2.0		0
8				5	P/S	2.0		0
10	- rock fragments at 10.0ft BGS			6	P/S	2.0		0
12	- refusal at 12.0ft BGS	646.03						
	END OF BOREHOLE @ 12.0ft BGS							
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-7
DATE COMPLETED: April 9, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	654						
0	CL - CLAY, trace silt, soft, medium plasticity, yellowish red (5YR 4/6), moist, rock fragments in tip		BENTONITE CHIPS	1	P/S	1.5		0
2				2	P/S	2.0		0
4	- refusal at 4.0ft BGS END OF BOREHOLE @ 4.0ft BGS	650.03						
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
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32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (○)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-8
DATE COMPLETED: April 9, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	657.3						
0	CL - CLAY, trace silt, stiff, low plasticity, yellowish brown (10YR 5/8), moist			1	P/S	2.0		0
2				2	P/S	2.0		<1
4	- very stiff, red (2.5YR 4/6) at 5.0ft BGS			3	P/S	2.0		0
6				4	P/S	2.0		0
8			BENTONITE CHIPS	5	P/S	2.0		0
10				6	P/S	2.0		0
12				7	P/S	2.0		0
14				8	P/S	2.0		0
16	- refusal at 16.0ft BGS END OF BOREHOLE @ 16.0ft BGS	641.32						
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-9
DATE COMPLETED: April 10, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	664.2						
0	CL - CLAY, with trace silt, soft, medium plasticity, strong brown (7.5YR 4/6), moist		BENTONITE CHIPS	1	P/S	2.0		0
2				2	P/S	2.0		0
4	fragments of rock - refusal at 4.0ft BGS	660.69 660.19						
	END OF BOREHOLE @ 4.0ft BGS							
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-10
DATE COMPLETED: April 10, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	645.4						
0	Topsoil	645.22						
	Blue fleck, with silver shade	645.02						
2	CL - CLAY, trace silt, soft, low plasticity, brown (10YR 4/3), moist			1	P/S	2.0		29.4
	- 2" of black staining at 1.5ft BGS			2	P/S	2.0		<1
4				3	P/S	2.0		0
6				4	P/S	2.0		0
8	- stiff, dark red (2.5YR 3/6) at 8.0ft BGS			5	P/S	2.0		0
	- very stiff at 9.0ft BGS			6	P/S	2.0		0
10				7	P/S	2.0		0
12	- hard at 12.0ft BGS			8	P/S	2.0		0
14			BENTONITE CHIPS	9	P/S	2.0		0
16				10	P/S	2.0		0
18				11	P/S	2.0		0
20				12	P/S	2.0		0
22				13	P/S	2.0		0
24				14	P/S	1.5		0
26	- refusal at 27.5ft BGS	617.92						
28	END OF BOREHOLE @ 27.5ft BGS							
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (circled)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-11
DATE COMPLETED: April 10, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	643.6						
0	CL - CLAY, trace silt, soft, low plasticity, very dark grayish brown (10YR 3/2), moist		BENTONITE CHIPS	1	P/S	2.0		0
2	- refusal at 2.5ft BGS	641.08		2	P/S	0.5		0
	END OF BOREHOLE @ 2.5ft BGS							
4								
6								
8								
10								
12								
14								
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26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-12
DATE COMPLETED: April 10, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	643						
0	Topsoil	642.85						
	CL - CLAY, trace silt, soft, medium plasticity, dark brown (7.5YR 3/3), moist			1	P/S	2.0		0
2	- dark yellowish brown (10YR 4/6) at 3.0ft BGS			2	P/S	2.0		<1
4				3	P/S	2.0		0
6	- yellowish red (5YR 5/8), stiff at 7.0ft BGS			4	P/S	2.0		0
8	- red (2.5YR 4/8), hard at 9.0ft BGS			5	P/S	2.0		0
10				6	P/S	2.0		0
12				7	P/S	2.0		0
14	- very hard at 15.0ft BGS		BENTONITE CHIPS	8	P/S	2.0		0
16				9	P/S	2.0		0
18				10	P/S	2.0		0
20				11	P/S	2.0		0
22				12	P/S	2.0		0
24				13	P/S	2.0		0
26				14	P/S	2.0		0
28	- refusal at 28.0ft BGS	615.05						
	END OF BOREHOLE @ 28.0ft BGS							
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-13
DATE COMPLETED: September 3, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: C. MARHOEFER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	639.5						
0	CL-CLAY, hard, dark brown, dry		BENTONITE CHIPS	1	P/S	2.0		0
2				2	P/S	2.0		0
4	- Refusal, rock at 4.9ft BGS	634.62		3	P/S	0.4		0
6	END OF BOREHOLE @ 4.9ft BGS							
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (X)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-14
DATE COMPLETED: September 4, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: C. MARHOEFER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	642.1						
0	TOPSOIL	641.86						
	CL-CLAY, trace silt, soft, medium plasticity, strong brown, moist							
2	- rock layer, white, fragmented at 1.0ft BGS		BENTONITE CHIPS	1	P/S	2.0		0
				2	P/S	2.0		0
4	- refusal, rock at 4.4ft BGS	637.66		3	P/S	0.5		0
	END OF BOREHOLE @ 4.4ft BGS							
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316 13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-15
DATE COMPLETED: September 4, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: C. MARHOEFER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	642.4						
0	TOPSOIL	642.24						
	CL-CLAY, trace silt, soft, medium plasticity, strong brown, moist			1	P/S	2.0		0
2	- rock layer, white, fragmented, at 1.0ft BGS			2	P/S	2.0		0
4				3	P/S	2.0		0
6				4	P/S	2.0		0
8				5	P/S	2.0		0
10				6	P/S	2.0		0
12				7	P/S	2.0		0
14			BENTONITE CHIPS	8	P/S	2.0		0
16				9	P/S	2.0		0
18				10	P/S	2.0		0
20				11	P/S	2.0		0
22				12	P/S	2.0		0
24	- wet at 24.0ft BGS			13	P/S	2.0		0
	- rock layer, fragmented at 25.0ft BGS							
26				14	P/S	1.9		0
28	- refusal, rock at 27.9ft BGS	614.54						
	END OF BOREHOLE @ 27.9ft BGS							
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-16
DATE COMPLETED: September 4, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: C. MARHOEFER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	658.9						
0	TOPSOIL	658.72						
	CL-CLAY, trace silt, dark brown, dry			1	P/S	2.0		0
2				2	P/S	2.0		0
4	- soft, medium plasticity, strong brown, moist at 4.0ft BGS		BENTONITE CHIPS	3	P/S	2.0		0
6				4	P/S	2.0		0
8	END OF BOREHOLE @ 8.0ft BGS	650.92						
10								
12								
14								
16								
18								
20								
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24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR:

HOLE DESIGNATION: B-809012-17
DATE COMPLETED: September 5, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: C. MARHOEFER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	660.4						
0	TOPSOIL CL-CLAY, trace silt, hard, dry	660.23	BENTONITE CHIPS	1	P/S	2.0		0
2				2	P/S	2.0		0
	rock, white, fragmented - refusal, rock at 4.0ft BGS	657.43						
4	END OF BOREHOLE @ 4.0ft BGS	656.43						
6								
8								
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12								
14								
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18								
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24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-18
DATE COMPLETED: September 5, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: C. MARHOEFER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	658.6						
0	CL-CLAY, trace silt, hard, dark brown, dry			1	P/S	2.0		0
2			BENTONITE CHIPS	2	P/S	2.0		0
4	- strong brown at 5.0ft BGS			3	P/S	2.0		0
6	- refusal, rock at 6.0ft BGS	652.58						
	END OF BOREHOLE @ 6.0ft BGS							
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (O)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-19
DATE COMPLETED: September 5, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: C. MARHOEFER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	647.6						
0	TOPSOIL	647.45	BENTONITE CHIPS	1	P/S	2.0		0
	CL-CLAY, trace silt, hard, dark brown, dry							
2	- refusal, fragmented white rock at 2.0ft BGS	645.65						
	END OF BOREHOLE @ 2.0ft BGS							
4								
6								
8								
10								
12								
14								
16								
18								
20								
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24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-20
DATE COMPLETED: September 5, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: C. MARHOFFER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	648.7						
0	CL-CLAY, trace silt, hard, dark brown, dry		BENTONITE CHIPS	1	P/S	2.0		0
2	- refusal, fragmented white rock at 2.0ft BGS	646.72						
	END OF BOREHOLE @ 2.0ft BGS							
4								
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-21
DATE COMPLETED: September 5, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: C. MARHOEFER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	642.8						
0	CL-CLAY, trace silt, hard, dark brown, dry		BENTONITE CHIPS	1	P/S	2.0		0
2	- Refusal at 2.0ft BGS	640.85						
	END OF BOREHOLE @ 2.0ft BGS							
4								
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-22
DATE COMPLETED: September 5, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: C. MARHOEFER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	642						
0	CL-CLAY, trace silt, hard, dark brown, dry		BENTONITE CHIPS	1	P/S	2.0		0
2				2	P/S	2.0		0
4	- Refusal at 4.0ft BGS END OF BOREHOLE @ 4.0ft BGS	638						
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-809012-23
DATE COMPLETED: September 6, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: C. MARHOEFER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	666						
0	TOPSOIL	665.79						
	CL-CLAY, trace silt, hard, medium plasticity, dark brown, dry			1	P/S	2.0		0
2	- moist at 2.0ft BGS			2	P/S	2.0		0
4			BENTONITE CHIPS	3	P/S	2.0		0
6				4	P/S	1.0		0
	- refusal, rock at 7.0ft BGS	658.99						
8	END OF BOREHOLE @ 7.0ft BGS							
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (○)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X031Y124
DATE COMPLETED: November 4, 2003
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	721.5						
0	Asphalt	721.06						
	GRAVEL (FILL)			1	P/S	1.0		0.0
2		718.46		2	P/S	1.0		0.0
	SM- SILTY SAND, fine grained, poorly graded, dark brown, loose, damp			3	P/S	2.0		0.0
4								
	- fine to medium grained, cohesive with silt, tan at 6.0ft BGS			4	P/S	2.0		0.0
6				5	P/S	2.0		0.0
8								
		711.26		6	P/S	2.0		0.0
10	CL-CLAY, trace silt, stiff, low plasticity, brown, damp							
				7	P/S	2.0		0.0
12								
				8	P/S	2.0		0.0
14								
			BENTONITE SEAL	9	P/S	2.0		0.0
16								
	- brown / tan to strong brown, hard at 17.9ft BGS			10	P/S	2.0		0.0
18								
	- off-white to gray at 20.0ft BGS			11	P/S	2.0		0.0
20	- strong brown at 20.5ft BGS							
				12	P/S	2.0		0.0
22								
				13	P/S	2.0		0.0
24								
	- very hard at 25.6ft BGS			14	P/S	2.0		0.0
26								
	- coarse gravel (possible chert) at 27.2ft BGS			15	P/S	2.0		0.0
28								
				16	P/S	2.0		0.0
30								
		688.26		17	P/S	2.0		0.0
32	BEDROCK							
		687.46						
34	END OF BOREHOLE @ 34.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X031Y124A
DATE COMPLETED: November 5, 2003
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	721.6
0	Asphalt	721.17
	GM/SM SILTY SAND & GRAVEL (FILL), little silt, medium grained, poorly graded, loose, off-white, dry	
2		718.57
	SM-SILTY SAND, medium to fine grained, well graded, loose, dark brown to black, dry	717.57
4	CL/ML CLAY & SILT, cohesive, dense, damp	
6	- rock/ coarse gravel, at 6.8ft BGS	714.67
	SM-SILTY SAND, medium graded, poorly graded, firm	
8		
10		710.77
	CL-CLAY, trace coarse sand, poorly graded, low plasticity, dense, brown, damp	
12		
	- gravel, strong brown at 13.8ft BGS	
14	- gravel at 14.5ft BGS	
	- brown to strong brown at 16.0ft BGS	
16	- coarse gravel at 16.9ft BGS	
18		
20		
22		
	- increase of fine gravel content at 23.0ft BGS	
24		
26		
28	- pale green at 27.9ft BGS	
		692.97
	SC-CLAYEY SAND, cohesive, medium to coarse sand, well graded, soft, strong brown, damp	692.57
30	CL-CLAY, low plasticity, dense, strong brown, damp	
	- coarse gravel at 31.5ft BGS	689.57
32	- tan / pale yellow at 31.6ft BGS	689.17
	BEDROCK	
34	END OF BOREHOLE @ 32.4ft BGS	

BOREHOLE: BENTONITE SEAL

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	P/S	2.0		0.0
2	P/S	2.0		0.0
3	P/S	2.0		0.0
4	P/S	2.0		0.0
5	P/S	2.0		0.0
6	P/S	2.0		0.0
7	P/S	2.0		0.0
8	P/S	2.0		0.0
9	P/S	2.0		0.0
10	P/S	2.0		0.0
11	P/S	2.0		0.0
12	P/S	2.0		0.0
13	P/S	2.0		0.0
14	P/S	2.0		0.0
15	P/S	2.0		0.0
16	P/S	2.0		0.0
17	P/S	0.4		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X031Y124B
DATE COMPLETED: November 5, 2003
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	721.7						
0	Asphalt	721.34		1	P/S	2.0		0.0
2	GW/SW SAND & GRAVEL (FILL), trace silt, medium to coarse sand, fine gravel, loose	718.74		2	P/S	2.0		0.0
4	SM-SILTY SAND, trace coarse gravel, fine to medium grained, loose, dark brown to black, dry - gravel at 4.0ft BGS			3	P/S	2.0		0.0
6				4	P/S	2.0		0.0
8	GM-GRAVEL, sand and silt, fine to coarse sand, fine gravel, loose, tan, dry	714.74		5	P/S	2.0		0.0
10	CL-CLAY, little silt, low plasticity, dense, brown, damp to moist - hard at 11.5ft BGS	711.54		6	P/S	2.0		0.0
12				7	P/S	2.0		0.0
14	- coarse gravel at 15.5ft BGS			8	P/S	2.0		0.0
16	- strong brown, fine gravel at 16.5ft BGS		BENTONITE SEAL	9	P/S	2.0		0.0
18				10	P/S	2.0		0.0
20	- coarse gravel at 20.5ft BGS - pale yellow & pale blue with strong brown at 21.0ft BGS			11	P/S	2.0		0.0
22				12	P/S	2.0		0.0
24				13	P/S	2.0		0.0
26				14	P/S	2.0		0.0
28				15	P/S	2.0		0.0
30	- coarse gravel at 29.8ft BGS - pale yellow & pale green with strong brown at 30.4ft BGS			16	P/S	2.0		0.0
32				17	P/S	2.0		0.0
34	BEDROCK	688.24						
	END OF BOREHOLE @ 34.0ft BGS	687.74						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X031Y124C
DATE COMPLETED: November 5, 2003
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	721.5
0	Asphalt	721.08
	GW/SW GRAVEL & SAND (FILL), medium grained, poorly graded, loose, off-white, dry	
2		
		718.48
	SM-SILTY SAND, fine to medium grained, well graded, loose, dark brown to black, dry	
4		
6		
		714.48
	GM-GRAVEL,some silt, trace medium to coarse grained sand, fine gravel, loose, gray, moist	
8		712.48
	CL-CLAY, medium to low plasticity, dense, medium brown to olive green,	
10		
	- brown at 12.0ft BGS	
12		
	- coarse gravel at 15.0ft BGS	
14		
16		
	- brown to strong brown at 18.5ft BGS	
18		
20		
	- dark strong brown at 22.0ft BGS	
22		
	- fine gravel at 23.8ft BGS - yellow - olive green at 24.0ft BGS	
24		
	- back to strong brown at 26.0ft BGS	
26		
28		
30		
	- pale blue/tan to pale yellow at 31.0ft BGS	
32		
		688.48
	BEDROCK	688.18
34	END OF BOREHOLE @ 33.3ft BGS	

BOREHOLE: BENTONITE SEAL

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	P/S	2.0		0.0
2	P/S	2.0		0.0
3	P/S	2.0		0.0
4	P/S	2.0		0.0
5	P/S	2.0		0.0
6	P/S	2.0		0.0
7	P/S	2.0		0.0
8	P/S	2.0		0.0
9	P/S	2.0		0.0
10	P/S	2.0		0.0
11	P/S	2.0		0.0
12	P/S	2.0		0.0
13	P/S	2.0		0.0
14	P/S	2.0		0.0
15	P/S	2.0		0.0
16	P/S	2.0		0.0
17	P/S	2.0		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X031Y124D
DATE COMPLETED: November 6, 2003
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	721.1
0	Asphalt	720.68
	GW/SW GRAVEL & SAND (FILL), fine to coarse grained sand, fine gravel, damp	
4	SW-SAND, fine to medium grained, well graded, loose, dark brown to black, damp	718.08
6	CL-CLAY, low plasticity, cohesive, firm, brown, damp	715.38
14	- stiff at 13.6ft BGS	
16	- transition to strong brown at 16.0ft BGS	
18	- trace fine gravel at 18.9ft BGS	
22	- dark strong brown at 22.4ft BGS	
24	- transition to pale yellow/pale green at 23.0ft BGS - transition to dark strong brown at 24.3ft BGS	
26	- trace fine gravel at 27.0ft BGS	
30	- some coarse sand, fine gravel at 30.6ft BGS	
32	- transition to pale yellow at 31.5ft BGS	689.08
	BEDROCK	688.18
	END OF BOREHOLE @ 32.9ft BGS	

BOREHOLE: BENTONITE SEAL

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	P/S	2.0		0.0
2	P/S	2.0		0.0
3	P/S	2.0		0.0
4	P/S	2.0		0.0
5	P/S	2.0		0.0
6	P/S	2.0		0.0
7	P/S	2.0		0.0
8	P/S	2.0		0.0
9	P/S	2.0		0.0
10	P/S	2.0		0.0
11	P/S	2.0		0.0
12	P/S	2.0		0.0
13	P/S	2.0		0.0
14	P/S	2.0		0.0
15	P/S	2.0		0.0
16	P/S	2.0		0.0
17	P/S	0.9		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X033Y147
DATE COMPLETED: April 15, 2002
DRILLING METHOD: 4 1/4- inch HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN/M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	GROUND SURFACE	718.5						
0	ASPHALT	717.79						
	SW-GW SAND AND GRAVEL (FILL), some clay, compact, fine to coarse grained, well graded, medium plasticity, moist, rock fragments			1		1.7	13	0
2				2		0.8	13	0
4		713.49						
	SP-SAND (FILL), trace gravel, loose, fine grained, poorly graded, brown/black, moist, possible foundry sands			3		1.5	7	0
6				4		1.3	9	0
8				5		1.5	11	0
10				6		1.7	6	0
12				7		1.2	6	0
14			10" DIA. STEEL CASING	8		1.5	5	0
16	- wet at 17.0ft BGS			9		1.4	2	0
18				10		1.5	6	0
20	CL-CLAY AND SILT, firm, medium plasticity, brown (7.5YR 4/2), very moist	698.49	CEMENT / BENTONITE GROUT	11		1.7	11	0
22		695.49		12		1.8	14	0
	CL-CLAY, little silt, stiff, medium plasticity, yellowish red (5YR 4/6), moist			13		2.0		
24								
26		691.49		14		1.7	32	0
	ML-SILT, trace clay, dense, light brown (7.5YR 6/4), moist, occasional rock fragments			15		1.7	23	0
28								
30		687.49		16		1.3	14	0
	CL-CLAY, little to some silt, stiff, low-medium plasticity, light brown (7.5YR 6/4), moist							
32	- little silt at 33.0ft BGS			17		0.0	<50	0
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X033Y147
DATE COMPLETED: April 15, 2002
DRILLING METHOD: 4 1/4- inch HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN/M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
36								
	BEDROCK (LIMESTONE), weathered	681.49						
38								
	SP-SAND	679.99						
40	END OF OVERBURDEN HOLE @ 40.0ft BGS							
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X033Y147
DATE COMPLETED: April 15, 2002
DRILLING METHOD: 4 1/4- inch HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN/M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
40	SP-SAND	679.99				
	LIMESTONE (ST. LOUIS FORMATION), thin beds of medium -to dark / gray / brown pellet micritic limestone, fine grained, light gray, highly fractured	678.49				
42	- horizontal fracture at 43.3ft BGS					
44	- horizontal fracture, porous at 43.8ft BGS					
46	- 1.5 feet of soft shale, gray/blue at 45.6ft BGS					
48	- 3-inches of vertical and horizontal fractures present at 47.0ft BGS - 1.5 feet of vertical fractures at 47.6ft BGS			1	99	60
50	- interbedded limestone and shale at 49.5ft BGS		CEMENT / BENTONITE GROUT			
52	- 8-inches of soft shale, fractured and porous at 51.2ft BGS					
54	- 8-inches of interbedded limestone and shale at 53.0ft BGS					
	SHALE, pyrite,soft, gray	664.39				
56						
58				2	100	100
	LIMESTONE (ST. LOUIS FORMATION)	660.29				
60						
62						
	END OF BOREHOLE @ 63.0ft BGS	655.49				
64						
66						
68						
70						
72						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X045Y172
DATE COMPLETED: January 31, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	719						
0	CONCRETE	718.5						
	SP-SAND (FILL), loose, fine grained, poorly graded, dark reddish brown (5YR 5/2), moist			1	P/S	2.0		0.0
2				2	P/S	2.0		<1
4				3	P/S	2.0		3.1
6				4	P/S	2.0		2.1
8	- black, strong petroleum odor at 7.5ft BGS			5	P/S	2.0		<1
10			BENTONITE CHIPS	6	P/S	2.0		1.5
12	- light black/gray layers (GLEY 2 7/1), at 12.0ft BGS			7	P/S	2.0		<1
14				8	P/S	2.0		<1
16				9	P/S	2.0		<1
18	- black to very dark gray color (7.5YR 3/1), odor at 18.0ft BGS			10	P/S	2.0		<1
20	- Refusal, rock fragments at 20.0ft BGS	699						
	END OF BOREHOLE @ 20.0ft BGS							
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (NUMBER)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X047Y072
DATE COMPLETED: May 3, 2002
DRILLING METHOD: GEOPROBE / HQ CORE
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	724.2						
	CONCRETE		CONCRETE					
	GM-SILTY GRAVEL (FILL), trace sand, dense, medium-coarse grained, well graded, light brownish gray (2.5YR 6/2)	723.18		1	P/S	2.0		0
2				2	P/S	2.0		0
4				3	P/S	2.0		0
6				4	P/S	2.0		0
8				5	P/S	2.0		0
10				6	P/S	2.0		0
		712.68						
12	CL-CLAY, with silt, firm, low plasticity, brown (7.5YR 5/3), moist			7	P/S	2.0		0
14	- dark grayish brown (2.5Y 4/2) at 14.8ft BGS			8	P/S	2.0		0
16	- stiff at 16.0ft BGS			9	P/S	2.0		0
	- brown / grayish (10YR 5/3) at 17.2ft BGS							
18				10	P/S	2.0		0
20	- yellowish brown with trace red and gray (10YR 5/6) at 20.4ft BGS			11	P/S	2.0		0
22	- hard, trace dark gray/light gray and red at 22.0ft BGS			12	P/S	2.0		0
24	- red (10R 4/6) at 24.6ft BGS			13	P/S	2.0		0
26	- trace dark gray, yellowish brown and light gray at 26.6ft BGS			14	P/S	2.0		0
28			BENTONITE GROUT	15	P/S	2.0		0
30	- light yellowish brown (10YR 6/4), trace light and dark gray at 29.5ft BGS - red (10 YR 4/6) at 30.8ft BGS - light yellowish brown (10YR 6/4), trace light gray and red at 31.2ft BGS			16	P/S	2.0		0
32				17	P/S	2.0		0
34	- light olive brown (2.5Y 5/4) at 33.4ft BGS				P/S			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1, 4)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X047Y072
DATE COMPLETED: May 3, 2002
DRILLING METHOD: GEOPROBE / HQ CORE
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
36	- limestone fragments at 35.8ft BGS END OF OVERBURDEN HOLE @ 36.0ft BGS			18	P/S	2.0		0
38								
40								
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X047Y072
DATE COMPLETED: May 3, 2002
DRILLING METHOD: GEOPROBE / HQ CORE
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
36	- limestone fragments at 35.8ft BGS	688.18				
	LIMESTONE (ST. LOUIS FORMATION), thin bedded, light gray/gray micritic limestone, 3-feet of highly fractured rock			1	75	46
38						
40						
42						
44			BENTONITE GROUT			
46	- horizontal fracture at 46.6ft BGS - horizontal fracture at 47.0ft BGS					
48						
50	- grannular, moderate porosity, dark gray at 49.2ft BGS - horizontal fracture at 49.8ft BGS - horizontal fracture at 50.6ft BGS			2	100	93
52	- horizontal fracture at 51.1ft BGS - fossils, slight porosity, light gray at 52.3ft BGS - fossils at 52.7ft BGS					
54	- horizontal fracture at 53.5ft BGS - horizontal fracture at 54.5ft BGS					
56	- horizontal fracture at 55.6ft BGS END OF BOREHOLE @ 56.0ft BGS	668.18				
58						
60						
62						
64						
66						
68						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X047Y123A
DATE COMPLETED: May 13, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	726.7					
0	CONCRETE	725.79	CONCRETE	1	P/S	1.5	
	GRAVEL (FILL)	725.19					
2	- concrete, refusal at 1.5ft BGS						
	END OF BOREHOLE @ 1.5ft BGS						
4							
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X047Y123B
DATE COMPLETED: May 13, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	726.7					
0	CONCRETE	725.82	CONRETE	1	P/S	1.5	
	GRAVEL (FILL)	725.22					
2	- concrete, refusal at 1.5ft BGS						
	END OF BOREHOLE @ 1.5ft BGS						
4							
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X047Y123C
DATE COMPLETED: May 17, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	726.7					
0	CONCRETE	725.82	CONCRETE	1	P/S	1.5	
	GRAVEL (FILL)	725.22					
2	- concrete, refusal at 1.5ft BGS						
	END OF BOREHOLE @ 1.5ft BGS						
4							
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X047Y123D
DATE COMPLETED: May 16, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	726.7						
0	CONCRETE	725.72	CONCRETE					
2	SAND AND GRAVEL (FILL)							
4	CONCRETE	722.72	BENTONITE CHIPS					
6	FILL	721.22		1	P/S	2.0		0
8	- CONCRETE at 7.9ft BGS END OF BOREHOLE @ 7.9ft BGS	718.82						
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X047Y123E
DATE COMPLETED: May 17, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	726.7					
0	CONCRETE	725.74	CONCRETE	1	P/S	1.0	
2	SAND AND GRAVEL (FILL)		BENTONITE CHIPS	2	P/S	2.0	
4	- CONCRETE at 4.0ft BGS	722.74					
	END OF BOREHOLE @ 4.0ft BGS						
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X048Y086
DATE COMPLETED: June 7, 2002
DRILLING METHOD: GEOPROBE / HQ CORE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	724.2
0	CONCRETE	723.35
	SAND AND GRAVEL (FILL)	
8	CL-CLAY, soft, medium plasticity, strong brown (7.5YR 5/6), moist	715.75
12	- trace gravel, very stiff at 12.5ft BGS	
16	- red (2.5YR 4/8) at 17.0ft BGS	
30	- trace silt, no gravel, at 31.0ft BGS	
32	- yellowish red (7.5YR 6/6), rock fragments at 32.5ft BGS	
33	END OF OVERBURDEN HOLE @ 33.0ft BGS	

BOREHOLE: CONCRETE; CEMENT / BENTONITE GROUT

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	P/S	2.0		<1
2	P/S	2.0		<1
3	P/S	2.0		<1
4	P/S	2.0		<1
5	P/S	2.0		<1
6	P/S	2.0		<1
7	P/S	2.0		0
8	P/S	2.0		0
9	P/S	2.0		0
10	P/S	2.0		0
11	P/S	2.0		0
12	P/S	2.0		0
13	P/S	2.0		0
14	P/S	2.0		0
15	P/S	2.0		0
16	P/S	2.0		0
17	P/S	1.0		0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X048Y086
DATE COMPLETED: June 7, 2002
DRILLING METHOD: GEOPROBE / HQ CORE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
34	- yellowish red (7.5YR 6/6), rock fragments at 32.5ft BGS LIMESTONE (ST. LOUIS FORMATION), fine grained, light gray micritic limestone	691.25				
36						
38	- horizontal fracture at 37.4ft BGS - horizontal fracture at 37.6ft BGS - horizontal fracture, 3-inch clay seam at 37.8ft BGS			1	86	64
40	- horizontal fracture at 38.1ft BGS - horizontal fracture at 38.6ft BGS					
42	- horizontal fracture at 39.2ft BGS - horizontal fracture at 39.5ft BGS - horizontal fracture at 40.1ft BGS					
44	- horizontal fracture at 40.3ft BGS - horizontal fracture at 40.7ft BGS					
46	- horizontal fracture at 41.2ft BGS - horizontal fracture at 41.4ft BGS - horizontal fracture at 42.1ft BGS - horizontal fracture at 42.7ft BGS			2	92	83
48	- granular, gray, at 44.0ft BGS - horizontal fracture at 44.7ft BGS					
50	- horizontal fracture at 45.3ft BGS - horizontal fracture at 45.4ft BGS - 2-inches of highly fractured rock at 45.7ft BGS					
52	- horizontal fracture at 46.3ft BGS - horizontal fracture, slightly porous, fossils at 47.7ft BGS			3	83	83
54	- horizontal fracture at 48.6ft BGS - horizontal fracture at 50.8ft BGS - horizontal fracture at 51.7ft BGS					
56	- horizontal fracture at 52.4ft BGS - horizontal fracture at 52.7ft BGS - horizontal fracture at 53.2ft BGS					
58	- horizontal fracture at 53.6ft BGS - horizontal fracture at 54.0ft BGS - horizontal fracture at 54.3ft BGS - horizontal fracture at 54.8ft BGS	667.45				
60	- horizontal fracture at 55.1ft BGS - 2-inch highly fractured rock at 55.5ft BGS - horizontal fracture at 56.0ft BGS END OF BOREHOLE @ 56.8ft BGS					
62						
64						
66						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X049Y198
DATE COMPLETED: January 29, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	PID (ppm)
	GROUND SURFACE	719.6						
0	SAND AND GRAVEL (FILL)	718.79		1	P/S			0.0
2	SP-SAND, loose, fine grained, poorly graded, dark reddish brown (5YR 2.5/2), moist			2	P/S			0.0
4				3	P/S			<1
6	- 8-inch layer that becomes olive brown (2.5Y 6/4) at 6.0ft BGS			4	P/S			<1
8				5	P/S			<1
10	CL-CLAY, trace silt, soft, low plasticity, dark greenish gray (GLEY 1 10Y/4), moist	709.59		6	P/S			<1
12	- 1-foot layer with black staining at 10.5ft BGS - some silt, stiff, yellowish brown (10YR 5/6) at 12.5ft BGS			7	P/S			0.0
14				8	P/S			0.0
16				9	P/S			0.0
18	- with silt at 18.0ft BGS		BENTONITE CHIPS	10	P/S			0.0
20				11	P/S			0.0
22	- trace silt at 22.0ft BGS			12	P/S			0.0
24				13	P/S			0.0
26	- becomes stiff at 27.0ft BGS			14	P/S			0.0
28				15	P/S			0.0
30	- trace gravel at 30.0ft BGS			16	P/S			0.0
32				17	P/S			0.0
34					P/S			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X049Y198
DATE COMPLETED: January 29, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
36				18	P/S			0.0
	- rock fragments at 37.5ft BGS			19	P/S			0.0
38	- Refusal at 38.0ft BGS	681.59						
	END OF BOREHOLE @ 38.0ft BGS							
40								
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (18)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X059Y135A
DATE COMPLETED: July 8, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	727.1						
0	CONCRETE	726.35	CONCRETE	1	P/S	2.0		0
	GRAVEL (FILL)	725.65						
2	SAND (FILL), fine grained, well sorted, dark reddish brown (5YR 3/3), moist		BENTONITE CHIPS	2	P/S	1.0		0
	- concrete refusal at 3.0ft BGS	724.15						
4	END OF BOREHOLE @ 3.0ft BGS							
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X059Y135B
DATE COMPLETED: July 11, 2002
DRILLING METHOD: GEOPROBE / HQ CORE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	727.2						
	CONCRETE	726.39	CONCRETE	1	P/S	2.0		0
	GRAVEL (FILL)	725.69						
2	SAND (FILL), loose, fine grained, well sorted, dark reddish brown (5YR 3/3), moist			2	P/S	2.0		0
	- trace silt at 2.0ft BGS	724.19						
4	CL-CLAY, trace sand and gravel, firm, low plasticity, brown (7.5YR 4/3), moist			3	P/S	2.0		0
	- sand layer, trace gravel, light brown (7.5YR 6/4), at 4.5ft BGS							
6	- trace silt, brown (7.5YR 4/3) at 5.5ft BGS			4	P/S	2.0		0
8				5	P/S	2.0		0
10				6	P/S	2.0		0
12				7	P/S	2.0		0
14	- soft at 14.0ft BGS - grayish brown (2.5Y 5/1) at 14.5ft BGS			8	P/S	2.0		0
16	- brown (7.5YR 4/3) at 17.0ft BGS			9	P/S	2.0		0
18	- trace gravel, hard, brownish yellow (10YR 6/6) at 19.0ft BGS			10	P/S	2.0		0
20				11	P/S	2.0		0
22				12	P/S	2.0		0
24	- very hard, red (2.5YR 4/8) at 24.0ft BGS			13	P/S	2.0		0
26				14	P/S	2.0		0
28				15	P/S	2.0		0
30				16	P/S	2.0		0
32			BENTONITE GROUT	17	P/S	2.0		0
34					P/S			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (17)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X059Y135B
DATE COMPLETED: July 11, 2002
DRILLING METHOD: GEOPROBE / HQ CORE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
36	- weathered rock fragments at 36.5ft BGS			18	P/S	2.0		0
38	- weathered rock fragments at 38.0ft BGS			19	P/S	2.0		0
40				20	P/S	2.0		0
42	- refusal at 42.5ft BGS	684.69		(21)	P/S	2.0		0
44	END OF OVERBURDEN HOLE @ 43.0ft BGS							
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (21)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X059Y135B
DATE COMPLETED: July 11, 2002
DRILLING METHOD: GEOPROBE / HQ CORE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
42	- refusal at 42.5ft BGS	684.69				
44	LIMESTONE (ST. LOUIS FORMATION), granular, gray micritic limestone - horizontal fracture at 44.4ft BGS - near vertical fracture at 44.8ft BGS - dark gray at 44.9ft BGS - horizontal fracture at 45.6ft BGS - horizontal fracture at 46.4ft BGS - brown at 46.6ft BGS - fractured rock at 47.8ft BGS - gray at 47.9ft BGS - 1-inch shale bed at 48.7ft BGS - 2-inch near vertical non-continuous opening at 49.3ft BGS - horizontal fracture at 49.7ft BGS - horizontal fracture at 50.7ft BGS - horizontal fracture at 50.9ft BGS - 3-inch vertical non-continuous opening at 51.0ft BGS - horizontal fracture at 52.4ft BGS - horizontal fracture at 52.6ft BGS - 1-foot of highly fractured rock at 53.0ft BGS - horizontal fracture, porous at 54.4ft BGS - horizontal fracture at 55.6ft BGS - 4-inch vertical non-continuous opening at 55.8ft BGS - horizontal fracture at 56.4ft BGS - 6-inches of highly fractured rock at 56.7ft BGS - 4-inch vertical non-continuous opening at 57.6ft BGS - horizontal fracture at 58.2ft BGS - horizontal fracture at 58.7ft BGS - horizontal fracture at 59.1ft BGS - 2-inch highly fractured rock at 59.3ft BGS - horizontal fracture at 59.9ft BGS - 2-inch vertical non-continuous opening at 60.2ft BGS - One-foot of highly fractured rock at 60.5ft BGS - horizontal fractured at 62.5ft BGS END OF BOREHOLE @ 63.5ft BGS		BENTONITE GROUT	1 2	100 100	94 67
46						
48						
50						
52						
54						
56						
58						
60						
62						
64		663.69				
66						
68						
70						
72						
74						
76						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X059Y160
DATE COMPLETED: February 1, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	721.8						
	CONCRETE	720.96	CONCRETE	1	P/S	2.0		0.0
	SAND AND GRAVEL (FILL)	720.76						
2	SP-SAND (FILL), loose, fine grained, poorly graded, strong brown (7.5YR 4/4), with white layers (7.5YR 8/1), moist			2	P/S	2.0		0.0
4	- becomes very dark gray (10YR 3/1) at 3.5ft BGS			3	P/S	2.0		<1
6	- trace black staining at 6.0ft BGS			4	P/S	2.0		<1
8	- 4-inchs light black gray layer at 7.5ft BGS			5	P/S	2.0		<1
10	- becomes black (5Y 2.5/1) at 9.0ft BGS			6	P/S	2.0		<1
12	- becomes very dark grayish brown (10YR 3/2) at 12.5ft BGS			7	P/S	2.0		<1
14				8	P/S	2.0		<1
16		705.26	BENTONITE CHIPS	9	P/S	2.0		<1
18	SM-SAND, some silt, loose, fine grained, poorly graded, light bluish gray (GLEY 2 7/5B), moist	703.76		10	P/S	2.0		<1
20	CL-CLAY, trace silt, soft, low plasticity, olive (5Y 4/3), moist			11	P/S	2.0		<1
22	- black staining, slight odor at 22.5ft BGS			12	P/S	2.0		<1
24				13	P/S	2.0		<1
26	- trace gravel, very stiff, brownish yellow (10YR 6/8) at 25.0ft BGS			14	P/S	2.0		0.0
28				15	P/S	2.0		0.0
30				16	P/S	2.0		0.0
32	- Refusal at 33.0ft BGS	688.76						
34	END OF BOREHOLE @ 33.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (12)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X069Y098A
DATE COMPLETED: February 11, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	724.1					
0	CONCRETE	723.32	CONCRETE	1	P/S	1.5	
	SAND AND GRAVEL (FILL)	723.12	BENTONITE CHIPS				
2	CONCRETE SLAB, refusal	722.62					
	END OF BOREHOLE @ 1.5ft BGS						
4							
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X069Y098B
DATE COMPLETED: April 15, 2002
DRILLING METHOD: GEOPROBE / HQ CORE
FIELD PERSONNEL: M. GROVES / D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	724.1						
0	CONCRETE	723.43	CONCRETE	1	P/S	2.0		<1
2	SP-SAND (FILL), fine grained, poorly graded, loose, dark reddish brown (5YR 2.5/2), moist			(2)	P/S	2.0		<1
4	CL-CLAY, trace silt, very stiff, low plasticity, brown (7.5YR 5/4), moist	720.63		3	P/S	2.0		<1
6				(4)	P/S	2.0		<1
8				5	P/S	2.0		0
10				6	P/S	2.0		0
12	- red (10R 5/4) at 13.0ft BGS			7	P/S	2.0		0
14				8	P/S	2.0		0
16				9	P/S	2.0		0
18	- trace gravel at 18.0ft BGS			10	P/S	2.0		0
20				(11)	P/S	2.0		0
22	- refusal at 21.5ft BGS END OF OVERBURDEN HOLE @ 22.0ft BGS							
24								
26								
28								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X069Y098B
DATE COMPLETED: April 15, 2002
DRILLING METHOD: GEOPROBE / HQ CORE
FIELD PERSONNEL: M. GROVES / D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
	- refusal at 21.5ft BGS					
22	LIMESTONE (ST. LOUIS FORMATION), thin bedded, slightly porous, beige micritic limestone	702.13	BENTONITE GROUT			
24						
26						
28						
30						
32	- 4-foot section of highly fractured rock at 32.7ft BGS					
34				1	95	22
36	- 5-inch section of clay and rock at 36.5ft BGS - gray at 37.0ft BGS - horizontal fracture at 37.1ft BGS					
38	- horizontal fracture at 38.2ft BGS - horizontal fracture at 39.2ft BGS - horizontal fracture at 39.4ft BGS					
40	- horizontal fracture, dark gray at 40.2ft BGS - horizontal fracture at 41.1ft BGS			2	100	94
42	- horizontal fracture at 41.8ft BGS - horizontal fracture at 42.0ft BGS - horizontal fracture at 42.3ft BGS - horizontal fracture at 42.9ft BGS					
44	- gray at 43.7ft BGS	679.63				
	END OF BOREHOLE @ 44.5ft BGS					
46						
48						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (O)

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X075Y183A
DATE COMPLETED: January 29, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	721.5						
0	ASPHALT	721.09	ASPHALT	1	P/S	2.0		0
	SAND & GRAVEL AGGREGATE	720.49						
2	SP-SAND (FILL), loose, fine grained, poorly graded, dark grayish brown (2.5YR 3/2), moist			2	P/S	2.0		0
4				3	P/S	2.0		<1
6				4	P/S	2.0		0
8	- no further recovery at 8.0ft BGS		BENTONITE CHIPS	5	P/S	0.0		
10				6	P/S	0.0		
12				7	P/S	0.0		
14				8	P/S	0.0		
16	END OF BOREHOLE @ 16.0ft BGS	705.49						
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 20040316_13958.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X075Y183B
DATE COMPLETED: January 29, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	721.3						
0	ASPHALT	720.94						
	SAND AND GRAVEL (FILL)	720.34		1	P/S			0.0
2	SP-SAND (FILL), loose, fine grained, poorly graded, very dark grayish brown (2.5Y 3/2), moist			2	P/S			0.0
4				3	P/S			<1
6				4	P/S			0.0
	- 6" layer very coarse sand at 7.5ft BGS							
8	- 6" of rock layer at 8.0ft BGS	712.84		5	P/S			0.0
	CL-CLAY, trace silt, soft, low plasticity, light olive brown, (2.5Y 5/4), moist							
10				6	P/S			0.0
12				7	P/S			0.0
14				8	P/S			0.0
16			BENTONITE CHIPS	9	P/S			0.0
18				10	P/S			0.0
20	- some silt, becomes olive brown (2.5Y 4/3) at 20.5ft BGS			11	P/S			0.0
22				12	P/S			0.0
24	- trace silt and gravel, becomes stiff, at 23.5ft BGS			13	P/S			0.0
26				14	P/S			0.0
28				15	P/S			0.0
30				16	P/S			0.0
32	- weathered rock fragments, yellowish brown (10YR 6/8) at 32.0ft BGS	688.84						
	- Refusal at 32.5ft BGS							
34	END OF BOREHOLE @ 32.5ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (16)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X080Y210
DATE COMPLETED: February 14, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	718.1
0	ASPHALT	717.78
	SP-SAND (FILL), trace gravel, fine grained, poorly graded, brown (10YR 4/3), moist	
6		712.08
	CL-CLAY, trace silt, soft, low plasticity, dark olive gray (5Y 3/2), moist	
	- 2-inch trace black staining at 6.5ft BGS	
10	- becomes stiff, turns yellowish brown (10YR 5/6) at 10.0ft BGS	
12	- becomes very stiff at 13.0ft BGS	
18	- turns light grey (2.5Y 7/2) at 18.0ft BGS	
20	- turns yellowish brown (10YR 5/6) at 21.0ft BGS	
32		685.08
	fractured rock	
34	- refusal at 34.5ft BGS	683.58

BOREHOLE: ASPHALT; BENTONITE CHIPS

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
(1)	P/S	2.0		<1
2	P/S	2.0		<1
3	P/S	2.0		<1
(4)	P/S	2.0		3.1
5	P/S	2.0		<1
6	P/S	2.0		<1
7	P/S	2.0		0
8	P/S	2.0		0
9	P/S	2.0		0
10	P/S	2.0		0
11	P/S	2.0		0
12	P/S	2.0		0
13	P/S	2.0		0
14	P/S	2.0		0
15	P/S	2.0		0
16	P/S	2.0		0
(17)	P/S	2.0		0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X080Y210
DATE COMPLETED: February 14, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
36	END OF BOREHOLE @ 34.5ft BGS							
38								
40								
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (O)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X084Y138A
DATE COMPLETED: May 29, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	726.9						
0	CONCRETE	726.13	CONCRETE	1	P/S	2.0		0
	SAND AND GRAVEL (FILL)							
2				2	P/S	2.0		0
4			BENTONITE CHIPS	3	P/S	2.0		0
6				4	P/S	2.0		0
8	- concrete refusal at 8.0ft BGS	718.93						
	END OF BOREHOLE @ 8.0ft BGS							
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X084Y138B
DATE COMPLETED: May 29, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	726.9						
0	CONCRETE	726.13	CONCRETE	1	P/S	2.0		0
	SAND AND GRAVEL (FILL)							
2				2	P/S	2.0		0
4			BENTONITE CHIPS	3	P/S	2.0		0
6				(4)	P/S	2.0		0
8	- concrete refusal at 8.0ft BGS	718.93						
	END OF BOREHOLE @ 8.0ft BGS							
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (4)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X093Y090
DATE COMPLETED: May 7, 2002
DRILLING METHOD: GEOPROBE / HQ CORE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	724.3						
0	CONCRETE	723.34	CONCRETE	1	P/S	2.0		0
2	SAND & GRAVEL (FILL)	721.34		2	P/S	2.0		0
4	CL-CLAY, with sand and gravel, low plasticity, stiff, yellow (10YR 7/6), moist			3	P/S	2.0		0
6	- yellowish brown (10YR 5/8), trace sand at 6.0ft BGS			4	P/S	2.0		0
8	- brown (7.5YR 5/6), at 8.0ft BGS			5	P/S	2.0		0
10				6	P/S	2.0		0
12	- trace silt, no sand, red (2.5YR 4/6), hard at 12.0ft BGS			7	P/S	2.0		0
14				8	P/S	2.0		0
16				9	P/S	2.0		0
18				10	P/S	2.0		0
20	- reddish yellow (7.5YR 6/6), soft at 21.0ft BGS			11	P/S	2.0		0
22			BENTONITE GROUT	12	P/S	2.0		0
24	- weathered rock at 24.5ft BGS			13	P/S	1.0		0
26	END OF OVERBURDEN HOLE @ 25.0ft BGS							
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X093Y090
DATE COMPLETED: May 7, 2002
DRILLING METHOD: GEOPROBE / HQ CORE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
	- weathered rock at 24.5ft BGS	699.34				
26	LIMESTONE (ST. LOUIS FORMATION), fine grained, dolomite limestone, thin bedded, gray micritic limestone - one feet of highly fractured rock at 26.0ft BGS - one-inch clay seam at 27.8ft BGS					
28	- one-inch horizontal non-continuous opening at 28.6ft BGS			1	100	22
30						
32	- horizontal fracture at 31.0ft BGS - 2-inch section of horizontal fracture at 31.6ft BGS - 2-inch section of horizontal fracture at 31.8ft BGS					
34	- horizontal fracture at 33.1ft BGS - horizontal fracture at 33.4ft BGS - horizontal fracture at 33.8ft BGS					
36	- horizontal fracture at 34.5ft BGS - horizontal fracture at 35.0ft BGS			2	100	25
38	- 3.5-feet section of dark gray rock at 35.6ft BGS - horizontal fracture at 36.2ft BGS - horizontal fracture at 36.6ft BGS					
40	- horizontal fracture at 36.8ft BGS - horizontal fracture at 37.1ft BGS - horizontal fracture at 37.4ft BGS					
42	- horizontal fracture at 37.7ft BGS - horizontal fracture at 38.1ft BGS			3	100	35
44	- horizontal fracture at 38.3ft BGS - horizontal fracture at 38.8ft BGS - granular texture, occasional fossil, gray at 39.0ft BGS					
46	- one-foot section of horizontal fractured rock at 40.0ft BGS	678.54				
48	- horizontal fracture at 41.7ft BGS - horizontal fracture at 42.2ft BGS - horizontal fracture at 42.5ft BGS					
50	- 1.5-feet section of moderate porosity rock at 42.9ft BGS - horizontal fracture at 44.2ft BGS - horizontal fracture at 44.7ft BGS					
52	- horizontal fracture at 45.0ft BGS END OF BOREHOLE @ 45.8ft BGS					
54						
56						
58						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X096Y195
DATE COMPLETED: January 25, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	723.2						
0	GRAVEL (Fill)	722.67						
	SP - SAND (FILL), loose, fine grained, poorly graded, dark brown (10R 3/3), moist			1	P/S	2.0		0.0
2				2	P/S	2.0		0.0
	CL - CLAY, some silt, soft, olive brown (25Y 4/3), moist, trace odor, black staining	720.17						
4	- trace of black staining disappeared at 4.0ft BGS			3	P/S	2.0		0.0
6				4	P/S	2.0		4.0
8				5	P/S	2.0		4.0
	- becoming stiff at 9.5ft BGS							
10				6	P/S	2.0		0.0
12				7	P/S	2.0		0.0
14				8	P/S	2.0		0.0
	- trace gravel at 15.5ft BGS		BENTONITE CHIPS					
16				9	P/S	2.0		0.0
18	- becoming very stiff at 18.0ft BGS			10	P/S	2.0		0.0
20				11	P/S	2.0		0.0
22				12	P/S	2.0		0.0
24				13	P/S	2.0		0.0
26	- becoming hard, turning to dark reddish brown (25YR 3/4) at 26.0ft BGS			14	P/S	2.0		0.0
28				15	P/S	2.0		0.0
30				16	P/S	2.0		0
32	- refusal at 32.0ft BGS	691.17						
	END OF BOREHOLE @ 32.0ft BGS							
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13966.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X097Y232
DATE COMPLETED: February 14, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	712.1						
0	ASPHALT	711.77	ASPHALT	1	P/S	2.0		0
	SP-GP SAND AND GRAVEL (FILL), poorly graded	710.07						
2	CL-CLAY, trace silt, soft, low plasticity, light olive brown (2.5Y 5/4), moist			2	P/S	2.0		<1
4				3	P/S	2.0		<1
	- turns stiff, becomes reddish yellow (7.5YR 7/8) at 5.0ft BGS			4	P/S	2.0		<1
6				5	P/S	2.0		<1
8								
	- becomes red (2.5YR 4/6) at 9.5ft BGS		BENTONITE CHIPS	6	P/S	2.0		<1
10				7	P/S	2.0		0
12				8	P/S	2.0		0
14				9	P/S	2.0		0
16								
18	- some silt, becomes yellow brown (10YR 5/6) at 18.0ft BGS			10	P/S	2.0		0
	weathered rock, refusal	692.57						
20	END OF BOREHOLE @ 20.0ft BGS	692.07						
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X100Y072
DATE COMPLETED: March 5, 2002
DRILLING METHOD: 4 1/4-INCH HSA
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	GROUND SURFACE	720						
0	SW/GW - SAND and GRAVEL (Fill), dense, fine to coarse grained, well graded, grey, moist			1		1.7	34	0.0
2		717.55		2		1.7	8	0.0
4	SW - SAND (Fill), some gravel, little silt, loose, medium to coarse grained, well graded, black, very moist to wet	716.05		3		1.8	12	0.0
	CL - CLAY, some silt, stiff, low plasticity, moist							
6	- little silt, low to medium plasticity at 6.0ft BGS			4		2.0	12	0.0
8				5		2.0	11	0.0
10				6		1.8	13	0.0
12	- very stiff, low plasticity at 12.0ft BGS		BENTONITE CHIPS	7		2.0	18	0.0
14				8		2.0	17	0.0
16				9		2.0	14	0.0
18				10		2.0	10	0.0
20				11		2.0	9	0.0
22				12		2.0	18	0.0
24	ML - SILT, trace clay, compact, moist - rock fragments at 24.0ft BGS	696.55		13		1.8	23	0.0
26	- refusal at 26.0ft BGS	694.05						
	END OF BOREHOLE @ 26.0ft BGS							
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X100Y198
DATE COMPLETED: January 23, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	724.7						
0	CONCRETE		Concrete	(1)	P/S	2.0		0
	SW/ GW- SAND & GRAVEL (FILL)l, coarse	723.9						
2	SP - SAND (FILL), dense, fine grained, poorly graded, dark reddish brown (2.5 YR 3/3), moist	722.7		2	P/S	2.0		0
4				3	P/S	2.0		<1
6	CL - CLAY, with some silt, soft, low plasticity, greenish grey (Gley 1 5/10Y), moist, trace of black staining	718.7		(4)	P/S	2.0		<1
8				5	P/S	2.0		<1
10	- becoming stiff at 11.0ft BGS			6	P/S	2.0		0
12	- trace silt, stiff, low plasticity, strong brown (7.5 YR 4/6), moist at 12.0ft BGS			7	P/S	2.0		0
14				8	P/S	2.0		0
16	- trace gravel and sand at 16.5ft BGS			9	P/S	2.0		0
18			Bentonite Chips	10	P/S	2.0		0
20	- becoming very stiff, yellowish red (5 YR 5/6) at 20.5ft BGS			11	P/S	2.0		0
22				12	P/S	2.0		0
24	- some silt to 25 ft. at 24.5ft BGS			13	P/S	2.0		0
26				14	P/S	2.0		0
28	- becoming strong brown (7.5 YR 5/8) at 29.0ft BGS		2" Ø Borehole	15	P/S	2.0		0
30				16	P/S	2.0		0
32				(17)	P/S	2.0		0
34					P/S			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X100Y198
DATE COMPLETED: January 23, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
36	Weathered Bedrock and Rock Fragments - Refusal at 36.0ft BGS END OF BOREHOLE @ 36.0ft BGS	689.7 688.7		18	P/S	2.0		0
38								
40								
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X106Y102A
DATE COMPLETED: February 12, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	724.2						
0	CONCRETE	723.3	CONCRETE	1	P/S	1.5		0
	SW-GW SAND AND GRAVEL (FILL)	722.7	BENTONITE CHIPS					
2	END OF BOREHOLE @ 1.5ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X106Y102B
DATE COMPLETED: February 12, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	724.3
0	CONCRETE	723.3
0	SP-SAND (FILL), fine grained, poorly graded	722.3
2	CL-CLAY, trace silt, soft, low plasticity, olive (5Y 5/4), moist	
4	- stiff, light olive brown (2.5Y 5/4) at 4.2ft BGS	
6	- red (2.5YR 5/8) at 7.5ft BGS	
8		
10	- trace gravel, very hard at 10.0ft BGS	
12		
14		
16		
18		
20		
22	- Refusal at 22.5ft BGS	701.8
	END OF BOREHOLE @ 22.5ft BGS	
24		
26		
28		
30		
32		
34		

BOREHOLE: CONCRETE; BENTONITE

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	P/S	2.0		<1
2	P/S	2.0		<1
3	P/S	2.0		<1
4	P/S	2.0		<1
5	P/S	2.0		0
6	P/S	2.0		0
7	P/S	2.0		0
8	P/S	2.0		0
9	P/S	2.0		0
10	P/S	2.0		0
11	P/S	2.0		0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (11)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X106Y102C
DATE COMPLETED: April 25, 2002
DRILLING METHOD: 4 1/4-INCH HSA / HQ CORE
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	724.3					
0	Same stratigraphy as B-X106Y102B		CONCRETE				
22	END OF OVERBURDEN HOLE @ 22.5ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X106Y102C
DATE COMPLETED: April 25, 2002
DRILLING METHOD: 4 1/4-INCH HSA / HQ CORE
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
22						
	LIMESTONE (ST.LOUIS FORMATION), thin bedded, fine grained, light gray micritic limestone	701.8	CEMENT / BENTONITE GROUT			
24						
26	- horizontal fracture at 26.1ft BGS - horizontal fracture at 26.4ft BGS - horizontal fracture at 27.1ft BGS					
28	- horizontal fracture at 27.3ft BGS					
30	- horizontal fracture at 30.3ft BGS - horizontal fracture at 31.0ft BGS			1	95	85
32	- horizontal fracture, thin clay/shale parting at 31.5ft BGS - horizontal fracture at 31.9ft BGS					
34	- horizontal fracture at 32.1ft BGS - horizontal fracture at 33.0ft BGS - 7-inch near vertical non-continuous opening, oxidized at 34.7ft BGS					
36						
38	- medium grained, dark gray, 4-inch near vertical non-continuous opening at 37.0ft BGS - 6-inch near vertical non-continuous opening at 39.0ft BGS			2	91	87
40						
42	- one foot of fractured rock at 42.0ft BGS - granular, fine calcite crystals, fossil, gray at 42.5ft BGS			3	100	70
44	- horizontal fracture at 43.9ft BGS - horizontal fracture at 44.5ft BGS					
		678.8				
46	END OF BOREHOLE @ 45.5ft BGS					
48						
50						
52						
54						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

BEDROCK LOG 20040316_13968.GPJ .CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X107Y151
DATE COMPLETED: January 15, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	726.3						
0	GC - GRAVEL & CLAY (FILL), coarse	725.27		1	P/S	2.0		<1
2	CL- CLAY, with gravel, very stiff, medium plasticity, olive brown (2.5 Y 4/3), moist			2	P/S	2.0		<1
	- trace sand and gravel at 3.0ft BGS							
4	- with some silt, soft, yellowish brown (10 YR 5/6), moist at 3.4ft BGS			3	P/S	2.0		<1
6				4	P/S	2.0		<1
8	- turning to strong brown (7.5 YR 4/6) at 8.5ft BGS			5	P/S	2.0		<1
10				6	P/S	2.0		<1
12	- trace gravel, trace silt, very stiff at 11.8ft BGS			7	P/S	2.0		<1
	- becoming hard at 12.5ft BGS							
14				8	P/S	2.0		<1
16			BENTONITE CHIPS	9	P/S	2.0		<1
18				10	P/S	2.0		<1
20			2" DIA. BOREHOLE	11	P/S	2.0		<1
22				12	P/S	2.0		<1
24	- becoming soft, dark red (2.5 YR 3/6) at 24.0ft BGS			13	P/S	2.0		<1
26				14	P/S	2.0		<1
28				15	P/S	2.0		0
30	- with some silt, medium plasticity, olive yellow (2.5 Y 6/6), moist at 29.5ft BGS		BENTONITE CHIPS	16	P/S	2.0		0
32				17	P/S	1.5		0
	- Refusal at 33.5ft BGS	692.77						
34	END OF BOREHOLE @ 33.5ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X107Y203
DATE COMPLETED: January 23, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	724.4
0	CONRETE	723.56
	SW /GW - SAND & GRAVEL (FILL)	
2		721.86
	SP - SAND (FILL), dense, fine grained, poorly graded, mottled yellowish red (5 YR 5/8) and dusky red (10 R 3/2), moist	
4		
6		718.36
	CL - CLAY, with trace silt, soft, low plasticity, dark blueish grey (Gley 2 4/1), moist, some black staining	
8	- no black staining at 9.0ft BGS	
10	- medium plasticity, yellowish brown (10 YR 5/6) at 10.0ft BGS	
12	- becoming stiff at 13.0ft BGS	
14		
16	- becoming red (2.5 YR 5/6) at 17.5ft BGS	
18		
20		
22	- some silt at 22.0ft BGS	
24	- becoming very stiff at 24.5ft BGS	
26		
28	- becoming yellowish brown (10 YR 5/8) at 28.5ft BGS	
30		
32	Rock Fragments	692.36
	- Refusal at 32.5ft BGS	691.86
	END OF BOREHOLE @ 32.5ft BGS	
34		

BOREHOLE: CONCRETE; BENTONITE CHIPS; 2" DIA. BOREHOLE

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	P/S	2.0		0
2	P/S	2.0		<1
3	P/S	2.0		<1
4	P/S	2.0		<1
5	P/S	2.0		0
6	P/S	2.0		0
7	P/S	2.0		0
8	P/S	2.0		0
9	P/S	2.0		0
10	P/S	2.0		0
11	P/S	2.0		0
12	P/S	2.0		0
13	P/S	2.0		0
14	P/S	2.0		0
15	P/S	2.0		0
16	P/S	2.0		0
17	P/S	2.0		0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X108Y190
DATE COMPLETED: January 27, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	724.6						
0	CONCRETE	723.76	CONCRETE	1	P/S	2.0		0
	SW/GW - SAND & GRAVEL (FILL), sub-base	723.06						
2	SP - SAND (FILL), loose, fine grained, poorly graded, blueish black (Gley 2 2.5/1), moist			2	P/S	2.0		0
4		720.06		3	P/S	2.0		<1
6	CL - CLAY, trace silt, soft, low plasticity, olive brown (2.5 Y 4/3), moist			4	P/S	2.0		0
8	- becoming stiff, yellowish brown (10 YR 5/8) at 8.5ft BGS			5	P/S	2.0		<1
10				6	P/S	2.0		0
12	- trace gravel, becoming very stiff, red (2.5 YR 4/6) at 12.5ft BGS			7	P/S	2.0		0
14				8	P/S	2.0		0
16			BENTONITE CHIPS	9	P/S	2.0		0
18				10	P/S	2.0		0
20			2" DIA. BOREHOLE	11	P/S	2.0		0
22				12	P/S	2.0		0
24				13	P/S	2.0		0
26	- trace silt, no gravel, becoming yellowish brown (10 YR 5/8) at 25.5ft BGS			14	P/S	2.0		0
28				15	P/S	2.0		0
30				16	P/S	2.0		0
32	- Refusal at 33.0ft BGS	691.56		17	P/S	2.0		0
34	END OF BOREHOLE @ 33.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X113Y194
DATE COMPLETED: January 24, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	724.5
0	CONCRETE	723.68
	SW/GW - SAND & GRAVEL (FILL), aggregate sub-grade	723.28
2	SP - SAND (FILL), loose, fine grained, poorly graded, very dark blueish grey (Gley 2 3/1), moist	721.48
4	CL - CLAY, trace silt, low plasticity, dark greenish grey (GLEY 1 4/1), moist	
	- turning light olive brown (2.5 Y 5/4) at 5.0ft BGS	
6	- trace gravel at 6.0ft BGS	
8	- with trace gravel, stiff, medium plasticity, strong brown (7.5 YR 5/6), moist at 8.0ft BGS	
10		
12	- turning yellowish red (5 YR 5/8), becoming very stiff at 11.5ft BGS	
14		
16		
18		
20		
22		
24		
26		
28	- some silt to 30 feet at 28.0ft BGS	
30		
32		
	Weathered Rock, small fractured fragments	691.48
34	- Refusal at 34.0ft BGS	690.48
	END OF BOREHOLE @ 34.0ft BGS	

BOREHOLE: CONCRETE; BENTONITE CHIPS; 2" DIA. BOREHOLE

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	P/S	2.0		0
2	P/S	2.0		0
3	P/S	2.0		<1
4	P/S	2.0		<1
5	P/S	2.0		<1
6	P/S	2.0		0
7	P/S	2.0		0
8	P/S	2.0		0
9	P/S	2.0		0
10	P/S	2.0		0
11	P/S	2.0		0
12	P/S	2.0		0
13	P/S	2.0		0
14	P/S	2.0		0
15	P/S	2.0		0
16	P/S	2.0		0
17	P/S	2.0		0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X115Y070
DATE COMPLETED: March 6, 2002
DRILLING METHOD: 4 1/4-INCH HSA
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	GROUND SURFACE	720.2						
0	SW/GW - SAND and GRAVEL (Fill), little silt, very dense, light grey, fine to coarse grained, well graded, moist			(1)		1.8	>100	0.0
2	SP - SAND (Fill), trace to little gravel, compact, medium grained, poorly graded, black, moist	718.17		2		1.8	7	0.0
4	CL - CLAY, with silt, trace gravel, stiff, low plasticity	717.17		3		1.8	13	0.0
	- low to medium plasticity at 5.0ft BGS							
6	- medium plasticity at 6.0ft BGS			(4)		1.8	9	0.0
8				5		2.0	14	0.0
10				6		2.0	16	0.0
12			BENTONITE CHIPS	7		2.0	16	0.0
	- low plasticity at 13.0ft BGS							
14				8		2.0	16	0.0
16				9		2.0	13	0.0
18	- occasional rock fragments at 18.0ft BGS			10		2.0	11	0.0
20				11		2.0	11	0.0
22		697.17		(12)		1.2	>50	4.0
	ML - SILT, trace clay, very dense, moist							
24	- refusal at 24.0ft BGS	696.17						
	END OF BOREHOLE @ 24.0ft BGS							
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X123Y129
DATE COMPLETED: January 17, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: R. AAMOT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	726.5
	GW-GRAVEL (FILL)	725.47
2	CH - CLAY, trace gravel, very stiff, very plastic, mottled brown/red, moist	
	- 6 inch layer of fine black clayey sand at 3.0ft BGS	
4		
6	- becoming more stiff, less plastic at 6.0ft BGS	
8		
10		
12	- stiff, medium plasticity, homogeneous, olive green/tan, dry at 12.5ft BGS	
14		
		710.47
16	CL - CLAY, trace gravel, very stiff, medium plasticity, mottled brown/red, moist	
18		
20	- with silt, very stiff, homogeneous, tan, dry at 20.3ft BGS	
22		
	- Refusal at 23.5ft BGS	702.97
24	END OF BOREHOLE @ 23.5ft BGS	
26		
28		
30		
32		
34		

BOREHOLE: BENTONITE CHIPS; 2" DIA. BOREHOLE

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
(1)	P/S	2.0		23.6
2	P/S	2.0		
(3)	P/S	2.0		
4	P/S	2.0		71
5	P/S	2.0		
6	P/S	2.0		
7	P/S	2.0		
8	P/S	2.0		
9	P/S	2.0		
10	P/S	2.0		
11	P/S	2.0		
(12)	P/S	1.5		713

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X128Y079
DATE COMPLETED: March 7, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	719.6						
0	GRAVEL (Fill)							
2	CL - CLAY (FILL), with trace sand and gravel, stiff, low plasticity, very dark greyish brown (2.5Y 3/5), moist	717.63		1	P/S	3.0		4
4								
6				2	P/S	2.0		4
	SP - SAND (FILL), trace gravel, loose, medium grained, light olive brown (2.5Y 5/6), moist	712.63						
8								
	CL - CLAY with some silt, soft, low plasticity, light olive brown, (2.5Y 5/6), moist	710.63		3	P/S	2.0		4
10								
	SP - SAND, loose, medium grained, very pale brown (10YR 7/4), moist	708.63	BENTONITE CHIPS					
12								
	CL - CLAY with trace gravel, soft, low plasticity, olive (5Y 5/4), moist	707.13						
14	- 1' trace black staining at 14.0ft BGS			4	P/S	4.0		1.6
16								
	- becoming stiff, yellowish brown (10YR 5/6) at 17.0ft BGS			5	P/S	4.0		4
18								
20								
22				6	P/S	4.0		4
	- refusal at 23.0ft BGS							
24	END OF BOREHOLE @ 24.0ft BGS	695.63						
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X130Y064
DATE COMPLETED: March 7, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	719.2						
0	GRAVEL (Fill)							
		717.73						
2	CL - CLAY, trace silt and sand, soft, low plasticity, black (5Y 25/2), moist - 2' black stain at 2.0ft BGS			1	P/S	4.0		4
4	- becoming olive (5Y 4/4) at 4.0ft BGS							
6				2	P/S	4.0		4
8								
10				3	P/S	3.5		4
			BENTONITE CHIPS					
12	- becoming hard, yellowish red (5YR 4/6) at 12.0ft BGS							
14				4	P/S	3.5		0
16								
	- becoming red (2.5YR 4/6) at 17.0ft BGS							
18				5	P/S	4.0		0
20								
				6	P/S	2.0		0
22	- refusal at 22.0ft BGS	697.23						
	END OF BOREHOLE @ 22.0ft BGS							
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X130Y089
DATE COMPLETED: April 30, 2002
DRILLING METHOD: GEOPROBE / HQ CORE
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	724.4						
0	CONCRETE	723.38	CONCRETE	1	P/S	2.0		0
2	GM-SILTY GRAVEL (FILL), trace sand, dense, medium-coarse gravel, well graded, light gray (5Y 7/2), moist			2	P/S	2.0		0
4				3	P/S	2.0		0
6				4	P/S	2.0		0
8				5	P/S	2.0		0
10	CL-CLAY, with silt, firm, low plasticity, brown (7.5YR 4/3), moist	714.88		6	P/S	2.0		0
12				7	P/S	2.0		0
14	- trace dark gray at 14.8ft BGS			8	P/S	2.0		0
16				9	P/S	2.0		0
18	- red (10R 3/6) at 17.5ft BGS			10	P/S	2.0		0
20				11	P/S	2.0		0
22	- yellowish brown (10YR 5/6) at 21.5ft BGS		BENTONITE GROUT	12	P/S	2.0		0
24				13	P/S	1.5		0
26	END OF OVERBURDEN HOLE @ 25.5ft BGS							
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (13)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X130Y089
DATE COMPLETED: April 30, 2002
DRILLING METHOD: GEOPROBE / HQ CORE
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
		698.88				
26	LIMESTONE (ST. LOUIS FORMATION), thin bedded, fine grained, light gray micritic limestone - horizontal fracture at 26.2ft BGS - horizontal fracture at 26.4ft BGS - horizontal fracture at 26.6ft BGS - horizontal fracture at 27.9ft BGS - horizontal fracture at 28.0ft BGS - horizontal fracture at 28.4ft BGS - horizontal fracture at 28.6ft BGS - horizontal fracture at 28.9ft BGS - horizontal fracture at 29.3ft BGS - horizontal fracture at 29.9ft BGS - horizontal fracture at 30.1ft BGS - horizontal fracture at 30.2ft BGS - horizontal fracture at 32.6ft BGS - horizontal fracture at 32.8ft BGS - horizontal fracture at 33.2ft BGS - horizontal fracture at 33.4ft BGS - horizontal fracture at 34.1ft BGS - horizontal fracture at 35.7ft BGS - horizontal fracture at 36.4ft BGS - horizontal fracture at 37.3ft BGS - horizontal fracture at 38.6ft BGS - horizontal fracture at 39.8ft BGS - porous, gray, 4-inch fossil bed at 40.1ft BGS - horizontal fracture at 42.2ft BGS - horizontal fracture at 43.4ft BGS - highly porous, fossils at 44.0ft BGS			1	100	53
28						
30						
32						
34						
36				2	97	85
38						
40						
42						
44						
		678.88				
46	END OF BOREHOLE @ 45.5ft BGS					
48						
50						
52						
54						
56						
58						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X130Y115
DATE COMPLETED: July 15, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: C. MARHOEFER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	726.2						
0	SP/GW SAND AND GRAVEL (FILL), dense, fine grained, poorly graded sand, well graded gravel, beige, rock fragments	725.2		1	P/S	2.0		0
2	CL-CLAY, with silt, firm, low plasticity, dark brown/black, moist			2	P/S	2.0		0
4	- strong brown at 5.0ft BGS			3	P/S	2.0		0
6	- medium plasticity, grey/brown at 6.5ft BGS			4	P/S	2.0		0
8	- strong brown at 9.0ft BGS		BENTONITE CHIPS	5	P/S	2.0		0
10				6	P/S	2.0		0
12				7	P/S	2.0		0
14				8	P/S	2.0		0
16	END OF BOREHOLE @ 16.0ft BGS	710.2						
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X130Y215
DATE COMPLETED: February 13, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	709.5
0	ASPHALT	709.09
	GRAVEL (FILL)	708.89
2	CL-CLAY, trace sand and gravel, stiff, low plasticity, olive brown (2.5Y 4/2), moist - trace silt, soft at 2.0ft BGS	
4		
6		
8		
10	- becomes very stiff, turns yellowish red (5YR 4/6) at 9.5ft BGS - very hard at 10.0ft BGS	
12		
14	- some silt, stiff at 14.5ft BGS	
16		
18		
20	- turns dark red (2.5YR 3/6) at 21.0ft BGS	
22		
24	- yellowish brown (10YR 5/6) at 23.5ft BGS	
26		
28		
30		
32		
34		674.99

BOREHOLE: ASPHALT; BENTONITE GROUT

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	P/S	2.0		0
2	P/S	2.0		<1
3	P/S	2.0		<1
4	P/S	2.0		0
5	P/S	2.0		0
6	P/S	2.0		0
7	P/S	2.0		0
8	P/S	2.0		0
9	P/S	2.0		0
10	P/S	2.0		0
11	P/S	2.0		0
12	P/S	2.0		0
13	P/S	2.0		0
14	P/S	2.0		0
15	P/S	2.0		0
16	P/S	2.0		0
17	P/S	2.0		0
(CHEMICAL ANALYSIS)	P/S			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X130Y215
DATE COMPLETED: February 13, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
36	weathered and fractured rock - refusal at 35.5ft BGS END OF BOREHOLE @ 35.5ft BGS	673.99		18	P/S	1.5		0
38								
40								
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X135Y110
DATE COMPLETED: July 15, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: C. MARHOEFER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	726.1						
0	SP/GW SAND AND GRAVEL (FILL), dense, poorly graded sand, well graded gravel, beige, 1"-4" black sand	725.07		1	P/S	2.0		0
2	CL-CLAY, with silt, firm, low plasticity, dark brown/black, moist			2	P/S	2.0		0
4				3	P/S	2.0		0
6				4	P/S	2.0		0
8			BENTONITE CHIPS	5	P/S	2.0		0
10	- rock fragments at 10.0ft BGS			6	P/S	2.0		0
12	- medium plasticity, grey at 12.0ft BGS			7	P/S	2.0		0
14				8	P/S	2.0		0
16	END OF BOREHOLE @ 16.0ft BGS	710.07						
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (X)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X137Y073
DATE COMPLETED: March 12, 2002
DRILLING METHOD: 4 1/4-INCH HSA
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	719.3
0	SW/GW - SAND and GRAVEL (FILL), dense, medium to coarse grained, well graded, grey, moist	718.3
2	Concrete pad	717.3
	Steel plate	717.13
	Concrete	716.3
4	SP - SAND (FILL), fine grained, poorly graded, pale yellow (2.5Y 7/3), moist	
6		
8	CL - CLAY, trace silt and sand, medium plasticity, soft brownish yellow (10YR 6/6), wet	711.3
10		
12		
14		
16		
18		
20	- bedrock refusal at 20.5ft BGS	698.8
	END OF BOREHOLE @ 20.5ft BGS	
22		
24		
26		
28		
30		
32		
34		

BOREHOLE: BENTONITE CHIPS

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1		0.0	5	0.0
2		0.7	9	0.0
(3)		1.7	8	0.0
4		1.0	8	0.0
5		1.5	8	0.0
6		2.0		0.0
7		2.0		0.0
(8)		2.0		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X137Y132
DATE COMPLETED: February 15, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	726.5
0	CONCRETE	725.8
	SW-GW SAND AND GRAVEL (FILL)	
4	CL-CLAY, trace silt and gravel, soft, low plasticity, strong brown (7.5YR 5/6), moist	722
8	- turns very stiff, no trace of gravel, becomes olive yellow (2.5Y 6/6) at 8.0ft BGS	
16	- becomes dark red (2.5Y 3/4) at 15.7ft BGS	
22	- some silt, turns very pale brown (10YR 7/4) at 22.5ft BGS	
24	- refusal at 24.0ft BGS	702.5
	END OF BOREHOLE @ 24.0ft BGS	

BOREHOLE: CONCRETE; BENTONITE CHIPS

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	P/S	2.0		0
(2)	P/S	2.0		0
3	P/S	2.0		4
(4)	P/S	2.0		4
5	P/S	2.0		4
6	P/S	2.0		1.4
7	P/S	2.0		<1
8	P/S	2.0		0
9	P/S	2.0		0
10	P/S	2.0		0
11	P/S	2.0		0
(12)	P/S	2.0		0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X140Y100
DATE COMPLETED: July 15, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: C. MARHOEFER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	726.1						
0	SP/GW SAND AND GRAVEL (FILL), dense, fine grained, poorly graded sand, well graded gravel, beige, moist, 1'-2' black sand, rock fragments			1	P/S	2.0		0
2				2	P/S	2.0		0
4				3	P/S	2.0		0
6				4	P/S	2.0		0
8			BENTONITE CHIPS	5	P/S	2.0		0
10				6	P/S	2.0		0
12				7	P/S	2.0		0
14	CL-CLAY, with silt, firm, low plasticity, strong brown, moist	713.08		8	P/S	2.0		0
16	END OF BOREHOLE @ 16.0ft BGS	710.08						
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X143Y075
DATE COMPLETED: March 13, 2002
DRILLING METHOD: 4 1/4-INCH HSA
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	GROUND SURFACE	719.6						
0	Concrete slabs							
10	CL - CLAY, trace silt to gravel, very stiff, low plasticity, light olive brown (2.5Y 5/6), moist	708.59	BENTONITE CHIPS	1		1.7	27	<1
				2		1.3	24	<1
				3		1.7	25	<1
18	- turns to dark yellowish brown (10YR 4/6), stiff at 18.0ft BGS			4		1.7	22	0
				5		1.5	12	0
21	- rock fragments and weathered rock at 21.0ft BGS	698.09						
21.5	- refusal at 21.5ft BGS END OF BOREHOLE @ 21.5ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (5)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X148Y076
DATE COMPLETED: March 8, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	720.4						
0	CL - CLAY (FILL), trace sand, stiff, low plasticity, dark brown (2.5YR 3/2), moist			1	P/S	1.5		<1
2				2	P/S	1.5		<1
4	SP - SAND (FILL), loose, fine grained, poorly graded, dark greyish brown (10YR 4/2), moist	717.38		3	P/S	1.5		<1
6				4	P/S	1.5		<1
8				5	P/S	2.0		0
10	CL - CLAY, with trace silt, stiff, low plasticity, strong brown (7.5YR 5/8), moist	710.38	BENTONITE CHIPS	6	P/S	2.0		0
12				7	P/S	2.0		0
14				8	P/S	2.0		0
16				9	P/S	2.0		0
18				10	P/S	2.0		0
20	- refusal at 20.0ft BGS	700.38						
	END OF BOREHOLE @ 20.0ft BGS							
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X148Y233
DATE COMPLETED: February 22, 2002
DRILLING METHOD: 4 1/4-INCH HSA
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	695.6
0	SW-GW SAND AND GRAVEL (FILL), rock fragments, compact, medium to coarse grained, well graded	
2	CL-CLAY, little silt, very stiff, low to medium plasticity, 10YR 4/8 (red), iron staining, moist	693.61
4		
6	- 2.5YR 4/8 (red) at 6.0ft BGS	
8		
10		
12	ML-SILT, trace clay, compact, 2.5YR 6/2 (pale red), very moist to wet	684.61
14	CL-CLAY, little silt, firm, medium plasticity, 5YR 5/8 (yellowish red), moist	683.11
16	BEDROCK, refusal	681.11
18	END OF BOREHOLE @ 15.0ft BGS	680.61
20		
22		
24		
26		
28		
30		
32		
34		

BOREHOLE: BENTONITE GROUT

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1		2.0	25	0
2		2.0	22	0
3		2.0	23	0
4		2.0	24	0
5		2.0	28	0
6		2.0	22	0
7		2.0	10	0
8		1.0	>50	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X154Y117
DATE COMPLETED: November 12, 2003
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	724.7
0	Rip Rap (Limestone)	724.28
	CL-CLAY, cohesive, soft to firm, low plasticity, brown, damp	
6	- transition to strong brown at 6.0ft BGS	
7	- cobbles at 7.0ft BGS	
10	SW/GP-SAND & GRAVEL, medium to coarse grained, well graded, fine grained gravel, loose, dark gray to black, wet	714.08
11		713.18
12	SC-CLAYEY SAND, medium to coarse sand, cohesive, firm, olive green, damp to moist	711.68
14	SM-SILTY SAND, some silt, medium to coarse grained, dense, dark brown, moist	709.68
15	CL-CLAY, cohesive, soft to firm, low plasticity, olive green, damp	
16	- dark gray to black at 15.5ft BGS	
20	- strong brown, firm, dry at 20.5ft BGS	
24		699.68
25	BEDROCK (LIMESTONE)	699.38
25.3	END OF BOREHOLE @ 25.3ft BGS	

BOREHOLE: BENTONITE SEAL

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	P/S	2.0		0.0
2	P/S	2.0		0.0
3	P/S	2.0		0.0
4	P/S	2.0		0.0
5	P/S	2.0		0.0
6	P/S	2.0		0.0
7	P/S	2.0		0.0
8	P/S	2.0		0.0
9	P/S	2.0		0.0
10	P/S	2.0		0.0
11	P/S	2.0		0.0
12	P/S	2.0		0.0
13	P/S	1.3		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1, 4, 13)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X154Y117A
DATE COMPLETED: November 12, 2003
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	724.7						
0	CONCRETE PAD	723.89		(1)	P/S	2.0		0.0
2	SM/SP- SAND (FILL), some silt, fine to medium grained, well graded, loose, tan to dark gray, damp			2	P/S	2.0		0.0
4	CL-CLAY, cohesive, low plasticity, firm, strong brown, damp	720.69		3	P/S	2.0		0.0
6	- soft at 7.5ft BGS			(4)	P/S	2.0		0.0
8				5	P/S	2.0		0.0
10				6	P/S	2.0		0.0
12	SW-SAND, fine to medium grained, well graded, loose, tan to light brown, wet	712.69	BENTONITE SEAL	7	P/S	2.0		0.0
14				8	P/S	2.0		0.0
16				9	P/S	2.0		0.0
18	CL-CLAY, cohesive, low plasticity, firm, strong brown, damp	706.69		10	P/S	2.0		0.0
20				11	P/S	2.0		0.0
22				12	P/S	2.0		0.0
24				(13)	P/S	1.3		0.0
	BEDROCK (LIMESTONE)	699.69						
26	END OF BOREHOLE @ 25.3ft BGS	699.39						
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X154Y117B
DATE COMPLETED: November 10, 2003
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	724.6
	CONCRETE PAD	723.8
2	SM-SAND (FILL), some silt, fine to coarse grained, well graded, loose, tan to dark brown, damp	
4	- wet at 3.7ft BGS	719.6
6	ML-SILT, little medium to coarse grained sand, dense, dark gray, damp to moist	
8	- fine grained at 7.8ft BGS	
10		714.1
12	SW/GP-SAND & GRAVEL, medium to coarse grained sand, well graded, loose, dark brown, wet	
14		710.4
	SW-SAND, trace fine gravel, fine to coarse grained, well graded, medium gray, wet	709.6
16	SW/GP-SAND & GRAVEL, medium to coarse grained sand, well graded, loose, rust, wet	
18		706.2
20	CL-CLAY, cohesive, firm, low plasticity, olive green to dark gray, moist	
22		
24		699.6
	BEDROCK (LIMESTONE)	699.2
26	END OF BOREHOLE @ 25.4ft BGS	
28		
30		
32		
34		

BOREHOLE: BENTONITE SEAL

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
(1)	P/S	2.0		0.0
2	P/S	2.0		0.0
3	P/S	2.0		0.0
(4)	P/S	2.0		0.0
5	P/S	2.0		0.0
6	P/S	2.0		0.0
7	P/S	2.0		0.0
8	P/S	2.0		0.0
9	P/S	2.0		0.0
10	P/S	2.0		0.0
11	P/S	2.0		0.0
12	P/S	2.0		0.0
(13)	P/S	1.4		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X158Y207
DATE COMPLETED: March 6, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	696.5						
0	TOPSOIL	696.29						
	CL-CLAY (FILL), trace silt, stiff, 7.5YR 5/8 (strong brown), moist			1	P/S	3.0		0
6	- some silt, 2.5Y 3/2 (very dark grayish brown) at 6.0ft BGS			2	P/S	3.0		0
10				3	P/S	2.5		0
12			BENTONITE CHIPS					
14				4	P/S	3.0		0
	- stiff at 15.0ft BGS							
18				5	P/S	2.5		0
22	- 7.5YR 5/8 (strong brown) at 22.0ft BGS			6	P/S	4.0		0
24	- refusal at 24.0ft BGS	672.49						
	END OF BOREHOLE @ 24.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1) (2) (6)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X165Y179
DATE COMPLETED: January 9, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	720.5						
0	ASPHALT	720.08	ASPHALT	1	P/S	2.0		0
	SW/GW - SAND & GRAVEL (FILL)	719.48						
2	CL - CLAY (FILL), with sand and gravel, stiff, low plasticity, greenish grey (GLEY 1 Y 5/10), moist, trace black staining			2	P/S	2.0		<1
4				3	P/S	2.0		<1
6	- trace silt, very hard, red (2.5 YR 4/6), moist at 5.8ft BGS			4	P/S	2.0		0
8			BENTONITE CHIPS	5	P/S	2.0		0
10				6	P/S	2.0		0
12				7	P/S	2.0		0
14			2" DIA. BOREHOLE	8	P/S	2.0		0
16	CL - CLAY, with little silt, soft, medium plasticity, fine grained, olive yellow (2.5 Y 6/6), moist	704.48		9	P/S	2.0		0
18	- 2" fine sand seam at 17.0ft BGS - becoming very silty, hard, REFUSAL at 18.0ft BGS	702.48						
20	END OF BOREHOLE @ 18.0ft BGS							
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X169Y248
DATE COMPLETED: February 21, 2002
DRILLING METHOD: 4 1/4-INCH HSA
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	690.9
0	SW-GW SAND AND GRAVEL (FILL), little silt, dense, fine to coarse grained, well graded, grey, moist, rock fragments	689.44
2	CL-CLAY (FILL), little silt, trace gravel, very stiff, low to medium plasticity, 5YR 4/6 (yellowish red), moist	686.94
4	wood fragments	686.44
	SP-SAND (FILL), little gravel, trace silt, compact, fine grained, poorly graded, grey/black, moist, (foundry sand)	
6	- black/light grey, reddish brown/yellow and light blue, faint odor, loose at 6.0ft BGS	
8		
10		
12		
14		
16		
18		
20	CL-CLAY, little silt, rootlets, firm, low to medium plasticity, brown with some black staining, very moist	670.94
22	- yellowish red at 22.0ft BGS	
24	BEDROCK	666.44
	END OF BOREHOLE @ 25.0ft BGS	665.94
26		
28		
30		
32		
34		

BOREHOLE: BENTONITE GROUT

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1		2.0	44	0
2		2.0	19	0
3		2.0	22	0
4		2.0	32	0
5		2.0	6	0
6		2.0	6	0
7		2.0	4	0.9
8		2.0	4	1.3
9		2.0	10	0
10		2.0	8	0
11		2.0	8	0
12		2.0	11	0
13		1.0	>50	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN.LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X170Y134
DATE COMPLETED: June 3, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	723						
0	TOPSOIL	722.77						
	CL-CLAY (FILL), trace sand, stiff, low plasticity, moist			1	P/S	2.0		0
2	- hard at 2.0ft BGS			2	P/S	2.0		0
4			BENTONITE CHIPS	3	P/S	2.0		0
6				4	P/S	2.0		0
8	- refusal at 8.0ft BGS	714.97						
	END OF BOREHOLE @ 8.0ft BGS							
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X170Y143
DATE COMPLETED: March 21, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	725.2						
0	Asphalt	724.94	ASPHALT					
	SP - SAND (FILL), trace gravel, fine grained, poorly graded, dark brown (10YR 7/3), moist			1	P/S	3.0		<1
2								
4				2	P/S	3.0		<1
6								
8								
10	- trace clay at 10.0ft BGS		BENTONITE CHIPS	3	P/S	3.5		<1
12		712.74						
	CL - CLAY, trace silt, soft, low plasticity, yellowish brown (10YR 5/6), moist			4	P/S	4.0		<1
14								
16								
18				5	P/S	2.0		0
20				6	P/S	1.5		0
	- refusal at 21.5ft BGS	703.74						
22	END OF BOREHOLE @ 21.5ft BGS							
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X170Y211
DATE COMPLETED: February 6, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	692.5						
0	TOPSOIL	692.27						
	CL-CLAY, trace silt, soft, low plasticity, 5YR 5/8 (yellowish red), moist			1	P/S	3.0		<1
6	- 2.5YR 5/4 (light olive brown) at 6.0ft BGS			2	P/S	3.5		<1
				3	P/S	3.0		<1
			BENTONITE CHIPS	4	P/S	3.5		0
				5	P/S	2.5		0
				6	P/S	4.0		0
23.5	- hard, 7.5YR 5/8 (strong brown) at 23.5ft BGS							
				7	P/S	4.0		0
28	- refusal at 28.0ft BGS	664.47						
	END OF BOREHOLE @ 28.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X171Y157
DATE COMPLETED: March 22, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	723.6						
0	ASPHALT	723.32	ASPHALT					
	CL-CLAY, trace sand, low plasticity, stiff, strong brown (7.5YR 4/6), moist			1	P/S	2.0		0
2				2	P/S	2.0		0
	- yellowish red (5YR 4/6), no sand at 3.0ft BGS							
4				3	P/S	2.0		<1
6				4	P/S	2.0		<1
8				5	P/S	2.0		0
10			BENTONITE	6	P/S	2.0		0
12				7	P/S	2.0		0
14				8	P/S	2.0		0
16	- yellowish brown (10YR 5/8) at 16.5ft BGS			9	P/S	2.0		0
18	- trace silt at 18.0ft BGS			10	P/S	2.0		
20	- refusal at 20.0ft BGS	703.62						
	END OF BOREHOLE @ 20.0ft BGS							
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (10)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X173Y125
DATE COMPLETED: June 3, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	722.9						
0	TOPSOIL	722.43						
	CL-CLAY, trace silt, soft, red, plastic, moist			1	P/S	2.0		0
2				2	P/S	2.0		0
4	- hard at 4.5ft BGS		BENTONITE CHIPS	3	P/S	2.0		0
6				4	P/S	2.0		0
8	END OF BOREHOLE @ 8.0ft BGS	714.93						
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X173Y131
DATE COMPLETED: March 14, 2002
DRILLING METHOD: 4 1/4-INCH HSA
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	723.2
0	Topsoil	723.01
	CL - CLAY, trace silt, stiff, low plasticity, dark yellowish brown (10YR 4/6), moist	
2	- yellowish brown (10YR 5/6) at 2.5ft BGS	
8	- yellowish red (5YR 5/8) at 8.5ft BGS	
14	- red (2.5YR 4/8) at 15.0ft BGS	
18	Rock fragments and chips	704.21
	- refusal at 20.0ft BGS	703.71
20	END OF BOREHOLE @ 20.0ft BGS	

BOREHOLE: BENTONITE CHIPS

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1		1.5	16	0
2		1.7	6	4
3		1.7	12	0
4		1.5	12	<1
5		1.8	14	<1
6		1.5	15	<1
7		1.5	12	0
8		2.0	13	0
9		2.0	12	0
10		1.7	14	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X173Y134
DATE COMPLETED: June 3, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	723.2						
0	TOPSOIL SAND (FILL), trace gravel	723.03		1	P/S	2.0		0
2	CL-CLAY, trace silt, soft, medium plasticity, moist, 6-inch black staining	721.23		(2)	P/S	2.0		0
4			BENTONITE CHIPS	(3)	P/S	2.0		0
6	- stiff, red at 6.0ft BGS			4	P/S	2.0		0
8	END OF BOREHOLE @ 8.0ft BGS	715.23						
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (2)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X176Y143
DATE COMPLETED: January 9, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	724.2
0	ASPHALT	723.95
	GW - GRAVEL (FILL)	723.75
2	CL- CLAY (FILL), trace gravel, stiff, yellowish brown (10 YR 5/6), moist	
	- becoming very dark greyish brown (2.5 Y 3/2) at 1.5ft BGS	721.25
4	SW - SAND (FILL), with trace gravel, well graded, dark olive grey (5 Y 3/2), moist	720.45
	CL - CLAY (FILL), trace sand and silt and gravel, very fine grained, sand, poorly graded, dark olive grey (5 Y 3/0), moist	
6		
8		
10	- trace sand, soft, light olive brown (2.5 Y 5/4), trace debris, glass, slight petroleum odor at 10.0ft BGS	712.45
12	GW - GRAVEL(FILL), with sand, loose, fine to coarse grained, well graded, pale yellow (2.5 Y 7/3), dry	711.45
		710.85
14	SW - SAND (FILL), with trace gravel, well graded, dark olive grey (5 Y 3/2), moist	710.65
	GW - GRAVEL (FILL), with sand, loose, fine to coarse grained, well graded, pale yellow (2.5 Y 7/3), dry	
16		707.75
	SW - SAND (FILL), with trace gravel, well graded, dark olive grey (5 Y 3/2), moist	
18	CL - CLAY, trace silt, soft, medium plasticity, dark yellow brown (10 YR 4/6), moist, red staining	
	- becoming stiff at 18.0ft BGS	
20		
22	- Refusal at 23.0ft BGS	701.25
	END OF BOREHOLE @ 23.0ft BGS	
24		
26		
28		
30		
32		
34		

BOREHOLE: ASPHALT; BENTONITE CHIPS; 2" DIA. BOREHOLE

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	P/S	2.0		0
2	P/S	2.0		<1
3	P/S	2.0		<1
4	P/S	2.0		2.2
5	P/S	2.0		<1
6	P/S	2.0		<1
7	P/S	2.0		<1
8	P/S	2.0		2
9	P/S	2.0		<1
10	P/S	2.0		<1
11	P/S	2.0		<1
12	P/S	2.0		<1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X176Y179
DATE COMPLETED: February 22, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	719.1
0	ASPHALT	718.69
	SP-SAND (FILL), fine grained, poorly graded, dark reddish brown (5YR 3/3), moist	
4	CL-CLAY, trace silt, trace sand, low plasticity, stiff, dark reddish brown (5YR 25/2), moist	715.59
14	- very stiff, red (2.5YR 4/8) at 15.5ft BGS	
26	- refusal at 26.0ft BGS	693.09
	END OF BOREHOLE @ 26.0ft BGS	

BOREHOLE: ASPHALT; BENTONITE CHIPS

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	P/S	2.0		0
(2)	P/S	2.0		<1
3	P/S	2.0		<1
(4)	P/S	2.0		0
5	P/S	2.0		0
6	P/S	2.0		0
7	P/S	2.0		0
8	P/S	2.0		0
9	P/S	2.0		0
10	P/S	2.0		0
11	P/S	2.0		0
12	P/S	2.0		0
(13)	P/S	2.0		0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X176Y187
DATE COMPLETED: February 21, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	716.7						
0	TOPSOIL	716.44		1	P/S	2.0		0
	CL-CLAY (FILL), trace silt, low plasticity, soft, strong brown (7.5YR 5/8), moist	714.74						
2	SP-SAND (FILL), fine grained, poorly graded, dark reddish brown (5YR 3/3)			2	P/S	2.0		0
4				3	P/S	2.0		<1
6	- trace gravel at 6.5ft BGS			4	P/S	2.0		0
8				5	P/S	2.0		1
		707.24						
10	CL-CLAY, trace silt, soft, low plasticity, olive brown (2.5YR 4/6), moist			6	P/S	2.0		<1
12				7	P/S	2.0		0
14				8	P/S	2.0		0
16	- very stiff, red (2.5YR 4/6) at 15.5ft BGS			9	P/S	2.0		0
18			BENTONITE CHIPS	10	P/S	2.0		0
20				11	P/S	2.0		0
22				12	P/S	2.0		0
24	- yellowish red (5YR 6/6) at 25.0ft BGS			13	P/S	2.0		0
26				14	P/S	2.0		0
28				15	P/S	2.0		0
30				16	P/S	2.0		0
32				17	P/S	2.0		0
34					P/S			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (○)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X176Y187
DATE COMPLETED: February 21, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
36				18	P/S	2.0		0
38	- refusal at 38.0ft BGS END OF BOREHOLE @ 38.0ft BGS	678.74		(19)	P/S	2.0		0
40								
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (19)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

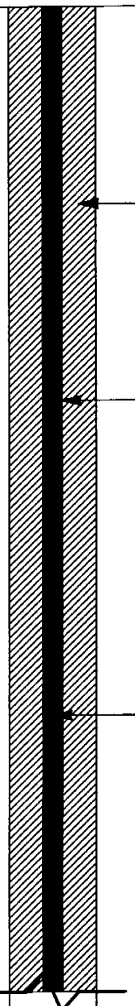
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X177Y252D
DATE COMPLETED: March 3, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
0	TOPSOIL	0.3
	CL-CLAY (FILL), trace silt, soft, yellowish red (5 YR 4/6), moist	2
2	SP-SAND (FILL), fine grained, poorly graded, loose, dark reddish brown (5 YR 4/4), moist	
4	- reddish brown (5 YR 4/4) at 5.0ft BGS	
6		
8		
10	SC-SANDY CLAY (FILL), soft, brown (7.5 YR 4/4), moist	10
	Gravel layer (FILL)	11
12	SP-SAND (FILL), fine grained, poorly graded, loose, very dark brown (7.5 YR 2.5/2), moist, yellow & orange layers	12.2
14		
16		
18	- black (7.5 YR 2.5/1), no odor and colors present at 18.5ft BGS	
20	CL-CLAY, trace silt and sand, soft, low plasticity, dark grayish brown (2.5 Y 3/2), moist, black stains, odor	20
22	- no black stains present at 21.0ft BGS - no silt and sand, dark yellowish brown (10 YR 3/6), stiff at 21.5ft BGS	
24	- very stiff, rock chips at 23.0ft BGS - bedrock at 24.5ft BGS	
	END OF OVERBURDEN HOLE @ 25.0ft BGS	
26		
28		
30		
32		
34		

ANGLE BORING



SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	P/S	1.5		0.4
2	P/S	0.9		0.2
3	P/S	0.5		0.2
4	P/S	1.5		0.2
5	P/S	0.9		0.3
6	P/S	0.9		0.5
7	P/S	1.5		0.2
8	P/S	1.7		0.8
9	P/S	1.7		2.4
10	P/S	1.8		4.0
11	P/S	2.0		0.4
12	P/S	1.7		0.2
13	P/S	1.0		0.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X177Y252D
DATE COMPLETED: March 3, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE BORING	RUN NUMBER	CORE RECOVERY %	RQD %
	- bedrock at 24.5ft BGS	25				
	LIMESTONE (ST. LOUIS FORMATION)					
26		26.5				
	SHALE, soft, green / blue	27				
	- 2-inch void at 27.1ft BGS	27.6				
28	LIMESTONE (ST. LOUIS FORMATION), coarse grained, fossil, beige micritic limestone			1	100	100
	LIMESTONE (SALEM FORMATION), fine to medium grained, granular, very thick bedding, fossil, stylolites, grey					
30	- 6-inch tan section at 30.0ft BGS					
	- grey at 30.6ft BGS					
32	- stylolite at 31.0ft BGS					
	- tan at 31.6ft BGS					
	- grey at 32.5ft BGS					
34	- stylolite at 32.7ft BGS			2	100	100
	- tan, fracture at 33.2ft BGS					
	- grey at 34.1ft BGS					
36	- stylolite, white / grey at 35.4ft BGS					
	- fracture at 36.6ft BGS					
	- fracture at 37.2ft BGS					
38	- stylolite at 37.7ft BGS					
	- fracture at 38.0ft BGS			3	100	100
	- stylolite at 38.7ft BGS		4" DIA. HQ COREHOLE			
40	- open stylolite at 39.8ft BGS					
	- 1-inch non-continuous opening at 39.9ft BGS					
	- open stylolite at 40.0ft BGS					
42	- stylolite at 41.9ft BGS					
	- fracture at 42.5ft BGS					
44				4	100	100
	- fracture at 45.2ft BGS					
	- fracture at 45.6ft BGS					
46	- stylolite at 46.5ft BGS					
48						
50	- half-inch non-continuous opening at 50.2ft BGS		CEMENT / BENTONITE SEAL			
52						
	- open stylolite at 53.2ft BGS					
54	- open stylolite at 53.6ft BGS			5	100	100
56						
	- open stylolite at 57.4ft BGS					
58						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X177Y252D
DATE COMPLETED: March 3, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE BORING	RUN NUMBER	CORE RECOVERY %	RQD %
60			4" DIA. HQ COREHOLE			
				6	100	100
62	- stylolite at 61.6ft BGS - Water lose occurred during last core run. Therefore, boring terminated. at 61.9ft BGS	61.9				
64	END OF BOREHOLE @ 61.9ft BGS					
	Boring drilled on an 30 degree angle from vertical (all depths not in relation to vertical)					
66	Overburden pilot boring advanced utilizing 4-1/4 inch hollow stem augers and samples collected by Split-spoon					
68	Ground surface elevation of 681.72 ft. AMSL					
70						
72						
74						
76						
78						
80						
82						
84						
86						
88						
90						
92						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS ☐

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X183Y133
DATE COMPLETED: January 11, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	722.6
0	TOPSOIL	722.31
	CL - CLAY (FILL), with trace sand and gravel, stiff, medium plasticity, yellowish brown (10 YR 5/6), moist	720.61
2	SC - CLAYEY SAND (FILL), fine grained, non-plastic, poorly graded, dark olive brown (2.5 YR 3/3), moist	720.11
4	SP - SAND (FILL), trace clay, loose, fine grained, poorly graded, dark olive brown (10 YR 3/3), moist	
	- 8 inches black with strong petroleum odor at 3.7ft BGS	716.61
6	- becoming grey (2.5 Y 5/1), loose, petroleum odor at 4.5ft BGS	
8	CL - CLAY, with silt, stiff, medium plasticity, light olive brown (2.5 Y 5/3), moist	
10	- with trace sand and gravel, very stiff, medium plasticity, yellowish red (5 YR 5/8), moist at 8.0ft BGS	
12		
14		
16		
18		703.81
	Fractured bedrock, refusal	703.61
20	END OF BOREHOLE @ 19.0ft BGS	
22		
24		
26		
28		
30		
32		
34		

BOREHOLE: BENTONITE CHIPS; 2" DIA. BOREHOLE

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	P/S	2.0		0
2	P/S	2.0		<1
3	P/S	2.0		11.3
4	P/S	2.0		1.7
5	P/S	2.0		<1
6	P/S	2.0		<1
7	P/S	2.0		0
8	P/S	2.0		0
9	P/S	2.0		0
10	P/S	1.0		0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316 13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X185Y185
DATE COMPLETED: January 10, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	713.1						
0	CL - CLAY (FILL), trace silt, fine sand, soft, medium plasticity, dark yellowish brown (10 YR 4/4), moist			1	P/S	2.0		0
2				2	P/S	2.0		0
4	- stiff, fine grained, low plasticity, strong brown (7.5 YR 4/6) at 4.5ft BGS			3	P/S	2.0		<1
6	- trace sand and gravel at 6.5ft BGS			4	P/S	2.0		<1
8				5	P/S	2.0		33.7
10				6	P/S	2.0		<1
12	- 4 inches of gravel at 11.5ft BGS - 4 inches clay, black stained, strong petroleum odor at 13.0ft BGS			7	P/S	2.0		33.0
14	- soft, low plasticity, dark yellowish brown (10 YR 4/4), moist at 15.0ft BGS			8	P/S	2.0		36.8
16				9	P/S	2.0		33.0
18			BENTONITE CHIPS	10	P/S	0.0		5.6
20			2" DIA. BOREHOLE	11	P/S	2.0		<1
22				12	P/S	0.0		<1
24	- with sand and gravel, stiff, low plasticity, dark yellowish brown (10 YR 4/4), moist at 24.0ft BGS			13	P/S	2.0		<1
26	- trace silt and sand, stiff, yellowish red (5 YR 4/6), moist at 24.5ft BGS	686.6		14	P/S	2.0		<1
28	SW - SAND (FILL), loose, fine grained, poorly graded, dark reddish brown (5 YR 3/3)	684.1		15	P/S	2.0		<1
30	CL - CLAY, with little silt, stiff, medium plasticity, dark olive grey (5 Y 3/2), moist			16	P/S	0.0		<1
32	- trace silt, very hard, yellowish red (5 YR 4/6), moist at 32.4ft BGS			17	P/S	2.0		<1
34	- dark yellowish brown (10 YR 4/6) at 34.0ft BGS			18	P/S	1.5		<1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X185Y185
DATE COMPLETED: January 10, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
		677.6			4P/S4			
36	- Refusal at 35.5ft BGS END OF BOREHOLE @ 35.5ft BGS							
38								
40								
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X185Y195
DATE COMPLETED: March 15, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	693.8						
0	Topsoil	693.52						
2	CL - CLAY, trace silt to gravel, soft, medium plasticity, strong brown (7.5YR 5/8), moist			1	P/S	2.0		<1
				2	P/S	2.0		<1
4	- yellowish red (5YR 4/6), hard, no trace gravel at 4.0ft BGS			3	P/S	2.0		0
6			BENTONITE CHIPS	4	P/S	2.0		0
8	- olive (5Y 5/6), some silt, stiff at 7.0ft BGS			5	P/S	2.0		0
10	- yellowish red (5YR 4/6), very stiff at 8.5ft BGS			6	P/S	2.0		0
12		681.32		7	P/S	1.0		
	Weathered rock	680.82						
14	- refusal at 13.0ft BGS END OF BOREHOLE @ 13.0ft BGS							
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (X)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X186Y159
DATE COMPLETED: March 20, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	722.3						
0	Asphalt	722.05						
	SAND & GRAVEL (FILL), aggregate base	721.45		1	P/S	2.0		0
2	CL - CLAY, trace silt and sand, stiff, low plasticity, yellowish brown (10YR 5/6), moist			2	P/S	2.0		<1
4				3	P/S	2.0		<1
6	- trace gravel, 2' black staining at 6.0ft BGS			4	P/S	2.0		2.4
8				5	P/S	2.0		<1
10				6	P/S	2.0		<1
12	- soft, red (2.5YR 4/8) at 13.0ft BGS		BENTONITE CHIPS	7	P/S	2.0		<1
14				8	P/S	2.0		<1
16	- dark olive grey (5Y 3/2) at 16.0ft BGS			9	P/S	2.0		1.3
18	- 2' black staining at 18.0ft BGS			10	P/S	2.0		3.4
20	- yellowish red (5YR 4/6) at 20.0ft BGS			11	P/S	2.0		<1
	- trace black staining at 21.0ft BGS							
22	- refusal at 23.0ft BGS	699.35		12	P/S	1.0		<1
	END OF BOREHOLE @ 23.0ft BGS							
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X186Y180
DATE COMPLETED: March 21, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	721.8						
0	Asphalt	721.4	ASPHALT	1	P/S	2.0		<1
2	CL - CLAY, with trace sand and gravel, soft, low plasticity, dark yellowish brown (10YR 4/4), moist - 2" trace black stain at 1.0ft BGS			2	P/S	2.0		<1
4				3	P/S	2.0		2.1
6	- no trace sand, black stain at 5.5ft BGS			4	P/S	2.0		3.2
8	- no staining, strong brown (7.5YR 4/6) at 7.5ft BGS - trace silt at 9.0ft BGS			5	P/S	2.0		<1
10			BENTONITE CHIPS	6	P/S	2.0		0
12				7	P/S	2.0		0
14				8	P/S	2.0		0
16	- dark olive grey (5Y 3/2) at 17.0ft BGS			9	P/S	2.0		0
18				10	P/S	2.0		0
20				11	P/S	2.0		0
22	- refusal at 22.0ft BGS END OF BOREHOLE @ 22.0ft BGS	699.8						
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X187Y217
DATE COMPLETED: March 6, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	689.1						
0	TOPSOIL CL-CLAY, trace silt, stiff, low plasticity, strong brown, (7.5YR 5/8)	688.88		1	P/S	2.0		0
2				2	P/S	2.0		<1
4			BENTONITE CHIPS	3	P/S	2.0		<1
6				4	P/S	2.0		0
8	- refusal, weathered rock at 8.0ft BGS END OF BOREHOLE @ 8.0ft BGS	681.08						
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X189Y122
DATE COMPLETED: January 15, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	706.1					
0	TOPSOIL CL - CLAY (FILL), with trace gravel, stiff, strong brown (7.5 YR 5/6), moist	705.9		1	P/S	2.0	
2				2	P/S	2.0	
4			BENTONITE CHIPS	3	P/S	2.0	
6		699.1		4	P/S	2.0	
8	SW/GW SAND & GRAVEL (FILL), loose, coarse grained, well graded, light grey, (2.5 Y 7/2)	698.1	2" DIA. BOREHOLE	5	P/S	2.0	
10	CL - CLAY, with trace silt, stiff, medium plasticity, light yellowish brown (2.5 Y 6/4), moist - Rock Fragments at 9.8ft BGS - Refusal at 10.0ft BGS	696.1					
12	END OF BOREHOLE @ 10.0ft BGS						
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X192Y234
DATE COMPLETED: March 5, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	688.6						
0	TOPSOIL	688.43						
	CL-CLAY (FILL), trace silt, stiff, low plasticity, 5YR 5/8 (yellowish red), moist			1	P/S	2.0		0
2				2	P/S	2.0		0
4		684.13		3	P/S	2.0		<1
	SP-SAND (FILL), trace gravel, loose, fine grained, poorly graded, 5Y 3/2 (dark olive gray), moist			4	P/S	2.0		<1
6								
8				5	P/S	2.0		1.5
	- no gravel at 9.0ft BGS							
10	- GLEY2 7/5PB (light bluish gray) at 10.0ft BGS		BENTONITE CHIPS	6	P/S	2.0		1.2
12	- 10YR 7/2 (pale brown) at 12.0ft BGS			7	P/S	2.0		1.4
14				8	P/S	2.0		<1
16								
	- 5Y 3/2 (dark olive gray) at 17.0ft BGS			9	P/S	2.0		<1
18				10	P/S	2.0		<1
20		668.63						
	CL-CLAY, trace silt, low plasticity, 7.5YR 5/8 (strong brown), moist			11	P/S	2.0		<1
22	- rock fragments, refusal at 22.0ft BGS	666.63						
	END OF BOREHOLE @ 22.0ft BGS							
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (11)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X193Y098
DATE COMPLETED: January 7, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	688						
0	CL-CLAY (FILL) trace sand, stiff, medium plasticity, brown (7.5 YR 5/8), moist			1	P/S	2.0		0
2				2	P/S	2.0		<1
4				3	P/S	2.0		<1
6			BENTONITE CHIPS	4	P/S	2.0		<1
8				5	P/S	2.0		<1
10	- becoming very moist at 10.0ft BGS		2 " DIA. BOREHOLE	6	P/S	2.0		<1
12	- 1 ft. petroleum odor turning to grey (10 YR 4/1) then turning greyish black (GLEY 2 2.5/5BG) at 12.0ft BGS	675.05		7	P/S	2.0		<1
	- 3 inch rock layer at 12.0ft BGS	674.05						
14	CL-CLAY (FILL), very stiff, medium plasticity, light olive brown (2.5 Y 5/4)							
	- Refusal at 14.0ft BGS							
16	END OF BOREHOLE @ 14.0ft BGS							
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X193Y172
DATE COMPLETED: March 18, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	716.1						
0	Topsoil	715.91		1		2.0		0
2	CL - CLAY (FILL), trace silt, soft, medium plasticity, dark yellowish brown (10YR 4/4), moist			2	P/S	2.0		<1
4	- stiff, yellowish red (5YR 4/6) at 3.5ft BGS			3	P/S	2.0		0
6	- trace gravel at 5.0ft BGS			4	P/S	2.0		<1
8	SP - SAND (FILL), loose, fine grained, poorly graded, very dark brown (7.5YR 25/2), moist	709.11		5	P/S	2.0		<1
10				6	P/S	2.0		<1
12				7	P/S	2.0		<1
14				8	P/S	2.0		<1
16			BENTONITE CHIPS	9	P/S	2.0		<1
18				10	P/S	2.0		<1
20				11	P/S	2.0		0
22				12	P/S	2.0		0
24				13	P/S	2.0		0
26	CL - CLAY, trace silt, soft, low plasticity, ligh olive brown (2.5YR 5/4), moist, trace black stain	691.11		14	P/S	2.0		0
28	- stiff, yellowish brown (10YR 5/6), no staining at 27.0ft BGS			15	P/S	2.0		0
30				16	P/S	2.0		0
32				17	P/S	1.5		0
34	Weathered rock	683.11						
	- refusal at 33.5ft BGS	682.61						
	END OF BOREHOLE @ 33.5ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (17)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACROR: RDNP

HOLE DESIGNATION: B-X193Y194
DATE COMPLETED: February 21, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	682.9					
0	TOPSOIL	682.46					
	CL-CLAY, trace silt, low plasticity, soft, light olive brown (2.5YR 5/4), moist			1	P/S	2.0	
2				2	P/S	2.0	
4			BENTONITE CHIPS	3	P/S	2.0	
6	- very stiff, yellowish red (5YR 4/6) at 6.0ft BGS			4	P/S	1.0	
	- refusal at 7.0ft BGS	675.86					
8	END OF BOREHOLE @ 7.0ft BGS						
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X193Y251
DATE COMPLETED: March 4, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	685.4						
0	TOPSOIL	685.23						
	CL-CLAY (FILL), trace silt, stiff, yellowish brown (10YR 5/6), moist			1	P/S	2.0		0
2				2	P/S	2.0		0
		682.43						
	SP-SAND (FILL), trace gravel, loose, fine grained, poorly graded, olive brown (2.5Y 4/4), moist			3	P/S	2.0		<1
4	- trace gravel at 5.0ft BGS							
6	- black (GLEY1 2.5/N) at 6.0ft BGS			4	P/S	2.0		<1
8				5	P/S	2.0		<1
10				6	P/S	2.0		<1
12				7	P/S	2.0		<1
14				8	P/S	2.0		<1
16			BENTONITE CHIPS	9	P/S	2.0		<1
18				10	P/S	2.0		<1
20				11	P/S	2.0		<1
22				12	P/S	2.0		<1
24				13	P/S	2.0		0
26				14	P/S	2.0		0
28	- becomes wet, heaving sands at 28.0ft BGS			15	P/S	2.0		0
30				16	P/S	2.0		0
32				17	P/S	1.0		0
	- dark greenish gray (GLEY1 4/5GY) at 33.5ft BGS							
34	- Refusal at 34.0ft BGS	651.43						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X193Y251
DATE COMPLETED: March 4, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
36	END OF BOREHOLE @ 34.0ft BGS							
38								
40								
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X195Y133
DATE COMPLETED: March 11, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	717.7						
0	Topsoil	717.53						
	CL - CLAY, trace silt, stiff, low plasticity, yellowish brown (10YR 5/6), moist			1	P/S	2.0		0
2	- yellowish red (2.5YR 4/6) at 3.0ft BGS			2	P/S	2.0		0
4				3	P/S	2.0		<1
6	- some silt at 6.5ft BGS			4	P/S	2.0		<1
8			BENTONITE CHIPS	5	P/S	2.0		<1
10	- dark red (2.5YR 3/6) at 11.0ft BGS			6	P/S	2.0		<1
12				7	P/S	2.0		0
14				8	P/S	2.0		0
16	- yellowish brown (10YR 5/6) at 16.0ft BGS			9	P/S	1.5		0
	Weathered rock	700.73						
18	- refusal at 17.5ft BGS	700.23						
	END OF BOREHOLE @ 17.5ft BGS							
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X200Y161
DATE COMPLETED: January 10, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	717.3
0	Topsoil with roots	716.32
2	CL - CLAY (FILL), trace silt, stiff, medium plasticity, reddish brown (5 YR 4/4), moist - with well graded sand, trace gravel, stiff, medium plasticity, strong brown (7.5 YR 5/6), moist at 1.8ft BGS	
4	Gravel, coarse	712.82 712.32
6	SP - SAND (FILL), loose, medium grained, very poorly graded, alternating dark reddish brown (5 YR 3/3) and white (5 YR 8/1) at approximately 1cm invervals, moist - turning white (5 YR 8/1) at 6.0ft BGS	
8	- turning dark reddish brown (5 YR 3/3) at 7.5ft BGS	708.52
10	CL - CLAY, with trace well graded gravel and sand, stiff, medium plasticity, dark greenish grey (GLEY 1 4/1), moist	707.32
12	Weathered Rock and Rock Fragments, very hard, well graded, white (10 YR 8/1), dry - Refusal at 11.5ft BGS	705.82
	END OF BOREHOLE @ 11.5ft BGS	

BOREHOLE: 2" DIA. BOREHOLE; BENTONITE CHIPS

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
(1)	P/S	2.0		0
2	P/S	2.0		0
3	P/S	2.0		0
(4)	P/S	2.0		0
5	P/S	2.0		<1
(6)	P/S	2.0		<1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X204Y111A
DATE COMPLETED: January 8, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	690.6						
0	SP/GP SAND & GRAVEL (FILL), coarse grained, poorly graded		BENTONITE SEAL	1	P/S	2.0		0.0
2				2	P/S	2.0		0.0
4	- refusal at 4.0ft BGS	686.6						
	END OF BOREHOLE @ 4.0ft BGS							
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X204Y111B
DATE COMPLETED: January 8, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	690.4						
0	SP/GP SAND & GRAVEL (FILL), coarse grained, poorly graded		BENTONITE SEAL	1	P/S	2.0		0.0
2				2	P/S	2.0		0.0
4	- refusal at 4.0ft BGS END OF BOREHOLE @ 4.0ft BGS	686.4						
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X204Y111C
DATE COMPLETED: January 8, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	690.4					
0	SP/GP - SAND & GRAVEL (FILL), coarse grained, poorly graded		2" DIA. BOREHOLE	1	P/S	2.0	
2				2	P/S	2.0	
4	Weathered Bedrock and coarse Rock Fragments and fine sand, stiff, well graded, yellowish brown (10 YR 5/6), moist	686.44	BENTONITE CHIPS	3	P/S	2.0	
6				(4)	P/S	1.5	
	- Refusal at 7.5ft BGS	682.94					
8	END OF BOREHOLE @ 7.5ft BGS						
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (4)

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X204Y132
DATE COMPLETED: January 11, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	720.1						
0	TOPSOIL	719.88						
	CL - CLAY, with silt, trace well graded sand and gravel, stiff, dark yellowish brown (10 YR 4/4), medium plasticity, moist, trace black staining			1	P/S	2.0		<1
2				2	P/S	2.0		<1
	- turning reddish brown (5 YR 4/6) at 3.5ft BGS							
4	- becoming very stiff, no black staining at 4.0ft BGS			3	P/S	2.0		1.5
	- becoming strong brown (7.5 YR 5/6) at 4.3ft BGS		2" DIA. BOREHOLE	4	P/S	2.0		<1
6								
			BENTONITE CHIPS					
8	- trace silt, no sand and gravel, becoming yellowish brown (10 YR 6/6) at 8.2ft BGS			5	P/S	2.0		<1
10				6	P/S	2.0		<1
12				7	P/S	2.0		0
14	- trace sand, some gravel at 14.0ft BGS			8	P/S	2.0		0
		704.58						
16	Weathered Bedrock, Rock Fragments, well graded, light greenish grey (Gley 1 8/1)	703.58						
	- Refusal at 16.5ft BGS							
	END OF BOREHOLE @ 16.5ft BGS							
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X204Y149
DATE COMPLETED: January 10, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	717.7						
0	TOPSOIL	717.38		1	P/S	2.0		<1
2	CL - CLAY, trace silt and poorly graded sand, soft, medium plasticity, red (2.5 YR 4/8), moist - Rock Fragments at 1.0ft BGS - with trace well graded sand and gravel, stiff, low plasticity, strong brown (7.5 YR 5/6), moist at 1.1ft BGS			2	P/S	2.0		<1
4	- trace medium grained gravel, stiff, brown (7.5 YR 4/3), moist at 3.0ft BGS			3	P/S	2.0		6.5
6	- trace silt, no gravel, becoming soft, dark grey (10 YR 4/1), black staining, faint petroleum odor at 6.0ft BGS		2" DIA. BOREHOLE	4	P/S	2.0		4800
8			BENTONITE CHIPS	5	P/S	2.0		5.1
10	- no black staining, no petroleum odor at 10.5ft BGS			6	P/S	2.0		<1
12	- trace silt, stiff, medium plasticity, yellowish red (5 YR 5/6), moist at 11.0ft BGS - very stiff at 12.0ft BGS			7	P/S	2.0		<1
14		702.68		8	P/S	2.0		<1
16	Weathered Rock becoming more competent at depth - Refusal at 16.0ft BGS END OF BOREHOLE @ 16.0ft BGS	701.68						
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 20040316 13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X209Y078A
DATE COMPLETED: July 16, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: C. MARHOEFER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	684.7						
0	SM/GP SAND AND GRAVEL (FILL), with silt, trace clay, compact, fine grained, poorly graded, light brown, moist			1	P/S	0.0		0
2	CL-CLAY (FILL), with silt, firm, low plasticity, strong brown, moist	682.75		2	P/S	2.0		0
4	SM-SAND (FILL), with silt, some gravel, trace clay, compact, fine grained, poorly graded, light brown, moist	680.25		3	P/S	2.0		0
6	CL-CLAY, with silt, firm, low plasticity, strong brown, moist	677.75	BENTONITE CHIPS	4	P/S	2.0		0
8				5	P/S	2.0		0
10				6	P/S	2.0		0
12				7	P/S	1.5		0
14	- refusal at 13.5ft BGS END OF BOREHOLE @ 13.5ft BGS	671.25						
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X209Y078B
DATE COMPLETED: July 16, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: C. MARHOEFER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	684.9						
0	SM/GP SAND AND GRAVEL (FILL), trace clay, compact, fine grained, poorly graded, light brown, moist			1	P/S	0.0		0
2	CL-CLAY (FILL), with silt, firm, low plasticity, strong brown, moist	682.9		2	P/S	2.0		0
4	SM-SAND (FILL), with silt, some gravel, trace clay, compact, fine grained, poorly graded, light brown, moist	680.9		3	P/S	2.0		0
6			BENTONITE CHIPS	4	P/S	2.0		0
8	CL-CLAY, with silt, firm, low plasticity, strong brown, moist	677.4		5	P/S	2.0		0
10				6	P/S	2.0		0
12	- refusal at 12.5ft BGS	672.4		7	P/S	0.5		0
	END OF BOREHOLE @ 12.5ft BGS							
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18								
20								
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24								
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28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X209Y078C
DATE COMPLETED: July 16, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: C. MARHOEFER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	684.7						
0	SM/GP SAND AND GRAVEL (FILL), trace clay, compact, fine grained, poorly graded, light brown, moist			1	P/S	0.0		0
2	CL-CLAY (FILL), with silt, firm, low plasticity, strong brown, moist	682.67		2	P/S	2.0		0
4	SM-SAND (FILL), with silt, some gravel, trace clay, compact, fine grained, poorly graded, light brown, moist	680.17	BENTONITE CHIPS	3	P/S	0.5		0
6				4	P/S	2.0		0
8				5	P/S	1.5		0
10	CL-CLAY, with silt, firm, low plasticity, strong brown, moist	675.67		6	P/S	1.5		0
12	- refusal at 12.5ft BGS END OF BOREHOLE @ 12.5ft BGS	672.17		7	P/S	0.5		0
14								
16								
18								
20								
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24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X209Y177
DATE COMPLETED: March 14, 2002
DRILLING METHOD: 4 1/4-inch HSA
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	GROUND SURFACE	681.9						
0	Topsoil	681.64						
	CL - CLAY, trace silt, soft, low plasticity, strong brown (7.5YR 5/8), moist		BENTONITE CHIPS	1		1.3	4	0
2				2		1.0	25	0
4		677.94		3		0.5	25	0
	Rock fragments - refusal at 4.5ft BGS	677.44						
6	END OF BOREHOLE @ 4.5ft BGS							
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X211Y169
DATE COMPLETED: January 14, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	692.5						
0	TOPSOIL	692.23		1	P/S	2.0		0
	Gravel	692.03						
2	SC - CLAYEY SAND (FILL), with some gravel, stiff, fine to coarse grained, well graded, dark yellowish brown (10 YR 3/4)			2	P/S	2.0		<1
4			2" DIA. BOREHOLE	3	P/S	2.0		<1
6			BENTONITE CHIPS	4	P/S	2.0		<1
8				5	P/S	2.0		<1
10	- brown (10 YR 3/4) at 10.0ft BGS			6	P/S	2.0		2.2
		681.03						
12	CL - CLAY, trace silt, trace poorly graded sand, medium plasticity, olive brown (2.5 Y 4/4)	680.03		7	P/S	0.5		1.8
	- blueish black (GLEY 2 2.5/1), strong petroleum odor at 12.0ft BGS							
14	- Refusal at 12.5ft BGS							
	END OF BOREHOLE @ 12.5ft BGS							
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X213Y125
DATE COMPLETED: February 25, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	714.3						
0	TOPSOIL	714.11						
	CL-CLAY, trace silt, soft, low plasticity, strong brown (7.5YR 4/6), moist			1	P/S	2.0		<1
2				2	P/S	2.0		1.4
4	- stiff at 4.5ft BGS - 1.5-inch black staining at 5.0ft BGS		BENTONITE CHIPS	3	P/S	2.0		1.9
6	- very stiff, red (2.5YR 4/6) at 7.0ft BGS			4	P/S	2.0		1.0
8				5	P/S	2.0		1.4
10	- dark yellowish brown (10YR 4/4) at 10.0ft BGS			6	P/S	1.5		1.8
	- refusal at 11.5ft BGS	702.81						
12	END OF BOREHOLE @ 11.5ft BGS							
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X217Y159
DATE COMPLETED: February 27, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	694.3						
0	TOPSOIL	694.03						
	CL-CLAY, trace silt, low plasticity, stiff, strong brown (7.5YR 5/8), moist			1	P/S	2.0		0
2				2	P/S	2.0		<1
4			BENTONITE CHIPS	3	P/S	2.0		0
6				4	P/S	2.0		0
	weathered and fragmented rock	687.33						
8	- refusal at 8.0ft BGS	686.33						
	END OF BOREHOLE @ 8.0ft BGS							
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X218Y141
DATE COMPLETED: January 11, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	GROUND SURFACE	714.1						
0	TOPSOIL	713.67		1	P/S	2.0		0
2	CL - CLAY, with trace poorly graded gravel, stiff, medium plasticity, yellowish brown (10 YR 5/6), moist			2	P/S	2.0		<1
4			2" DIA. BOREHOLE	3	P/S	2.0		<1
6	- becoming yellowish red (5 YR 5/8) at 6.0ft BGS			4	P/S	2.0		5.8
8	- blueish black (GLEY 2 2.5/1), strong petroleum odor at 7.5ft BGS		BENTONITE CHIPS	5	P/S	2.0		10.7
10	- trace silt and medium grained gravel, stiff, medium plasticity, yellowish red (5 YR 5/6), moist at 10.5ft BGS			6	P/S	2.0		3.1
12				7	P/S	2.0		<1
14	- becoming very stiff at 14.0ft BGS			8	P/S	1.5		0
16	- Refusal, weathered bedrock, fractured rock fragments, very stiff, fine grained at 15.5ft BGS	698.57						
	END OF BOREHOLE @ 15.5ft BGS							
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (P/S)

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X219Y095
DATE COMPLETED: January 8, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	680.4						
0	GW - GRAVEL (FILL)	679.62		1	P/S	2.0		0
2	CL - CLAY (FILL), trace poorly graded sand and silt, stiff, low plasticity, olive brown (2.5 Y 4/4), moist			2	P/S	2.0		<1
4				3	P/S	2.0		<1
6	- becoming dark olive brown, moist at 6.0ft BGS		2" DIA. BOREHOLE; BENTONITE CHIPS	4	P/S	2.0		<1
8		672.42		5	P/S	2.0		4.1
	SW - SAND (FILL), with gravel, fine to coarse grained, well graded, blueish black (Gley 2 2.5/10B), wet, strong petroleum odor	671.62						
10	SC - CLAYEY SANDS (FILL), soft, fine grained, dark grey (2.5 Y 4/1), wet	669.42		6	P/S	2.0		3.2
12	CL - CLAY, trace silt and poorly graded sand, soft, low plasticity, olive brown (2.5 Y 4/4), wet	667.42		7	P/S	2.0		<1
14	SW / GW -SAND & GRAVEL, rock fragments, pale yellow (2.5 Y 7/4) - Refusal at 14.0ft BGS	666.42						
	END OF BOREHOLE @ 14.0ft BGS							
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X219Y249
DATE COMPLETED: February 26, 2002
DRILLING METHOD: 4 1/4-inch HSA
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	679.6
0	TOPSOIL	679.39
	CL-CLAY (FILL), little to some silt, little gravel, stiff, low plasticity, brown, moist	
2		676.59
	GW-GRAVEL (FILL), some sand, compact, medium to coarse grained, well graded, gray, moist	675.59
4	CL-CLAY (FILL), some silt, stiff, medium plasticity, brown, moist	673.59
6	SP-SAND (FILL), some silt, trace gravel, compact, fine grained, poorly graded, black, wet, bits of wood and plastic	
8	- trace to little clay, dense, moist at 8.0ft BGS	
10	- bricks, rock fragments at 11.0ft BGS	
12		
14	- rock fragments, bits of metal at 15.0ft BGS	
16		
18	- compact at 18.0ft BGS	
20		
22	CL-CLAY (NATIVE), rock fragments, some silt, very stiff, low plasticity, brown, moist	657.59
	BEDROCK, refusal	656.09
24	END OF BOREHOLE @ 24.0ft BGS	655.59
26		
28		
30		
32		
34		

BOREHOLE: CEMENT / BENTONITE GROUT

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1		2.0	9	0
2		2.0	22	0
3		2.0	14	0
4		2.0	32	0
5		2.0	25	0
6		2.0	44	0
7		2.0	47	0
8		2.0	42	0
9		2.0	27	0
10		2.0	13	0
11		2.0	12	0
12		2.0	>50	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X221Y169
DATE COMPLETED: February 27, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	685.2						
0	TOPSOIL	684.73						
	CL-CLAY, trace silt, stiff, low plasticity, strong brown (7.5YR 5/8), moist		BENTONITE CHIPS	1	P/S	2.0		0
2				2	P/S	2.0		<1
4				3	P/S	1.5		0
		680.23						
	fractured and weathered rock	679.73						
6	- Refusal at 5.5ft BGS							
	END OF BOREHOLE @ 5.5ft BGS							
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X223Y097A
DATE COMPLETED: January 8, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	679.7						
	CONCRETE SLAB	678.86	CONCRETE	1	P/S	2.0		0
2	CL-CLAY, trace silt, stiff, low plasticity, olive brown (2.5 Y 4/4), moist		2" DIA. BOREHOLE	2	P/S	2.0		0
4	- becoming strong brown (7.5 YR 5/6) at 4.8ft BGS		BENTONITE CHIPS	3	P/S	2.0		NA
6	- 2 inch layer gravel, medium grained at 6.5ft BGS			4	P/S	2.0		NA
8	- trace medium grained sand and gravel, stiff, medium plasticity, yellowish brown (10 YR 5/6), trace black staining at 7.7ft BGS			5	P/S	0.0		NA
10	- Refusal at 10.0ft BGS	669.66						
	END OF BOREHOLE @ 10.0ft BGS							
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X223Y097B
DATE COMPLETED: January 8, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	679.8						
0	CONCRETE SLAB	679.01	CONCRETE	1	P/S	2.0		0
2	CL - CLAY (FILL), trace silt, stiff, low plasticity, olive brown (7.5 YR 5/6), moist		2" DIA. BOREHOLE	2	P/S	2.0		0
4			BENTONITE CHIPS	3	P/S	2.0		0
		674.81						
6	Weathered bedrock with fine sand and rock fragments, becoming strong brown (7.5 YR 5/6)	673.81						
	- Refusal at 6.0ft BGS							
	END OF BOREHOLE @ 6.0ft BGS							
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X223Y124
DATE COMPLETED: January 14, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	714.2					
0	TOPSOIL	714.04					
	CL - CLAY, trace silt, stiff, medium plasticity, yellowish brown (10 YR 5/6), moist			1	P/S	2.0	
2				2	P/S	2.0	
4	- trace gravel, turning reddish brown (5 YR 3/4) at 5.0ft BGS			3	P/S	2.0	
6			BENTONITE CHIPS	4	P/S	2.0	
8				5	P/S	2.0	
10	- with silt, soft, medium plasticity, olive (5 Y 5/4), moist at 11.0ft BGS		2" DIA. BOREHOLE	6	P/S	2.0	
12				7	P/S	2.0	
14	Weathered bedrock, rock fragments	699.74		8	P/S	1.0	
	- Refusal at 15.0ft BGS	699.24					
16	END OF BOREHOLE @ 15.0ft BGS						
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X223Y150A
DATE COMPLETED: February 27, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	698.2						
0	GRAVEL / AGGREGATE (FILL)		BENTONITE CHIPS	1	P/S	2.0		0
2				2	P/S	2.0		0
4	- Refusal at 4.5ft BGS	693.7						
	END OF BOREHOLE @ 4.5ft BGS							
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X223Y150B
DATE COMPLETED: February 27, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	698.2						
0	GRAVEL/AGGREGATE (FILL)			1	P/S	2.0		0
2		695.2		2	P/S	2.0		1.7
4	CL-CLAY, trace silt, soft, low plasticity, very dark bluish gray (GLEY2 3/1), moist - yellowish brown at 4.0ft BGS			3	P/S	2.0		1.3
6	- very dark gray (2.5Y 3/1) at 6.0ft BGS		BENTONITE CHIPS	4	P/S	2.0		5
8	- brown (10YR 4/3) at 8.0ft BGS			5	P/S	2.0		1.2
10				6	P/S	2.0		<1
12	- Refusal at 12.0ft BGS END OF BOREHOLE @ 12.0ft BGS	686.2						
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN.LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X223Y247D
DATE COMPLETED: February 4, 2003
DRILLING METHOD: 7 7/8-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN / M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	TOPSOIL, with roots	0.3		1		1.0		0.1
	CL-CLAY (FILL), trace silt, stiff, low plasticity, strong brown (7.5 YR 5/8), moist	1.8						
2	SP-SAND (FILL), fine grained, poorly graded, loose, dark reddish brown (5 YR 3/2), moist			2		1.2		0.2
4			CEMENT / BENTONITE GROUT	3		0.5		0.6
6	- rock fragments at 6.0ft BGS			4		1.0		0.5
8	CL-CLAY (FILL), trace sand and gravel, medium plasticity, soft, dark yellowish brown (10 YR 9/7), moist	8		5		0.5		NA
10			4" DIA. STEEL CASING	6		0.6		0.2
12	- no gravel at 12.5ft BGS			7		0.5		1.0
14				8		1.3		0.5
16	- 2-inch section of gravel fragments at 17.0ft BGS			9		0.6		1.1
18	- trace sand at 18.0ft BGS		CEMENT / BENTONITE SEAL	10		1.0		0.8
20		21		11		1.5		0.5
22	SC-CLAYEY SAND (FILL), non-plastic, soft, black (5 YR 2.5/2), moist	22		12		1.0		3.3
24	SP-SAND (FILL), fine grained, poorly graded, compact, black (5 YR 2.5/2), moist		CEMENT / BENTONITE GROUT	13		1.7		2.4
26	SC-CLAYEY SAND (FILL), same as above	26.5		14		1.7		1.9
28				15		2.0		2.0
30	CL-CLAY (FILL), trace sand and silt, low plasticity, dark reddish brown (5 YR 3/2), moist	29.5	4" DIA. STEEL CASING	16		2.0		1.7
32	SC-CLAYEY SAND (FILL), same as above	31		17		1.5		1.0
34		34.5		18		1.0		1.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X223Y247D
DATE COMPLETED: February 4, 2003
DRILLING METHOD: 7 7/8-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN / M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
	CL-CLAY, trace silt, low plasticity, soft, strong brown (7.5 YR 5/2), moist	34.5				
36	LIMESTONE (SALEM FORMATION), innerbeded tan/gray top 1.1 feet, fine to coarse grained, massive, granular, very thick bedding	35				
38	- fracture at 37.1ft BGS - stylolite at 37.7ft BGS - fracture, tan, mud filling at 37.8ft BGS			1	100	100
40	- coarse grained, gray at 38.6ft BGS - tan, stylolite at 39.7ft BGS		4" DIA. HQ COREHOLE			
42	- stylolite at 41.1ft BGS - gray at 41.4ft BGS - tan at 41.6ft BGS - gray at 42.4ft BGS					
44	- stylolite at 44.4ft BGS			2	100	100
46	- stylolite at 46.3ft BGS - stylolite at 46.7ft BGS					
48	- open stylolite at 47.4ft BGS - fracture at 48.9ft BGS					
50			CEMENT / BENTONITE SEAL			
52	- stylolite at 50.8ft BGS - stylolite at 51.1ft BGS - tan, fossils (bryozoan) at 51.4ft BGS					
54				3	100	100
56						
58						
60	- gray at 59.3ft BGS		4" DIA. HQ COREHOLE			
62						
64				4	100	100
66						
68	- stylolite at 68.0ft BGS - half-inch calcite filled vug at 68.2ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X223Y247D
DATE COMPLETED: February 4, 2003
DRILLING METHOD: 7 7/8-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN / M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
70						
72	- stylolite at 71.6ft BGS					
74				5	100	100
76						
78	- stylolite at 77.3ft BGS - fracture at 78.6ft BGS					
80	- fracture at 79.7ft BGS					
82						
84	- stylolite at 83.3ft BGS - stylolite at 84.1ft BGS			6	100	100
86	- fracture at 85.6ft BGS					
88	- fracture at 87.2ft BGS					
90	- stylolite at 89.1ft BGS		4" DIA. HQ COREHOLE			
92	- stylolite at 90.6ft BGS - fracture at 91.4ft BGS					
94	- stylolite at 92.5ft BGS - open stylolite at 93.1ft BGS - stylolite at 93.3ft BGS	93.4		7	100	100
96	LIMESTONE (UPPER HARRODSBURG FORMATION), coarse, gray, fossils well cemented bioclastic (bryozoan & brachipods) calcarenite and calcirudite limestone - fracture at 94.6ft BGS - stylolite at 95.8ft BGS					
98	- stylolite at 96.6ft BGS - fracture at 97.1ft BGS - fracture at 98.8ft BGS					
100	- stylolite at 99.1ft BGS - fracture at 99.4ft BGS - stylolite at 100.3ft BGS					
102	- stylolite at 100.8ft BGS - stylolite at 103.3ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X223Y247D
DATE COMPLETED: February 4, 2003
DRILLING METHOD: 7 7/8-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN / M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
	- fracture, shale parting at 103.4ft BGS - fracture at 104.1ft BGS			8	100	100
106	- stylolite at 106.8ft BGS					
108	- fracture, shale parting at 108.0ft BGS - stylolite at 108.2ft BGS - fracture at 108.8ft BGS					
110	- fracture, shale parting at 109.2ft BGS LIMESTONE (LOWER HARRODSBURG FORMATION), fine grained, white, abundance of fine fossils, trace calcite	109.4				
112	- half-inch vug at 110.7ft BGS			9	100	100
	- stylolite at 113.4ft BGS					
114	- stylolite at 114.3ft BGS - stylolite at 114.8ft BGS					
116	- stylolite at 115.5ft BGS					
118	- fracture at 118.1ft BGS - fracture at 118.5ft BGS - fracture, shale parting at 119.3ft BGS					
120	- light gray, stylolite at 120.0ft BGS		4" DIA. HQ COREHOLE			
	- stylolite at 121.2ft BGS					
122	- stylolite at 121.8ft BGS					
	- open stylolite at 123.2ft BGS			10	100	
124	- 1.5 foot section of abundance of fossils at 124.3ft BGS					
	- fracture at 125.4ft BGS					
126	- fracture at 126.1ft BGS - open stylolite at 126.5ft BGS					
128	- 1.8 foot of porous vuggy calcite filled section containing fossils at 127.0ft BGS					
	- open stylolite at 129.0ft BGS					
130	- open stylolite at 130.0ft BGS					
132			CEMENT / BENTONITE SEAL			
	- open stylolite at 132.8ft BGS					
134	- stylolite at 134.5ft BGS			11	100	100
	- open stylolite at 135.7ft BGS					
136	- open stylolite at 136.1ft BGS					
	- stylolite at 137.6ft BGS					
138	- open stylolite at 138.0ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X223Y247D
DATE COMPLETED: February 4, 2003
DRILLING METHOD: 7 7/8-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN / M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
140						
142	- fracture at 142.0ft BGS					
144			CEMENT / BENTONITE SEAL	12	100	100
146						
148	- fracture, blue shale parting at 148.2ft BGS - 7-inches of non-continuous openings with blue shale partings at 149.3ft BGS					
150	- stylolite at 150.7ft BGS - fracture, shale parting at 150.8ft BGS					
152	- open stylolite at 151.6ft BGS - stylolite at 152.2ft BGS					
154	- open stylolite at 153.3ft BGS - stylolite at 154.3ft BGS		4" DIA. HQ COREHOLE	13	100	100
156	- stylolite at 155.2ft BGS - fracture, shale parting at 156.4ft BGS					
158	- fracture, shale parting at 157.7ft BGS					
160	- fracture, shale parting at 159.1ft BGS - stylolite at 159.4ft BGS - stylolite at 160.0ft BGS - 2-foot section of interbedded shale at 160.9ft BGS					
162						
164	- open fracture, shale parting at 164.5ft BGS			14	100	100
166	- open fracture, shale parting at 165.6ft BGS - fracture at 165.9ft BGS					
168	- fracture at 167.2ft BGS - stylolite at 168.0ft BGS					
170						
172	- shale seam at 171.5ft BGS					
	- 1.5-inch calcite filled vug at 173.2ft BGS	173				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS ▭

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X223Y247D
DATE COMPLETED: February 4, 2003
DRILLING METHOD: 7 7/8-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN / M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
176	LIMESTONE (RAMP CREEK), 1.4 foot section of interbedded shale with vugs, very fine grained, contains small amounts of shale, even bedded - shale seam at 174.7ft BGS - 9-inch of interbedded shale at 177.0ft BGS			15	100	100
178						
180	- large fracture at 179.9ft BGS - high shale content at 180.0ft BGS - half-inch vug at 181.1ft BGS		CEMENT / BENTONITE SEAL			
182						
184	- 1-inch vug at 184.8ft BGS			16	100	100
186						
188	- 2-inch geode at 187.5ft BGS					
190	- 1.7 feet of interbedded shale at 190.0ft BGS - fracture, shale seam at 191.0ft BGS		4" DIA. HQ COREHOLE			
192						
194				17	100	100
196						
198						
	SHALE (EDWARDSVILLE FORMATION), light blue	198.6				
200	END OF BOREHOLE @ 200.0ft BGS	200				
202	Boring drilled on an 30 degree angle from vertical (all depths not in relation to vertical)					
204	Overburden pilot boring advanced utilizing 4-1/4 inch hollow stem augers and samples collected by STP method					
206	Ground surface elevation of 676.24 ft. AMSL					
208						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS ☐

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X224Y138A
DATE COMPLETED: February 25, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.5						
0	TOPSOIL	704.15	BENTONITE CHIPS	1	P/S	2.0		0
2	CL-CLAY, trace silt, soft, low plasticity, dark yellowish brown (10YR 4/6), moist - weathered and fgragment rock at 2.5ft BGS - Refusal at 3.0ft BGS	701.45		2	P/S	1.0		0
4	END OF BOREHOLE @ 3.0ft BGS							
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X224Y138B
DATE COMPLETED: February 25, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.5						
0	TOPSOIL	704.25						
	CL-CLAY, some silt, low plasticity, dark yellowish brown (10YR 4/6), moist			1	P/S	2.0		<1
2				2	P/S	2.0		2.5
4	- trace gravel, hard, yellowish red (5YR 4/6) at 4.0ft BGS			3	P/S	2.0		1.0
6	- very hard, dark red (2.5YR 2.5/4) at 6.0ft BGS			4	P/S	2.0		3.6
8			BENTONITE CHIPS	5	P/S	2.0		1.8
10				6	P/S	2.0		2.1
12	- some silt, yellowish brown (10YR 5/8) at 12.2ft BGS			7	P/S	2.0		<1
14				8	P/S	2.0		<1
16	- Refusal at 16.0ft BGS	688.45						
	END OF BOREHOLE @ 16.0ft BGS							
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X225Y077
DATE COMPLETED: January 4, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	684.6						
0	SW / GW - SAND & GRAVEL (FILL)			1	P/S	2.0		<1
		682.65						
2	CL - CLAY (FILL), little silt, trace well graded gravel, relatively dense, medium plastcity, (10 YR 4/6), moist			2	P/S	2.0		<1
4		679.65		3	P/S	2.0		<1
6	SW - SAND (FILL), trace gravel and clay, well graded, yellow (10 YR 7/6)		BENTONITE CHIPS	4	P/S	2.0		<1
8				5	P/S	2.0		<1
10		674.65	2" DIA. BOREHOLE	6	P/S	2.0		<1
12	CL - CLAY, trace silt, dense, low plastcity, reddish brown (7.5 YR 5/6), moist			7	P/S	2.0		<1
14				8	P/S	1.0		<1
	- Refusal at 15.0ft BGS	669.65						
16	END OF BOREHOLE @ 15.0ft BGS							
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X232Y180
DATE COMPLETED: March 18, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	698.6						
0	Topsoil	698.05		1	P/S	2.0		0
2	CL - CLAY, trace silt, soft, medium plasticity, strong brown (7.5YR 4/6), moist		BENTONITE CHIPS	2	P/S	2.0		<1
4				3	P/S	2.0		<1
6		692.15		4	P/S	1.0		<1
7	Weathered rock - Refusal at 7.0ft BGS	691.65						
8	END OF BOREHOLE @ 7.0ft BGS							
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X243Y257
DATE COMPLETED: March 5, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	654.7
0	TOPSOIL	654.48
	CL-CLAY (FILL), trace silt, soft, low plasticity, 7.5YR 4/6 (strong brown), moist	
2	- 2.5Y 4/4 (olive brown) at 3.0ft BGS	
4		
6	SP-SAND (FILL), loose, fine grained, poorly graded, GLEY2 2.5/5PB (bluish black), moist	648.68
	CL-CLAY, some sand, soft, low plasticity, 2.5Y 3/2 (very dark grayish brown)	647.18
8	- trace sand at 9.5ft BGS	
10	- no sand at 10.5ft BGS	
	- 7.5YR 4/6 (strong brown) at 11.5ft BGS	
12		
14		
16	Fractured rock and rock fragments	638.68
	- Refusal at 17.0ft BGS	637.68
18	END OF BOREHOLE @ 17.0ft BGS	
20		
22		
24		
26		
28		
30		
32		
34		

BOREHOLE: BENTONITE CHIPS

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	P/S	2.0		0
2	P/S	2.0		0
3	P/S	2.0		<1
4	P/S	2.0		<1
5	P/S	2.0		<1
6	P/S	2.0		<1
7	P/S	2.0		0
8	P/S	2.0		0
9	P/S	1.0		0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X253Y329A
DATE COMPLETED: January 21, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	659.2						
0	TOPSOIL	658.94		1	P/S	2.0		0
	CL - CLAY, trace silt, soft, medium plasticity, brown, (7.5 YR 4/4), moist							
2	- 2 inch layer of fractured rock at 1.0ft BGS			2	P/S	2.0		0
4				3	P/S	2.0		0
6			BENTONITE CHIPS	4	P/S	2.0		0
8	- becoming very stiff at 8.5ft BGS			5	P/S	2.0		0
	- layered grey and white to 11 feet at 9.0ft BGS		2" DIA. BOREHOLE					
10				6	P/S	2.0		0
12	- becoming wet at 12.5ft BGS			7	P/S	1.0		0
	- Refusal at 13.0ft BGS	646.24						
14	END OF BOREHOLE @ 13.0ft BGS							
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X253Y329B
DATE COMPLETED: January 21, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	661.8					
0	TOPSOIL - grassy vegetation rootlets, loose, medium plasticity, brown (7.5 YR 3/2), dry	660.81	2" DIA. BOREHOLE BENTONITE CHIPS	1	P/S	2.0	
2	CL - CLAY, loose, medium plasticity, brown, dry - firm, medium plasticity, redish brown (7.5 YR 416), dry at 2.0ft BGS			2	P/S	2.0	
4	- stiff, reddish brown (7.5 YR 4/4) at 4.0ft BGS	656.81		3	P/S	2.0	
6	Weathered limestone bedrock - Refusal at 6.0ft BGS END OF BOREHOLE @ 6.0ft BGS	655.81					
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X253Y329C
DATE COMPLETED: January 21, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	658.4					
0	TOPSOIL - 2 inch layer of wood debris at 0.5ft BGS CL - CLAY, trace silt, stiff, medium plasticity, brown (7.5 YR 4/4), moist	658.08		1	P/S	2.0	
2				2	P/S	3.0	
4							
6	- becoming very stiff, red (2.5 YR 4/6) at 6.0ft BGS		BENTONITE CHIPS	3	P/S	3.0	
8							
10			2" DIA. BOREHOLE	4	P/S	4.0	
12	- rock fragments at 11.7ft BGS - Refusal at 12.0ft BGS END OF BOREHOLE @ 12.0ft BGS	646.38					
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X253Y329D
DATE COMPLETED: January 21, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	659.8					
0	TOPSOIL	659.55		1	P/S	1.0	
	CL - CLAY, firm, medium plasticity, reddish brown (5 YR 4/4), dry			2	P/S	3.0	
4	- trace medium sand, soft, moist, trace garbage at 3.5ft BGS - hard, medium plasticity, strong brown (7.5 YR 5/8), dry at 4.0ft BGS		2" DIA. BOREHOLE BENTONITE CHIPS	3	P/S	4.0	
10	- brown (7.5 YR 4/4) at 10.0ft BGS			4	P/S	4.0	
12	SW - SAND, very loose, medium to coarse grained, well graded, moist	647.8 647.3		5	P/S	0.5	
	- Refusal - Bedrock at 12.5ft BGS END OF BOREHOLE @ 12.5ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X253Y329F
DATE COMPLETED: January 22, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	659.2						
0	TOPSOIL	659.03						
	CL - CLAY, trace silt, stiff, medium plasticity, strong brown (7.5 YR 4/6), moist		2" DIA. BOREHOLE	1	P/S	2.0		0
2				2	P/S	2.0		0
4	- 6 inch layer of fractured rock at 4.0ft BGS		BENTONITE CHIPS	3	P/S	2.0		0
6	- 6 inch layer of fractured rock at 6.0ft BGS			4	P/S	2.0		0
8	- Refusal at 8.5ft BGS	650.73			P/S	0.5		0
	END OF BOREHOLE @ 8.5ft BGS							
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X253Y329E
DATE COMPLETED: January 22, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	659.5						
	TOPSOIL	659.18						
	Fractured Rock	658.48		1	P/S	2.0		0
2	CL - CLAY, trace sand and silt, stiff, medium plasticity, strong brown (7.5 YR 4/6), moist		2" DIA. BOREHOLE BENTONITE CHIPS	2	P/S	2.0		0
4				3	P/S	1.0		0
	Fractured Rock	654.98						
	- Refusal at 5.0ft BGS	654.48						
6	END OF BOREHOLE @ 5.0ft BGS							
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X253Y329G
DATE COMPLETED: January 22, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	659.6						
0	TOPSOIL CL - CLAY, trace silt, stiff, medium plasticity, strong brown (7.5 YR 4/6), moist - 6 inches of fractured rock fragments at 2.0ft BGS	659.37	2" DIA. BOREHOLE BENTONITE CHIPS	1	P/S	2.0		0
2				2	P/S	2.0		0
4		655.07		3	P/S	1.0		0
	Rock Fragments - Refusal at 5.0ft BGS	654.57						
6	END OF BOREHOLE @ 5.0ft BGS							
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X253Y329H
DATE COMPLETED: January 22, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	659.3						
0	TOPSOIL	659.06		1	P/S	2.0		0
	CL - CLAY, trace silt, stiff, medium plasticity, dark brown (7.5 YR 3/4), moist			2	P/S	2.0		0
4			2" DIA. BOREHOLE	3	P/S	2.0		0
6			BENTONITE CHIPS	4	P/S	2.0		0
8	- 6 inch layer fractured rock at 8.0ft BGS			5	P/S	2.0		0
10	- six inch black layer, wet at 10.0ft BGS - very stiff, dark yellowish brown (10 YR 3/6) at 10.5ft BGS			6	P/S	2.0		<1
12				7	P/S	1.0		0
13	- Refusal at 13.0ft BGS	646.26						
	END OF BOREHOLE @ 13.0ft BGS							
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X254Y336
DATE COMPLETED: January 22, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	653.4						
0	TOPSOIL	653.08	2" DIA. BOREHOLE; BENTONITE CHIPS	1	P/S	2.0		0
2	CL - CLAY, trace silt, stiff, medium plasticity, red (2.5 YR 4/6), moist			(2)	P/S	2.0		0
		649.88						
4	Rock Fragments - Refusal at 4.0ft BGS	649.38						
	END OF BOREHOLE @ 4.0ft BGS							
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (CA)

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X261Y356
DATE COMPLETED: January 11, 2002
DRILLING METHOD: 4 1/4-INCH HSA & 12 1/4-INCH HSA
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	668.1
0	TOPSOIL	667.8
	CL-CLAY, little silt, stiff, medium plasticity, strong brown, moist	
4	- little gravel, hard, low plasticity at 4.0ft BGS	
6	- one foot of limestone fragments at 6.0ft BGS	
	- little to some silt, little gravel, low plasticity, very stiff, very thin black discoloration throught out at 7.0ft BGS	
10	- hard at 10.0ft BGS	
16	- little silt, very stiff, low to medium plasticity at 16.0ft BGS	
18	- Refusal - Bedrock at 18.5ft BGS	649.6
	END OF BOREHOLE @ 18.5ft BGS	

BOREHOLE: CEMENT / BENTONITE GROUT

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1		1.5	11	0.0
2		1.0	18	0.0
3		1.7	68	0.0
4		1.7	24	0.0
5		1.8	20	0.0
6		2.0	30	0.0
7		2.0	16	0.0
8		1.8	45	0.0
9		2.0	17	0.0
10		0.5	>50	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (○) GRAIN SIZE ANALYSIS (□)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: BK-X142Y263
DATE COMPLETED: January 24, 2002
DRILLING METHOD: HAND AUGER
FIELD PERSONNEL: D. SHIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	651						
0	CL - CLAY, trace silt, semi-plastic, light brown, moist, vegetation rootlets,		NATIVE CUTTINGS	1	P/S	2.0		0
	- plastic, yellowish brown, moist at 0.5ft BGS	648.98						
2	END OF BOREHOLE @ 2.0ft BGS							
4								
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS ▭

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: BK-X157Y157
DATE COMPLETED: June 6, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	724.7						
0	TOPSOIL	724.46						
	CL-CLAY, trace silt and gravel, stiff, low plasticity, yellowish red (5YR 4/6), moist			1	P/S	2.0		0
2				2	P/S	2.0		0
4	- no gravel at 4.0ft BGS		BENTONITE CHIPS	3	P/S	2.0		0
6				4	P/S	2.0		0
8	END OF BOREHOLE @ 8.0ft BGS	716.66						
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: BK-X199Y347
DATE COMPLETED: June 6, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	662.3						
0	TOPSOIL	662.07						
	CL-CLAY, trace silt, soft, low plasticity, red (2.5YR 4/8), moist		BENTONITE CHIPS	1	P/S	2.0		0
2				2	P/S	2.0		0
4	Limestone fragments	658.27						
	- Refusal at 4.5ft BGS	657.77						
6	END OF BOREHOLE @ 4.5ft BGS							
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (X)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: BK-X212Y042
DATE COMPLETED: January 23, 2002
DRILLING METHOD: HAND AUGER
FIELD PERSONNEL: D.SHIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	713						
0	CL - Clay, trace silt, plastic, light brown, moist, vegetation rootlets - reddish brown at 0.5ft BGS		NATIVE CUTTINGS	1	P/S	2.0		0
2	END OF BOREHOLE @ 2.0ft BGS	711						
4								
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (○) GRAIN SIZE ANALYSIS (□)

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: BK-X267Y091
DATE COMPLETED: January 23, 2002
DRILLING METHOD: HAND AUGER
FIELD PERSONNEL: D. SHIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	666.2						
0	ML- SILT, mottled grey to reddish yellow, moist, with vegetation rootlets	664.54	NATIVE CUTTINGS	1	P/S	2.0		0
2	CL - CLAY, plastic, reddish/yellow, moist	664.21						
	END OF BOREHOLE @ 2.0ft BGS							
4								
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (○) GRAIN SIZE ANALYSIS (□)

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: BK-X281Y296
DATE COMPLETED: January 23, 2002
DRILLING METHOD: HAND AUGER
FIELD PERSONNEL: D. SHIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	627.1						
0	CL - CLAY, plastic, brown, moist, with vegetation rootlets - trace silt, reddish brown at 0.7ft BGS - some silt, semi-plastic, light brown to grey, moist at 1.7ft BGS	625.11	NATIVE CUTTINGS	1	P/S	2.0		0
2	END OF BOREHOLE @ 2.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: BK-X293Y374
DATE COMPLETED: June 6, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	626.5						
0	TOPSOIL CL-CLAY, trace silt, soft, low plasticity, strong brown (7.5YR 4/6), moist	626.31	BENTONITE CHIPS	1	P/S	2.0		0
2				2	P/S	2.0		0
4				3	P/S	2.0		0
6	- refusal at 6.5ft BGS END OF BOREHOLE @ 6.5ft BGS	620.01		4	P/S	0.5		0
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: CREEK CORE 1
DATE COMPLETED: October 16, 2003
DRILLING METHOD: HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
	GROUND SURFACE	654.6				
0	Fractured rock, black staining, oxidized (yellow/orange), poor recovery, clay partings					
		653.03				
2	LIMESTONE (ST. LOUIS FORMATION), calcite, micritic limestone, medium grained, thin bedded, light gray to gray					
	- stylolite at 2.3ft BGS					
4	- vertical fracture with clay parting at 2.4ft BGS					
	- vertical fracture with clay parting at 2.7ft BGS					
	- 2-inch fractured rock (vertical and horizontal) at 2.8ft BGS		BENTONITE SEAL	1	73	62
6	- light gray, open stylolite at 3.0ft BGS					
	- light gray, open stylolite at 3.6ft BGS					
8	- 1.7 foot void, water lose at 4.2ft BGS					
	- open stylolite at 6.2ft BGS					
	- dark gray at 6.7ft BGS					
10	- open stylolite at 7.1ft BGS	644.63				
	- horizontal fracture at 8.5ft BGS					
	- open stylolite at 8.7ft BGS					
12	- stylolite at 8.8ft BGS					
	END OF BOREHOLE @ 10.0ft BGS					
14						
16						
18						
20						
22						
24						
26						
28						
30						
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: CREEK CORE 2
DATE COMPLETED: October 17, 2003
DRILLING METHOD: HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
	GROUND SURFACE	653.4				
0	LIMESTONE (ST. LOUIS FORMATION), top 3-inches slight black staining in horizontal fracture, micritic limestone, calcite, thin bedded, fine grained, macro fossils, tan - horizontal fracture, light gray at 1.6ft BGS - horizontal fracture, clay parting at 2.7ft BGS - stylolite at 2.9ft BGS - open stylolite at 3.1ft BGS - open stylolite at 6.0ft BGS - dark gray, interbedded shale at 6.1ft BGS		BENTONITE SEAL	1	98	84
10	END OF BOREHOLE @ 10.0ft BGS	643.36				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: CREEK CORE 3
DATE COMPLETED: October 17, 2003
DRILLING METHOD: HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
	GROUND SURFACE	651				
2	LIMESTONE (ST. LOUIS FORMATION), top 2-inches fractured with very faint black staining, thin bedded, medium grained, macro fossils, calcite, tan/gray - horizontal fracture at 0.9ft BGS - 2-inches of fractured rock at 1.1ft BGS - horizontal fracture at 1.7ft BGS - horizontal fracture, gray at 1.8ft BGS - open stylolite at 2.7ft BGS - stylolite at 5.2ft BGS - 1-inch open stylolite at 5.7ft BGS - stylolite at 7.9ft BGS		BENTONITE SEAL	1	98	95
10	END OF BOREHOLE @ 10.0ft BGS	641.04				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: CREEK CORE 4
DATE COMPLETED: October 21, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
		654.91				
4	LIMESTONE (ST. LOUIS FORMATION), medium to coarse grained, porous, tan/gray, fossils, calcite - horizontal fracture at 3.9ft BGS - horizontal fracture at 4.3ft BGS - horizontal fracture at 5.2ft BGS - horizontal fracture at 5.5ft BGS - horizontal fracture, clay parting at 6.3ft BGS - horizontal fracture, clay parting at 6.4ft BGS - stylolite at 6.7ft BGS - open stylolite at 7.1ft BGS - gray, abundance of fossils (bryozoans, etc...) at 7.4ft BGS - horizontal fracture at 8.1ft BGS - horizontal fracture at 9.2ft BGS - 5-inch void, clay parting at 10.5ft BGS - stylolite at 10.8ft BGS - open stylolite, light gray, fine grained at 11.3ft BGS - 2-inch broken rock between stylolite at 12.4ft BGS - open stylolite at 14.8ft BGS - stylolite at 14.9ft BGS - 9-inch section of stylolites throughout at 15.6ft BGS - open stylolite at 17.1ft BGS - dark gray at 17.8ft BGS		CEMENT / BENTONITE GROUT	1	89	84
20		638.51		2	98	98
22	LIMESTONE (SALEM FORMATION), coarse grained, fossils, thick bedding, granular - 6-inch of "honeycomb" section, porous, fine grained at 21.5ft BGS - gray at 21.7ft BGS - stylolite at 24.0ft BGS			3	100	100
24						
26		631.91				
	END OF BOREHOLE @ 26.5ft BGS					
28						
30						
32						
34						
36						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: CREEK CORE 5
DATE COMPLETED: October 22, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
	GROUND SURFACE	660				
	CL-CLAY, some silt, firm, low plasticity, strong brown, moist					
		658.45				
2	LIMESTONE (ST. LOUIS FORMATION), fine grained, thin bedded, gray, micritic, calcite, 1-foot of fractured rock, weathered, occasional clay parting, porous					
4	- horizontal fracture, clay parting at 3.1ft BGS					
	- horizontal fracture at 4.0ft BGS					
	- near vertical fracture, iron staining at 4.3ft BGS			1	100	84
6	- horizontal fracture at 4.6ft BGS					
	- horizontal fracture at 5.5ft BGS					
8	- open stylolite at 6.4ft BGS					
	- open stylolite at 6.5ft BGS					
	- stylolite at 6.8ft BGS					
10	- open stylolite at 7.3ft BGS					
	- horizontal fracture at 9.0ft BGS					
	- horizontal fracture, clay parting at 10.3ft BGS					
12	- horizontal fracture at 11.6ft BGS					
	- stylolite at 11.9ft BGS		CEMENT / BENTONITE GROUT			
	- stylolite at 12.3ft BGS					
14						
				2	100	100
16	- horizontal fracture at 16.3ft BGS					
	- open stylolite at 16.7ft BGS					
	- open stylolite at 17.6ft BGS					
18		641.95				
	LIMESTONE (SALEM FORMATION), granular, medium to coarse grained, thick bedding					
20						
22						
	- stylolite at 23.0ft BGS					
24	- open stylolite at 24.3ft BGS			3	100	100
	- stylolite at 26.2ft BGS					
26		633.45				
	END OF BOREHOLE @ 26.5ft BGS					
28						
30						
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040316_13968.GPJ CRA_CORP GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: CREEK CORE 6A
DATE COMPLETED: October 23, 2003
DRILLING METHOD: HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
	GROUND SURFACE	647.2				
2	LIMESTONE (SALEM FORMATION), 5-inches of fractured rock, tan, fine grained, horizontal fractures, thin bedded, clay partings - horizontal fracture, clay parting at 0.8ft BGS - horizontal fracture, clay parting at 1.2ft BGS - 1.5-inch near vertical non-continuous opening at 1.7ft BGS - open stylolite at 2.0ft BGS - 2-inch near vertical non-continuous opening at 2.4ft BGS - open stylolite, oxidized, iron staining, gray at 2.8ft BGS - stylolite at 3.5ft BGS - open stylolite at 4.5ft BGS - horizontal fracture at 6.4ft BGS - open stylolite, 1-foot void, had dark water return at 6.7ft BGS - open stylolite at 7.7ft BGS		CEMENT / BENTONITE GROUT	1	84	64
4						
6				2	90	84
8						
10		637.7				
12	END OF BOREHOLE @ 9.5ft BGS					
14						
16						
18						
20						
22						
24						
26						
28						
30						
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: CREEK CORE 7
DATE COMPLETED: October 23, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
4	LIMESTONE (SALEM FORMATION),top 2-inch horizontal non-continuous opening, thin bedded, calcite, tan - horizontal fracture, clay parting at 4.4ft BGS - stylolite at 6.5ft BGS - stylolite at 7.3ft BGS - open stylolite at 7.8ft BGS	641.31	CEMENT / BENTONITE GROUT	1	100	100
6						
8		636.31				
	END OF BOREHOLE @ 9.0ft BGS					
10						
12						
14						
16						
18						
20						
22						
24						
26						
28						
30						
32						
34						
36						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: CREEK CORE 8
DATE COMPLETED: October 23, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
4	- during coring black water and sheen noted for approximately 6-inches, horizontal fracture, clay parting at 4.7ft BGS	639.32	CEMENT / BENTONITE GROUT			
6	LIMESTONE (SALEM FORMATION), granular, medium grained, thin bedded, tan/gray - open stylolite at 6.8ft BGS - stylolite at 7.3ft BGS - open stylolite at 8.3ft BGS			1	100	100
8						
10	END OF BOREHOLE @ 9.5ft BGS	634.32				
12						
14						
16						
18						
20						
22						
24						
26						
28						
30						
32						
34						
36						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: CREEK CORE 9
DATE COMPLETED: October 23, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
	GROUND SURFACE	653.1				
	CL-CLAY, silt, low plasticity, brown/tan, moist					
		651.59				
2	LIMESTONE (ST. LOUIS FORMATION), thin bedded, fine grained, tan/gray, 1.3 foot of horizontal fractures with clay parting					
4	- horizontal fracture with clay parting at 3.4ft BGS - horizontal fracture with clay parting at 4.4ft BGS			1	98	60
6	- 4-inches of horizontal fractures with clay partings at 4.8ft BGS					
8	- 4-inches of horizontal fractures with clay partings at 5.3ft BGS - half-inch clay parting at 6.0ft BGS - horizontal fracture at 7.4ft BGS			2	100	100
10	- open stylolite at 10.1ft BGS		CEMENT / BENTONITE GROUT			
12	- stylolite at 11.7ft BGS - 1-inch near vertical non-continuous opening at 12.4ft BGS					
14	- brown water discharge at 13.0ft BGS - 1-foot near vertical non-continuous opening at 13.2ft BGS					
16	- stylolite at 13.6ft BGS - stylolite at 15.2ft BGS - open stylolite at 15.5ft BGS	637.09		3	100	100
18	LIMESTONE (SALEM FORMATION), fossils, granular, thick bedded, medium grained, tan/gray - open stylolite at 17.0ft BGS					
20	- open stylolite at 20.8ft BGS	632.09				
	END OF BOREHOLE @ 21.0ft BGS					
22						
24						
26						
28						
30						
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X033Y147S
DATE COMPLETED: November 13, 2002
DRILLING METHOD: 6 1/4-INCH TRI-CONE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	719.1 718.82					
0	CONCRETE	718.49					
	ASPHALT	718.09					
	Same stratigraphy as B-X033Y147						
2							
4							
6							
8							
10			CEMENT / BENTONITE GROUT				
12							
14							
16							
18							
20							
22			4" DIA. STEEL CASING				
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X033Y147S
DATE COMPLETED: November 13, 2002
DRILLING METHOD: 6 1/4-INCH TRI-CONE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
36							
38	END OF OVERBURDEN HOLE @ 38.5ft BGS						
40							
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X033Y147S
DATE COMPLETED: November 13, 2002
DRILLING METHOD: 6 1/4-INCH TRI-CONE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
38	LIMESTONE (same as B-X033Y147)	680.59	4" DIA. HQ COREHOLE			
56	END OF BOREHOLE @ 56.0ft BGS	663.09				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

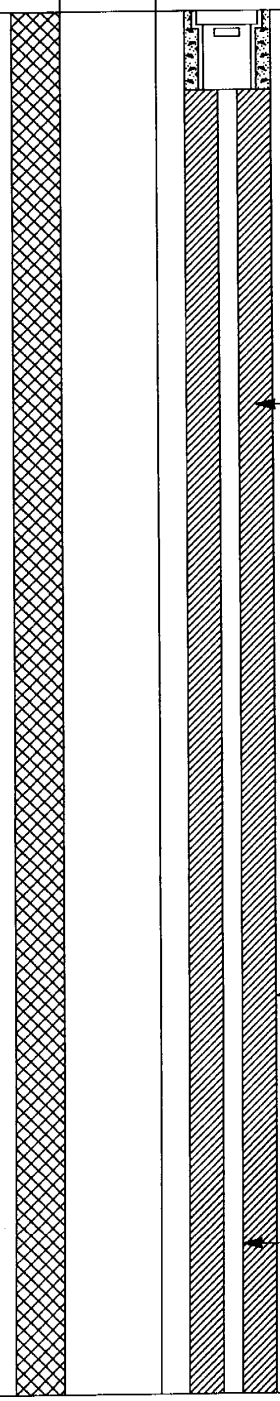
BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X033Y147D
DATE COMPLETED: June 20, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	719 718.10					
	Same Stratigraphy as B-X033Y147S						



END OF OVERBURDEN HOLE @ 37.0' BGS

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X033Y147D
DATE COMPLETED: June 20, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
36							
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
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HOLE DESIGNATION: MW-X033Y147D
DATE COMPLETED: June 20, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
38						
40			CEMENT/BENTONITE GROUT			
42						
44						
46			10" DIA. HOLE			
48						
50			4" DIA. STEEL CASING			
52						
54						
56						
58						
60		658.54				
62	LIMESTONE (ST. LOUIS FORMATION), massive, gray micritic limestone			1	100	100
64	- horizontal fracture at 63.4ft BGS - horizontal fracture, light gray at 64.4ft BGS					
66						
68	- horizontal fracture at 66.9ft BGS - horizontal fracture at 68.4ft BGS			2	100	100
70	- horizontal fracture, shale seam at 69.8ft BGS - horizontal fracture at 70.4ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

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FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
72	- 5-feet "honey comb" porous section at 71.0ft BGS - horizontal fracture at 72.4ft BGS					
74						
76	- horizontal fracture at 75.1ft BGS - horizontal fracture at 75.5ft BGS - horizontal fracture at 76.5ft BGS		4" DIA. HQ COREHOLE			
78	- 3-inch section of thin shale bedding at 76.8ft BGS - horizontal fracture at 77.5ft BGS			3	100	100
80	- stylolite at 79.4ft BGS - stylolite at 79.8ft BGS					
82	- stylolite at 81.4ft BGS					
84						
86						
88				4	100	100
90						
92	- 7-inch vertical non-continuous opening at 92.8ft BGS					
94						
96	- open stylolite at 95.2ft BGS - open stylolite at 96.3ft BGS					
98	LIMESTONE (SALEM FORMATION) open stylolite, granular, very thick bedding, medium to coarse grained, calcite, fossils, light gray - stylolite at 98.5ft BGS	621.94		5	100	100
100	- stylolite at 99.3ft BGS - stylolite at 100.8ft BGS					
102	- stylolite at 102.0ft BGS					
104	- stylolite at 104.5ft BGS - stylolite at 104.9ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
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FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
108	- stylolite at 106.5ft BGS - stylolite at 107.1ft BGS			6	100	100
110	- stylolite at 110.7ft BGS					
112			4" DIA. HQ COREHOLE			
114	- stylolite at 114.5ft BGS			7	100	100
116						
118						
120						
122	- open stylolite at 121.4ft BGS - fine grained at 121.8ft BGS					
124				8	100	100
126	- stylolite at 125.2ft BGS					
128						
130	- stylolite at 129.0ft BGS		DOW PACKER			
132						
134	- stylolite at 134.2ft BGS			9	100	100
136						
138						
140			SAMPLE			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
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DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X033Y147D
DATE COMPLETED: June 20, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
			ZONE 4			
142	- open stylolite at 142.1ft BGS					
144	- open stylolite at 144.4ft BGS - stylolite at 144.7ft BGS	574.44	DOW PACKER			
146	LIMESTONE (UPPER HARRODSBURG FORMATION), well cemented bioclastic (bryozoans and brachiopods) calcarenite and calcirudite limestone		NON-MONITORING ZONE			
148	- stylolite at 148.0ft BGS - stylolite at 149.0ft BGS		DOW PACKER	10	100	100
150						
152	- stylolite at 151.4ft BGS - open stylolite at 151.6ft BGS					
154						
156	- lots of fossils (bryozoan, etc...), porous, calcite, light gray at 155.7ft BGS		SAMPLE ZONE 3			
158	- horizontal fracture at 157.5ft BGS			11	100	100
160	- 2.5-foot section of numerous stylolites, light gray/white at 160.5ft BGS		DOW PACKER			
162			NON-MONITORING ZONE			
164						
166	- horizontal fracture at 165.1ft BGS - horizontal fracture at 166.2ft BGS		DOW PACKER			
168				12	100	100
170						
172	- horizontal fracture at 171.4ft BGS - horizontal fracture at 172.1ft BGS					
174	- horizontal fracture at 173.3ft BGS		SAMPLE ZONE 2			
	- horizontal fracture at 175.6ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

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CLIENT: GENERAL MOTORS CORPORATION
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DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X033Y147D
DATE COMPLETED: June 20, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
178	- 1.5-foot "honey comb" porous section, fossils at 177.4ft BGS		DOW PACKER	13	100	100
180	- horizontal fracture at 180.0ft BGS - stylolite at 180.5ft BGS - stylolite at 181.0ft BGS		4" DIA. HQ COREHOLE			
182	- stylolite at 181.6ft BGS - porous at 182.5ft BGS - medium grained at 183.0ft BGS					
184	- stylolite at 185.0ft BGS					
186						
188	- near vertical fracture, stylolite at 187.7ft BGS - stylolite at 188.2ft BGS - stylolite at 188.8ft BGS			14	100	100
190	- stylolite at 189.8ft BGS					
192	- horizontal fracture at 191.8ft BGS - 4-inch section of interbedded shale at 192.3ft BGS - interbedded shale at 193.4ft BGS					
194	- interbedded shale at 193.8ft BGS - stylolite at 195.1ft BGS					
196	- horizontal fracture at 195.6ft BGS		NON-MONITORING ZONE			
198	- stylolite at 197.1ft BGS - stylolite at 198.2ft BGS - stylolite at 198.7ft BGS			15	100	100
200	- stylolite at 199.1ft BGS					
202	LIMESTONE (LOWER HARRODSBURG FORMATION), 2-foot section of interbedded shale - horizontal fracture at 202.8ft BGS	517.54				
204	- horizontal fracture at 203.3ft BGS					
206	- stylolite at 205.3ft BGS - stylolite at 205.6ft BGS - stylolite at 206.3ft BGS					
208	- stylolite at 208.0ft BGS - stylolite at 208.5ft BGS - stylolite at 209.1ft BGS			16	100	100
210	- 1-foot interbedded shale at 209.2ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
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LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X033Y147D
DATE COMPLETED: June 20, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
212	- open stylolite at 211.2ft BGS - open stylolite at 212.2ft BGS		DOW PACKER			
214	- 6-inch shale seam at 214.8ft BGS					
216			4" DIA. HQ COREHOLE			
218	- shale lens at 218.3ft BGS - stylolite at 219.1ft BGS - stylolite at 219.2ft BGS			17	100	100
220	- granular, vugs at 220.3ft BGS - 2-inch geode at 220.7ft BGS					
222	- 1-inch geode at 221.5ft BGS - interbedded shale, dark gray at 222.0ft BGS	496.04				
224	LIMESTONE (RAMP CREEK FORMATION),3.5-foot section of interbedded shale, very fine grained, even bedded, contains small amount of shale		SAMPLE ZONE 1			
226	- geode at 223.7ft BGS - geode at 225.0ft BGS - calcite filled vug at 225.4ft BGS					
228	- stylolite at 227.0ft BGS - half-inch vug at 228.0ft BGS			18	100	100
230	- horizontal fracture at 229.4ft BGS - calcite filled vug at 230.0ft BGS					
232	- calcite filled vug at 231.7ft BGS - calcite filled vug at 232.3ft BGS - horizontal fracture at 233.0ft BGS					
234						
236	- 6-inches of interbedded shale at 236.2ft BGS					
238	- stylolite at 237.9ft BGS - stylolite at 238.2ft BGS			19	100	100
240	- 1.5-feet of calcite filled vugs, high calcite concentration at 240.0ft BGS		4" DIA. HQ COREHOLE			
242						
244	- interbedded shale at 243.4ft BGS	474.74				
	SHALE (EDWARDSVILLE FORMATION), pyrite, soft, dark green/gray					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

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HOLE DESIGNATION: MW-X033Y147D
DATE COMPLETED: June 20, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
248		470.24		20	100	100
	END OF BOREHOLE @ 248.8ft BGS					
250						
252						
254						
256						
258						
260						
262						
264						
266						
268						
270						
272						
274						
276						
278						
280						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X045Y258D
DATE COMPLETED: May 14, 2002
DRILLING METHOD: 14-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF RISER	702.35						
	GROUND SURFACE	699.2						
	TOPSOIL	698.61						
2	ML-CL SILT & CLAY (FILL), trace to little very fine grained sand, trace gravel, medium dense, low plasticity, strong brown (7.5YR 4/6), moist	697.21	CEMENT / BENTONITE GROUT	1				0
	CL-CLAY, with silt, stiff, low to medium plasticity, moist			2				0
4			10" DIA. STEEL CASING	3				
6	ML-SILT, trace clay, trace gravel, dense, light brownish gray (10YR 6/2), moist	693.21						
8	END OF OVERBURDEN HOLE @ 8.0ft BGS							
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS ▭

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

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FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
	ML-SILT, trace clay, trace gravel, dense, light brownish gray (10YR 6/2), moist	693.21				
8	LIMESTONE (ST. LOUIS FORMATION), fine grained, micritic, gray, thin bedded	691.21				
10						
12						
14	- 4-inch layered section at 14.0ft BGS					
16	- 2-inch medium porous section at 15.2ft BGS - stylolite at 15.4ft BGS			1	100	100
18	- horizontal fracture at 17.8ft BGS					
20	- horizontal fracture at 19.5ft BGS - open stylolite at 20.6ft BGS					
22	- moderate porosity, fossils, light brown at 21.6ft BGS					
24	- vugs at 23.4ft BGS - 3-inch vertical section of vugs at 24.4ft BGS		4" DIA. HQ COREHOLE			
26	- 2-foot section of numerous vugs at 25.6ft BGS			2	100	100
28	- horizontal fracture at 27.3ft BGS - horizontal fracture at 27.7ft BGS - 4-inch vuggy section at 28.8ft BGS		SAMPLE ZONE 3			
30						
32			DOW PACKER			
34						
36						
38				3	100	100
40	LIMESTONE (SALEM FORMATION),granular, very thick bedding, medium to coarse grained - stylolite at 39.6ft BGS	660.21				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
42	- vuggy section at 41.7ft BGS					
44	- stylolite at 43.3ft BGS - stylolite at 43.5ft BGS - stylolite at 44.6ft BGS					
46						
48				4	100	100
50	- stylolite at 48.8ft BGS - stylolite at 50.0ft BGS		4" DIA. HQ COREHOLE			
52	- stylolite at 51.5ft BGS - stylolite at 52.5ft BGS					
54	- stylolite at 53.3ft BGS					
56	- stylolite at 55.6ft BGS - stylolite at 56.3ft BGS					
58				5	100	100
60	- stylolite at 59.6ft BGS - 2-foot vertical non-continuous opening at 59.7ft BGS					
62	- stylolite at 61.8ft BGS - stylolite at 62.1ft BGS					
64	- stylolite at 63.6ft BGS					
66						
68	- stylolite at 67.4ft BGS			6	100	100
70	- stylolite at 69.0ft BGS - stylolite at 70.0ft BGS		NON-MONITORING ZONE			
72						
74	- stylolite at 74.1ft BGS - stylolite at 74.8ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (○) GRAIN SIZE ANALYSIS (□)

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
78	- open stylolite at 78.3ft BGS - fossiliferous, well cemented, granular at 79.0ft BGS			7	100	100
80	- stylolite at 80.1ft BGS					
	- horizontal fracture at 81.3ft BGS					
82	- horizontal fracture at 82.4ft BGS					
84						
86	- open stylolite at 86.8ft BGS					
88	- horizontal fracture at 88.4ft BGS			8	100	100
	- horizontal fracture at 89.5ft BGS					
90	- horizontal fracture at 90.8ft BGS					
92						
	- horizontal fracture at 93.3ft BGS					
94			4" DIA. HQ COREHOLE			
96						
98	- stylolite at 97.9ft BGS			9	100	100
100						
102						
	- stylolite at 103.4ft BGS					
104						
106						
108				10	100	100
			DOW PACKER			
110	- open stylolite at 109.8ft BGS - stylolite at 110.2ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS ▭

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

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HOLE DESIGNATION: MW-X045Y258D
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FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
112	- 6-inch vertical partially calcite filled non-continuous opening at 110.3ft BGS - horizontal fracture at 111.7ft BGS	586.81				
114	LIMESTONE (UPPER HARRODSBURG FORMATION), moderate porosity, vugs, fossils (bryozoan and brachipods), calcarenite and calcirudite limestone - 5-foot section highly porous, vugs at 113.0ft BGS					
116	- horizontal fracture at 115.3ft BGS					
118	- 5-inch vertical non-continuous opening at 117.5ft BGS - horizontal fracture at 118.0ft BGS - stylolite at 118.7ft BGS		SAMPLE ZONE 2	11	100	100
120						
122			DOW PACKER			
124	- shale parting at 124.6ft BGS					
126						
128	- horizontal fracture at 128.5ft BGS		4" DIA. HQ COREHOLE	12	100	100
130	- horizontal fracture at 131.0ft BGS					
132						
134	- horizontal fracture at 134.2ft BGS - horizontal fracture at 135.0ft BGS					
136	- horizontal fracture at 136.9ft BGS - stylolite at 137.3ft BGS					
138	- horizontal fracture at 138.0ft BGS - half-inch horizontal fracture at 139.0ft BGS			13	100	100
140	- 3-inch vertical stylolite at 140.4ft BGS - stylolite at 140.8ft BGS					
142	- horizontal fracture at 142.6ft BGS					
144	- stylolite at 143.9ft BGS - horizontal fracture at 144.6ft BGS - stylolite at 145.0ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (○) GRAIN SIZE ANALYSIS (□)

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
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DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X045Y258D
DATE COMPLETED: May 14, 2002
DRILLING METHOD: 14-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
148	- stylolite at 146.3ft BGS - stylolite at 147.0ft BGS - stylolite at 147.5ft BGS			14	100	100
150	- stylolite at 149.8ft BGS - vertical stylolite at 150.4ft BGS		NON-MONITORING ZONE			
152	LIMESTONE (LOWER HARRODSBURG FORMATION), horizontal fracture (shale bed)	547.01				
154	- 4-inch vertical non-continuous opening at 153.2ft BGS					
156	- stylolite at 155.8ft BGS - stylolite at 157.0ft BGS			15	100	100
158	- stylolite at 157.9ft BGS - horizontal fracture at 158.0ft BGS					
160	- 5-inch geode at 159.6ft BGS - stylolite at 160.4ft BGS - stylolite at 161.0ft BGS					
162	- stylolite at 162.0ft BGS		4" DIA. HQ COREHOLE			
164	- horizontal fracture at 163.6ft BGS - stylolite at 164.7ft BGS					
166	- 2.5-foot dark gray section at 165.2ft BGS					
168	- 2-inch geode (filled) at 167.8ft BGS			16	100	100
170	- stylolite at 170.2ft BGS - stylolite at 170.7ft BGS					
172	- horizontal fracture at 171.2ft BGS - horizontal fracture at 172.5ft BGS					
174	- horizontal fracture at 172.9ft BGS - stylolite at 173.6ft BGS					
176	LIMESTONE (RAMP CREEK FORMATION), very fine grained, contains small amounts of shale, even bedded 1 inch geode at 176.1ft BGS	524.41	DOW PACKER			
178				17	100	100
180	- 1-inch geode at 179.0ft BGS - half-inch geode at 179.4ft BGS - 7-inch section of high calcite present at					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X045Y258D
DATE COMPLETED: May 14, 2002
DRILLING METHOD: 14-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
182	180.0ft BGS					
	- half-inch geode at 183.0ft BGS					
184	- horizontal fracture at 184.4ft BGS					
186	- horizontal fracture at 185.9ft BGS					
	- half-inch vug at 187.6ft BGS					
188				18	100	100
190						
	- horizontal fracture at 191.2ft BGS - horizontal fracture at 191.7ft BGS - horizontal fracture at 192.5ft BGS		4" DIA. HQ COREHOLE			
192						
194	- 1-inch vertical non-continuous opening at 193.4ft BGS					
	- 2-foot fine grained section at 195.0ft BGS - vug at 195.2ft BGS					
196						
	SHALE (EDWARDSVILLE FORMATION), soft, gray/green, pyrite	502.21				
198				19	100	100
			SAMPLE ZONE 1			
200						
202						
	END OF BOREHOLE @ 203.5ft BGS	495.71				
204	**Overburden pilot boring advanced utilizing 4-1/4 inch hollow stem augers and samples collected by STP method**					
206						
208						
210						
212						
214						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X085Y070S
DATE COMPLETED: April 22, 2002
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	722.79
	GROUND SURFACE	720.3
0	SLAG (FILL)	719.31
2	SW-GW SAND & GRAVEL (FILL), rock fragments, trace silt, compact, well graded, gray, moist	
4	ML-SILT, little clay, trace very fine sand, compact, yellowish brown, moist	716.31
6	CL-CLAY(FILL), trace silt, stiff, medium plasticity, moist	714.31
8		
10	- little silt, low-medium plasticity, rock fragments, slightly oxidized, light gray (7N) color within the yellowish brown (10YR 5/6), wet from 10 to 11 at 10.0ft BGS	
12		
14		
16		
18	- with silt, very stiff, low plasticity, light gray to white (7N) at 18.0ft BGS	
20		
22		
24	END OF OVERBURDEN HOLE @ 23.0ft BGS	
26		
28		
30		
32		
34		

MONITORING WELL: 10" DIA. STEEL CASING; CEMENT/ BENTONITE GROUT

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1		1.7	19	0
2		1.7	9	0
3		2.0	17	0
4		2.0		
5		2.0	19	0
6		1.8	25	0
7		2.0	29	0
8		2.0	23	0
9		2.0	18	0
10		2.0	21	0
11		2.0	16	0
12		1.0	>100	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 20040316_13568.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X085Y070S
DATE COMPLETED: April 22, 2002
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
24	LIMESTONE (ST. LOUIS FORMATION), calcite, fine grained, light gray micritic limestone	697.31	10" DIA. STEEL CASING			
26						
28						
30	- 1-foot of highly horizontal fractured section at 30.4ft BGS			1	100	31
32						
34	- dark gray at 34.7ft BGS					
36						
38	- light gray at 38.2ft BGS - 3-inch shale/mudstone at 38.9ft BGS - occasional fossils at 39.3ft BGS			2	100	94
40			4" DIA. HQ COREHOLE			
42	- massive, medium grained, porous, occasional fossils, tan at 42.9ft BGS		SAMPLE ZONE 2			
44	- horizontal fracture at 43.6ft BGS - horizontal fracture at 43.8ft BGS - horizontal fracture at 44.2ft BGS					
46	- 4-inch horizontal non-continuous opening at 45.4ft BGS - horizontal fracture at 45.7ft BGS					
48	- horizontal fracture at 46.0ft BGS - horizontal fracture at 46.4ft BGS - horizontal fracture at 47.6ft BGS		DOW PACKER	3	100	78
50	- horizontal fracture at 47.8ft BGS - horizontal fracture with shale/mud partings at 48.8ft BGS					
52	- 1-foot of horizontal fracture with shale/mud partings at 49.2ft BGS - 1.5 feet of highly fractured porous rock and the occasional horizontal fractures at 50.5ft BGS		SAMPLE ZONE 1			
54	- horizontal fracture at 53.4ft BGS - horizontal fracture at 55.1ft BGS					
56						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (○) GRAIN SIZE ANALYSIS (□)

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X085Y070S
DATE COMPLETED: April 22, 2002
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
58				4	100	90
60			BENTONITE CHIPS			
62	- horizontal fracture at 63.0ft BGS	657.11				
64	END OF BOREHOLE @ 63.2ft BGS Overburden pilot boring advanced utilizing 4-1/4 inch hollow stem augers and samples collected by STP method					
66						
68						
70						
72						
74						
76						
78						
80						
82						
84						
86						
88						
90						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (○) GRAIN SIZE ANALYSIS (□)

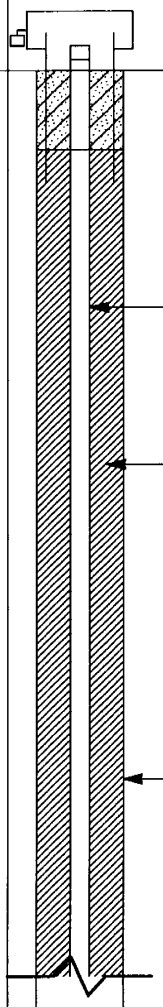
BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X085Y070D
DATE COMPLETED: July 8, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER GROUND SURFACE	723.68 720					
	Same Stratigraphy as MW-X085Y070-S						
23.0	END OF OVERBURDEN HOLE @ 23.0ft BGS						



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X085Y070D
DATE COMPLETED: July 8, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
24	LIMESTONE (ST. LOUIS FORMATION), same stratigraphy as MW-X085Y070S, fine grained, calcite, fossils, gray micritic limestone		10" DIA. HOLE			
26						
28						
30						
32						
34						
36						
38						
40			CEMENT/BENTONITE GROUT			
42						
44						
46						
48						
50			4" DIA. HQ COREHOLE			
52						
54						
56						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X085Y070D
DATE COMPLETED: July 8, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
58	- Same Stratigraphy as MW-X085Y070S at 58.0ft BGS		10" DIA. HOLE			
60						
62						
64	LIMESTONE (SALEM FORMATION), granular, very thick bedding, medium to coarse grained - light gray at 65.0ft BGS	656.61				
66	- calcite filled vug at 65.9ft BGS - 1-foot of porous section at 66.8ft BGS					
68	- stylolite at 67.7ft BGS			1	100	100
70	- shale seam, horizontal fracture at 69.5ft BGS - horizontal fracture at 71.1ft BGS					
72	- medium grained, lots of shell fossils at 72.5ft BGS					
74	- medium grained, fossils (bryozoan, etc...), light gray at 73.0ft BGS					
76			4" DIA. HQ COREHOLE			
78	- less fossils at 77.7ft BGS - 2-inch shale beds at 78.0ft BGS - horizontal fracture at 78.3ft BGS			2	100	100
80	- stylolite at 80.4ft BGS - 5-inch section of stylolites at 80.5ft BGS					
82	- horizontal fracture at 81.8ft BGS - horizontal fracture at 83.0ft BGS					
84	- fine grained, gray at 83.4ft BGS					
86						
88	- stylolite at 87.3ft BGS - stylolite at 87.6ft BGS - stylolite at 87.9ft BGS			3	100	100
90	LIMESTONE (UPPER HARRODSBURG FORMATION), horizontal fracture, shale seam, well cemented bioclastic calcarenite and calcirudite limestone	631.21				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X085Y070D
DATE COMPLETED: July 8, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
94	- stylolite at 92.0ft BGS - stylolite at 92.7ft BGS - 1-inch vertical non-continuous opening at 93.0ft BGS - stylolite at 93.6ft BGS - stylolite at 95.1ft BGS					
96						
98	- open stylolite at 98.2ft BGS - stylolite at 98.6ft BGS - stylolite at 99.3ft BGS			4	100	100
100	- stylolite at 100.8ft BGS - stylolite at 101.5ft BGS					
102						
104						
106	- open stylolite at 105.8ft BGS					
108	- open stylolite at 107.6ft BGS			5	100	100
110						
112	- horizontal fracture at 111.2ft BGS		4" DIA. HQ COREHOLE			
114	- stylolite at 114.6ft BGS - stylolite at 114.9ft BGS					
116						
118	- horizontal fracture at 117.2ft BGS			6	100	100
120	- stylolite at 120.8ft BGS					
122						
124	- 3-inch vuggy section at 124.2ft BGS - stylolite at 124.6ft BGS					
126						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X085Y070D
DATE COMPLETED: July 8, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
128				7	100	100
	- stylolite at 129.2ft BGS					
130						
132	- horizontal fracture at 132.0ft BGS					
134						
	- horizontal fracture at 135.3ft BGS					
136						
138				8	100	100
140			4" DIA. HQ COREHOLE			
142						
	LIMESTONE (LOWER HARRODSBURG FORMATION), open stylolite	577.01				
144						
	- stylolite at 145.2ft BGS					
146			DOW PACKER			
	- stylolite at 147.7ft BGS					
148				9	100	100
	- 3-foot porous section at 149.7ft BGS					
150						
152						
154	- stylolite at 154.6ft BGS		SAMPLE ZONE 3			
	- calcite filled vug at 154.8ft BGS					
156						
158	- horizontal fracture at 158.4ft BGS			10	100	100
	- horizontal fracture at 159.2ft BGS		DOW PACKER			
160						
	- stylolite at 161.7ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X085Y070D
DATE COMPLETED: July 8, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
164	- open stylolite at 162.1ft BGS - stylolite at 163.1ft BGS - stylolite at 163.7ft BGS		NON-MONITORING ZONE			
166	- stylolite at 164.6ft BGS - stylolite at 164.9ft BGS - stylolite at 165.1ft BGS - near vertical stylolite at 165.6ft BGS - horizontal fracture at 166.4ft BGS					
168	- stylolite at 166.8ft BGS - stylolite at 167.5ft BGS - stylolite at 167.9ft BGS		DOW PACKER	11	100	100
170	- stylolite at 168.3ft BGS - stylolite at 168.6ft BGS - open stylolite at 169.3ft BGS					
172	- stylolite at 169.7ft BGS - 5-foot section of fossils, porous at 170.2ft BGS					
174						
176	- 6-foot section of fossils at 175.0ft BGS - stylolite at 175.3ft BGS					
178	- stylolite at 177.5ft BGS		SAMPLE ZONE 2	12	100	100
180	- horizontal fracture at 179.9ft BGS		4" DIA. HQ COREHOLE			
182	- fine grained, light gray at 181.1ft BGS - stylolite at 182.1ft BGS - stylolite at 182.3ft BGS		DOW PACKER			
184	- stylolite at 183.4ft BGS - 2.5-foot section of dark gray limestone at 183.5ft BGS					
186	- fine grained, abundance of very small fossils, light gray at 186.0ft BGS					
188	- stylolite at 188.9ft BGS			13	100	100
190	- stylolite at 189.9ft BGS - stylolite at 190.7ft BGS					
192	- open stylolite at 191.9ft BGS - stylolite at 192.1ft BGS					
194	- stylolite at 193.8ft BGS - stylolite at 194.9ft BGS					
196						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X085Y070D
DATE COMPLETED: July 8, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
198	- horizontal fracture at 197.7ft BGS			14	100	100
200	- 1-inch calcite filled vug at 200.0ft BGS - half-inch calcite filled vug at 200.8ft BGS					
202						
204						
206	- horizontal fracture at 205.2ft BGS - stylolite at 205.3ft BGS - stylolite at 206.5ft BGS		NON-MONITORING ZONE			
208	- horizontal fracture at 207.5ft BGS - 1-foot section of interbedded shale at 207.6ft BGS - horizontal fracture at 208.9ft BGS			15	100	100
210	- stylolite at 209.4ft BGS - open stylolite at 210.1ft BGS - stylolite at 210.9ft BGS					
212	- horizontal fracture at 211.4ft BGS - horizontal fracture at 212.9ft BGS					
214	- stylolite at 213.9ft BGS - stylolite at 214.8ft BGS					
216	- open stylolite at 216.3ft BGS - stylolite at 216.7ft BGS		4" DIA. HQ COREHOLE			
218	- horizontal fracture at 218.1ft BGS			16	100	100
220	- 3.3-foot section containing calcite filled vugs, gray at 219.4ft BGS					
222	- horizontal fracture at 221.6ft BGS					
	- 6-inch bed of shell fossils, light gray at 222.7ft BGS	497.21				
224	LIMESTONE (RAMP CREEK FORMATION), 1.5-foot section of dark gray interbedded shale, very fine grained, even bedded - 2-inch geode (calcite filled) at 224.2ft BGS					
226	- horizontal fracture at 225.6ft BGS					
228				17	100	100
230			DOW PACKER			
	- horizontal fracture at 231.3ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X085Y070D
DATE COMPLETED: July 8, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
234						
236	- 2.5-foot section of interbedded shale at 236.7ft BGS					
238			SAMPLE ZONE 1	18	100	100
240			4" DIA. HQ COREHOLE			
242	- horizontal fracture at 241.6ft BGS					
	SHALE (EDWARDSVILLE FORMATION), soft, gray	477.81				
244	END OF BOREHOLE @ 243.5ft BGS	476.51				
246						
248						
250						
252						
254						
256						
258						
260						
262						
264						
266						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X143Y245S
DATE COMPLETED: June 11, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER GROUND SURFACE	692.94 690.3					
0	SW/GW SAND AND GRAVEL (FILL), little silt, dense, fine to medium grained, well graded, brown, moist, glass						
2	SP-SAND (FILL), compact, fine grained, poorly graded, dark brown/dark gray, moist	688.35	CEMENT / BENTONITE GROUT				
4							
6	CL-CLAY, little silt, very stiff, low plasticity, 5YR 4/6, (yellowish red), moist	685.85					
8	END OF OVERBURDEN HOLE @ 8.5ft BGS		10" DIA. STEEL CASING				
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG_20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X143Y245S
DATE COMPLETED: June 11, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
8		681.85	10" DIA. STEEL CASING; 4" DIA. STEEL CASING			
10	LIMESTONE (ST. LOUIS FORMATION), fine grained (micritic), calcite, thin bedded, gray, interbedded with calcareous shale lenses					
12	- horizontal fracture at 11.4ft BGS - 8-inch of porous rock at 11.5ft BGS - horizontal fracture at 12.2ft BGS - horizontal fracture at 13.4ft BGS					
14	- 4-inch near vertical non-continuous opening at 13.6ft BGS - horizontal fracture at 14.3ft BGS		4" DIA. HQ COREHOLE	1	100	95
16	- horizontal fracture at 16.1ft BGS - horizontal fracture at 16.3ft BGS - horizontal fracture at 16.5ft BGS					
18	- horizontal fracture at 17.1ft BGS - stylolite at 17.4ft BGS - open stylolite at 18.4ft BGS					
20	- horizontal fracture at 20.8ft BGS - horizontal fracture at 21.4ft BGS					
22	- horizontal fracture at 21.7ft BGS - horizontal fracture at 22.8ft BGS - horizontal fracture at 23.2ft BGS					
24	- stylolite at 23.3ft BGS - open stylolite at 24.5ft BGS - horizontal fracture at 24.7ft BGS	664.85	BENTONITE CHIPS	2	100	100
26	LIMESTONE (SALEM FORMATION), granular, thick bedding , medium to coarse grained (comprised mostly of micro fossils and fossil fragments), massive, calcite, oolitic in texture, light gray					
28	- horizontal fracture at 27.3ft BGS END OF BOREHOLE @ 27.6ft BGS	662.75				
30						
32						
34						
36						
38						
40						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X143Y245D
DATE COMPLETED: April 2, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	694.06 690.2						
0	SW-GW - SAND and GRAVEL (Fill), little silt, dense fine to medium grained, well graded, brown, moist, glass.			1		1.7	35	0.0
2	SP - SAND (Fill), compact, fine grained, poorly graded, dark brown/dark grey, moist.	688.18		2		1.5	13	0.0
4	CL - CLAY with silt, very stiff, low plasticity, moist, 5YR4/6 yellowish red.	685.68	10" DIA. STEEL CASING TO 9' 4" DIA. STEEL CASING	3		1.3	19	0.0
6				4		2.0	15	0.0
8	END OF OVERBURDEN HOLE @ 8.0ft BGS							
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X143Y245D
DATE COMPLETED: April 2, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
8	LIMESTONE (ST. LOUIS FORMATION), fine grained (micritic), interbedded with calcareous shale lenses, thinly bedded, light blue/grey.	682.18				
10	- porous at 10.5ft BGS - vugs at 11.2ft BGS			1	80	80
12	- 1" clay seam, water loss at 11.3ft BGS		10" DIA. HOLE			
14	- 4" vug with clay filling at 15.1ft BGS		CEMENT / BENTONITE GROUT			
16	- 3" large horizontal non-continuous opening with little clay filling at 16.3ft BGS - medium horizontal fracture at 17.2ft BGS			2	98	93
18	- medium horizontal fracture at 18.3ft BGS					
20	- medium horizontal fracture at 21.0ft BGS		4" DIA. STEEL CASING			
22	- stylolite at 23.2ft BGS					
24	- 1/2" horizontal non-continuous opening at 24.4ft BGS		4" DIA. HQ COREHOLE			
26	LIMESTONE (SALEM FORMATION), 1/2" horizontal non-continuous opening, granular, thick bedding (medium to coarse grained (comprised mostly of micro fossils and fossil fragments)), oolitic in texture, calcarenite	664.78				
28	- thin horizontal fracture at 28.0ft BGS - 3.5" section of open vugs at 28.6ft BGS			3	100	100
30	- 2" horizontal non-continuous opening at 30.9ft BGS					
32	- stylolite at 32.6ft BGS					
34	- stylolite at 33.8ft BGS					
36						
38	- 1/2" thick open horizontal stylolite at 38.9ft BGS			4	100	100
40	- stylolite at 40.5ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X143Y245D
DATE COMPLETED: April 2, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
42	- stylolite at 41.4ft BGS					
44						
46	- open stylolite at 45.2ft BGS					
48				5	100	100
50	- stylolite at 50.7ft BGS					
52						
54						
56			4" DIA. HQ COREHOLE			
58	- stylolite at 58.8ft BGS			6	100	100
60						
62	- stylolite at 62.8ft BGS - 26' no fractures, have fossils at 63.5ft BGS					
64	- stylolite, horizontal at 65.1ft BGS					
66	- stylolite, horizontal at 67.2ft BGS					
68				7	100	100
70	- stylolite, horizontal at 70.8ft BGS					
72						
74						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X143Y245D
DATE COMPLETED: April 2, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
78	- stylolite, horizontal at 78.5ft BGS			8	100	100
80						
82						
84	- stylolite, horizontal at 84.1ft BGS					
86						
88				9	100	100
90	- 1/2" thick non-continuous opening at 89.5ft BGS					
92	- open at 91.9ft BGS		4" DIA. HQ COREHOLE			
94	- stylolite at 94.6ft BGS					
96	- thin horizontal fracture at 96.2ft BGS		DOW PACKER			
98				10	100	100
100	LIMESTONE (UPPER HARRODSBURG FORMATION), stylolite, coarse grained, well cemented, bioclastic calcarenite with shale, interbedded with argillaceous limestone lenses, light grey	591.18				
102	- stylolite at 101.1ft BGS - 2' highly fossilized (crinoid, brachiopods, abundant fan bryozoan), vuggy at 102.2ft BGS					
104	- stylolite at 104.5ft BGS					
106	- stylolite at 106.0ft BGS		SAMPLE ZONE 2			
108	- thin horizontal fracture at 108.7ft BGS			11	100	100
110	- thin horizontal fracture at 110.4ft BGS		DOW PACKER			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (○) GRAIN SIZE ANALYSIS (□)

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X143Y245D
DATE COMPLETED: April 2, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
112	- shale, thin horizontal fracture at 110.7ft BGS - stylolite at 112.7ft BGS					
114	- 3" of highly fractured rock, horizontal at 113.7ft BGS					
116	- stylolite at 117.0ft BGS - shale parting, black at 117.1ft BGS					
118	- shale parting, black at 118.0ft BGS - shale parting, black at 118.6ft BGS			12	100	100
120	- shale parting, black at 118.9ft BGS - shale parting, black at 119.2ft BGS					
122	- 1/2" shale parting at 121.1ft BGS - stylolite at 122.2ft BGS					
124	- near horizontal fracture at 125.1ft BGS					
126			4" DIA. HQ COREHOLE			
128	- horizontal fracture at 128.7ft BGS			13	100	100
130	- horizontal fracture at 131.0ft BGS					
132	- horizontal fracture at 132.2ft BGS					
134	- stylolite at 134.1ft BGS - stylolite at 135.4ft BGS					
136	- stylolite at 135.7ft BGS - stylolite at 136.5ft BGS					
138	- stylolite at 137.5ft BGS - stylolite at 138.0ft BGS		NON-MONITORING ZONE	14	100	100
140	- stylolite at 138.5ft BGS - stylolite at 138.9ft BGS - stylolite at 139.6ft BGS					
142	- stylolite at 141.0ft BGS - open stylolite at 141.5ft BGS - stylolite at 142.7ft BGS					
144	- open stylolite at 143.0ft BGS					
	LIMESTONE (LOWER HARRODSBURG FORMATION), stylolite, horizontal, medium to coarse grained, mostly argillaceous with shale	546.18				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X143Y245D
DATE COMPLETED: April 2, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
148	lenses, calcareous, abundant geodes and siliceous towards the bottom, light to dark grey - shale parting at 145.0ft BGS - thin horizontal fracture at 145.7ft BGS - open stylolite at 147.2ft BGS - open stylolite at 147.8ft BGS - 2" geode with quartz crystal fillings at 149.4ft BGS - stylolite at 150.0ft BGS - open stylolite at 152.0ft BGS			15	100	100
154	- open stylolite at 154.8ft BGS					
156	- stylolite at 157.5ft BGS					
158	- open stylolite at 158.4ft BGS			16	100	100
160	- open stylolite at 159.8ft BGS - 2' highly fractured, horizontal at 160.7ft BGS		4" DIA. HQ COREHOLE			
162						
164	- 2' interbedded shale beds at 163.6ft BGS					
166	LIMESTONE (RAMP CREEK FORMATION), very fine grained, contains small amounts of shale, 1" geode	524.18	DOW PACKER			
168	- 10' numerous geodes with calcite fillings at 167.7ft BGS			17	100	100
170						
172	- 2" geodes, calcite fillings at 171.8ft BGS - 2" geodes, calcite fillings at 172.5ft BGS					
174	- 2" geodes, calcite fillings at 173.6ft BGS					
176	- open fracture at 175.5ft BGS - 1" geode, quartz filled at 176.7ft BGS					
178	- 3" interbedded shale at 177.0ft BGS			18	100	100
180						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X143Y245D
DATE COMPLETED: April 2, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
182						
184			4" DIA. HQ COREHOLE			
186						
		503.28				
188	SHALE (EDWARDSVILLE FORMATION), calcareous, light blue/grey, soft.		SAMPLE ZONE 1	19	100	100
190						
192						
		496.68				
194	END OF BOREHOLE @ 193.5ft BGS					
196	Overburden pilot boring advanced utilizing 4-1/4 inch hollow stem augers and samples collected by STP method					
198						
200						
202						
204						
206						
208						
210						
212						
214						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X169Y058S
DATE COMPLETED: April 18, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN / M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	723.90
	GROUND SURFACE	721.1
0	TOPSOIL	720.86
	SAND AND GRAVEL (FILL)	
	CL-CLAY (FILL), with some silt, soft, low plasticity, strong brown (7.5YR 5/6), moist	719.56
2		
4		
6		
	- 2 feet of trace gravel, stiff, red (2.5Y 4/8) at 7.0ft BGS	
8		
10		
12		
14		
	- 1 foot of dark grayish brown (2.5Y 7/2) at 15.5ft BGS	
16		
18		
20	- very stiff at 20.0ft BGS	
22	- weathered rock and fragments, top of bedrock at 22.0ft BGS	
24	END OF OVERBURDEN HOLE @ 24.0ft BGS	
26		
28		
30		
32		
34		

MONITORING WELL: 10" DIA. STEEL CASING; CEMENT / BENTONITE GROUT

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	P/S	2.0		0
2	P/S	2.0		0
3	P/S	2.0		0
4	P/S	2.0		0
5	P/S	2.0		0
6	P/S	2.0		0
7	P/S	2.0		<1
8	P/S	2.0		<1
9	P/S	2.0		<1
10	P/S	2.0		0
11	P/S	2.0		0
12	P/S	2.0		0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X169Y058S
DATE COMPLETED: April 18, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN / M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
24	LIMESTONE (ST. LOUIS FORMATION), thin bedding, gray micritic limestone	697.06				
26						
28	- 4-inch open horizontal non-continuous opening at 27.6ft BGS					
30	- horizontal fracture at 30.5ft BGS		SAMPLE ZONE 2			
32	- horizontal fracture at 31.6ft BGS - fossil at 32.4ft BGS - fossil at 32.8ft BGS			1	100	100
34			DOW PACKER			
36	- 3-inch section of mud and shale partings, soft, black at 35.9ft BGS - 6-inch section of fossils at 36.2ft BGS		NON-MONITORING ZONE			
38	- 1-foot section of moderate porosity and fossils at 37.2ft BGS - fossil at 38.3ft BGS		DOW PACKER	2	100	90
40	- 3-inch highly porous section, horizontal fracture, tan at 39.8ft BGS - horizontal fracture at 40.6ft BGS		4" DIA. HQ COREHOLE			
42	- horizontal fracture at 41.8ft BGS					
44	- horizontal fracture at 43.9ft BGS - horizontal fracture at 44.2ft BGS					
46	- horizontal fracture at 44.5ft BGS - horizontal fracture at 46.7ft BGS	674.06	4" DIA. HQ COREHOLE			
48	SILTSTONE, soft, highly porous, large solution channels, blue/gray, tan	671.16		3	100	85
50	LIMESTONE (ST. LOUIS FORMATION), gray/beige, - shale partings, black at 51.2ft BGS					
52						
54	- light gray at 55.3ft BGS		SAMPLE ZONE 1			
56	- gray at 56.7ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X169Y058S
DATE COMPLETED: April 18, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN / M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
58				4	100	95
60	- horizontal fracture at 60.4ft BGS - horizontal fracture at 60.7ft BGS		BENTONITE SEAL			
62	- half-inch horizontal non-continuous opening, calcite and mud at 62.5ft BGS					
64	- half-inch horizontal non-continuous opening at 63.0ft BGS END OF BOREHOLE @ 63.5ft BGS	657.56				
66	Samples collected via Geoprobe prior to outer casing installation.					
68						
70						
72						
74						
76						
78						
80						
82						
84						
86						
88						
90						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (○) GRAIN SIZE ANALYSIS (□)

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X169Y058I
DATE COMPLETED: June 28, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER GROUND SURFACE	723.93 721.3					
	Same Stratigraphy as MW-X169Y058-S		CEMENT / BENTONITE GROUT				
24	END OF OVERBURDEN HOLE @ 24.0ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X169Y058I
DATE COMPLETED: June 28, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
24			10" DIA. HOLE			
26						
28						
30						
32						
34						
36						
38						
40			CEMENT/BENTONITE GROUT			
42						
44						
46						
48						
50			4" DIA. STEEL CASING			
52						
54						
56						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X169Y058I
DATE COMPLETED: June 28, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
58						
60						
62						
64	LIMESTONE (ST. LOUIS FORMATION), fine grained, thin bedded, calcite, light gray micritic limestone - 2-inch porous section at 65.4ft BGS - horizontal fracture at 65.6ft BGS - horizontal fracture and shale parting at 66.6ft BGS	657.81				
66						
68	- horizontal fracture at 67.8ft BGS - horizontal fracture at 68.4ft BGS			1	100	100
70	- horizontal fracture at 69.7ft BGS					
72	- horizontal fracture at 73.0ft BGS					
74	- horizontal fracture at 74.2ft BGS					
76			4" DIA. HQ COREHOLE			
78	LIMESTONE (SALEM FORMATION), granular, thick bedding, medium to coarse grained - stylolite at 79.5ft BGS	643.31		2	100	100
80						
82	- horizontal fracture and 2-inch vertical fracture at 82.3ft BGS					
84	- 3-inch vertical non-continuous opening at 83.4ft BGS - 3.5-feet of vertical fractures and occasional stylolites at 83.7ft BGS					
86						
88	- horizontal fracture at 88.3ft BGS - horizontal fracture at 88.7ft BGS			3	100	65
90	- horizontal fracture at 90.0ft BGS					
	- horizontal fracture at 91.4ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X169Y058I
DATE COMPLETED: June 28, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
94	- horizontal fracture at 92.8ft BGS - 3-inch vertical non-continuous opening at 93.4ft BGS - stylolite at 94.0ft BGS					
96						
98	- stylolite at 98.5ft BGS			4	100	100
100	- stylolite at 100.2ft BGS - porous, fossils, gray at 100.8ft BGS		4" DIA. HQ COREHOLE			
102						
104	END OF BOREHOLE @ 103.9ft BGS	617.41				
106						
108						
110						
112						
114						
116						
118						
120						
122						
124						
126						

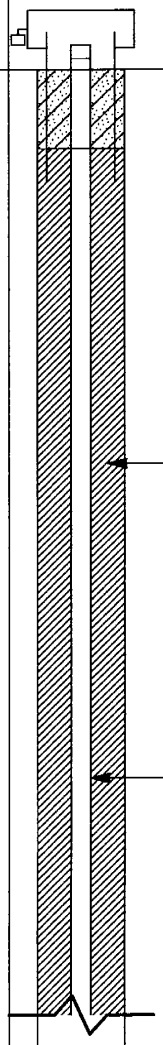
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X169Y058D
DATE COMPLETED: July 24, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER GROUND SURFACE	725.07 721.5					
0	Same stratigraphy as MW-X169Y058I						
24	END OF OVERBURDEN HOLE @ 24.0ft BGS						



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X169Y058D
DATE COMPLETED: July 24, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
24			10" DIA. HOLE			
26	- Same stratigraphy as MW-X169Y058I at 26.0ft BGS					
28						
30						
32						
34						
36						
38						
40			CEMENT/BENTONITE GROUT			
42						
44						
46			10" DIA. HOLE			
48						
50						
52						
54						
56						

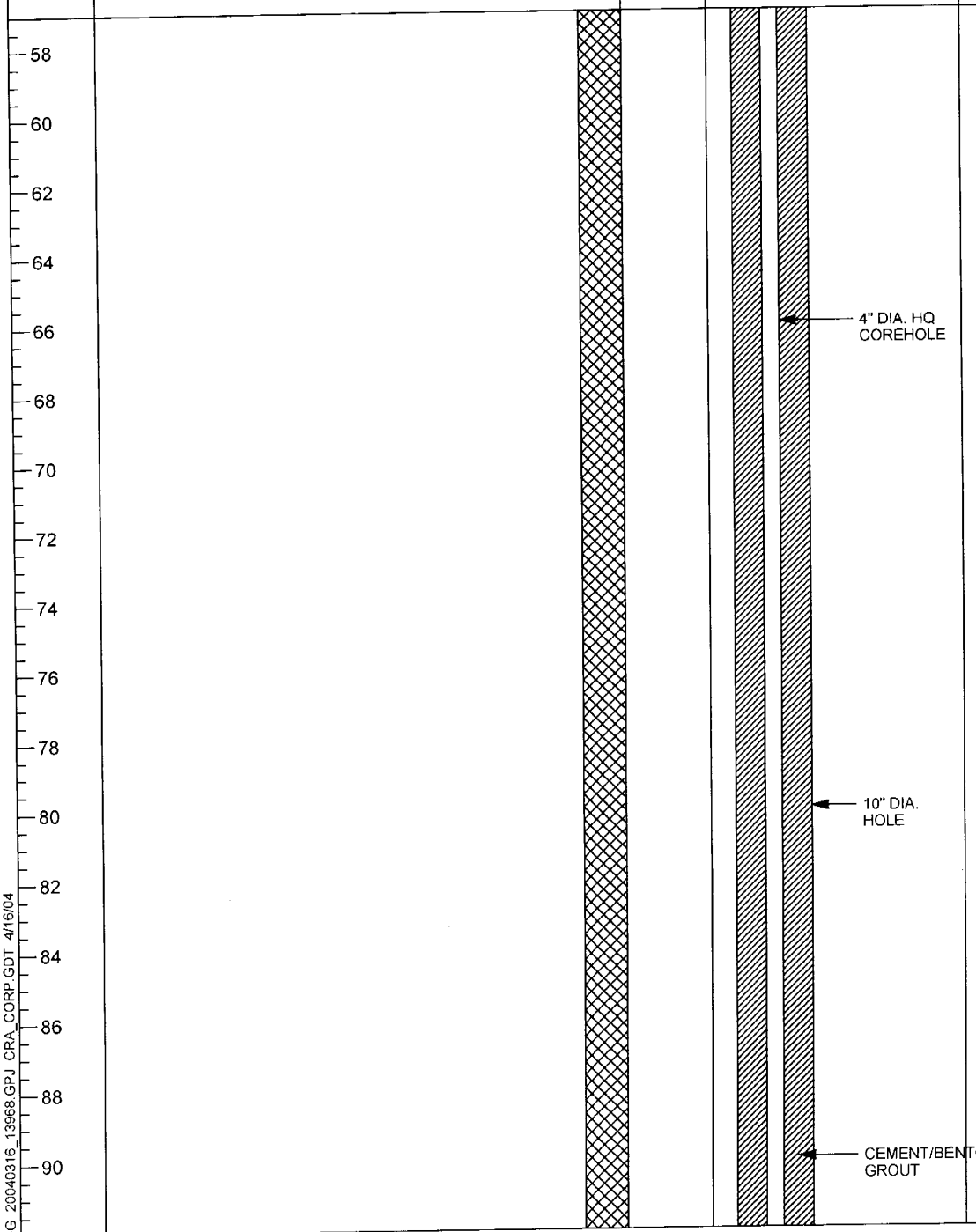
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X169Y058D
DATE COMPLETED: July 24, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X169Y058D
DATE COMPLETED: July 24, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
94						
96						
98						
100			4" DIA. STEEL CASING			
102						
104	LIMESTONE (SALEM FORMATION), calcite, granular, fossils, medium to coarse grained, thick bedding	618.53				
106	- stylolite at 106.5ft BGS					
108				1	100	100
110						
112	- open stylolite at 111.3ft BGS - inner bedded shale at 111.5ft BGS - stylolite at 112.3ft BGS					
114	- fine-medium grained at 113.6ft BGS					
116	- stylolite at 116.5ft BGS					
118	- stylolite at 117.3ft BGS - stylolite at 118.6ft BGS			2	100	85
120			4" DIA. HQ COREHOLE			
122	- the following 2 feet, all fractures had sand (very fine grained) partings at 121.0ft BGS - horizontal fracture at 121.1ft BGS - horizontal fracture at 121.3ft BGS - horizontal fracture at 121.4ft BGS					
124	- horizontal fracture at 121.6ft BGS - horizontal fracture at 122.0ft BGS - horizontal fracture at 122.4ft BGS		DOW PACKER			
126	- horizontal fracture at 122.7ft BGS - horizontal fracture at 122.9ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X169Y058D
DATE COMPLETED: July 24, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
128	- horizontal fracture at 123.0ft BGS			3	100	100
130						
132	- horizontal fracture at 132.1ft BGS	588.83				
134	LIMESTONE (UPPER HARRODSBURG FORMATION), porous, light gray, well cemented bioclastic (bryozoan and brachiopods) calcarenite and calcirudite limestone - stylolite at 134.4ft BGS - stylolite at 135.5ft BGS - porous, calcite, fossils (bryozoan, etc...), gray at 135.7ft BGS - stylolite at 135.9ft BGS - horizontal fracture at 137.7ft BGS - horizontal fracture at 138.5ft BGS - horizontal fracture at 139.1ft BGS - non-porous, light gray/white at 140.1ft BGS			4	100	100
136						
138						
140			4" DIA. HQ COREHOLE			
142	- stylolite at 142.0ft BGS		SAMPLE ZONE 3			
144	- stylolite at 143.5ft BGS - 2-foot section of moderate porosity at 143.8ft BGS					
146	- stylolite at 146.2ft BGS - stylolite at 147.0ft BGS		DOW PACKER			
148				5	100	100
150	- stylolite at 149.4ft BGS - stylolite at 150.7ft BGS					
152	- horizontal fracture at 152.3ft BGS		NON-MONITORING ZONE			
154	- stylolite at 154.5ft BGS - stylolite at 155.0ft BGS					
156	- horizontal fracture at 155.3ft BGS		DOW PACKER			
158	- stylolite at 157.6ft BGS			6	100	100
160						
	- stylolite at 161.2ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X169Y058D
DATE COMPLETED: July 24, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
	- stylolite at 162.5ft BGS - porous, abundance of fossils at 162.7ft BGS					
164						
166						
168	- non-porous, still abundance of fossils, light gray at 168.3ft BGS - stylolite at 168.4ft BGS			7	100	100
170	- stylolite at 169.0ft BGS - stylolite at 169.7ft BGS - stylolite at 170.5ft BGS		4" DIA. HQ COREHOLE			
172	- stylolite at 172.8ft BGS - becomes slightly porous at 173.0ft BGS					
174	- non-porous at 175.0ft BGS					
176	- 8-inch section of interbedded shale at 176.5ft BGS - stylolite at 177.4ft BGS					
178	- 2.5-section of moderate porosity at 178.0ft BGS		SAMPLE ZONE 2	8	100	100
180						
182	- stylolite at 181.3ft BGS - horizontal fracture at shale parting at 182.3ft BGS		DOW PACKER			
184	- 1-foot of interbedded shale at 182.7ft BGS - stylolite at 184.6ft BGS					
186	- stylolite at 185.6ft BGS					
188	- stylolite at 187.7ft BGS			9	100	100
190	- open stylolite at 189.9ft BGS - stylolite at 190.5ft BGS - stylolite at 191.2ft BGS					
192	- horizontal fracture at 192.2ft BGS					
194	LIMESTONE (LOWER HARRODSBURG FORMATION), horizontal fracture - 1-inch shale bed at 195.0ft BGS	527.93				
196	- stylolite at 196.0ft BGS - 1-inch shale bed at 196.7ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X169Y058D
DATE COMPLETED: July 24, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
198	- horizontal fracture at 197.0ft BGS					
	- horizontal fracture at 199.3ft BGS			10	100	100
200	- stylolite at 200.4ft BGS					
202	- horizontal fracture at 201.7ft BGS					
	- open stylolite at 203.3ft BGS					
204	- stylolite at 204.4ft BGS - stylolite at 205.1ft BGS					
206	- horizontal fracture at 205.7ft BGS					
	- 1-foot interbedded shale at 207.5ft BGS		NON-MONITORING ZONE			
208	- stylolite at 208.6ft BGS			11	100	100
210	- interbedded shale at 210.0ft BGS					
	- 2-feet of dark gray limestone with the occasional vugs at 211.0ft BGS					
212	- light gray at 213.0ft BGS					
214	- stylolite at 214.0ft BGS					
	- horizontal fracture at 215.6ft BGS					
216	- horizontal fracture at 216.8ft BGS - stylolite at 217.3ft BGS					
218	- horizontal fracture at 218.9ft BGS - 1-inch shale at 219.0ft BGS			12	100	100
220	- 1-inch calcite filled vug at 220.2ft BGS - horizontal fracture at 220.7ft BGS		4" DIA. HQ COREHOLE			
222	LIMESTONE (RAMP CREEK FORMATION), horizontal fracture, very fine grained, contains small amount of shale	499.43				
224	- half-inch calcite filled vug at 223.4ft BGS - 1-inch calcite filled vug at 225.2ft BGS					
226	- half-inch shale bed at 226.1ft BGS - 4-inch shale bed at 226.2ft BGS					
228	- very small calcite filled vug at 227.6ft BGS - 1-inch open vug with calcite crystal fillings at 228.4ft BGS			13	100	100
230	- half-inch open calcite crystal filled vug at 228.8ft BGS - 1.5-inch calcite crystal filled vug at 229.6ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X169Y058D
DATE COMPLETED: July 24, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
234	- horizontal fracture with calcite crystal filling at 233.1ft BGS		DOW PACKER			
236	- 1-foot interbedded shale at 235.2ft BGS - horizontal fracture at 236.9ft BGS - dark gray at 237.2ft BGS		4" DIA. HQ COREHOLE			
238				14	100	100
240	- horizontal fracture at 239.9ft BGS		SAMPLE ZONE 1			
242	- horizontal fracture at 241.0ft BGS - horizontal fracture at 241.8ft BGS					
244	SHALE (EDWARDSVILLE FORMATION), pyrite, green, soft END OF BOREHOLE @ 244.1ft BGS	478.13 477.43				
246						
248						
250						
252						
254						
256						
258						
260						
262						
264						
266						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X178Y367D
DATE COMPLETED: May 1, 2002
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	670.57 666.9						
0	TOPSOIL	666.48	CEMENT / BENTONITE GROUT	1		1.7	3	0
2	CL-CLAY, with silt, medium plasticity, soft, yellowish red (5YR 4/6), moist		10" DIA. STEEL CASING	2		2.0		
4	END OF OVERBURDEN HOLE @ 4.5ft BGS			3		1.0	>50	0
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (○) GRAIN SIZE ANALYSIS (□)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X178Y367D
DATE COMPLETED: May 1, 2002
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
4		662.38	10" DIA. STEEL CASING			
6	LIMESTONE (SALEM FORMATION), medium to coarse grained, granular, small calcite particles, thick bedded, gray - 2-inch open horizontal non-continuous opening at 5.3ft BGS					
8	- 6-inch open horizontal non-continuous opening at 8.0ft BGS					
10	- stylolite at 10.3ft BGS - stylolite at 10.7ft BGS			1	100	100
12						
14	- near vertical fracture at 14.6ft BGS - stylolite at 15.1ft BGS					
16	- horizontal fracture at 15.2ft BGS - open stylolite at 16.3ft BGS		SAMPLE ZONE 5			
18				2	100	100
20	- open stylolite at 19.6ft BGS - medium grained, fossil fragments, thick bedding, moderate porosity, light brown-tan at 20.4ft BGS		DOW PACKER			
22	- horizontal fracture at 21.8ft BGS					
24	- light gray at 24.2ft BGS - 3-inch section of stylolites at 24.8ft BGS					
26	- stylolite at 26.3ft BGS					
28			NON-MONITORING ZONE	3	100	100
30	- slightly porous at 30.8ft BGS - fossil/shell beds, calcite at 31.0ft BGS					
32	- horizontal fracture at 32.7ft BGS - stylolite at 33.4ft BGS		4" DIA. HQ COREHOLE			
34	- 2-foot slightly porous section at 33.7ft BGS					
36	- horizontal fracture at 35.5ft BGS		DOW			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (○) GRAIN SIZE ANALYSIS (□)

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X178Y367D
DATE COMPLETED: May 1, 2002
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
38	- stylolite at 37.0ft BGS - fine grained, composed of very small sediments, fossils, beige/tan at 38.2ft BGS		PACKER	4	100	100
40						
42						
44						
46	- 4-inch vertical non-continuous opening at 45.0ft BGS - horizontal fracture at 46.5ft BGS					
48	- light gray at 48.2ft BGS - stylolite at 48.9ft BGS		SAMPLE ZONE 4	5	100	100
50			DOW PACKER			
52						
54	- beige/tan at 53.3ft BGS - horizontal fracture at 53.9ft BGS		4" DIA. HQ COREHOLE			
56	- 3-inch near vertical non-continuous opening at 54.9ft BGS - 5.9-foot section of moderate porosity at 55.0ft BGS					
58	- 2-inch section of horizontal fracture at 55.6ft BGS			6	100	100
60			SAMPLE ZONE 3			
62	- light gray at 60.9ft BGS - half-inch open horizontal non-continuous opening at 62.3ft BGS					
64			DOW PACKER			
66	- half-inch open horizontal non-continuous opening at 65.9ft BGS					
68	- stylolite at 67.2ft BGS - stylolite at 68.2ft BGS - stylolite at 68.5ft BGS	598.28		7	100	100
70	LIMESTONE (UPPER HARRODSBURG FORMATION), medium bedded, fossils (crinoids, bryozoans, brachiopods), white calcarenite and calcirudite limestone - stylolite at 70.1ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X178Y367D
DATE COMPLETED: May 1, 2002
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
	- open horizontal fracture at 72.4ft BGS - open horizontal fracture at 72.6ft BGS					
74	- stylolite at 74.8ft BGS - stylolite at 75.7ft BGS					
76	- open stylolite at 77.2ft BGS		NON-MONITORING ZONE			
78	- stylolite at 78.3ft BGS - 1-foot of low porous region, very small vugs at 78.6ft BGS			8	100	100
80	- horizontal fracture at 80.3ft BGS - stylolite at 80.6ft BGS					
82	- horizontal fracture at 82.2ft BGS					
84	- stylolite at 84.3ft BGS		4" DIA. HQ COREHOLE			
86	- horizontal fracture at 85.4ft BGS - stylolite at 85.9ft BGS - horizontal fracture at 86.3ft BGS - 1-inch section of stylolites at 86.8ft BGS					
88	- open stylolite at 88.3ft BGS			9	100	100
90	- stylolite at 89.5ft BGS - stylolite at 90.7ft BGS		DOW PACKER			
92	- stylolite at 92.4ft BGS - stylolite at 93.2ft BGS					
94	- stylolite at 93.6ft BGS - stylolite at 94.7ft BGS - horizontal fracture at 94.9ft BGS					
96	- stylolite at 96.3ft BGS - stylolite at 97.2ft BGS					
98	LIMESTONE (LOWER HARRODSBURG FORMATION), 3-inches of interbedded shale - 3-inches of fractured rock at 98.2ft BGS	569.28		10	100	87
100	- 5-inch vertical non-continuous opening at 98.5ft BGS - horizontal fracture at 99.0ft BGS		SAMPLE ZONE 2			
102	- 4-inch vertical non-continuous opening at 99.1ft BGS - horizontal fracture at 99.6ft BGS					
104	- stylolite at 100.4ft BGS - stylolite at 101.2ft BGS - stylolite at 102.8ft BGS		DOW PACKER			
106	- stylolite at 103.1ft BGS - stylolite at 103.5ft BGS - stylolite at 105.0ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X178Y367D
DATE COMPLETED: May 1, 2002
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
108	- open stylolite at 106.9ft BGS - gray at 107.9ft BGS - 2-foot section that contains calcite filled vugs at 108.4ft BGS			11	100	100
110	- 3-inch section of calcite filled vugs at 109.5ft BGS - light gray/white at 111.1ft BGS					
112	- horizontal fracture at 112.1ft BGS - horizontal fracture at 112.8ft BGS					
114	- stylolite at 114.3ft BGS - stylolite at 115.2ft BGS					
116	- stylolite at 115.7ft BGS		NON-MONITORING ZONE			
118	- horizontal fracture at 118.3ft BGS			12	100	100
		547.38				
120	LIMESTONE (RAMP CREEK FORMATION), very fine grained, contains small amounts of shale, even bedded - horizontal fracture at 120.0ft BGS					
122	- half-inch vug partly filled with calcite at 122.0ft BGS		4" DIA. HQ COREHOLE			
124	- half-inch vug partly filled with calcite at 122.4ft BGS - 1-foot section of cemented sediment at 122.6ft BGS					
126	- 9-foot section of interbedded shale, gray at 124.0ft BGS					
128				13	100	100
130	- horizontal fracture at 129.5ft BGS - calcite filled vug at 130.1ft BGS		DOW PACKER			
132						
134	- light gray at 133.4ft BGS - stylolite at 134.1ft BGS					
136						
138				14	100	100
140			SAMPLE ZONE 1			
	- 2-inch bed of cemented sediment at 140.9ft BGS	525.88				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X178Y367D
DATE COMPLETED: May 1, 2002
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
144	SHALE (EDWARDSVILLE FORMATION), soft, dark gray	523.38				
	END OF BOREHOLE @ 143.5ft BGS					
146	Overburden pilot boring advanced utilizing 4-1/4 inch hollow stem augers and samples collected by STP method					
148						
150						
152						
154						
156						
158						
160						
162						
164						
166						
168						
170						
172						
174						
176						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS ☐

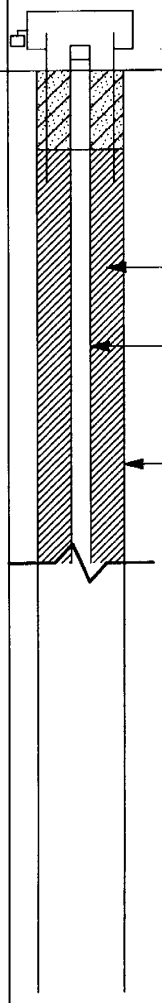
BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X209Y078S
DATE COMPLETED: August 12, 2002
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER GROUND SURFACE	687.16 684.9					
	SEE STRATIGRAPHY FOR B-X209Y078B						
12	END OF OVERBURDEN HOLE @ 12.5ft BGS						



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X209Y078S
DATE COMPLETED: August 12, 2002
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
12	LIMESTONE (ST. LOUIS FORMATION), thin bedded, fine grained, micritic, beige - horizontal fracture at 14.3ft BGS - 4-inch "honeycomb" section at 14.5ft BGS - light gray/blue, slightly porous at 14.7ft BGS - horizontal fracture at 14.8ft BGS - horizontal fracture at 15.4ft BGS - horizontal fracture at 16.1ft BGS - horizontal fracture, 7-inch section of interbedded shale at 19.0ft BGS - gray at 19.4ft BGS - horizontal fracture, light gray at 21.1ft BGS - 2-inch highly porous section ("honeycomb") at 21.4ft BGS - horizontal fracture at 23.0ft BGS	672.37	10" DIA. HOLE			
14						
16						
18				1	100	100
20			4" DIA. HQ COREHOLE			
22						
24	END OF BOREHOLE @ 23.4ft BGS	661.47				
26						
28						
30						
32						
34						
36						
38						
40						
42						
44						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X220Y088S
DATE COMPLETED: August 15, 2002
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER GROUND SURFACE	684.50 682					
0	SW-GW SAND & GRAVEL (FILL)						
2		679.45					
4	CL-CLAY, little silt, stiff, low plasticity, strong brown, moist		CEMENT / BENTONITE GROUT				
6			4" DIA. STEEL CASING				
8							
10							
12							
14							
16							
17	END OF OVERBURDEN HOLE @ 17.0ft BGS						
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X220Y088S
DATE COMPLETED: August 15, 2002
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
18	LIMESTONE (ST. LOUIS FORMATION), fine grained, thin bedded, light gray - horizontal fracture at 18.6ft BGS - horizontal fracture at 18.9ft BGS - horizontal fracture, 2-inch porous section at 19.3ft BGS - horizontal fracture at 19.9ft BGS - granular, gray/tan, fossils, 2.2 feet of highly porous section ("honeycomb") at 20.3ft BGS - horizontal fracture at 20.7ft BGS - slightly porous, gray, fossils, coarser at 22.2ft BGS - horizontal fracture at 22.8ft BGS END OF BOREHOLE @ 23.8ft BGS	664.95 658.15	4" DIA. HQ COREHOLE	1	100	94
20						
22						
24						
26						
28						
30						
32						
34						
36						
38						
40						
42						
44						
46						
48						
50						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

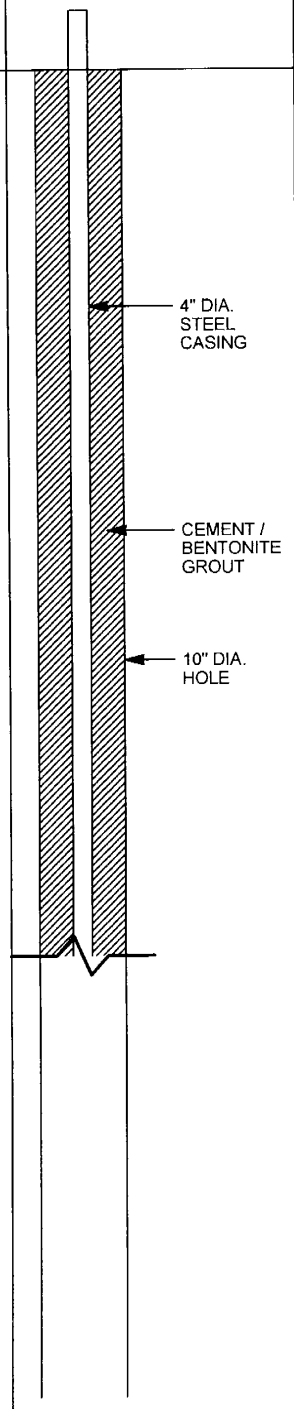
BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X225Y080S
DATE COMPLETED: August 13, 2002
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER GROUND SURFACE	686.72 684.3					
	Same stratigraphy as TMW-X225Y080						
22	END OF OVERBURDEN HOLE @ 22.5ft BGS						



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X225Y080S
DATE COMPLETED: August 13, 2002
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
22		661.77				
24	LIMESTONE (SALEM FORMATION), fine grained, thin bedded, light gray, light gray, calcite - light gray/tan, granular, porous, fossils at 24.2ft BGS - 2-feet of porous rock ("honeycomb"), at 24.3ft BGS - horizontal fracture at 24.4ft BGS - horizontal fracture at 25.1ft BGS - horizontal fracture at 26.1ft BGS - horizontal fracture, light gray at 27.2ft BGS - horizontal fracture, black staining at 28.1ft BGS - horizontal fracture, black staining at 28.5ft BGS - horizontal fracture at 29.7ft BGS - 5-inches of interbedded shale at 29.8ft BGS - horizontal fracture at 30.3ft BGS - horizontal fracture, black staining at 30.9ft BGS - horizontal fracture, black staining at 31.3ft BGS - 3-inch void, contains numerous fossils at 31.7ft BGS - horizontal fracture at 32.6ft BGS END OF BOREHOLE @ 33.6ft BGS		4" DIA. HQ COREHOLE	1	97.5	98
26						
28						
30						
32						
34		650.67				
36						
38						
40						
42						
44						
46						
48						
50						
52						
54						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

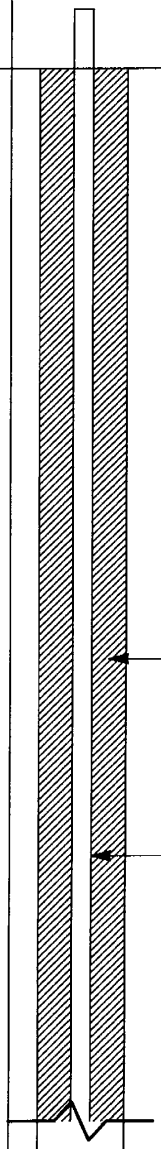
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y071A
DATE COMPLETED: November 3, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
	TOP OF RISER	687.69
0	GW-GRAVEL (FILL), little silt, little fine sand, medium to coarse grained, well graded, gray	
2		2.5
4	CL-CLAY, little silt, medium plasticity, firm, strong brown, moist, slight black stain at clay contact	
6		
8		
10	- limestone fragments at 10.5ft BGS	
	ROCK	10.9
12	IN AND OUT OF ROCK	12.5
14	CL-CLAY, little silt, medium plasticity, firm, strong brown, moist, slight black stain at clay contact	14.5
16		
	ROCK	17
18		
20	CL-CLAY, little silt, medium plasticity, firm, strong brown, moist, slight black stain at clay contact	20
22		
24		
26		
	END OF OVERBURDEN HOLE @ 26.7ft BGS	
28		
30		
32		
34		

ANGLE WELL



SAMPLE

NUMBER	INTERVAL	REC (ft)	'N' VALUE
1		0.9	
2		1.0	
3		1.0	
4		1.0	
5		1.2	
6		1.0	
7		0.4	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y071A
DATE COMPLETED: November 3, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %
26		26.7				
28	LIMESTONE (ST. LOUIS FORMATION), thin bedded, fine grained, calcite, gray					
30	- half-inch open stylolite at 30.0ft BGS					
32	- fracture at 31.6ft BGS - fracture at 32.1ft BGS					
34	- fracture at 33.8ft BGS		4" DIA. HQ CORE HOLE	1	80	70
36	- 2-foot void, water lost, clay parting at 36.2ft BGS					
38	- fracture at 38.5ft BGS		SUMP			
40	- fracture at 39.7ft BGS END OF BOREHOLE @ 40.0ft BGS	40				
42	Boring drilled on an 30 degree angle from vertical (all depths not in relation to vertical)					
44	Overburden pilot boring advanced utilizing 4-1/4 inch hollow stem augers and samples collected by STP method					
46	Ground surface elevation of 685.73 ft. AMSL.					
48						
50						
52						
54						
56						
58						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y071B
DATE COMPLETED: November 10, 2003
DRILLING METHOD: 7 7/8-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER	687.72					
	SAME STRATIGRAPHY AS MW-X233Y071A						
12	POSSIBLE ROCK SHELF - in and out of rock and clay, water lost	12					
21	CL-CLAY, little silt, medium plasticity, firm, strong brown	21					
27	END OF OVERBURDEN HOLE @ 27.0ft BGS						

4" DIA. STEEL CASING

CEMENT / BENTONITE GROUT

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y071B
DATE COMPLETED: November 10, 2003
DRILLING METHOD: 7 7/8-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %
28	LIMESTONE (ST. LOUIS FORMATION), fine grained, thin bedded, calcite, gray	27				
30						
32						
34			4" DIA. HQ CORE HOLE			
36	- 1.7-foot void at 36.3ft BGS					
38						
40	- 3-inch vertical non-continuous opening, oxidized, gray at 39.1ft BGS - horizontal fracture, black beddings at 39.2ft BGS			1	100	100
42	- horizontal fracture at 40.3ft BGS - horizontal fracture at 41.1ft BGS - stylolite at 42.1ft BGS					
44	- open stylolite at 44.1ft BGS					
46	LIMESTONE (SALEM FORMATION), fine - coarse grained, fossils, gray - 1-foot section of stylolites at 46.7ft BGS	45		2	100	100
48						
50	- stylolite at 49.4ft BGS - 5-inch section of stylolites at 50.3ft BGS					
52	- stylolite at 51.9ft BGS - horizontal fractures, dark gray clay partings, very faint sheen at 52.9ft BGS					
54				3	100	100
56	- medium grained at 55.8ft BGS					
58			SUMP			
60	END OF BOREHOLE @ 60.0ft BGS	60				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y071B
DATE COMPLETED: November 10, 2003
DRILLING METHOD: 7 7/8-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %	
62	Boring drilled on an 30 degree angle from vertical (all depths not in relation to vertical) Overburden pilot boring advanced utilizing 7 7/8 inch tri-cone roller bit Ground surface elevation of 685.55 ft. AMSL.						
64							
66							
68							
70							
72							
74							
76							
78							
80							
82							
84							
86							
88							
90							
92							
94							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y087S
DATE COMPLETED: August 16, 2002
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER GROUND SURFACE	673.49 671.8					
0	SW-GW SAND & GRAVEL (FILL)						
2	CL-CLAY, little silt, stiff, low plasticity, strong brown, moist	669.33	4" DIA. STEEL CASING CEMENT / BENTONITE GROUT				
10	END OF OVERBURDEN HOLE @ 10.0ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y087S
DATE COMPLETED: August 16, 2002
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
10	LIMESTONE (SALEM FORMATION), granular, fossils, massive, tan, 2-inch highly fractured	661.83				
12	- horizontal fracture at 12.4ft BGS - horizontal fracture at 13.1ft BGS - horizontal fracture at 13.2ft BGS - horizontal fracture at 13.5ft BGS - horizontal fracture at 13.8ft BGS - horizontal fracture at 14.7ft BGS - horizontal fracture, 2-inch broken rock at 14.9ft BGS - horizontal fracture, light gray at 15.4ft BGS - 1-inch vertical non-continuous opening at 16.0ft BGS - horizontal fracture at 16.2ft BGS - horizontal fracture at 16.7ft BGS - horizontal fracture at 17.0ft BGS - horizontal fracture at 17.4ft BGS - horizontal fracture at 18.2ft BGS - horizontal fracture, shale parting, 1-inch shale bed at 18.5ft BGS - horizontal fracture, fine grained at 19.0ft BGS - horizontal fracture, shale parting at 19.6ft BGS - 3-inch vertical non-continuous opening at 21.1ft BGS - horizontal fracture at 21.3ft BGS		4" DIA. HQ COREHOLE	1	100	72
14						
16						
18						
20						
22		650.13				
24	END OF BOREHOLE @ 21.7ft BGS					
26						
28						
30						
32						
34						
36						
38						
40						
42						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y095
DATE COMPLETED: April 29, 2003
DRILLING METHOD: 6 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: J. MC COMBS & K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF RISER	675.15						
0	LIMESTONE CHIPS (FILL)	1						
	CL-CLAY, trace sand, trace cobbles, firm, medium plasticity, 10YR 5/6, moist	1.3						
2	Rock ledge	2.6	4" DIA. STEEL CASING					
	CL-CLAY, trace sand, trace rootlets, firm, mottled, 10YR 5/6 with gray, moist			1		0.5		0.6 / 0.7
4				2		0.0		
			CEMENT / BENTONITE GROUT					
6	END OF OVERBURDEN HOLE @ 5.5ft BGS							
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y095
DATE COMPLETED: April 29, 2003
DRILLING METHOD: 6 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: J. MC COMBS & K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %
6	LIMESTONE (ST. LOUIS FORMATION), thin bedded, fine grained, micritic, light gray	5.5	CEMENT / BENTONITE GROUT			
8						
10	- one foot of fractured rock at 9.4ft BGS - 2-inch non-continuous opening at 10.8ft BGS					
12	- fracture at 12.2ft BGS - fracture at 12.6ft BGS					
14	- 3-inch near vertical non-continuous opening at 12.9ft BGS			1	100	90
16	- fracture with clay parting, oxidized at 13.2ft BGS - fracture at 14.4ft BGS	15				
18	LIMESTONE (SALEM FORMATION), gradational contact, medium grained, porous, occasional fossils, calcarenite, beige/gray - thin fracture at 17.5ft BGS - thin fracture at 18.0ft BGS					
20	- thin fracture with silt parting at 18.6ft BGS - stylolite at 19.0ft BGS		4" DIA. HQ COREHOLE			
22	- 3-inches of fractured rock at 19.5ft BGS - fracture at 20.2ft BGS - open stylolite at 20.8ft BGS - stylolite at 21.2ft BGS			2	100	98
24	- 5-inch section of stylolites at 23.4ft BGS					
26	- gray at 26.1ft BGS					
28	- stylolite at 27.3ft BGS					
30	- stylolite at 29.0ft BGS			3	100	100
32			SUMP			
34	END OF BOREHOLE @ 34.5ft BGS	34.7				
36	Boring drilled on an 30 degree angle from vertical (all depths not in relation to vertical). Overburden pilot boring advanced utilizing 6-1/4 inch hollow stem augers and samples collected by STP method.					
38						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y095
DATE COMPLETED: April 29, 2003
DRILLING METHOD: 6 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: J. MC COMBS & K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %	
	Ground surface elevation of 672.86 ft. AMSL						
40							
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							
70							
72							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (O)

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y100
DATE COMPLETED: April 30, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: J. MC COMBS & K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF RISER	684.48						
0	TOPSOIL	1		1		1.0		0.6
2	LIMESTONE LEDGE	3						
4	CL-CLAY, trace sand, trace cobbles, moderate plasticity, 10YR 5/6, moist		CEMENT / BENTONITE GROUT		P/S	0.0		1.5
6	END OF OVERBURDEN HOLE @ 6.0ft BGS			2		0.3		0.8
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y100
DATE COMPLETED: April 30, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: J. MC COMBS & K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %
6	LIMESTONE (ST. LOUIS FORMATION), thin bedded, fine grained, micritic, gray	6	4" DIA. STEEL CASING			
8						
10	- fracture at 9.4ft BGS - fracture at 10.2ft BGS - interbedded shale at 10.3ft BGS					
12	- fracture at 11.8ft BGS					
14	- fracture at 14.0ft BGS - dark gray at 14.8ft BGS			1	100	93
16						
18	- light gray at 17.6ft BGS - 6-inches of fractures, interbedded shale, gray at 18.3ft BGS					
20	- thin fracture at 19.5ft BGS					
22	- light gray at 21.3ft BGS - stylolite at 22.2ft BGS - stylolite at 22.7ft BGS					
24	- open stylolite at 24.4ft BGS	24.5		2	100	100
26	LIMESTONE (SALEM FORMATION), gradational contact, beige/gray, medium grained, calcarenite, fossils, 9-inch porous section					
28	- open stylolite with silt parting, slightly oxidized at 25.4ft BGS					
30	- fracture at 29.4ft BGS - fracture at 30.7ft BGS		4" DIA. HQ COREHOLE			
32	- stylolite at 32.2ft BGS					
34				3	100	100
36	- open stylolite at 35.8ft BGS					
38	- stylolite at 37.1ft BGS - stylolite at 37.7ft BGS - open stylolite at 38.2ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y100
DATE COMPLETED: April 30, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: J. MC COMBS & K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %
40	- open stylolite at 40.0ft BGS					
42						
44				4	100	100
46						
48						
50						
52	- open stylolite at 52.6ft BGS			5	100	100
54			SUMP			
56	END OF BOREHOLE @ 55.5ft BGS	55.5				
58	Boring drilled on an 30 degree angle from vertical (all depths not in relation to vertical)					
60	Overburden pilot boring advanced utilizing 4-1/4 inch hollow stem augers and samples collected by STP method					
62	Ground surface elevation of 683.04 ft. AMSL					
64						
66						
68						
70						
72						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (O)

BEDROCK LOG 20040316_13988.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y105A
DATE COMPLETED: May 2, 2003
DRILLING METHOD: 6 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: J. MC COMBS & K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF RISER	698.34						
0	ML-SILT, trace to little clay, trace gravel, rootlets, compact, yellowish red (5YR 4/6), moist			1		1.5		0.0
2	- little clay at 2.0ft BGS		4" DIA. STEEL CASING	2		1.0		0.0
	END OF OVERBURDEN HOLE @ 3.0ft BGS							
4								
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y105A
DATE COMPLETED: May 2, 2003
DRILLING METHOD: 6 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: J. MC COMBS & K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %
		3	CEMENT / BENTONITE GROUT			
4	LIMESTONE (ST. LOUIS FORMATION), thin bedded, fine grained, micritic, gray					
6						
8	- near vertical fracture at 7.0ft BGS - near vertical fracture and 2-feet near 30 degree (shallow angle) fracture that cross cuts near vertical fracture at 7.5ft BGS		4" DIA. COREHOLE	1	100	33
10	- near vertical fracture, oxidized at 8.0ft BGS - near vertical fracture, oxidized at 8.6ft BGS					
12	- near vertical fracture at 9.3ft BGS - near vertical fracture at 9.6ft BGS - 1.7-feet heavily dissolved / weathered limestone, high silt / clay content, oxidized and mostly washed out, red / brown at 10.2ft BGS	12.6	SUMP	2	58	
14	- near vertical fracture, sharp contact with more competent limestone, gray at 11.9ft BGS					
16	- near vertical fracture cross cut by short shallow angle fracture, weathered, oxidized at 12.3ft BGS					
18	END OF BOREHOLE @ 12.8ft BGS					
20	Boring drilled on an 30 degree angle from vertical (all depths not in relation to vertical) Overburden pilot boring advanced utilizing 6-1/4 inch hollow stem augers and samples collected by STP method					
22	Ground surface elevation of 696.42 ft. AMSL					
24						
26						
28						
30						
32						
34						
36						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y105B
DATE COMPLETED: May 19, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER	697.33					
0	SAME STRATIGRAPHY AS MW-X233Y105A		4" DIA. STEEL CASING				
5.0	END OF OVERBURDEN HOLE @ 5.0ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y105B
DATE COMPLETED: May 19, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %
6	LIMESTONE (ST. LOUIS FORMATION), fine grained, thin bedded, micritic, gray and tan	5				
8						
10	- ROCK & CLAY CONTENT at 9.0ft BGS		CEMENT / BENTONITE GROUT			
12						
14						
16	- 5.5 feet of rock and clay, easy drilling at 16.5ft BGS					
18						
20						
22						
24						
26	- horizontal fracture along a shale stringer, dark gray at 26.0ft BGS					
28						
30	- horizontal fracture along a shale stringer, dark gray, slightly weathered at 29.4ft BGS		4" DIA. COREHOLE	1	99	100
32	- 0.3 foot zone of oxidized/stained limestone centered around subhorizontal fracture at 31.6ft BGS					
34	- 0.5 foot zone of interbedded shale and limestone, 4-inch parting along bedding plains at 31.9ft BGS		SUMP	2	100	100
36	- fracture/parting along bedding slightly mineralized, dark gray at 32.3ft BGS - trace solution pits approximately 0.2 foot zone, gray at 34.0ft BGS	35.2				
38	- near vertical fracture, unweathered at 34.6ft BGS - 0.2 foot zone of solution pits / weathered,					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y105B
DATE COMPLETED: May 19, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %	
40	gray at 34.8ft BGS END OF BOREHOLE @ 35.2ft BGS Boring drilled on an 30 degree angle from vertical (all depths not in relation to vertical) Overburden pilot boring advanced utilizing 4-1/4 inch hollow stem augers and samples collected by STP method Ground surface elevation of 695.70 ft. AMSL						
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							
70							
72							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y110A
DATE COMPLETED: May 8, 2003
DRILLING METHOD: 6 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF RISER	703.54						
0	CL-CLAY, trace silt, firm, yellowish red (5YR 5/8), medium plasticity, moist		4" DIA. STEEL CASING	1		1.5		0.0
2			CEMENT / BENTONITE GROUT	2		1.8		0.0
4	END OF OVERBURDEN HOLE @ 3.8ft BGS							
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y110A
DATE COMPLETED: May 8, 2003
DRILLING METHOD: 6 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %
			CEMENT / BENTONITE GROUT			
4	LIMESTONE (ST. LOUIS FORMATION), thin bedded, fine grained, micritic, gray	3.8				
6	- 7-inch highly fractured rock at 6.0ft BGS - fracture with silt parting, oxidized, brown discoloration at 6.2ft BGS			1	100	68
8	- fracture with silt parting, oxidized, brown discoloration at 6.4ft BGS - near vertical fracture at 6.7ft BGS					
10	- 2-inch non-continuous opening, rock chips at 7.5ft BGS - near vertical fracture, oxidized, brown at 8.3ft BGS					
12	- 4-inch fractured rock at 8.9ft BGS - large fracture at 9.3ft BGS		4" DIA. HQ COREHOLE	2	92	80
14	- 2-inch near vertical non-continuous opening at 10.5ft BGS - oxidized fracture at 11.2ft BGS		SUMP			
16	- 6-inch clay wash-out at 11.4ft BGS - 5-inches of easy drilling at 11.8ft BGS - oxidized fracture at 12.6ft BGS - oxidized fracture, coral fossils at 14.3ft BGS	15				
18	END OF BOREHOLE @ 15.0ft BGS					
20	Boring drilled on an 30 degree angle from vertical (all depths not in relation to vertical)					
22	Overburden pilot boring advanced utilizing 6-1/4 inch hollow stem augers and samples collected by STP method					
24	Ground surface elevation of 701.39 ft. AMSL					
26						
28						
30						
32						
34						
36						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (O)

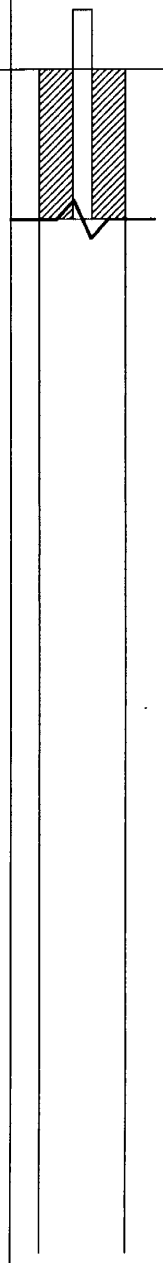
BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y110B
DATE COMPLETED: May 21, 2003
DRILLING METHOD: 7 7/8-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER	703.29					
0	SAME STRATIGRAPHY AS MW-X233Y110A						
4	END OF OVERBURDEN HOLE @ 3.8ft BGS						



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y110B
DATE COMPLETED: May 21, 2003
DRILLING METHOD: 7 7/8-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %
4	LIMESTONE (ST. LOUIS FORMATION), fine grained, thin bedded, micritic,gray and tan	3.8	4"" DIA. STEEL CASING			
6						
8						
10						
12	- lost all water circulation at 12.0ft BGS					
14			CEMENT / BENTONITE GROUT			
16						
18						
20	- 2-inch clay seam, moderate plasticity, tan at 19.3ft BGS - 3-inch zone of heavily dissolved limestone, oxidized, contact gradational with more competent rock at 19.4ft BGS			1	100	83
22	- fracture along bedding at 20.4ft BGS - fracture along bedding at 21.3ft BGS					
24	- 2.5-inch moderate clay zone, tan at 23.7ft BGS - 2.8-foot void at 24.0ft BGS		4" DIA. COREHOLE			
26				2	64	
28	- 2-inch dense shale layer, dark brown to black, sharp contact at 28.3ft BGS		SUMP			
30	- near vertical fracture, unweathered at 29.1ft BGS - near vertical fracture, unweathered at 29.5ft BGS	30				
32	END OF BOREHOLE @ 30.0ft BGS					
34	Boring drilled on an 30 degree angle from vertical (all depths not in relation to vertical) Overburden pilot boring advanced utilizing 7-7/8- inch tri-cone roller bit Ground surface elevation of 701.15 ft. AMSL					
36						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y115A
DATE COMPLETED: May 14, 2003
DRILLING METHOD: 6 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF RISER	709.53						
0	CL-CLAY, trace to little silt, firm, strong brown (7.5YR 4/6), moist			1		1.5		0.0
2			CEMENT / BENTONITE GROUT	2		1.0		0.0
4				3		1.5		0.0
6	- little silt at 6.0ft BGS		4" DIA. STEEL CASING	4		1.0		0.0
8	END OF OVERBURDEN HOLE @ 7.0ft BGS							
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y115A
DATE COMPLETED: May 14, 2003
DRILLING METHOD: 6 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %
		7	4" DIA. STEEL CASING			
8	LIMESTONE (ST. LOUIS FORMATION), thin bedded, fine grained, micritic, gray					
10						
12	- near vertical fracture, weathered oxidized zone at 11.3ft BGS - 1.3-feet of highly fractured rock, near vertical fractures cross cut by shallow angle fractures at 12.0ft BGS					
14	- 2-inch void at 12.1ft BGS					
16	- 2.2-feet highly weathered brown high silt content with near vertical fractures cross cut by shallow angle fractures at 15.1ft BGS			1	98	73
18						
20	- 4-inch near vertical weathered zone with high silt content with single near vertical fracture at 18.6ft BGS - near vertical fracture with siderite mineralization, coral 2-inch above at 19.8ft BGS		4" DIA. COREHOLE			
22	- thin near vertical fracture at 20.7ft BGS - 2-feet near vertical fractures within granular zone, oxidized, brown at 22.9ft BGS					
24	- near vertical fracture within gray micritic limestone at 24.8ft BGS			2	100	80
26	- beige / tan micritic limestone with sharp contact with gray limestone at 26.5ft BGS					
28	- near vertical fracture mineralized with calcite at 26.8ft BGS - 0.3-feet heavily dissolved zone, dark brown at 27.4ft BGS		SUMP			
30	- 1-feet fractured zone containing 3 near vertical fractures that transition to dark shaley limestone at 27.9ft BGS - near vertical fracture at 29.6ft BGS	30				
32	END OF BOREHOLE @ 30.0ft BGS					
34	Boring drilled on an 30 degree angle from vertical (all depths not in relation to vertical)					
36	Overburden pilot boring advanced utilizing 6-1/4 inch hollow stem augers and samples collected by STP method					
38	Ground surface elevation of 707.62 ft. AMSL					
40						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y115B
DATE COMPLETED: November 17, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER	708.72					
	Same stratigraphy as MW-X233Y115A						
2							
4			CEMENT / BENTONITE GROUT				
6	END OF OVERBURDEN HOLE @ 7.0ft BGS						
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y115B
DATE COMPLETED: November 17, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %
8						
10			4" DIA. STEEL CASING			
12						
14						
16						
18						
20						
22						
24						
26						
28						
30						
32						
34	LIMESTONE (ST. LOUIS FORMATION), fine grained, thin bedded, calcite, gray/tan - 1-foot section of broken rock, slightly oxidized at 33.4ft BGS - 2-inch non-continuous opening, gray at 34.4ft BGS - 2-inch near vertical non-continuous opening at 35.4ft BGS - fracture at 36.5ft BGS - fracture at 37.6ft BGS - fracture at 39.1ft BGS	33		1	100	72
36						
38			4" DIA. COREHOLE			
40						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y115B
DATE COMPLETED: November 17, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %
42	- fracture at 41.0ft BGS			2	95	100
44			SUMP			
	END OF BOREHOLE @ 45.0ft BGS	45				
46	Boring drilled on an 30 degree angle from vertical (all depths not in relation to vertical)					
48	Overburden pilot boring advanced utilizing 4-1/4 inch hollow stem augers.					
50	Ground surface elevation of 707.04 ft. AMSL.					
52						
54						
56						
58						
60						
62						
64						
66						
68						
70						
72						
74						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y120A
DATE COMPLETED: May 15, 2003
DRILLING METHOD: 6 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: J. MC COMBS & K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF RISER	715.75						
	GRAVEL PAD	1						
	TOPSOIL	1.3						
2	CL-CLAY, trace vegetation, medium plasticity, hard, 7.5YR 4/6, moist			1		1.6		0.6
4	- mottled 5YR 4/6 with 10YR 5/6 at 4.1ft BGS		CEMENT / BENTONITE GROUT	2		1.3		0.6
6	- trace black staining at 5.9ft BGS			3		1.7		0.3
8	- trace silt at 7.5ft BGS - 3 cm silt lens at 7.8ft BGS - little silt at 8.0ft BGS			4		1.7		0.5
		8.5						
10	ML-SILT, trace to little clay, hard, 5Y 8/4, moist		4" DIA. STEEL CASING	5		2.0		1.4
12	- 3 cm medium grained sand lens, reddish at 10.9ft BGS END OF OVERBURDEN HOLE @ 11.2ft BGS							
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y120A
DATE COMPLETED: May 15, 2003
DRILLING METHOD: 6 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: J. MC COMBS & K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %
12	- 3 cm medium grained sand lens, reddish at 10.9ft BGS LIMESTONE (ST. LOUIS FORMATION), thin bedded, fine grained, micritic, gray to tan, shaley	11.2	4" DIA. STEEL CASING			
14						
16	- 3.2-feet of highly weathered and oxidized, silty and clayey, thin incomplete fractures at 15.0ft BGS - near vertical fracture, dissolved at 15.9ft BGS - parting along bedding plane at 16.3ft BGS		4" DIA. COREHOLE	1	94	95
18	- parting along bedding plane and 0.6-feet of abundant partings at 17.0ft BGS		SUMP			
20	- 0.3-feet of shallow angle fractures, dark gray shaley at 18.9ft BGS - 1-inch coral fossil at 19.2ft BGS	19.8				
22	END OF BOREHOLE @ 19.8ft BGS Boring drilled on an 30 degree angle from vertical (all depths not in relation to vertical)					
24	Overburden pilot boring advanced utilizing 6-1/4 inch hollow stem augers and samples collected by STP method					
26	Ground surface elevation of 712.71 ft. AMSL					
28						
30						
32						
34						
36						
38						
40						
42						
44						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y120B
DATE COMPLETED: November 19, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER	715.41					
	Same stratigraphy as MW-X233Y120A						
7.0	END OF OVERBURDEN HOLE @ 7.0ft BGS		4" DIA. STEEL CASING				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y120B
DATE COMPLETED: November 19, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %
8			4" DIA. STEEL CASING			
10			CEMENT / BENTONITE GROUT			
12						
14						
16						
18						
20						
22						
24	LIMESTONE (ST. LOUIS FORMATION), fine grained, thin bedded, tan - fracture at 23.8ft BGS - 4-inch of porous rock at 24.0ft BGS	23				
26	- fracture at 25.0ft BGS - fracture, oxidized at 26.7ft BGS					
28	- fracture at 27.2ft BGS - fracture at 28.5ft BGS			1	95	85
30	- 2.5-inch void, plus 3 inches of broken rock, slightly oxidized at 29.9ft BGS - fracture at 30.0ft BGS		4" DIA. COREHOLE			
32	- fracture at 31.4ft BGS - 1-foot section of clay / rock, soft, tan at 32.0ft BGS					
34	- 1.5-foot section of broken rock, tan / gray at 33.4ft BGS					
36	- 3-inch section of broken rock at 35.4ft BGS - 5-inch section of clay / limestone at 36.4ft BGS					
38	- 1.5-foot section of possible clay / void, no water return at 36.5ft BGS - 1.5-feet of clay with little limestone at 38.6ft BGS			2	85	67
40	- fracture, gray at 40.6ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y120B
DATE COMPLETED: November 19, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %
42	- fracture at 41.3ft BGS - fracture at 41.8ft BGS - calcarcite, gray at 42.5ft BGS					
44						
46				3	100	100
48			SUMP			
50	END OF BOREHOLE @ 50.0ft BGS	50				
52	Boring drilled on an 30 degree angle from vertical (all depths not in relation to vertical)					
54	Overburden pilot boring advanced utilizing 4-1/4 inch hollow stem augers.					
56	Ground surface elevation of 712.64 ft. AMSL					
58						
60						
62						
64						
66						
68						
70						
72						
74						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040315_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y125A
DATE COMPLETED: May 16, 2003
DRILLING METHOD: 6 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: J. MC COMBS & K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
	TOP OF RISER	716.31
0	GRAVEL PAD	
3.5	TOPSOIL	3.5
3.6	CL-CLAY, rootlets, hard, medium plasticity, 7.5YR 4/6, moist - mottled with yellow at 5.5ft BGS - some black mineralization at 7.7ft BGS	3.6
12.2	ML-SILT, rootlets	12.2
14.5	CL-CLAY, trace vegetation, hard, medium plasticity, mottled with 7.5YR 4/6 and 10YR 7/8, trace black, moist - increase silt, mottled yellow and gray at 16.5ft BGS	14.5
17.1	END OF OVERBURDEN HOLE @ 17.1ft BGS	

ANGLE WELL: CEMENT / BENTONITE GROUT; 4" DIA. STEEL CASING

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1		0.6		1.3
2		1.5		0.2
3		2.0		0.3
4		2.0		0.5
5		2.0		0.5
6		1.0		0.4
7		1.6		0.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y125A
DATE COMPLETED: May 16, 2003
DRILLING METHOD: 6 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: J. MC COMBS & K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %
18	- increase silt, mottled yellow and gray at 16.5ft BGS LIMESTONE (ST. LOUIS FORMATION), thin bedded, fine grained, micritic, gray and tan	17.1				
20						
22						
24						
26	- 3.8-feet weathered limestone, oxidized, brown with some dissolution pits, little silty at 25.1ft BGS - near 45 degree fracture, oxidized and weathered at 25.5ft BGS		4" DIA. COREHOLE	1	98	78
28	- sub-horizontal fracture, oxidized and silty at 28.4ft BGS					
30	- 2 sub-horizontal fractures, mineralized with calcite at 28.6ft BGS - 0.8-feet of heavily weathered and oxidized shaley limestone, 3 horizontal shale partings, possible void at 29.4ft BGS		SUMP			
32	- near vertical fracture, slightly weathered at 30.5ft BGS	32				
34	- 2 sub-horizontal fractures, slightly weathered, 2-inch of thin sub-horizontal vugs mineralized by siderite at 30.8ft BGS END OF BOREHOLE @ 32.0ft BGS					
36	Boring drilled on an 30 degree angle from vertical (all depths not in relation to vertical)					
38	Overburden pilot boring advanced utilizing 6-1/4 inch hollow stem augers and samples collected by STP method					
40	Ground surface elevation of 714.27 ft. AMSL					
42						
44						
46						
48						
50						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

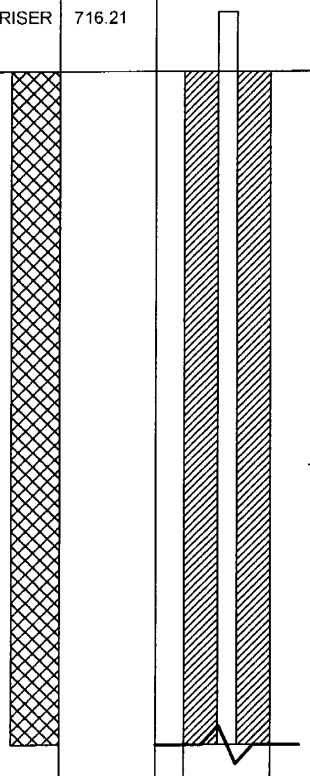
BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y125B
DATE COMPLETED: November 24, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER	716.21					
	Same stratigraphy as MW-X233Y125B						
16	END OF OVERBURDEN HOLE @ 17.1ft BGS						



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y125B
DATE COMPLETED: November 24, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %
18			CEMENT / BENTONITE GROUT			
20						
22						
24						
26						
28						
30						
32						
34						
36	LIMESTONE (ST. LOUIS FORMATION), fine grained, thin bedded, light gray - 1-foot highly fracture rock, weathered, oxidized, clay partings, tan at 36.0ft BGS - 3-inch vertical non-continuous opening, oxidized at 36.7ft BGS - cherty, clay & rock, tan at 37.0ft BGS - void (1.5-feet), water lost at 38.5ft BGS - tan / gray at 40.0ft BGS - fracture at 40.5ft BGS - fracture at 40.6ft BGS - gray at 41.1ft BGS - fracture at 41.3ft BGS - fracture at 41.9ft BGS - 3-inch vertical non-continuous opening at 42.0ft BGS - fracture at 42.5ft BGS - fracture at 42.7ft BGS - light gray at 45.0ft BGS - fracture at 46.5ft BGS	35	4" DIA. COREHOLE SUMP	1 2	69 100	50 100
38						
40						
42						
44						
46						
48	END OF BOREHOLE @ 47.0ft BGS Boring drilled on an 30 degree angle from vertical (all depths not in relation to vertical)	47				
50						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X233Y125B
DATE COMPLETED: November 24, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %	
52	Overburden pilot boring advanced utilizing 4-1/4 inch hollow stem augers. Ground surface elevation of 713.30 ft. AMSL						
54							
56							
58							
60							
62							
64							
66							
68							
70							
72							
74							
76							
78							
80							
82							
84							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X234Y157S
DATE COMPLETED: June 18, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	677.25 674.9						
0	TOPSOIL	674.6						
	CL-CLAY, little silt, trace very fine sand, stiff, low-medium plasticity, moist			1		1.6	5	0
2	- with silt at 1.5ft BGS		CEMENT / BENTONITE GROUT	2		1.7	7	0
4			10" DIA. HOLE					
	- medium plasticity, wet at 5.0ft BGS		4" DIA. STEEL CASING	3		1.3	>100	0
6	END OF OVERBURDEN HOLE @ 6.0ft BGS							
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (○) GRAIN SIZE ANALYSIS (□)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X234Y157S
DATE COMPLETED: June 18, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
	- medium plasticity, wet at 5.0ft BGS		10" DIA. HOLE 4" DIA. STEEL CASING			
6	LIMESTONE (ST. LOUIS FORMATION), thin bedded, light gray, first 7-inches highly fractured, micritic limestone	668.9				
8	- 3-inch horizontal non-continuous opening at 9.1ft BGS					
10	- horizontal fractured at 10.6ft BGS - horizontal fracture at 10.8ft BGS					
12	- horizontal fracture at 11.2ft BGS - horizontal fracture at 11.5ft BGS					
14	- horizontal fracture at 13.1ft BGS - horizontal fracture at 13.6ft BGS - horizontal fracture at 14.5ft BGS			1	100	85
16	- horizontal fracture at 15.3ft BGS					
18	- LIMESTONE (SALEM FORMATION), horizontal fracture, gradational contact, granular, thick bedding, medium to coarse grained at 17.2ft BGS	657.7				
20	- stylolite at 19.3ft BGS					
22	- stylolite at 20.9ft BGS - stylolite at 21.3ft BGS - horizontal fracture at 22.1ft BGS - horizontal fracture at 22.8ft BGS					
24				2	100	100
26	- horizontal fracture at 26.6ft BGS - stylolite at 26.9ft BGS					
28						
30	- stylolite at 30.6ft BGS - massive, calcite, fossils at 30.8ft BGS					
32	- stylolite at 32.4ft BGS					
34	- horizontal fracture at 33.7ft BGS - horizontal fracture at 33.9ft BGS - slightly porous, granular at 34.0ft BGS			3	100	100
36	- stylolite at 36.3ft BGS - stylolite at 36.5ft BGS					
38			BENTONITE SEAL			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X234Y157S
DATE COMPLETED: June 18, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %	
40	END OF BOREHOLE @ 39.4ft BGS						
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							
70							
72							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X234Y157D
DATE COMPLETED: June 26, 2002
DRILLING METHOD: 10-INCH TR-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	678.42 674.9						
0	TOPSOIL	674.59						
	CL-CLAY, little silt, trace very fine sand, stiff, low to medium plasticity, moist			1		1.6	5	0
2	- with silt at 1.5ft BGS		CEMENT / BENTONITE GROUT	2		1.7	7	0
4			4" DIA. STEEL CASING					
	- medium plasticity, wet at 5.0ft BGS			3		1.3	<100	0
6	END OF OVERBURDEN HOLE @ 6.0ft BGS		10" DIA. HOLE					
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (○) GRAIN SIZE ANALYSIS (□)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X234Y157D
DATE COMPLETED: June 26, 2002
DRILLING METHOD: 10-INCH TR-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
	- medium plasticity, wet at 5.0ft BGS		4" DIA. STEEL CASING 10" DIA. HOLE			
6	LIMESTONE (ST. LOUIS FORMATION), thin bedded, gray micritic limestone	668.89				
8	- horizontal fracture at 8.5ft BGS - horizontal fracture with clay partings at 8.9ft BGS					
10	- horizontal fracture with clay partings at 9.1ft BGS			1	100	90
12	- horizontal fracture at 10.2ft BGS - horizontal fracture at 12.5ft BGS					
14	- horizontal fracture at 12.7ft BGS - horizontal fracture at 14.1ft BGS					
16	- horizontal fracture at 14.9ft BGS - horizontal fracture at 15.1ft BGS - horizontal fracture at 15.6ft BGS - stylolite at 16.8ft BGS		CEMENT / BENTONITE GROUT			
18	LIMESTONE (SALEM FORMATION), granular, thick bedding, medium to coarse grained - stylolite at 18.7ft BGS	657.39		2	100	100
20	- stylolite at 18.9ft BGS - stylolite at 19.7ft BGS - horizontal fracture, stylolite at 20.7ft BGS					
22	- stylolite at 22.1ft BGS - fossils, light gray/white, granular, calcite at 22.9ft BGS					
24			4" DIA. STEEL CASING			
26	- open stylolite at 26.8ft BGS					
28	- stylolite at 27.6ft BGS - stylolite at 28.8ft BGS			3	100	100
30	- open stylolite at 29.2ft BGS - stylolite at 30.0ft BGS					
32	- stylolite at 32.3ft BGS - rough/granular texture at 33.3ft BGS					
34						
36	- stylolite at 36.6ft BGS					
38				4	100	100

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X234Y157D
DATE COMPLETED: June 26, 2002
DRILLING METHOD: 10-INCH TR-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
40						
42	- stylolite at 41.3ft BGS - stylolite at 42.5ft BGS - calcite, light gray, fine grained,occasional shell fossils at 43.0ft BGS					
44	- open stylolite at 44.1ft BGS					
46						
48				5	100	100
50	- stylolite at 48.7ft BGS - stylolite at 49.6ft BGS					
52						
54	- stylolite at 52.7ft BGS - open stylolite at 53.2ft BGS - half-inch open stylolite at 53.7ft BGS - medium grained at 54.0ft BGS					
56						
58				6	100	100
60			4" DIA. HQ COREHOLE			
62	- stylolite at 62.0ft BGS - stylolite at 62.7ft BGS					
64	- stylolite at 64.6ft BGS					
66						
68	- stylolite at 67.4ft BGS			7	100	100
70						
72	- 2-inch vertical non-continuous opening at 72.3ft BGS - horizontal fracture at 73.6ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X234Y157D
DATE COMPLETED: June 26, 2002
DRILLING METHOD: 10-INCH TR-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
76	- start of shale layering at 73.9ft BGS - horizontal fracture at 74.3ft BGS - stylolite with calcite filling at 76.4ft BGS - horizontal fracture at 77.5ft BGS		DOW PACKER	8	100	100
78						
80						
82			4" DIA. HQ COREHOLE			
84	- horizontal fracture at 83.6ft BGS LIMESTONE (UPPER HARRODSBURG FORMATION), porous, fossils (bryozoan), gray calcarenite and calcirudite	591.19				
86	- stylolite at 85.7ft BGS - stylolite at 86.7ft BGS - stylolite at 87.1ft BGS - horizontal fracture at 87.8ft BGS		SAMPLE ZONE 4	9	100	100
88						
90	- stylolite at 89.8ft BGS - stylolite at 90.8ft BGS - stylolite at 91.4ft BGS - stylolite at 92.0ft BGS		DOW PACKER			
92						
94	- stylolite at 93.3ft BGS - stylolite at 94.0ft BGS					
96						
98	- horizontal fracture at 97.0ft BGS			10	100	100
100			SAMPLE ZONE 3			
102	- horizontal fracture at 102.6ft BGS - stylolite at 103.0ft BGS					
104			DOW PACKER			
106	- stylolite at 105.7ft BGS - horizontal fracture at 105.9ft BGS - horizontal fracture at 107.2ft BGS			11	100	100
108	- horizontal fracture at 108.5ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X234Y157D
DATE COMPLETED: June 26, 2002
DRILLING METHOD: 10-INCH TR-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
110	- 1-inch interbedded shale at 110.0ft BGS		NON-MONITORING ZONE			
112	- horizontal fracture & 1-inch vertical non-continuous opening at 111.4ft BGS - horizontal fracture at 112.9ft BGS		DOW PACKER			
114	- light gray at 113.0ft BGS - near vertical stylolite at 114.0ft BGS - stylolite at 115.1ft BGS					
116	- stylolite at 116.4ft BGS - 2-foot porous section at 116.7ft BGS					
118				12	100	100
120	- horizontal fracture at 119.7ft BGS - stylolite at 120.1ft BGS - horizontal fracture at 120.4ft BGS		SAMPLE ZONE 2			
122	- 9-inch vertical non-continuous opening at 120.7ft BGS - stylolite at 122.2ft BGS					
124	- horizontal fracture at 122.5ft BGS - horizontal fracture at 124.3ft BGS		DOW PACKER			
126	- horizontal fracture at 125.5ft BGS					
128	- stylolite at 128.5ft BGS - stylolite at 129.0ft BGS			13	100	100
130	- stylolite at 130.9ft BGS - stylolite at 131.3ft BGS					
132		541.89				
134	LIMESTONE (LOWER HARRODSBURG FORMATION), 3-inch section of fractured rock - horizontal fracture at 135.2ft BGS					
136			4" DIA. HQ COREHOLE			
138	- stylolite at 136.8ft BGS - stylolite at 137.2ft BGS - stylolite at 137.5ft BGS - stylolite at 138.1ft BGS			14	100	100
140	- stylolite at 138.6ft BGS - stylolite at 139.2ft BGS - stylolite at 140.5ft BGS					
142	- stylolite at 141.5ft BGS - interbedded shale at 142.5ft BGS - abundance of fossils at 143.0ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X234Y157D
DATE COMPLETED: June 26, 2002
DRILLING METHOD: 10-INCH TR-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
146	- stylolite at 144.4ft BGS - stylolite at 144.9ft BGS - stylolite at 145.2ft BGS - stylolite at 145.6ft BGS - interbedded shale, dark gray at 146.0ft BGS - 3-foot section of geodes at 147.2ft BGS - 1.5-inch calcite filled geode at 147.5ft BGS		NON-MONITORING ZONE			
148						
150	- light gray at 150.0ft BGS					
152	- horizontal fracture at 152.1ft BGS					
154	- horizontal fracture at 153.3ft BGS - stylolite at 153.4ft BGS - stylolite at 153.9ft BGS					
156	- interbedded shale, dark gray at 155.8ft BGS - 6-foot section of calcite filled geodes at 156.4ft BGS					
158				16	100	100
160	LIMESTONE (RAMP CREEK FORMATION),very fine grained, contains small amounts of shale, even bedded	515.39	4" DIA. HQ COREHOLE			
162	- 1-foot of layering at 162.9ft BGS					
164	- half-inch calcite vug at 164.3ft BGS					
166						
168	- half-inch calcite vug at 167.2ft BGS - half-inch calcite vug at 167.5ft BGS			17	100	100
170	- half-inch calcite vug at 169.1ft BGS - 1.4 feet of layering at 169.7ft BGS		DOW PACKER			
172	- horizontal fracture at 171.1ft BGS - calcite vugs at 171.5ft BGS					
174	- calcite vug at 172.8ft BGS - 2-inch geode at 173.0ft BGS - 2-inch geode at 174.1ft BGS - horizontal fracture at 174.4ft BGS					
176	- horizontal fracture at 175.9ft BGS					
178	- horizontal fracture at 177.0ft BGS		SAMPLE ZONE 1	18	100	100

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X234Y157D
DATE COMPLETED: June 26, 2002
DRILLING METHOD: 10-INCH TR-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
180						
	SHALE (EDWARDSVILLE FORMATION), pyrite, soft, green/gray	494.49	4" DIA. HQ COREHOLE			
182	END OF BOREHOLE @ 182.3ft BGS	492.59				
184						
186						
188						
190						
192						
194						
196						
198						
200						
202						
204						
206						
208						
210						
212						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X242Y060S
DATE COMPLETED: November 12, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER	684.50					
0	GW-GRAVEL (FILL), medium grained sand, limestone chips, gray/tan						
2		3					
4	CL-CLAY, little silt, low plasticity, firm, strong brown, moist		CEMENT / BENTONITE GROUT	1		1.0	
6	- medium plasticity at 5.0ft BGS		4" DIA. STEELCASING	2		1.3	
8				3		1.0	
10				4		1.0	
12	END OF OVERBURDEN HOLE @ 11.0ft BGS						
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X242Y060S
DATE COMPLETED: November 12, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %
12	LIMESTONE (ST. LOUIS FORMATION), thin bedded, fine grained, gray	11				
14	- 1.5-inch vertical non-continuous opening, trace brown clay parting at 14.3ft BGS - near vertical fracture at 15.0ft BGS			1	100	100
16	- near vertical fracture, brown clay parting at 16.2ft BGS					
18	- near vertical fracture, brown clay parting at 17.0ft BGS					
20			4" DIA. COREHOLE			
22	- 0.5-inch clay parting, near vertical at 21.5ft BGS - near vertical fracture at 22.2ft BGS			2	100	90
24	- near vertical fracture at 24.8ft BGS					
26	- fracture, clay parting at 26.6ft BGS					
28	- 1-foot sections of 2 to 3 inch fractures at 27.8ft BGS					
30						
32	- fracture at 31.3ft BGS - fracture, water lost (approx. 2 to 3 gpm) at 31.7ft BGS			3	100	100
34	- stylolite at 33.8ft BGS - open stylolite at 34.3ft BGS - stylolite at 35.0ft BGS	34.8				
36	LIMESTONE (SALEM FORMATION), medium to coarse grained, fossils, gray/tan					
38			SUMP			
40	END OF BOREHOLE @ 40.0ft BGS	40				
42	Boring drilled on an 30 degree angle from vertical (all depths not in relation to vertical)					
44	Overburden pilot boring advanced utilizing 4-1/4 inch hollow stem augers and samples collected by STP method					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X242Y060S
DATE COMPLETED: November 12, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE WELL	RUN NUMBER	CORE RECOVERY %	RQD %	
46	Ground surface elevation of 682.51 ft. AMSL						
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							
70							
72							
74							
76							
78							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X251Y189D
DATE COMPLETED: March 18, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER GROUND SURFACE	666.16 663.5					
0	GW-GRAVEL (FILL), some well graded sands, medium to coarse gravel, well graded, gray, dry	662.59	10" DIA. STEEL CASING				
2	CL-CLAY, some silt, firm, low plasticity, strong brown, moist END OF OVERBURDEN HOLE @ 2.5ft BGS						
4							
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X251Y189D
DATE COMPLETED: March 18, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
	TOP OF RISER GROUND SURFACE	666.16 663.5				
0	GW-GRAVEL (FILL), some well graded sands, medium to coarse gravel, well graded, gray, dry	662.59	10" DIA. STEEL CASING			
2	CL-CLAY, some silt, firm, low plasticity, strong brown, moist	660.99				
4	LIMESTONE (ST. LOUIS FORMATION), thin bedded, fine grained, micritic, gray, trace calcite					
6						
8	- horizontal fracture at 8.7ft BGS - horizontal fracture at 9.2ft BGS			1	100	81
10	- horizontal fracture at 10.6ft BGS - horizontal fracture, mud parting at 11.1ft BGS					
12	- horizontal fracture at 11.6ft BGS - horizontal fracture, mud parting at 13.0ft BGS					
14						
16	- horizontal fracture, black shale parting at 16.6ft BGS		4" HQ COREHOLE			
18	- horizontal fracture, mud parting at 18.0ft BGS - horizontal fracture at 18.8ft BGS			2	100	95
20	- horizontal fracture at 19.0ft BGS		SAMPLE ZONE 7			
22	- horizontal fracture at 21.7ft BGS - 3-inch section of vugs with silt fillings at 22.7ft BGS	641.09	DOW PACKER			
24	LIMESTONE (SALEM FORMATION), gradational contact, beige, medium grained, calcarenite					
26	- 2 feet of blue/gray in color at 23.2ft BGS - stylolite at 23.7ft BGS - stylolite at 27.0ft BGS					
28	- stylolite, blue/gray for 1 foot at 28.5ft BGS			3	100	100
30						
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

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CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X251Y189D
DATE COMPLETED: March 18, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
36						
	- stylolite at 37.2ft BGS					
38			NON-MONITORING ZONE	4	100	100
40						
	- stylolite at 41.5ft BGS					
42						
44	- stylolite at 44.3ft BGS					
46						
48	- 5 feet of thin bedded blue/gray, fine grained at 48.0ft BGS			5	100	100
50	- 2-inch horizontal non-continuous opening at 50.5ft BGS		4" HQ COREHOLE			
52						
54	- approximate half-inch horizontal non-continuous opening at 54.2ft BGS		DOW PACKER			
56						
58	- 3-inch section of shale with fractures at 57.9ft BGS			6	100	100
60	- 2-foot section of open vugs at 60.0ft BGS					
62	- thin horizontal fractures at 62.0ft BGS		SAMPLE ZONE 6			
64			DOW PACKER			
	- stylolite at 65.0ft BGS					
66			NON-MONITORING ZONE			
68				7	100	100
	- thin horizontal fracture at 68.8ft BGS		DOW			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X251Y189D
DATE COMPLETED: March 18, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
72			PACKER			
74						
76	LIMESTONE (UPPER HARRODSBURG FORMATION), porous throughout, abundance of fossils (well cemented bioclastic), light gray to bluish gray, calcite	587.59				
78	- stylolite at 76.3ft BGS - thin horizontal fracture at 77.8ft BGS		SAMPLE ZONE 5	8	100	100
80						
82	- thin horizontal fracture at 81.4ft BGS - stylolite at 81.7ft BGS		DOW PACKER			
84	- stylolite at 83.4ft BGS					
86	- 2-inch horizontal non-continuous opening at 85.7ft BGS		4" HQ COREHOLE			
88			SAMPLE ZONE 4	9	100	100
90	- 1-inch horizontal non-continuous opening at 89.7ft BGS					
92			DOW PACKER			
94	- stylolite at 93.5ft BGS - stylolite at 94.9ft BGS		SAMPLE ZONE 3			
96	- thin horizontal fracture at 96.3ft BGS					
98	- stylolite at 97.5ft BGS - 5 feet of rock white in color at 98.0ft BGS			10	100	100
100	- stylolite at 99.5ft BGS		DOW PACKER			
102			DOW PACKER			
104	- thin horizontal fracture at 102.7ft BGS - less fossils present at 103.0ft BGS - thin horizontal fracture at 104.4ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X251Y189D
DATE COMPLETED: March 18, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
106	- thin horizontal fracture at 105.9ft BGS					
108	- highly fossiliferous (shells, calcite), vugs at 108.0ft BGS - thin horizontal fracture at 108.3ft BGS		SAMPLE ZONE 2	11	100	100
110	- 2-inch section of highly horizontal fractures at 108.9ft BGS - horizontal fracture at 110.0ft BGS		DOW PACKER			
112	- stylolite at 110.9ft BGS - less fossils present at 111.0ft BGS					
114						
116						
118	- 4-inch vertical stylolite at 118.0ft BGS - 4-inch shale bed at 118.5ft BGS			12	100	100
120	- 1-inch horizontal non-continuous opening at 119.4ft BGS		4" HQ COREHOLE			
122	- thin horizontal fracture, shale at 121.0ft BGS - vugs at 122.2ft BGS - thin horizontal fracture, shale at 122.6ft BGS					
124	- thin horizontal fracture at 123.6ft BGS - horizontal fracture at 124.5ft BGS - horizontal fracture at 124.8ft BGS			13	100	100
126	- 1-inch horizontal non-continuous opening at 125.7ft BGS - horizontal shale fracture at 126.1ft BGS					
128	- stylolite at 127.5ft BGS					
130	LIMESTONE (LOWER HARRODSBURG FORMATION) - stylolite at 129.5ft BGS - 1.5 foot section of interbedded shale at 130.5ft BGS	534.49				
132	- stylolite at 131.6ft BGS - half-inch geode at 132.5ft BGS					
134	- 5 feet of interbedded shale at 133.9ft BGS - horizontal fracture at 134.7ft BGS					
136	- horizontal fracture at 136.1ft BGS - half-inch horizontal non-continuous opening at 137.1ft BGS			14	100	100
138	- thin horizontal fracture along the stylolite at 138.8ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X251Y189D
DATE COMPLETED: March 18, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
142	- stylolite at 139.8ft BGS - stylolite at 141.4ft BGS - stylolite, horizontal fracture at 142.8ft BGS		NON-MONITORING ZONE			
144	- gray in color, stylolite at 144.3ft BGS - stylolite at 145.4ft BGS					
146	- 1-inch shale bed at 146.2ft BGS					
148	- 4-inch section of geodes with calcite fillings at 148.6ft BGS			15	100	100
150	- thin horizontal fracture at 150.6ft BGS - thin horizontal fracture at 151.4ft BGS					
152	- stylolite at 152.1ft BGS - thin horizontal fracture along the stylolite at 152.8ft BGS					
154	- horizontal fracture at 155.0ft BGS - horizontal fracture at 155.5ft BGS		4" HQ COREHOLE			
156						
158	- 3.2-foot section of geodes with calcite fillings at 158.0ft BGS			16	100	100
160	LIMESTONE (RAMP CREEK FORMATION), very fine grained, contains small amounts of shale, even bedded	503.59				
162						
164	- 3-foot section of interbedded shale at 163.5ft BGS					
166	SHALE, light blue/gray	496.99				
168	LIMESTONE, medium grained, interbedded shale	495.19		17	100	100
170	- occasional geodes/vugs with calcite fillings at 170.3ft BGS - 1-inch vugs with calcite fillings at 171.2ft BGS					
172	- 3 feet section of interbedded layers of very small shells at 171.5ft BGS		DOW PACKER			
174						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X251Y189D
DATE COMPLETED: March 18, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
176						
178			4" HQ COREHOLE	18	100	100
180			SAMPLE ZONE 1			
	SHALE (EDWARDSVILLE FORMATION), soft, light blue/gray, with occasional green discoloration	483.09				
182						
	END OF BOREHOLE @ 183.5ft BGS	479.99				
184						
186						
188						
190						
192						
194						
196						
198						
200						
202						
204						
206						
208						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X261Y356D
DATE COMPLETED: April 26, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	672.59 668.9						
0	TOPSOIL CL-CLAY, little silt, firm, low to medium plasticity, strong brown (7.5YR 4/6), moist	668.61	CEMENT / BENTONITE GROUT 10" DIA. STEEL CASING	1		1.7	5	0
2				2		1.7	20	0
4	END OF OVERBURDEN HOLE @ 4.0ft BGS							
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X261Y356D
DATE COMPLETED: April 26, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
4	LIMESTONE (SALEM FORMATION), fine to coarse grained, calcite, gray, granular, thick bedding	664.91	10" DIA. STEEL CASING			
6						
8	- stylolite at 8.4ft BGS					
10	- stylolite at 9.9ft BGS			1	100	100
12	- stylolite at 11.4ft BGS		SAMPLE ZONE 5			
14	- stylolite at 14.2ft BGS - stylolite at 14.6ft BGS - stylolite at 14.9ft BGS					
16	- stylolite at 15.3ft BGS		DOW PACKER			
18	- stylolite at 17.3ft BGS			2	100	100
20						
22						
24			NON-MONITORING ZONE 4" DIA. HQ COREHOLE			
26	- open stylolite at 25.5ft BGS					
28				3	100	100
30	- open stylolite at 29.0ft BGS - stylolite at 30.7ft BGS		DOW PACKER			
32	- stylolite at 32.1ft BGS					
34	- massive, occasional fossils (small shell fragments), beige/tan at 33.0ft BGS					
36	- 4-inch near vertical non-continuous opening, very slight iron staining at 35.1ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE: REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X261Y356D
DATE COMPLETED: April 26, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
38	- horizontal fracture at 37.2ft BGS			4	100	100
40						
42			SAMPLE ZONE 4			
44	- stylolite at 43.0ft BGS					
46			DOW PACKER			
48				5	100	100
50						
52	- stylolite at 51.3ft BGS - stylolite at 51.8ft BGS - open stylolite at 52.6ft BGS					
54						
56						
58				6	100	100
60			4" DIA. HQ COREHOLE			
62						
64	LIMESTONE (UPPER HARRODSBURG FORMATION), fossils (bryozoan, brachiopods), cemented, gray/light gray, slightly porous, calcite	604.91				
66	- stylolite with calcite crystal filling at 66.1ft BGS					
68	- open stylolite at 66.4ft BGS - stylolite at 66.6ft BGS - horizontal fracture at 68.6ft BGS			7	100	100
70	- stylolite at 69.1ft BGS - stylolite at 69.6ft BGS - stylolite at 70.9ft BGS		NON-MONITORING ZONE			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (O)

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X261Y356D
DATE COMPLETED: April 26, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
74	- open stylolite at 71.9ft BGS - stylolite at 72.1ft BGS - open stylolite at 73.3ft BGS					
76	- stylolite at 75.5ft BGS					
78				8	100	100
80	- stylolite at 78.9ft BGS - stylolite at 79.1ft BGS - open stylolite at 79.4ft BGS - horizontal fracture at 80.1ft BGS - near vertical stylolite at 80.7ft BGS					
82	- stylolite at 83.0ft BGS					
84	- white at 84.0ft BGS - stylolite at 84.8ft BGS					
86	- stylolite at 86.0ft BGS - stylolite at 86.2ft BGS		4" DIA. HQ COREHOLE			
88				9	100	100
90	- 2-inch fractured rock section at 90.8ft BGS					
92	- stylolite at 91.0ft BGS - stylolite at 91.2ft BGS - stylolite at 91.3ft BGS					
94	- stylolite at 93.2ft BGS - stylolite at 94.4ft BGS		DOW PACKER			
96	- horizontal fracture at 95.1ft BGS - stylolite at 96.0ft BGS					
98	- stylolite at 97.2ft BGS - stylolite at 97.6ft BGS					
100	- stylolite at 98.7ft BGS - horizontal fracture at 99.7ft BGS			10	100	100
102	- horizontal fracture at 102.1ft BGS LIMESTONE (LOWER HARRODSBURG FORMATION), occasional interbedded thin layers of shale	566.91	SAMPLE ZONE 3			
104	- 9-inch section of horizontal fractures at 103.0ft BGS					
106			DOW PACKER			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

BEDROCK LOG 20040316 13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X261Y356D
DATE COMPLETED: April 26, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
108	- stylolite at 107.8ft BGS - stylolite at 108.4ft BGS - stylolite at 108.7ft BGS - open stylolite at 109.2ft BGS			11	100	100
110	- stylolite at 111.2ft BGS		NON-MONITORING ZONE			
112						
114	- open stylolite at 114.0ft BGS					
116	- 2-foot thin bedded section at 115.5ft BGS		DOW PACKER			
118	- 4-inch calcite section at 117.3ft BGS - 1.2-foot dark gray section at 117.8ft BGS - 3-inches of calcite at 119.0ft BGS			12	100	100
120	- horizontal fracture at 120.1ft BGS		4" DIA. HQ COREHOLE			
122	- stylolite at 121.5ft BGS					
124	- 1.5-inch shale layer at 123.4ft BGS					
126	- 1-inch calcite section at 126.4ft BGS		SAMPLE ZONE 2			
128	LIMESTONE (RAMP CREEK FORMATION), very fine grained, contains small amounts of shale, even bedded - gray in color at 127.6ft BGS - partly filled calcite vug at 128.6ft BGS	542.11		13	100	100
130	- partly filled calcite vug at 130.4ft BGS - 1-inch sediment bed at 131.0ft BGS		DOW PACKER			
132	- 1-inch calcite section at 131.3ft BGS - calcite filled vug at 132.5ft BGS					
134	- calcite filled vug at 133.8ft BGS - 2-inch calcite filled vug at 134.8ft BGS		NON-MONITORING ZONE			
136						
138	- vug with calcite crystals at 137.4ft BGS					
140	- calcite filled vug at 139.8ft BGS		DOW PACKER	14	100	100

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X261Y356D
DATE COMPLETED: April 26, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
144			4" DIA. HQ COREHOLE			
146	- light gray in color at 146.2ft BGS					
148	- open geode with calcite crystals at 148.5ft BGS	520.21	SAMPLE ZONE 1	15	100	100
150	SHALE (EDWARDSVILLE FORMATION), soft, gray/light blue					
152						
154		514.41				
	END OF BOREHOLE @ 154.5ft BGS					
156	Overburden pilot boring advanced utilizing 4-1/4 inch hollow stem augers and samples collected by STP method					
158						
160						
162						
164						
166						
168						
170						
172						
174						
176						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X269Y201D
DATE COMPLETED: April 10, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF RISER	670.39						
	GROUND SURFACE	669.3						
0	TOPSOIL	668.85						
	CL-CLAY (FILL), with silt, trace gravel, firm, medium plasticity, strong brown (7.5YR 4/6), moist		CEMENT / BENTONITE GROUT	1		1.5	5	0
2	- 2 feet of bricks and wire at 2.0ft BGS			2		1.5	>50	0
4			10" DIA. STEEL CASING	3		1.5	13	0
6	CL-CLAY, with silt, stiff, low to medium plasticity, strong brown (7.5YR 4/6), moist	663.35		4		1.5	18	0
8	END OF OVERBURDEN HOLE @ 8.0ft BGS							
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X269Y201D
DATE COMPLETED: April 10, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
	CL-CLAY, with silt, stiff, low to medium plasticity, strong brown (7.5YR 4/6), moist	663.35				
8	LIMESTONE (ST. LOUIS FORMATION), fine grained, light blue/gray, interbedded shale, calcite, thin bedded	661.35	10" STEEL CASING; CEMENT / BENTONITE GROUT			
10						
12						
14	- stylolite at 14.7ft BGS - thin horizontal fracture at 14.9ft BGS	654.55				
16	LIMESTONE (SALEM FORMATION), granular, tick bedding, medium to coarse grained - beige/tan, fossils, trace calcite, thin bedded at 16.3ft BGS		4" DIA. HQ COREHOLE	1	100	100
18	- thin horizontal fracture at 16.7ft BGS - 1-foot of open vugs throughout at 18.1ft BGS					
20						
22						
24	- 2.4 feet of light gray in color at 23.6ft BGS - 1-inch horizontal non-continuous opening, black discoloration, clay/silt filling at 24.3ft BGS		SAMPLE ZONE 3			
26	- 3-foot section of highly fractured rock (vertical & horizontal) at 26.0ft BGS - near horizontal fracture, dark brown/black, clay/silt filling at 26.6ft BGS			2	100	34
28	- 9-inch vertical non-continuous opening at 28.2ft BGS		DOW PACKER			
30						
32	- stylolite at 32.7ft BGS					
34	- iron staining (oxidized), 3-inch near vertical non-continuous opening at 34.7ft BGS					
36	- stylolite at 35.3ft BGS - stylolite at 36.7ft BGS			3	100	100
38						
40	- horizontal fracture at 40.4ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X269Y201D
DATE COMPLETED: April 10, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
42	- stylolite at 40.7ft BGS - stylolite at 42.0ft BGS					
44	- open stylolite, calcite, small fossils, fine grained, thin bedded, light gray at 44.7ft BGS					
46	- open stylolite at 45.7ft BGS - open stylolite at 46.8ft BGS			4	100	100
48						
50	- open stylolite at 50.8ft BGS					
52	- 4-inch open vug with calcite at 53.2ft BGS					
54	- open stylolite at 54.4ft BGS		4" DIA. HQ COREHOLE			
56				5	100	100
58	- 4-inch vertical stylolite at 59.0ft BGS					
60	- horizontal open stylolite at 59.4ft BGS					
62			NON-MONITORING ZONE			
64						
66	- thin horizontal fracture at 66.9ft BGS			6	100	100
68						
70						
72						
74	- stylolite at 73.8ft BGS - stylolite at 75.5ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X269Y201D
DATE COMPLETED: April 10, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
78	- stylolite open fracture at 78.4ft BGS	590.55		7	100	100
80	LIMESTONE (UPPER HARRODSBURG FORMATION), well cemented bioclastic calcarenite and calcirudite limestone					
82	- stylolite at 82.6ft BGS - 1.3-foot section of slightly porous (very small vugs present) at 82.7ft BGS		4" DIA. HQ COREHOLE			
84	- stylolite open fracture at 84.3ft BGS - stylolite at 84.8ft BGS					
86	- stylolite, very small vugs present at 86.0ft BGS			8	100	100
88	- stylolite open fracture at 89.1ft BGS					
90	- half-inch open vug at 89.4ft BGS					
92	- stylolite open fracture at 91.5ft BGS - 1-foot section of small vugs present at 91.8ft BGS					
94	- very thin bedded, white, calcite content, very small fossils present at 93.0ft BGS		DOW PACKER			
96	- stylolite at 95.0ft BGS					
98	- open fracture at 97.1ft BGS - open fracture at 98.3ft BGS			9	100	100
100	- stylolite at 99.3ft BGS - stylolite at 100.4ft BGS		SAMPLE ZONE 2			
102	- open stylolite at 102.4ft BGS - 1-foot section of stylolites at 102.5ft BGS					
104			DOW PACKER			
106	- open stylolite at 105.6ft BGS - open stylolite at 106.2ft BGS - stylolite at 106.7ft BGS			10	100	100
108	- light gray, lots of fanlike bryozoan fossils at 107.6ft BGS					
110	- stylolite at 109.3ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X269Y201D
DATE COMPLETED: April 10, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
112	- open stylolite at 111.5ft BGS - stylolite at 112.8ft BGS					
114						
116						
118	- stylolite at 117.5ft BGS - open stylolite at 118.0ft BGS - open stylolite at 118.8ft BGS			11	100	100
120	- stylolite at 120.4ft BGS					
122	- white, contains many very small fossils at 122.0ft BGS					
124	- open stylolite at 123.8ft BGS - stylolite at 124.0ft BGS					
126				12	100	100
128	- stylolite at 127.1ft BGS - stylolite at 128.1ft BGS					
130	- open stylolite at 129.5ft BGS LIMESTONE (LOWER HARRODSBURG FORMATION), 1-inch green shale	539.35				
132	- 6-inch interbedded green shale at 131.1ft BGS					
134	- stylolite at 133.5ft BGS - open stylolite at 134.6ft BGS					
136			NON-MONITORING ZONE	13	100	100
138	- open stylolite at 137.5ft BGS					
140						
142	- open stylolite at 140.9ft BGS					
144	- dark gray at 143.5ft BGS - small geodes filled with calcite at 144.5ft BGS		4" DIA. HQ COREHOLE			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X269Y201D
DATE COMPLETED: April 10, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
148	- horizontal fracture at 146.4ft BGS			14	100	100
150	- horizontal fracture at 150.2ft BGS					
152	- horizontal fracture at 153.2ft BGS					
154	- 1.5-inch diameter geode, partially calcite filled at 154.4ft BGS					
156	LIMESTONE (RAMP CREEK FORMATION), fine grained, contains small amounts of shale, even bedded	514.05		15	100	100
158	- 1-inch calcite filled geode at 157.5ft BGS - half-inch vug at 158.0ft BGS - 6-inch layers of very small shell beds at 158.1ft BGS					
160	- 1-inch calcite filled geode at 159.8ft BGS					
162	- pyrite at 162.1ft BGS					
164	- 1.5-inch partially filled geode at 164.1ft BGS					
166						
168	- horizontal open fractures with small geodes around at 168.0ft BGS		DOW PACKER	16	100	100
170	- horizontal open fractures with pyrite at 170.6ft BGS					
172	- 8-inches of shell bed at 171.1ft BGS - open horizontal fracture at 171.9ft BGS					
174			4" DIA. HQ COREHOLE			
176	- light gray at 175.7ft BGS					
178	SHALE (EDWARDSVILLE FORMATION), soft, green (top 4-inches), dark gray, pyrite throughout	492.45		17	100	100
180			SAMPLE ZONE 1			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X269Y201D
DATE COMPLETED: April 10, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
182	END OF BOREHOLE @ 182.5ft BGS Overburden pilot boring advanced utilizing 4-1/4 inch hollow stem augers and samples collected by STP method	486.85				
184						
186						
188						
190						
192						
194						
196						
198						
200						
202						
204						
206						
208						
210						
212						
214						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS ☐

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X297Y305D
DATE COMPLETED: June 23, 2003
DRILLING METHOD: 6 1/4-INCH HSA
FIELD PERSONNEL: J. MC COMBS & K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	615.98
	GROUND SURFACE	614.5
0	TOPSOIL	614.19
2	LIMESTONE (SALEM FORMATION), medium to coarse grained fossiliferous, granular, calcite, thick bedding, gray to dark gray - pair of horizontal fractures, unweathered at 2.9ft BGS	
4		
6	- horizontal fracture, slightly weathered at 5.3ft BGS - open stylolite, brown, weathered at 5.6ft BGS	
8	- horizontal fracture at 7.3ft BGS - horizontal fracture at 8.5ft BGS	
10	- horizontal fracture, unweathered at 10.4ft BGS - stylolite at 11.6ft BGS	
12	- stylolite, brown and parted at 12.7ft BGS	601.99
14	LIMESTONE (UPPER HARRODSBURG FORMATION), well cemented bioclastic calcarenite and calcirudite, stylolite, brown and parted - stylolite, gray at 13.0ft BGS - 2-inch near vertical clean non-continuous opening at 14.8ft BGS	
16	- stylolite, gray at 15.6ft BGS	
18	- 1.2-feet near vertical fracture, stylolites at 19.0ft BGS	
20	- 2 thin stylolites at 19.8ft BGS	
22	- horizontal fracture, dissolved at 21.5ft BGS - 2 centimeter thick stylolite at 22.6ft BGS	
24	- slightly dissolved horizontal fracture at 23.4ft BGS - stylolite, dark gray at 24.1ft BGS	
26	- 1 to 4 centimeter dissolution vugs at 25.4ft BGS - stylolite, parted, dark gray at 26.7ft BGS - stylolite, dark gray at 27.0ft BGS	
28	- 2 stylolites, parted, dark gray at 28.7ft BGS	
30	- stylolite, parted, slightly weathered and oxidized at 28.8ft BGS - horizontal fracture, stylolite, slightly oxidized at 29.4ft BGS	
32	- 3.5-inch near vertical non-continuous opening at 30.7ft BGS - near vertical fracture, parted, 0.8-feet section of darker limestone with fossil hash at 31.3ft BGS	
34	- stylolite at 32.1ft BGS	

MONITORING WELL



RUN NUMBER	CORE RECOVERY %	RQD %
1	95	85
2	96	97
3	103	99
4	100	100

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 20040316_13968.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X297Y305D
DATE COMPLETED: June 23, 2003
DRILLING METHOD: 6 1/4-INCH HSA
FIELD PERSONNEL: J. MC COMBS & K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
36	- horizontal fracture at 32.6ft BGS - stylolite, parted, dark gray at 34.0ft BGS - stylolite, parted, weathered at 35.3ft BGS - thin shale seam, dark gray at 35.5ft BGS					
38						
40	- stylolite, dark gray at 39.8ft BGS - stylolite, dark gray at 40.7ft BGS					
42	- horizontal fracture, shale parting at 42.0ft BGS - stylolite, dark gray at 42.6ft BGS					
44	- stylolite, dark gray at 43.7ft BGS			5	100	99
46	- near vertical horizontal fracture, slightly weathered, some fossils, thin mineralized fracture at 45.8ft BGS					
48	- stylolite, 2 centimeter mineralized vug at 47.1ft BGS - open stylolite, dark gray at 48.3ft BGS		4" DIA. HQ COREHOLE			
50	- pair stylolite, dark gray at 49.3ft BGS - stylolite, dark gray at 50.5ft BGS			6	100	99
52	- 3-inch of unconsolidated limestone, mud wash at 50.7ft BGS - horizontal shale parting, weathered at 51.1ft BGS					
54	- horizontal shale parting, weathered at 52.0ft BGS - horizontal fracture, slightly weathered at 52.3ft BGS			7	100	90
56	- stylolite, dark gray at 52.7ft BGS - stylolite, parted/fractured, weathered / washed at 54.1ft BGS		DOW PACKER			
58	- horizontal fracture, weathered at 54.6ft BGS - horizontal shale parting, 1-feet thin vertical fracture at 55.0ft BGS					
60	- stylolite at 56.8ft BGS - stylolite at 57.7ft BGS - stylolite, parted, slightly weathered at 58.5ft BGS					
62	- stylolite, white at 60.8ft BGS - stylolite, white at 61.4ft BGS					
64	- stylolite, white at 61.8ft BGS - stylolite, white at 62.6ft BGS	551.29		8	102	99
66	LIMESTONE (LOWER HARRODSBURG FORMATION), horizontal fracture, interbedded thin layers of shale - horizontal fracture at 64.2ft BGS - 1-inch shale seam at 64.5ft BGS		SAMPLE ZONE 2			
68	- 1-inch shale seam at 65.6ft BGS - horizontal fracture at 66.1ft BGS - horizontal fracture at 66.4ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X297Y305D
DATE COMPLETED: June 23, 2003
DRILLING METHOD: 6 1/4-INCH HSA
FIELD PERSONNEL: J. MC COMBS & K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
72	- shale seam at 66.5ft BGS - 7-inch section of shale at 66.7ft BGS - horizontal fracture at shale at 67.7ft BGS - stylolite at 68.0ft BGS - stylolite at 69.0ft BGS - stylolites, dark gray at 69.8ft BGS		DOW PACKER			
74	- stylolites, dark gray at 70.0ft BGS - stylolites, dark gray at 70.1ft BGS			9	99	98
76	- 1 centimeter thick stylolite, dark gray and parted at 70.6ft BGS - horizontal fracture at 71.7ft BGS - thin shale seam at 72.6ft BGS					
78	- 0.1-feet thick shale seam at 73.6ft BGS - 1 centimeter thick stylolite, dark gray and parted at 74.7ft BGS		NON-MONITORING ZONE			
80	- shale seam, parted at 75.7ft BGS - 0.1-feet thick shale seam, dark gray at 76.0ft BGS					
82	- 0.2-feet thick shale seam at 76.7ft BGS - horizontal fracture along shale parting, dark gray at 78.2ft BGS					
84	- horizontal fracture, interbedded thin layers of shale at 79.6ft BGS - 1-centimeter thick shale stringer at 80.0ft BGS			10	100	99
86	- 1-centimeter thick shale stringer at 81.6ft BGS - 0.3-feet thick zone of shale stringers, dark gray with pyrite crystals at 83.4ft BGS		DOW PACKER			
88	- stylolite, wash out at 84.8ft BGS - 0.4-feet thick geode within shale zone, bottom of zone contains near vertical shale partings at 86.2ft BGS					
90	- horizontal fracture, slightly oxidized at 87.7ft BGS					
92	- horizontal fracture, shaley, 1-feet long vertical non-continuous opening at 88.0ft BGS - shale parting at 89.0ft BGS	521.99				
94	- stylolite, dark gray at 89.4ft BGS - 1-feet thick shale seam at 89.6ft BGS			11	100	100
96	- horizontal fracture, slightly weathered at 92.3ft BGS LIMESTONE (RAMP CREEK FORMATION), very fine grained, even bedded, shaley with geodes		4" DIA. HQ COREHOLE			
98	- 1-feet thick section of geodes, white, quartz at 94.8ft BGS					
100	- 0.1-feet thick geode, tabular parted, white with calcite / quartz and pyrite minerals, slightly dissolved at 97.0ft BGS					
102	- 0.1-feet thick vug slightly mineralized at 99.1ft BGS - 3.4-feet thick section of shaley limestone with quartz geodes at 100.1ft BGS					
104	- horizontal fractures, shale partings at 103.1ft BGS - 0.8-feet light gray limestone with shale					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X297Y305D
DATE COMPLETED: June 23, 2003
DRILLING METHOD: 6 1/4-INCH HSA
FIELD PERSONNEL: J. MC COMBS & K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
106	stringers, fossiliferous at 103.5ft BGS - horizontal fracture at 105.1ft BGS - horizontal fracture at 106.5ft BGS		SAMPLE ZONE 1	12	99	100
108	- horizontal fracture along shale stringer at 108.5ft BGS					
110	- 0.4-feet thick section of fossiliferous limestone, shale stringers, light gray at 109.6ft BGS	504.49	4" DIA. HQ COREHOLE			
112	SHALE (EDWARDSVILLE FORMATION), moderately dense, pyrite, dark gray / blue, soft, slightly fissile			13	99	100
114		499.69				
116	END OF BOREHOLE @ 114.8ft BGS					
118						
120						
122						
124						
126						
128						
130						
132						
134						
136						
138						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: P027A
DATE COMPLETED: December 3, 2003
DRILLING METHOD: SPLIT SPOON
FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	596.7					
0	CL-CLAY, cohesive, little quartz stones, firm, low plasticity, brown, damp			1		2.0	10
2	- strong brown at 3.0ft BGS			2		2.0	22
4			BENTONITE SEAL	3		2.0	26
6				4		2.0	30
8				5		1.4	>50
		587.74					
9	BEDROCK (LIMESTONE)	587.44					
10	END OF BOREHOLE @ 9.0ft BGS						
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: P027B
DATE COMPLETED: December 3, 2003
DRILLING METHOD: SPLIT SPOON
FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	611.4					
0	CL-CLAY, cohesive, firm, medium to low plasticity, brown, damp			1		2.0	10
2				2		2.0	21
	- strong brown at 3.0ft BGS						
4				3		2.0	32
6				4		2.0	40
8			BENTONITE SEAL	5		2.0	35
10				6		2.0	35
12				7		2.0	35
14				8		2.0	34
16	BEDROCK (LIMESTONE)	595.41		9		0.3	
	END OF BOREHOLE @ 16.3ft BGS	595.11					
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: P027C
DATE COMPLETED: December 3, 2003
DRILLING METHOD: SPLIT SPOON
FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	625.9					
0	TOPSOIL	625.33		1		2.0	7
2	ML/CL-SILTY CLAY,cohesive, soft to firm, low plasticity, brown, damp	622.93		2		2.0	25
4	CL-CLAY, cohesive, stiff to firm, medium plasticity, strong brown, dry			3		2.0	39
6				4		2.0	49
8				5		2.0	40
10			BENTONITE SEAL	6		2.0	46
12				7		2.0	74
14	- some medium to coarse sand at 13.5ft BGS			8		2.0	35
16				9		2.0	50
18				10		2.0	36
20	BEDROCK (LIMESTONE)	605.93		11		0.1	
	END OF BOREHOLE @ 20.1ft BGS	605.83					
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: P027D
DATE COMPLETED: December 3, 2003
DRILLING METHOD: SPLIT SPOON
FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	635.8					
0	TOPSOIL	635.18					
	CL-CLAY, cohesive, stiff to firm, medium plasticity, strong brown, dry			1		2.0	8
2			BENTONITE SEAL	2		2.0	20
4	- medium to coarse sand at 5.0ft BGS			3		2.0	44
6	BEDROCK (LIMESTONE)	629.78					
	END OF BOREHOLE @ 6.0ft BGS	629.58					
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: P030-2144
DATE COMPLETED: October 1, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. WEINBERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	504.7					
0	TOPSOIL	504.16		A	P/S	0.3	
	CL-CLAY, tan			B	P/S	2.0	
2				C	P/S	2.0	
4			BENTONITE CHIPS	D	P/S	2.0	
6				E	P/S	2.0	
	- gray at 7.0ft BGS						
8	- grass, gravel, gray, topsoil at 8.5ft BGS			F	P/S	2.0	
10	END OF BOREHOLE @ 10.0ft BGS	494.66					
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (A)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: P030-2145
DATE COMPLETED: October 1, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. WEINBERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	504.5					
0	TOPSOIL	504.32					
	CL-CLAY, tan			1	P/S	2.0	
2				2	P/S	2.0	
4			BENTONITE CHIPS	3	P/S	2.0	
6				4	P/S	2.0	
	- wet at 7.5ft BGS						
8				5	P/S	2.0	
	- with gravel at 9.2ft BGS						
10	END OF BOREHOLE @ 10.0ft BGS	494.52					
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (◯)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: P030-2146
DATE COMPLETED: October 1, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. WEINBERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	505.8					
0	TOPSOIL	505.1					
	CL-CLAY, tan			1	P/S	2.0	
2				2	P/S	2.0	
4			BENTONITE CHIPS	3	P/S	2.0	
6	- wet at 6.7ft BGS			4	P/S	2.0	
8	SW-GW SAND & GRAVEL	497.6		5	P/S	2.0	
10	END OF BOREHOLE @ 10.0ft BGS	495.8					
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: P030-2147
DATE COMPLETED: October 1, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. WEINBERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	505.1					
0	TOPSOIL	504.61					
	CL-CLAY, tan			1	P/S	2.0	
2				2	P/S	2.0	
4			BENTONITE CHIPS	3	P/S	2.0	
6				4	P/S	2.0	
8	- with sand at 8.5ft BGS			5	P/S	2.0	
10	END OF BOREHOLE @ 10.0ft BGS	495.11					
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: P030-2148
DATE COMPLETED: October 1, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. WEINBERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	505.4					
0	TOPSOIL	505.26					
	CL-CLAY, brown			1	P/S	2.0	
2				2	P/S	2.0	
4			BENTONITE CHIPS	3	P/S	2.0	
6	- with sand & gravel, tan at 6.8ft BGS			4	P/S	2.0	
8				5	P/S	2.0	
10	END OF BOREHOLE @ 10.0ft BGS	495.36					
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: P030-2149
DATE COMPLETED: October 1, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. WEINBERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	506.5					
0	TOPSOIL	506.28					
	CL-CLAY, brown			1	P/S	2.0	
2				2	P/S	2.0	
4			BENTONITE CHIPS	3	P/S	2.0	
6	- with gravel, wet at 5.7ft BGS			4	P/S	2.0	
	SW-GW SAND & GRAVEL, with clay	499.68					
8	- wood at 8.5ft BGS	497.98		5	P/S	2.0	
	CL-CLAY, with gravel						
10	END OF BOREHOLE @ 10.0ft BGS	496.48					
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: ALTECH

HOLE DESIGNATION: P037-2100
DATE COMPLETED: July 29, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. WEINBERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	'N' VALUE
	GROUND SURFACE	499.8					
0	CL-CLAY, brown/tan, dry		BENTONITE CHIPS	A	P/S	0.3	
				B	P/S	0.7	
				C	P/S	0.5	
2				D	P/S	0.5	
	- wet at 3.0ft BGS			E	P/S	1.0	
4	END OF BOREHOLE @ 4.0ft BGS	495.82		F	P/S	1.0	
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: ALTECH

HOLE DESIGNATION: P039-2101
DATE COMPLETED: July 30, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. WEINBERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	496.1					
0	TOPSOIL	496.05					
	CL-CLAY, some silt, brown/tan,			1	P/S	2.0	
2	- moisture, gray at 2.5ft BGS			2	P/S	2.0	
4				3	P/S	2.0	
6				4	P/S	2.0	
8				5	P/S	2.0	
10			BENTONITE CHIPS	6	P/S	2.0	
12	- brown/tan at 12.0ft BGS			7	P/S	2.0	
14	- gray at 14.5ft BGS			8	P/S	2.0	
16				9	P/S	2.0	
18				10	P/S	2.0	
20	END OF BOREHOLE @ 20.0ft BGS	476.15					
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: ALTECH

HOLE DESIGNATION: P039-2102
DATE COMPLETED: July 30, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. WEINBERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	496.1					
0	TOPSOIL	495.9		A	P/S	0.3	
	CL-CLAY, some silt, brown/tan			B	P/S	0.7	
				C	P/S	0.5	
				D	P/S	0.5	
2			BENTONITE CHIPS	E	P/S	1.0	
				F	P/S	1.0	
4	END OF BOREHOLE @ 4.0ft BGS	492.1					
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: ALTECH

HOLE DESIGNATION: P039-2103
DATE COMPLETED: July 30, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. WEINBERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	495					
0	TOPSOIL	494.85					
	CL-CLAY, trace silt, brown/tan			1	P/S	2.0	
2				2	P/S	2.0	
4				3	P/S	2.0	
6	- wet at 6.0ft BGS			4	P/S	2.0	
8				5	P/S	2.0	
10			BENTONITE CHIPS	6	P/S	2.0	
12				7	P/S	2.0	
14				8	P/S	2.0	
16	- gray at 16.5ft BGS			9	P/S	2.0	
18				10	P/S	2.0	
20	END OF BOREHOLE @ 20.0ft BGS	475.05					
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: ALTECH

HOLE DESIGNATION: P039-2107
DATE COMPLETED: August 1, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. WEINBERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	491.9					
0	TOPSOIL CL-CLAY, brown, dry	491.71		1	P/S	2.0	
2				2	P/S	2.0	
4				3	P/S	2.0	
6				4	P/S	2.0	
8				5	P/S	2.0	
10	- wet at 9.5ft BGS		BENTONITE CHIPS	6	P/S	2.0	
12				7	P/S	2.0	
14				8	P/S	2.0	
16	- gray at 16.5ft BGS			9	P/S	2.0	
18				10	P/S	2.0	
20	END OF BOREHOLE @ 20.0ft BGS	471.91					
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: PZ08
DATE COMPLETED: April 29, 2003
DRILLING METHOD: 6 1/4-INCH HSA & 3 7/8-INCH TRI-CONE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	PIEZOMETER	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF CASING	627.06						
	GROUND SURFACE	624.1						
0	TOPSOIL	623.68		1		1.0	2	0.0
2	CL-CLAY, trace gravel, trace silt, rootlets, stiff, strong brown (7.5YR 4/6), moist		CEMENT / BENTONITE GROUT	2		2.0	11	0.0
4	- dark brown (7.5YR 3/3), very moist at 4.0ft BGS			3		1.0	>50	0.0
6	LIMESTONE	619.08	4" DIA. STEEL CASING					
8								
10			4" DIA. HOLE					
12	END OF BOREHOLE @ 12.3ft BGS	611.79						
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

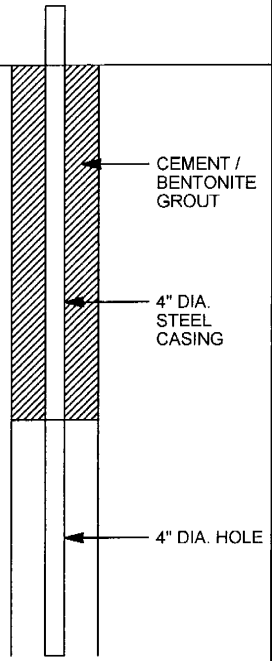
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: PZ23
DATE COMPLETED: May 1, 2003
DRILLING METHOD: 4 1/4-INCH HSA & 3 7/8 TRI-CONE
FIELD PERSONNEL: J. MC COMBS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	537.75
	GROUND SURFACE	535.2
0	TOPSOIL	534.73
	ML-SILT, trace clay, trace rootlets, dense to very stiff, olive gray, oxidization, moist	
8	LIMESTONE	527.73
15	END OF BOREHOLE @ 15.0ft BGS	520.23

PIEZOMETER



SAMPLE

NUMBER	INTERVAL	REC (ft)	'N' VALUE
1		0.6	6
2		1.5	25
3		0.5	>50
4		1.5	89

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

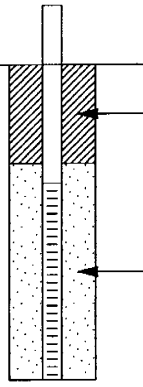
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: PZ31
DATE COMPLETED: April 23, 2003
DRILLING METHOD: 4 1/4-INCH HSA
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	518.51
	GROUND SURFACE	515.9
0	TOPSOIL	515.16
2	ML-SILT, trace to little clay, rootlets, firm, dark brown (7.5YR 3/4), moist	
4	- rock fragments, wet at 5.0ft BGS	
6	LIMESTONE	509.36
8	END OF BOREHOLE @ 8.0ft BGS	507.86

PIEZOMETER



WELL DETAILS
Screened interval:
512.9 to 507.9ft AMSL
3.0 to 8.0ft BGS
Length: 5ft
Diameter: 2in
Slot Size: Hand Cut
Material: PVC
Seal:
513.4 to 515.9ft AMSL
2.5 to 0.0ft BGS
Material: Bentonite Seal
Sand Pack:
507.9 to 513.4ft AMSL
8.0 to 2.5ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1		2.0	6	0.0
2		2.0	10	0.0
3		1.0	10	0.0
4		0.5	>100	0.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

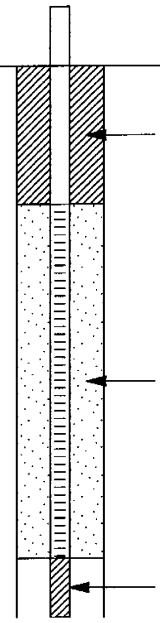
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: PZ38
DATE COMPLETED: April 24, 2003
DRILLING METHOD: 4 1/4-INCH HSA
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	503.30
	GROUND SURFACE	500.5
0	TOPSOIL	500.24
	ML-SILT, trace to little clay, trace gravel, dark brown (7.5YR 3/4), moist	
2		
4	- very moist at 4.0ft BGS	
		495.04
6	CL-CLAY, little silt, very soft, medium plasticity, very dark gray (7.5YR 3/1), very moist	
8	- possible creek bottom, shells and pieces of wood, silt at 8.0ft BGS	492.34
	ML-CL SILT & CLAY, trace gravel, medium plasticity, firm, very dark gray (7.5YR 3/1), very moist to wet	
10	- little sand & gravel, wet at 11.0ft BGS	
		488.54
12	CL-CLAY, little silt, medium plasticity, firm, dark gray (7.5YR 3/1), very moist to wet	
		486.54
14	END OF BOREHOLE @ 14.0ft BGS	
16		
18		
20		
22		
24		
26		
28		
30		
32		
34		

PIEZOMETER



WELL DETAILS
Screened interval:
497.0 to 488.0ft AMSL
3.5 to 12.5ft BGS
Length: 9ft
Diameter: 2in
Slot Size: Hand Cut
Material: PVC
Seal:
497.0 to 500.5ft AMSL
3.5 to 0.0ft BGS
Material: Bentonite Seal
Sand Pack:
488.0 to 497.0ft AMSL
12.5 to 3.5ft BGS
Material: Pea Stone

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1		1.0	6	0.0
2		0.6	6	0.0
3		0.6	2	0.0
4		1.0	2	0.0
5		2.0	7	0.0
6		1.5	9	0.0
7		1.5	10	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

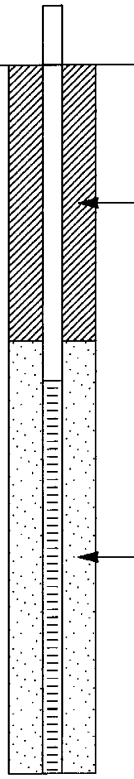
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: PZ39
DATE COMPLETED: April 28, 2003
DRILLING METHOD: 4 1/4-INCH HSA
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	497.58
	GROUND SURFACE	494.8
0	TOPSOIL	494.54
	CL-CLAY, little silt, trace sand and gravel, firm, dark brown (7.5YR 3/4), moist	
6	ML-SILT, trace clay, trace rock fragments, compact, yellowish, moist	488.84
10	- very dense at 11.0ft BGS	
16	SHALE, weathered, interbedded with silt, gray, moist	478.34
18	END OF BOREHOLE @ 18.0ft BGS	476.84

PIEZOMETER



WELL DETAILS
Screened interval:
486.8 to 476.8ft AMSL
8.0 to 18.0ft BGS
Length: 10ft
Diameter: 2in
Slot Size: #10
Material: PVC
Seal:
494.8 to 487.8ft AMSL
0.0 to 7.0ft BGS
Material: Bentonite Seal
Sand Pack:
487.8 to 476.8ft AMSL
7.0 to 18.0ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1		1.5	6	0.0
2		1.5	9	0.0
3		1.5	7	0.0
4		1.5	11	0.0
5		1.5	13	0.0
6		0.6	>50	0.0
7		0.6	>50	0.0
8		0.3	>50	0.0
9		0.2	>50	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: SS-X030Y111
DATE COMPLETED: January 21, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	720.7						
0	ASPHALT	720.2	ASPHALT	1	P/S	2.0		0
	SW/GW - SAND & GRAVEL (FILL)	719.7	2" DIA. BOREHOLE					
2	CL - CLAY (FILL), trace gravel and sand, stiff, dark greyish brown (10 YR 4/2), moist		BENTONITE CHIPS	2	P/S	2.0		<1
4	- becoming greyish brown (10 YR 5/2) at 4.0ft BGS	716.7						
	END OF BOREHOLE @ 4.0ft BGS							
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: SS-X031Y124
DATE COMPLETED: January 18, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	721.1						
0	ASPHALT	720.7	ASPHALT					
	SW/GW - SAND & GRAVEL (FILL)	720.1	2" DIA. BOREHOLE	1	P/S	2.0		0
2	SP - SAND, loose, fine grained,poorly graded, dark brown (7.5 YR 3/2), moist	719.3	BENTONITE CHIPS					
	CL - CLAY, trace gravel and sand, low plasticity, very dark grey (7.5 R 3/1), moist			2	P/S	2.0		<1
4	END OF BOREHOLE @ 4.0ft BGS	717.1						
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP DRILLING

HOLE DESIGNATION: SS-X05Y114B
DATE COMPLETED: February 4, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	726.7						
0	CONCRETE	725.87		1	P/S	2.0		0.0
	SAND AND GRAVEL (AGGREGATE FILL)			2	P/S	2.0		0.0
4				3	P/S	2.0		0.0
6			BENTONITE CHIPS	4	P/S	2.0		0.0
8				5	P/S	2.0		0.0
10	CL-CLAY, trace gravel, medium plasticity, yellowish red (2.5YR 5/8), moist	716.67		6	P/S	2.0		0.0
12	END OF BOREHOLE @ 12.0ft BGS	714.67						
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: SS-X048Y112
DATE COMPLETED: January 31, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	726.9						
0	CONCRETE	726.1	CONCRETE	1	P/S			0.0
	GRAVEL (FILL)	725.9						
2	SP-SAND, loose, fine grained, poorly graded, reddish brown (5YR 4/4), moist		BENTONITE CHIPS	2	P/S			0.0
	CL-CLAY, trace silt, soft, low plasticity, brown (7.5 YR 4/4), moist	723.9						
4	END OF BOREHOLE @ 4.0ft BGS	722.9						
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (2)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: SS-X045Y114B
DATE COMPLETED: February 4, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	726.6						
	CONCRETE							
	SAND AND GRAVEL (AGGREGATE FILL)	725.83		1	P/S	2.0		0
2				2	P/S	2.0		0
4				3	P/S	2.0		0
6			BENTONITE CHIPS	4	P/S	2.0		0
8				5	P/S	2.0		0
10	CL-CLAY, trace gravel, medium plasticity, yellowish red (2.5YR 5/8), moist	716.63		(6)	P/S	2.0		0
12	END OF BOREHOLE @ 12.0ft BGS	714.63						
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (6)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP DRILLING

HOLE DESIGNATION: SS-X045Y114A
DATE COMPLETED: January 31, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	726.7						
0	CONCRETE	725.76	CONCRETE	1	P/S			0.0
	SAND AND GRAVEL (FILL)		BENTONITE CHIPS					
2	- Refusal at 2.5ft BGS	724.16						
	END OF BOREHOLE @ 2.5ft BGS							
4								
6								
8								
10								
12								
14								
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18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: SS-X120Y177
DATE COMPLETED: January 31, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	726.7						
0	CONCRETE	726.2	CONCRETE	1	P/S			0.0
2	SAND AND GRAVEL (FILL)	724.7	BENTONITE CHIPS	(2)	P/S			<1
4	CL-CLAY, with gravel, loose, low plasticity, moist	722.7						
	END OF BOREHOLE @ 4.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (2)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: SS-X124Y115
DATE COMPLETED: January 18, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL.	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	724.3						
0	CONCRETE	723.7	CONCRETE					
	SW/GW - SAND & GRAVEL (FILL)	723.1	2" DIA. BOREHOLE	(1)	P/S	2.0		<1
2	CL - CLAY, trace silt, medium plasticity, yellowish brown (10 YR 5/6), moist		BENTONITE CHIPS	2	P/S	2.0		<1
4	END OF BOREHOLE @ 4.0ft BGS	720.3						
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: SS-X134Y098
DATE COMPLETED: January 18, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	721.9						
0	CONCRETE	721.33	CONCRETE	1	P/S	2.0		0
	SW/GW - SAND & GRAVEL (FILL)		2" DIA. BOREHOLE					
2	CL - CLAY, trace gravel, stiff, medium plasticity, light olive brown, (2.5 Y 5/6), moist	719.93	BENTONITE CHIPS	2	P/S	2.0		0
4	END OF BOREHOLE @ 4.0ft BGS	717.93						
6								
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24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316 13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: SS-X145Y106
DATE COMPLETED: January 28, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	723.4						
0	SAND AND GRAVEL (FILL)	722.4	BENTONITE CHIPS	1	P/S	2.0		0.0
2	CL-CLAY, with sand and gravel, soft, medium plasticity, olive brown (2.5y 4/4), moist			2	P/S	2.0		0.0
4	END OF BOREHOLE @ 4.0ft BGS	719.4						
6								
8								
10								
12								
14								
16								
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24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: SS-X149Y126
DATE COMPLETED: January 28, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	726.2						
0	CONCRETE FLOOR	725.93	CONCRETE	1	P/S			0.0
	SAND AND GRAVEL (FILL)	725.43						
2	CL-CLAY, trace gravel, stiff, low plasticity, yellowish red (5yr 4/6), moist		BENTONITE CHIPS	2	P/S			0.0
4	END OF BOREHOLE @ 4.0ft BGS	722.23						
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: SS-X154Y117
DATE COMPLETED: January 28, 2002
DRILLING METHOD: HAND AUGER
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	724.7						
0	CL-CLAY, with some sand and gravel, soft, low plasticity, dark reddish brown (5yr 3/4), moist		BENTONITE CHIPS	1	P/S			0.0
2	END OF BOREHOLE @ 3.0ft BGS	721.72						
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24								
26								
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30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: SS-X187Y177
DATE COMPLETED: July 18, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: C. MARHOEFER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	718						
0	TOPSOIL	717.52	BENTONITE CHIPS	1	P/S	2.0		0
	CL-CLAY, firm, low plasticity, brown/gray, moist, 4-inch rock fragments							
2	END OF BOREHOLE @ 2.0ft BGS	716.02						
4								
6								
8								
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14								
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18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040315_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: SS-X189Y169
DATE COMPLETED: July 18, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: C. MARHOEFER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	720						
0	TOPSOIL	719.45	BENTONITE CHIPS	1	P/S	2.0		0
2	CL-CLAY, firm, low plasticity, brown/gray, moist - with silt, strong brown, rock fragments at 1.5ft BGS	717.95						
4	END OF BOREHOLE @ 2.0ft BGS							
6								
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28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (O)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: SS-X193Y160
DATE COMPLETED: July 18, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: C. MARHOEFER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	721						
0	TOPSOIL	720.52	BENTONITE CHIPS	1	P/S	2.0		0
	CL-CLAY, with silt, firm, low plasticity, strong brown, moist, rock fragments							
2	END OF BOREHOLE @ 2.0ft BGS	719.02						
4								
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: SS-X194Y152
DATE COMPLETED: July 18, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: C. MARHOEFER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	720.9						
0	CL-CLAY, with silt, firm, low plasticity, strong brown, moist, rock fragments		BENTONITE CHIPS	1	P/S	2.0		0
2	END OF BOREHOLE @ 2.0ft BGS	718.93						
4								
6								
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14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: SS-X195Y161
DATE COMPLETED: June 3, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	720						
0	TOPSOIL	719.4						
	CL-CLAY, trace silt, stiff, low plasticity, reddish brown, moist		BENTONITE CHIPS	1	P/S	2.0		0
2				2	P/S	2.0		0
4	END OF BOREHOLE @ 4.0ft BGS	716						
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: SS-X200Y156
DATE COMPLETED: June 3, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	718.3						
0	TOPSOIL	717.97						
	CL-CLAY, trace silt, stiff, low plasticity, reddish brown, moist		BENTONITE CHIPS	1	P/S	2.0		0
2				2	P/S	2.0		0
4	END OF BOREHOLE @ 4.0ft BGS	714.27						
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: SS-X200Y166
DATE COMPLETED: June 3, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	714.8						
0	TOPSOIL	714.26						
	CL-CLAY, trace silt, stiff, low plasticity, reddish brown, moist		BENTONITE CHIPS	1	P/S	2.0		0
2				2	P/S	2.0		0
4	END OF BOREHOLE @ 4.0ft BGS	710.76						
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: SS-X203Y066
DATE COMPLETED: January 9, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	692.2						
0	SW/GW - SAND & GRAVEL (FILL)		BENTONITE CHIPS	1	P/S	2.0		0
2	CL - CLAY, trace sand, stiff, medium plasticity, yellowish red (5 YR 4/6), moist	690.25	2" Ø BOREHOLE	(2)	P/S	2.0		0
4	END OF BOREHOLE @ 4.0ft BGS	688.25						
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (2)

OVERBURDEN LOG 20040316_13968-1.GPJ CRA_CORP.GDT 4/16/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: SS-X205Y161
DATE COMPLETED: June 3, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	701.6						
0	CL-CLAY,trace silt, stiff, low plasticity, reddish brown, moist		BENTONITE CHIPS	1	P/S	2.0		0
2				2	P/S	2.0		0
4	END OF BOREHOLE @ 4.0ft BGS	697.64						
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: TMW-X033Y147
DATE COMPLETED: June 11, 2002
DRILLING METHOD: 4 1/4-INCH HSA
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	718.5 718.25					
0	CONCRETE	718.14	FLUSH COVER				
	Stratigraphy same as MW-X033Y147-S						
2							
4							
6			BENTONITE CHIP SEAL				
8							
10			2-INCH DIA. PVC WELL				
12							
14							
16							
18							
20							
22							
24							
26			SAND PACK				
28			WELL SCREEN				
30							
32		685.54					
34	Limestone and Sand Mixture						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: TMW-X033Y147
DATE COMPLETED: June 11, 2002
DRILLING METHOD: 4 1/4-INCH HSA
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
36	END OF BOREHOLE @ 36.5ft BGS	682.04	WELL DETAILS Screened interval: 697.0 to 682.0ft AMSL 21.5 to 36.5ft BGS Length: 15ft Diameter: 2in Slot Size: 10 Material: PVC Seal: 699.5 to 717.0ft AMSL 19.0 to 1.5ft BGS Material: Bentonite Chips Sand Pack: 682.0 to 699.5ft AMSL 36.5 to 19.0ft BGS Material: Silica Sand				
38							
40							
42							
44							
46							
48							
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52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: TMW-X085Y070
DATE COMPLETED: February 19, 2002
DRILLING METHOD: 4 1/4-INCH HSA
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER GROUND SURFACE	722.78 720.1					
0	SW-GW SAND & GRAVEL (FILL), black, very moist to wet		2-INCH DIA. PVC WELL				
2							
4							
		715.09					
6	CL-CLAY						
8			SAND PACK WELL SCREEN				
10	- wet at 10.0ft BGS						
12							
		706.09					
14	END OF BOREHOLE @ 14.0ft BGS						
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

WELL DETAILS
Screened interval:
716.1 to 706.1ft AMSL
4.0 to 14.0ft BGS
Length: 10ft
Diameter: 2in
Slot Size: #10
Material: PVC
Seal:
717.1 to 720.1ft AMSL
3.0 to 0.0ft BGS
Material: Bentonite Seal
Sand Pack:
706.1 to 717.1ft AMSL
14.0 to 3.0ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

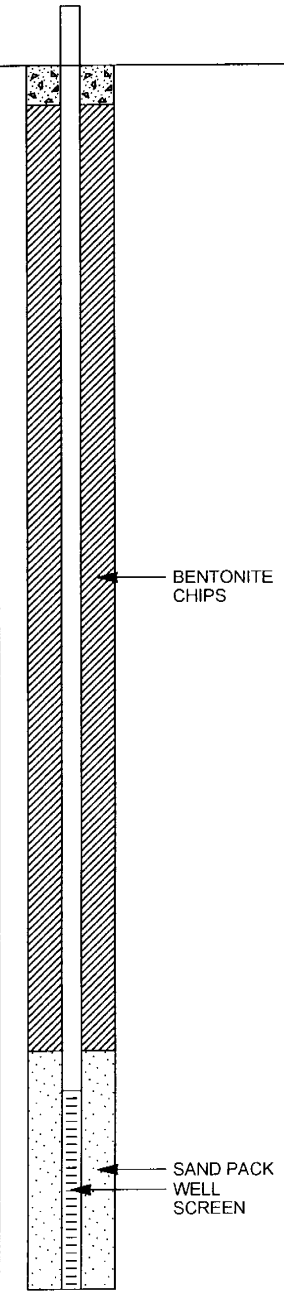
OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: TMW-X193Y251
DATE COMPLETED: April 2, 2002
DRILLING METHOD: 4 1/4-INCH HSA
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER GROUND SURFACE	689.66 685.5					
	SAME STRATIGRAPHY AS B-X193Y251						
30	END OF BOREHOLE @ 31.0ft BGS	654.45					



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 20040316_13968.GPJ CRA_CORP.GDT 4/15/04

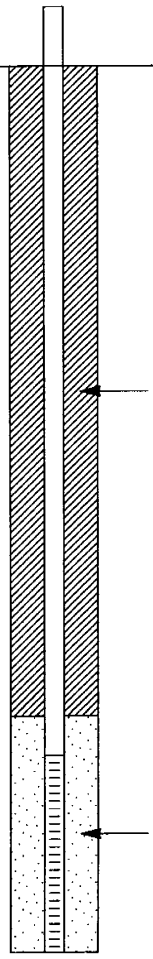
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: TMW-X225Y080
DATE COMPLETED: August 8, 2002
DRILLING METHOD: 4 1/4-INCH HSA
FIELD PERSONNEL: J. NICHOLS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	686.72
	GROUND SURFACE	684.3
0	SW-SAND (FILL), loose sand and gravel, well graded	
2		682.27
	CL-CLAY (FILL), trace gravel, little silt, dense, medium plasticity, strong brown (7.5YR 4/6), moist	
4		
6		677.27
	SW-SAND (FILL), trace gravel, trace clay, loose,well graded	
8		
10		
12		672.27
	CL-CLAY, trace silt, dense, low plastic, reddish brown (7.5YR 5/6), moist to wet	
14	- wet at 14.0ft BGS	
16		
18		
20		
22		661.77
	END OF BOREHOLE @ 22.5ft BGS	
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
666.8 to 661.8ft AMSL
17.5 to 22.5ft BGS
Length: 5ft
Diameter: 2in
Slot Size: #10
Material: PVC
Seal:
667.8 to 684.3ft AMSL
16.5 to 0.0ft BGS
Material: Bentonite Seal
Sand Pack:
661.8 to 667.8ft AMSL
22.5 to 16.5ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1		2.0	9	<1
2		2.0	9	<1
3		2.0	38	<1
4		2.0	16	<1
5		2.0	25	<1
6		2.0	24	<1
7		2.0	11	<1
8		2.0	8	<1
9		2.0	16	<1
10		2.0	12	<1
11		2.0	10	<1
12		0.5	18	<1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

APPENDIX B

GEOTECHNICAL REPORTS

APPENDIX B1

GEOTECHNICAL SOIL TESTING REPORT

JM

SCHLEEDE HAMPTON ASSOCIATES INC
CONSULTING ENGINEERS

Rec'd CRA
MAY 16 2002

May 13, 2002

Conestoga-Rovers & Associates, Inc.
8615 W. Bryn Mawr Avenue
Chicago, IL 60631

Attn: Mr. James McGuigan

Re: Transmittal of Geotechnical Test Results
GM – Bedford, Indiana

We are transmitting the results of Geotechnical QC tests on soil and/or aggregate samples tested for use on the referenced project. A summary of the results is given below, with the supporting test data and report sheets appended.

Project Soil I.D.:	Multiple Samples: See Attached Summary
Test Results Appended:	Gradation Data Sheet, Test Method ASTM D 422, D 4318 Grain Size Curves Soil Classification, ASTM D2487/2488 Hydraulic Conductivity, ASTM D5084
Findings:	Test Results transmitted herein. If you have any questions, please contact the undersigned at your convenience.

Respectfully submitted,
Schleede-Hampton Associates, Inc.

William West

William J. West, P.E.
Project Engineer

Attachments

2254 COLE STREET
BIRMINGHAM, MICHIGAN 48009
248-540-3044 • FAX: 248-540-3282

CLIENT: Conestoga-Rovers Associates

GM - Bedford, IN
LAB SUMMARY

SHA FILE NO. 62225

Sample ID	Depth	Sample Type	Classification	Bulk Density, pcf	Moisture Content, %	Atterberg Limits			Permeability (cm/sec)	Maximum Dry Density (pcf)	Optimum Moisture, %
						LL	PL	PI			
MW-X178Y367	2'-4'	ST	Silty CLAY, Trace Sand, CL	122.9	25.1	NT	NT	NT	2.62E-08	NT	NT
MW-X045Y258	4'-6'	ST	Silty CLAY, Trace Sand, CL	122.6	24.2	NT	NT	NT	3.76E-08	NT	NT
MW-X033Y147	25'-27'	ST	Silty CLAY, Trace Sand, CL	117.8	31.7	NT	NT	NT	8.74E-08	NT	NT
MW-X085Y070	6'-8'	ST	Silty CLAY, Trace Sand, Trace Gravel, CL	128.8	20.3	NT	NT	NT	1.71E-08	NT	NT
S-012302-MO-001	--	Remolded	Silty CLAY, Trace Sand, CL	124.7	21.7	39	19	20	1.49E-08	106.8	19.2
S-012302-MO-002	--	Remolded	Silty CLAY, Trace Sand, CL	125.1	22.1	36	19	17	1.34E-08	107.0	18.3
S-012302-MO-003	--	Remolded	Silty CLAY, Trace Sand, CL	124.4	22.2	37	20	17	1.28E-08	104.9	19.8
S-012302-MO-004	--	Remolded	Silty CLAY, Trace Sand, CL	120.5	23.8	42	21	21	1.42E-08	101.2	20.6
S-012302-MO-005	--	Remolded	Silty CLAY, Trace Sand, CL	125.3	21.4	38	19	19	1.32E-09	106.2	19.5
S-012102-KMV-001	--	SS	CLAY, Trace Sand, CH	120.7	24.6	50	18	32	6.50E-08	NT	NT
S-012202-KMV-001	--	SS	Silty CLAY, Trace Sand, CL	122.7	24.8	45	18	27	7.33E-08	NT	NT
S-012502-KMV-001	--	SS	Silty CLAY, Trace Sand, Trace Gravel, CL	119.1	28.2	49	19	30	6.38E-08	NT	NT
S-020602-MG-001	--	SS	CLAY, Trace Sand, CH	118.5	26.4	53	17	36	6.88E-08	NT	NT
S-010701-KMV-001	--	SS	SAND, Little Gravel, Little Silt, SP-SM	NT	NT	NT	NT	NT	NT	NT	NT
S-010902-KMV-001	--	SS	Silty CLAY, Some Sand, Trace Gravel, CL	NT	NT	NT	NT	NT	NT	NT	NT
S-011102-KMV-001	--	SS	Silty CLAY, Some Sand, CL	NT	NT	NT	NT	NT	NT	NT	NT
S-013002-KMV-001	--	SS	Clayey SAND, Trace Gravel, SC	NT	NT	NT	NT	NT	NT	NT	NT
S-020402-KMV-001	--	SS	ASH and Cinders: SAND, Some Gravel, Little Silt, SW-SM	NT	NT	NT	NT	NT	NT	NT	NT
S-021202-KMV-001	--	SS	SAND, Trace Gravel, Some Silt, SM	NT	NT	NT	NT	NT	NT	NT	NT

ST - Shelby Tube
SS - Split Spoon
NT - Not Tested

Table 1

S010702kmv001 hydro

JOB NAME:	Laboratory Testing
PROJECT NO.	62225
SAMPLE SOURCE:	GM-Bedford
STOCKPILE ID:	S-010702-KMV-001
DATE SAMPLED:	1/7/02

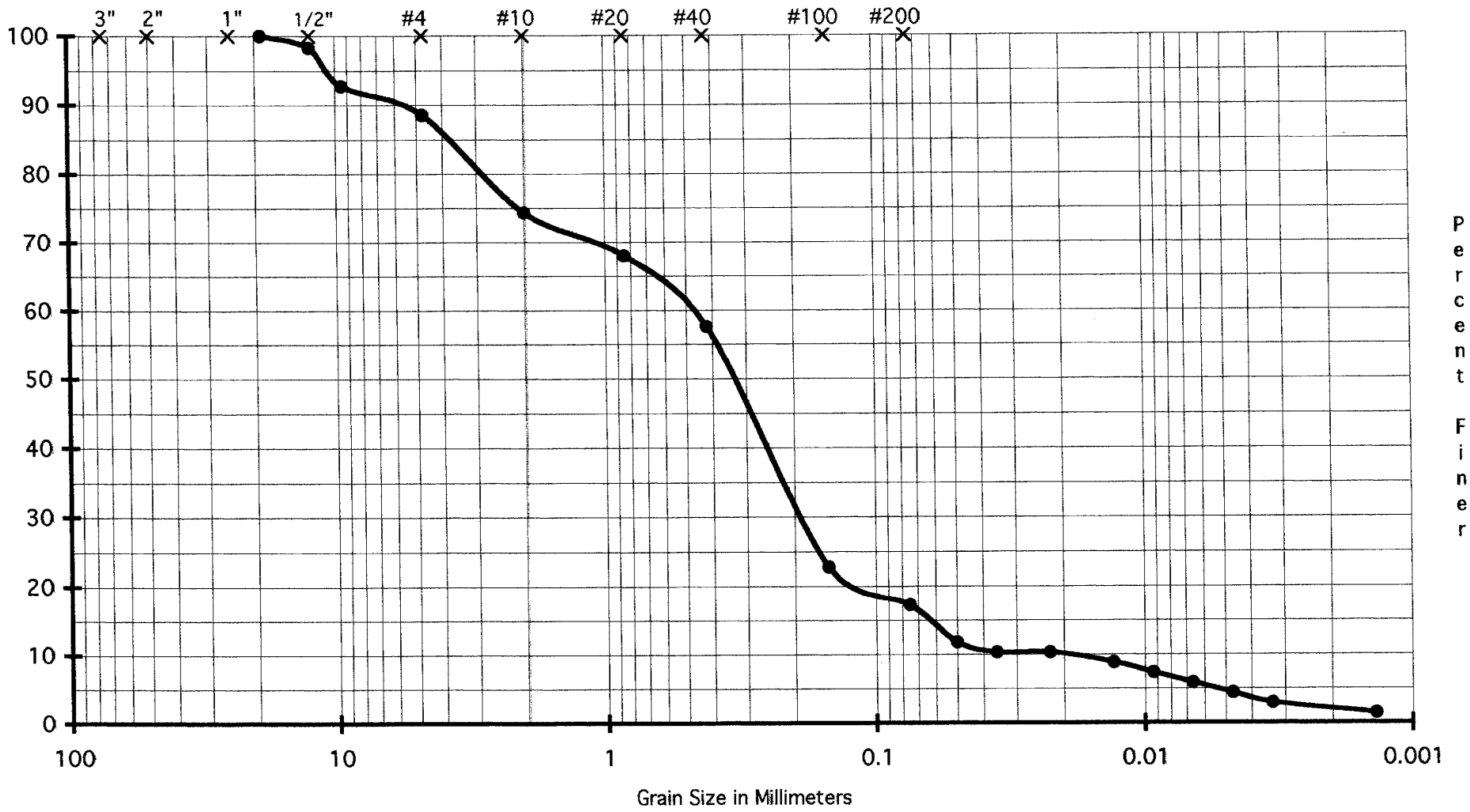
ASTM D-422/D-4318

					TOTAL	DIAMETER
	TOTAL SAMPLE WT.=	170.2 (gms.)				
+10 SIEVE PORTION	SIEVE SIZE	CUM WT. RET	PART % RET	PART % PASS	**PASSING**	**(mm)**
	1	0.0	0.0%	100.0%	**100.0%**	**25.000**
	3/4 IN	0.0	0.0%	100.0%	**100.0%**	**19.000**
	1/2 IN	2.9	1.7%	98.3%	**98.3%**	**12.500**
	3/8 IN	12.4	7.3%	92.7%	**92.7%**	**9.500**
	#4	19.5	11.5%	88.5%	**88.5%**	**4.750**
	#10	43.7	25.7%	74.3%	**74.3%**	**2.000**
	WT. OF SAMPLE AT START OF HYDRO=	50.0 (gms.)				
-#10 SIEVE PORTION	#20	4.3	8.5%	91.5%	**68.0%**	**0.850**
	#40	11.3	22.5%	77.5%	**57.6%**	**0.420**
	#100	34.7	69.4%	30.6%	**22.8%**	**0.150**
	#200	38.4	76.7%	23.3%	**17.3%**	**0.075**
HYDROMETER	TEMPERATURE(°C)=	19.0				
PORTION	TEMP BATH BULB READ=	9.0				
	SPECIFIC GRAVITY Gs=	2.70 (assumed)				
	ELAPSED TIME (MIN)	UNCORR	CORRECTED	% PASS		
	1	17.0	8.0	15.8%	**11.8%**	**0.0500**
	2	16.0	7.0	13.9%	**10.3%**	**0.0356**
	5	16.0	7.0	13.9%	**10.3%**	**0.0225**
	15	15.0	6.0	11.9%	**8.8%**	**0.0131**
	30	14.0	5.0	9.9%	**7.4%**	**0.0093**
	60	13.0	4.0	7.9%	**5.9%**	**0.0066**
	120	12.0	3.0	5.9%	**4.4%**	**0.0047**
	240	11.0	2.0	4.0%	**2.9%**	**0.0033**
	1450	10.0	1.0	2.0%	**1.5%**	**0.0014**

soil classification: **SAND,Little Gravel, Little Silt, SP-SM**

GRAVEL=	**11 %**
SAND=	**71 %**
SILT=	**16 %**
CLAY=	**2 %**

REPORT OF GRAIN SIZE ANALYSIS SCHLEEDE-HAMPTON ASSOCIATES,INC.



SAND, Little Gravel, Little Silt, SP-SM

S-010702-KMV-001

S010902kmv001 hydro

JOB NAME:	Laboratory Testing
PROJECT NO.	62225
SAMPLE SOURCE:	GM-Bedford
STOCKPILE ID:	S-010902-KMV-001
DATE SAMPLED:	1/9/02

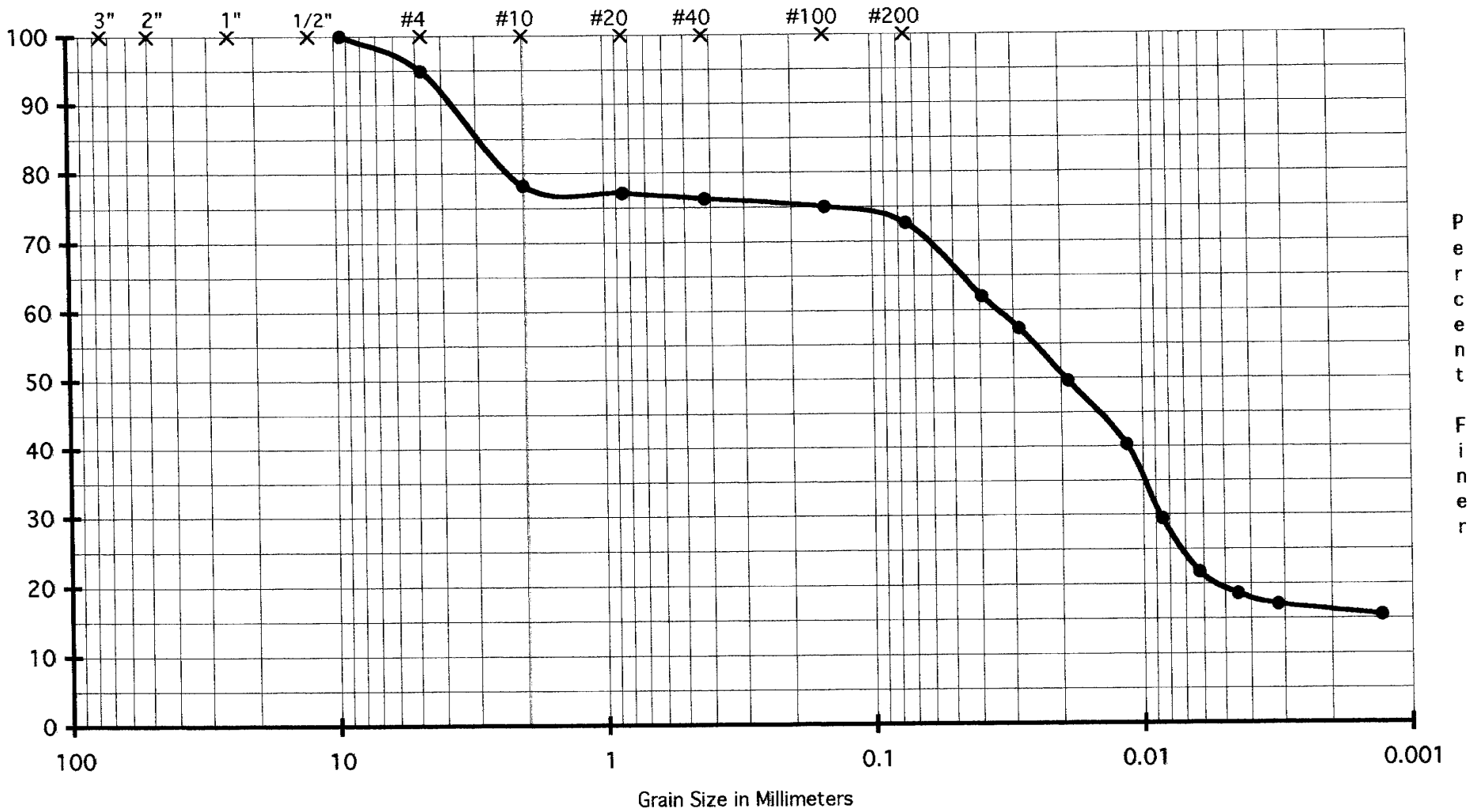
ASTM D-422/D-4318

					TOTAL PASSING	DIAMETER (mm)
	TOTAL SAMPLE WT.=	98.7 (gms.)				
+10 SIEVE PORTION	SIEVE SIZE	CUM WT. RET	PART % RET	PART % PASS		
	1	0.0	0.0%	100.0%	**100.0%**	**25.000**
	3/4 IN	0.0	0.0%	100.0%	**100.0%**	**19.000**
	1/2 IN	0.0	0.0%	100.0%	**100.0%**	**12.500**
	3/8 IN	0.0	0.0%	100.0%	**100.0%**	**9.500**
	#4	5.1	5.2%	94.8%	**94.8%**	**4.750**
	#10	21.5	21.8%	78.2%	**78.2%**	**2.000**
	WT. OF SAMPLE AT START OF HYDRO=	50.0 (gms.)				
-#10 SIEVE PORTION	#20	0.7	1.5%	98.5%	**77.1%**	**0.850**
	#40	1.3	2.6%	97.4%	**76.2%**	**0.420**
	#100	2.0	4.1%	95.9%	**75.0%**	**0.150**
	#200	3.6	7.2%	92.8%	**72.6%**	**0.075**
HYDROMETER	TEMPERATURE(°C)=	19.0				
PORTION	TEMP BATH BULB READ=	9.0				
	SPECIFIC GRAVITY Gs=	2.70 (assumed)				
	ELAPSED TIME (MIN)	UNCORR	CORRECTED	% PASS		
	1	49.0	40.0	79.2%	**61.9%**	**0.0392**
	2	46.0	37.0	73.3%	**57.3%**	**0.0285**
	5	41.0	32.0	63.4%	**49.6%**	**0.0189**
	15	35.0	26.0	51.5%	**40.3%**	**0.0114**
	30	28.0	19.0	37.6%	**29.4%**	**0.0085**
	60	23.0	14.0	27.7%	**21.7%**	**0.0062**
	120	21.0	12.0	23.8%	**18.6%**	**0.0045**
	240	20.0	11.0	21.8%	**17.0%**	**0.0032**
	1450	19.0	10.0	19.8%	**15.5%**	**0.0013**

soil classification: **Silty CLAY, Some Sand, Trace Gravel, CL**

GRAVEL=	**5 %**
SAND=	**22 %**
SILT=	**57 %**
CLAY=	**16 %**

REPORT OF GRAIN SIZE ANALYSIS SCHLEEDE-HAMPTON ASSOCIATES,INC.



Silty CLAY, Some Sand, Trace Gravel, CL

S-010902-KMV-001

S011102kmv001 hydro

JOB NAME:	Laboratory Testing
PROJECT NO.	62225
SAMPLE SOURCE:	GM-Bedford
STOCKPILE ID:	S-011102-KMV-001
DATE SAMPLED:	1/11/02

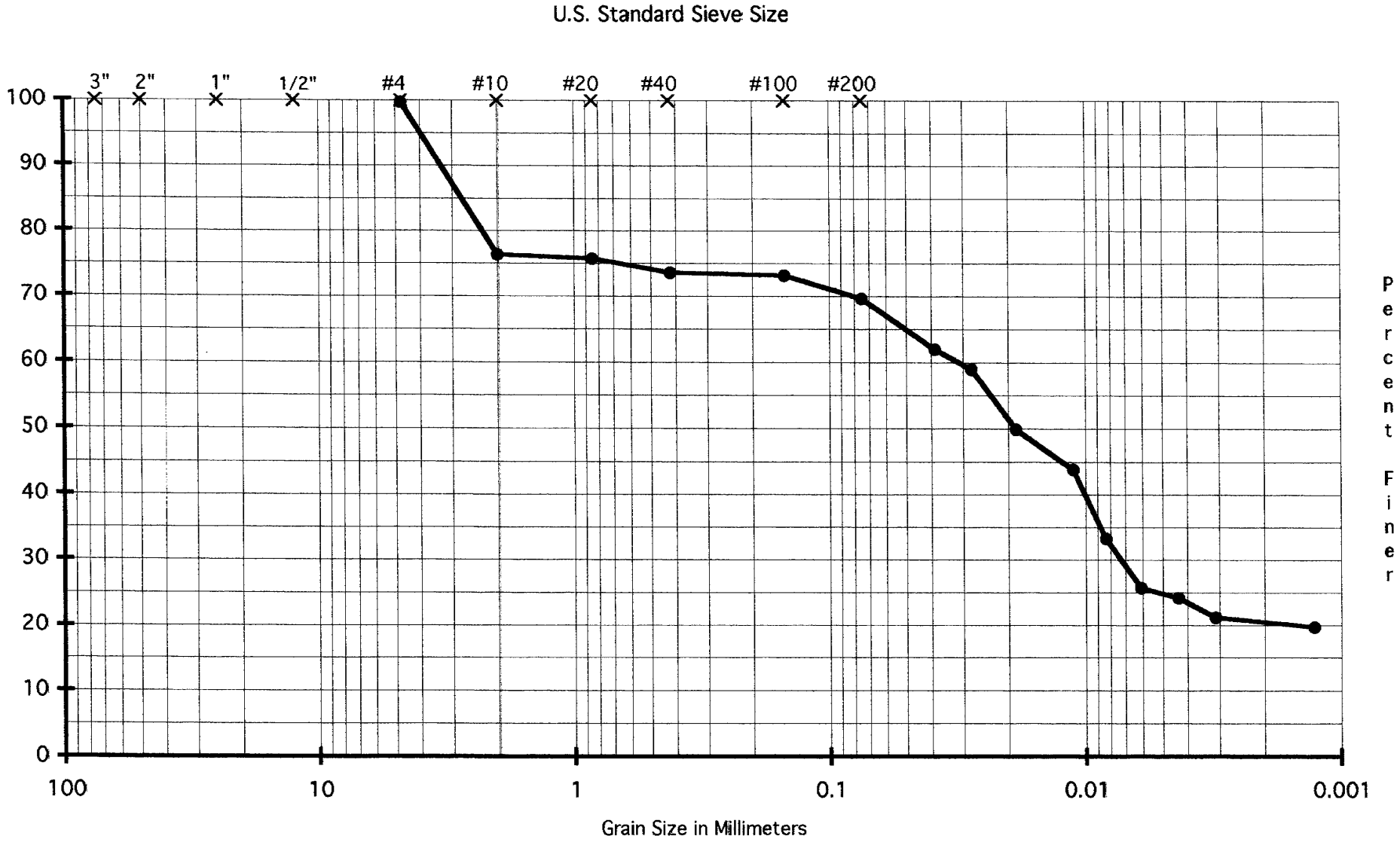
ASTM D-422/D-4318

					TOTAL	DIAMETER
	TOTAL SAMPLE WT.=	178.5 (gms.)			PASSING	(mm)
+10 SIEVE PORTION	SIEVE SIZE	CUM WT. RET	PART % RET	PART % PASS		
	1	0.0	0.0%	100.0%	**100.0%**	**25.000**
	3/4 IN	0.0	0.0%	100.0%	**100.0%**	**19.000**
	1/2 IN	0.0	0.0%	100.0%	**100.0%**	**12.500**
	3/8 IN	0.0	0.0%	100.0%	**100.0%**	**9.500**
	#4	0.6	0.3%	99.7%	**99.7%**	**4.750**
	#10	42.3	23.7%	76.3%	**76.3%**	**2.000**
	WT. OF SAMPLE AT START OF HYDRO=	50.0 (gms.)				
-#10 SIEVE PORTION	#20	0.4	0.8%	99.2%	**75.7%**	**0.850**
	#40	1.8	3.6%	96.4%	**73.6%**	**0.420**
	#100	2.1	4.2%	95.8%	**73.1%**	**0.150**
	#200	4.4	8.8%	91.2%	**69.6%**	**0.075**
HYDROMETER	TEMPERATURE(°C)=	19.0				
PORTION	TEMP BATH BULB READ=	9.0				
	SPECIFIC GRAVITY Gs=	2.70 (assumed)				
	ELAPSED TIME (MIN)	UNCORR	CORRECTED	% PASS		
	1	50.0	41.0	81.2%	**61.9%**	**0.0387**
	2	48.0	39.0	77.2%	**58.9%**	**0.0279**
	5	42.0	33.0	65.3%	**49.9%**	**0.0187**
	15	38.0	29.0	57.4%	**43.8%**	**0.0112**
	30	31.0	22.0	43.6%	**33.2%**	**0.0083**
	60	26.0	17.0	33.7%	**25.7%**	**0.0061**
	120	25.0	16.0	31.7%	**24.2%**	**0.0043**
	240	23.0	14.0	27.7%	**21.2%**	**0.0031**
	1450	22.0	13.0	25.7%	**19.6%**	**0.0013**

soil classification: **Silty CLAY,Some Sand, CL**

GRAVEL=	**0 %**
SAND=	**30 %**
SILT=	**50 %**
CLAY=	**20 %**

REPORT OF GRAIN SIZE ANALYSIS SCHLEEDE-HAMPTON ASSOCIATES,INC.



Silty CLAY, Some Sand, CL

S-011102-KMV-001

S013002kmv001 hydro

JOB NAME:	Laboratory Testing
PROJECT NO.	62225
SAMPLE SOURCE:	GM-Bedford
STOCKPILE ID:	S-013002-KMV-001
DATE SAMPLED:	1/30/02

ASTM D-422/D-4318

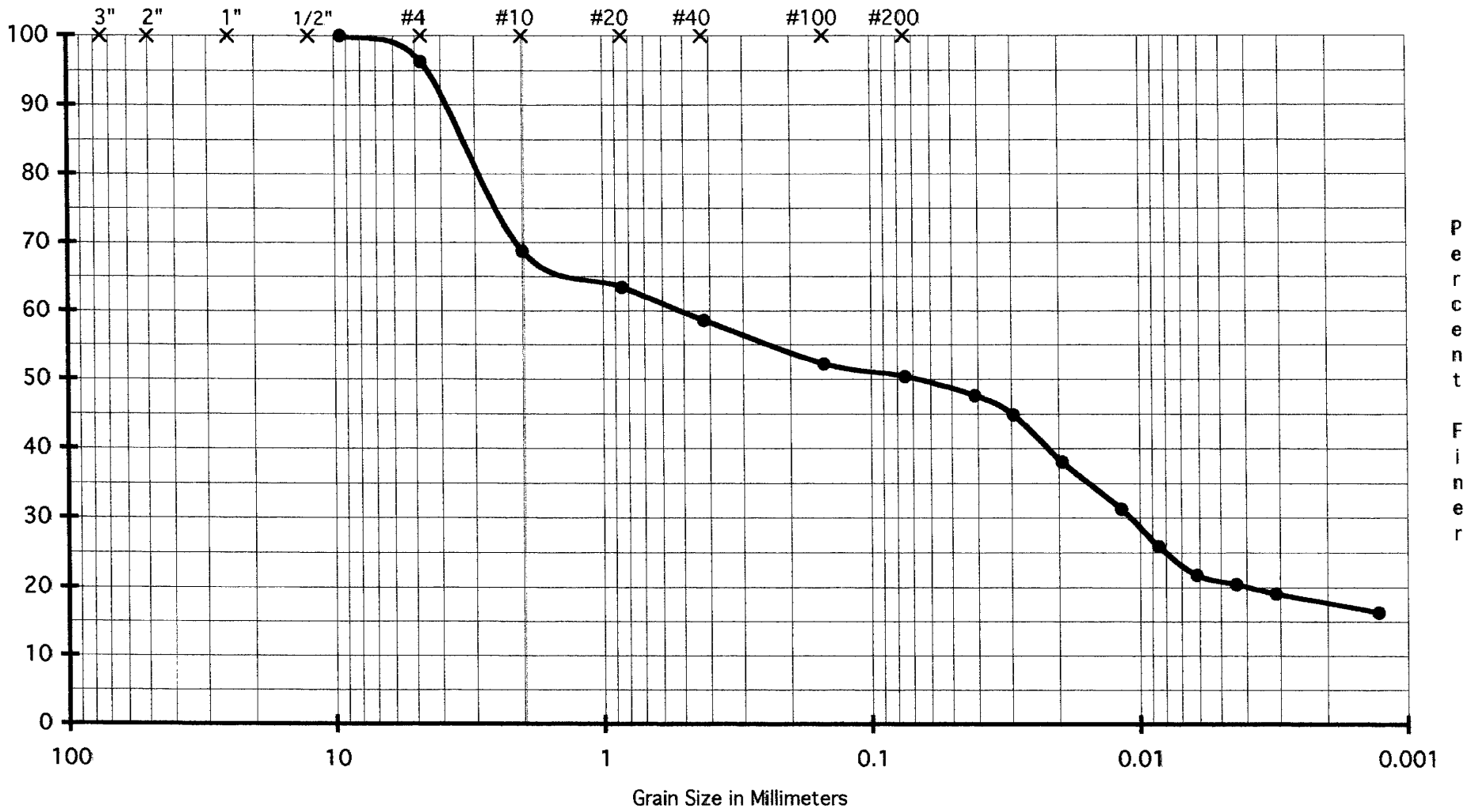
					TOTAL	DIAMETER
	TOTAL SAMPLE WT.=	169.9 (gms.)			PASSING	(mm)
+10 SIEVE PORTION	SIEVE SIZE	CUM WT. RET	PART % RET	PART % PASS		
	1	0.0	0.0%	100.0%	**100.0%**	**25.000**
	3/4 IN	0.0	0.0%	100.0%	**100.0%**	**19.000**
	1/2 IN	0.0	0.0%	100.0%	**100.0%**	**12.500**
	3/8 IN	0.0	0.0%	100.0%	**100.0%**	**9.500**
	#4	3.3	1.9%	98.1%	**98.1%**	**4.750**
	#10	53.2	31.3%	68.7%	**68.7%**	**2.000**
	WT. OF SAMPLE AT START OF HYDRO=	50.0 (gms.)				
-#10 SIEVE PORTION	#20	3.8	7.7%	92.3%	**63.4%**	**0.850**
	#40	7.4	14.8%	85.2%	**58.5%**	**0.420**
	#100	12.0	24.0%	76.0%	**52.2%**	**0.150**
	#200	13.3	26.7%	73.3%	**50.4%**	**0.075**
HYDROMETER	TEMPERATURE(°C)=	19.0				
PORTION	TEMP BATH BULB READ=	9.0				
	SPECIFIC GRAVITY Gs=	2.70 (assumed)				
	ELAPSED TIME (MIN)	UNCORR	CORRECTED	% PASS		
	1	44.0	35.0	69.3%	**47.6%**	**0.0411**
	2	42.0	33.0	65.3%	**44.9%**	**0.0295**
	5	37.0	28.0	55.4%	**38.1%**	**0.0194**
	15	32.0	23.0	45.5%	**31.3%**	**0.0117**
	30	28.0	19.0	37.6%	**25.8%**	**0.0085**
	60	25.0	16.0	31.7%	**21.8%**	**0.0061**
	120	24.0	15.0	29.7%	**20.4%**	**0.0044**
	240	23.0	14.0	27.7%	**19.0%**	**0.0031**
	1450	21.0	12.0	23.8%	**16.3%**	**0.0013**

soil classification: **Clayey SAND, Trace Gravel, SC**

GRAVEL=	**2 %**
SAND=	**48 %**
SILT=	**33 %**
CLAY=	**17 %**

REPORT OF GRAIN SIZE ANALYSIS SCHLEEDE-HAMPTON ASSOCIATES,INC.

U.S. Standard Sieve Size



Clayey SAND, Trace Gravel, SC

S-013002-KMV-001

S020402kmv001 hydro

JOB NAME:	Laboratory Testing
PROJECT NO.	62225
SAMPLE SOURCE:	GM-Bedford
STOCKPILE ID:	S-020402-KMV-001
DATE SAMPLED:	2/4/02

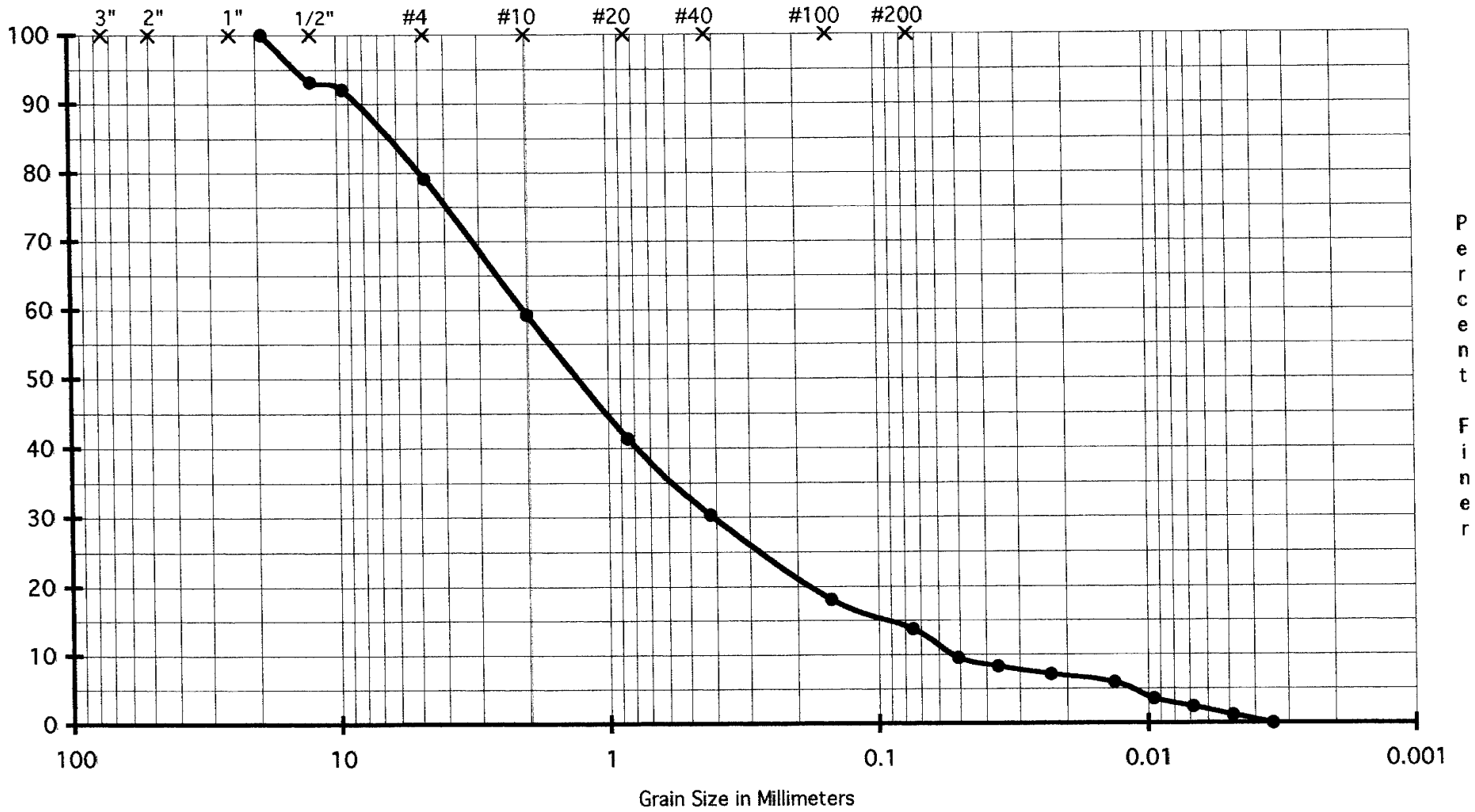
ASTM D-422/D-4318

					TOTAL	DIAMETER
	TOTAL SAMPLE WT.=	110.4 (gms.)				
+10 SIEVE PORTION	SIEVE SIZE	CUM WT. RET	PART % RET	PART % PASS	**PASSING**	**(mm)**
	1	0.0	0.0%	100.0%	**100.0%**	**25.000**
	3/4 IN	0.0	0.0%	100.0%	**100.0%**	**19.000**
	1/2 IN	7.6	6.9%	93.1%	**93.1%**	**12.500**
	3/8 IN	8.8	8.0%	92.0%	**92.0%**	**9.500**
	#4	23.0	20.8%	79.2%	**79.2%**	**4.750**
	#10	45.0	40.8%	59.2%	**59.2%**	**2.000**
	WT. OF SAMPLE AT START OF HYDRO=	50.0 (gms.)				
-#10 SIEVE PORTION	#20	15.1	30.1%	69.9%	**41.4%**	**0.850**
	#40	24.4	48.8%	51.2%	**30.3%**	**0.420**
	#100	34.7	69.4%	30.6%	**18.1%**	**0.150**
	#200	38.4	76.8%	23.2%	**13.7%**	**0.075**
HYDROMETER	TEMPERATURE(°C)=	19.0				
PORTION	TEMP BATH BULB READ=	9.0				
	SPECIFIC GRAVITY Gs=	2.65 (assumed)				
	ELAPSED TIME (MIN)	UNCORR	CORRECTED	% PASS		
	1	17.0	8.0	16.0%	**9.5%**	**0.0508**
	2	16.0	7.0	14.0%	**8.3%**	**0.0362**
	5	15.0	6.0	12.0%	**7.1%**	**0.0230**
	15	14.0	5.0	10.0%	**5.9%**	**0.0134**
	30	12.0	3.0	6.0%	**3.6%**	**0.0095**
	60	11.0	2.0	4.0%	**2.4%**	**0.0068**
	120	10.0	1.0	2.0%	**1.2%**	**0.0048**
	240	9.0	0.0	0.0%	**0.0%**	**0.0034**
	1450	9.0	0.0	0.0%	**0.0%**	**0.0014**

soil classification: **ASH and Cinders:**
SAND, Some Gravel, Little Silt, SW-SM

GRAVEL=	**21 %**
SAND=	**65 %**
SILT=	**14 %**
CLAY=	**0 %**

REPORT OF GRAIN SIZE ANALYSIS SCHLEEDE-HAMPTON ASSOCIATES,INC.



ASH and Cinders: SAND, Some Gravel, Little Silt, SW-SM

S-020402-KMV-001

S021202kmv001 hydro

JOB NAME:	Laboratory Testing
PROJECT NO.	62225
SAMPLE SOURCE:	GM-Bedford
STOCKPILE ID:	S-021202-KMV-001
DATE SAMPLED:	2/12/02

ASTM D-422/D-4318

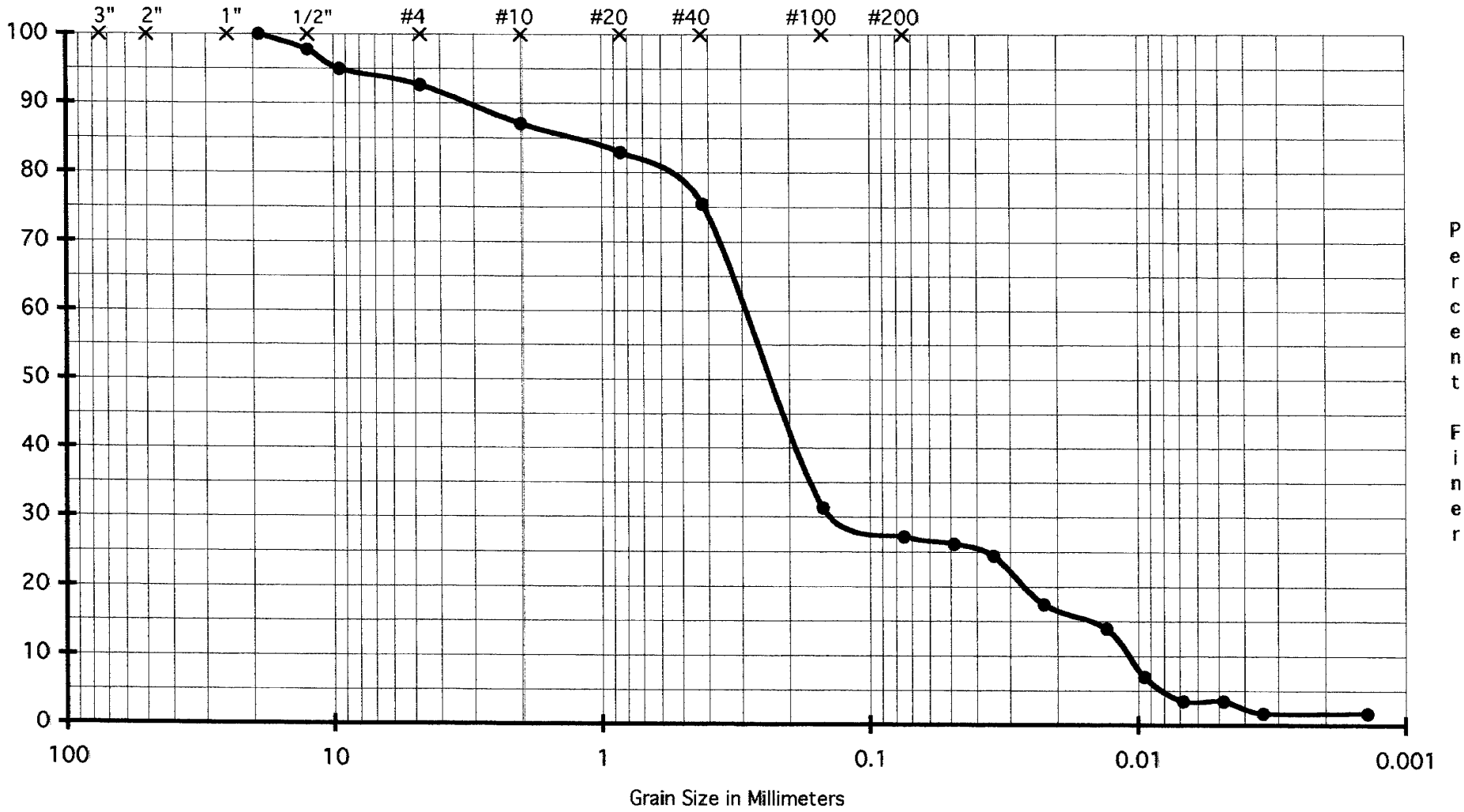
					TOTAL PASSING	DIAMETER (mm)
	TOTAL SAMPLE WT.=	176.0 (gms.)				
+10 SIEVE PORTION	SIEVE SIZE	CUM WT. RET	PART % RET	PART % PASS		
	1	0.0	0.0%	100.0%	**100.0%**	**25.000**
	3/4 IN	0.0	0.0%	100.0%	**100.0%**	**19.000**
	1/2 IN	4.0	2.3%	97.7%	**97.7%**	**12.500**
	3/8 IN	8.9	5.1%	94.9%	**94.9%**	**9.500**
	#4	13.0	7.4%	92.6%	**92.6%**	**4.750**
	#10	22.9	13.0%	87.0%	**87.0%**	**2.000**
	WT. OF SAMPLE AT START OF HYDRO=	50.0 (gms.)				
-#10 SIEVE PORTION	#20	2.4	4.7%	95.3%	**82.9%**	**0.850**
	#40	6.6	13.3%	86.7%	**75.5%**	**0.420**
	#100	32.0	64.0%	36.0%	**31.3%**	**0.150**
	#200	34.4	68.8%	31.2%	**27.2%**	**0.075**
HYDROMETER	TEMPERATURE(°C)=	19.0				
PORTION	TEMP BATH BULB READ=	9.0				
	SPECIFIC GRAVITY Gs=	2.65 (assumed)				
	ELAPSED TIME (MIN)	UNCORR	CORRECTED	% PASS		
	1	24.0	15.0	30.0%	**26.1%**	**0.0487**
	2	23.0	14.0	28.0%	**24.4%**	**0.0346**
	5	19.0	10.0	20.0%	**17.4%**	**0.0225**
	15	17.0	8.0	16.0%	**13.9%**	**0.0131**
	30	13.0	4.0	8.0%	**7.0%**	**0.0095**
	60	11.0	2.0	4.0%	**3.5%**	**0.0068**
	120	11.0	2.0	4.0%	**3.5%**	**0.0048**
	240	10.0	1.0	2.0%	**1.7%**	**0.0034**
	1450	10.0	1.0	2.0%	**1.7%**	**0.0014**

soil classification: **SAND, Trace Gravel, Some Silt, SM**

GRAVEL=	**7 %**
SAND=	**65 %**
SILT=	**26 %**
CLAY=	**2 %**

REPORT OF GRAIN SIZE ANALYSIS SCHLEEDE-HAMPTON ASSOCIATES,INC.

U.S. Standard Sieve Size



SAND, Trace Gravel, Some Silt, SM

S-021202-KMV-001

SCHLEEDE - HAMPTON ASSOCIATES, INC.

CONSULTING ENGINEERS

1612 LANDMEIER ROAD, SUITE C, ELK GROVE VILLAGE, ILLINOIS 60007 (847) 228-1079

HYDROMETER/COMBINED ANALYSIS

TestUniqueID: 2667 **Project Name:** GM - Bedford, IN **ProjectID:** 62225

Date: 4/1/2002 **Boring No. S-012302** **Sample No. M-005** **Depth: 0** Test No. 9

Total Sample Wt.: 232.1

	Sieve Size	Cum Wt. Ret	% Retaining	% Passing	Total Passing %	Dia (mm)
+#10 Sieve Portion.	1	0.0	0.0	100.0	100.0	25.0000
	3/4	0.0	0.0	100.0	100.0	19.0000
	1/2	0.0	0.0	100.0	100.0	12.5000
	3/8	0.0	0.0	100.0	100.0	9.5000
	No.4	0.0	0.0	100.0	100.0	4.7500
	No.10	0.0	0.0	100.0	100.0	2.0000
-#10 Sieve Portion.	No.20	0.1	0.2	99.8	99.8	0.8500
	No.40	0.3	0.6	99.4	99.4	0.4200
	No.100	0.7	1.3	98.7	98.7	0.1500
	No.200	1.1	2.1	97.9	97.9	0.0750

Wt of Sample at Start of Hydrometer : 51.5 **Temperature (C):** 21.3

Temp Bath Bulb Reading: 5.0

Specific Gravity: 2.70

	Elaps. Time (min)	Uncorrected	Corrected	% Passing	Total Passing %	Dia (mm)
Hydrometer Portion.	1	51.5	46.7	89.7	89.7	0.0372
	2	47.5	42.7	82.0	82.0	0.0274
	5	42.0	37.2	71.4	71.4	0.0182
	15	34.0	29.2	56.1	56.1	0.0112
	30	29.5	24.7	47.4	47.4	0.0082
	60	26.0	21.2	40.7	40.7	0.0059
	120	24.0	19.2	36.9	36.9	0.0043
	250	22.0	17.2	33.0	33.0	0.0030
	1440	20.0	15.2	29.2	29.2	0.0013

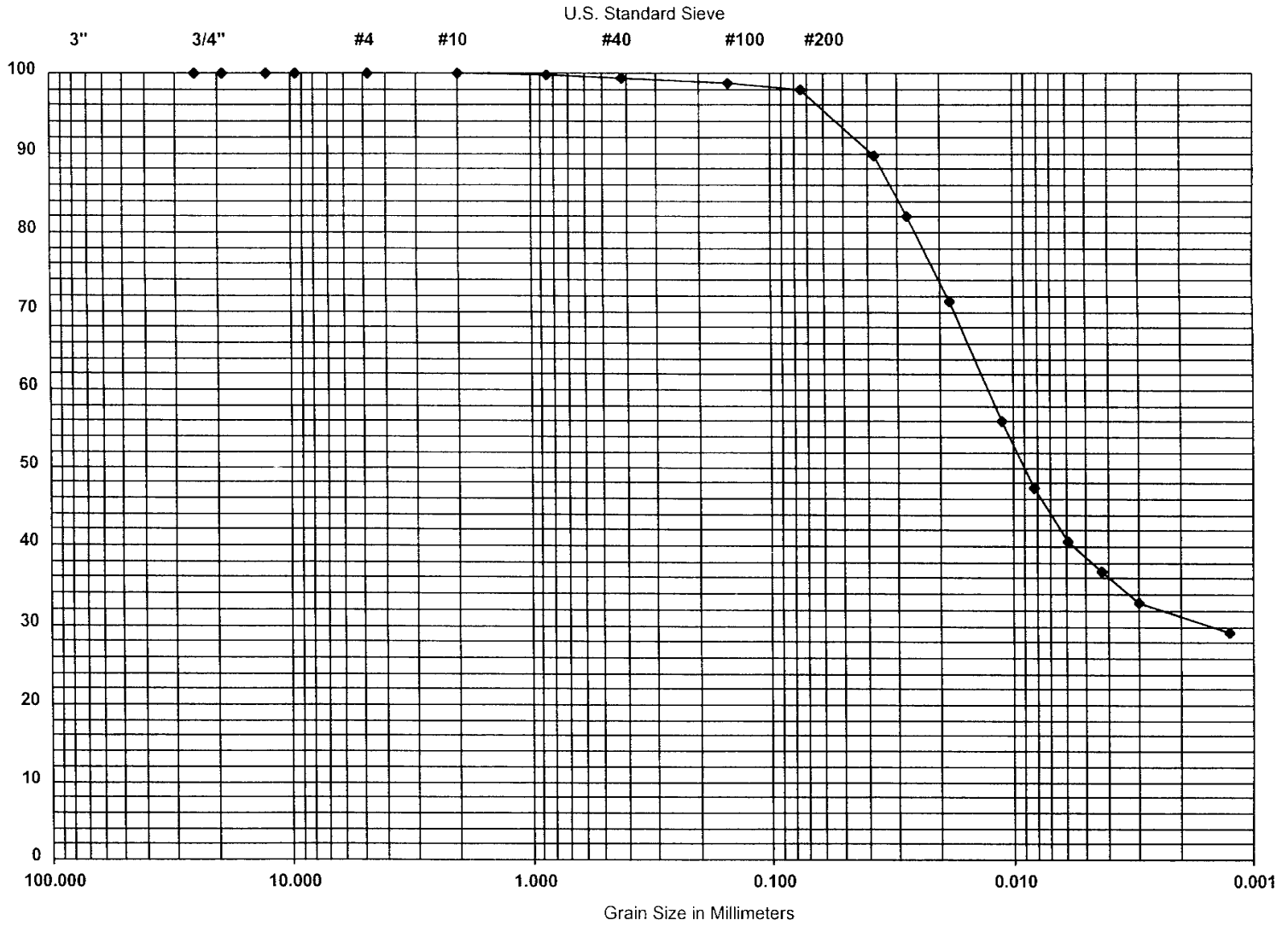
LL : 38 **PL:** 19 **PI :** 19 **Organic :** No

Gravel : 0 **Sand :** 2 **Silt :** 67 **Clay :** 31

Cu: 13.0 **Cc:** 0.2 **D10:** 0.001 **D30:** 0.002 **D60:** 0.013

Unified Classification: Silty CLAY, Trace Sand, CL

REPORT OF GRAIN SIZE ANALYSIS **SCHLEEDE-HAMPTON ASSOCIATES, INC.**



GRAVEL		SAND			SILT OR CLAY
coarse	fine	coarse	medium	fine	

Boring No.: S-012302 **Sample No.:** M-005 **Depth:** 0 **LL%:** 38 **PL %:** 19 **PI %:** 19

Gravel: 0 **Sand:** 2 **Silt:** 67 **Clay:** 31 **Cu:** 13.0 **Cc:** 0.2 **Dia10:** 0.001 **Dia30:** 0.002 **Dia60:** 0.013

Unified Classification: Silty CLAY, Trace Sand, CL

Project Name: GM - Bedford, IN **Client:** Conestoga-Rovers Associates **ProjectID:** 62225

SCHLEEDE-HAMPTON ASSOCIATES, INC. • CONSULTING ENGINEERS

1612 Landmeier Road, Suite C, Elk Grove Village, Illinois (847) 228-1079

REPORT OF PERMEABILITY TESTING

PROJECT NAME	GM - Bedford, IN		
SAMPLE NO.	S-012302-MO-005	**REPORT NO:**	7 perm
CLASSIFICATION	Silty CLAY, Trace Sand, CL	**DATE:**	Apr-02
SAMPLE TYPE	BULK SAMPLE	**PROJECT NO:**	62225

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	20	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.41 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	28.5

	PERMEABILITY, k (cm/sec)
TEST INTERVAL 1	1.21E-09
TEST INTERVAL 2	1.53E-09
TEST INTERVAL 3	1.15E-09
TEST INTERVAL 4	1.38E-09
AVERAGE k	1.32E-09
k_{20}	**1.32E-09**

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	2.88	2.88
LENGTH, in	4.27	4.18
VOLUME, cu in	27.80	27.14
WEIGHT, gm	915.2	919.0
UNIT WEIGHT, pcf	125.3	128.9
MOIST. CONTENT, %	21.4	21.9
DRY DENSITY, pcf	103.2	105.7
DEGREE OF SATUR, %	91	100

Respectfully Submitted:
William D. Prigge, P.E.

SCHLEEDE - HAMPTON ASSOCIATES, INC.

CONSULTING ENGINEERS

1612 LANDMEIER ROAD, SUITE C, ELK GROVE VILLAGE, ILLINOIS 60007 (847) 228-1079

HYDROMETER/COMBINED ANALYSIS

TestUniqueID: 2675 **Project Name:** GM - Bedford, IN **ProjectID:** 62225

Date: 4/2/2002 **Boring No. S-012102** **Sample No. KMV-001** **Depth: 0** Test No. 10

Total Sample Wt.: 80.8

	Sieve Size	Cum Wt. Ret	% Retaining	% Passing	Total Passing %	Dia (mm)
+#10 Sieve Portion.	1	0.0	0.0	100.0	100.0	25.0000
	3/4	0.0	0.0	100.0	100.0	19.0000
	1/2	0.0	0.0	100.0	100.0	12.5000
	3/8	0.0	0.0	100.0	100.0	9.5000
	No.4	0.0	0.0	100.0	100.0	4.7500
	No.10	0.0	0.0	100.0	100.0	2.0000
-#10 Sieve Portion.	No.20	0.1	0.2	99.8	99.8	0.8500
	No.40	0.3	0.5	99.5	99.5	0.4200
	No.100	0.5	1.0	99.0	99.0	0.1500
	No.200	0.7	1.3	98.7	98.7	0.0750

Wt of Sample at Start of Hydrometer : 51.2

Temperature (C): 21.5

Temp Bath Bulb Reading: 5.0

Specific Gravity: 2.70

	Elaps. Time (min)	Uncorrected	Corrected	% Passing	Total Passing %	Dia (mm)
Hydrometer Portion.	1	53.5	48.7	94.1	94.1	0.0364
	2	49.5	44.7	86.4	86.4	0.0269
	5	45.5	40.7	78.7	78.7	0.0177
	15	37.0	32.2	62.2	62.2	0.0110
	30	33.5	28.7	55.5	55.5	0.0080
	60	29.0	24.2	46.8	46.8	0.0058
	120	27.5	22.7	43.9	43.9	0.0042
	250	25.5	20.7	40.0	40.0	0.0029
	1440	23.0	18.2	35.2	35.2	0.0012

LL : 50 **PL:** 18 **PI :** 32 **Organic :** No

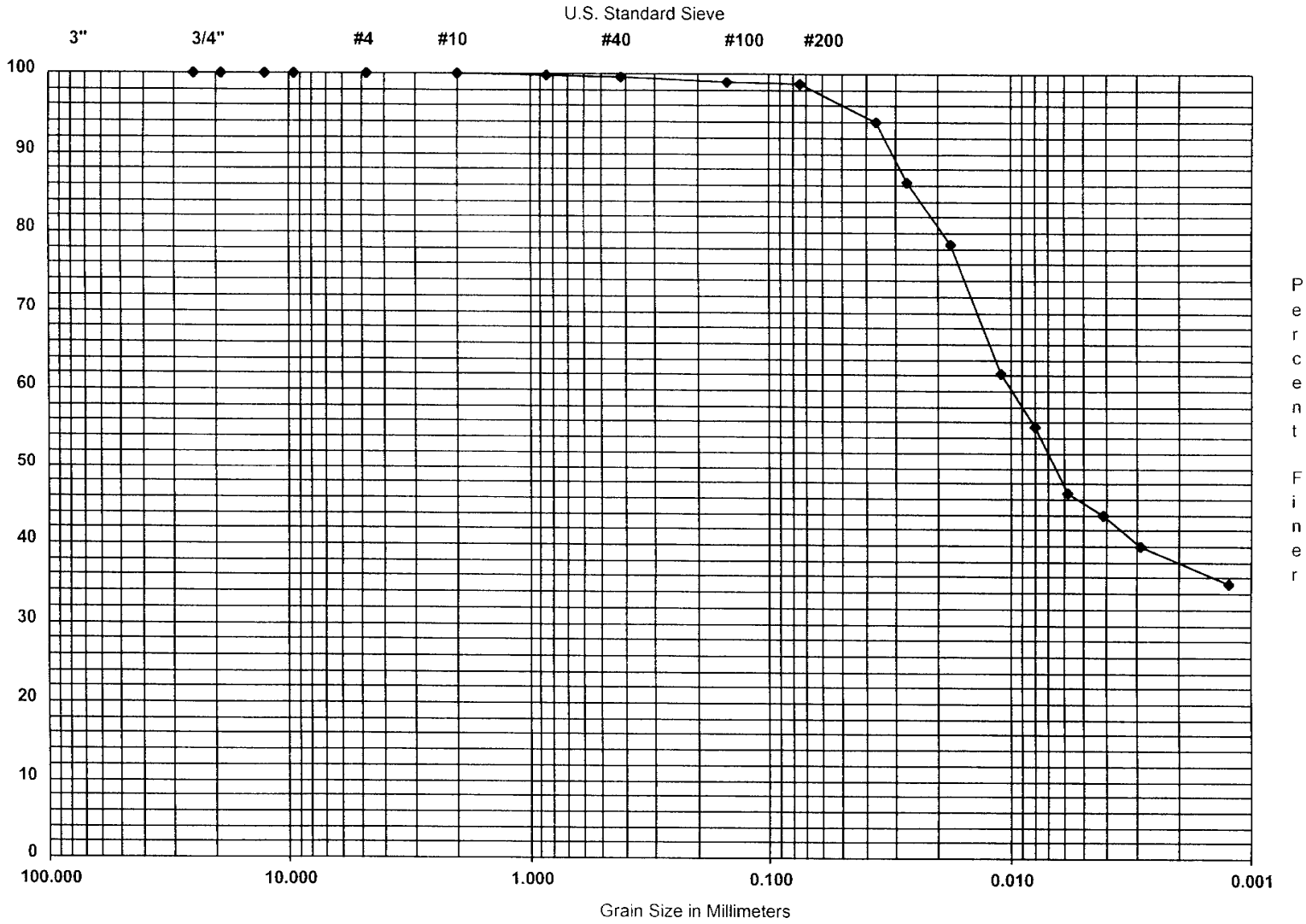
Gravel : 0 **Sand :** 1 **Silt :** 62 **Clay :** 37

Cu: 10.0 **Cc:** 0.1 **D10:** 0.001 **D30:** 0.001 **D60:** 0.01

Unified Classification: CLAY, Trace Sand, CH

REPORT OF GRAIN SIZE ANALYSIS

SCHLEEDE-HAMPTON ASSOCIATES, INC.



GRAVEL		SAND			SILT OR CLAY
coarse	fine	coarse	medium	fine	

Boring No.: S-012102 **Sample No.:** KMV-001 **Depth:** 0 **LL%:** 50 **PL %:** 18 **PI %:** 32

Gravel: 0 **Sand:** 1 **Silt:** 62 **Clay:** 37 **Cu:** 10.0 **Cc:** 0.1 **Dia10:** 0.001 **Dia30:** 0.001 **Dia60:** 0.010

Unified Classification: CLAY, Trace Sand, CH

Project Name: GM - Bedford, IN **Client:** Conestoga-Rovers Associates **ProjectID:** 62225

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REPORT OF PERMEABILITY TESTING

PROJECT NAME	GM - Bedford, IN		
SAMPLE NO.	S-012102-KMV-001	**REPORT NO:**	1 perm
CLASSIFICATION	CLAY, Trace Sand, CH	**DATE:**	Apr-02
SAMPLE TYPE	Split Spoon	**PROJECT NO:**	62225

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	20	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.53 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	28.8

	PERMEABILITY, k (cm/sec)
TEST INTERVAL 1	7.00E-08
TEST INTERVAL 2	7.11E-08
TEST INTERVAL 3	5.76E-08
TEST INTERVAL 4	6.12E-08
AVERAGE k	6.50E-08
k_{20}	**6.50E-08**

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	1.43	1.43
LENGTH, in	2.55	2.50
VOLUME, cu in	4.10	4.01
WEIGHT, gm	129.9	131.4
UNIT WEIGHT, pcf	120.7	124.8
MOIST. CONTENT, %	24.6	26.0
DRY DENSITY, pcf	96.9	99.0
DEGREE OF SATUR, %	90	100

Respectfully Submitted:
William D. Prigge, P.E.

SCHLEEDE - HAMPTON ASSOCIATES, INC.

CONSULTING ENGINEERS

1612 LANDMEIER ROAD, SUITE C, ELK GROVE VILLAGE, ILLINOIS 60007 (847) 228-1079

HYDROMETER/COMBINED ANALYSIS

TestUniqueID: 2677 **Project Name:** GM - Bedford, IN **ProjectID:** 62225

Date: 4/2/2002 **Boring No. S-012202** **Sample No. KMV-001** **Depth: 0** Test No. 11

Total Sample Wt.: 70.5

	Sieve Size	Cum Wt. Ret	% Retaining	% Passing	Total Passing %	Dia (mm)
+#10 Sieve Portion.	1	0.0	0.0	100.0	100.0	25.0000
	3/4	0.0	0.0	100.0	100.0	19.0000
	1/2	0.0	0.0	100.0	100.0	12.5000
	3/8	0.0	0.0	100.0	100.0	9.5000
	No.4	0.0	0.0	100.0	100.0	4.7500
-#10 Sieve Portion.	No.10	2.0	2.8	97.2	97.2	2.0000
	No.20	0.7	1.4	98.6	95.8	0.8500
	No.40	1.3	2.6	97.4	94.6	0.4200
	No.100	2.2	4.3	95.7	93.0	0.1500
	No.200	2.4	4.7	95.3	92.6	0.0750

Wt of Sample at Start of Hydrometer : 51.1 **Temperature (C):** 21.5

Temp Bath Bulb Reading: 5.0

Specific Gravity: 2.70

	Elaps. Time (min)	Uncorrected	Corrected	% Passing	Total Passing %	Dia (mm)
Hydrometer Portion.	1	51.5	46.7	90.3	87.7	0.0372
	2	46.5	41.7	80.6	78.3	0.0277
	5	42.0	37.2	71.9	69.9	0.0182
	15	34.5	29.7	57.4	55.8	0.0112
	30	30.0	25.2	48.7	47.3	0.0082
	60	26.5	21.7	42.0	40.8	0.0059
	120	24.0	19.2	37.1	36.1	0.0043
	250	22.5	17.7	34.2	33.3	0.0030
	1440	20.0	15.2	29.4	28.6	0.0013

LL : 45 **PL:** 18 **PI :** 27 **Organic :** No

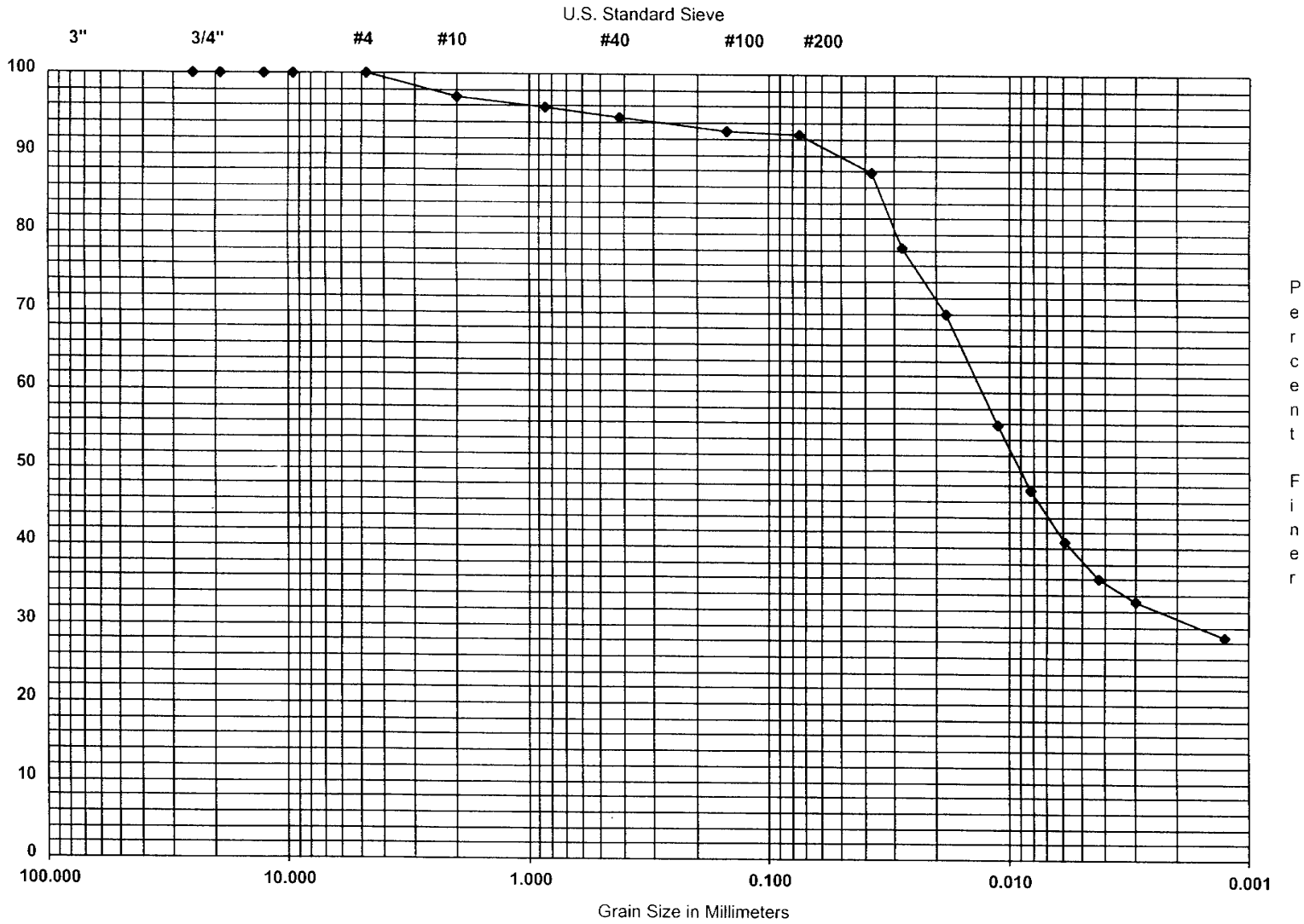
Gravel : 0 **Sand :** 7 **Silt :** 62 **Clay :** 31

Cu: 13.3 **Cc:** 0.2 **D10:** 0.001 **D30:** 0.002 **D60:** 0.013

Unified Classification: Silty CLAY, Trace Sand, CL

REPORT OF GRAIN SIZE ANALYSIS

SCHLEEDE-HAMPTON ASSOCIATES, INC.



GRAVEL		SAND			SILT OR CLAY
coarse	fine	coarse	medium	fine	

Boring No.: S-012202 **Sample No.:** KMV-001 **Depth:** 0 **LL%:** 45 **PL %:** 18 **PI %:** 27

Gravel: 0 **Sand:** 7 **Silt:** 62 **Clay:** 31 **Cu:** 13.3 **Cc:** 0.2 **Dia10:** 0.001 **Dia30:** 0.002 **Dia60:** 0.013

Unified Classification: Silty CLAY, Trace Sand, CL

Project Name: GM - Bedford, IN **Client:** Conestoga-Rovers Associates **ProjectID:** 62225

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REPORT OF PERMEABILITY TESTING

PROJECT NAME	GM - Bedford, IN		
SAMPLE NO.	S-012202-KMV-001	**REPORT NO:**	11 perm
CLASSIFICATION	Silty CLAY, Trace Sand, CL	**DATE:**	Apr-02
SAMPLE TYPE	Split Spoon	**PROJECT NO:**	62225

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	20	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.61 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	29.7

	PERMEABILITY, k (cm/sec)
TEST INTERVAL 1	6.97E-08
TEST INTERVAL 2	7.41E-08
TEST INTERVAL 3	7.42E-08
TEST INTERVAL 4	7.50E-08
AVERAGE k	7.33E-08
k_{20}	**7.33E-08**

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	1.41	1.42
LENGTH, in	1.43	1.40
VOLUME, cu in	2.23	2.20
WEIGHT, gm	72.0	72.4
UNIT WEIGHT, pcf	122.7	125.1
MOIST. CONTENT, %	24.8	25.4
DRY DENSITY, pcf	98.4	99.8
DEGREE OF SATUR, %	94	100

Respectfully Submitted:
William D. Prigge, P.E.

SCHLEEDE - HAMPTON ASSOCIATES, INC.

CONSULTING ENGINEERS

1612 LANDMEIER ROAD, SUITE C, ELK GROVE VILLAGE, ILLINOIS 60007 (847) 228-1079

HYDROMETER/COMBINED ANALYSIS

TestUniqueID: 2665 **Project Name:** GM - Bedford, IN **ProjectID:** 62225

Date: 4/1/2002 **Boring No. S-012502** **Sample No. KMV-001** **Depth: 0** Test No. 12

Total Sample Wt.: 70.8

	Sieve Size	Cum Wt. Ret	% Retaining	% Passing	Total Passing %	Dia (mm)
+#10 Sieve Portion.	1	0.0	0.0	100.0	100.0	25.0000
	3/4	0.0	0.0	100.0	100.0	19.0000
	1/2	0.0	0.0	100.0	100.0	12.5000
	3/8	0.0	0.0	100.0	100.0	9.5000
	No.4	2.7	3.8	96.2	96.2	4.7500
	No.10	3.6	5.1	94.9	94.9	2.0000
-#10 Sieve Portion.	No.20	0.4	0.7	99.3	94.2	0.8500
	No.40	0.8	1.6	98.4	93.4	0.4200
	No.100	1.7	3.4	96.6	91.6	0.1500
	No.200	2.3	4.6	95.4	90.5	0.0750

Wt of Sample at Start of Hydrometer : 50.9 **Temperature (C):** 21.3

Temp Bath Bulb Reading: 5.0

Specific Gravity: 2.70

	Elaps. Time (min)	Uncorrected	Corrected	% Passing	Total Passing %	Dia (mm)
Hydrometer Portion.	1	51.5	46.7	90.8	86.1	0.0372
	2	47.5	42.7	83.0	78.7	0.0274
	5	42.5	37.7	73.3	69.5	0.0181
	15	36.0	31.2	60.6	57.5	0.0111
	30	32.5	27.7	53.8	51.1	0.0080
	60	29.0	24.2	47.0	44.6	0.0058
	120	26.5	21.7	42.2	40.0	0.0042
	250	25.0	20.2	39.3	37.2	0.0029
	1440	22.5	17.7	34.4	32.6	0.0012

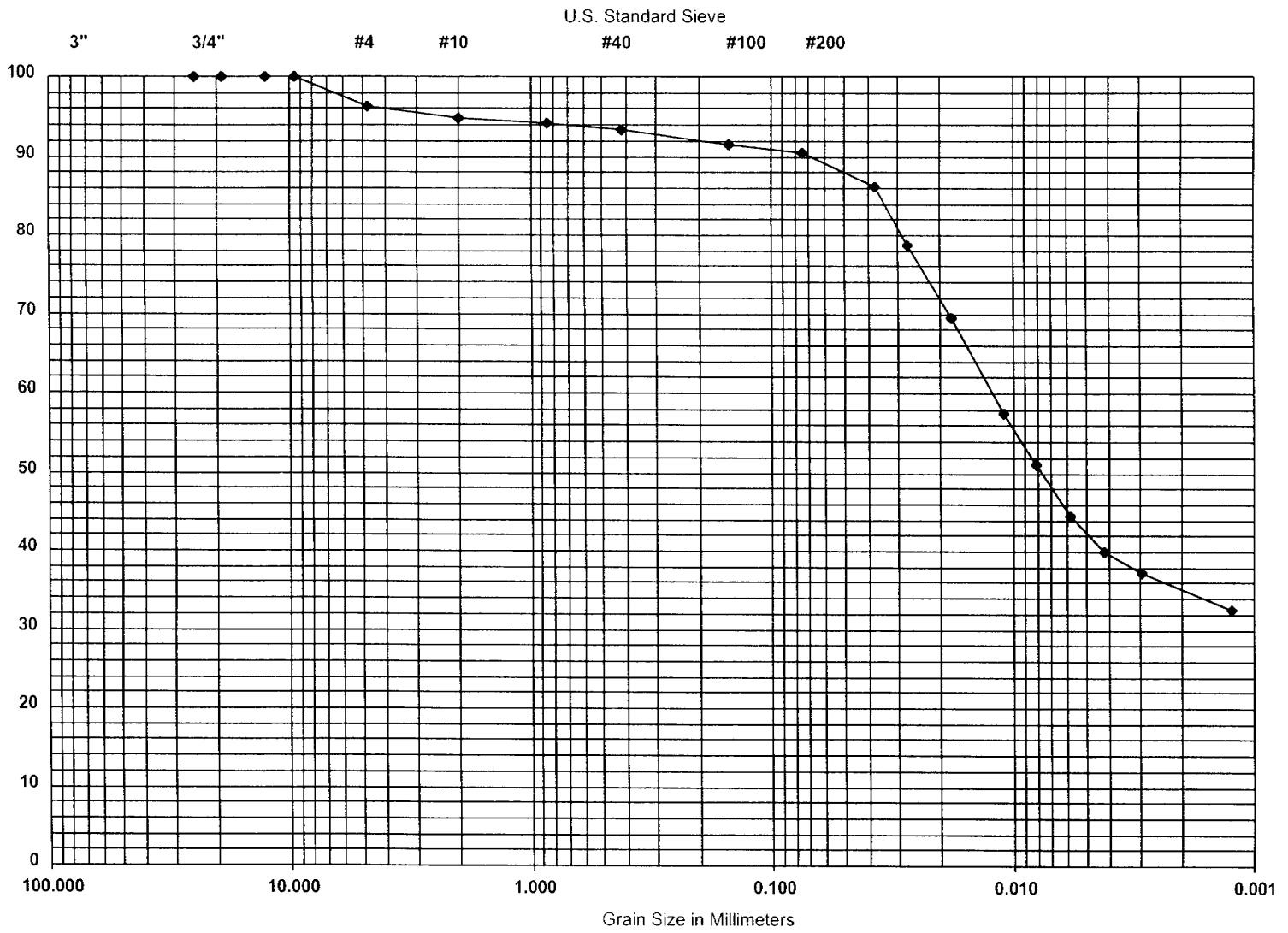
LL : 49 **PL:** 19 **PI :** 30 **Organic :** No

Gravel : 4 **Sand :** 6 **Silt :** 55 **Clay :** 35

Cu: 12.5 **Cc:** 0.0 **D10:** 0.001 **D30:** 0.0003 **D60:** 0.013

Unified Classification: Silty CLAY, Trace Sand, Trace Gravel, CL

REPORT OF GRAIN SIZE ANALYSIS **SCHLEEDE-HAMPTON ASSOCIATES, INC.**



GRAVEL		SAND			SILT OR CLAY
coarse	fine	coarse	medium	fine	

Boring No.: S-012502 **Sample No.:** KMV-001 **Depth:** 0 **LL%:** 49 **PL %:** 19 **PI %:** 30

Gravel: 4 **Sand:** 6 **Silt:** 55 **Clay:** 35 **Cu:** 12.5 **Cc:** 0.0 **Dia10:** 0.001 **Dia30:** 0.0003 **Dia60:** 0.013

Unified Classification: Silty CLAY, Trace Sand, Trace Gravel, CL

Project Name: GM - Bedford, IN **Client:** Conestoga-Rovers Associates **ProjectID:** 62225

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1612 Landmeier Road, Suite C, Elk Grove Village, Illinois (847) 228-1079

REPORT OF PERMEABILITY TESTING

PROJECT NAME	GM - Bedford, IN		
SAMPLE NO.	S-012502-KMV-001	**REPORT NO:**	12 perm
CLASSIFICATION	Silty CLAY, Trace Sand, Trace Gravel, CL	**DATE:**	May-02
SAMPLE TYPE	Split Spoon	**PROJECT NO:**	62225

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	20	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.55 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	29.9

	PERMEABILITY, k (cm/sec)
TEST INTERVAL 1	6.11E-08
TEST INTERVAL 2	6.24E-08
TEST INTERVAL 3	6.49E-08
TEST INTERVAL 4	6.67E-08
AVERAGE k	6.38E-08
k 20	**6.38E-08**

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	1.42	1.43
LENGTH, in	2.18	2.13
VOLUME, cu in	3.45	3.40
WEIGHT, gm	108.0	108.8
UNIT WEIGHT, pcf	119.1	121.9
MOIST. CONTENT, %	28.2	29.1
DRY DENSITY, pcf	92.9	94.4
DEGREE OF SATUR, %	94	100

Respectfully Submitted:
William D. Prigge, P.E.

SCHLEEDE - HAMPTON ASSOCIATES, INC.

CONSULTING ENGINEERS

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HYDROMETER/COMBINED ANALYSIS

TestUniqueID: 2664 **Project Name:** GM - Bedford, IN **ProjectID:** 62225

Date: 4/1/2002 **Boring No. S-02602** **Sample No. MG-001** **Depth: 0** Test No. 13

Total Sample Wt.: 81.8

	Sieve Size	Cum Wt. Ret	% Retaining	% Passing	Total Passing %	Dia (mm)
+#10 Sieve Portion.	1	0.0	0.0	100.0	100.0	25.0000
	3/4	0.0	0.0	100.0	100.0	19.0000
	1/2	0.0	0.0	100.0	100.0	12.5000
	3/8	0.0	0.0	100.0	100.0	9.5000
	No.4	0.0	0.0	100.0	100.0	4.7500
	No.10	2.0	2.4	97.6	97.6	2.0000
-#10 Sieve Portion.	No.20	0.4	0.7	99.3	96.9	0.8500
	No.40	0.7	1.4	98.6	96.2	0.4200
	No.100	1.8	3.5	96.5	94.2	0.1500
	No.200	3.2	6.2	93.8	91.6	0.0750

Wt of Sample at Start of Hydrometer : 51.2

Temperature (C): 21.5

Temp Bath Bulb Reading: 5.0

Specific Gravity: 2.70

	Elaps. Time (min)	Uncorrected	Corrected	% Passing	Total Passing %	Dia (mm)
Hydrometer Portion.	1	51.5	46.7	90.3	88.1	0.0372
	2	49.0	44.2	85.4	83.4	0.0270
	5	46.0	41.2	79.6	77.7	0.0176
	15	42.0	37.2	71.9	70.2	0.0105
	30	39.0	34.2	66.1	64.5	0.0076
	60	36.0	31.2	60.3	58.9	0.0055
	120	34.5	29.7	57.4	56.0	0.0040
	250	33.0	28.2	54.5	53.2	0.0028
	1440	30.5	25.7	49.7	48.5	0.0012

LL : 53 **PL:** 17 **PI :** 36 **Organic :** No

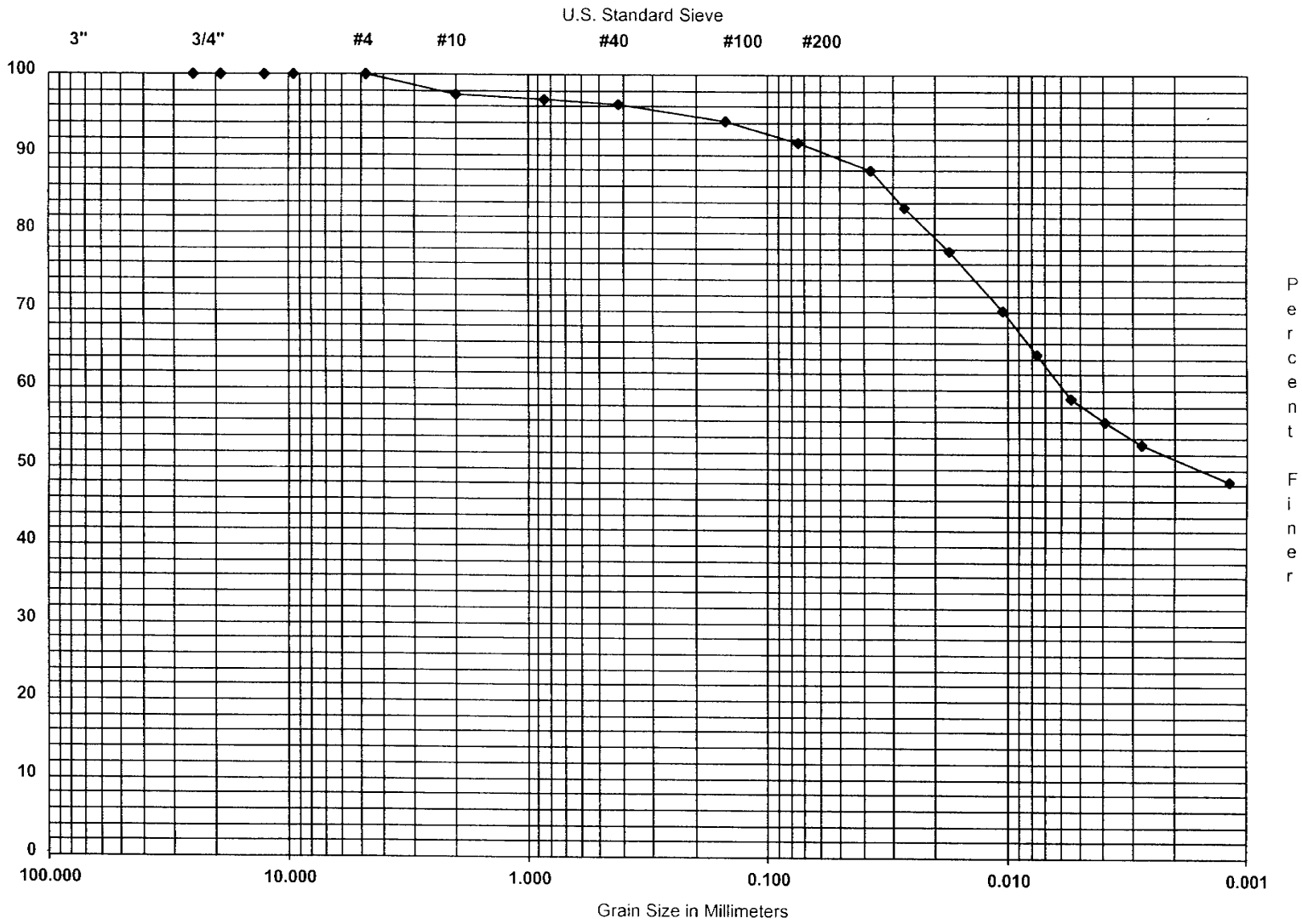
Gravel : 0 **Sand :** 8 **Silt :** 41 **Clay :** 51

Cu: 5.9 **Cc:** 0.2 **D10:** 0.001 **D30:** 0.001 **D60:** 0.006

Unified Classification: CLAY, Trace Sand, CH

REPORT OF GRAIN SIZE ANALYSIS

SCHLEEDE-HAMPTON ASSOCIATES, INC.



GRAVEL		SAND			SILT OR CLAY
coarse	fine	coarse	medium	fine	

Boring No.: S-02602 **Sample No.:** MG-001 **Depth:** 0 **LL%:** 53 **PL %:** 17 **PI %:** 36

Gravel: 0 **Sand:** 8 **Silt:** 41 **Clay:** 51 **Cu:** 5.9 **Cc:** 0.2 **Dia10:** 0.001 **Dia30:** 0.001 **Dia60:** 0.006

Unified Classification: CLAY, Trace Sand, CH

Project Name: GM - Bedford, IN **Client:** Conestoga-Rovers Associates **ProjectID:** 62225

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REPORT OF PERMEABILITY TESTING

PROJECT NAME	GM - Bedford, IN		
SAMPLE NO.	S-020602-MG-001	**REPORT NO:**	13 perm
CLASSIFICATION	CLAY, Trace Sand, CH	**DATE:**	Apr-02
SAMPLE TYPE	Split Spoon	**PROJECT NO:**	62225

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	20	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.56 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	29.4

	PERMEABILITY, k (cm/sec)
TEST INTERVAL 1	7.09E-08
TEST INTERVAL 2	7.28E-08
TEST INTERVAL 3	6.76E-08
TEST INTERVAL 4	6.38E-08
AVERAGE k	6.88E-08
k_{20}	**6.88E-08**

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	1.43	1.44
LENGTH, in	2.16	2.07
VOLUME, cu in	3.47	3.35
WEIGHT, gm	108.0	108.7
UNIT WEIGHT, pcf	118.5	123.6
MOIST. CONTENT, %	26.4	27.2
DRY DENSITY, pcf	93.7	97.1
DEGREE OF SATUR, %	89	100

Respectfully Submitted:
William D. Prigge, P.E.

SCHLEEDE - HAMPTON ASSOCIATES, INC.

CONSULTING ENGINEERS

1612 LANDMEIER ROAD, SUITE C, ELK GROVE VILLAGE, ILLINOIS 60007 (847) 228-1079

HYDROMETER/COMBINED ANALYSIS

TestUniqueID: 2668 **Project Name:** GM - Bedford, IN **ProjectID:** 62225

Date: 4/1/2002 **Boring No. S-012302** **Sample No. MO-001** **Depth: 0** Test No. 5

Total Sample Wt.: 228.5

	Sieve Size	Cum Wt. Ret	% Retaining	% Passing	Total Passing %	Dia (mm)
+#10 Sieve Portion.	1	0.0	0.0	100.0	100.0	25.0000
	3/4	0.0	0.0	100.0	100.0	19.0000
	1/2	0.0	0.0	100.0	100.0	12.5000
	3/8	0.0	0.0	100.0	100.0	9.5000
	No.4	0.0	0.0	100.0	100.0	4.7500
	No.10	0.0	0.0	100.0	100.0	2.0000
-#10 Sieve Portion.	No.20	0.1	0.2	99.8	99.8	0.8500
	No.40	0.3	0.6	99.4	99.4	0.4200
	No.100	0.8	1.5	98.5	98.5	0.1500
	No.200	1.2	2.3	97.7	97.7	0.0750

Wt of Sample at Start of Hydrometer : 51.3

Temperature (C): 21.5

Temp Bath Bulb Reading: 5.0

Specific Gravity: 2.70

	Elaps. Time (min)	Uncorrected	Corrected	% Passing	Total Passing %	Dia (mm)
Hydrometer Portion.	1	49.5	44.7	86.2	86.2	0.0380
	2	44.0	39.2	75.6	75.6	0.0283
	5	39.5	34.7	66.9	66.9	0.0186
	15	32.0	27.2	52.4	52.4	0.0114
	30	27.5	22.7	43.7	43.7	0.0083
	60	24.5	19.7	38.0	38.0	0.0060
	120	23.0	18.2	35.1	35.1	0.0043
	250	22.0	17.2	33.1	33.1	0.0030
	1440	19.0	14.2	27.4	27.4	0.0013

LL : 39 **PL:** 19 **PI :** 20 **Organic :** No

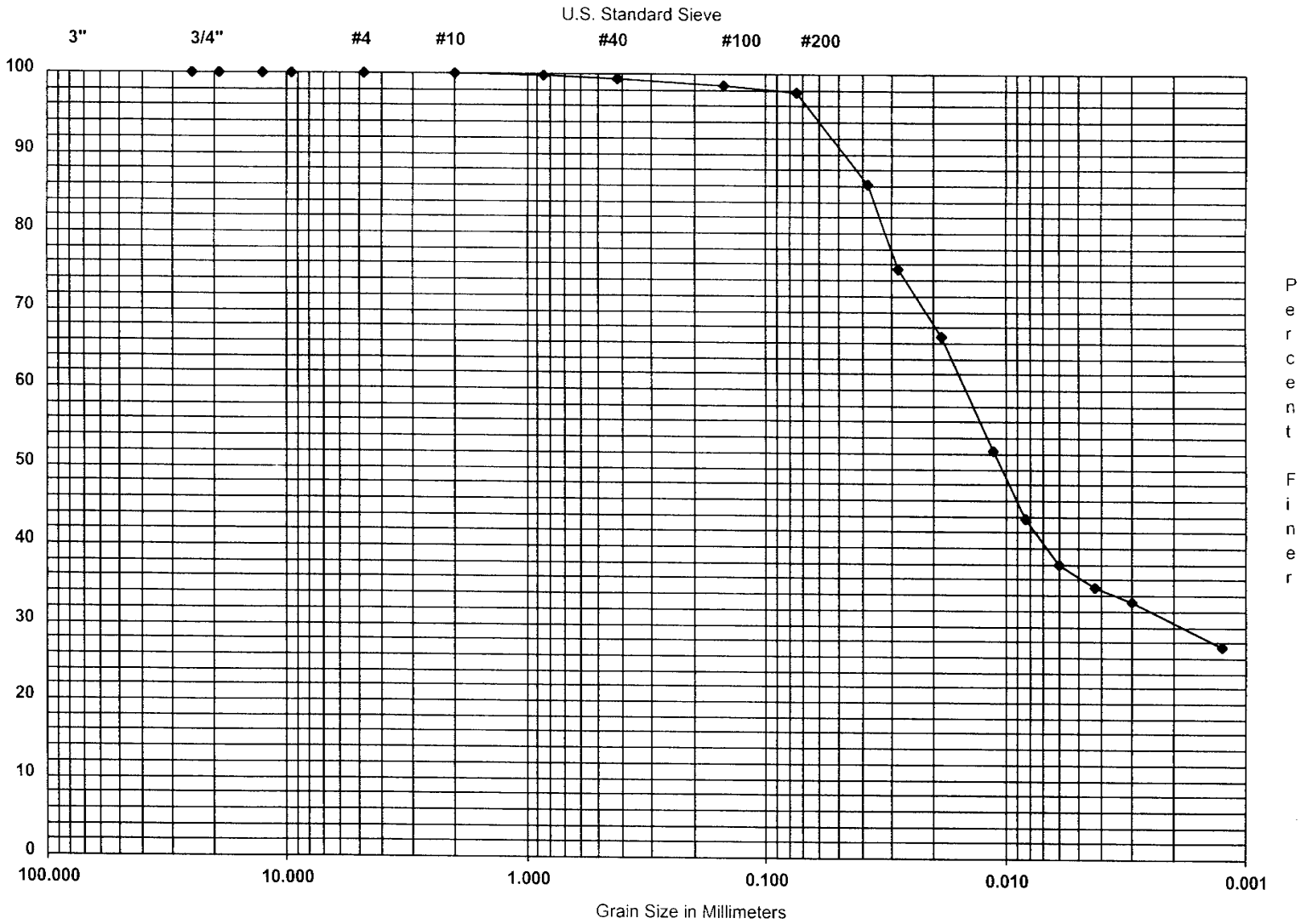
Gravel : 0 **Sand :** 2 **Silt :** 68 **Clay :** 30

Cu: 15.2 **Cc:** 0.3 **D10:** 0.001 **D30:** 0.002 **D60:** 0.015

Unified Classification: Silty CLAY, Trace Sand, CL

REPORT OF GRAIN SIZE ANALYSIS

SCHLEEDE-HAMPTON ASSOCIATES, INC.



GRAVEL		SAND			SILT OR CLAY
coarse	fine	coarse	medium	fine	

Boring No.: S-012302 **Sample No.:** MO-001 **Depth:** 0 **LL%:** 39 **PL %:** 19 **PI %:** 20

Gravel: 0 **Sand:** 2 **Silt:** 68 **Clay:** 30 **Cu:** 15.2 **Cc:** 0.3 **Dia10:** 0.001 **Dia30:** 0.002 **Dia60:** 0.015

Unified Classification: Silty CLAY, Trace Sand, CL

Project Name: GM - Bedford, IN **Client:** Conestoga-Rovers Associates **ProjectID:** 62225

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REPORT OF PERMEABILITY TESTING

PROJECT NAME	GM - Bedford, IN		
SAMPLE NO.	S-012302-MO-001	**REPORT NO:**	6 perm
CLASSIFICATION	Silty CLAY, Trace Sand, CL	**DATE:**	Apr-02
SAMPLE TYPE	BULK SAMPLE	**PROJECT NO:**	62225

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	20	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.41 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	28.1

	PERMEABILITY, k (cm/sec)
TEST INTERVAL 1	1.68E-08
TEST INTERVAL 2	1.53E-08
TEST INTERVAL 3	1.47E-08
TEST INTERVAL 4	1.27E-08
AVERAGE k	1.49E-08
k_{20}	**1.49E-08**

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	2.89	2.90
LENGTH, in	4.35	4.24
VOLUME, cu in	28.50	27.93
WEIGHT, gm	933.6	940.5
UNIT WEIGHT, pcf	124.7	128.2
MOIST. CONTENT, %	21.7	22.6
DRY DENSITY, pcf	102.4	104.5
DEGREE OF SATUR, %	91	100

Respectfully Submitted:
William D. Prigge, P.E.

SCHLEEDE - HAMPTON ASSOCIATES, INC.

CONSULTING ENGINEERS

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HYDROMETER/COMBINED ANALYSIS

TestUniqueID: 2669 **Project Name:** GM - Bedford, IN **ProjectID:** 62225

Date: 4/1/2002 **Boring No. S-012302** **Sample No. MO-002** **Depth: 0** Test No. 6

Total Sample Wt.: 193.8

	Sieve Size	Cum Wt. Ret	% Retaining	% Passing	Total Passing %	Dia (mm)
+#10 Sieve Portion.	1	0.0	0.0	100.0	100.0	25.0000
	3/4	0.0	0.0	100.0	100.0	19.0000
	1/2	0.0	0.0	100.0	100.0	12.5000
	3/8	0.0	0.0	100.0	100.0	9.5000
	No.4	0.0	0.0	100.0	100.0	4.7500
	No.10	0.0	0.0	100.0	100.0	2.0000
-#10 Sieve Portion.	No.20	0.3	0.6	99.4	99.4	0.8500
	No.40	0.9	1.7	98.3	98.3	0.4200
	No.100	2.1	4.2	95.8	95.8	0.1500
	No.200	3.6	7.1	92.9	92.9	0.0750

Wt of Sample at Start of Hydrometer : 51.4

Temperature (C): 21.5

Temp Bath Bulb Reading: 5.0

Specific Gravity: 2.70

	Elaps. Time (min)	Uncorrected	Corrected	% Passing	Total Passing %	Dia (mm)
Hydrometer Portion.	1	50.5	45.7	87.9	87.9	0.0376
	2	47.0	42.2	81.2	81.2	0.0275
	5	41.5	36.7	70.6	70.6	0.0183
	15	34.0	29.2	56.2	56.2	0.0112
	30	28.0	23.2	44.6	44.6	0.0083
	60	24.0	19.2	36.9	36.9	0.0060
	120	21.5	16.7	32.1	32.1	0.0043
	250	19.0	14.2	27.3	27.3	0.0031
	1440	16.5	11.7	22.5	22.5	0.0013

LL : 36 **PL:** 19 **PI :** 17 **Organic :** No

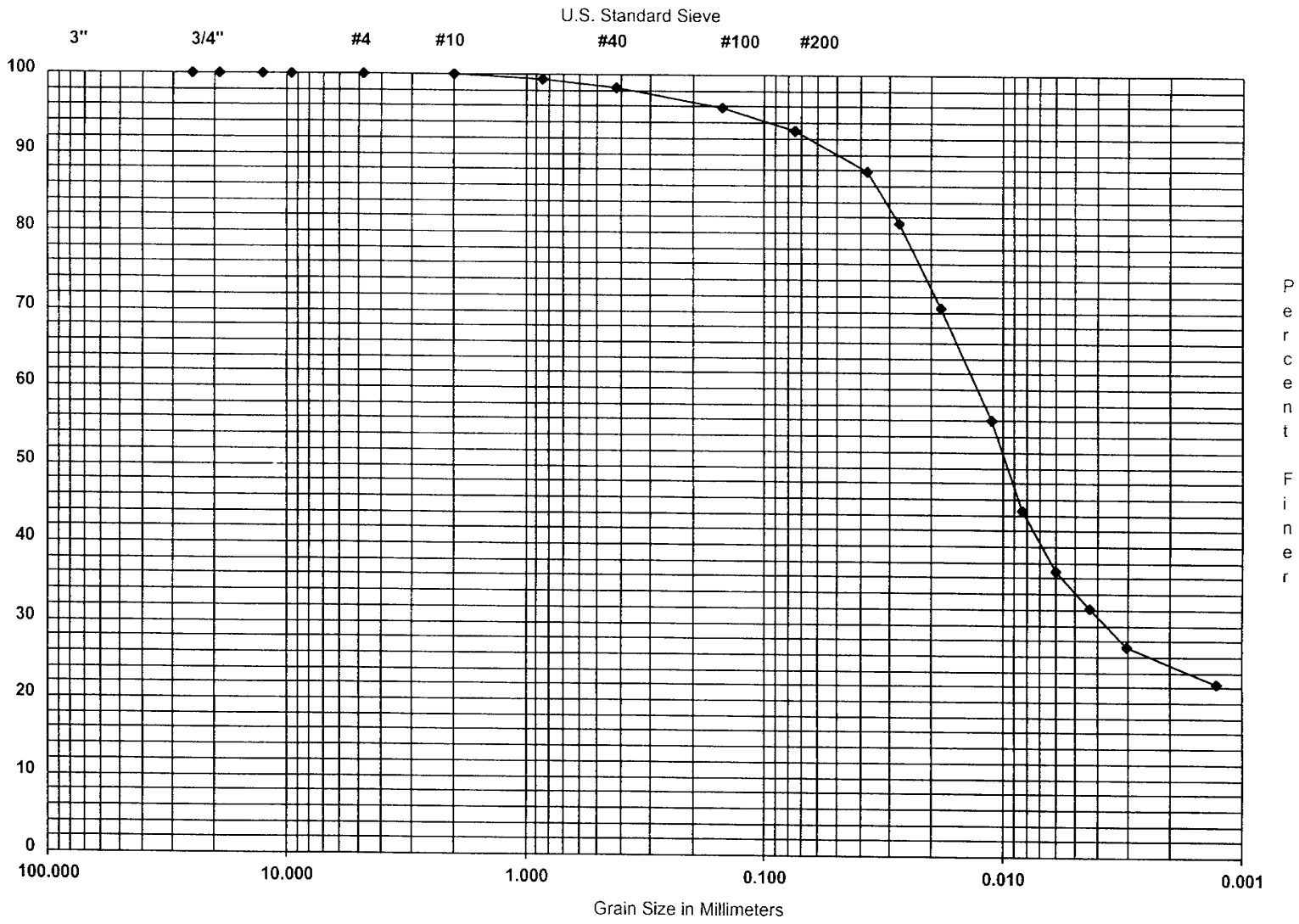
Gravel : 0 **Sand :** 7 **Silt :** 68 **Clay :** 25

Cu: 13.1 **Cc:** 1.1 **D10:** 0.001 **D30:** 0.004 **D60:** 0.013

Unified Classification: Silty CLAY, Trace Sand, CL

REPORT OF GRAIN SIZE ANALYSIS

SCHLEEDE-HAMPTON ASSOCIATES, INC.



GRAVEL		SAND			SILT OR CLAY
coarse	fine	coarse	medium	fine	

Boring No.: S-012302 **Sample No.:** MO-002 **Depth:** 0 **LL%:** 36 **PL %:** 19 **PI %:** 17

Gravel: 0 **Sand:** 7 **Silt:** 68 **Clay:** 25 **Cu:** 13.1 **Cc:** 1.1 **Dia10:** 0.001 **Dia30:** 0.004 **Dia60:** 0.013

Unified Classification: Silty CLAY, Trace Sand, CL

Project Name: GM - Bedford, IN **Client:** Conestoga-Rovers Associates **ProjectID:** 62225

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REPORT OF PERMEABILITY TESTING

PROJECT NAME	GM - Bedford, IN		
SAMPLE NO.	S-012302-MO-002	**REPORT NO:**	10 perm
CLASSIFICATION	Silty CLAY, Trace Sand, CL	**DATE:**	Apr-02
SAMPLE TYPE	BULK SAMPLE	**PROJECT NO:**	62225

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	20	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.41 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	26.7

	PERMEABILITY, k (cm/sec)
TEST INTERVAL 1	1.58E-08
TEST INTERVAL 2	1.33E-08
TEST INTERVAL 3	1.11E-08
TEST INTERVAL 4	1.35E-08
AVERAGE k	1.34E-08
k_{20}	**1.34E-08**

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	2.87	2.88
LENGTH, in	4.52	4.45
VOLUME, cu in	29.18	28.99
WEIGHT, gm	959.5	969.7
UNIT WEIGHT, pcf	125.1	127.3
MOIST. CONTENT, %	22.1	23.4
DRY DENSITY, pcf	102.5	103.2
DEGREE OF SATUR, %	93	100

Respectfully Submitted:
William D. Prigge, P.E.

SCHLEEDE - HAMPTON ASSOCIATES, INC.

CONSULTING ENGINEERS

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HYDROMETER/COMBINED ANALYSIS

TestUniqueID: 2670 **Project Name:** GM - Bedford, IN **ProjectID:** 62225

Date: 4/1/2002 **Boring No. S-012302** **Sample No. MO-003** **Depth: 0** Test No. 7

Total Sample Wt.: 209.1

	Sieve Size	Cum Wt. Ret	% Retaining	% Passing	Total Passing %	Dia (mm)
+#10 Sieve Portion.	1	0.0	0.0	100.0	100.0	25.0000
	3/4	0.0	0.0	100.0	100.0	19.0000
	1/2	0.0	0.0	100.0	100.0	12.5000
	3/8	0.0	0.0	100.0	100.0	9.5000
	No.4	0.4	0.2	99.8	99.8	4.7500
	No.10	3.2	1.5	98.5	98.5	2.0000
-#10 Sieve Portion.	No.20	0.1	0.3	99.7	98.2	0.8500
	No.40	0.5	1.0	99.0	97.5	0.4200
	No.100	1.1	2.2	97.8	96.3	0.1500
	No.200	1.6	3.2	96.8	95.4	0.0750

Wt of Sample at Start of Hydrometer : 51.1

Temperature (C): 21.5

Temp Bath Bulb Reading: 5.0

Specific Gravity: 2.70

	Elaps. Time (min)	Uncorrected	Corrected	% Passing	Total Passing %	Dia (mm)
Hydrometer Portion.	1	51.0	46.2	89.5	88.1	0.0374
	2	47.5	42.7	82.7	81.5	0.0274
	5	42.5	37.7	73.0	71.9	0.0181
	15	34.0	29.2	56.6	55.7	0.0112
	30	29.0	24.2	46.9	46.2	0.0082
	60	24.0	19.2	37.2	36.6	0.0060
	120	22.0	17.2	33.3	32.8	0.0043
	250	20.0	15.2	29.4	29.0	0.0030
	1440	16.5	11.7	22.7	22.3	0.0013

LL : 37 **PL:** 20 **PI :** 17 **Organic :** No

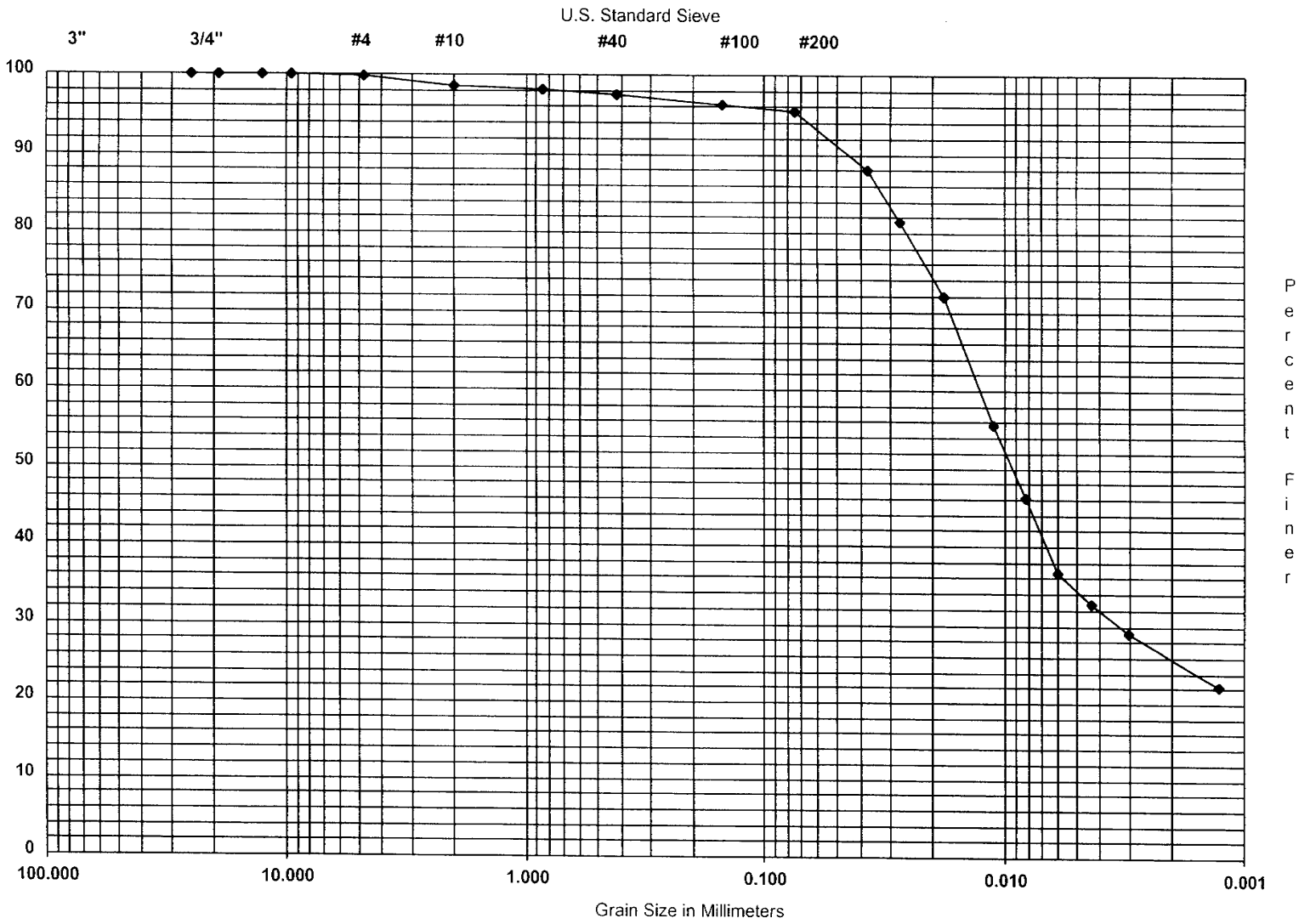
Gravel : 0 **Sand :** 4 **Silt :** 70 **Clay :** 25

Cu: 13.1 **Cc:** 0.9 **D10:** 0.001 **D30:** 0.003 **D60:** 0.013

Unified Classification: Silty CLAY, Trace Sand, CL

REPORT OF GRAIN SIZE ANALYSIS

SCHLEEDE-HAMPTON ASSOCIATES, INC.



GRAVEL		SAND			SILT OR CLAY
coarse	fine	coarse	medium	fine	

Boring No.: S-012302 **Sample No.:** MO-003 **Depth:** 0 **LL%:** 37 **PL %:** 20 **PI %:** 17

Gravel: 0 **Sand:** 4 **Silt:** 70 **Clay:** 25 **Cu:** 13.1 **Cc:** 0.9 **Dia10:** 0.001 **Dia30:** 0.003 **Dia60:** 0.013

Unified Classification: Silty CLAY, Trace Sand, CL

Project Name: GM - Bedford, IN **Client:** Conestoga-Rovers Associates **ProjectID:** 62225

SCHLEEDE-HAMPTON ASSOCIATES, INC. • CONSULTING ENGINEERS

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REPORT OF PERMEABILITY TESTING

PROJECT NAME	GM - Bedford, IN		
SAMPLE NO.	S-012302-MO-003	**REPORT NO:**	3 perm
CLASSIFICATION	Silty CLAY, Trace Sand, CL	**DATE:**	Apr-02
SAMPLE TYPE	REMOLDED BULK SAMPLE	**PROJECT NO:**	62225

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	20	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.41 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	26.6

	PERMEABILITY, k (cm/sec)
TEST INTERVAL 1	1.21E-08
TEST INTERVAL 2	1.33E-08
TEST INTERVAL 3	1.37E-08
TEST INTERVAL 4	1.20E-08
AVERAGE k	1.28E-08
k 20	**1.28E-08**

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	2.93	2.93
LENGTH, in	4.51	4.47
VOLUME, cu in	30.49	30.04
WEIGHT, gm	996.8	1006.6
UNIT WEIGHT, pcf	124.4	127.5
MOIST. CONTENT, %	22.2	23.4
DRY DENSITY, pcf	101.8	103.4
DEGREE OF SATUR, %	92	100

Respectfully Submitted:
William D. Prigge, P.E.

SCHLEEDE - HAMPTON ASSOCIATES, INC.

CONSULTING ENGINEERS

1612 LANDMEIER ROAD, SUITE C, ELK GROVE VILLAGE, ILLINOIS 60007 (847) 228-1079

HYDROMETER/COMBINED ANALYSIS

TestUniqueID: 2666 **Project Name:** GM - Bedford, IN **ProjectID:** 62225

Date: 4/1/2002 **Boring No. S-012302** **Sample No. MO-004** **Depth: 0** Test No. 8

Total Sample Wt.: 238.4

	Sieve Size	Cum Wt. Ret	% Retaining	% Passing	Total Passing %	Dia (mm)
+#10 Sieve Portion.	1	0.0	0.0	100.0	100.0	25.0000
	3/4	0.0	0.0	100.0	100.0	19.0000
	1/2	0.0	0.0	100.0	100.0	12.5000
	3/8	0.0	0.0	100.0	100.0	9.5000
	No.4	0.0	0.0	100.0	100.0	4.7500
	No.10	2.9	1.2	98.8	98.8	2.0000
-#10 Sieve Portion.	No.20	0.2	0.4	99.6	98.4	0.8500
	No.40	0.5	0.9	99.1	97.9	0.4200
	No.100	1.0	2.0	98.0	96.8	0.1500
	No.200	1.4	2.8	97.2	96.0	0.0750

Wt of Sample at Start of Hydrometer : 51.0

Temperature (C): 21.5

Temp Bath Bulb Reading: 5.0

Specific Gravity: 2.70

	Elaps. Time (min)	Uncorrected	Corrected	% Passing	Total Passing %	Dia (mm)
Hydrometer Portion.	1	53.0	48.2	93.4	92.2	0.0366
	2	48.0	43.2	83.7	82.7	0.0273
	5	42.5	37.7	73.0	72.1	0.0181
	15	33.0	28.2	54.6	54.0	0.0113
	30	28.5	23.7	45.9	45.4	0.0083
	60	23.5	18.7	36.2	35.8	0.0060
	120	21.0	16.2	31.4	31.0	0.0043
	250	18.5	13.7	26.5	26.2	0.0031
	1440	15.0	10.2	19.8	19.5	0.0013

LL : 42 **PL:** 21 **PI :** 21 **Organic :** No

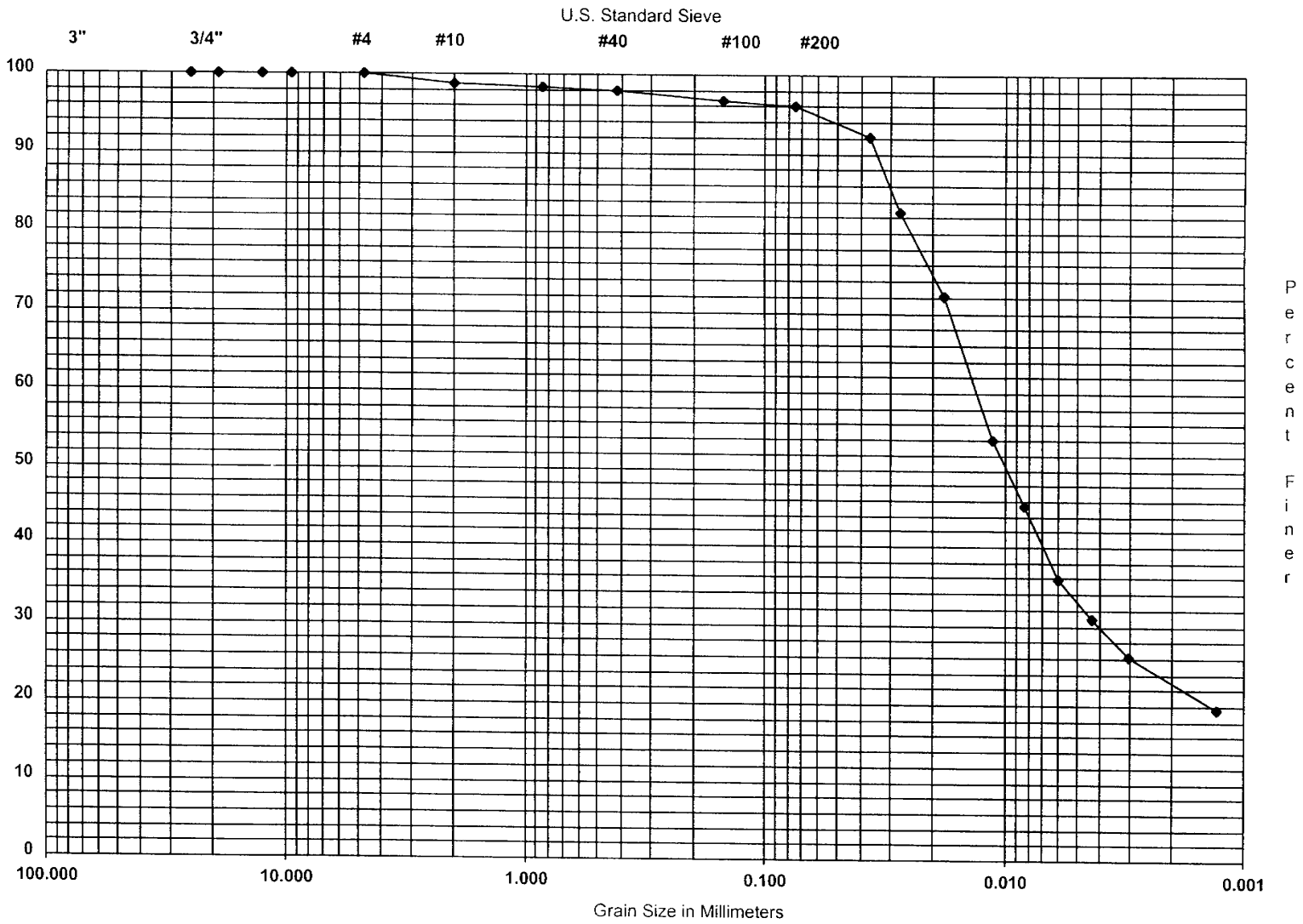
Gravel : 0 **Sand :** 4 **Silt :** 74 **Clay :** 22

Cu: 13.6 **Cc:** 1.2 **D10:** 0.001 **D30:** 0.004 **D60:** 0.014

Unified Classification: Silty CLAY, Trace Sand, CL

REPORT OF GRAIN SIZE ANALYSIS

SCHLEEDE-HAMPTON ASSOCIATES, INC.



GRAVEL		SAND			SILT OR CLAY
coarse	fine	coarse	medium	fine	

Boring No.: S-012302 **Sample No.:** MO-004 **Depth:** 0 **LL%:** 42 **PL %:** 21 **PI %:** 21

Gravel: 0 **Sand:** 4 **Silt:** 74 **Clay:** 22 **Cu:** 13.6 **Cc:** 1.2 **Dia10:** 0.001 **Dia30:** 0.004 **Dia60:** 0.014

Unified Classification: Silty CLAY, Trace Sand, CL

Project Name: GM - Bedford, IN **Client:** Conestoga-Rovers Associates **ProjectID:** 62225

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REPORT OF PERMEABILITY TESTING

PROJECT NAME	GM - Bedford, IN		
SAMPLE NO.	S-012302-MO-004	**REPORT NO:**	4 perm
CLASSIFICATION	Silty CLAY, Trace Sand, CL	**DATE:**	Apr-02
SAMPLE TYPE	BULK SAMPLE	**PROJECT NO:**	62225

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	20	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.41 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	26.6

	PERMEABILITY, k (cm/sec)
TEST INTERVAL 1	1.45E-08
TEST INTERVAL 2	1.40E-08
TEST INTERVAL 3	1.15E-08
TEST INTERVAL 4	1.66E-08
AVERAGE k	1.42E-08
k_{20}	**1.42E-08**

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	2.96	2.92
LENGTH, in	4.55	4.48
VOLUME, cu in	31.37	29.97
WEIGHT, gm	993.4	997.4
UNIT WEIGHT, pcf	120.5	126.7
MOIST. CONTENT, %	23.8	24.3
DRY DENSITY, pcf	97.4	101.9
DEGREE OF SATUR, %	88	100

Respectfully Submitted:
William D. Prigge, P.E.

SCHLEEDE - HAMPTON ASSOCIATES, INC.

CONSULTING ENGINEERS

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HYDROMETER/COMBINED ANALYSIS

TestUniqueID: 2676 **Project Name:** GM - Bedford, IN **ProjectID:** 62225

Date: 4/2/2002 **Boring No. MW-X178Y367** **Sample No. 1** **Depth: 2-4** Test No. 1

Total Sample Wt.: 193.1

	Sieve Size	Cum Wt. Ret	% Retaining	% Passing	Total Passing %	Dia (mm)
+#10 Sieve Portion.	1	0.0	0.0	100.0	100.0	25.0000
	3/4	0.0	0.0	100.0	100.0	19.0000
	1/2	0.0	0.0	100.0	100.0	12.5000
	3/8	0.0	0.0	100.0	100.0	9.5000
	No.4	0.0	0.0	100.0	100.0	4.7500
	No.10	0.0	0.0	100.0	100.0	2.0000
-#10 Sieve Portion.	No.20	0.2	0.4	99.6	99.6	0.8500
	No.40	0.5	1.0	99.0	99.0	0.4200
	No.100	1.0	2.0	98.0	98.0	0.1500
	No.200	1.6	3.2	96.8	96.8	0.0750

Wt of Sample at Start of Hydrometer : 51.1

Temperature (C): 21.5

Temp Bath Bulb Reading: 5.0

Specific Gravity: 2.70

	Elaps. Time (min)	Uncorrected	Corrected	% Passing	Total Passing %	Dia (mm)
Hydrometer Portion.	1	52.5	47.7	92.3	92.3	0.0368
	2	47.5	42.7	82.6	82.6	0.0274
	5	43.0	38.2	73.9	73.9	0.0181
	15	36.0	31.2	60.4	60.4	0.0111
	30	32.0	27.2	52.6	52.6	0.0081
	60	28.5	23.7	45.9	45.9	0.0058
	120	26.5	21.7	42.0	42.0	0.0042
	250	25.0	20.2	39.1	39.1	0.0029
	1440	22.5	17.7	34.2	34.2	0.0012

LL : **PL:** **PI :** **Organic :** No

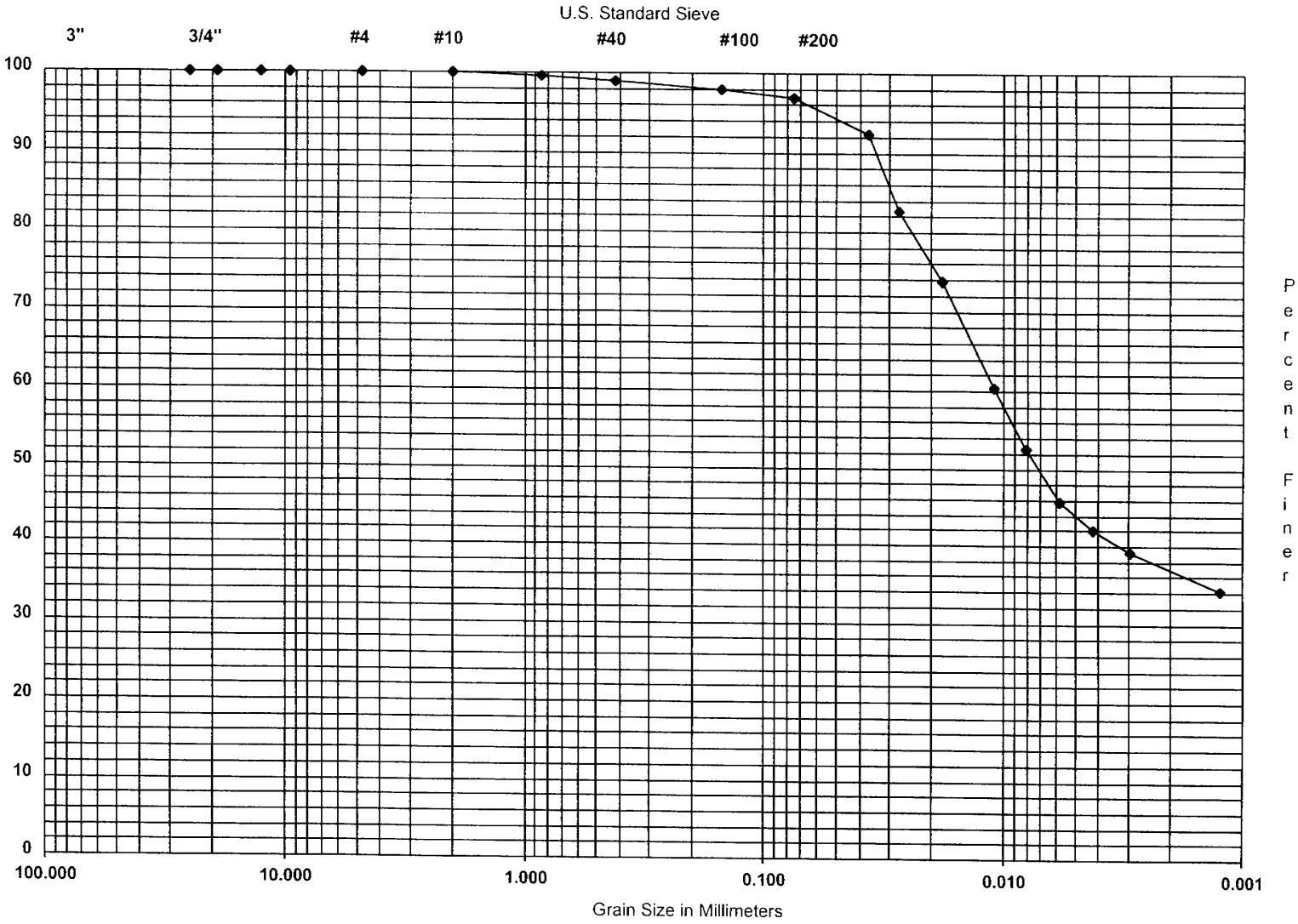
Gravel : 0 **Sand :** 3 **Silt :** 60 **Clay :** 36

Cu: 10.9 **Cc:** 0.1 **D10:** 0.001 **D30:** 0.001 **D60:** 0.011

Unified Classification: Silty CLAY, Trace Sand, CL

REPORT OF GRAIN SIZE ANALYSIS

SCHLEEDE-HAMPTON ASSOCIATES, INC.



GRAVEL		SAND			SILT OR CLAY
coarse	fine	coarse	medium	fine	

Boring No.: MW-X178Y367 **Sample No.:** 1 **Depth:** 2-4 **LL%:** **PL %:** **PI %:**

Gravel: 0 **Sand:** 3 **Silt:** 60 **Clay:** 36 **Cu:** 10.9 **Cc:** 0.1 **Dia10:** 0.001 **Dia30:** 0.001 **Dia60:** 0.011

Unified Classification: Silty CLAY, Trace Sand, CL

Project Name: GM - Bedford, IN **Client:** Conestoga-Rovers Associates **ProjectID:** 62225

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REPORT OF PERMEABILITY TESTING

PROJECT NAME	GM - Bedford, IN		
SAMPLE NO.	MW-X178Y367, 2'-4'	**REPORT NO:**	9 perm
CLASSIFICATION	Silty CLAY, Trace Sand, CL	**DATE:**	May-02
SAMPLE TYPE	SHELBY TUBE	**PROJECT NO:**	62225

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	20	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.41 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	24.9

	PERMEABILITY, k (cm/sec)
TEST INTERVAL 1	3.06E-08
TEST INTERVAL 2	2.63E-08
TEST INTERVAL 3	2.19E-08
TEST INTERVAL 4	2.58E-08
AVERAGE k	2.62E-08
k 20	**2.62E-08**

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	2.87	2.88
LENGTH, in	4.85	4.77
VOLUME, cu in	31.34	31.07
WEIGHT, gm	1012.4	1018.1
UNIT WEIGHT, pcf	122.9	124.7
MOIST. CONTENT, %	25.1	25.8
DRY DENSITY, pcf	98.3	99.1
DEGREE OF SATUR, %	95	100

Respectfully Submitted:
William D. Prigge, P.E.

SCHLEEDE - HAMPTON ASSOCIATES, INC.

CONSULTING ENGINEERS

1612 LANDMEIER ROAD, SUITE C, ELK GROVE VILLAGE, ILLINOIS 60007 (847) 228-1079

HYDROMETER/COMBINED ANALYSIS

TestUniqueID: 2674 **Project Name:** GM - Bedford, IN **ProjectID:** 62225

Date: 4/2/2002 **Boring No. MW-X045Y258** **Sample No. 1** **Depth: 4-6** Test No. 2

Total Sample Wt.: 139.9

	Sieve Size	Cum Wt. Ret	% Retaining	% Passing	Total Passing %	Dia (mm)
+#10 Sieve Portion.	1	0.0	0.0	100.0	100.0	25.0000
	3/4	0.0	0.0	100.0	100.0	19.0000
	1/2	0.0	0.0	100.0	100.0	12.5000
	3/8	0.0	0.0	100.0	100.0	9.5000
	No.4	0.0	0.0	100.0	100.0	4.7500
	No.10	0.5	0.4	99.6	99.6	2.0000
-#10 Sieve Portion.	No.20	0.1	0.2	99.8	99.4	0.8500
	No.40	0.3	0.5	99.5	99.1	0.4200
	No.100	0.5	1.0	99.0	98.6	0.1500
	No.200	1.9	3.8	96.2	95.9	0.0750

Wt of Sample at Start of Hydrometer : 51.1

Temperature (C): 21.5

Temp Bath Bulb Reading: 5.0

Specific Gravity: 2.70

	Elaps. Time (min)	Uncorrected	Corrected	% Passing	Total Passing %	Dia (mm)
Hydrometer Portion.	1	49.5	44.7	86.5	86.2	0.0380
	2	47.0	42.2	81.7	81.4	0.0275
	5	43.5	38.7	74.9	74.6	0.0180
	15	40.5	35.7	69.1	68.8	0.0107
	30	39.0	34.2	66.2	65.9	0.0076
	60	36.5	31.7	61.3	61.1	0.0055
	120	34.0	29.2	56.5	56.3	0.0040
	250	32.5	27.7	53.6	53.4	0.0028
	1440	30.5	25.7	49.7	49.5	0.0012

LL : **PL:** **PI :** **Organic :** No

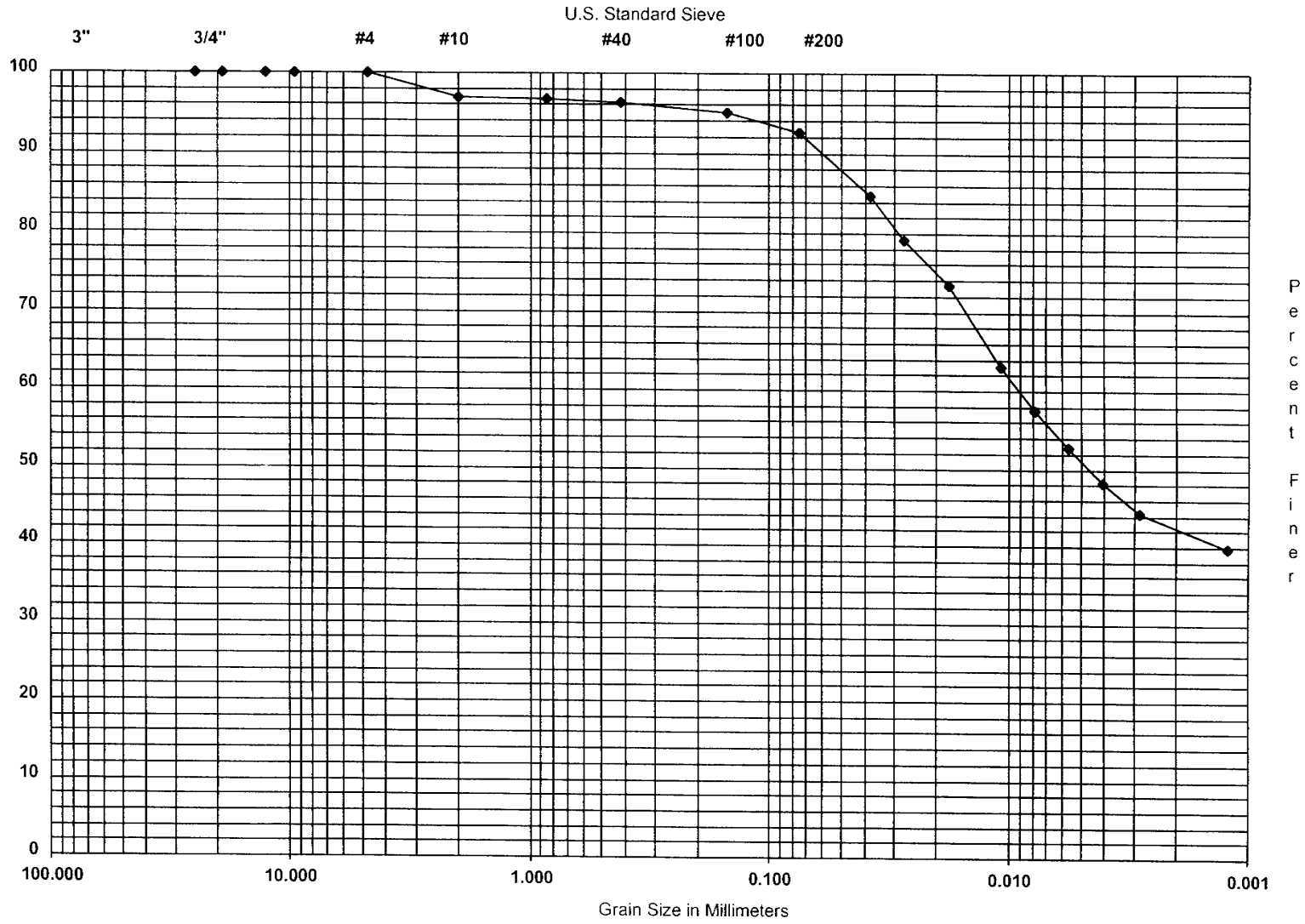
Gravel : 0 **Sand :** 4 **Silt :** 44 **Clay :** 52

Cu: 5.2 **Cc:** 0.2 **D10:** 0.001 **D30:** 0.001 **D60:** 0.005

Unified Classification: Silty CLAY, Trace Sand, CL

REPORT OF GRAIN SIZE ANALYSIS

SCHLEEDE-HAMPTON ASSOCIATES, INC.



GRAVEL		SAND			SILT OR CLAY
coarse	fine	coarse	medium	fine	

Boring No.: MW-X033Y147 **Sample No.:** 1 **Depth:** 25-27 **LL%:** **PL %:** **PI %:**

Gravel: 0 **Sand:** 7 **Silt:** 51 **Clay:** 42 **Cu:** 9.2 **Cc:** 0.1 **Dia10:** 0.001 **Dia30:** 0.001 **Dia60:** 0.009

Unified Classification: Silty CLAY, Trace Sand, CL

Project Name: GM - Bedford, IN **Client:** Conestoga-Rovers Associates **ProjectID:** 62225

SCHLEEDE-HAMPTON ASSOCIATES, INC. • CONSULTING ENGINEERS

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REPORT OF PERMEABILITY TESTING

PROJECT NAME	GM - Bedford, IN		
SAMPLE NO.	MW-X045Y258, 4'-6'	**REPORT NO:**	8 perm
CLASSIFICATION	Silty CLAY, Trace Sand, CL	**DATE:**	Apr-02
SAMPLE TYPE	SHELBY TUBE	**PROJECT NO:**	62225

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	20	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.41 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	22.8

	PERMEABILITY, k (cm/sec)
TEST INTERVAL 1	3.25E-08
TEST INTERVAL 2	4.36E-08
TEST INTERVAL 3	3.91E-08
TEST INTERVAL 4	3.52E-08
AVERAGE k	3.76E-08
k 20	**3.76E-08**

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	2.85	2.86
LENGTH, in	5.33	5.23
VOLUME, cu in	34.04	33.55
WEIGHT, gm	1096.5	1106.2
UNIT WEIGHT, pcf	122.6	125.5
MOIST. CONTENT, %	24.2	25.3
DRY DENSITY, pcf	98.7	100.1
DEGREE OF SATUR, %	92	100

Respectfully Submitted:
William D. Prigge, P.E.

SCHLEEDE - HAMPTON ASSOCIATES, INC.

CONSULTING ENGINEERS

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HYDROMETER/COMBINED ANALYSIS

TestUniqueID: 2673 **Project Name:** GM - Bedford, IN **ProjectID:** 62225

Date: 4/2/2002 **Boring No. MW-X033Y147** **Sample No. 1** **Depth: 25-27** Test No. 3

Total Sample Wt.: 192.7

	Sieve Size	Cum Wt. Ret	% Retaining	% Passing	Total Passing %	Dia (mm)
+#10 Sieve Portion.	1	0.0	0.0	100.0	100.0	25.0000
	3/4	0.0	0.0	100.0	100.0	19.0000
	1/2	0.0	0.0	100.0	100.0	12.5000
	3/8	0.0	0.0	100.0	100.0	9.5000
	No.4	0.0	0.0	100.0	100.0	4.7500
	No.10	6.1	3.2	96.8	96.8	2.0000
-#10 Sieve Portion.	No.20	0.1	0.2	99.8	96.6	0.8500
	No.40	0.3	0.5	99.5	96.3	0.4200
	No.100	1.0	1.9	98.1	95.0	0.1500
	No.200	2.3	4.4	95.6	92.6	0.0750

Wt of Sample at Start of Hydrometer : 51.1

Temperature (C): 21.5

Temp Bath Bulb Reading: 5.0

Specific Gravity: 2.70

	Elaps. Time (min)	Uncorrected	Corrected	% Passing	Total Passing %	Dia (mm)
Hydrometer Portion.	1	50.0	45.2	87.5	84.7	0.0378
	2	47.0	42.2	81.7	79.1	0.0275
	5	44.0	39.2	75.9	73.5	0.0179
	15	38.5	33.7	65.2	63.2	0.0108
	30	35.5	30.7	59.4	57.5	0.0078
	60	33.0	28.2	54.6	52.8	0.0057
	120	30.5	25.7	49.7	48.2	0.0041
	250	28.5	23.7	45.9	44.4	0.0029
	1440	26.0	21.2	41.0	39.7	0.0012

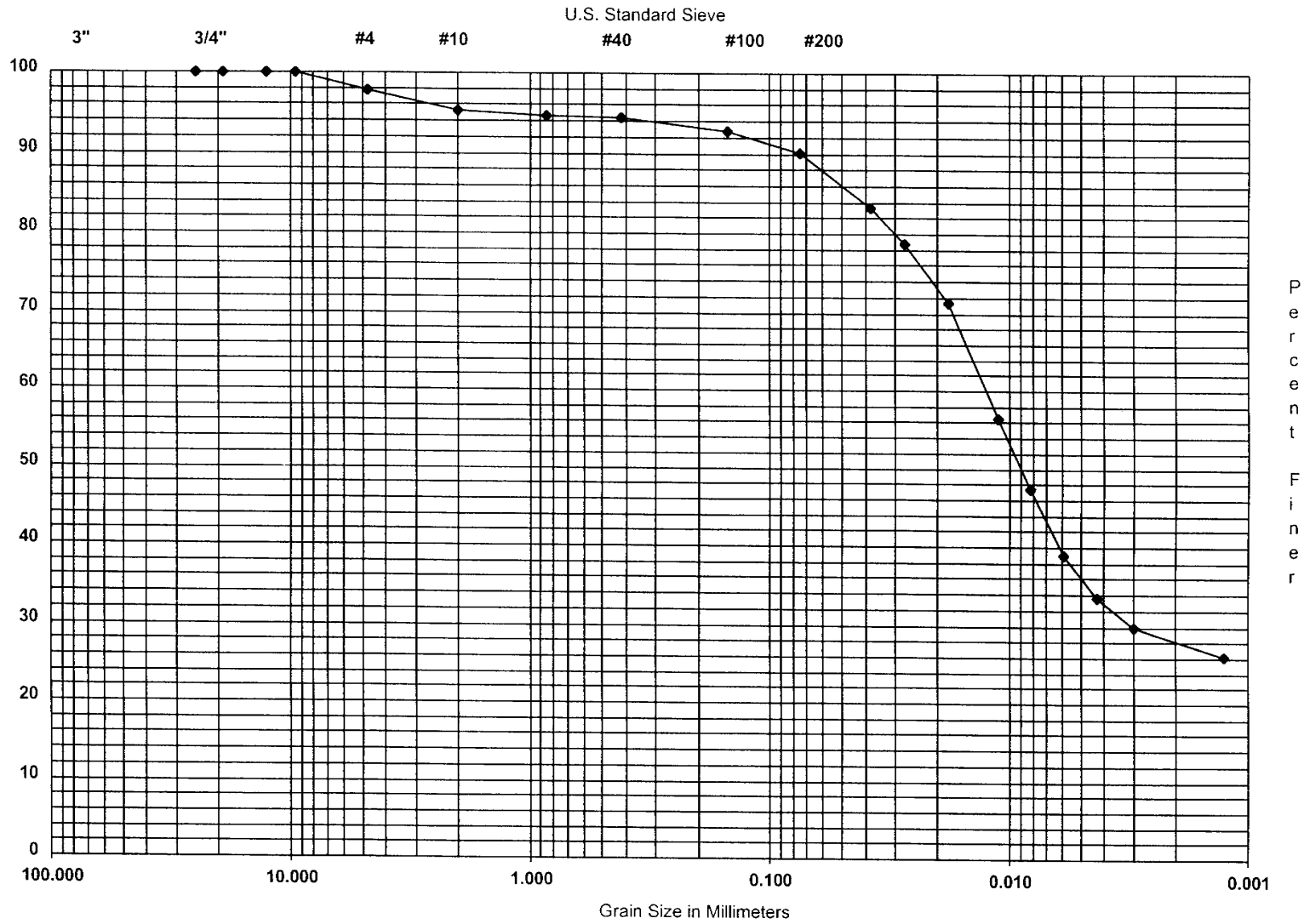
LL : **PL:** **PI :** **Organic :** No

Gravel : 0 **Sand :** 7 **Silt :** 51 **Clay :** 42

Cu: 9.2 **Cc:** 0.1 **D10:** 0.001 **D30:** 0.001 **D60:** 0.009

Unified Classification: Silty CLAY, Trace Sand, CL

REPORT OF GRAIN SIZE ANALYSIS **SCHLEEDE-HAMPTON ASSOCIATES, INC.**



GRAVEL		SAND			SILT OR CLAY
coarse	fine	coarse	medium	fine	

Boring No.: MW-X085Y070 **Sample No.:** 1 **Depth:** 6-8 **LL%:** **PL %:** **PI %:**

Gravel: 2 **Sand:** 8 **Silt:** 62 **Clay:** 28 **Cu:** 12.7 **Cc:** 0.7 **Dia10:** 0.001 **Dia30:** 0.003 **Dia60:** 0.013

Unified Classification: Silty CLAY, Trace Sand, Trace Gravel, CL

Project Name: GM - Bedford, IN **Client:** Conestoga-Rovers Associates **ProjectID:** 62225

SCHLEEDE-HAMPTON ASSOCIATES, INC. • CONSULTING ENGINEERS

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REPORT OF PERMEABILITY TESTING

PROJECT NAME	GM - Bedford, IN		
SAMPLE NO.	MW-X033Y147, 25'-27'	**REPORT NO:**	2 perm
CLASSIFICATION	Silty CLAY, Trace Sand, CL	**DATE:**	Apr-02
SAMPLE TYPE	SHELBY TUBE	**PROJECT NO:**	62225

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	20	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.41 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	21.4

	PERMEABILITY, k (cm/sec)
TEST INTERVAL 1	1.01E-07
TEST INTERVAL 2	9.18E-08
TEST INTERVAL 3	7.56E-08
TEST INTERVAL 4	8.12E-08
AVERAGE k	8.74E-08
k 20	**8.74E-08**

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	2.83	2.85
LENGTH, in	5.61	5.57
VOLUME, cu in	35.23	35.53
WEIGHT, gm	1090.6	1103.8
UNIT WEIGHT, pcf	117.8	118.3
MOIST. CONTENT, %	31.7	33.3
DRY DENSITY, pcf	89.5	88.7
DEGREE OF SATUR, %	97	100

Respectfully Submitted:
William D. Prigge, P.E.

SCHLEEDE - HAMPTON ASSOCIATES, INC.

CONSULTING ENGINEERS

1612 LANDMEIER ROAD, SUITE C, ELK GROVE VILLAGE, ILLINOIS 60007 (847) 228-1079

HYDROMETER/COMBINED ANALYSIS

TestUniqueID: 2672 **Project Name:** GM - Bedford, IN **ProjectID:** 62225

Date: 4/2/2002 **Boring No. MW-X085Y070** **Sample No. 1** **Depth: 6-8** Test No. 4

Total Sample Wt.: 195.9

	Sieve Size	Cum Wt. Ret	% Retaining	% Passing	Total Passing %	Dia (mm)
+#10 Sieve Portion.	1	0.0	0.0	100.0	100.0	25.0000
	3/4	0.0	0.0	100.0	100.0	19.0000
	1/2	0.0	0.0	100.0	100.0	12.5000
	3/8	0.0	0.0	100.0	100.0	9.5000
	No.4	4.3	2.2	97.8	97.8	4.7500
	No.10	9.5	4.8	95.2	95.2	2.0000
-#10 Sieve Portion.	No.20	0.3	0.6	99.4	94.6	0.8500
	No.40	0.4	0.9	99.1	94.3	0.4200
	No.100	1.2	2.4	97.6	92.9	0.1500
	No.200	2.7	5.3	94.7	90.1	0.0750

Wt of Sample at Start of Hydrometer : 51.1

Temperature (C): 21.5

Temp Bath Bulb Reading: 5.0

Specific Gravity: 2.70

	Elaps. Time (min)	Uncorrected	Corrected	% Passing	Total Passing %	Dia (mm)
Hydrometer Portion.	1	50.0	45.2	87.5	83.3	0.0378
	2	47.5	42.7	82.7	78.7	0.0274
	5	43.5	38.7	74.9	71.3	0.0180
	15	35.5	30.7	59.4	56.6	0.0111
	30	30.5	25.7	49.8	47.3	0.0082
	60	26.0	21.2	41.0	39.1	0.0059
	120	23.0	18.2	35.2	33.5	0.0043
	250	21.0	16.2	31.4	29.8	0.0030
	1440	19.0	14.2	27.5	26.2	0.0013

LL : **PL:** **PI :** **Organic :** No

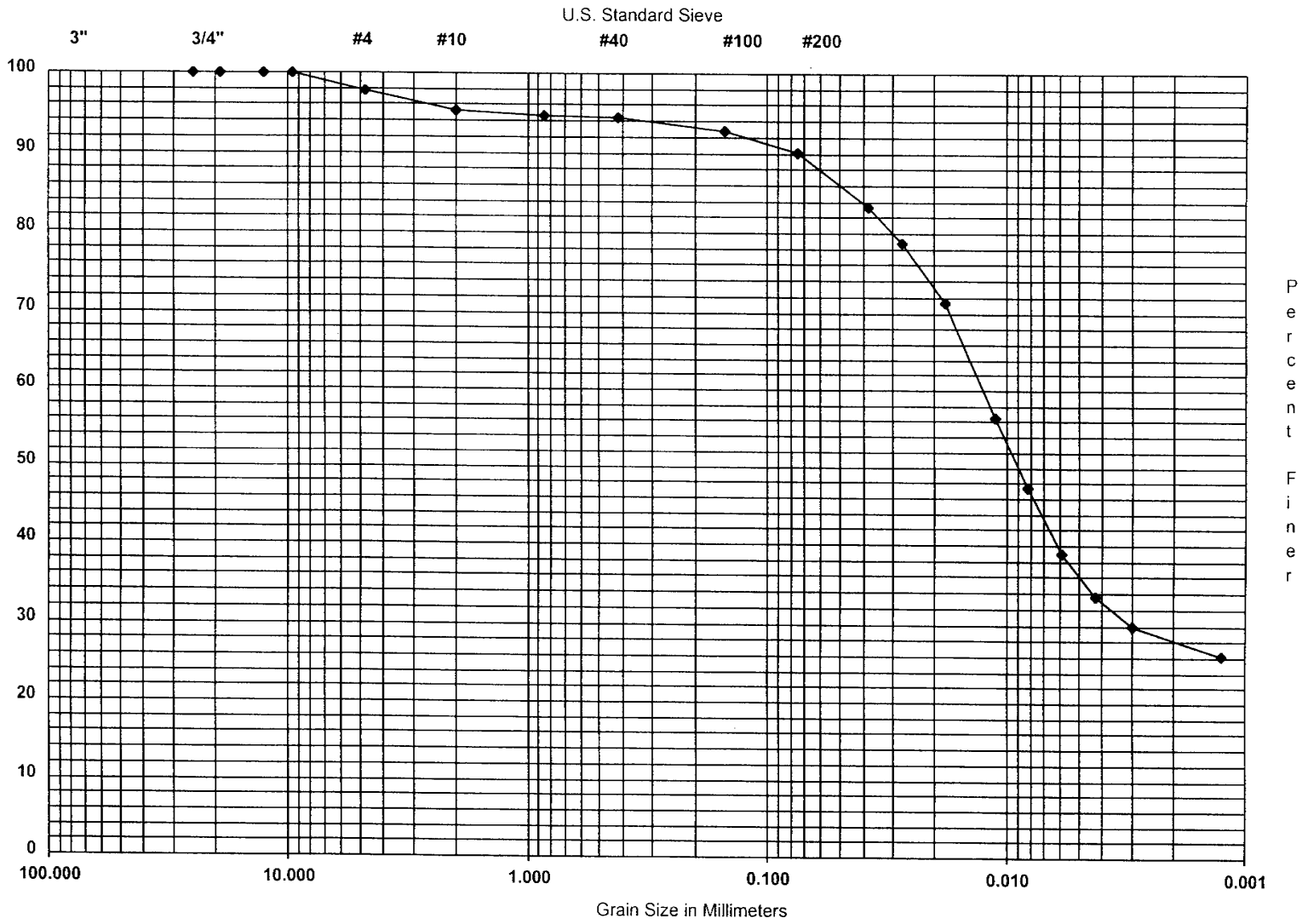
Gravel : 2 **Sand :** 8 **Silt :** 62 **Clay :** 28

Cu: 12.7 **Cc:** 0.7 **D10:** 0.001 **D30:** 0.003 **D60:** 0.013

Unified Classification: Silty CLAY, Trace Sand, Trace Gravel, CL

REPORT OF GRAIN SIZE ANALYSIS

SCHLEEDE-HAMPTON ASSOCIATES, INC.



GRAVEL		SAND			SILT OR CLAY
coarse	fine	coarse	medium	fine	

Boring No.: MW-X085Y070 **Sample No.:** 1 **Depth:** 6-8 **LL%:** **PL %:** **PI %:**

Gravel: 2 **Sand:** 8 **Silt:** 62 **Clay:** 28 **Cu:** 12.7 **Cc:** 0.7 **Dia10:** 0.001 **Dia30:** 0.003 **Dia60:** 0.013

Unified Classification: Silty CLAY, Trace Sand, Trace Gravel, CL

Project Name: GM - Bedford, IN **Client:** Conestoga-Rovers Associates **ProjectID:** 62225

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REPORT OF PERMEABILITY TESTING

PROJECT NAME	GM - Bedford, IN		
SAMPLE NO.	MW-X085Y070, 6'-8'	**REPORT NO:**	5 perm
CLASSIFICATION	Silty CLAY, Trace Sand, Trace Gravel, CL	**DATE:**	Apr-02
SAMPLE TYPE	SHELBY TUBE	**PROJECT NO:**	62225

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	20	EFF. CONSOLIDATION STRESS, max	0.72 tsf
		EFF. CONSOLIDATION STRESS, min	0.41 tsf
CELL PRESSURE, psi	40	HYDRAULIC GRADIENT, i	22.1

	PERMEABILITY, k (cm/sec)
TEST INTERVAL 1	2.14E-08
TEST INTERVAL 2	1.67E-08
TEST INTERVAL 3	1.32E-08
TEST INTERVAL 4	1.70E-08
AVERAGE k	1.71E-08
k_{20}	**1.71E-08**

SAMPLE DATA:	INITIAL	FINAL
DIAMETER, in	2.83	2.85
LENGTH, in	5.43	5.39
VOLUME, cu in	34.25	34.25
WEIGHT, gm	1158.6	1168.2
UNIT WEIGHT, pcf	128.8	129.8
MOIST. CONTENT, %	20.3	21.3
DRY DENSITY, pcf	107.0	107.0
DEGREE OF SATUR, %	95	100

Respectfully Submitted:
William D. Prigge, P.E.

SCHLEEDE
HAMPTON
ASSOCIATES INC
CONSULTING ENGINEERS

April 5, 2003

CRA Construction Trailer
GM Drive and 4th Street
Bedford, IN 47421

Attn: Mr. Jeff Nichols

Re: Transmittal of Geotechnical Test Results
GM – Bedford, Indiana

We are transmitting the results of Geotechnical QC tests on soil and/or aggregate samples tested for use on the referenced project. A summary of the results is given below, with the supporting test data and report sheets appended.

Project Soil I.D.:	S-031203-MG-245 S-031203-MG-246 S-031203-MG-247
Test Results Appended:	Gradation Data Sheet, Test Method ASTM D 422, D 4318 Grain Size Curves
Findings:	Test Results transmitted herein. If you have any questions, please contact the undersigned at your convenience.

Respectfully submitted,
Schleede-Hampton Associates, Inc.

William West

William J. West, P.E.
Project Engineer

Attachments

2254 COLE STREET
BIRMINGHAM, MICHIGAN 48009
248-540-3044 • FAX: 248-540-3282

031203-MG-245 hydro

JOB NAME:	Laboratory Testing - GMPT Bedford
PROJECT NO.	62225
SAMPLE ID	S-031203-MG-245
DATE SAMPLED:	3/12/03

ASTM D-422 / D1140

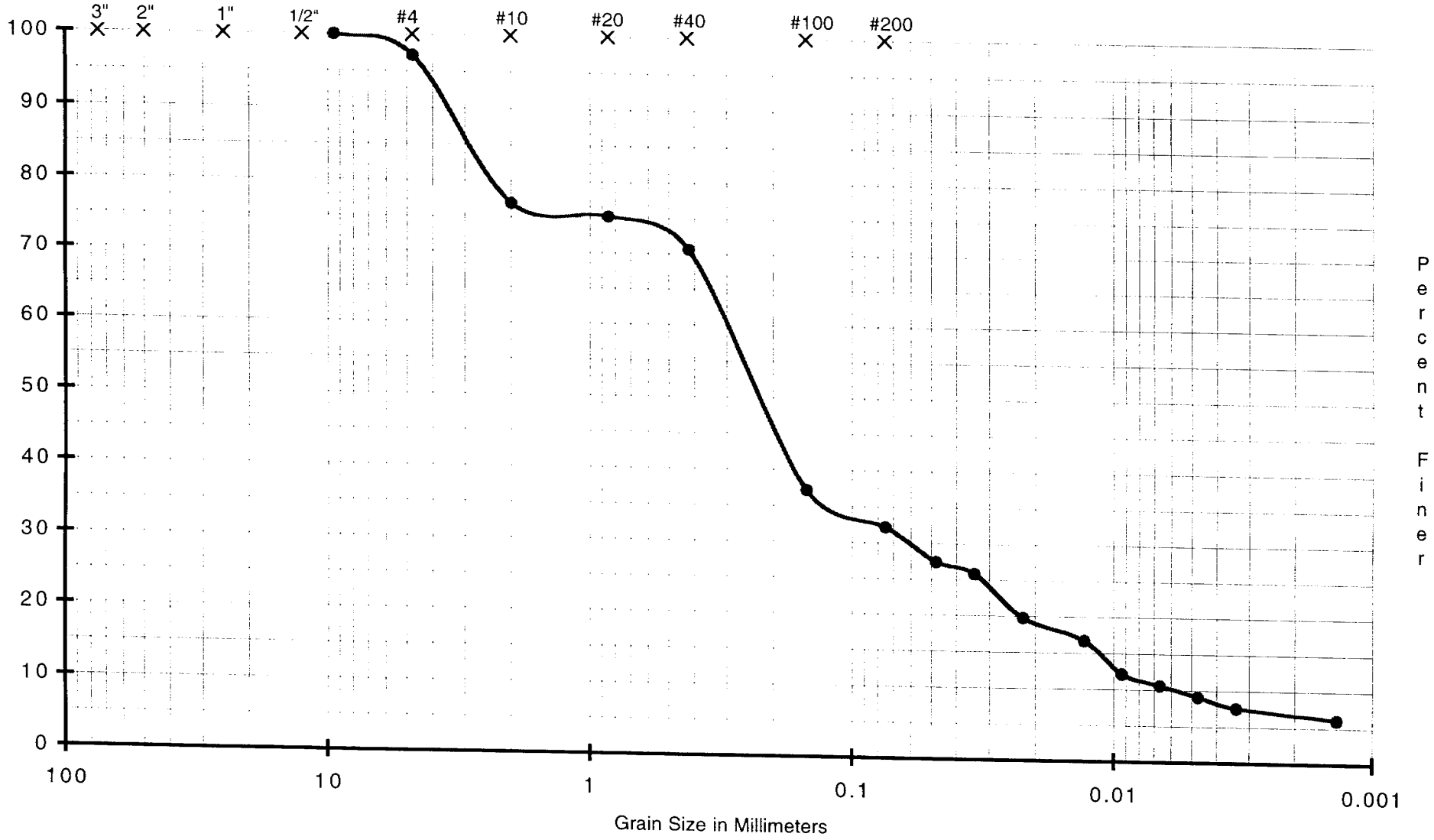
					TOTAL	DIAMETER
	TOTAL SAMPLE WT.=	148.5 (gms.)				
+10 SIEVE PORTION	SIEVE SIZE	CUM WT. RET	PART % RET	PART % PASS	**PASSING**	**(mm)**
	1	0.0	0.0%	100.0%	**100.0%**	**25.000**
	3/4 IN	0.0	0.0%	100.0%	**100.0%**	**19.000**
	1/2 IN	0.0	0.0%	100.0%	**100.0%**	**12.500**
	3/8 IN	0.0	0.0%	100.0%	**100.0%**	**9.500**
	#4	4.2	2.8%	97.2%	**97.2%**	**4.750**
	#10	34.3	23.1%	76.9%	**76.9%**	**2.000**
	WT. OF SAMPLE AT START OF HYDRO=	50.0 (gms.)				
-#10 SIEVE PORTION	#20	1.13	2.3%	97.7%	**75.2%**	**0.850**
	#40	4.05	8.1%	91.9%	**70.7%**	**0.420**
	#100	25.82	51.6%	48.4%	**37.2%**	**0.150**
	#200	29.09	58.2%	41.8%	**32.2%**	**0.075**
HYDROMETER	TEMPERATURE(°C)=	18.0				
PORTION	TEMP BATH BULB READ=	7.0				
	SPECIFIC GRAVITY Gs=	2.70 (assumed)				
	ELAPSED TIME (MIN)	UNCORR	CORRECTED	% PASS		
	1	25.0	18.0	35.6%	**27.4%**	**0.0481**
	2	24.0	17.0	33.7%	**25.9%**	**0.0343**
	5	20.0	13.0	25.7%	**19.8%**	**0.0222**
	15	18.0	11.0	21.8%	**16.7%**	**0.0130**
	30	15.0	8.0	15.8%	**12.2%**	**0.0093**
	60	14.0	7.0	13.9%	**10.7%**	**0.0067**
	120	13.0	6.0	11.9%	**9.1%**	**0.0047**
	240	12.0	5.0	9.9%	**7.6%**	**0.0034**
	1450	11.0	4.0	7.9%	**6.1%**	**0.0014**

soil classification: **SAND, Trace Gravel, Some Silt, SM**

GRAVEL=	**3 %**
SAND=	**65 %**
SILT=	**25 %**
CLAY=	**7 %**

REPORT OF GRAIN SIZE ANALYSIS **SCHLEEDE-HAMPTON ASSOCIATES,INC.**

U.S. Standard Sieve Size



SAND, Trace Gravel, Some Silt, SM

S-031203-MG-245

JOB NAME:	Laboratory Testing - GMPT Bedford
PROJECT NO.	62225
SAMPLE ID	S-031203-MG-246
DATE SAMPLED:	3/12/03

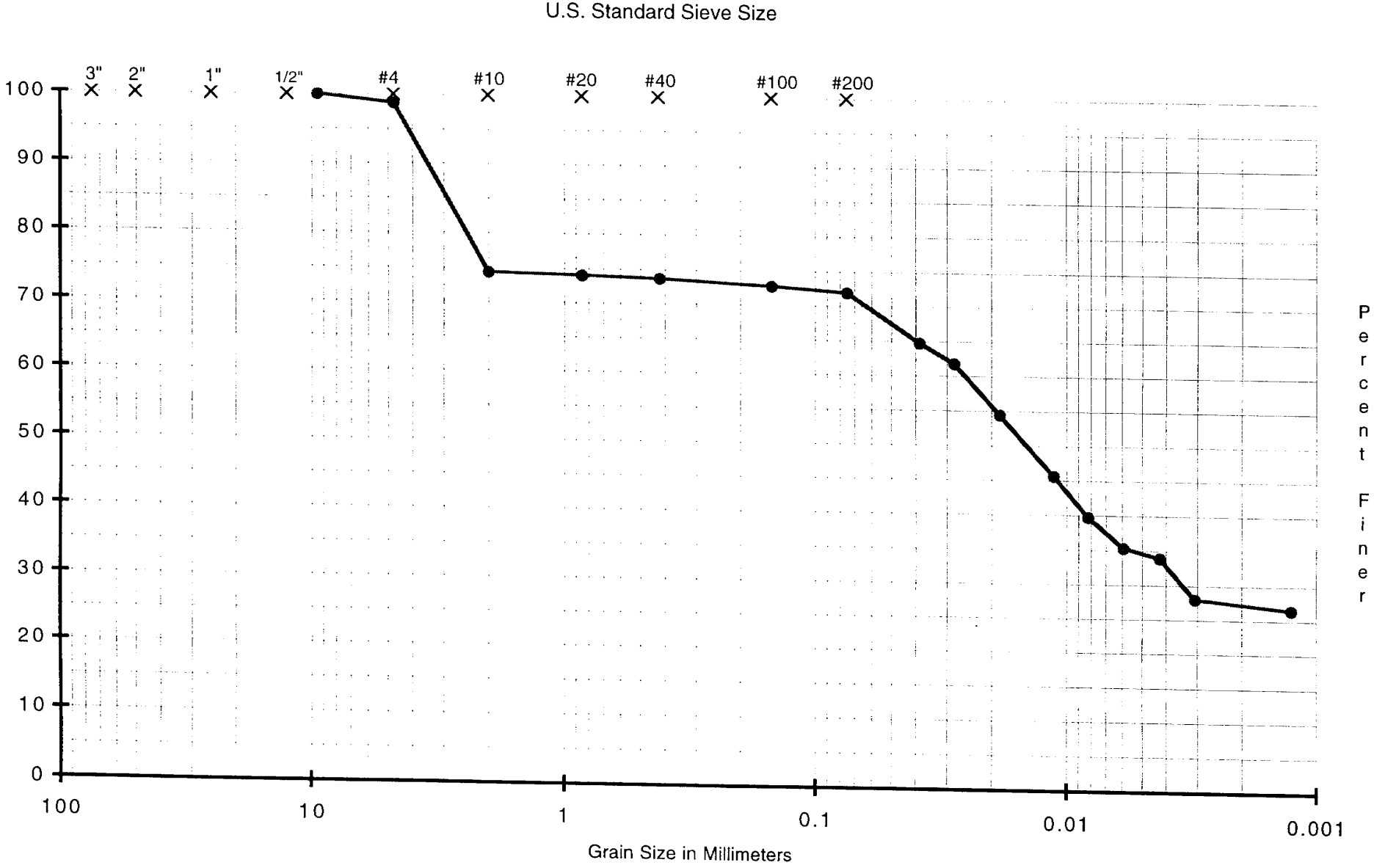
ASTM D-422 / D1140

					TOTAL	DIAMETER
	TOTAL SAMPLE WT.=	152.4 (gms.)				
+10 SIEVE PORTION	SIEVE SIZE	CUM WT. RET	PART % RET	PART % PASS	**PASSING**	**(mm)**
	1	0.0	0.0%	100.0%	**100.0%**	**25.000**
	3/4 IN	0.0	0.0%	100.0%	**100.0%**	**19.000**
	1/2 IN	0.0	0.0%	100.0%	**100.0%**	**12.500**
	3/8 IN	0.0	0.0%	100.0%	**100.0%**	**9.500**
	#4	1.9	1.2%	98.8%	**98.8%**	**4.750**
	#10	39.1	25.7%	74.3%	**74.3%**	**2.000**
	WT. OF SAMPLE AT START OF HYDRO=	50.0 (gms.)				
-#10 SIEVE PORTION	#20	0.23	0.5%	99.5%	**74.0%**	**0.850**
	#40	0.45	0.9%	99.1%	**73.7%**	**0.420**
	#100	1.08	2.2%	97.8%	**72.7%**	**0.150**
	#200	1.60	3.2%	96.8%	**72.0%**	**0.075**
HYDROMETER	TEMPERATURE(°C)=	18.0				
PORTION	TEMP BATH BULB READ=	7.0				
	SPECIFIC GRAVITY Gs=	2.70 (assumed)				
	ELAPSED TIME (MIN)	UNCORR	CORRECTED	% PASS		
	1	51.0	44.0	87.1%	**64.8%**	**0.0387**
	2	49.0	42.0	83.2%	**61.8%**	**0.0281**
	5	44.0	37.0	73.3%	**54.5%**	**0.0186**
	15	38.0	31.0	61.4%	**45.6%**	**0.0113**
	30	34.0	27.0	53.5%	**39.7%**	**0.0082**
	60	31.0	24.0	47.5%	**35.3%**	**0.0060**
	120	30.0	23.0	45.5%	**33.9%**	**0.0042**
	240	26.0	19.0	37.6%	**28.0%**	**0.0031**
	1450	25.0	18.0	35.6%	**26.5%**	**0.0013**

soil classification: **Silty CLAY, Some Sand, Trace Gravel, CL**

GRAVEL=	**1 %**
SAND=	**27 %**
SILT=	**45 %**
CLAY=	**27 %**

REPORT OF GRAIN SIZE ANALYSIS **SCHLEEDE-HAMPTON ASSOCIATES,INC.**



Silty CLAY, Some Sand, Trace Gravel, CL

S-031203-MG-246

JOB NAME:	Laboratory Testing - GMPT Bedford
PROJECT NO.	62225
SAMPLE ID	S-031203-MG-247
DATE SAMPLED:	3/12/03

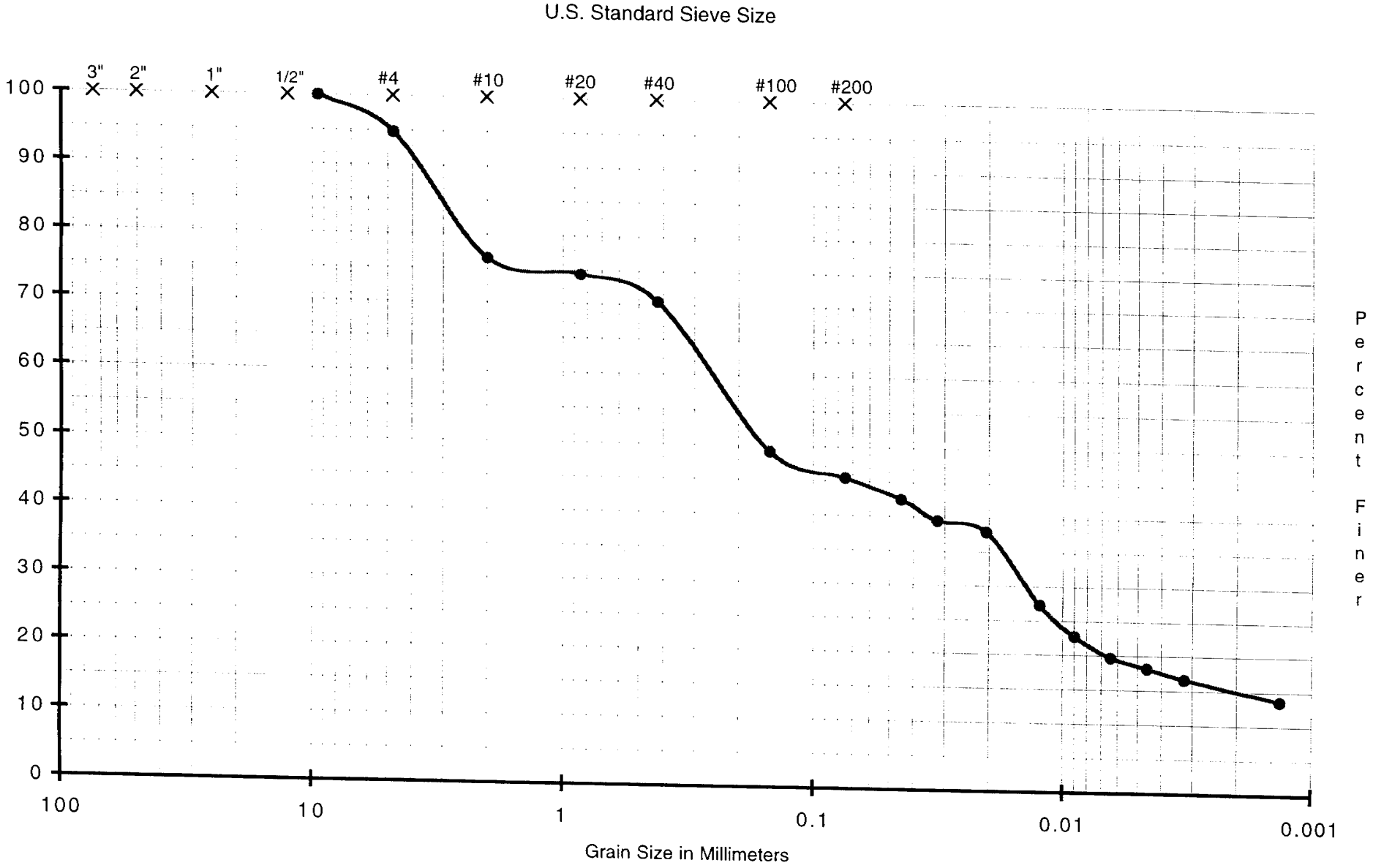
ASTM D-422 / D1140

	TOTAL SAMPLE WT.=	183.1 (gms.)			TOTAL	DIAMETER
+10 SIEVE PORTION	SIEVE SIZE	CUM WT. RET	PART % RET	PART % PASS	**PASSING**	**(mm)**
	1	0.0	0.0%	100.0%	**100.0%**	**25.000**
	3/4 IN	0.0	0.0%	100.0%	**100.0%**	**19.000**
	1/2 IN	0.0	0.0%	100.0%	**100.0%**	**12.500**
	3/8 IN	0.0	0.0%	100.0%	**100.0%**	**9.500**
	#4	9.5	5.2%	94.8%	**94.8%**	**4.750**
	#10	42.9	23.4%	76.6%	**76.6%**	**2.000**
	WT. OF SAMPLE AT START OF HYDRO=	50.0 (gms.)				
-#10 SIEVE PORTION	#20	1.46	2.9%	97.1%	**74.3%**	**0.850**
	#40	3.95	7.9%	92.1%	**70.5%**	**0.420**
	#100	17.95	35.9%	64.1%	**49.1%**	**0.150**
	#200	20.29	40.6%	59.4%	**45.5%**	**0.075**
HYDROMETER	TEMPERATURE(°C)=	18.0				
PORTION	TEMP BATH BULB READ=	7.0				
	SPECIFIC GRAVITY Gs=	2.70 (assumed)				
	ELAPSED TIME (MIN)	UNCORR	CORRECTED	% PASS		
	1	35.0	28.0	55.4%	**42.5%**	**0.0449**
	2	33.0	26.0	51.5%	**39.4%**	**0.0322**
	5	32.0	25.0	49.5%	**37.9%**	**0.0205**
	15	25.0	18.0	35.6%	**27.3%**	**0.0124**
	30	22.0	15.0	29.7%	**22.7%**	**0.0090**
	60	20.0	13.0	25.7%	**19.7%**	**0.0064**
	120	19.0	12.0	23.8%	**18.2%**	**0.0046**
	240	18.0	11.0	21.8%	**16.7%**	**0.0032**
	1450	16.0	9.0	17.8%	**13.6%**	**0.0013**

soil classification: **Clayey SAND, Trace Gravel, SC**

GRAVEL=	**5 %**
SAND=	**49 %**
SILT=	**31 %**
CLAY=	**15 %**

REPORT OF GRAIN SIZE ANALYSIS **SCHLEEDE-HAMPTON ASSOCIATES,INC.**



Clayey SAND, Trace Gravel, SC

S-031203-MG-247

APPENDIX B2

GEOTECHNICAL BEDROCK TESTING REPORTS

Core Petrophysics Division
6316 Windfern
Houston, TX 77040 USA
Tel: 713-328-2565
Fax: 713-328-2567

Conestoga-Rovers & Associates

GM-Bedford Project
Reference Number 13968

CONVENTIONAL PLUG ANALYSIS
FINAL REPORT
CL File No.: HOU-021274

February 18, 2003

CLB Listed NYSE

Core Petrophysics Division
6316 Windfern
Houston, TX 77040 USA
Tel: 713-328-2565
Fax: 713-328-2567

February 18, 2003

Conestoga-Rovers & Associates
4141 Davis Creek Court
Kalamazoo, Michigan 49001-0838
Attn: William K. Steinmann

Final Core Analysis Report
GM-Bedford Project
Reference Number 13968
CL File No. HOU-021274

Dear Mr. Steinmann,

Core samples from the subject project were delivered to Core Laboratories' Windfern Road facility in Houston, Texas. Analysis was performed as directed by Conestoga-Rovers representatives.

The following documentation includes procedures for sample preparation and petrophysical measurements, and the resultant data reported in tabular format.

We appreciate this opportunity to be of service. If we can be of further assistance, please do not hesitate to contact us.

Sincerely,

CORE LABORATORIES LP

Michael R. Long
Laboratory Supervisor

CLB
Listed
NYSE

SAMPLE PREPARATION & PETROPHYSICAL MEASUREMENTS

PLUG DRILLING and TRIMMING: Nineteen (19) samples were submitted for analysis. A 1.0-inch diameter horizontal plug was taken from each sample using fresh tap water as the drilling and trimming lubricant. The plugs were faced with a diamond facing tool to provide right circular cylinders. Trimmed ends were catalogued and stored.

SAMPLE DRYING: All samples were dried in a convection oven at 240 degrees F. for 24 hours.

GRAIN VOLUME: Direct grain volume measurements were made using an automated porosimeter. This instrument utilizes the principle of gas expansion as described by Boyle's Law. Helium was used as the test gas. The instrument was calibrated daily and test standards were run to verify instrument accuracy.

GRAIN DENSITY: Calculated grain densities were obtained utilizing grain volume measurements and sample weights. Grain densities were checked against lithology standards.

BULK DENSITY: The bulk density of each sample was determined using a DEB-200 mercury immersion device. The device utilizes Archimedes principle of buoyancy to determine bulk volume. A container of mercury is placed on a calibrated digital scale. The temperature of the mercury is measured so that the mercury density can be determined. The sample holder is positioned at a reference point and the scale is zeroed. The sample is then submerged in the mercury to the same reference point. The submerged sample weight is divided by the density of the mercury to yield the bulk volume. The pre-immersion sample weight is divided by the bulk volume to yield the bulk density. Bulk densities were measured on samples after oven drying.

PLUG DIMENSIONS: Sample lengths and diameters were measured using digital metric calipers.

POROSITY: Pore volumes were determined at a net confining stress (NCS) of 800 psi in a hydrostatic core holder using the Boyle's Law double-cell technique (API RP-40, Sec 5.3.2.2). Porosity was calculated by the following equation:

$$\text{Porosity} = \text{Pore Volume} / (\text{Pore Volume} + \text{Grain Volume}) \times 100$$

TOTAL ORGANIC CARBON: A split from each sample was submitted to an outside vendor for total organic carbon (TOC) analysis. The results are presented in tabular format with the conventional plug analysis data.

Conestoga-Rovers & Associates
GM-Bedford Project
Reference Number 13968

Core Lab
PETROLEUM SERVICES

CL File No.: HOU-021274
Date: January 7, 2003
Analyst(s): ML

CONVENTIONAL PLUG ANALYSIS

Sample Number	Porosity %	Grain Density g/cm3	Bulk Density g/cm3	Total Organic Carbon (Wt %)
RC-121802-KMV-550	13.33	2.739	2.405	0.24
RC-121802-KMV-551	8.02	2.692	2.503	0.41
RC-121802-KMV-552	12.45	2.774	2.449	0.30
RC-121802-KMV-553	3.53	2.702	2.631	0.23
RC-121802-KMV-554	12.03	2.701	2.391	0.04
RC-121802-KMV-555	7.56	2.695	2.516	0.07
RC-121802-KMV-556	7.41	2.700	2.521	0.08
RC-121802-KMV-557	8.40	2.697	2.497	0.08
RC-121802-KMV-558	10.31	2.695	2.444	0.10
RC-121802-KMV-559	5.50	2.689	2.571	0.03
RC-121802-KMV-560	4.10	2.685	2.593	0.06
RC-121802-KMV-561	4.61	2.660	2.562	0.09
RC-121802-KMV-562	9.75	2.691	2.456	0.06
RC-121802-KMV-563	5.99	2.699	2.558	<0.02
RC-121802-KMV-564	22.12	2.821	2.218	0.12
RC-121802-KMV-565	21.28	2.834	2.255	0.07
RC-121802-KMV-566	24.17	2.841	2.171	0.05
RC-121802-KMV-567	23.75	2.836	2.182	0.06
RC-121802-KMV-568	24.00	2.849	2.184	0.04

Core Lab
RESERVOIR OPTIMIZATION

Core Petrophysics Division
6316 Windfern
Houston, TX 77040 USA
Tel: 713-328-2565
Fax: 713-328-2567

REPORT DISTRIBUTION

CORE LABORATORIES LP FILE NO. HOU-021274

Conestoga-Rovers & Associates
GM-Bedford Project
Reference No. 13968
FINAL REPORT

3 Copies to:

Conestoga-Rovers & Associates
4141 Davis Creek Court
Kalamazoo, Michigan 49001-0838
Attn: William K. Steinmann

CLB
Listed
NYSE

ADVANCED CORE ANALYSIS STUDY

Conestoga-Rovers & Associates

GM-Bedford Project

Michigan

FINAL REPORT

Submitted to:

Conestoga-Rovers & Associates

February 5, 2003

Performed by:

Core Laboratories, Inc.
Advanced Technology Center
6316 Windfern
Houston, Texas 77040

Core Laboratories
6316 Windfern Road
Houston, Texas 77040 USA
Tel: 713-328-2673
Fax: 713-328-2170
www.corelab.com

February 5, 2003

Conestoga-Rovers & Associates
4141 Davis Creek Court
Kalamazoo, Michigan 49001-0838

Attention: Mr. William Steinmann, CPG

RE: GM-Bedford Project
Michigan
File: HOU-021274

Dear Mr. Steinmann,

Presented in this report are the final results of the Advanced Core Analysis study performed on core plug samples from the subject project. The Advanced Core Analysis included High Pressure Mercury Injection tests. Additional Basic Properties measurements were performed by our Routine Rock Properties Group and have been presented under separate cover.

It has been a pleasure performing this study on behalf of Conestoga-Rovers & Associates. If you should require any additional information or assistance, please do not hesitate to contact us.

Sincerely,

Craig C. Whitney
Project Coordinator
Core Laboratories Advanced Technology Center
Houston, Texas
(713) 328-2426

SUMMARY OF RESULTS

Nineteen 1" diameter, cleaned core samples were provided for high pressure mercury injection analysis. The samples were trimmed as necessary to fit within the glass penetrometers of the Micromeritics AutoPore mercury injection instrument. Ambient pore volumes and porosity were determined using helium derived grain volumes and toluene saturation data. Permeability values reported were calculated from the mercury injection results using the methods of (Swanson, B.F.,"A Simple Correlation Between Permeabilities and Mercury Capillary Pressures" Journal of Petroleum Technology, December 1981).

The table below summarizes basic rock properties data and the mercury injection test results.

GM-Bedford Project						
Sample Number	Depth, feet	Swanson Permeability, millidarcys	Porosity, fraction	Mercury Sat'n at 55,000 psi, fraction	Approximate Threshold Pressure, psi	Median Pore Throat Radius, μm
550	N/A	0.057	0.105	0.996	242.7	0.109
551	N/A	0.011	0.080	0.994	116.2	0.049
552	N/A	0.046	0.125	0.992	584.1	0.080
553	N/A	<0.001	0.034	0.986	464.8	0.009
554	N/A	4.46	0.119	0.988	21.8	0.303
555	N/A	0.068	0.076	0.992	94.9	0.114
556	N/A	0.152	0.073	0.997	117.5	0.129
557	N/A	0.271	0.082	0.993	87.4	0.177
558	N/A	0.838	0.099	0.993	55.7	0.394
559	N/A	0.225	0.050	0.989	28.5	0.061
560	N/A	0.002	0.037	0.987	165.5	0.044
561	N/A	0.005	0.039	0.992	105.0	0.043
562	N/A	0.944	0.090	0.990	25.1	0.255
563	N/A	0.125	0.055	1.000	38.2	0.058
564	N/A	1.01	0.218	0.996	89.5	0.260
565	N/A	0.801	0.213	0.993	140.0	0.240
566	N/A	1.59	0.239	0.996	37.7	0.308
567	N/A	3.63	0.238	1.000	45.5	0.500
568	N/A	2.80	0.240	1.000	46.5	0.408

Apparent mercury injection values were corrected using a conformance factor determined for each sample from an evaluation of a plot of the apparent injection volume versus injection pressure. The conformance value subtracted is the volume of mercury pressed into surface roughness and around sample edges after the penetrometer chamber is initially filled prior to application of the first pressure. Mercury injection data are presented in tabular and graphic form following this discussion. The tabular data include: the injection pressure, mercury saturation, conversions of pressure to other laboratory systems, and estimated height above free water level.

Pore Throat Size Distribution

Pore throat size distribution was calculated from the mercury injection test results. These data are typically used for pore geometry characterizations and comparisons. The pore throat size distributions can often help to evaluate the results of other analyses performed on the same, or similar companion, samples. It can also aid in designing filtration requirements for injection projects. Textural effects and pore size distribution are major factors affecting irreducible water saturations, and hence the extent and height of a reservoir's transition zone.

In general, pore throat radii can be divided into several categories which can be used in the classification and grouping of the test samples. Microporosity is often defined as pore throat radii of less than 0.50 microns. The following classification is utilized for this discussion:

Classification Number	Pore Radius Classification	Pore Radius, microns Minimum	Maximum
1	micro	<0.50	0.50
2	meso	0.50	2.5
3	macro	2.5	>10.

These ranges have been included on the pore throat radii histograms.

J-Function and System Conversions

Some of the additional data which are presented on the tabular pages are the "J - Function" and conversions of mercury injection data to (laboratory) gas-water, gas-oil, and oil-water systems. Leverett's J-Function values can be used to normalize data from different samples, converting all capillary pressure data to a universal curve which represents a specific formation or zone. For these data, the historical J-Function equation has been modified to include a factor making the results dimensionless. Conversions of air-mercury pressures to other systems can be refined by applying actual measured values in place of the "typical" parameters which are used when measured values are not available.

Height Above Free Water

In order to calculate a corresponding height above free water for the mercury injection data, laboratory data are converted to equivalent reservoir oil-water or gas-water values and generic fluid density gradients were used. Ideally, the density gradients should correspond to reservoir values at initial reservoir temperature and pressure. Height values are meant only as estimated values when standard, "typical" interfacial tension, contact angle, and density gradient parameters are used. While these values are often reasonable estimates, actual parameter values should be applied to the conversion equation.

LABORATORY PROCEDURES

Basic Properties

1. The samples were trimmed as necessary to fit within the penetrometer chambers of the Micromeritics AutoPore devices.
2. After drying in a vacuum oven, the samples were placed into a dessicator to prevent adsorption of moisture from the atmosphere as they cooled.
3. Dry weight was measured using an analytical balance (±0.001g).
4. The UltraPorosimeter™ was used to obtain measured grain volume data. The system uses a sample chamber into which helium is allowed to expand as it is injected from reference cells of known volume and pressure. Grain volume was calculated using Boyle's law of gas expansion. The dry weight was divided by the grain volume to calculate the grain density.
5. An ambient, mercury immersion bulk volume was determined. Pore volume was calculated as the difference between bulk volume and grain volume. The pore volume was divided by bulk volume to calculate the porosity fraction.
6. The samples were placed into a stainless steel cylinder and evacuated overnight, then were pressure saturated with toluene, a strongly wetting fluid. Saturated pore volume data were obtained and compared to the (mercury bulk – grain volume) pore volumes. The saturated pore volumes are generally the preferred values used.
7. The samples were re-dried in a vacuum oven to fully remove the toluene.

High Pressure Mercury Injection

1. Testing was performed using the Micromeritics Autopore, an automated, high pressure mercury injection device which operates at injection pressures of 0 to 55,000 psia.
2. Each test sample was weighed, then loaded into a glass penetrometer consisting of a sample chamber attached to a capillary stem with a cylindrical coaxial capacitor. Each penetrometer used was selected on the basis of how well its capacity matched the sample pore volume to maximize accuracy and resolution.
3. The sample/penetrometer assembly was weighed, then placed into the low pressure system.
4. The sample chamber was evacuated and filled with mercury, then the pressure was increased incrementally to slightly above atmospheric pressure. At the end of the low pressure phase the assembly was temporarily removed and re-weighed, then placed into the high pressure side of the apparatus.
5. Pressures were increased incrementally to a maximum of 55,000 psia.
6. Time was allowed at each incremental pressure for saturation equilibrium. The volume of mercury injected at each pressure was determined by the change in capacitance of the capillary stem.
7. The pressure was decreased to ambient and the sample unloaded. A final weight was recorded to calculate the residual mercury saturation.
8. Micromeritics data were imported to a spreadsheet and the mercury volumes calculated. A conformance (correction for surface roughness) value was selected, volume corrections made, and saturations calculated.
9. Pore throat size, fluid system pressure conversion, and height data were calculated using "typical" parameters which are reported at the end of this discussion.

Other Calculations

1. Pore entry radii were calculated using the formula:

$$Ri = \frac{2T * \cos\theta * C}{Pc}$$

where:
- Ri = Pore entry radius, microns
- T = Interfacial tension
- θ = Contact angle
- C = Unit conversion constant (to microns) = 0.145
- Pc = Mercury injection pressure, psia.

2. J-Function values are calculated from capillary pressure (or mercury injection) data and basic sample properties using the following equation:

$$\text{J-Function} = \frac{0.2166 * Pc * (K/\phi)^{1/2}}{(T * \cos\theta)}$$

where:
- Pc = Injection pressure, psia
- T = Interfacial tension, dyne/cm
- θ = Contact angle
- K = Permeability to air (or Klinkenberg), millidarcys
- ϕ = Porosity, fraction.
- 0.2166 = Factor used to cancel units and make "J" dimensionless

3. Conversions of pressure from one fluid system to the others are calculated using the example formula:

$$Pc_{(g\text{-}w)} = Pc_{(meas.)} * \frac{(T * \cos\theta)_{(g\text{-}w)}}{(T * \cos\theta)_{(meas.)}}$$

where:
- $Pc_{(g\text{-}w)}$ = Capillary pressure in a gas-water system
- $Pc_{(meas.)}$ = Capillary pressure of the measured fluid system
- T = Interfacial tension
- θ = Contact angle

4. Height above free water is calculated from laboratory capillary pressure data using the following equation:

$$Pc_R = Pc_L * (T\cos\theta)_R \div (T\cos\theta)_L$$
$$\text{Height} = Pc_R \div (\rho_w - \rho_h)$$

where:
- Pc_L = Laboratory measured capillary pressure
- $T\cos\theta_R$ = Interfacial tension * cosine of contact angle (reservoir)
- $T\cos\theta_L$ = Interfacial tension * cosine of contact angle (laboratory)
- ρ_w = Reservoir density gradient, water
- ρ_h = Reservoir density gradient, hydrocarbon
- T = Interfacial tension
- θ = Contact angle

SUMMARY OF CALCULATION PARAMETERS

Fluid System	(θ) Contact Angle	cosine Contact θ	(T) Interfacial Tension	T cosine θ
Laboratory				
Gas-water	0.0	1.00	70.0	70.0
Oil-water	30.0	0.866	35.0	30.3
Gas-oil	0.0	1.00	24.0	24.0
Air-mercury	140.	0.765	485.	372.
Reservoir				
Oil-water	30.0	0.866	25.0	21.7
Gas-water	0.0	1.00	50.0	50.0

Density Gradients

water = 0.433
oil = 0.346
gas = 0.100

MERCURY INJECTION DATA SUMMARY

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**550**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.156	-	-
Permeability to Air, md:		0.271	-	-
Swanson Permeability, md:		0.057	-	-
Porosity, fraction:		0.105	-	-
maximum Sb/Pc, fraction:		0.005		
R50 (median pore throat radius):		0.109		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
1.13	0.000	1.000	95.3	0.000806	0.219	0.073	0.092	0.457	0.757
2.05	0.000	1.000	52.6	0.001460	0.397	0.132	0.167	0.828	1.37
3.04	0.000	1.000	35.4	0.00217	0.589	0.196	0.248	1.23	2.04
4.03	0.000	1.000	26.7	0.00287	0.781	0.260	0.329	1.63	2.70
5.03	0.000	1.000	21.4	0.00359	0.975	0.325	0.410	2.03	3.37
6.03	0.000	1.000	17.9	0.00430	1.17	0.390	0.492	2.44	4.04
7.52	0.000	1.000	14.3	0.00536	1.46	0.486	0.614	3.04	5.04
9.01	0.000	1.000	12.0	0.00643	1.75	0.582	0.735	3.65	6.03
11.0	0.000	1.000	9.79	0.00785	2.13	0.711	0.898	4.44	7.37
14.0	0.000	1.000	7.70	0.00998	2.71	0.904	1.14	5.65	9.36
17.0	0.000	1.000	6.34	0.0121	3.29	1.10	1.39	6.86	11.4
20.0	0.000	1.000	5.39	0.0142	3.87	1.29	1.63	8.07	13.4
23.0	0.000	1.000	4.69	0.0164	4.45	1.48	1.87	9.28	15.4
26.0	0.000	1.000	4.15	0.0185	5.03	1.68	2.12	10.5	17.4
30.4	0.000	1.000	3.54	0.0217	5.90	1.97	2.48	12.3	20.4
35.1	0.000	1.000	3.07	0.0250	6.80	2.27	2.86	14.2	23.5
40.0	0.000	1.000	2.69	0.0285	7.76	2.59	3.27	16.2	26.8
50.7	0.000	1.000	2.13	0.0361	9.82	3.27	4.13	20.5	33.9
60.1	0.000	1.000	1.79	0.0429	11.6	3.88	4.90	24.2	40.2
75.4	0.000	1.000	1.43	0.0538	14.6	4.87	6.15	30.4	50.5
90.0	0.000	1.000	1.19	0.0644	17.5	5.83	7.37	36.5	60.5
120	0.000	1.000	0.897	0.0857	23.3	7.76	9.80	48.6	80.5
150	0.000	1.000	0.716	0.107	29.2	9.72	12.3	60.9	101
190	0.000	1.000	0.564	0.136	37.0	12.3	15.6	77.2	128
250	0.007	0.993	0.431	0.178	48.5	16.2	20.4	101	167
350	0.109	0.891	0.307	0.250	68.0	22.7	28.6	142	235
450	0.171	0.829	0.240	0.321	87.2	29.1	36.7	182	301
600	0.262	0.738	0.180	0.427	116	38.7	48.9	242	401
800	0.395	0.605	0.135	0.570	155	51.6	65.2	323	535
1000	0.510	0.490	0.108	0.711	193	64.4	81.4	402	668
1300	0.612	0.388	0.0861	0.893	243	80.8	102	507	837
1600	0.692	0.308	0.0674	1.140	310	103	130	646	1070

MERCURY INJECTION DATA SUMMARY

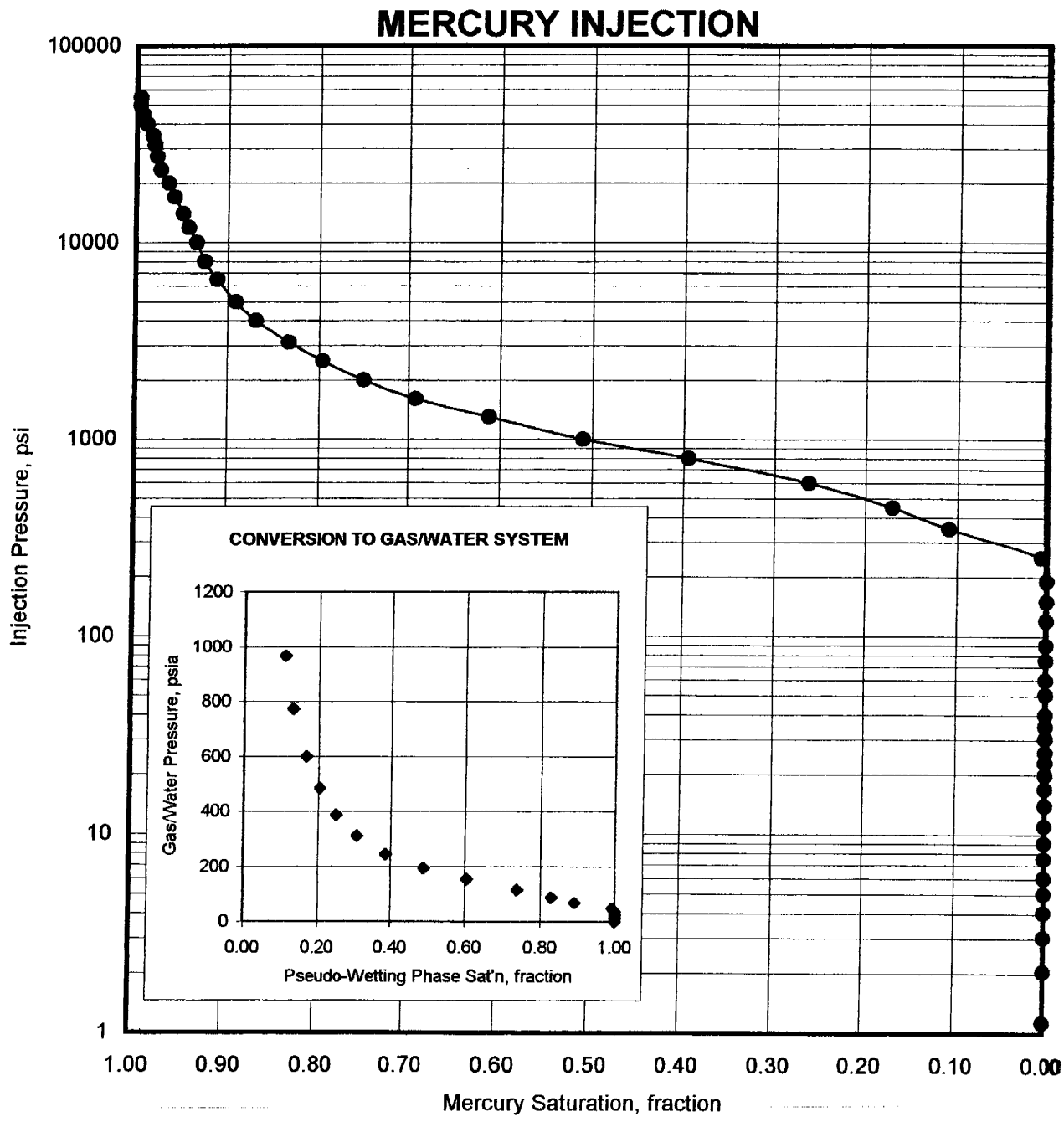
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**550**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.156	-	-
Permeability to Air, md:		0.271	-	-
Swanson Permeability, md:		0.057	-	-
Porosity, fraction:		0.105	-	-
maximum Sb/Pc, fraction:		0.005		
R50 (median pore throat radius):		0.109		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
2000	0.750	0.250	0.0540	1.42	387	129	163	807	1340
2500	0.796	0.204	0.0432	1.78	483	161	203	1010	1670
3100	0.834	0.166	0.0348	2.21	600	200	253	1250	2080
4000	0.869	0.131	0.0270	2.84	772	257	325	1610	2670
5000	0.891	0.109	0.0216	3.55	965	322	406	2010	3330
6500	0.911	0.089	0.0167	4.61	1250	418	528	2610	4330
8000	0.925	0.075	0.0135	5.68	1540	515	650	3210	5340
10000	0.934	0.066	0.0108	7.11	1930	644	813	4020	6670
11900	0.942	0.058	0.0090	8.52	2320	772	975	4840	8000
14000	0.949	0.051	0.0077	9.95	2700	902	1140	5630	9360
17000	0.958	0.042	0.0064	12.1	3290	1100	1380	6860	11300
20000	0.965	0.035	0.0054	14.2	3870	1290	1630	8070	13400
23400	0.974	0.026	0.0046	16.7	4540	1510	1910	9470	15700
27400	0.978	0.022	0.0039	19.5	5310	1770	2230	11100	18300
31400	0.980	0.020	0.0034	22.4	6090	2030	2570	12700	21100
34800	0.982	0.018	0.0031	24.9	6750	2250	2840	14100	23300
40000	0.989	0.011	0.0027	28.5	7760	2590	3260	16200	26800
45000	0.993	0.007	0.0024	32.1	8720	2910	3670	18200	30100
49800	0.996	0.004	0.0022	35.5	9640	3210	4060	20100	33300
54700	0.996	0.004	0.0020	39.0	10600	3540	4470	22100	36700

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

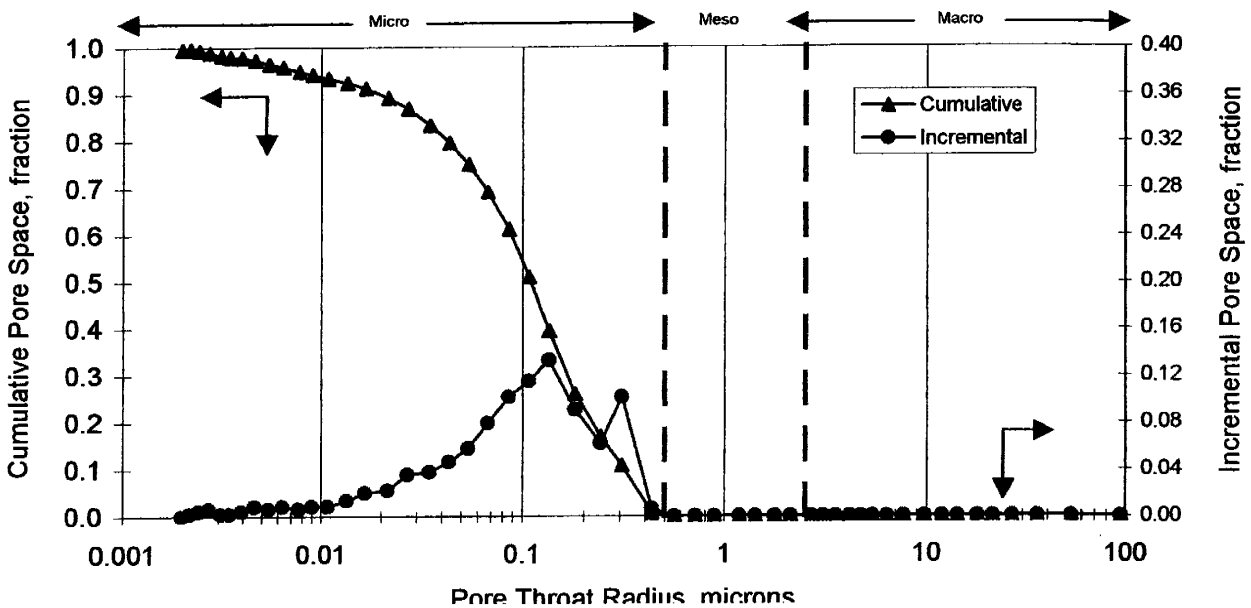
Sample:	**550**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.156	-	-
Permeability to Air, md:		0.271	-	-
Swanson Permeability, md:		0.057	-	-
Porosity, fraction:		0.105	-	-
maximum Sb/Pc, fraction:		0.005		
R50 (median pore throat radius):		0.109		



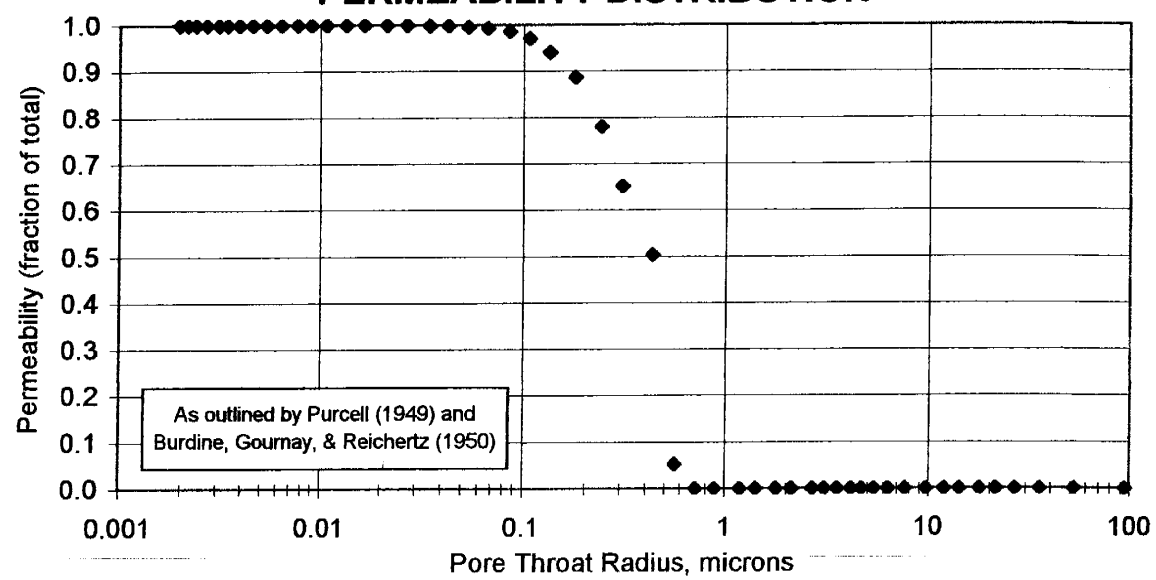
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**550**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.156	-	-
Permeability to Air, md:		0.271	-	-
Swanson Permeability, md:		0.057	-	-
Porosity, fraction:		0.105	-	-
maximum Sb/Pc, fraction:		0.005		
R50 (median pore throat radius):		0.109		

PORE THROAT RADIUS DISTRIBUTION

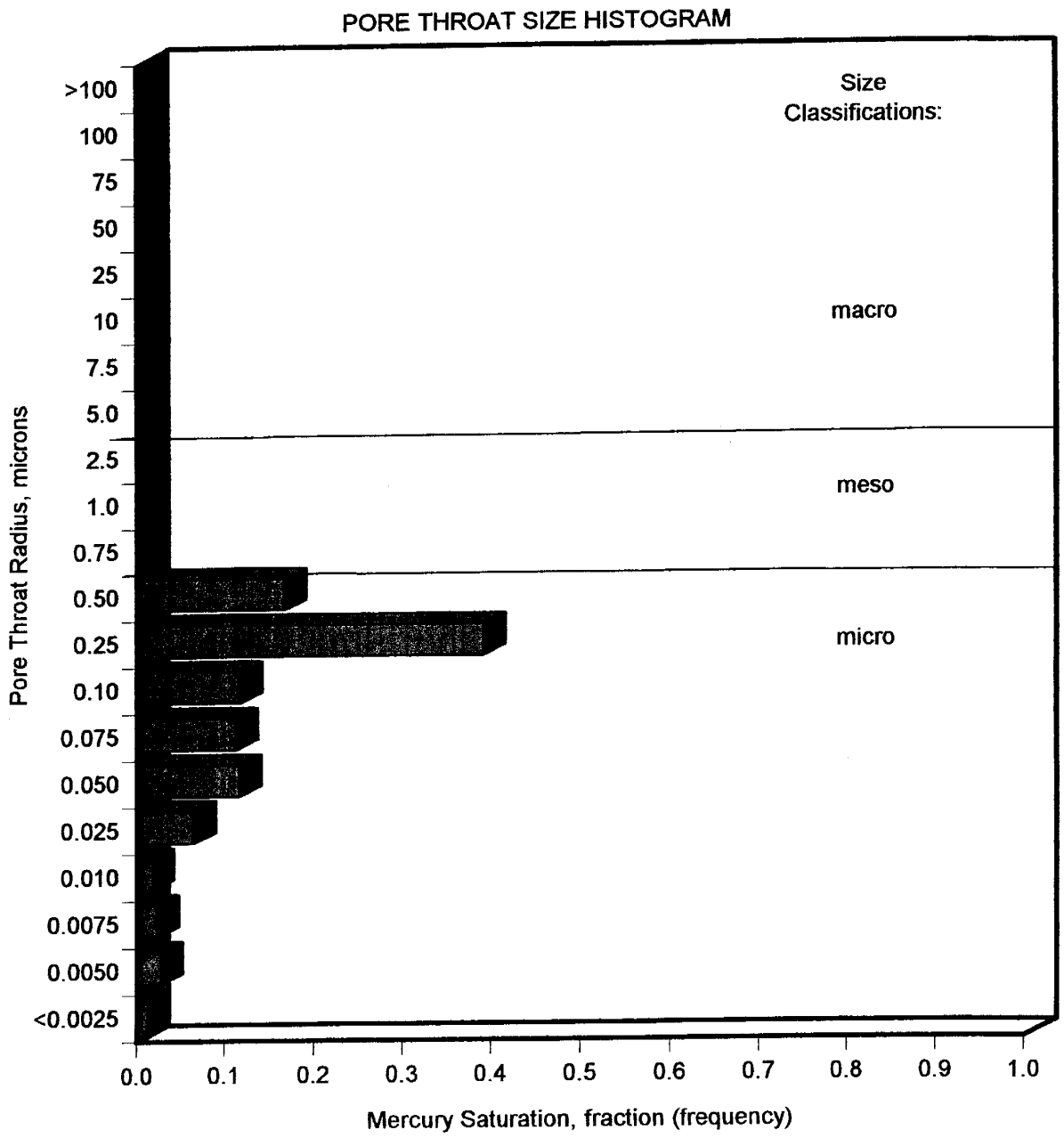


PERMEABILITY DISTRIBUTION



Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**550**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.156	-	-
Permeability to Air, md:		0.271	-	-
Swanson Permeability, md:		0.057	-	-
Porosity, fraction:		0.105	-	-
maximum Sb/Pc, fraction:		0.005		
R50 (median pore throat radius):		0.109		



MERCURY INJECTION DATA SUMMARY

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**551**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.001	-	-
Permeability to Air, md:		0.007	-	-
Swanson Permeability, md:		0.011	-	-
Porosity, fraction:		0.080	-	-
maximum Sb/Pc, fraction:		0.002		
R50 (median pore throat radius):		0.049		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
1.09	0.000	1.000	98.8	0.000071	0.211	0.070	0.089	0.440	0.730
2.03	0.000	1.000	53.1	0.000133	0.393	0.131	0.166	0.820	1.36
3.04	0.000	1.000	35.4	0.000199	0.589	0.196	0.248	1.23	2.04
4.04	0.000	1.000	26.7	0.000264	0.783	0.261	0.330	1.63	2.71
5.03	0.000	1.000	21.4	0.000329	0.975	0.325	0.410	2.03	3.37
6.02	0.000	1.000	17.9	0.000393	1.17	0.389	0.491	2.44	4.03
7.52	0.000	1.000	14.3	0.000491	1.46	0.486	0.614	3.04	5.04
9.01	0.000	1.000	12.0	0.000589	1.75	0.582	0.735	3.65	6.03
11.0	0.000	1.000	9.79	0.000719	2.13	0.711	0.898	4.44	7.37
14.0	0.000	1.000	7.70	0.000915	2.71	0.904	1.14	5.65	9.36
17.0	0.000	1.000	6.35	0.00111	3.29	1.10	1.39	6.86	11.4
20.0	0.000	1.000	5.40	0.00131	3.87	1.29	1.63	8.07	13.4
23.0	0.000	1.000	4.69	0.00150	4.45	1.48	1.87	9.28	15.4
26.0	0.000	1.000	4.15	0.00170	5.03	1.68	2.12	10.5	17.4
30.3	0.000	1.000	3.55	0.00198	5.88	1.96	2.47	12.3	20.3
35.5	0.000	1.000	3.04	0.00232	6.88	2.29	2.89	14.3	23.7
40.1	0.000	1.000	2.69	0.00262	7.76	2.59	3.27	16.2	26.8
50.6	0.000	1.000	2.13	0.00330	9.80	3.27	4.13	20.4	33.9
60.1	0.000	1.000	1.79	0.00393	11.6	3.88	4.90	24.2	40.2
75.1	0.000	1.000	1.43	0.00491	14.6	4.85	6.13	30.4	50.3
90.0	0.000	1.000	1.19	0.00590	17.5	5.83	7.36	36.5	60.4
120	0.000	1.000	0.899	0.00783	23.2	7.74	9.78	48.4	80.3
150	0.000	1.000	0.722	0.00976	28.9	9.65	12.2	60.3	100
190	0.000	1.000	0.568	0.0124	36.8	12.3	15.5	76.7	127
250	0.000	1.000	0.432	0.0163	48.3	16.1	20.3	101	167
350	0.000	1.000	0.308	0.0228	67.7	22.6	28.5	141	234
450	0.000	1.000	0.240	0.0293	86.9	29.0	36.6	181	300
600	0.000	1.000	0.180	0.0390	116	38.6	48.7	242	400
800	0.000	1.000	0.135	0.0523	155	51.7	65.3	323	536
1000	0.000	1.000	0.108	0.0652	193	64.5	81.4	402	668
1200	0.033	0.967	0.0866	0.081	241	80.4	102	503	837
1600	0.184	0.816	0.0676	0.104	309	103	130	644	1070

MERCURY INJECTION DATA SUMMARY

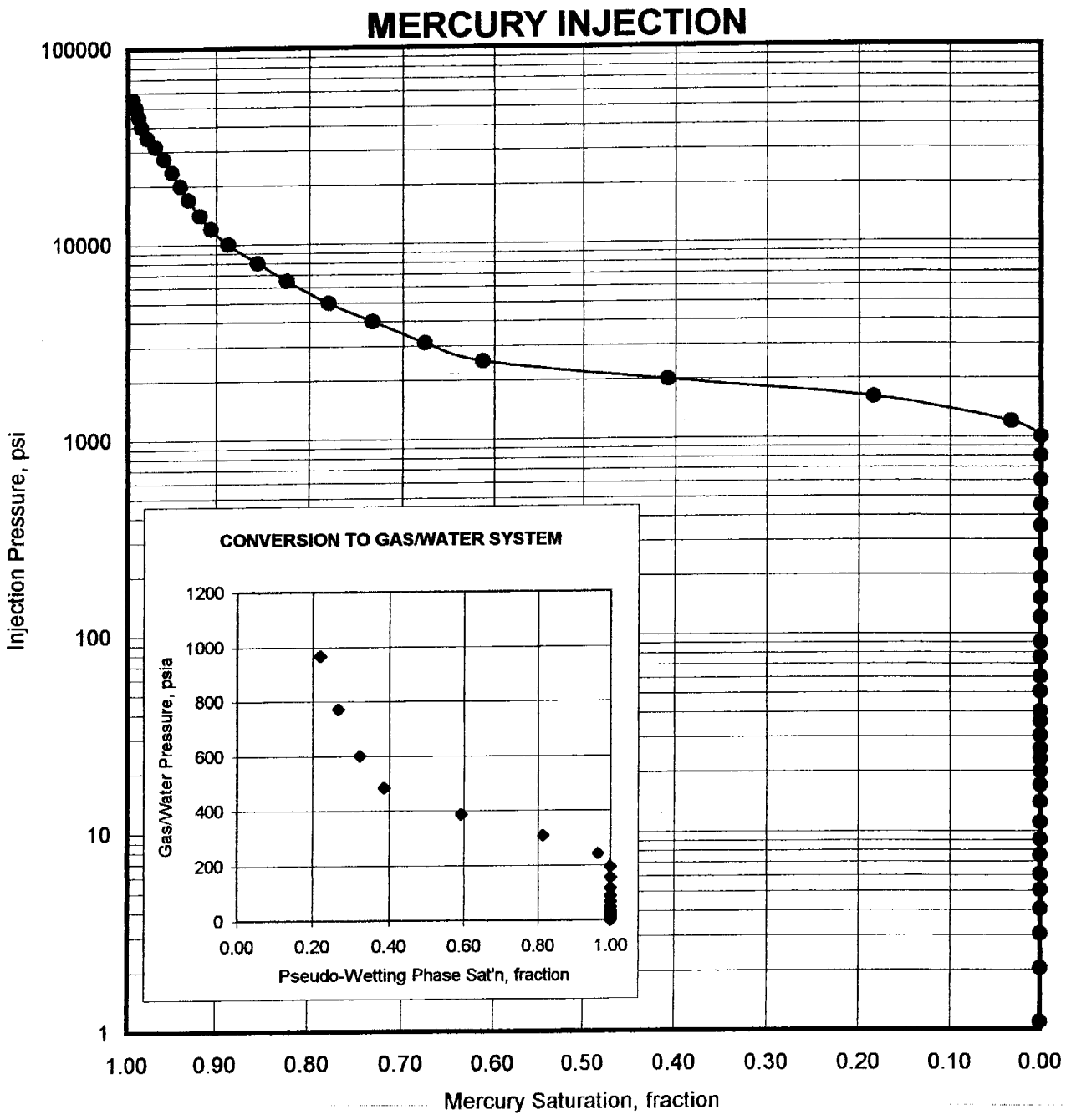
Company: Conestoga Rovers & Assoc.
Project: GM-Bedford
Field: n/a
Formation: n/a
Location: n/a
File: HOU-021274

Sample:	551		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.001	-	-
Permeability to Air, md:		0.007	-	-
Swanson Permeability, md:		0.011	-	-
Porosity, fraction:		0.080	-	-
maximum Sb/Pc, fraction:		0.002		
R50 (median pore throat radius):		0.049		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
2000	0.408	0.592	0.0541	0.130	386	129	162	805	1330
2500	0.613	0.387	0.0432	0.163	483	161	203	1010	1670
3100	0.676	0.324	0.0347	0.203	601	200	253	1250	2080
4000	0.733	0.267	0.0271	0.260	771	257	325	1610	2670
5000	0.780	0.220	0.0216	0.326	966	322	407	2010	3340
6500	0.824	0.176	0.0166	0.423	1260	418	528	2630	4330
8000	0.855	0.145	0.0135	0.521	1540	515	650	3210	5340
10000	0.887	0.113	0.0108	0.651	1930	644	813	4020	6670
12000	0.906	0.094	0.0090	0.782	2320	773	977	4840	8020
14000	0.918	0.082	0.0077	0.912	2710	902	1140	5650	9360
16900	0.931	0.069	0.0064	1.11	3280	1090	1380	6840	11300
19900	0.940	0.060	0.0054	1.3	3860	1290	1620	8050	13300
23400	0.950	0.050	0.0046	1.53	4530	1510	1910	9450	15700
27400	0.959	0.041	0.0039	1.79	5310	1770	2230	11100	18300
31500	0.969	0.031	0.0034	2.06	6110	2040	2570	12700	21100
35000	0.978	0.022	0.0031	2.29	6780	2260	2860	14100	23500
39900	0.985	0.015	0.0027	2.61	7730	2580	3260	16100	26800
44800	0.988	0.012	0.0024	2.93	8680	2890	3660	18100	30000
49800	0.991	0.009	0.0022	3.25	9650	3220	4060	20100	33300
55000	0.994	0.006	0.0020	3.60	10700	3550	4490	22300	36900

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

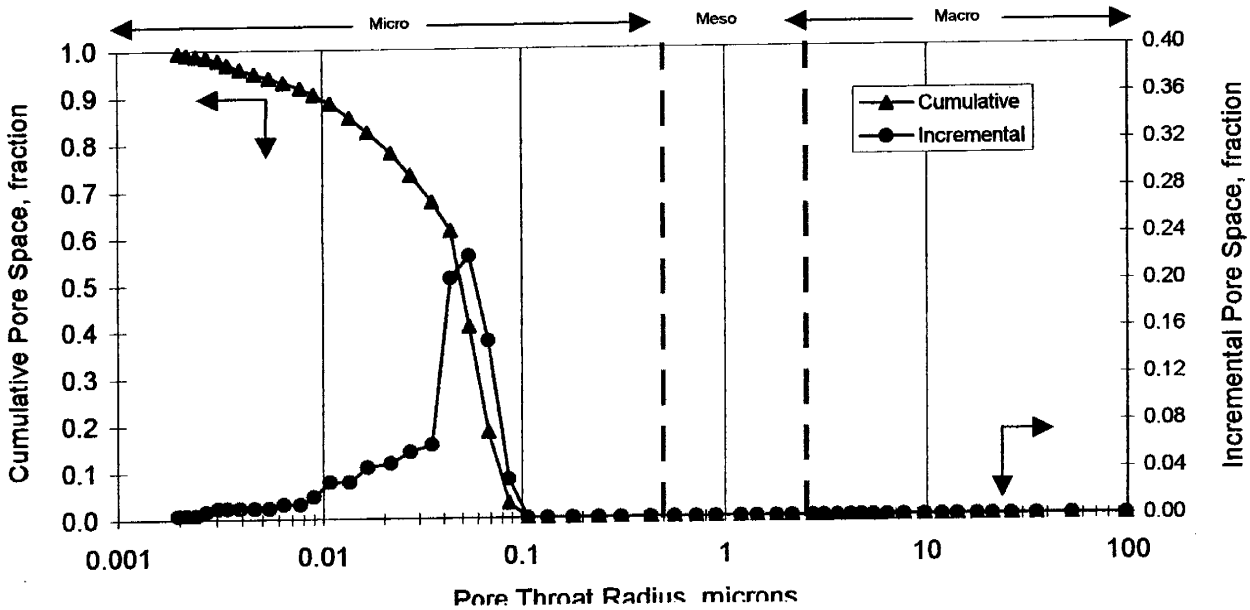
Sample:	**551**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.001	-	-
Permeability to Air, md:		0.007	-	-
Swanson Permeability, md:		0.011	-	-
Porosity, fraction:		0.080	-	-
maximum Sb/Pc, fraction:		0.002		
R50 (median pore throat radius):		0.049		



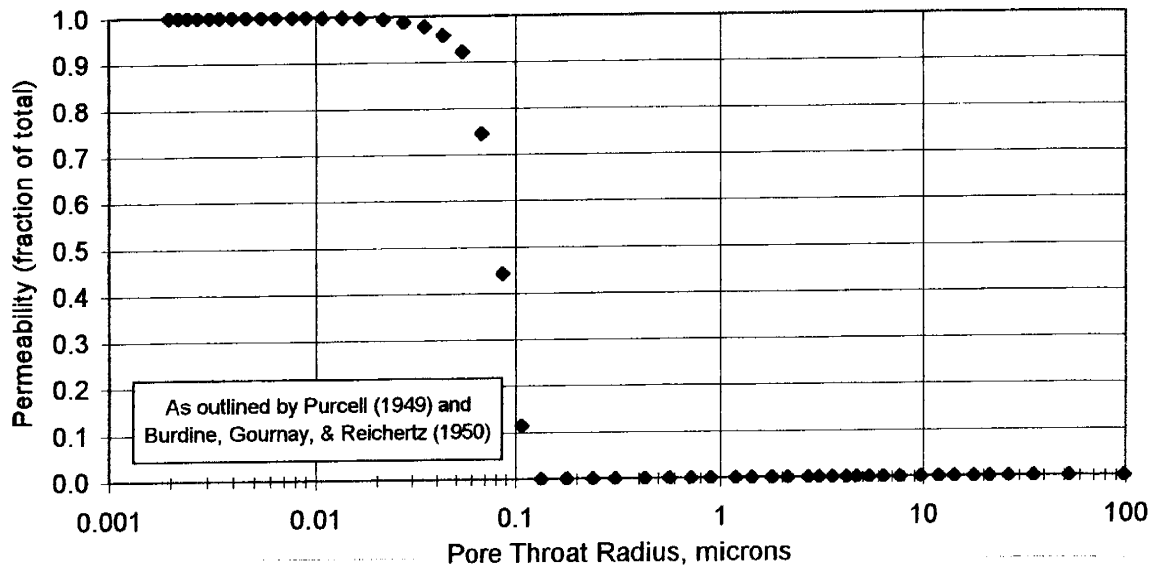
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**551**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.001	-	-
Permeability to Air, md:		0.007	-	-
Swanson Permeability, md:		0.011	-	-
Porosity, fraction:		0.080	-	-
maximum Sb/Pc, fraction:		0.002		
R50 (median pore throat radius):		0.049		

PORE THROAT RADIUS DISTRIBUTION

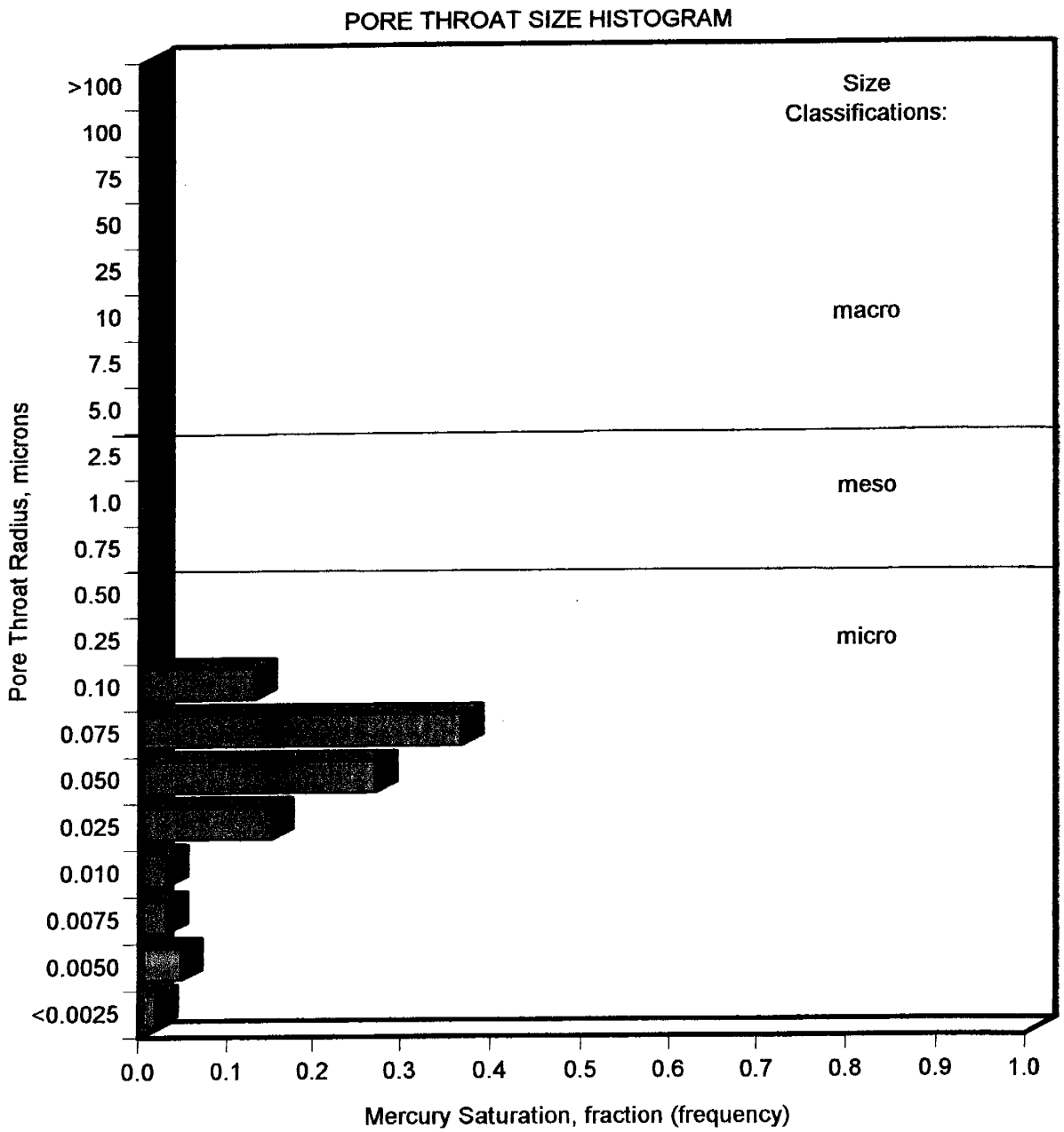


PERMEABILITY DISTRIBUTION



Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**551**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.001	-	-
Permeability to Air, md:		0.007	-	-
Swanson Permeability, md:		0.011	-	-
Porosity, fraction:		0.080	-	-
maximum Sb/Pc, fraction:		0.002		
R50 (median pore throat radius):		0.049		



MERCURY INJECTION DATA SUMMARY

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**552**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.021	-	-
Permeability to Air, md:		0.055	-	-
Swanson Permeability, md:		0.046	-	-
Porosity, fraction:		0.125	-	-
maximum Sb/Pc, fraction:		0.005		
R50 (median pore throat radius):		0.080		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
1.13	0.000	1.000	95.3	0.000271	0.219	0.073	0.092	0.457	0.757
2.11	0.000	1.000	51.1	0.000506	0.409	0.136	0.172	0.853	1.41
3.12	0.000	1.000	34.5	0.000748	0.605	0.202	0.255	1.26	2.09
4.11	0.000	1.000	26.2	0.000985	0.796	0.265	0.335	1.66	2.75
5.10	0.000	1.000	21.1	0.00122	0.988	0.329	0.416	2.06	3.42
6.12	0.000	1.000	17.6	0.00147	1.19	0.395	0.499	2.48	4.10
7.59	0.000	1.000	14.2	0.00182	1.47	0.490	0.619	3.07	5.08
9.09	0.000	1.000	11.9	0.00218	1.76	0.587	0.742	3.67	6.09
11.1	0.000	1.000	9.74	0.00265	2.14	0.714	0.902	4.46	7.41
14.1	0.000	1.000	7.66	0.00337	2.73	0.909	1.15	5.69	9.44
17.1	0.000	1.000	6.32	0.00409	3.30	1.10	1.39	6.88	11.4
20.0	0.000	1.000	5.38	0.0048	3.88	1.29	1.63	8.09	13.4
23.0	0.000	1.000	4.68	0.00552	4.46	1.49	1.88	9.30	15.4
26.0	0.000	1.000	4.14	0.00623	5.04	1.68	2.12	10.5	17.4
28.5	0.000	1.000	3.78	0.00684	5.53	1.84	2.33	11.5	19.1
33.7	0.000	1.000	3.20	0.00808	6.53	2.18	2.75	13.6	22.6
38.6	0.000	1.000	2.79	0.00925	7.48	2.49	3.15	15.6	25.9
48.8	0.000	1.000	2.21	0.0117	9.45	3.15	3.98	19.7	32.7
58.4	0.000	1.000	1.84	0.0140	11.3	3.77	4.77	23.6	39.2
73.8	0.000	1.000	1.46	0.0177	14.3	4.77	6.02	29.8	49.4
90.0	0.000	1.000	1.21	0.0213	17.2	5.73	7.24	35.9	59.4
120	0.000	1.000	0.911	0.0284	22.9	7.64	9.65	47.8	79.2
150	0.000	1.000	0.725	0.0356	28.8	9.60	12.1	60.1	99.3
190	0.000	1.000	0.574	0.0450	36.4	12.1	15.3	75.9	126
250	0.000	1.000	0.435	0.0593	48.0	16.0	20.2	100	166
350	0.000	1.000	0.310	0.0833	67.3	22.4	28.3	140	232
450	0.000	1.000	0.241	0.107	86.8	28.9	36.5	181	300
600	0.026	0.974	0.180	0.143	116	38.6	48.7	242	400
800	0.214	0.786	0.135	0.191	154	51.5	65.0	321	534
1000	0.373	0.627	0.108	0.239	194	64.5	81.5	405	669
1200	0.472	0.528	0.0865	0.299	241	80.5	102	503	837
1600	0.558	0.442	0.0675	0.383	310	103	130	646	1070

MERCURY INJECTION DATA SUMMARY

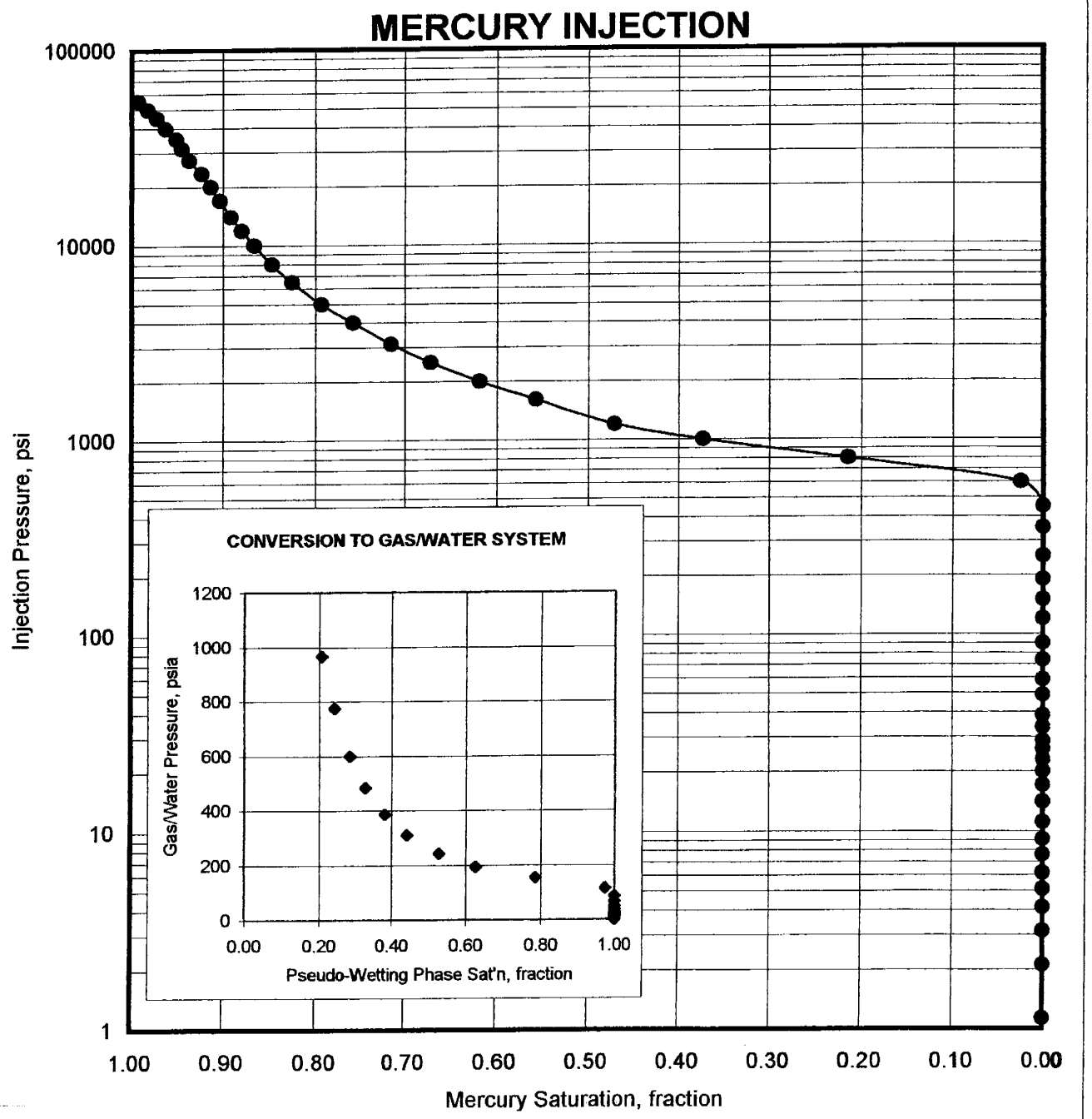
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**552**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.021	-	-
Permeability to Air, md:		0.055	-	-
Swanson Permeability, md:		0.046	-	-
Porosity, fraction:		0.125	-	-
maximum Sb/Pc, fraction:		0.005		
R50 (median pore throat radius):		0.080		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
2000	0.619	0.381	0.0541	0.478	386	129	163	805	1340
2500	0.672	0.328	0.0433	0.597	483	161	203	1010	1670
3100	0.715	0.285	0.0349	0.741	599	200	252	1250	2070
4000	0.758	0.242	0.0270	0.957	774	258	326	1610	2680
5000	0.794	0.206	0.0216	1.19	966	322	407	2010	3340
6500	0.825	0.175	0.0166	1.55	1250	418	528	2610	4330
8000	0.847	0.153	0.0135	1.91	1540	514	650	3210	5340
10000	0.867	0.133	0.0108	2.39	1930	643	812	4020	6670
11900	0.880	0.120	0.0090	2.86	2310	771	974	4820	8000
14000	0.892	0.108	0.0077	3.35	2700	902	1140	5630	9360
17000	0.904	0.096	0.0064	4.07	3290	1100	1380	6860	11300
20000	0.914	0.086	0.0054	4.78	3870	1290	1630	8070	13400
23400	0.924	0.076	0.0046	5.61	4540	1510	1910	9470	15700
27400	0.937	0.063	0.0039	6.56	5300	1770	2230	11100	18300
31400	0.945	0.055	0.0034	7.53	6090	2030	2560	12700	21000
35000	0.951	0.049	0.0031	8.39	6780	2260	2850	14100	23400
39800	0.963	0.037	0.0027	9.55	7720	2570	3250	16100	26700
44900	0.973	0.027	0.0024	10.8	8710	2900	3670	18200	30100
49800	0.982	0.018	0.0022	11.9	9650	3220	4060	20100	33300
55000	0.992	0.008	0.0020	13.2	10700	3550	4490	22300	36900

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

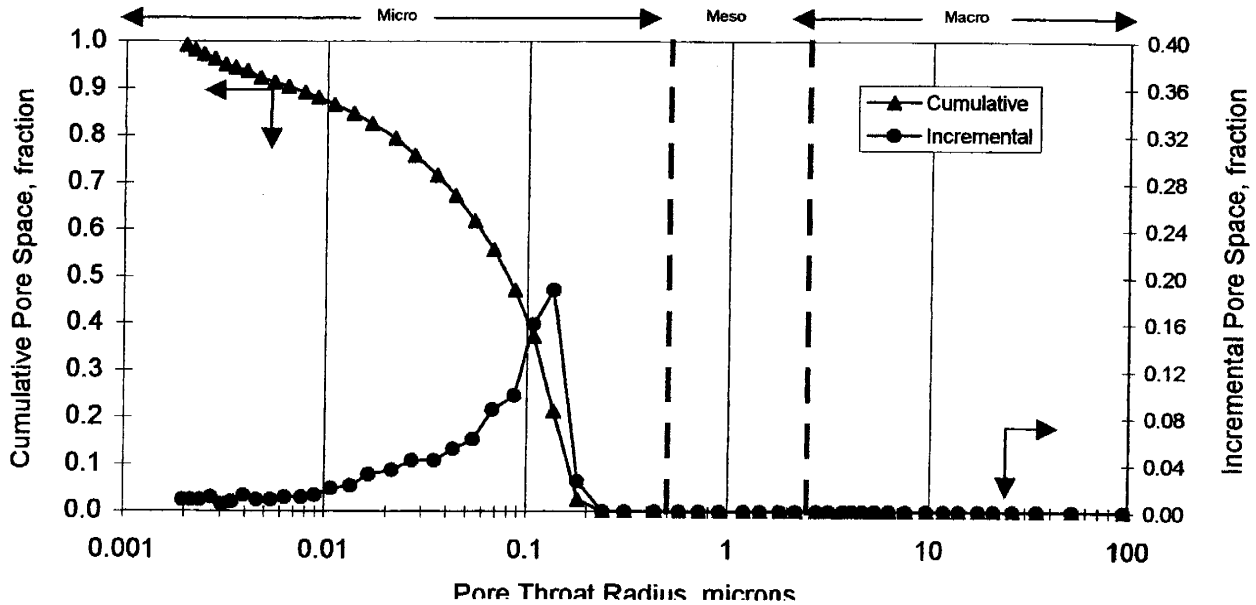
Sample:	**552**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.021	-	-
Permeability to Air, md:		0.055	-	-
Swanson Permeability, md:		0.046	-	-
Porosity, fraction:		0.125	-	-
maximum Sb/Pc, fraction:		0.005		
R50 (median pore throat radius):		0.080		



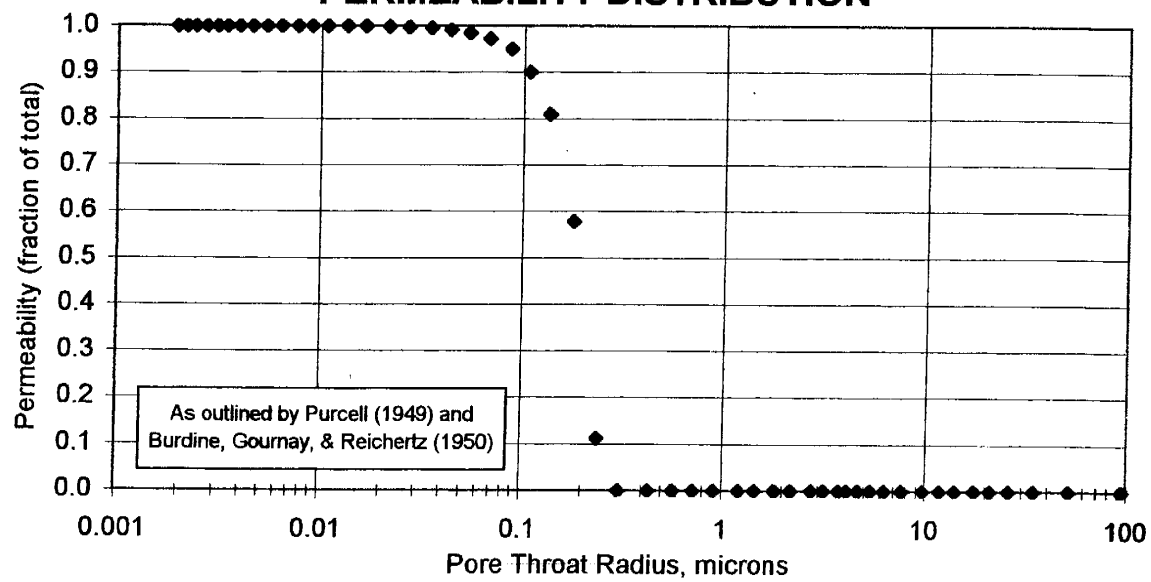
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**552**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.021	-	-
Permeability to Air, md:		0.055	-	-
Swanson Permeability, md:		0.046	-	-
Porosity, fraction:		0.125	-	-
maximum Sb/Pc, fraction:		0.005		
R50 (median pore throat radius):		0.080		

PORE THROAT RADIUS DISTRIBUTION



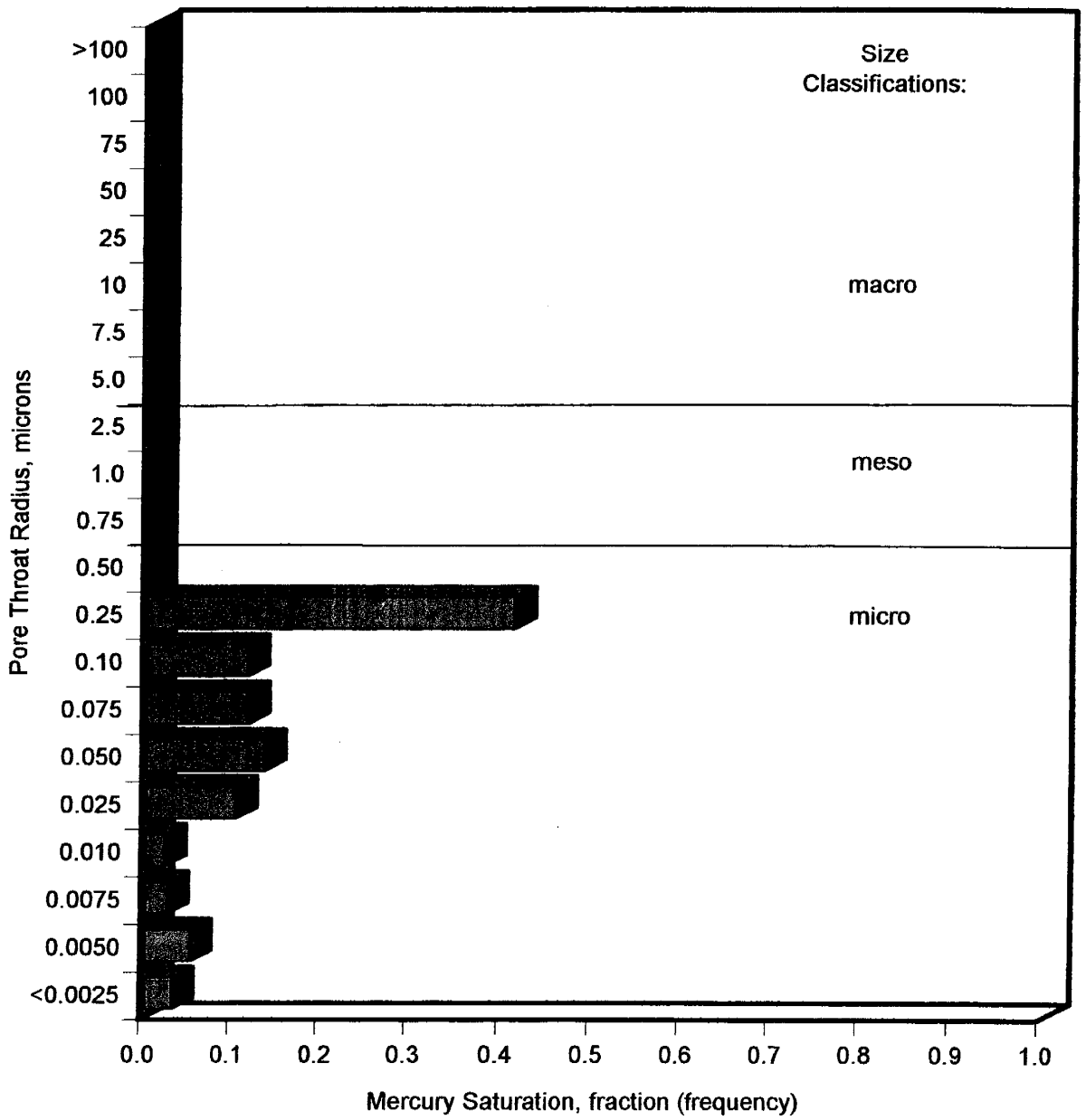
PERMEABILITY DISTRIBUTION



Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**552**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.021	-	-
Permeability to Air, md:		0.055	-	-
Swanson Permeability, md:		0.046	-	-
Porosity, fraction:		0.125	-	-
maximum Sb/Pc, fraction:		0.005		
R50 (median pore throat radius):		0.080		

PORE THROAT SIZE HISTOGRAM



MERCURY INJECTION DATA SUMMARY

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**553**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		<0.001	-	-
Permeability to Air, md:		0.003	-	-
Swanson Permeability, md:		<0.001	-	-
Porosity, fraction:		0.034	-	-
maximum Sb/Pc, fraction:		0.000		
R50 (median pore throat radius):		0.009		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
1.12	0.000	1.000	96.2	0.000062	0.217	0.072	0.091	0.453	0.750
2.14	0.000	1.000	50.3	0.000118	0.415	0.138	0.175	0.865	1.44
3.13	0.000	1.000	34.4	0.000172	0.607	0.202	0.255	1.27	2.09
4.12	0.000	1.000	26.2	0.000227	0.798	0.266	0.336	1.66	2.76
5.10	0.000	1.000	21.1	0.000281	0.988	0.329	0.416	2.06	3.42
6.09	0.000	1.000	17.7	0.000335	1.18	0.393	0.497	2.46	4.08
7.59	0.000	1.000	14.2	0.000417	1.47	0.490	0.619	3.07	5.08
9.09	0.000	1.000	11.9	0.000500	1.76	0.587	0.742	3.67	6.09
11.1	0.000	1.000	9.72	0.000610	2.15	0.716	0.905	4.48	7.43
14.1	0.000	1.000	7.67	0.000773	2.72	0.908	1.15	5.67	9.44
17.1	0.000	1.000	6.32	0.000938	3.30	1.10	1.39	6.88	11.4
20.0	0.000	1.000	5.38	0.00110	3.88	1.29	1.63	8.09	13.4
23.0	0.000	1.000	4.68	0.00127	4.46	1.49	1.88	9.30	15.4
26.0	0.000	1.000	4.14	0.00143	5.04	1.68	2.12	10.5	17.4
30.4	0.000	1.000	3.55	0.00167	5.89	1.96	2.48	12.3	20.4
35.1	0.000	1.000	3.07	0.00193	6.81	2.27	2.87	14.2	23.6
40.3	0.000	1.000	2.68	0.00221	7.80	2.60	3.28	16.3	26.9
50.3	0.000	1.000	2.14	0.00277	9.76	3.25	4.11	20.4	33.7
60.2	0.000	1.000	1.79	0.00331	11.7	3.89	4.91	24.4	40.3
74.6	0.000	1.000	1.44	0.00411	14.5	4.82	6.09	30.2	50.0
90.0	0.000	1.000	1.19	0.00497	17.5	5.83	7.37	36.5	60.5
120	0.000	1.000	0.900	0.00658	23.2	7.73	9.76	48.4	80.1
150	0.000	1.000	0.720	0.00823	29.0	9.66	12.2	60.5	100
190	0.000	1.000	0.567	0.0105	36.9	12.3	15.5	77.0	127
250	0.000	1.000	0.432	0.0137	48.3	16.1	20.3	101	167
350	0.000	1.000	0.307	0.0193	68.0	22.7	28.6	142	235
450	0.000	1.000	0.240	0.0247	87.1	29.0	36.7	182	301
600	0.000	1.000	0.180	0.0329	116	38.6	48.8	242	401
800	0.000	1.000	0.135	0.0439	155	51.5	65.1	323	534
1000	0.000	1.000	0.108	0.0550	194	64.6	81.6	405	670
1200	0.000	1.000	0.0864	0.0686	242	80.6	102	505	837
1600	0.000	1.000	0.0673	0.0880	310	103	131	646	1080

MERCURY INJECTION DATA SUMMARY

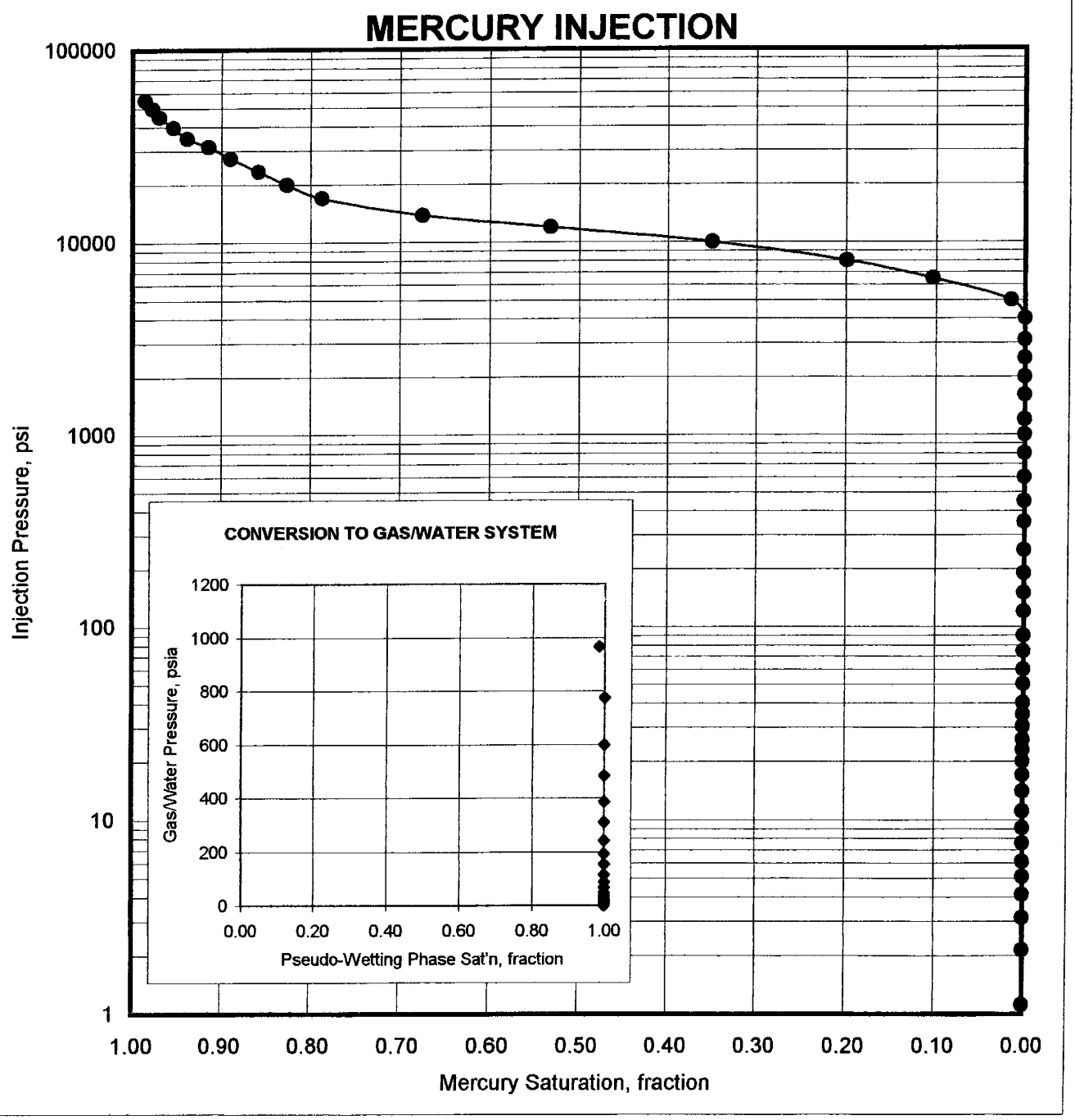
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**553**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		<0.001	-	-
Permeability to Air, md:		0.003	-	-
Swanson Permeability, md:		<0.001	-	-
Porosity, fraction:		0.034	-	-
maximum Sb/Pc, fraction:		0.000		
R50 (median pore throat radius):		0.009		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
2000	0.000	1.000	0.0539	0.110	387	129	163	807	1340
2500	0.000	1.000	0.0432	0.137	484	161	204	1010	1670
3100	0.000	1.000	0.0349	0.170	599	200	252	1250	2070
4000	0.000	1.000	0.0270	0.220	774	258	326	1610	2680
5000	0.016	0.984	0.0216	0.274	965	322	406	2010	3330
6500	0.103	0.897	0.0166	0.356	1260	418	529	2630	4340
8000	0.199	0.801	0.0135	0.438	1540	514	650	3210	5340
10000	0.350	0.650	0.0108	0.548	1930	643	812	4020	6670
12000	0.533	0.467	0.0090	0.658	2320	772	975	4840	8000
13900	0.676	0.324	0.0077	0.767	2700	901	1140	5630	9360
17000	0.787	0.213	0.0063	0.936	3300	1100	1390	6880	11400
20000	0.827	0.173	0.0054	1.10	3870	1290	1630	8070	13400
23400	0.859	0.141	0.0046	1.29	4540	1510	1910	9470	15700
27400	0.890	0.110	0.0039	1.51	5310	1770	2240	11100	18400
31500	0.914	0.086	0.0034	1.73	6110	2040	2570	12700	21100
34900	0.938	0.062	0.0031	1.92	6750	2250	2840	14100	23300
39800	0.954	0.046	0.0027	2.19	7710	2570	3250	16100	26700
45000	0.970	0.030	0.0024	2.47	8720	2910	3670	18200	30100
49800	0.978	0.022	0.0022	2.74	9640	3210	4060	20100	33300
55000	0.986	0.014	0.0020	3.02	10600	3550	4480	22100	36800

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**553**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		<0.001	-	-
Permeability to Air, md:		0.003	-	-
Swanson Permeability, md:		<0.001	-	-
Porosity, fraction:		0.034	-	-
maximum Sb/Pc, fraction:		0.000		
R50 (median pore throat radius):		0.009		

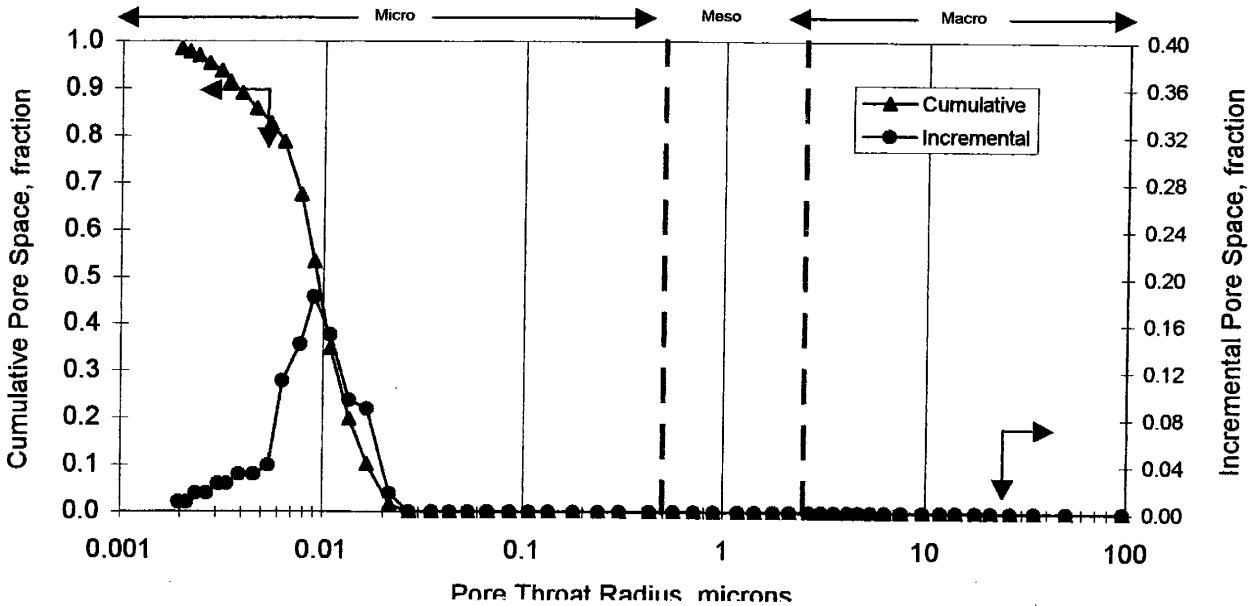


Core Laboratories

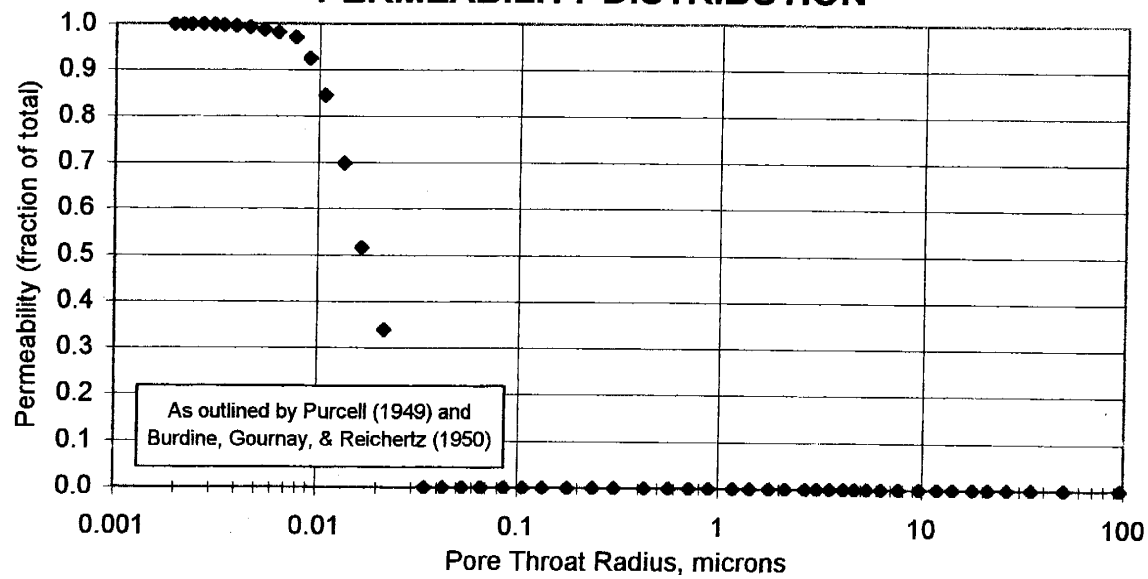
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**553**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		<0.001	-	-
Permeability to Air, md:		0.003	-	-
Swanson Permeability, md:		<0.001	-	-
Porosity, fraction:		0.034	-	-
maximum Sb/Pc, fraction:		0.000		
R50 (median pore throat radius):		0.009		

PORE THROAT RADIUS DISTRIBUTION



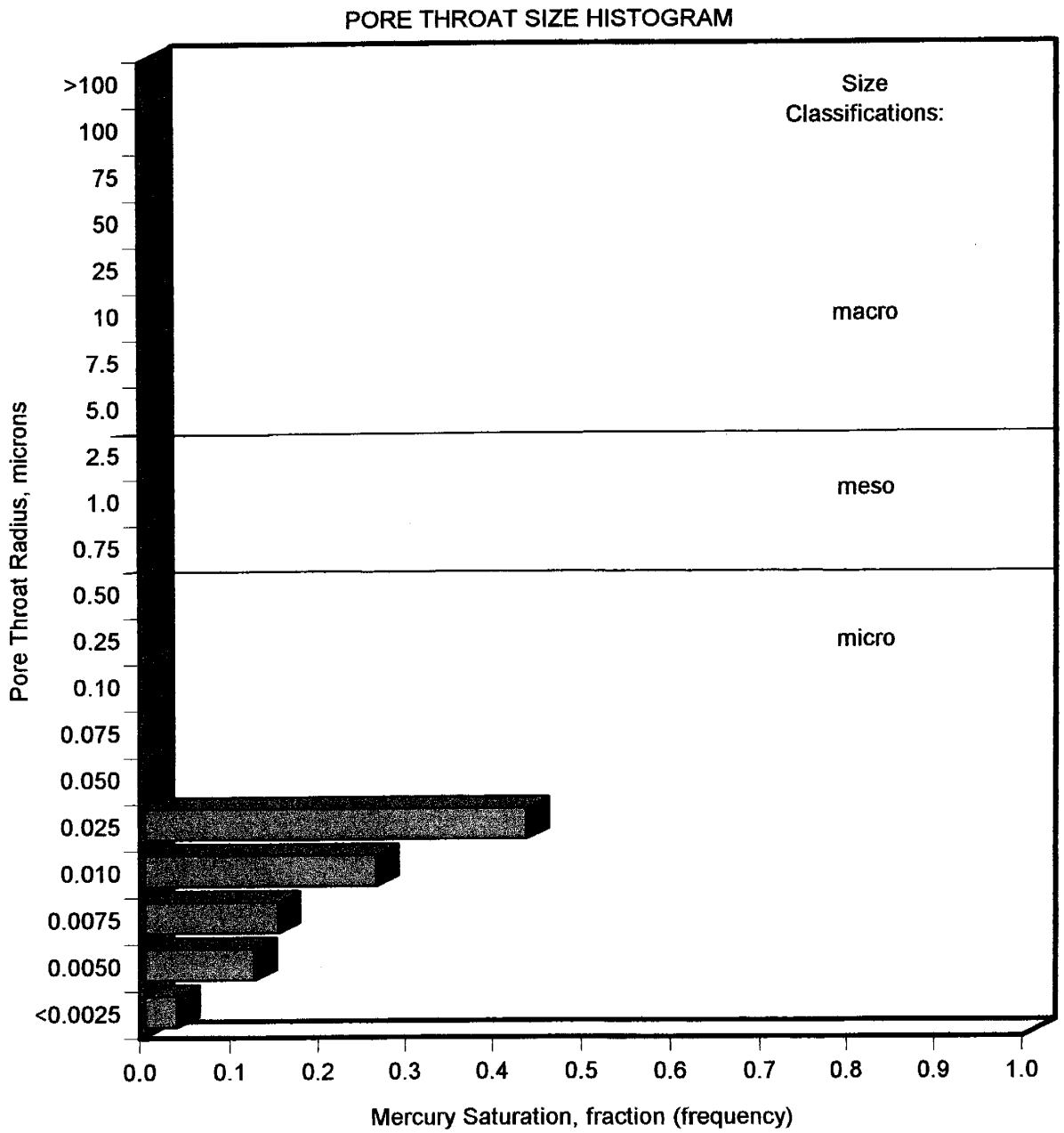
PERMEABILITY DISTRIBUTION



Core Laboratories

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**553**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		<0.001	-	-
Permeability to Air, md:		0.003	-	-
Swanson Permeability, md:		<0.001	-	-
Porosity, fraction:		0.034	-	-
maximum Sb/Pc, fraction:		0.000		
R50 (median pore throat radius):		0.009		



Core Laboratories

MERCURY INJECTION DATA SUMMARY

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**554**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		3.11	-	-
Permeability to Air, md:		3.96	-	-
Swanson Permeability, md:		4.46	-	-
Porosity, fraction:		0.119	-	-
maximum Sb/Pc, fraction:		0.070		
R50 (median pore throat radius):		0.303		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
1.09	0.000	1.000	98.8	0.00325	0.211	0.070	0.089	0.440	0.730
2.03	0.000	1.000	53.1	0.00605	0.393	0.131	0.166	0.820	1.36
3.04	0.000	1.000	35.4	0.00906	0.589	0.196	0.248	1.23	2.04
4.04	0.000	1.000	26.7	0.0120	0.783	0.261	0.330	1.63	2.71
5.03	0.000	1.000	21.4	0.0150	0.975	0.325	0.410	2.03	3.37
6.02	0.000	1.000	17.9	0.0179	1.17	0.389	0.491	2.44	4.03
7.52	0.000	1.000	14.3	0.0224	1.46	0.486	0.614	3.04	5.04
9.01	0.000	1.000	12.0	0.0268	1.75	0.582	0.735	3.65	6.03
11.0	0.000	1.000	9.79	0.0328	2.13	0.711	0.898	4.44	7.37
14.0	0.000	1.000	7.70	0.0417	2.71	0.904	1.14	5.65	9.36
17.0	0.000	1.000	6.35	0.0506	3.29	1.10	1.39	6.86	11.4
20.0	0.000	1.000	5.40	0.0595	3.87	1.29	1.63	8.07	13.4
23.0	0.060	0.940	4.69	0.0685	4.45	1.48	1.87	9.28	15.4
26.0	0.101	0.899	4.15	0.0774	5.03	1.68	2.12	10.5	17.4
30.0	0.146	0.854	3.59	0.0895	5.82	1.94	2.45	12.1	20.1
35.2	0.199	0.801	3.06	0.105	6.82	2.27	2.87	14.2	23.6
39.7	0.233	0.767	2.71	0.118	7.70	2.57	3.24	16.1	26.6
50.2	0.293	0.707	2.15	0.149	9.72	3.24	4.09	20.3	33.6
59.7	0.328	0.672	1.81	0.178	11.6	3.85	4.87	24.2	40.0
74.6	0.363	0.637	1.44	0.222	14.5	4.82	6.09	30.2	50.0
90.0	0.381	0.619	1.20	0.267	17.4	5.80	7.32	36.3	60.1
120	0.409	0.591	0.903	0.356	23.1	7.71	9.74	48.2	80.0
150	0.425	0.575	0.724	0.443	28.8	9.61	12.1	60.1	99.3
190	0.443	0.557	0.570	0.564	36.7	12.2	15.4	76.5	126
250	0.466	0.534	0.434	0.741	48.2	16.1	20.3	101	167
350	0.498	0.502	0.309	1.040	67.6	22.5	28.4	141	233
450	0.526	0.474	0.241	1.33	86.7	28.9	36.5	181	300
600	0.576	0.424	0.181	1.78	116	38.5	48.7	242	400
800	0.634	0.366	0.135	2.38	155	51.6	65.2	323	535
1000	0.687	0.313	0.108	2.97	193	64.4	81.3	402	667
1200	0.735	0.265	0.0866	3.710	241	80.3	101	503	829
1600	0.774	0.226	0.0676	4.750	309	103	130	644	1070

MERCURY INJECTION DATA SUMMARY

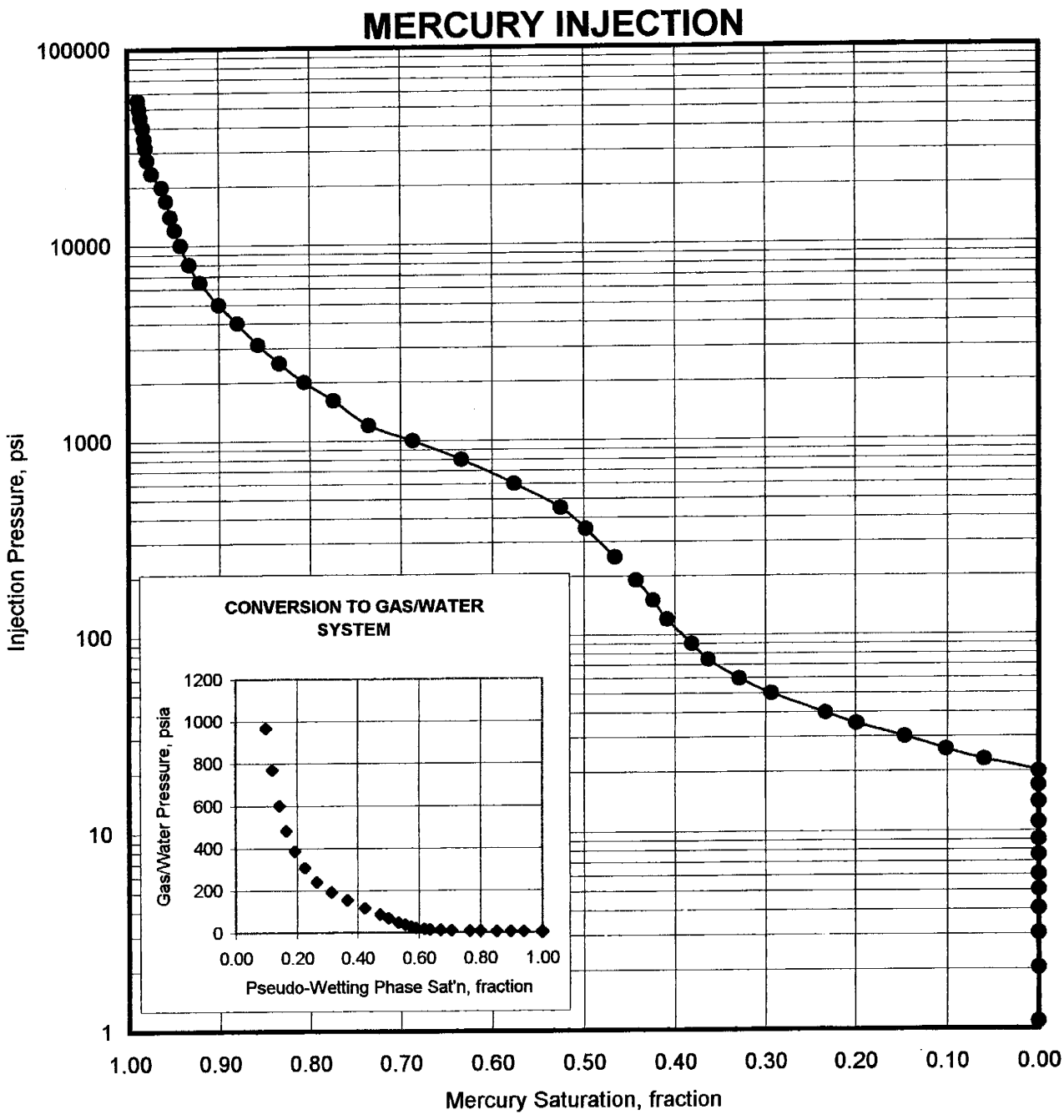
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**554**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		3.11	-	-
Permeability to Air, md:		3.96	-	-
Swanson Permeability, md:		4.46	-	-
Porosity, fraction:		0.119	-	-
maximum Sb/Pc, fraction:		0.070		
R50 (median pore throat radius):		0.303		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
2000	0.806	0.194	0.0541	5.93	386	129	162	805	1330
2500	0.834	0.166	0.0432	7.43	483	161	203	1010	1670
3100	0.857	0.143	0.0347	9.24	601	200	253	1250	2080
4000	0.880	0.120	0.0271	11.9	771	257	325	1610	2670
5000	0.900	0.100	0.0216	14.9	967	322	407	2020	3340
6500	0.921	0.079	0.0166	19.3	1260	418	528	2630	4330
8000	0.932	0.068	0.0135	23.8	1540	515	650	3210	5340
10000	0.942	0.058	0.0108	29.7	1930	644	813	4020	6670
12000	0.948	0.052	0.0090	35.7	2320	773	977	4840	8020
14000	0.953	0.047	0.0077	41.6	2710	902	1140	5650	9360
16900	0.958	0.042	0.0064	50.5	3280	1090	1380	6840	11300
19900	0.962	0.038	0.0054	59.3	3860	1290	1620	8050	13300
23400	0.974	0.026	0.0046	69.7	4530	1510	1910	9450	15700
27400	0.978	0.022	0.0039	81.6	5310	1770	2230	11100	18300
31500	0.980	0.020	0.0034	93.9	6110	2040	2570	12700	21100
35000	0.981	0.019	0.0031	104	6780	2260	2860	14100	23500
39900	0.983	0.017	0.0027	119	7730	2580	3260	16100	26800
44800	0.985	0.015	0.0024	134	8680	2890	3660	18100	30000
49800	0.987	0.013	0.0022	148	9650	3220	4060	20100	33300
55000	0.988	0.012	0.0020	164	10700	3550	4490	22300	36900

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**554**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		3.11	-	-
Permeability to Air, md:		3.96	-	-
Swanson Permeability, md:		4.46	-	-
Porosity, fraction:		0.119	-	-
maximum Sb/Pc, fraction:		0.070		
R50 (median pore throat radius):		0.303		

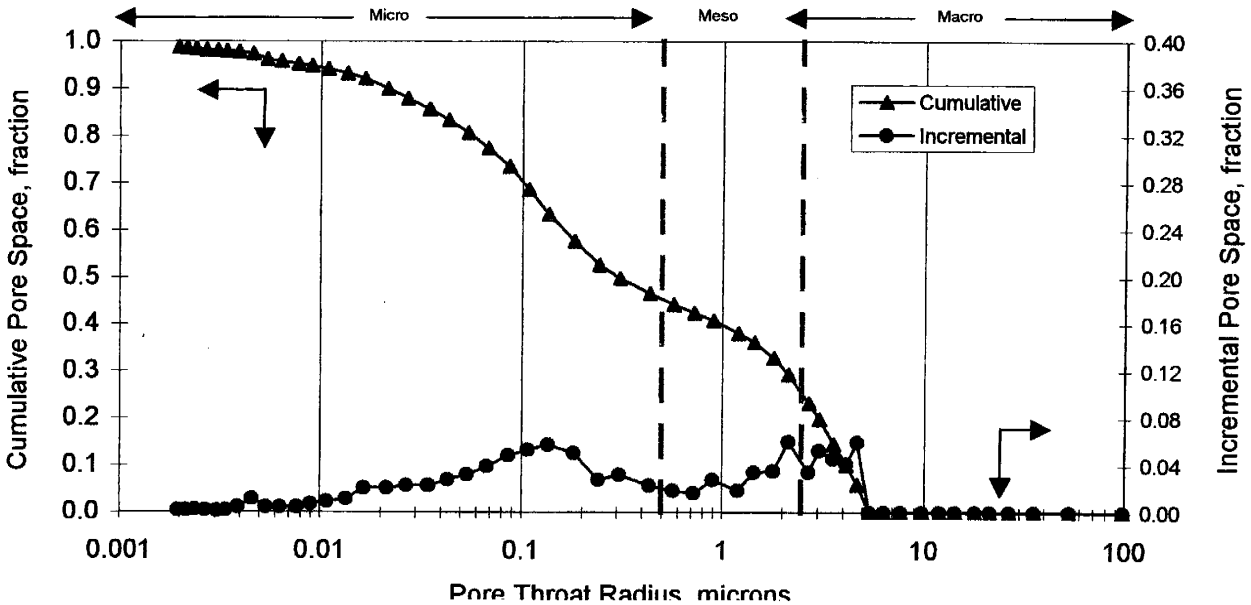


Core Laboratories

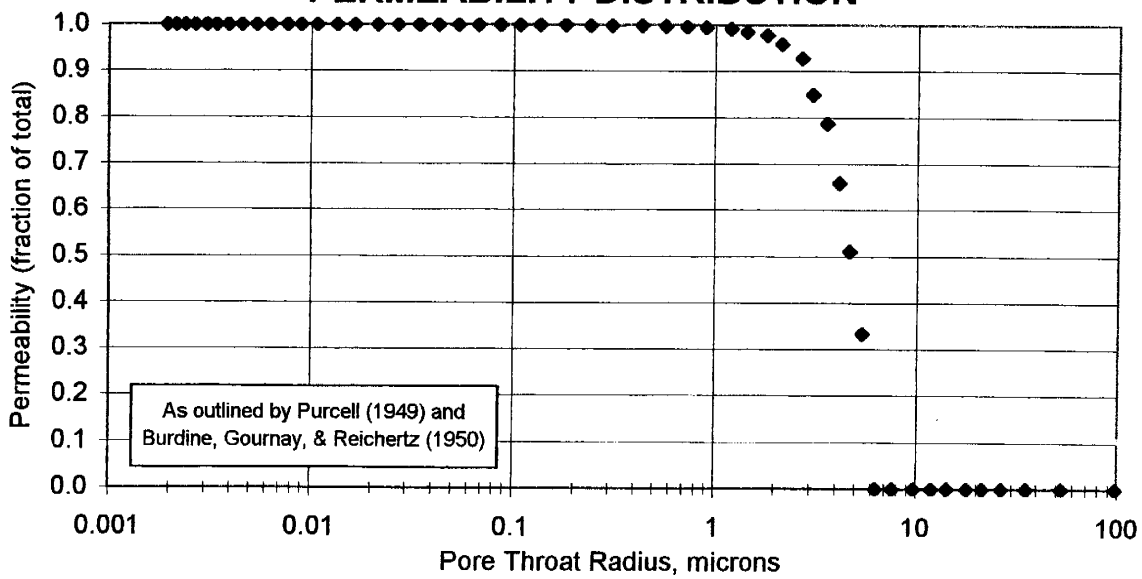
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**554**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		3.11	-	-
Permeability to Air, md:		3.96	-	-
Swanson Permeability, md:		4.46	-	-
Porosity, fraction:		0.119	-	-
maximum Sb/Pc, fraction:		0.070		
R50 (median pore throat radius):		0.303		

PORE THROAT RADIUS DISTRIBUTION



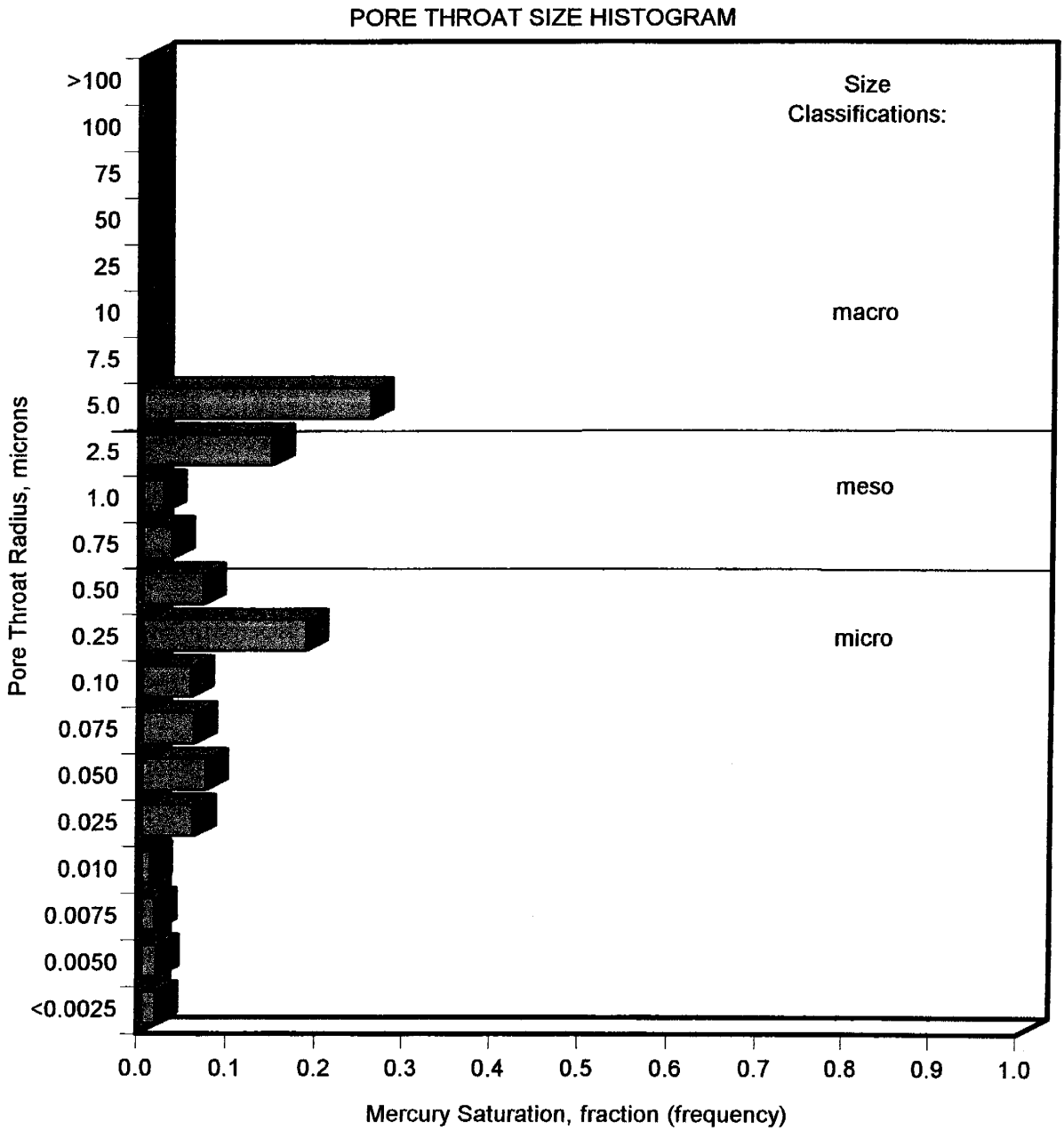
PERMEABILITY DISTRIBUTION



Core Laboratories

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**554**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		3.11	-	-
Permeability to Air, md:		3.96	-	-
Swanson Permeability, md:		4.46	-	-
Porosity, fraction:		0.119	-	-
maximum Sb/Pc, fraction:		0.070		
R50 (median pore throat radius):		0.303		



Core Laboratories

MERCURY INJECTION DATA SUMMARY

Company:	Conestoga Rovers & Assoc.
Well:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**555m**		Host Plug	
Depth, feet:	n/a	ambient	1200psi	n/a
Klinkenberg Permeability, md:		0.082	-	-
Permeability to Air, md:		0.156	-	-
Swanson Permeability, md:		0.068	-	-
Porosity, fraction:		0.076	-	-
maximum Sb/Pc, fraction:		0.006		
R50 (median pore throat radius):		0.114		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
1.20	0.000	1.000	89.8	0.000661	0.233	0.078	0.098	0.486	0.804
2.12	0.000	1.000	50.8	0.00117	0.411	0.137	0.173	0.857	1.42
3.04	0.000	1.000	35.4	0.00167	0.589	0.196	0.248	1.23	2.04
4.03	0.000	1.000	26.7	0.00222	0.781	0.260	0.329	1.63	2.70
5.03	0.000	1.000	21.4	0.00277	0.975	0.325	0.410	2.03	3.37
6.03	0.000	1.000	17.9	0.00332	1.17	0.390	0.492	2.44	4.04
7.52	0.000	1.000	14.3	0.00414	1.46	0.486	0.614	3.04	5.04
9.02	0.000	1.000	11.9	0.00497	1.75	0.583	0.736	3.65	6.04
11.0	0.000	1.000	9.78	0.00607	2.14	0.712	0.899	4.46	7.38
14.0	0.000	1.000	7.70	0.00771	2.71	0.904	1.14	5.65	9.36
17.0	0.000	1.000	6.34	0.00936	3.29	1.10	1.39	6.86	11.4
20.0	0.000	1.000	5.39	0.0110	3.87	1.29	1.63	8.07	13.4
23.0	0.000	1.000	4.69	0.0127	4.45	1.48	1.87	9.28	15.4
26.0	0.000	1.000	4.15	0.0143	5.03	1.68	2.12	10.5	17.4
30.4	0.000	1.000	3.54	0.0167	5.89	1.96	2.48	12.3	20.4
35.4	0.000	1.000	3.04	0.0195	6.86	2.29	2.89	14.3	23.7
40.5	0.000	1.000	2.66	0.0223	7.85	2.62	3.31	16.4	27.2
50.1	0.000	1.000	2.15	0.0276	9.70	3.23	4.08	20.2	33.5
60.2	0.000	1.000	1.79	0.0331	11.7	3.89	4.91	24.4	40.3
75.4	0.000	1.000	1.43	0.0415	14.6	4.87	6.15	30.4	50.5
90.0	0.000	1.000	1.19	0.0497	17.5	5.83	7.36	36.5	60.4
120	0.032	0.968	0.898	0.0661	23.3	7.75	9.79	48.6	80.4
150	0.064	0.936	0.719	0.0825	29.0	9.68	12.2	60.5	100
190	0.103	0.897	0.570	0.104	36.7	12.2	15.4	76.5	126
250	0.181	0.819	0.432	0.137	48.4	16.1	20.4	101	167
350	0.270	0.730	0.309	0.192	67.6	22.5	28.5	141	234
450	0.327	0.673	0.240	0.247	87.1	29.0	36.7	182	301
600	0.383	0.617	0.180	0.330	116	38.7	48.9	242	401
800	0.451	0.549	0.135	0.440	155	51.6	65.2	323	535
1000	0.515	0.485	0.108	0.549	193	64.4	81.4	402	668
1200	0.579	0.421	0.0863	0.687	242	80.6	102	505	837
1600	0.643	0.357	0.0677	0.877	309	103	130	644	1070

MERCURY INJECTION DATA SUMMARY

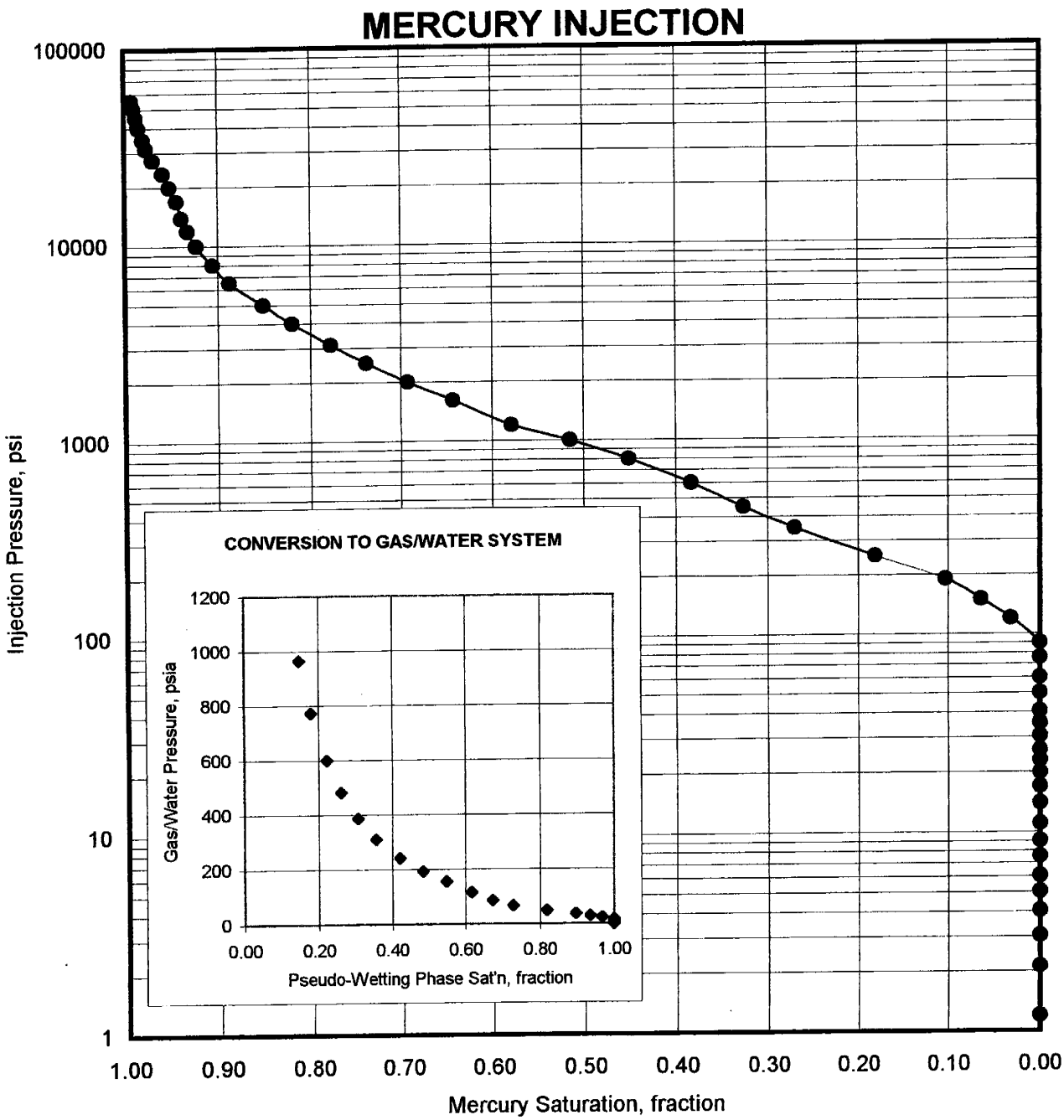
Company:	Conestoga Rovers & Assoc.
Well:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**555m**		Host Plug	
Depth, feet:	n/a	ambient	1200psi	n/a
Klinkenberg Permeability, md:		0.082	-	-
Permeability to Air, md:		0.156	-	-
Swanson Permeability, md:		0.068	-	-
Porosity, fraction:		0.076	-	-
maximum Sb/Pc, fraction:		0.006		
R50 (median pore throat radius):		0.114		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
2000	0.692	0.308	0.0541	1.10	386	129	163	805	1340
2500	0.738	0.262	0.0433	1.37	482	161	203	1010	1670
3100	0.778	0.222	0.0348	1.70	600	200	252	1250	2070
4000	0.820	0.180	0.0270	2.20	772	257	325	1610	2670
5000	0.852	0.148	0.0216	2.74	965	322	406	2010	3330
6500	0.888	0.112	0.0166	3.57	1260	419	529	2630	4340
8000	0.905	0.095	0.0135	4.39	1540	515	650	3210	5340
10000	0.923	0.077	0.0108	5.49	1930	644	813	4020	6670
11900	0.932	0.068	0.0090	6.58	2310	772	974	4820	8000
13900	0.939	0.061	0.0077	7.68	2700	901	1140	5630	9360
16900	0.944	0.056	0.0064	9.33	3280	1090	1380	6840	11300
19900	0.952	0.048	0.0054	11.0	3860	1290	1630	8050	13400
23400	0.959	0.041	0.0046	12.9	4530	1510	1910	9450	15700
27400	0.969	0.031	0.0039	15.1	5310	1770	2230	11100	18300
31400	0.976	0.024	0.0034	17.3	6090	2030	2560	12700	21000
34900	0.980	0.020	0.0031	19.2	6770	2260	2850	14100	23400
40000	0.985	0.015	0.0027	22.0	7740	2580	3260	16100	26800
45000	0.987	0.013	0.0024	24.8	8720	2910	3670	18200	30100
50100	0.989	0.011	0.0022	27.6	9700	3230	4080	20200	33500
55000	0.992	0.008	0.0020	30.3	10700	3550	4480	22300	36800

Company:	Conestoga Rovers & Assoc.
Well:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

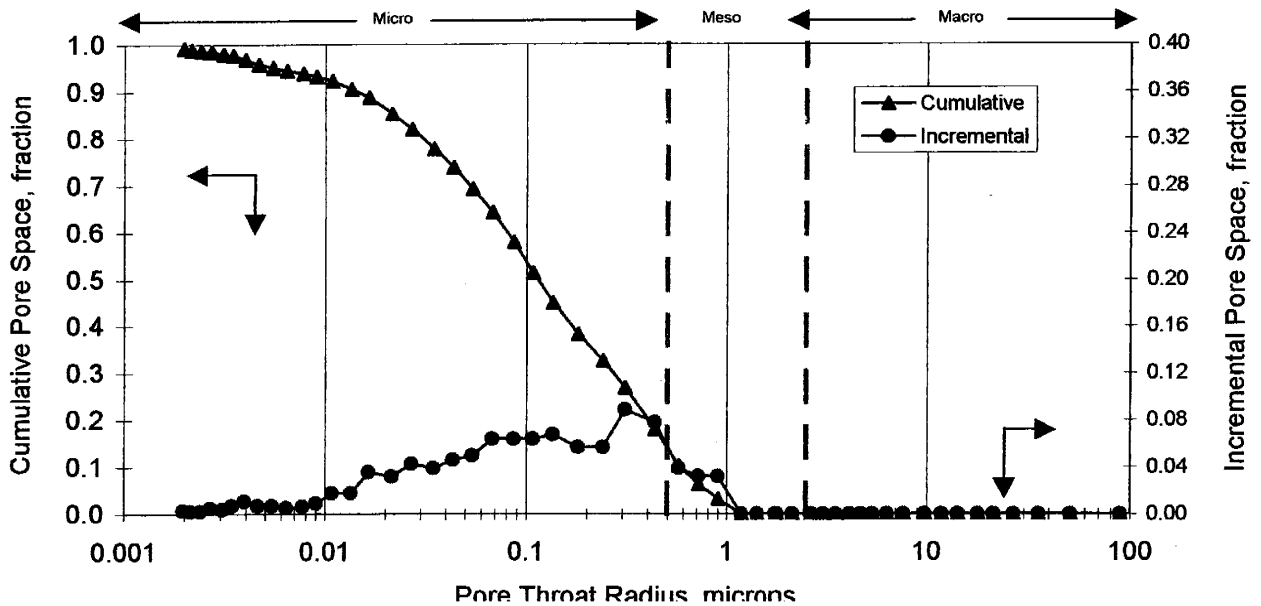
Sample:	**555m**		Host Plug	
Depth, feet:	n/a	ambient	1200psi	n/a
Klinkenberg Permeability, md:		0.082	-	-
Permeability to Air, md:		0.156	-	-
Swanson Permeability, md:		0.068	-	-
Porosity, fraction:		0.076	-	-
maximum Sb/Pc, fraction:		0.006		
R50 (median pore throat radius):		0.114		



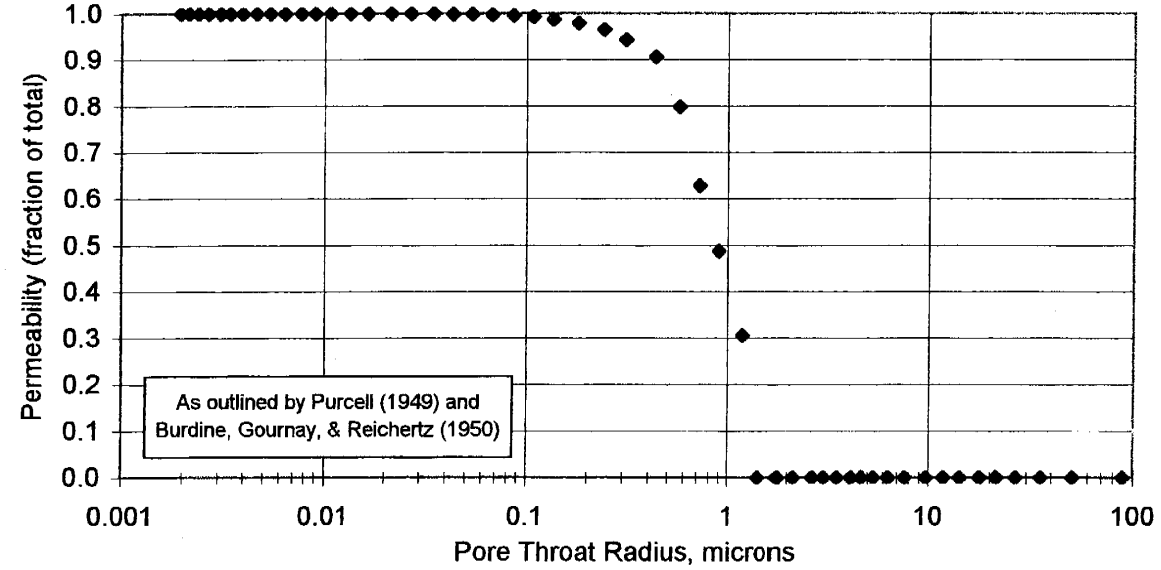
Company:	Conestoga Rovers & Assoc.
Well:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**555m**		Host Plug	
Depth, feet:	n/a	ambient	1200psi	n/a
Klinkenberg Permeability, md:		0.082	-	-
Permeability to Air, md:		0.156	-	-
Swanson Permeability, md:		0.068	-	-
Porosity, fraction:		0.076	-	-
maximum Sb/Pc, fraction:		0.006		
R50 (median pore throat radius):		0.114		

PORE THROAT RADIUS DISTRIBUTION

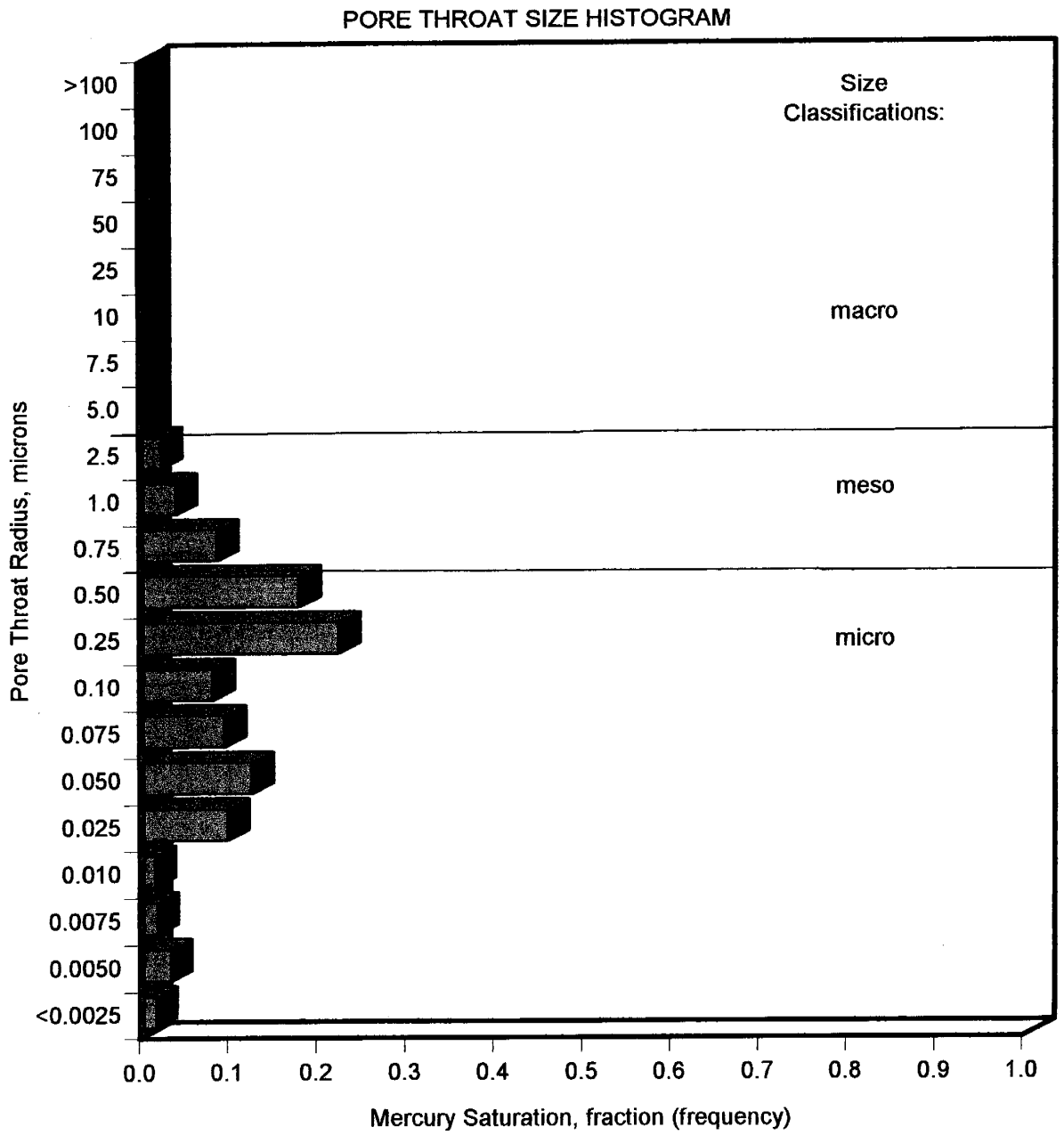


PERMEABILITY DISTRIBUTION



Company:	Conestoga Rovers & Assoc.
Well:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**555m**		Host Plug	
Depth, feet:	n/a	ambient	1200psi	n/a
Klinkenberg Permeability, md:		0.082	-	-
Permeability to Air, md:		0.156	-	-
Swanson Permeability, md:		0.068	-	-
Porosity, fraction:		0.076	-	-
maximum Sb/Pc, fraction:		0.006		
R50 (median pore throat radius):		0.114		



Core Laboratories

MERCURY INJECTION DATA SUMMARY

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**556**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.071	-	-
Permeability to Air, md:		0.145	-	-
Swanson Permeability, md:		0.152	-	-
Porosity, fraction:		0.073	-	-
maximum Sb/Pc, fraction:		0.009		
R50 (median pore throat radius):		0.129		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
1.13	0.000	1.000	95.3	0.000652	0.219	0.073	0.092	0.457	0.757
2.04	0.000	1.000	52.8	0.001180	0.395	0.132	0.166	0.824	1.36
3.04	0.000	1.000	35.4	0.00175	0.589	0.196	0.248	1.23	2.04
4.03	0.000	1.000	26.7	0.00232	0.781	0.260	0.329	1.63	2.70
5.02	0.000	1.000	21.5	0.00290	0.973	0.324	0.410	2.03	3.37
6.02	0.000	1.000	17.9	0.00347	1.17	0.389	0.491	2.44	4.03
7.52	0.000	1.000	14.3	0.00434	1.46	0.486	0.614	3.04	5.04
9.01	0.000	1.000	12.0	0.00520	1.75	0.582	0.735	3.65	6.03
11.0	0.000	1.000	9.79	0.00634	2.13	0.711	0.897	4.44	7.36
14.0	0.000	1.000	7.70	0.00807	2.71	0.904	1.14	5.65	9.36
17.0	0.000	1.000	6.35	0.00979	3.29	1.10	1.39	6.86	11.4
20.0	0.000	1.000	5.39	0.0115	3.87	1.29	1.63	8.07	13.4
23.0	0.000	1.000	4.69	0.0132	4.45	1.48	1.87	9.28	15.4
26.0	0.000	1.000	4.15	0.0150	5.03	1.68	2.12	10.5	17.4
30.7	0.000	1.000	3.51	0.0177	5.95	1.98	2.50	12.4	20.5
35.7	0.000	1.000	3.02	0.0206	6.91	2.30	2.91	14.4	23.9
40.3	0.000	1.000	2.67	0.0232	7.81	2.60	3.29	16.3	27.0
50.5	0.000	1.000	2.13	0.0291	9.79	3.26	4.12	20.4	33.8
60.2	0.000	1.000	1.79	0.0347	11.7	3.89	4.91	24.4	40.3
75.1	0.000	1.000	1.43	0.0433	14.6	4.85	6.13	30.4	50.3
90.0	0.000	1.000	1.20	0.0520	17.5	5.82	7.35	36.5	60.3
120	0.037	0.963	0.902	0.0689	23.2	7.72	9.75	48.4	80.0
150	0.173	0.827	0.719	0.0865	29.1	9.69	12.2	60.7	100
190	0.247	0.753	0.568	0.109	36.8	12.3	15.5	76.7	127
250	0.314	0.686	0.432	0.144	48.3	16.1	20.3	101	167
350	0.377	0.623	0.308	0.202	67.8	22.6	28.5	141	234
450	0.413	0.587	0.240	0.259	87.0	29.0	36.6	181	300
600	0.454	0.546	0.180	0.345	116	38.6	48.8	242	401
800	0.495	0.505	0.135	0.461	155	51.6	65.2	323	535
1000	0.521	0.479	0.108	0.575	193	64.4	81.4	402	668
1200	0.557	0.443	0.0864	0.720	242	80.6	102	505	837
1600	0.598	0.402	0.0673	0.923	310	103	131	646	1080

MERCURY INJECTION DATA SUMMARY

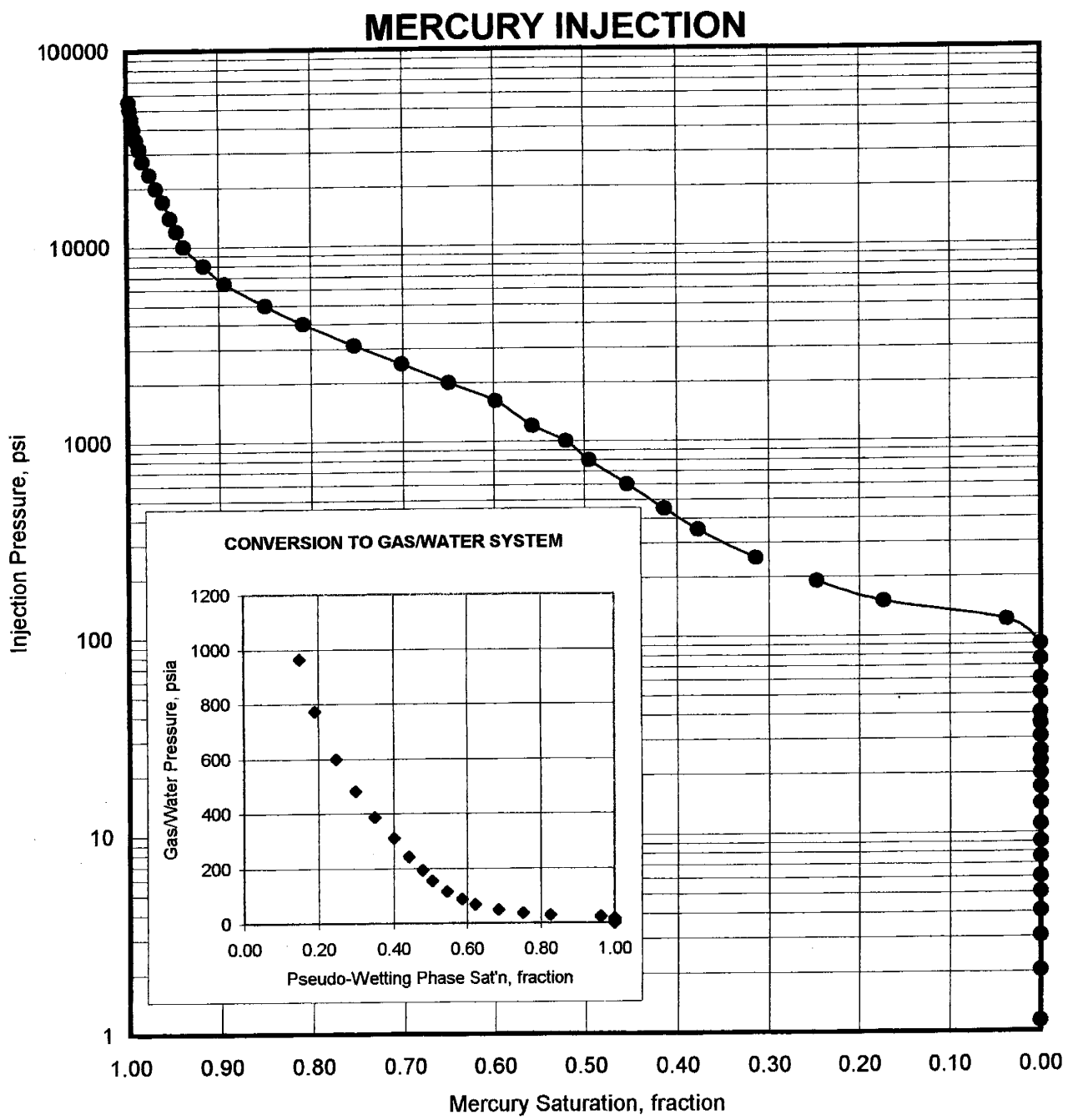
Company: Conestoga Rovers & Assoc.
Project: GM-Bedford
Field: n/a
Formation: n/a
Location: n/a
File: HOU-021274

Sample:	556		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.071	-	-
Permeability to Air, md:		0.145	-	-
Swanson Permeability, md:		0.152	-	-
Porosity, fraction:		0.073	-	-
maximum Sb/Pc, fraction:		0.009		
R50 (median pore throat radius):		0.129		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
2000	0.650	0.350	0.0539	1.15	387	129	163	807	1340
2500	0.702	0.298	0.0433	1.43	482	161	203	1010	1670
3100	0.753	0.247	0.0348	1.78	599	200	252	1250	2070
4000	0.809	0.191	0.0270	2.30	773	258	326	1610	2680
5000	0.849	0.151	0.0217	2.87	964	321	406	2010	3330
6500	0.894	0.106	0.0166	3.73	1250	418	528	2610	4330
8000	0.916	0.084	0.0135	4.59	1540	515	650	3210	5340
10000	0.938	0.062	0.0108	5.75	1930	644	814	4020	6680
12000	0.945	0.055	0.0090	6.90	2320	773	976	4840	8010
14000	0.953	0.047	0.0077	8.05	2700	901	1140	5630	9360
17000	0.960	0.040	0.0064	9.79	3290	1100	1380	6860	11300
19900	0.967	0.033	0.0054	11.5	3860	1290	1620	8050	13300
23400	0.975	0.025	0.0046	13.5	4540	1510	1910	9470	15700
27400	0.982	0.018	0.0039	15.8	5310	1770	2230	11100	18300
31500	0.986	0.014	0.0034	18.1	6100	2030	2570	12700	21100
35000	0.990	0.010	0.0031	20.2	6780	2260	2850	14100	23400
39900	0.992	0.008	0.0027	23.0	7730	2580	3250	16100	26700
45000	0.994	0.006	0.0024	26.0	8720	2910	3670	18200	30100
50100	0.996	0.004	0.0022	28.9	9700	3230	4080	20200	33500
54900	0.997	0.003	0.0020	31.7	10600	3550	4480	22100	36800

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

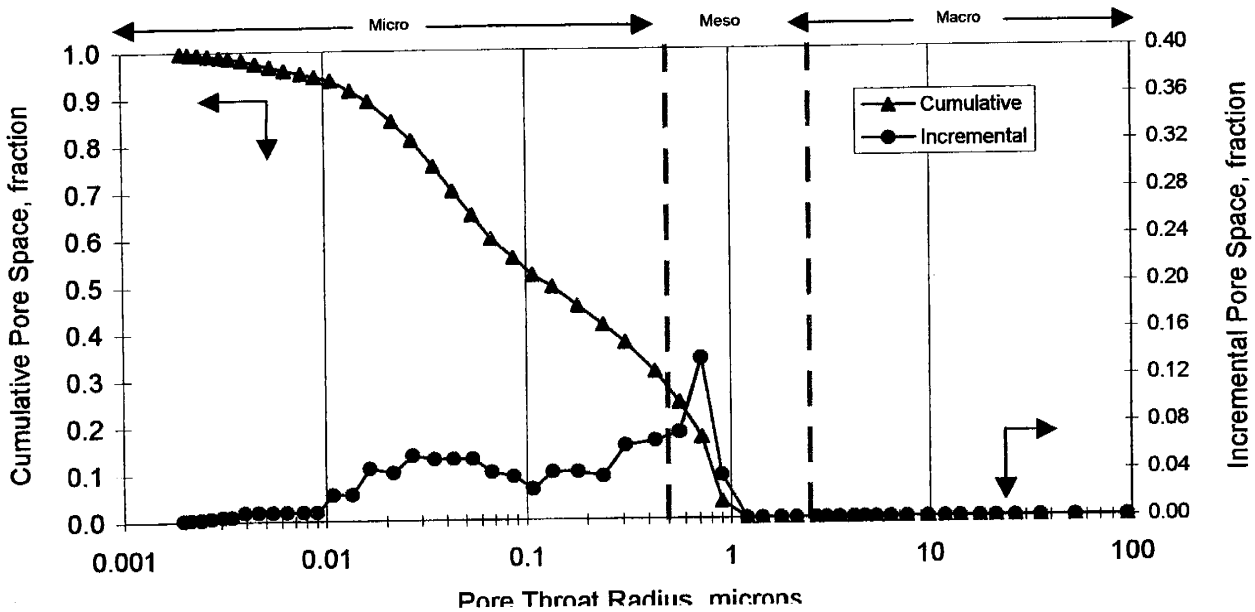
Sample:	**556**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.071	-	-
Permeability to Air, md:		0.145	-	-
Swanson Permeability, md:		0.152	-	-
Porosity, fraction:		0.073	-	-
maximum Sb/Pc, fraction:		0.009		
R50 (median pore throat radius):		0.129		



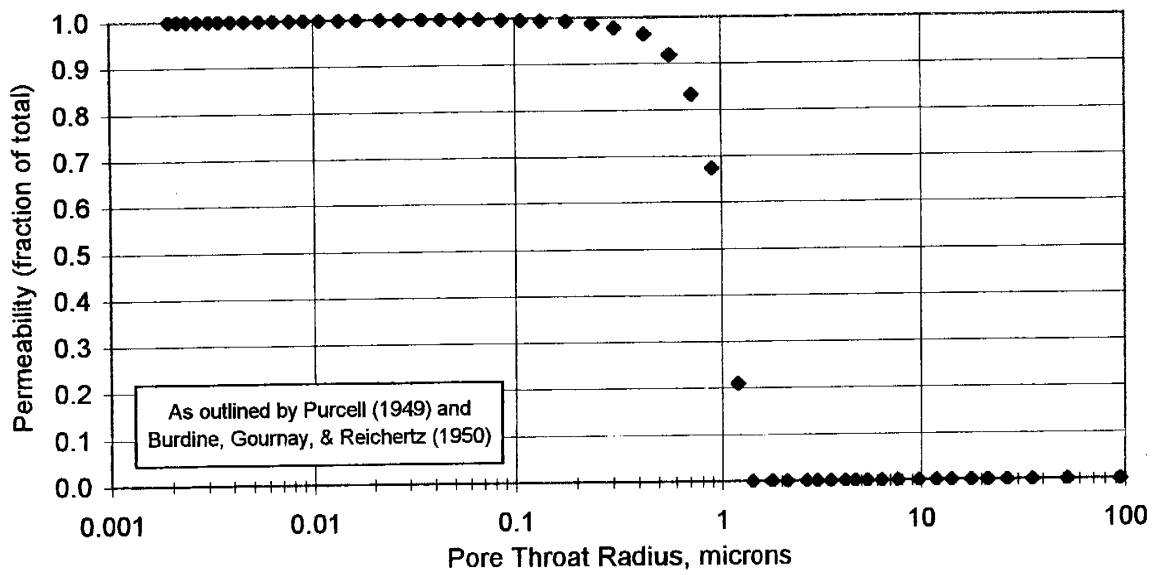
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**556**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.071	-	-
Permeability to Air, md:		0.145	-	-
Swanson Permeability, md:		0.152	-	-
Porosity, fraction:		0.073	-	-
maximum Sb/Pc, fraction:		0.009		
R50 (median pore throat radius):		0.129		

PORE THROAT RADIUS DISTRIBUTION

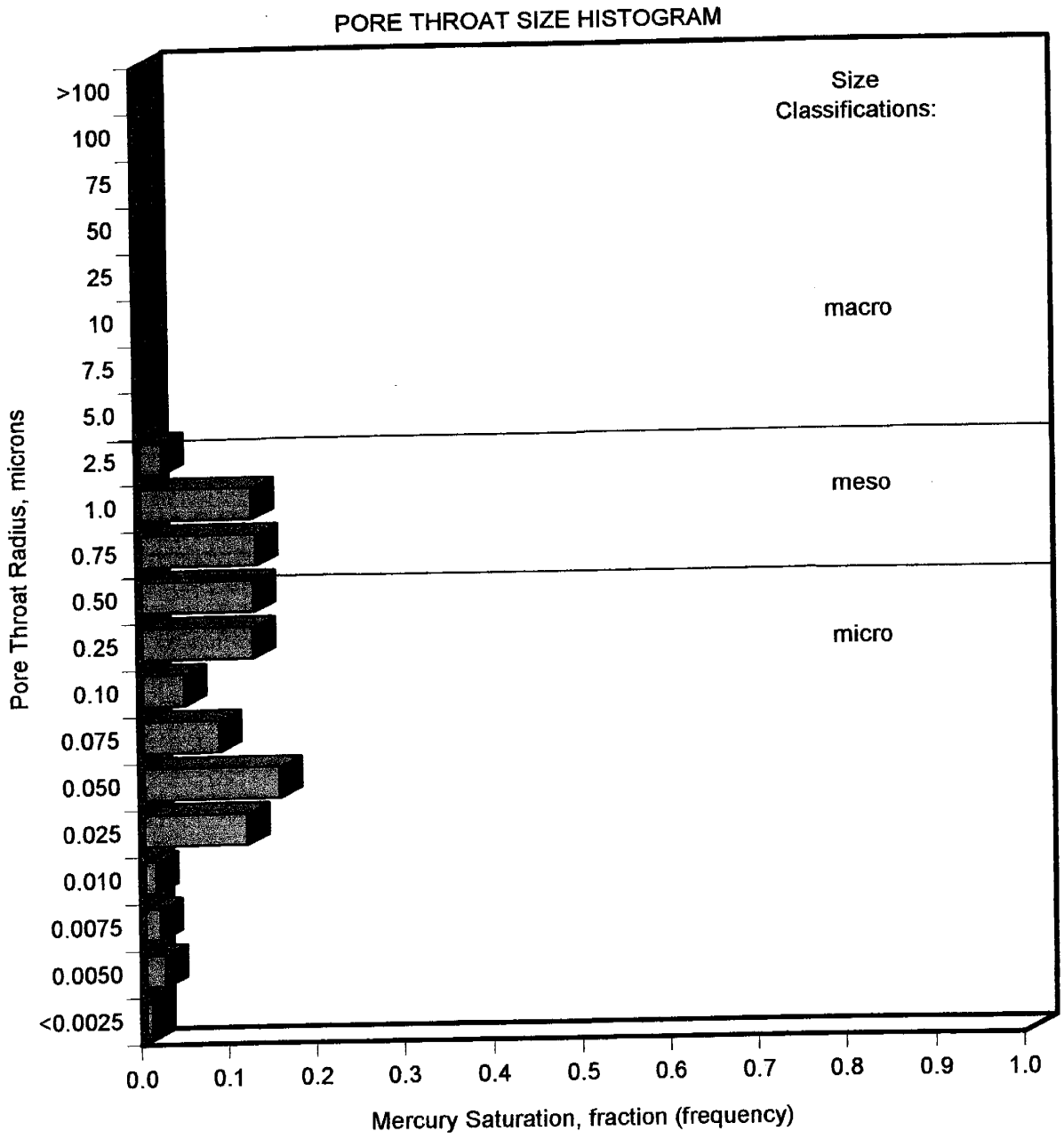


PERMEABILITY DISTRIBUTION



Company: Conestoga Rovers & Assoc.
Project: GM-Bedford
Field: n/a
Formation: n/a
Location: n/a
File: HOU-021274

Sample:	556		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.071	-	-
Permeability to Air, md:		0.145	-	-
Swanson Permeability, md:		0.152	-	-
Porosity, fraction:		0.073	-	-
maximum Sb/Pc, fraction:		0.009		
R50 (median pore throat radius):		0.129		



MERCURY INJECTION DATA SUMMARY

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**557**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.214	-	-
Permeability to Air, md:		0.363	-	-
Swanson Permeability, md:		0.271	-	-
Porosity, fraction:		0.082	-	-
maximum Sb/Pc, fraction:		0.013		
R50 (median pore throat radius):		0.177		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
1.10	0.000	1.000	97.9	0.00104	0.213	0.071	0.090	0.444	0.736
2.05	0.000	1.000	52.6	0.00194	0.397	0.132	0.167	0.828	1.37
3.05	0.000	1.000	35.3	0.00288	0.591	0.197	0.249	1.23	2.04
4.03	0.000	1.000	26.7	0.00380	0.781	0.260	0.329	1.63	2.70
5.04	0.000	1.000	21.4	0.00476	0.977	0.326	0.411	2.04	3.37
6.04	0.000	1.000	17.8	0.00570	1.17	0.390	0.493	2.44	4.05
7.52	0.000	1.000	14.3	0.00710	1.46	0.486	0.614	3.04	5.04
9.02	0.000	1.000	11.9	0.00852	1.75	0.583	0.736	3.65	6.04
11.0	0.000	1.000	9.79	0.0104	2.13	0.711	0.898	4.44	7.37
14.0	0.000	1.000	7.70	0.0132	2.71	0.904	1.14	5.65	9.36
17.0	0.000	1.000	6.34	0.0160	3.29	1.10	1.39	6.86	11.4
20.0	0.000	1.000	5.39	0.0189	3.87	1.29	1.63	8.07	13.4
23.0	0.000	1.000	4.69	0.0217	4.45	1.48	1.87	9.28	15.4
26.0	0.000	1.000	4.15	0.0245	5.03	1.68	2.12	10.5	17.4
30.5	0.000	1.000	3.53	0.0288	5.91	1.97	2.49	12.3	20.4
35.5	0.000	1.000	3.04	0.0335	6.88	2.29	2.90	14.3	23.8
40.5	0.000	1.000	2.66	0.0383	7.85	2.62	3.31	16.4	27.2
50.1	0.000	1.000	2.15	0.0473	9.71	3.24	4.09	20.2	33.6
60.1	0.000	1.000	1.79	0.0567	11.6	3.88	4.90	24.2	40.2
74.8	0.000	1.000	1.44	0.0706	14.5	4.83	6.10	30.2	50.1
90.0	0.013	0.987	1.20	0.0851	17.5	5.82	7.35	36.5	60.3
120	0.155	0.845	0.897	0.113	23.3	7.76	9.80	48.6	80.5
150	0.244	0.756	0.721	0.141	29.0	9.65	12.2	60.5	100
190	0.301	0.699	0.569	0.179	36.7	12.2	15.4	76.5	126
250	0.352	0.648	0.432	0.235	48.3	16.1	20.3	101	167
350	0.416	0.584	0.309	0.329	67.6	22.5	28.5	141	234
450	0.460	0.540	0.240	0.424	87.0	29.0	36.6	181	300
600	0.498	0.502	0.180	0.565	116	38.6	48.8	242	401
800	0.533	0.467	0.135	0.752	154	51.5	65.0	321	534
1000	0.555	0.445	0.108	0.943	194	64.5	81.5	405	669
1200	0.577	0.423	0.0866	1.180	241	80.4	102	503	837
1600	0.603	0.397	0.0675	1.510	309	103	130	644	1070

MERCURY INJECTION DATA SUMMARY

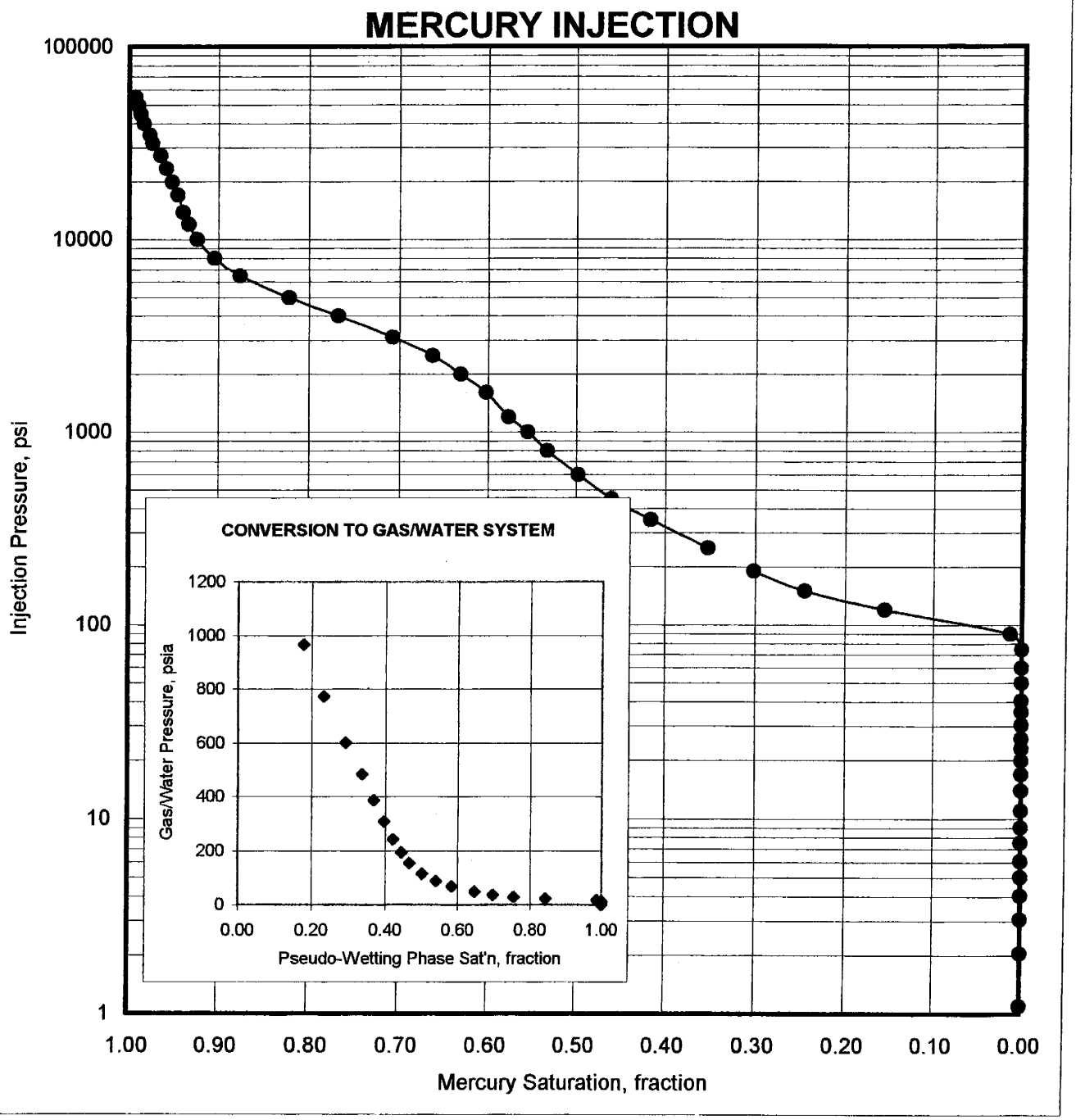
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**557**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.214	-	-
Permeability to Air, md:		0.363	-	-
Swanson Permeability, md:		0.271	-	-
Porosity, fraction:		0.082	-	-
maximum Sb/Pc, fraction:		0.013		
R50 (median pore throat radius):		0.177		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
2000	0.631	0.369	0.0539	1.89	387	129	163	807	1340
2500	0.663	0.337	0.0432	2.35	483	161	203	1010	1670
3100	0.708	0.292	0.0348	2.93	601	200	253	1250	2080
4000	0.768	0.232	0.0270	3.76	772	257	325	1610	2670
5000	0.822	0.178	0.0216	4.70	966	322	406	2010	3330
6500	0.876	0.124	0.0166	6.12	1260	419	529	2630	4340
8000	0.904	0.096	0.0135	7.52	1540	515	650	3210	5340
10000	0.923	0.077	0.0108	9.40	1930	644	813	4020	6670
12000	0.933	0.067	0.0090	11.3	2320	773	976	4840	8010
13900	0.939	0.061	0.0077	13.2	2700	901	1140	5630	9360
17000	0.946	0.054	0.0064	16.0	3290	1100	1380	6860	11300
19900	0.952	0.048	0.0054	18.8	3860	1290	1620	8050	13300
23400	0.958	0.042	0.0046	22.1	4540	1510	1910	9470	15700
27400	0.965	0.035	0.0039	25.8	5300	1770	2230	11100	18300
31500	0.974	0.026	0.0034	29.7	6100	2030	2570	12700	21100
34800	0.977	0.023	0.0031	32.9	6750	2250	2840	14100	23300
39900	0.984	0.016	0.0027	37.6	7730	2580	3250	16100	26700
44800	0.987	0.013	0.0024	42.3	8680	2890	3650	18100	30000
49800	0.990	0.010	0.0022	47.0	9650	3220	4060	20100	33300
54900	0.993	0.007	0.0020	51.8	10600	3550	4480	22100	36800

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

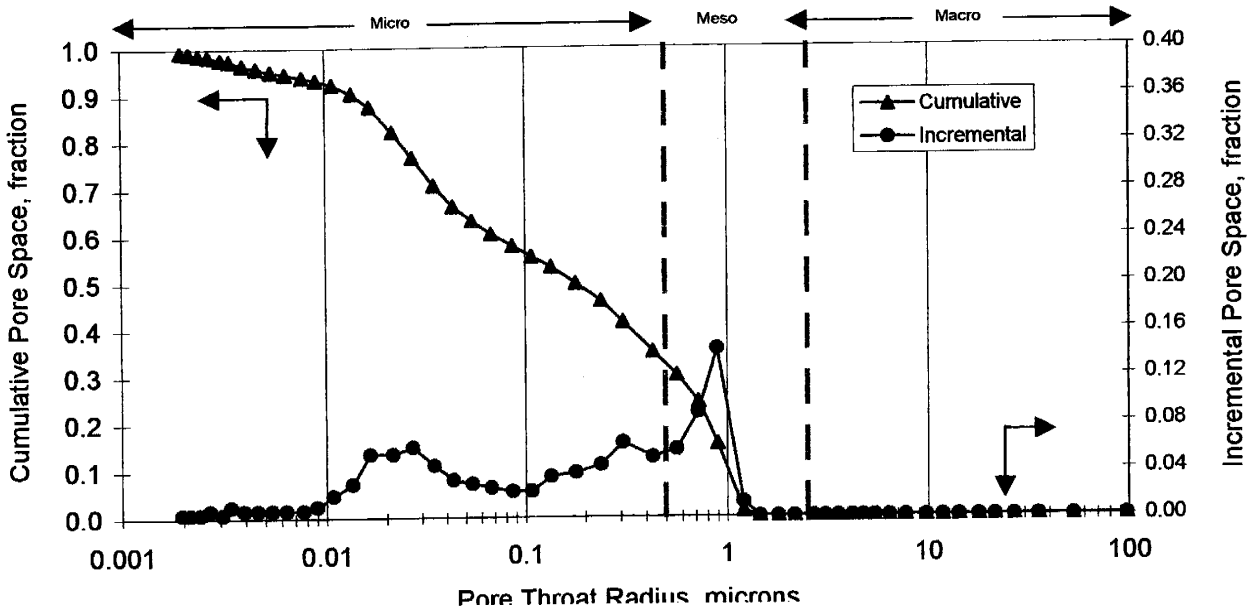
Sample:	**557**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.214	-	-
Permeability to Air, md:		0.363	-	-
Swanson Permeability, md:		0.271	-	-
Porosity, fraction:		0.082	-	-
maximum Sb/Pc, fraction:		0.013		
R50 (median pore throat radius):		0.177		



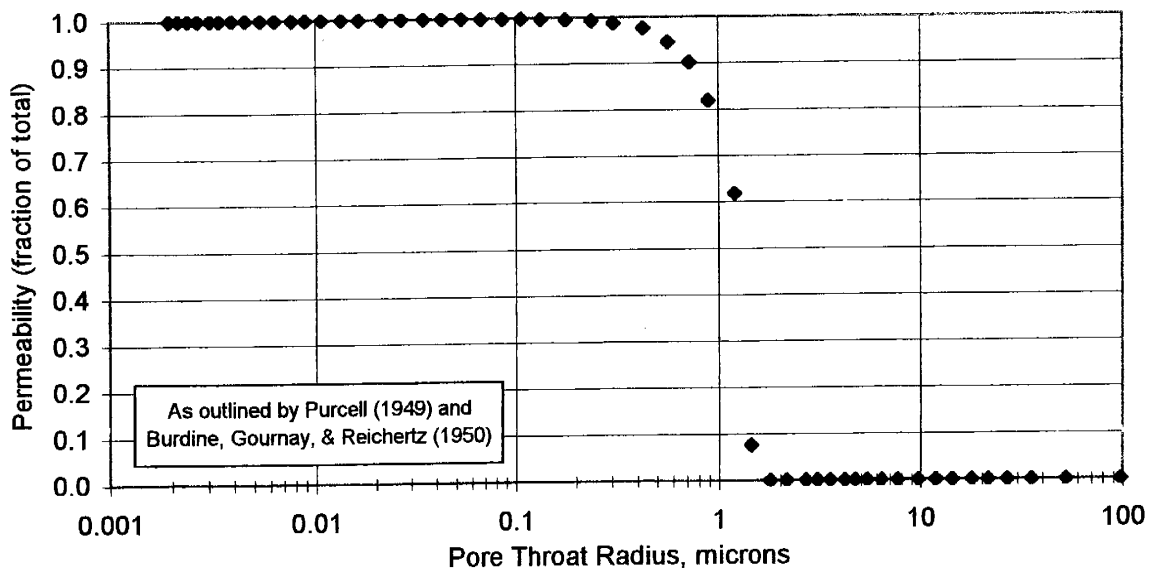
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**557**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.214	-	-
Permeability to Air, md:		0.363	-	-
Swanson Permeability, md:		0.271	-	-
Porosity, fraction:		0.082	-	-
maximum Sb/Pc, fraction:		0.013		
R50 (median pore throat radius):		0.177		

PORE THROAT RADIUS DISTRIBUTION

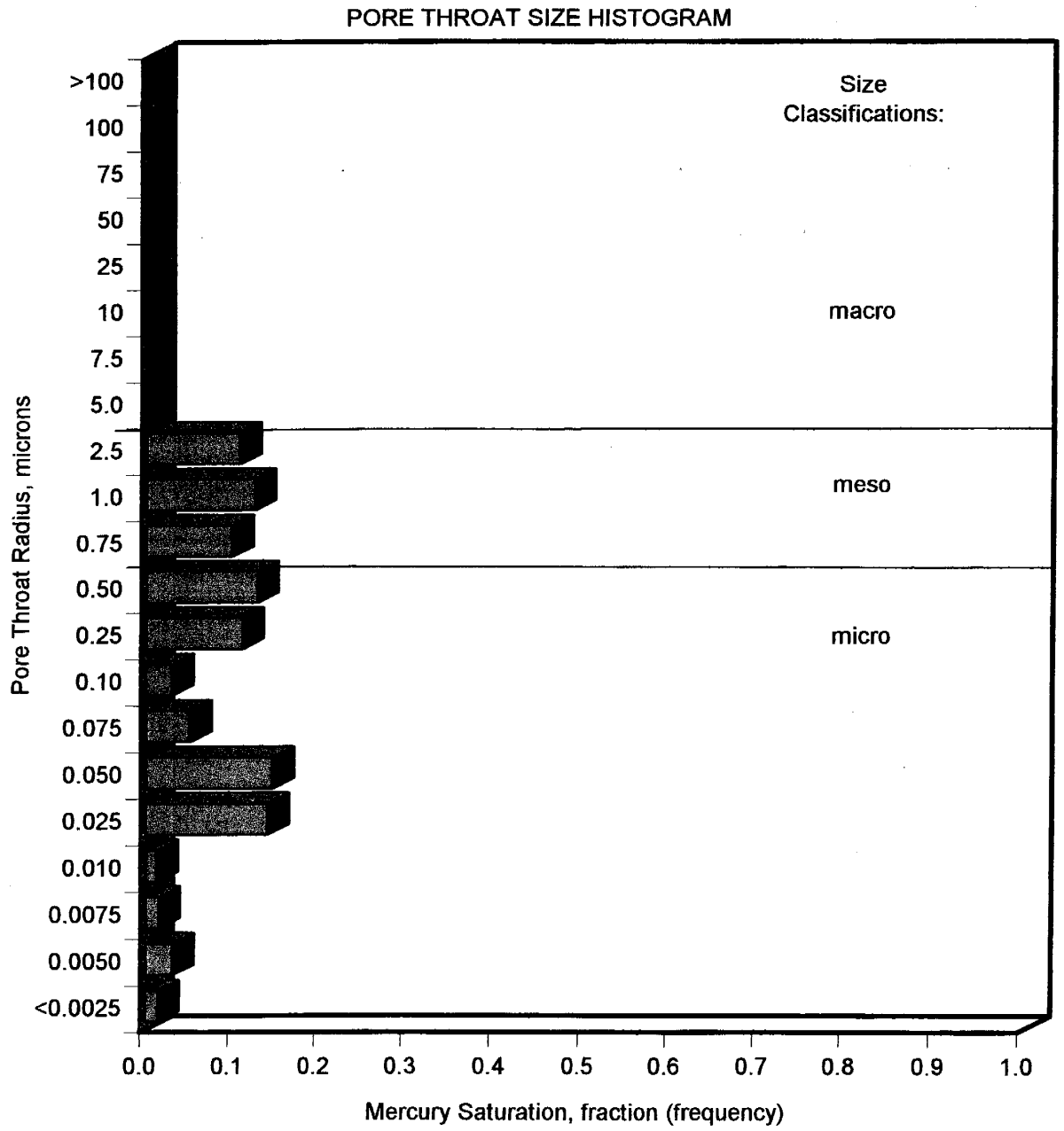


PERMEABILITY DISTRIBUTION



Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**557**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.214	-	-
Permeability to Air, md:		0.363	-	-
Swanson Permeability, md:		0.271	-	-
Porosity, fraction:		0.082	-	-
maximum Sb/Pc, fraction:		0.013		
R50 (median pore throat radius):		0.177		



MERCURY INJECTION DATA SUMMARY

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**558**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.345	-	-
Permeability to Air, md:		0.544	-	-
Swanson Permeability, md:		0.838	-	-
Porosity, fraction:		0.099	-	-
maximum Sb/Pc, fraction:		0.026		
R50 (median pore throat radius):		0.394		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
1.11	0.000	1.000	97.1	0.00121	0.215	0.072	0.091	0.448	0.744
2.13	0.000	1.000	50.6	0.00232	0.413	0.138	0.174	0.861	1.43
3.12	0.000	1.000	34.5	0.00340	0.605	0.202	0.255	1.26	2.09
4.11	0.000	1.000	26.2	0.00448	0.796	0.265	0.335	1.66	2.75
5.10	0.000	1.000	21.1	0.00556	0.988	0.329	0.416	2.06	3.42
6.10	0.000	1.000	17.7	0.00665	1.18	0.394	0.498	2.46	4.09
7.58	0.000	1.000	14.2	0.00826	1.47	0.490	0.618	3.07	5.07
9.08	0.000	1.000	11.9	0.00990	1.76	0.587	0.741	3.67	6.08
11.1	0.000	1.000	9.73	0.0121	2.15	0.715	0.903	4.48	7.41
14.0	0.000	1.000	7.67	0.0153	2.72	0.907	1.15	5.67	9.44
17.0	0.000	1.000	6.32	0.0186	3.30	1.10	1.39	6.88	11.4
20.0	0.000	1.000	5.38	0.0218	3.88	1.29	1.63	8.09	13.4
23.0	0.000	1.000	4.68	0.0251	4.46	1.49	1.88	9.30	15.4
26.0	0.000	1.000	4.14	0.0283	5.04	1.68	2.12	10.5	17.4
30.5	0.000	1.000	3.53	0.0333	5.91	1.97	2.49	12.3	20.4
35.0	0.000	1.000	3.08	0.0382	6.79	2.26	2.86	14.2	23.5
40.3	0.000	1.000	2.67	0.0439	7.81	2.60	3.29	16.3	27.0
50.1	0.000	1.000	2.15	0.0546	9.71	3.24	4.09	20.2	33.6
60.1	0.005	0.995	1.79	0.0655	11.7	3.88	4.90	24.4	40.2
74.8	0.039	0.961	1.44	0.0816	14.5	4.83	6.10	30.2	50.1
90.0	0.161	0.839	1.20	0.0978	17.4	5.80	7.32	36.3	60.1
120	0.316	0.684	0.898	0.131	23.2	7.75	9.79	48.4	80.4
150	0.382	0.618	0.721	0.163	29.0	9.65	12.2	60.5	100
190	0.432	0.568	0.568	0.207	36.8	12.3	15.5	76.7	127
250	0.482	0.518	0.432	0.272	48.4	16.1	20.4	101	167
350	0.542	0.458	0.308	0.381	67.8	22.6	28.5	141	234
450	0.585	0.415	0.240	0.489	86.9	29.0	36.6	181	300
600	0.627	0.373	0.179	0.657	117	38.9	49.2	244	404
800	0.661	0.339	0.135	0.870	155	51.5	65.1	323	534
1000	0.685	0.315	0.108	1.09	193	64.4	81.3	402	667
1200	0.708	0.292	0.0865	1.360	241	80.4	102	503	837
1600	0.735	0.265	0.0676	1.740	309	103	130	644	1070

MERCURY INJECTION DATA SUMMARY

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

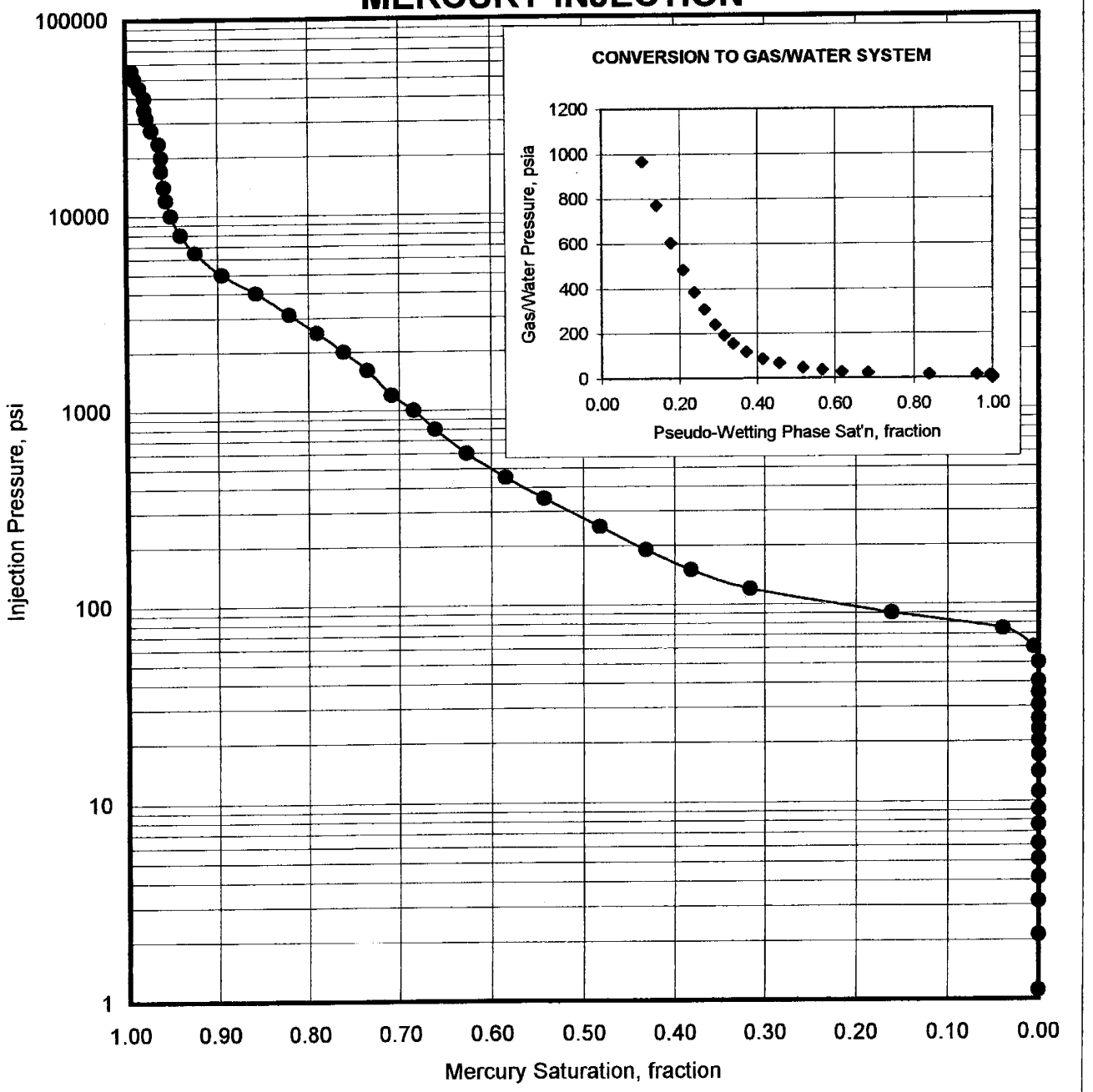
Sample:	**558**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.345	-	-
Permeability to Air, md:		0.544	-	-
Swanson Permeability, md:		0.838	-	-
Porosity, fraction:		0.099	-	-
maximum Sb/Pc, fraction:		0.026		
R50 (median pore throat radius):		0.394		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
2000	0.761	0.239	0.0541	2.17	386	129	162	805	1330
2500	0.790	0.210	0.0432	2.72	484	161	204	1010	1670
3100	0.822	0.178	0.0346	3.40	604	201	254	1260	2090
4000	0.858	0.142	0.0270	4.35	773	258	325	1610	2670
5000	0.895	0.105	0.0216	5.43	966	322	407	2010	3340
6500	0.924	0.076	0.0166	7.06	1250	418	528	2610	4330
8000	0.940	0.060	0.0135	8.69	1540	515	650	3210	5340
10000	0.951	0.049	0.0108	10.9	1930	644	813	4020	6670
12000	0.956	0.044	0.0090	13.0	2320	772	975	4840	8000
14000	0.958	0.042	0.0077	15.2	2700	902	1140	5630	9360
17000	0.961	0.039	0.0064	18.5	3290	1100	1380	6860	11300
19900	0.961	0.039	0.0054	21.7	3860	1290	1620	8050	13300
23400	0.964	0.036	0.0046	25.5	4540	1510	1910	9470	15700
27400	0.972	0.028	0.0039	29.9	5320	1770	2240	11100	18400
31500	0.977	0.023	0.0034	34.3	6100	2030	2570	12700	21100
34900	0.979	0.021	0.0031	38.1	6770	2260	2850	14100	23400
39900	0.979	0.021	0.0027	43.5	7730	2580	3250	16100	26700
44900	0.985	0.015	0.0024	49.0	8710	2900	3660	18200	30000
49900	0.990	0.010	0.0022	54.4	9680	3230	4070	20200	33400
55000	0.993	0.007	0.0020	59.9	10700	3550	4480	22300	36800

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**558**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.345	-	-
Permeability to Air, md:		0.544	-	-
Swanson Permeability, md:		0.838	-	-
Porosity, fraction:		0.099	-	-
maximum Sb/Pc, fraction:		0.026		
R50 (median pore throat radius):		0.394		

MERCURY INJECTION

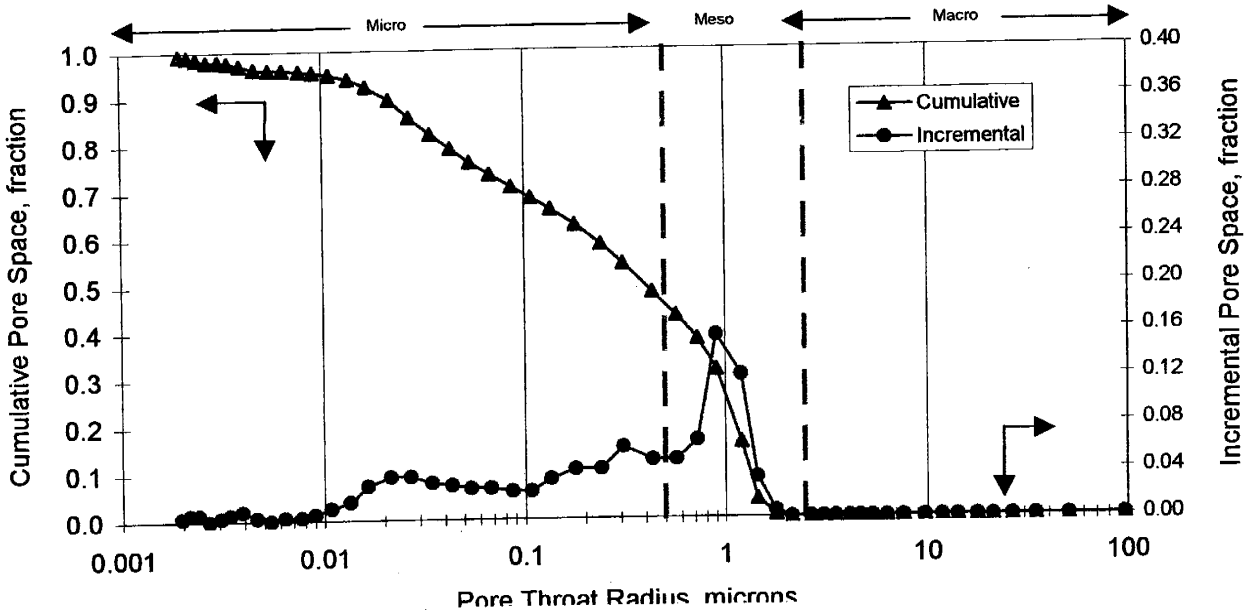


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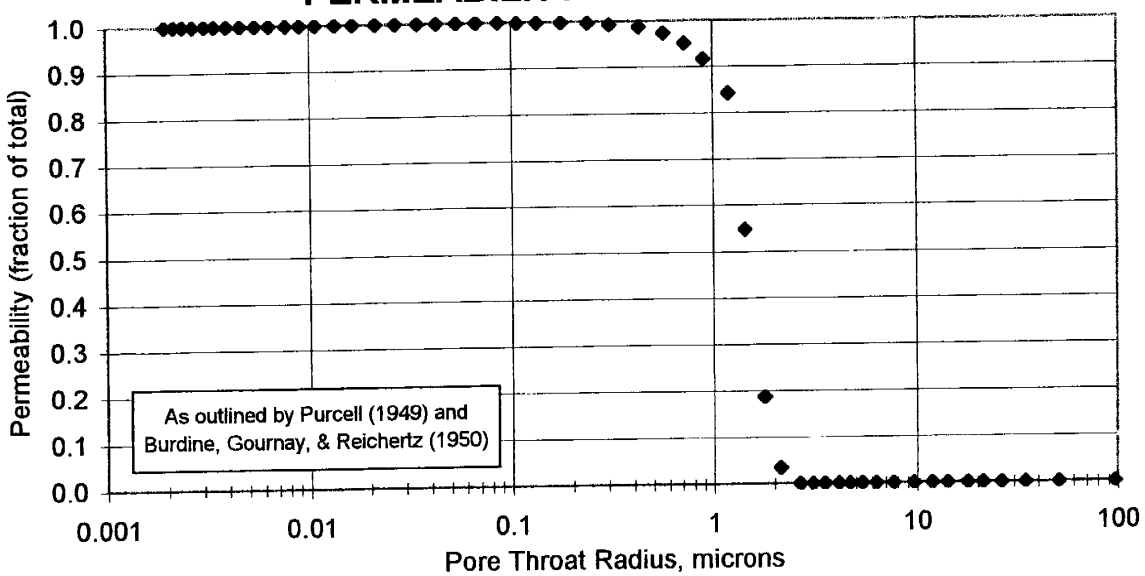
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	558		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.345	-	-
Permeability to Air, md:		0.544	-	-
Swanson Permeability, md:		0.838	-	-
Porosity, fraction:		0.099	-	-
maximum Sb/Pc, fraction:		0.026		
R50 (median pore throat radius):		0.394		

PORE THROAT RADIUS DISTRIBUTION

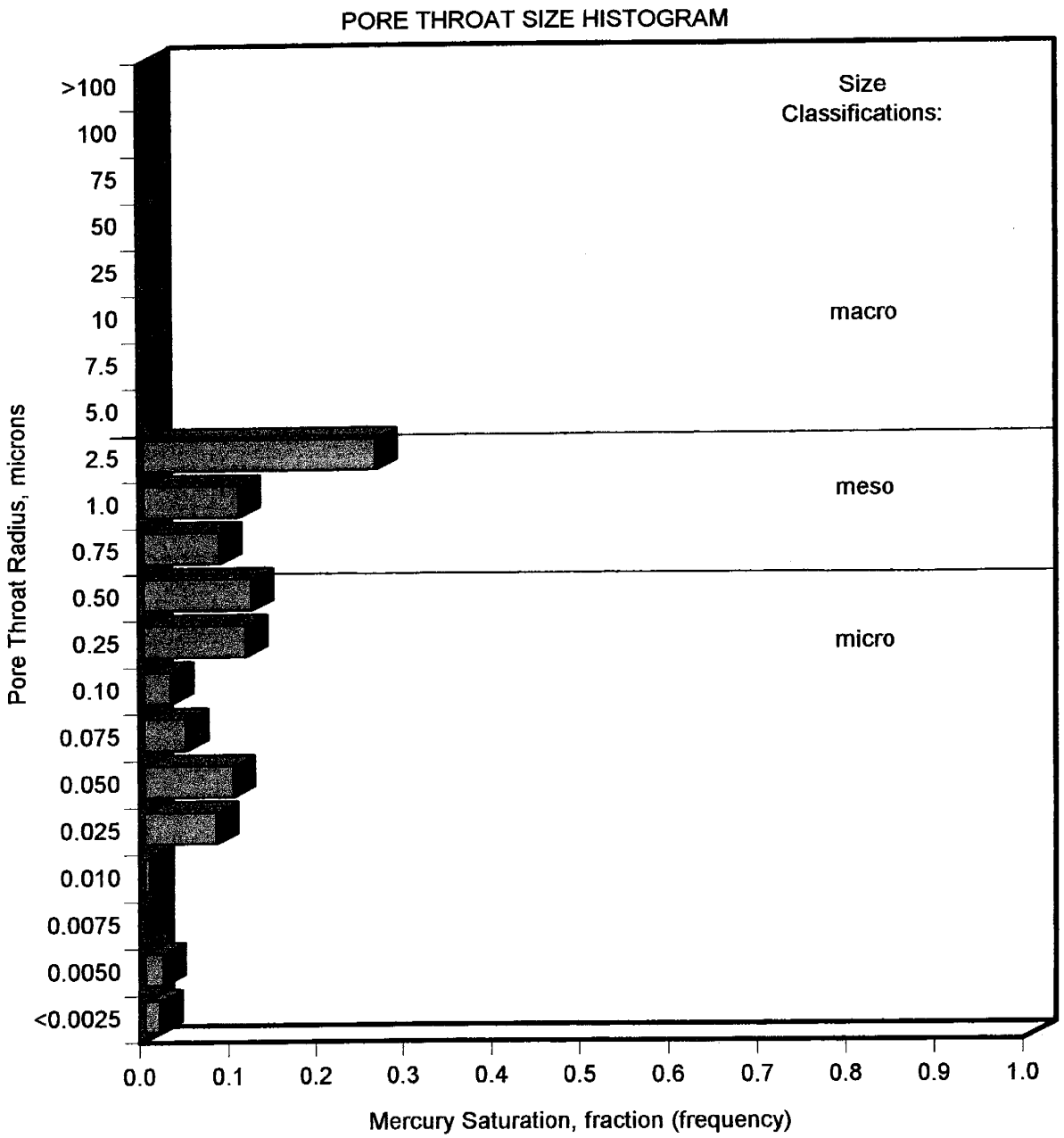


PERMEABILITY DISTRIBUTION



Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**558**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.345	-	-
Permeability to Air, md:		0.544	-	-
Swanson Permeability, md:		0.838	-	-
Porosity, fraction:		0.099	-	-
maximum Sb/Pc, fraction:		0.026		
R50 (median pore throat radius):		0.394		



MERCURY INJECTION DATA SUMMARY

Company: Conestoga Rovers & Assoc.
Project: GM-Bedford
Field: n/a
Formation: n/a
Location: n/a
File: HOU-021274

Sample:	559		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.494	-	-
Permeability to Air, md:		0.747	-	-
Swanson Permeability, md:		0.225	-	-
Porosity, fraction:		0.050	-	-
maximum Sb/Pc, fraction:		0.012		
R50 (median pore throat radius):		0.061		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
1.13	0.000	1.000	95.3	0.00208	0.219	0.073	0.092	0.457	0.757
2.04	0.000	1.000	52.8	0.003750	0.395	0.132	0.166	0.824	1.36
3.04	0.000	1.000	35.4	0.00559	0.589	0.196	0.248	1.23	2.04
4.03	0.000	1.000	26.7	0.00740	0.781	0.260	0.329	1.63	2.70
5.02	0.000	1.000	21.5	0.00922	0.973	0.324	0.410	2.03	3.37
6.02	0.000	1.000	17.9	0.0111	1.17	0.389	0.491	2.44	4.03
7.52	0.000	1.000	14.3	0.0138	1.46	0.486	0.614	3.04	5.04
9.01	0.000	1.000	12.0	0.0166	1.75	0.582	0.735	3.65	6.03
11.0	0.000	1.000	9.79	0.0202	2.13	0.711	0.897	4.44	7.36
14.0	0.000	1.000	7.70	0.0257	2.71	0.904	1.14	5.65	9.36
17.0	0.000	1.000	6.35	0.0312	3.29	1.10	1.39	6.86	11.4
20.0	0.000	1.000	5.39	0.0367	3.87	1.29	1.63	8.07	13.4
23.0	0.000	1.000	4.69	0.0422	4.45	1.48	1.87	9.28	15.4
26.0	0.000	1.000	4.15	0.0477	5.03	1.68	2.12	10.5	17.4
30.5	0.031	0.969	3.53	0.056	5.91	1.97	2.49	12.3	20.4
35.5	0.061	0.939	3.04	0.0651	6.87	2.29	2.89	14.3	23.7
40.1	0.084	0.916	2.69	0.0736	7.77	2.59	3.27	16.2	26.8
50.3	0.120	0.880	2.14	0.0923	9.74	3.25	4.10	20.3	33.7
59.9	0.144	0.856	1.80	0.110	11.6	3.87	4.89	24.2	40.1
74.8	0.168	0.832	1.44	0.137	14.5	4.83	6.10	30.2	50.1
90.0	0.184	0.816	1.20	0.165	17.4	5.80	7.32	36.3	60.1
120	0.210	0.790	0.904	0.219	23.1	7.70	9.73	48.2	79.9
150	0.253	0.747	0.718	0.276	29.1	9.69	12.2	60.7	100
190	0.269	0.731	0.567	0.349	36.8	12.3	15.5	76.7	127
250	0.290	0.710	0.431	0.459	48.4	16.1	20.4	101	167
350	0.316	0.684	0.308	0.644	67.9	22.6	28.6	142	235
450	0.337	0.663	0.239	0.827	87.2	29.1	36.7	182	301
600	0.364	0.636	0.180	1.10	116	38.7	48.9	242	401
800	0.396	0.604	0.135	1.47	155	51.7	65.2	323	535
1000	0.417	0.583	0.108	1.83	193	64.5	81.4	402	668
1200	0.449	0.551	0.0863	2.29	242	80.6	102	505	837
1600	0.486	0.514	0.0673	2.94	310	103	131	646	1080

MERCURY INJECTION DATA SUMMARY

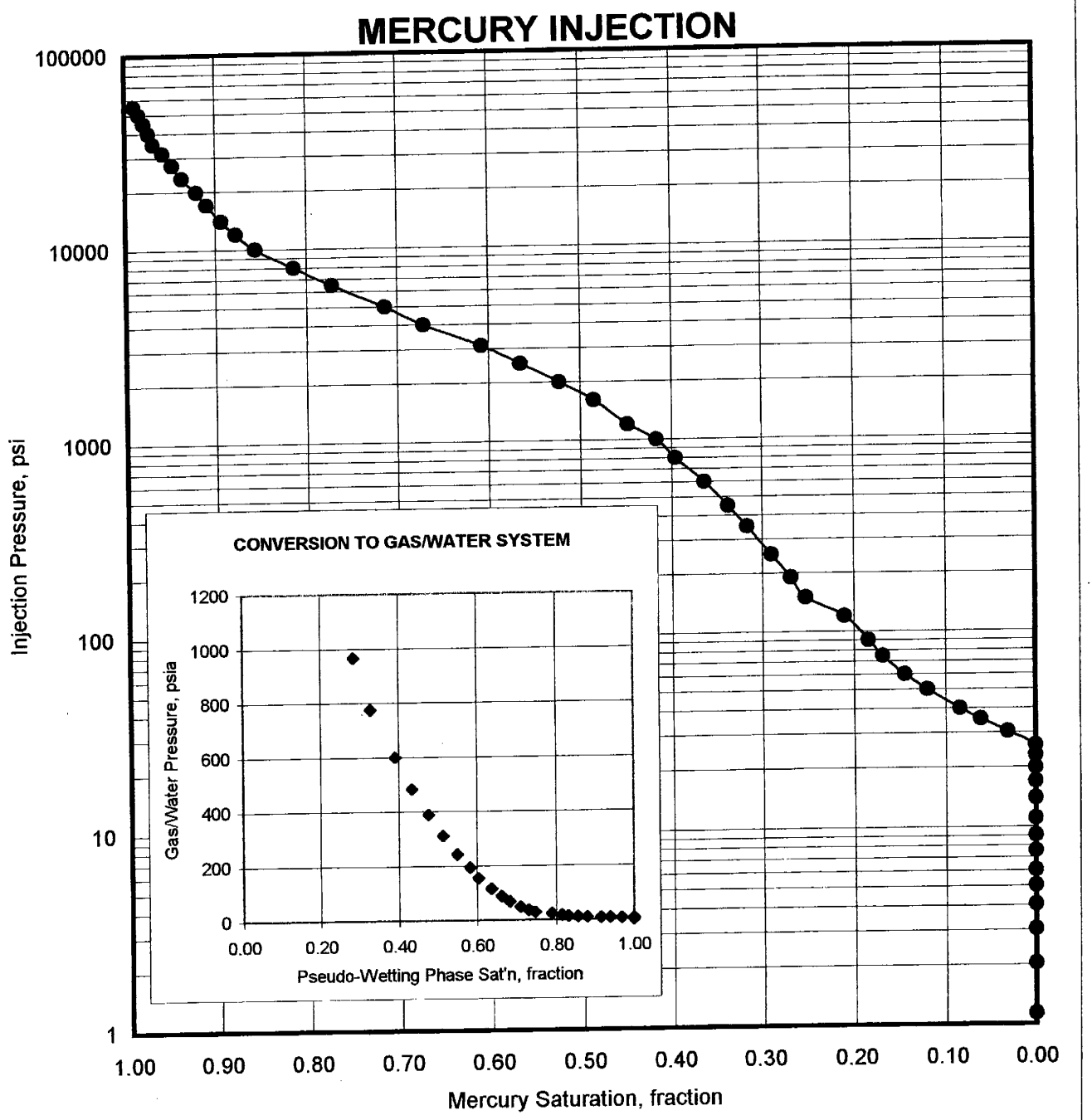
Company: Conestoga Rovers & Assoc.
Project: GM-Bedford
Field: n/a
Formation: n/a
Location: n/a
File: HOU-021274

Sample:	559		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.494	-	-
Permeability to Air, md:		0.747	-	-
Swanson Permeability, md:		0.225	-	-
Porosity, fraction:		0.050	-	-
maximum Sb/Pc, fraction:		0.012		
R50 (median pore throat radius):		0.061		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
2000	0.523	0.477	0.0539	3.68	388	129	163	809	1340
2500	0.565	0.435	0.0433	4.57	482	161	203	1010	1670
3100	0.608	0.392	0.0348	5.69	600	200	252	1250	2070
4000	0.671	0.329	0.0270	7.34	774	258	326	1610	2680
5000	0.714	0.286	0.0216	9.15	965	322	406	2010	3330
6500	0.772	0.228	0.0166	11.9	1260	418	528	2630	4330
8000	0.814	0.186	0.0135	14.6	1540	515	650	3210	5340
10000	0.857	0.143	0.0108	18.3	1930	644	814	4020	6680
12000	0.878	0.122	0.0090	22.0	2320	773	976	4840	8010
14000	0.894	0.106	0.0077	25.6	2700	901	1140	5630	9360
17000	0.910	0.090	0.0064	31.2	3290	1100	1380	6860	11300
19900	0.920	0.080	0.0054	36.6	3860	1290	1630	8050	13400
23400	0.936	0.064	0.0046	43.0	4540	1510	1910	9470	15700
27400	0.947	0.053	0.0039	50.3	5310	1770	2230	11100	18300
31500	0.957	0.043	0.0034	57.8	6100	2030	2570	12700	21100
35000	0.968	0.032	0.0031	64.3	6780	2260	2850	14100	23400
39900	0.973	0.027	0.0027	73.3	7730	2580	3250	16100	26700
45000	0.979	0.021	0.0024	82.7	8720	2910	3670	18200	30100
50100	0.984	0.016	0.0022	92.0	9700	3230	4080	20200	33500
54900	0.989	0.011	0.0020	101	10600	3550	4480	22100	36800

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

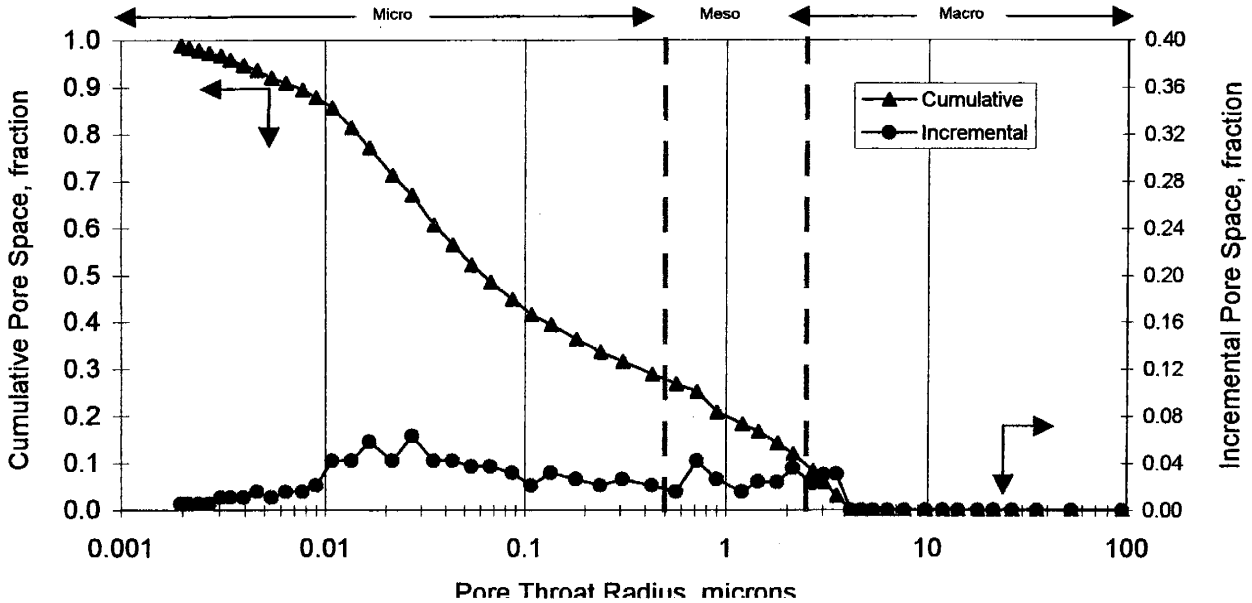
Sample:	**559**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.494	-	-
Permeability to Air, md:		0.747	-	-
Swanson Permeability, md:		0.225	-	-
Porosity, fraction:		0.050	-	-
maximum Sb/Pc, fraction:		0.012		
R50 (median pore throat radius):		0.061		



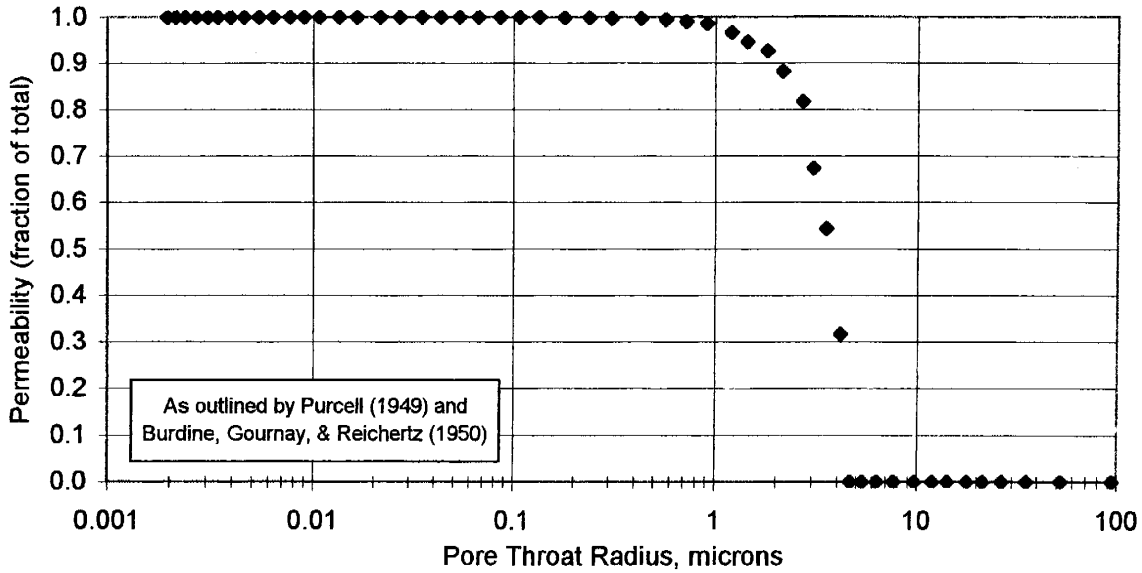
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**559**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.494	-	-
Permeability to Air, md:		0.747	-	-
Swanson Permeability, md:		0.225	-	-
Porosity, fraction:		0.050	-	-
maximum Sb/Pc, fraction:		0.012		
R50 (median pore throat radius):		0.061		

PORE THROAT RADIUS DISTRIBUTION

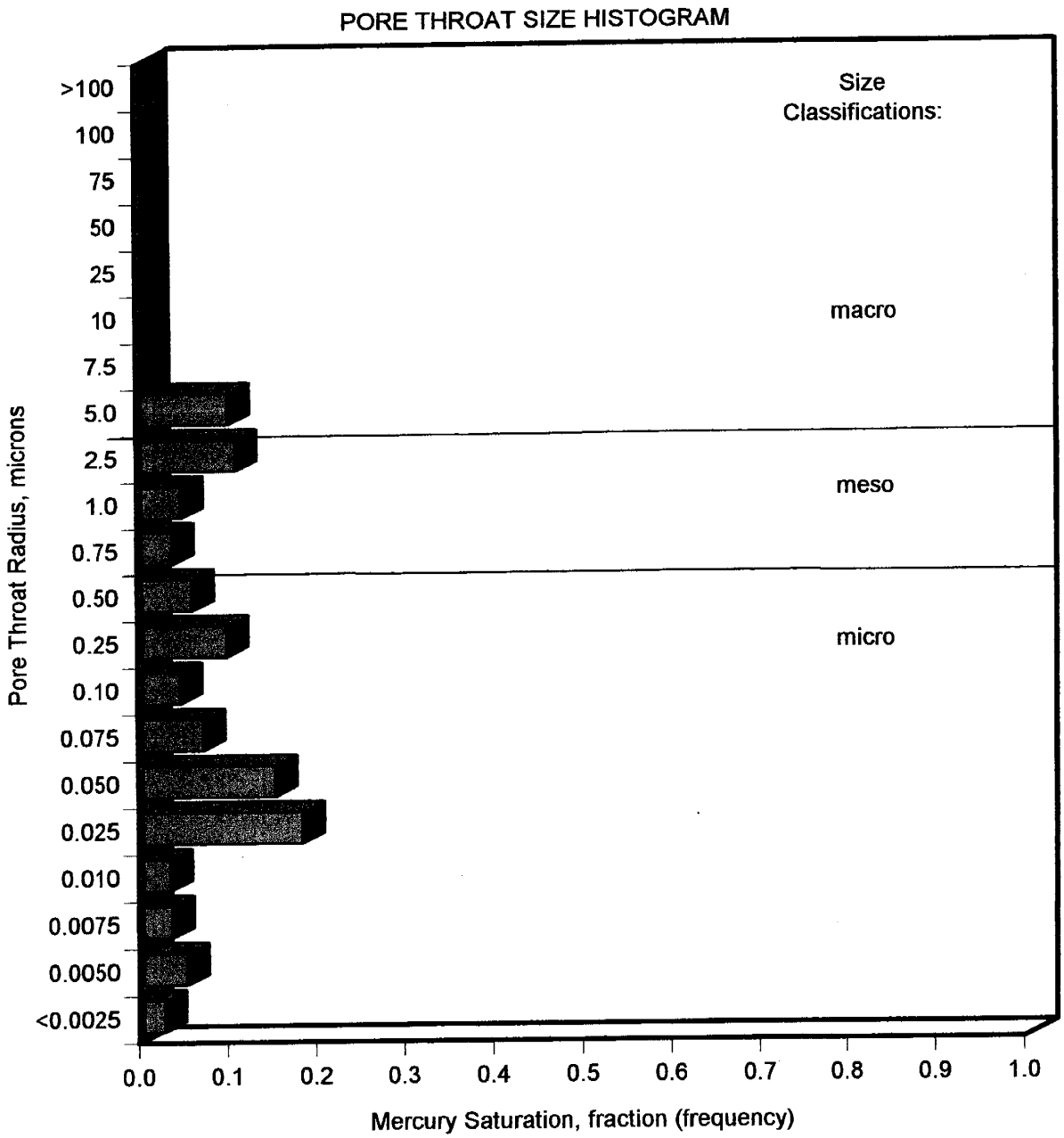


PERMEABILITY DISTRIBUTION



Company: Conestoga Rovers & Assoc.
Project: GM-Bedford
Field: n/a
Formation: n/a
Location: n/a
File: HOU-021274

Sample:	559		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.494	-	-
Permeability to Air, md:		0.747	-	-
Swanson Permeability, md:		0.225	-	-
Porosity, fraction:		0.050	-	-
maximum Sb/Pc, fraction:		0.012		
R50 (median pore throat radius):		0.061		



MERCURY INJECTION DATA SUMMARY

Company: Conestoga Rovers & Assoc.
Project: GM-Bedford
Field: n/a
Formation: n/a
Location: n/a
File: HOU-021274

Sample:	**560**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.001	-	-
Permeability to Air, md:		0.008	-	-
Swanson Permeability, md:		0.002	-	-
Porosity, fraction:		0.037	-	-
maximum Sb/Pc, fraction:		0.001		
R50 (median pore throat radius):		0.044		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
1.14	0.000	1.000	94.5	0.000129	0.221	0.074	0.093	0.461	0.764
2.13	0.000	1.000	50.6	0.000241	0.413	0.138	0.174	0.861	1.43
3.12	0.000	1.000	34.5	0.000353	0.605	0.202	0.255	1.26	2.09
4.12	0.000	1.000	26.2	0.000466	0.798	0.266	0.336	1.66	2.76
5.09	0.000	1.000	21.2	0.000576	0.986	0.329	0.415	2.06	3.41
6.09	0.000	1.000	17.7	0.000689	1.18	0.393	0.497	2.46	4.08
7.60	0.000	1.000	14.2	0.000860	1.47	0.491	0.620	3.07	5.09
9.07	0.000	1.000	11.9	0.00103	1.76	0.586	0.740	3.67	6.08
11.1	0.000	1.000	9.72	0.00125	2.15	0.716	0.904	4.48	7.42
14.1	0.000	1.000	7.66	0.00159	2.72	0.908	1.15	5.67	9.44
17.1	0.000	1.000	6.32	0.00193	3.30	1.10	1.39	6.88	11.4
20.0	0.000	1.000	5.38	0.00227	3.88	1.29	1.63	8.09	13.4
23.0	0.000	1.000	4.68	0.00260	4.46	1.49	1.88	9.30	15.4
26.0	0.000	1.000	4.14	0.00294	5.04	1.68	2.12	10.5	17.4
30.2	0.000	1.000	3.56	0.00342	5.86	1.95	2.47	12.2	20.3
35.4	0.000	1.000	3.04	0.00401	6.87	2.29	2.89	14.3	23.7
40.2	0.000	1.000	2.68	0.00455	7.79	2.60	3.28	16.2	26.9
50.2	0.000	1.000	2.15	0.00568	9.73	3.24	4.10	20.3	33.7
60.1	0.000	1.000	1.79	0.0068	11.6	3.88	4.90	24.2	40.2
75.1	0.000	1.000	1.43	0.0085	14.6	4.85	6.13	30.4	50.3
90.0	0.000	1.000	1.20	0.0102	17.4	5.80	7.32	36.3	60.1
120	0.000	1.000	0.900	0.0135	23.2	7.73	9.77	48.4	80.2
150	0.000	1.000	0.717	0.0170	29.1	9.70	12.3	60.7	101
190	0.004	0.996	0.568	0.0215	36.7	12.2	15.5	76.5	127
250	0.006	0.994	0.431	0.0283	48.5	16.2	20.4	101	167
350	0.015	0.985	0.308	0.0396	67.8	22.6	28.6	141	235
450	0.025	0.975	0.240	0.0508	86.9	29.0	36.6	181	300
600	0.047	0.953	0.180	0.0678	116	38.7	48.9	242	401
800	0.091	0.909	0.135	0.0903	155	51.6	65.1	323	534
1000	0.150	0.850	0.108	0.113	193	64.3	81.2	402	667
1200	0.235	0.765	0.0864	0.141	242	80.5	102	505	837
1600	0.326	0.674	0.0675	0.181	310	103	130	646	1070

MERCURY INJECTION DATA SUMMARY

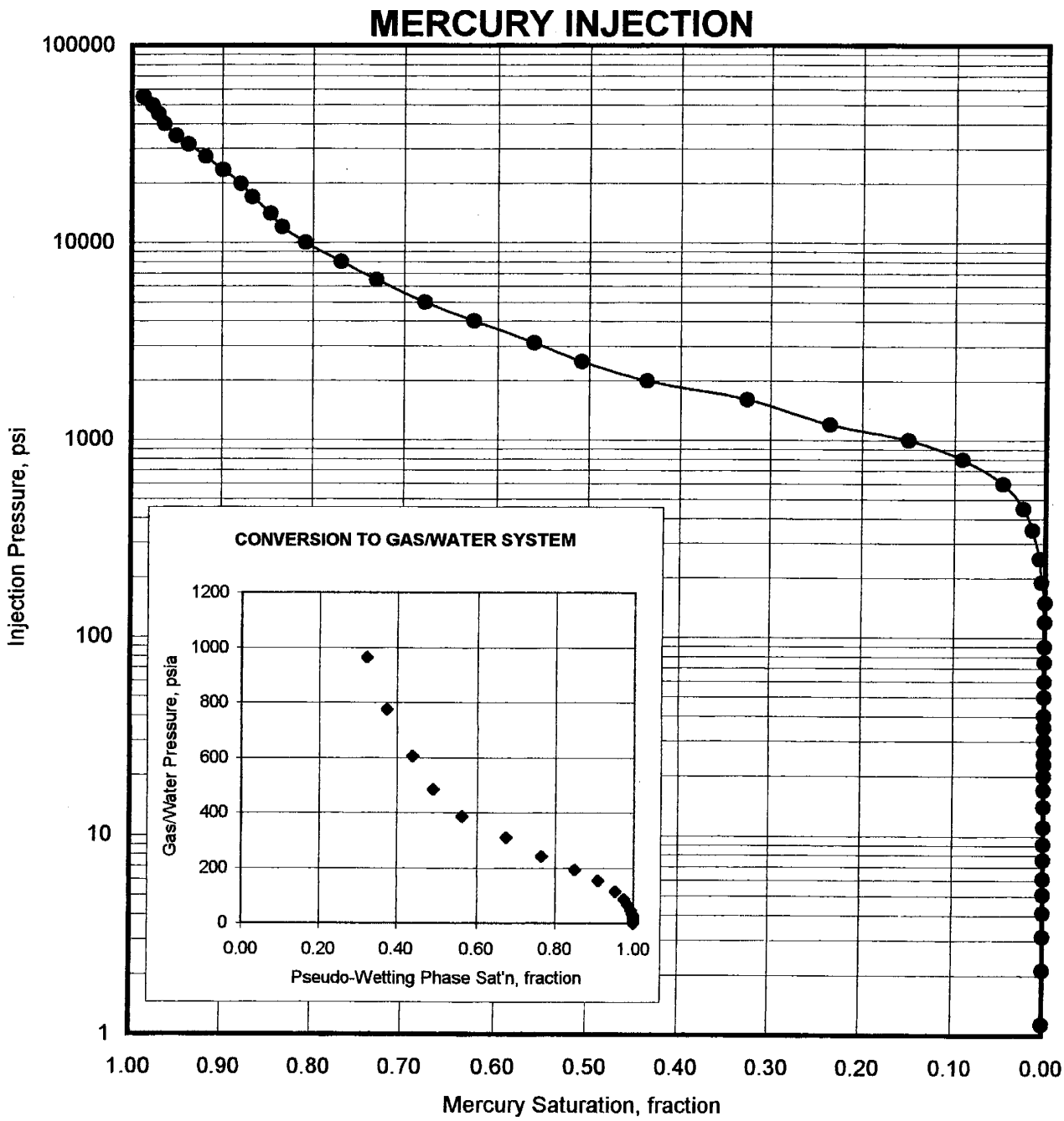
Company: Conestoga Rovers & Assoc.
Project: GM-Bedford
Field: n/a
Formation: n/a
Location: n/a
File: HOU-021274

Sample:	560		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.001	-	-
Permeability to Air, md:		0.008	-	-
Swanson Permeability, md:		0.002	-	-
Porosity, fraction:		0.037	-	-
maximum Sb/Pc, fraction:		0.001		
R50 (median pore throat radius):		0.044		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
2000	0.437	0.563	0.0541	0.225	386	129	163	805	1340
2500	0.508	0.492	0.0433	0.282	483	161	203	1010	1670
3100	0.561	0.439	0.0345	0.353	605	202	255	1260	2090
4000	0.626	0.374	0.0270	0.452	774	258	326	1610	2680
5000	0.678	0.322	0.0217	0.563	964	321	406	2010	3330
6500	0.730	0.270	0.0166	0.732	1250	418	528	2610	4330
8000	0.769	0.231	0.0135	0.903	1550	515	651	3230	5340
10000	0.808	0.192	0.0108	1.13	1930	644	814	4020	6680
12000	0.834	0.166	0.0090	1.35	2320	773	977	4840	8020
14000	0.847	0.153	0.0077	1.58	2700	902	1140	5630	9360
17000	0.867	0.133	0.0064	1.92	3290	1100	1380	6860	11300
19900	0.880	0.120	0.0054	2.25	3860	1290	1620	8050	13300
23400	0.899	0.101	0.0046	2.65	4540	1510	1910	9470	15700
27400	0.919	0.081	0.0039	3.10	5300	1770	2230	11100	18300
31500	0.939	0.061	0.0034	3.57	6110	2040	2570	12700	21100
34900	0.952	0.048	0.0031	3.94	6760	2250	2840	14100	23300
40100	0.965	0.035	0.0027	4.54	7770	2590	3270	16200	26800
45000	0.971	0.029	0.0024	5.09	8710	2900	3670	18200	30100
49800	0.978	0.022	0.0022	5.64	9650	3220	4060	20100	33300
55000	0.987	0.013	0.0020	6.22	10700	3550	4490	22300	36900

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**560**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.001	-	-
Permeability to Air, md:		0.008	-	-
Swanson Permeability, md:		0.002	-	-
Porosity, fraction:		0.037	-	-
maximum Sb/Pc, fraction:		0.001		
R50 (median pore throat radius):		0.044		

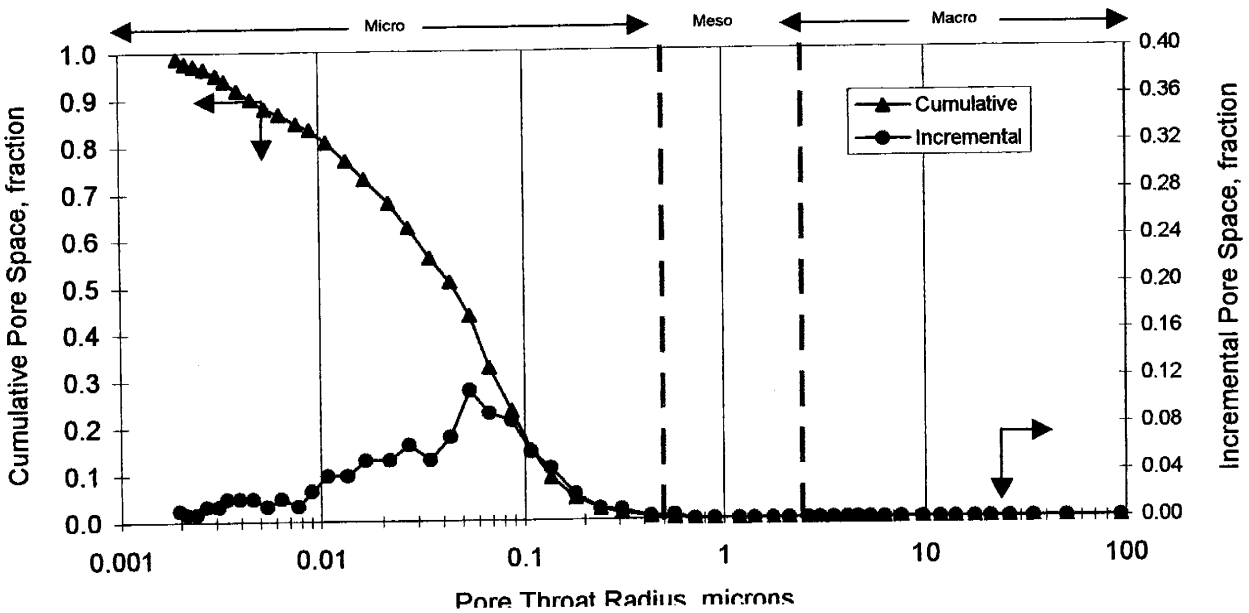


Core Laboratories

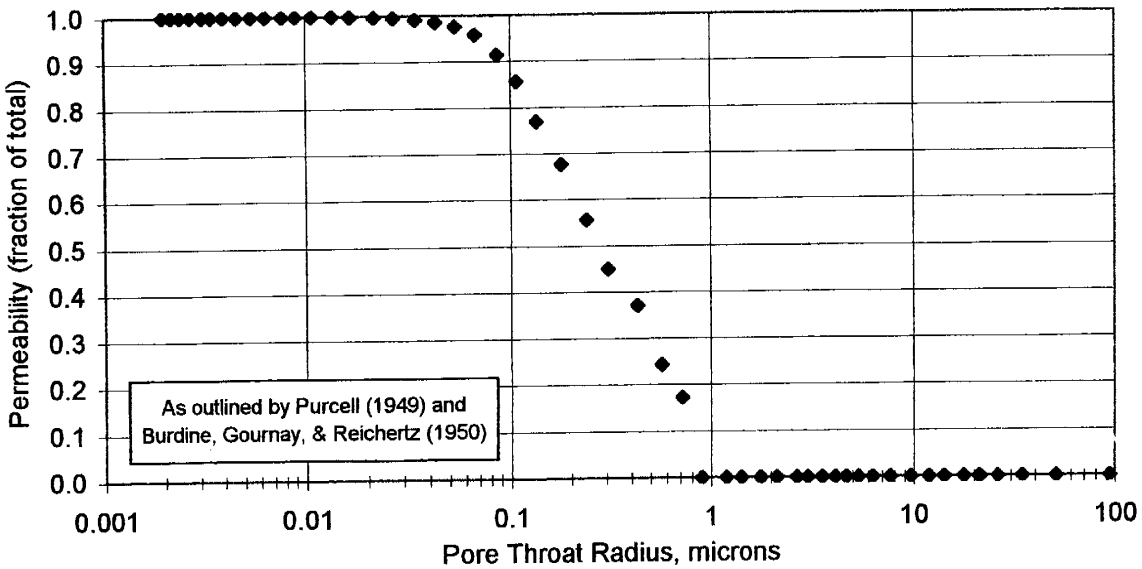
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**560**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.001	-	-
Permeability to Air, md:		0.008	-	-
Swanson Permeability, md:		0.002	-	-
Porosity, fraction:		0.037	-	-
maximum Sb/Pc, fraction:		0.001		
R50 (median pore throat radius):		0.044		

PORE THROAT RADIUS DISTRIBUTION

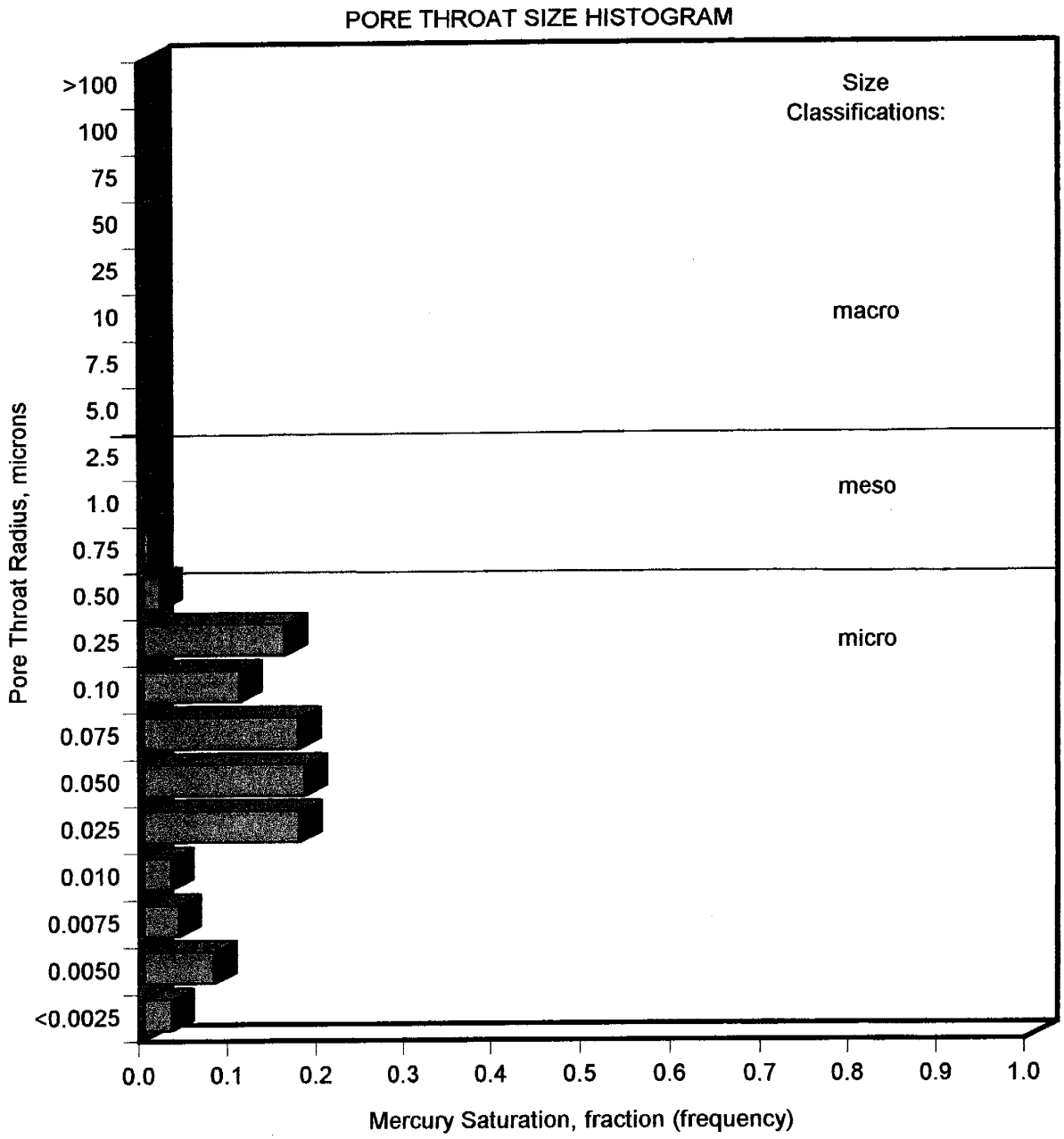


PERMEABILITY DISTRIBUTION



Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**560**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.001	-	-
Permeability to Air, md:		0.008	-	-
Swanson Permeability, md:		0.002	-	-
Porosity, fraction:		0.037	-	-
maximum Sb/Pc, fraction:		0.001		
R50 (median pore throat radius):		0.044		



Core Laboratories

MERCURY INJECTION DATA SUMMARY

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**561**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.077	-	-
Permeability to Air, md:		0.140	-	-
Swanson Permeability, md:		0.005	-	-
Porosity, fraction:		0.039	-	-
maximum Sb/Pc, fraction:		0.001		
R50 (median pore throat radius):		0.043		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
1.14	0.000	1.000	94.5	0.000939	0.221	0.074	0.093	0.461	0.764
2.13	0.000	1.000	50.6	0.001750	0.413	0.138	0.174	0.861	1.43
3.12	0.000	1.000	34.5	0.00257	0.605	0.202	0.255	1.26	2.09
4.12	0.000	1.000	26.2	0.00339	0.798	0.266	0.336	1.66	2.76
5.09	0.000	1.000	21.2	0.00419	0.986	0.329	0.415	2.06	3.41
6.09	0.000	1.000	17.7	0.00501	1.18	0.393	0.497	2.46	4.08
7.60	0.000	1.000	14.2	0.00626	1.47	0.491	0.620	3.07	5.09
9.07	0.000	1.000	11.9	0.00747	1.76	0.586	0.740	3.67	6.08
11.1	0.000	1.000	9.72	0.00912	2.15	0.716	0.904	4.48	7.42
14.1	0.000	1.000	7.66	0.0116	2.72	0.908	1.15	5.67	9.44
17.1	0.000	1.000	6.32	0.0140	3.30	1.10	1.39	6.88	11.4
20.0	0.000	1.000	5.38	0.0165	3.88	1.29	1.63	8.09	13.4
23.0	0.000	1.000	4.68	0.0190	4.46	1.49	1.88	9.30	15.4
26.0	0.000	1.000	4.14	0.0214	5.04	1.68	2.12	10.5	17.4
30.2	0.000	1.000	3.57	0.0248	5.85	1.95	2.46	12.2	20.2
35.4	0.000	1.000	3.05	0.0291	6.85	2.28	2.89	14.3	23.7
40.2	0.000	1.000	2.68	0.0331	7.78	2.59	3.28	16.2	26.9
50.2	0.000	1.000	2.15	0.0413	9.72	3.24	4.09	20.3	33.6
60.0	0.000	1.000	1.79	0.0494	11.6	3.88	4.90	24.2	40.2
75.1	0.000	1.000	1.44	0.0618	14.5	4.85	6.12	30.2	50.2
90.0	0.000	1.000	1.20	0.0739	17.4	5.80	7.32	36.3	60.1
120	0.010	0.990	0.901	0.0985	23.2	7.73	9.76	48.4	80.1
150	0.016	0.984	0.718	0.124	29.1	9.70	12.2	60.7	100
190	0.023	0.977	0.568	0.156	36.7	12.2	15.5	76.5	127
250	0.036	0.964	0.431	0.206	48.5	16.2	20.4	101	167
350	0.061	0.939	0.308	0.288	67.8	22.6	28.5	141	234
450	0.100	0.900	0.240	0.369	86.9	29.0	36.6	181	300
600	0.158	0.842	0.180	0.493	116	38.7	48.8	242	401
800	0.255	0.745	0.135	0.657	155	51.5	65.1	323	534
990	0.307	0.693	0.108	0.819	193	64.3	81.2	402	667
1200	0.352	0.648	0.0864	1.03	242	80.5	102	505	837
1600	0.404	0.596	0.0675	1.31	309	103	130	644	1070

MERCURY INJECTION DATA SUMMARY

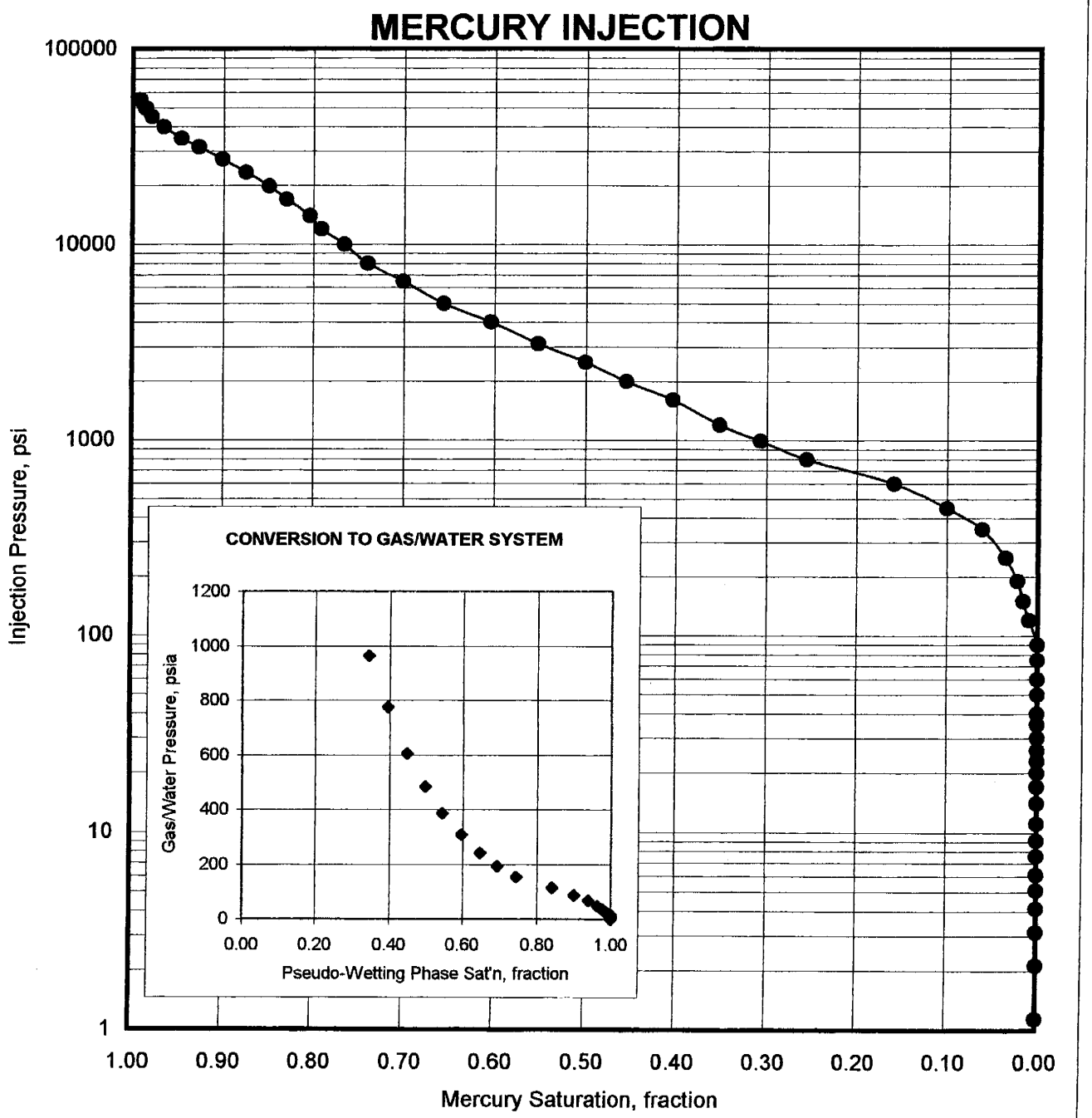
Company: Conestoga Rovers & Assoc.
Project: GM-Bedford
Field: n/a
Formation: n/a
Location: n/a
File: HOU-021274

Sample:	561		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.077	-	-
Permeability to Air, md:		0.140	-	-
Swanson Permeability, md:		0.005	-	-
Porosity, fraction:		0.039	-	-
maximum Sb/Pc, fraction:		0.001		
R50 (median pore throat radius):		0.043		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
2000	0.456	0.544	0.0541	1.64	386	129	163	805	1340
2500	0.501	0.499	0.0433	2.05	483	161	203	1010	1670
3100	0.552	0.448	0.0345	2.57	605	202	255	1260	2090
4000	0.604	0.396	0.0270	3.29	774	258	326	1610	2680
5000	0.656	0.344	0.0217	4.10	964	321	406	2010	3330
6500	0.701	0.299	0.0166	5.33	1250	418	528	2610	4330
8000	0.740	0.260	0.0135	6.57	1550	515	651	3230	5340
10000	0.766	0.234	0.0108	8.21	1930	644	814	4020	6680
12000	0.792	0.208	0.0090	9.86	2320	773	977	4840	8020
14000	0.804	0.196	0.0077	11.5	2700	902	1140	5630	9360
17000	0.830	0.170	0.0064	14.0	3290	1100	1380	6860	11300
19900	0.850	0.150	0.0054	16.4	3860	1290	1620	8050	13300
23400	0.876	0.124	0.0046	19.3	4540	1510	1910	9470	15700
27400	0.901	0.099	0.0039	22.5	5300	1770	2230	11100	18300
31500	0.927	0.073	0.0034	25.9	6110	2040	2570	12700	21100
34900	0.947	0.053	0.0031	28.7	6760	2250	2840	14100	23300
40100	0.966	0.034	0.0027	33.0	7770	2590	3270	16200	26800
45000	0.979	0.021	0.0024	37.0	8710	2900	3670	18200	30100
49800	0.985	0.015	0.0022	41.0	9650	3220	4060	20100	33300
55000	0.992	0.008	0.0020	45.3	10700	3550	4490	22300	36900

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

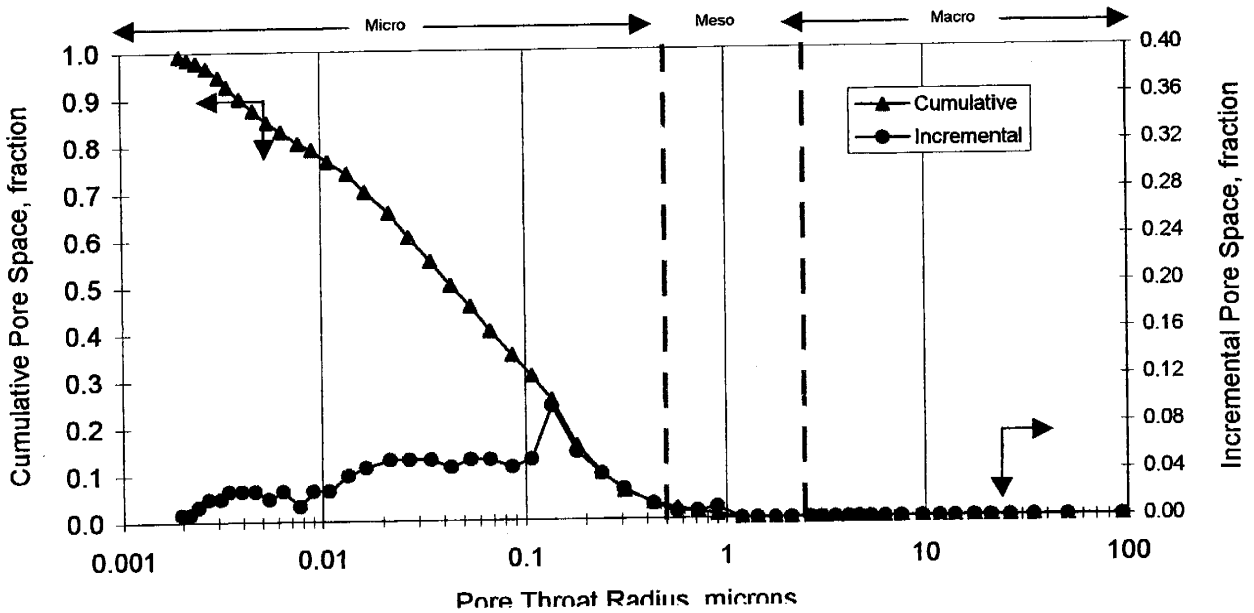
Sample:	**561**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.077	-	-
Permeability to Air, md:		0.140	-	-
Swanson Permeability, md:		0.005	-	-
Porosity, fraction:		0.039	-	-
maximum Sb/Pc, fraction:		0.001		
R50 (median pore throat radius):		0.043		



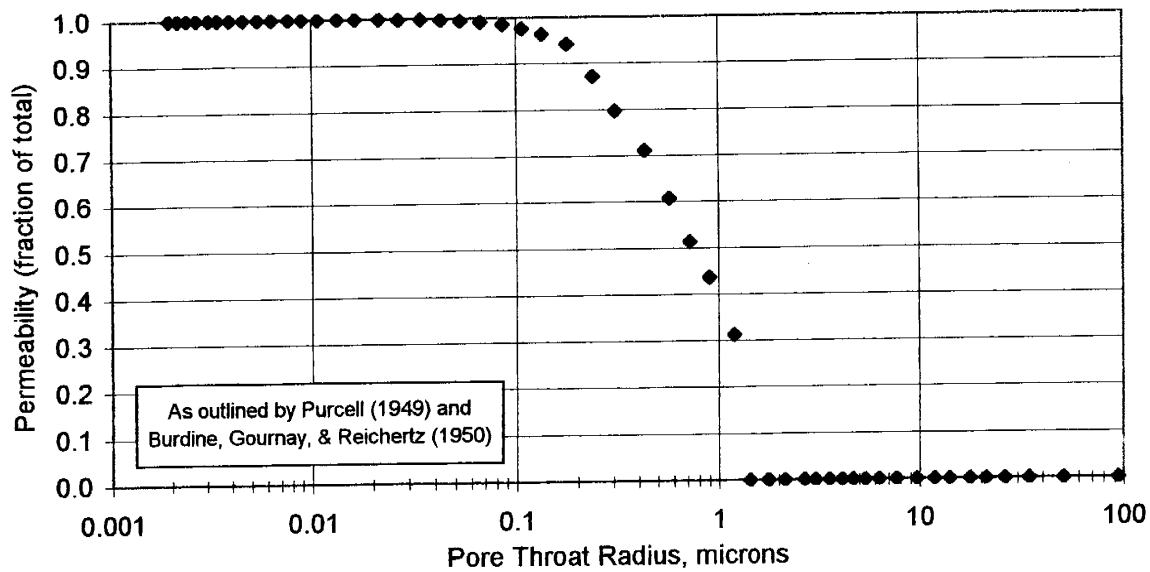
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**561**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.077	-	-
Permeability to Air, md:		0.140	-	-
Swanson Permeability, md:		0.005	-	-
Porosity, fraction:		0.039	-	-
maximum Sb/Pc, fraction:		0.001		
R50 (median pore throat radius):		0.043		

PORE THROAT RADIUS DISTRIBUTION

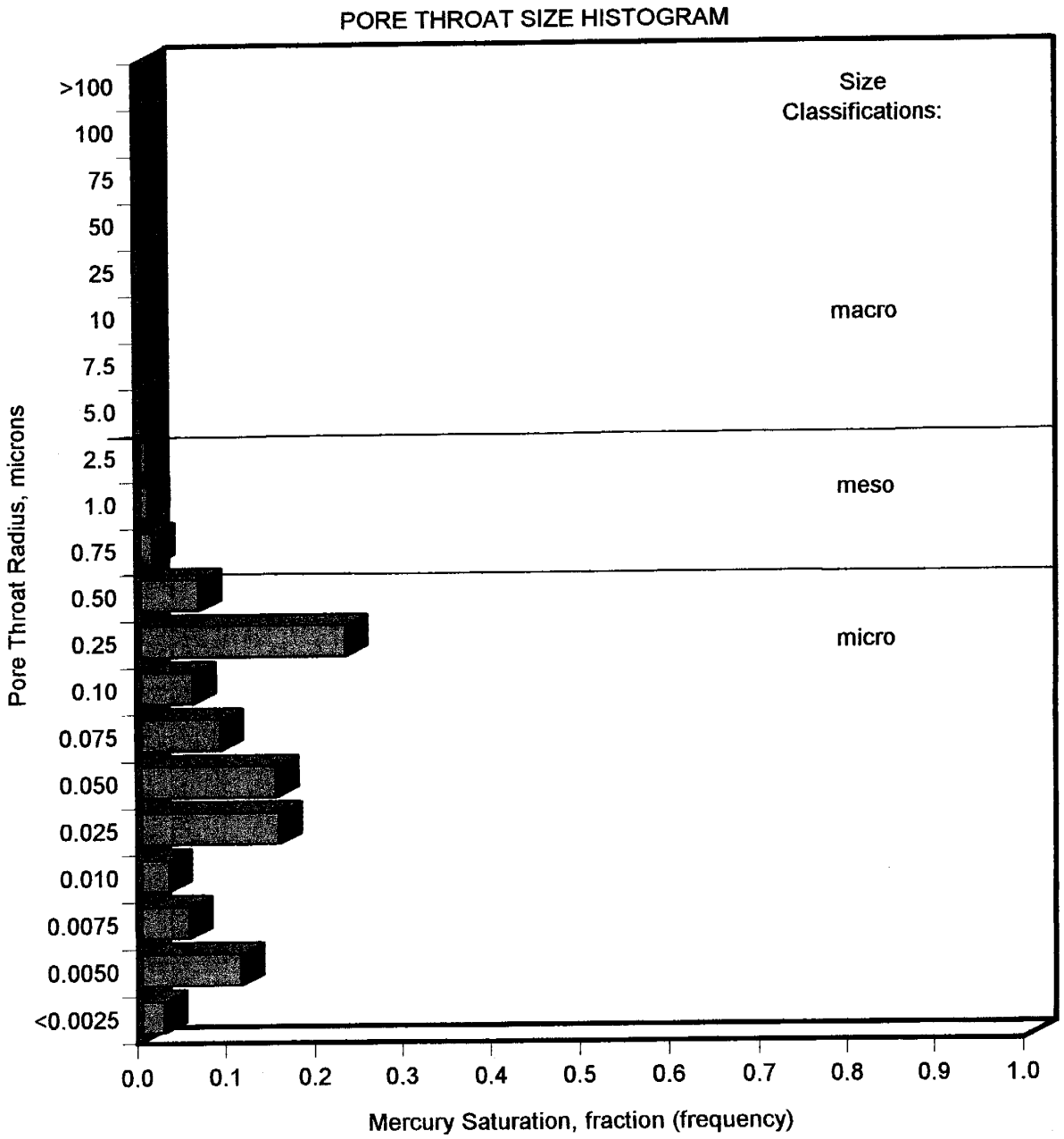


PERMEABILITY DISTRIBUTION



Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**561**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.077	-	-
Permeability to Air, md:		0.140	-	-
Swanson Permeability, md:		0.005	-	-
Porosity, fraction:		0.039	-	-
maximum Sb/Pc, fraction:		0.001		
R50 (median pore throat radius):		0.043		



MERCURY INJECTION DATA SUMMARY

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**562**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.568	-	-
Permeability to Air, md:		0.848	-	-
Swanson Permeability, md:		0.944	-	-
Porosity, fraction:		0.090	-	-
maximum Sb/Pc, fraction:		0.028		
R50 (median pore throat radius):		0.255		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
1.10	0.000	1.000	97.9	0.00161	0.213	0.071	0.090	0.444	0.736
2.05	0.000	1.000	52.6	0.00301	0.397	0.132	0.167	0.828	1.37
3.05	0.000	1.000	35.3	0.00447	0.591	0.197	0.249	1.23	2.04
4.03	0.000	1.000	26.7	0.00591	0.781	0.260	0.329	1.63	2.70
5.04	0.000	1.000	21.4	0.00739	0.977	0.326	0.411	2.04	3.37
6.04	0.000	1.000	17.8	0.00886	1.17	0.390	0.493	2.44	4.05
7.52	0.000	1.000	14.3	0.0110	1.46	0.486	0.614	3.04	5.04
9.02	0.000	1.000	11.9	0.0132	1.75	0.583	0.736	3.65	6.04
11.0	0.000	1.000	9.79	0.0161	2.13	0.711	0.898	4.44	7.37
14.0	0.000	1.000	7.70	0.0205	2.71	0.904	1.14	5.65	9.36
17.0	0.000	1.000	6.34	0.0249	3.29	1.10	1.39	6.86	11.4
20.0	0.000	1.000	5.39	0.0293	3.87	1.29	1.63	8.07	13.4
23.0	0.000	1.000	4.69	0.0337	4.45	1.48	1.87	9.28	15.4
26.0	0.005	0.995	4.15	0.0381	5.03	1.68	2.12	10.5	17.4
30.4	0.035	0.965	3.54	0.0446	5.90	1.97	2.48	12.3	20.4
35.4	0.069	0.931	3.04	0.0519	6.86	2.29	2.89	14.3	23.7
40.4	0.099	0.901	2.67	0.0592	7.82	2.61	3.29	16.3	27.0
49.8	0.148	0.852	2.16	0.0731	9.65	3.22	4.06	20.1	33.3
59.7	0.186	0.814	1.80	0.0876	11.6	3.86	4.87	24.2	40.0
74.4	0.224	0.776	1.45	0.109	14.4	4.81	6.07	30.0	49.8
90.0	0.252	0.748	1.20	0.132	17.4	5.80	7.32	36.3	60.1
120	0.290	0.710	0.899	0.176	23.2	7.74	9.78	48.4	80.3
150	0.320	0.680	0.721	0.219	28.9	9.65	12.2	60.3	100
190	0.356	0.644	0.569	0.278	36.7	12.2	15.4	76.5	126
250	0.405	0.595	0.433	0.365	48.3	16.1	20.3	101	167
350	0.468	0.532	0.309	0.511	67.6	22.5	28.5	141	234
450	0.510	0.490	0.240	0.658	87.0	29.0	36.6	181	300
600	0.551	0.449	0.180	0.877	116	38.6	48.8	242	401
800	0.584	0.416	0.135	1.17	154	51.4	65.0	321	534
1000	0.608	0.392	0.108	1.46	194	64.5	81.5	405	669
1200	0.636	0.364	0.0866	1.83	241	80.4	102	503	837
1600	0.671	0.329	0.0675	2.34	309	103	130	644	1070

MERCURY INJECTION DATA SUMMARY

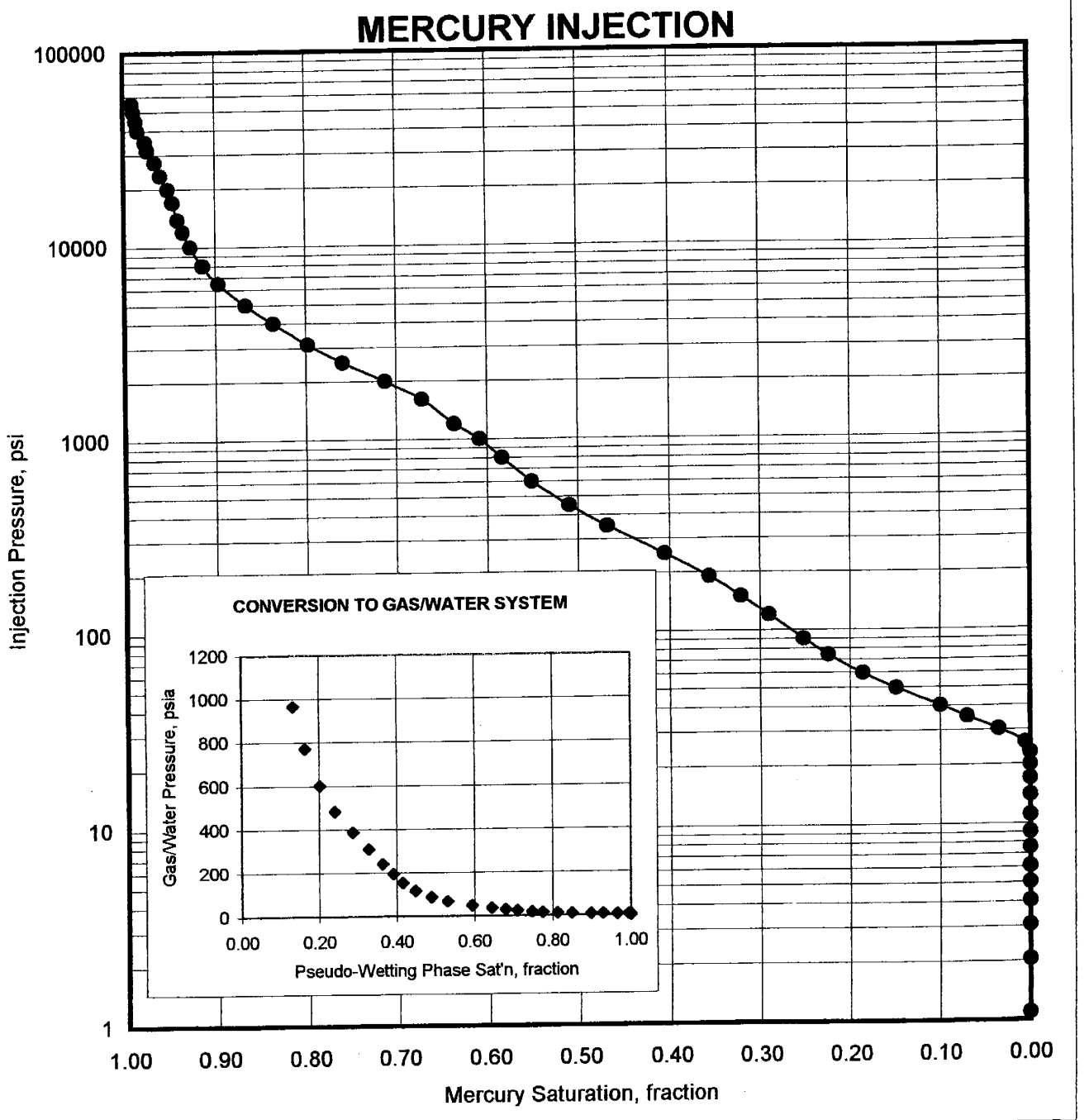
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**562**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.568	-	-
Permeability to Air, md:		0.848	-	-
Swanson Permeability, md:		0.944	-	-
Porosity, fraction:		0.090	-	-
maximum Sb/Pc, fraction:		0.028		
R50 (median pore throat radius):		0.255		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
2000	0.713	0.287	0.0539	2.93	387	129	163	807	1340
2500	0.759	0.241	0.0432	3.65	483	161	203	1010	1670
3100	0.798	0.202	0.0348	4.54	601	200	253	1250	2080
4000	0.836	0.164	0.0270	5.84	772	257	325	1610	2670
5000	0.866	0.134	0.0216	7.31	966	322	406	2010	3330
6500	0.897	0.103	0.0166	9.50	1260	418	529	2630	4340
8000	0.913	0.087	0.0135	11.7	1540	515	650	3210	5340
10000	0.927	0.073	0.0108	14.6	1930	644	813	4020	6670
12000	0.935	0.065	0.0090	17.5	2320	773	976	4840	8010
13900	0.940	0.060	0.0077	20.4	2700	901	1140	5630	9360
17000	0.946	0.054	0.0064	24.9	3290	1100	1380	6860	11300
19900	0.951	0.049	0.0054	29.2	3860	1290	1620	8050	13300
23400	0.960	0.040	0.0046	34.3	4540	1510	1910	9470	15700
27400	0.965	0.035	0.0039	40.1	5300	1770	2230	11100	18300
31500	0.973	0.027	0.0034	46.2	6100	2030	2570	12700	21100
34800	0.976	0.024	0.0031	51.1	6750	2250	2840	14100	23300
39900	0.984	0.016	0.0027	58.5	7730	2580	3250	16100	26700
44800	0.986	0.014	0.0024	65.7	8680	2890	3650	18100	30000
49800	0.988	0.012	0.0022	73.0	9650	3220	4060	20100	33300
54900	0.990	0.010	0.0020	80.5	10600	3550	4480	22100	36800

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**562**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.568	-	-
Permeability to Air, md:		0.848	-	-
Swanson Permeability, md:		0.944	-	-
Porosity, fraction:		0.090	-	-
maximum Sb/Pc, fraction:		0.028		
R50 (median pore throat radius):		0.255		

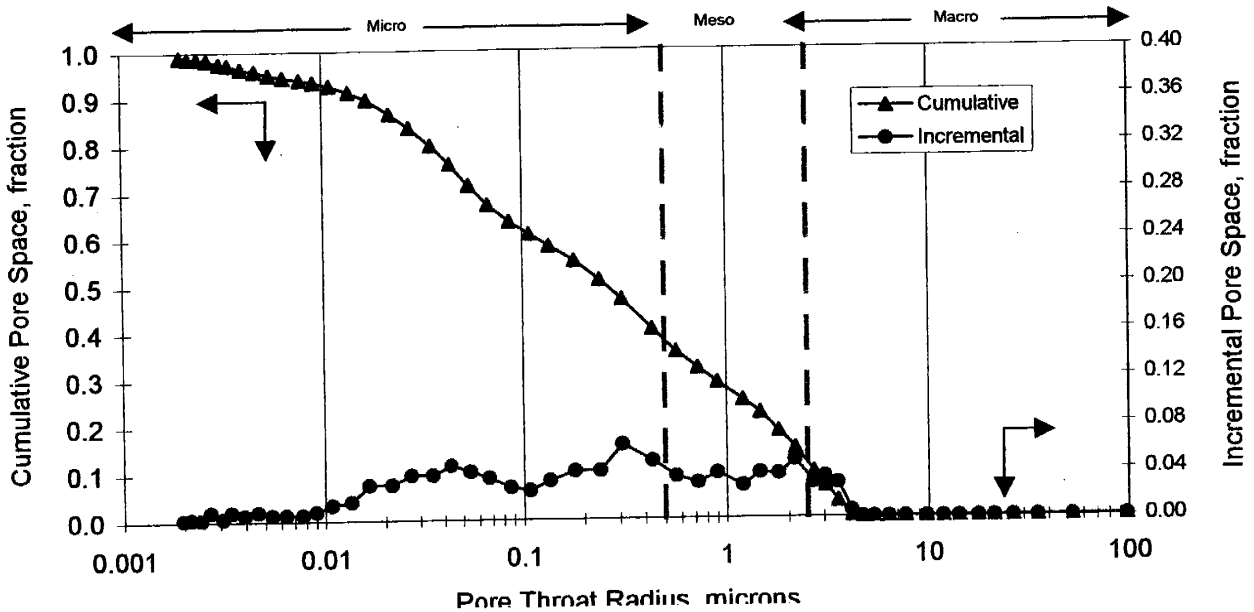


Core Laboratories

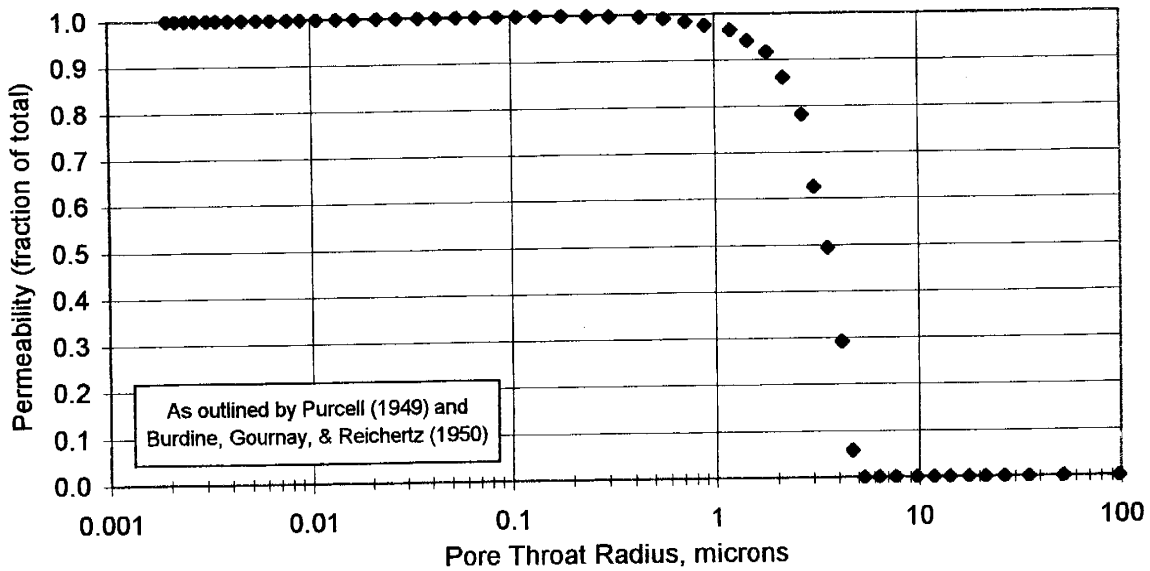
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**562**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.568	-	-
Permeability to Air, md:		0.848	-	-
Swanson Permeability, md:		0.944	-	-
Porosity, fraction:		0.090	-	-
maximum Sb/Pc, fraction:		0.028		
R50 (median pore throat radius):		0.255		

PORE THROAT RADIUS DISTRIBUTION

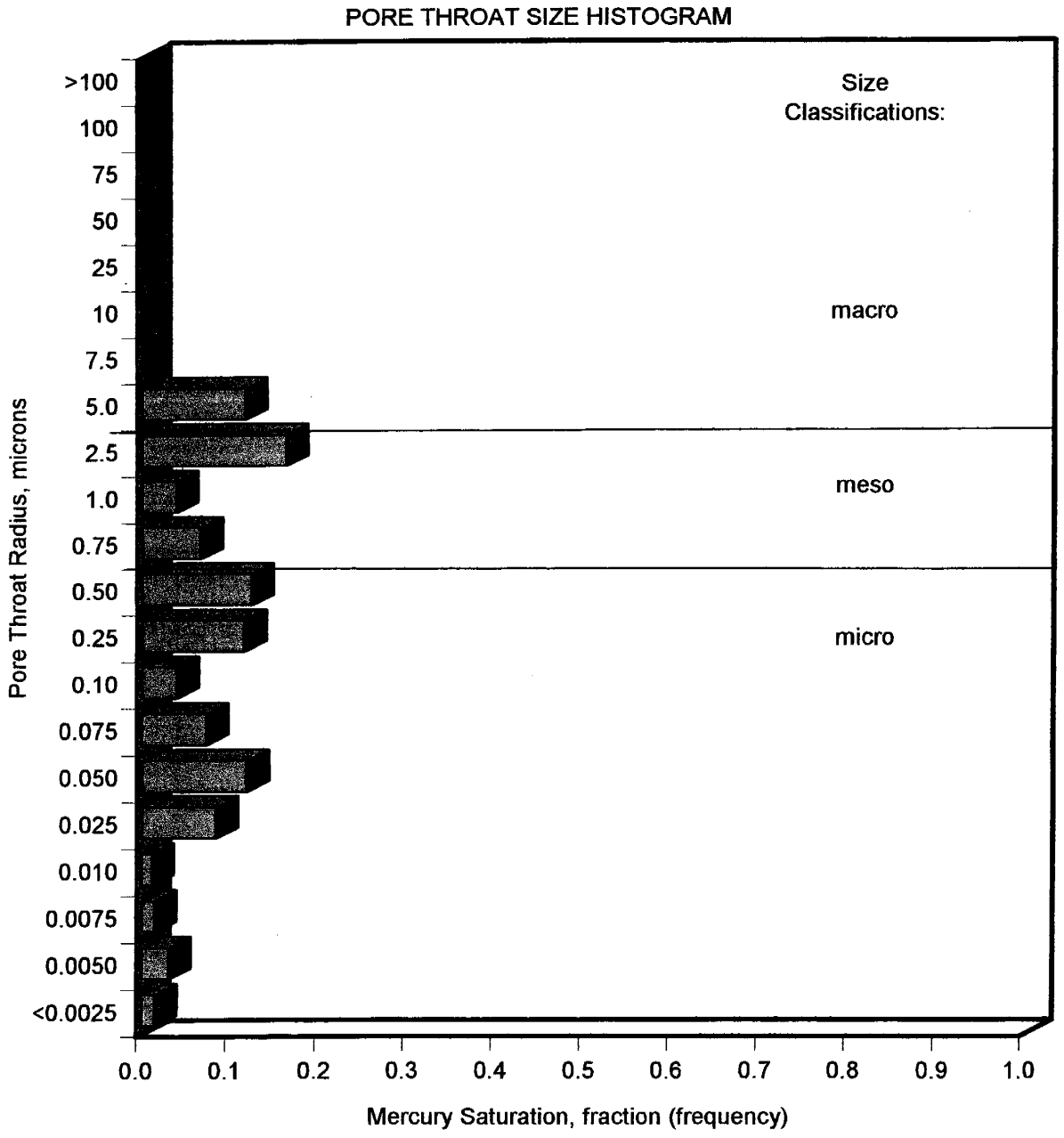


PERMEABILITY DISTRIBUTION



Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**562**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.568	-	-
Permeability to Air, md:		0.848	-	-
Swanson Permeability, md:		0.944	-	-
Porosity, fraction:		0.090	-	-
maximum Sb/Pc, fraction:		0.028		
R50 (median pore throat radius):		0.255		



Core Laboratories

MERCURY INJECTION DATA SUMMARY

Company: Conestoga Rovers & Assoc.
Project: GM-Bedford
Field: n/a
Formation: n/a
Location: n/a
File: HOU-021274

Sample:	563		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.039	-	-
Permeability to Air, md:		0.088	-	-
Swanson Permeability, md:		0.125	-	-
Porosity, fraction:		0.055	-	-
maximum Sb/Pc, fraction:		0.008		
R50 (median pore throat radius):		0.058		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
1.11	0.000	1.000	97.1	0.000544	0.215	0.072	0.091	0.448	0.744
2.13	0.000	1.000	50.6	0.001040	0.413	0.138	0.174	0.861	1.43
3.12	0.000	1.000	34.5	0.00153	0.605	0.202	0.255	1.26	2.09
4.11	0.000	1.000	26.2	0.00201	0.796	0.265	0.335	1.66	2.75
5.10	0.000	1.000	21.1	0.00250	0.988	0.329	0.416	2.06	3.42
6.10	0.000	1.000	17.7	0.00299	1.18	0.394	0.498	2.46	4.09
7.58	0.000	1.000	14.2	0.00371	1.47	0.490	0.618	3.07	5.07
9.08	0.000	1.000	11.9	0.00445	1.76	0.587	0.741	3.67	6.08
11.1	0.000	1.000	9.73	0.00542	2.15	0.715	0.903	4.48	7.41
14.0	0.000	1.000	7.67	0.00687	2.72	0.907	1.15	5.67	9.44
17.0	0.000	1.000	6.32	0.00834	3.30	1.10	1.39	6.88	11.4
20.0	0.000	1.000	5.38	0.0098	3.88	1.29	1.63	8.09	13.4
23.0	0.000	1.000	4.68	0.0113	4.46	1.49	1.88	9.30	15.4
26.0	0.000	1.000	4.14	0.0127	5.04	1.68	2.12	10.5	17.4
30.1	0.000	1.000	3.58	0.0147	5.83	1.94	2.45	12.2	20.1
34.6	0.000	1.000	3.12	0.0169	6.70	2.23	2.82	14.0	23.2
39.8	0.016	0.984	2.71	0.0195	7.71	2.57	3.25	16.1	26.7
49.5	0.054	0.946	2.18	0.0242	9.59	3.20	4.04	20.0	33.2
59.5	0.086	0.914	1.81	0.0291	11.5	3.84	4.85	24.0	39.8
74.2	0.113	0.887	1.45	0.0363	14.4	4.79	6.05	30.0	49.7
90.0	0.135	0.865	1.21	0.0437	17.3	5.76	7.28	36.1	59.8
120	0.167	0.833	0.901	0.0586	23.2	7.73	9.76	48.4	80.1
150	0.189	0.811	0.723	0.0730	28.9	9.63	12.2	60.3	100
190	0.211	0.789	0.569	0.0928	36.7	12.2	15.5	76.5	127
250	0.232	0.768	0.432	0.122	48.3	16.1	20.3	101	167
350	0.270	0.730	0.308	0.171	67.8	22.6	28.5	141	234
450	0.297	0.703	0.240	0.219	86.9	29.0	36.6	181	300
600	0.335	0.665	0.179	0.295	117	38.9	49.1	244	403
800	0.378	0.622	0.135	0.391	155	51.5	65.1	323	534
1000	0.405	0.595	0.108	0.488	193	64.4	81.3	402	667
1200	0.438	0.562	0.0865	0.610	241	80.4	102	503	837
1600	0.470	0.530	0.0676	0.780	309	103	130	644	1070

MERCURY INJECTION DATA SUMMARY

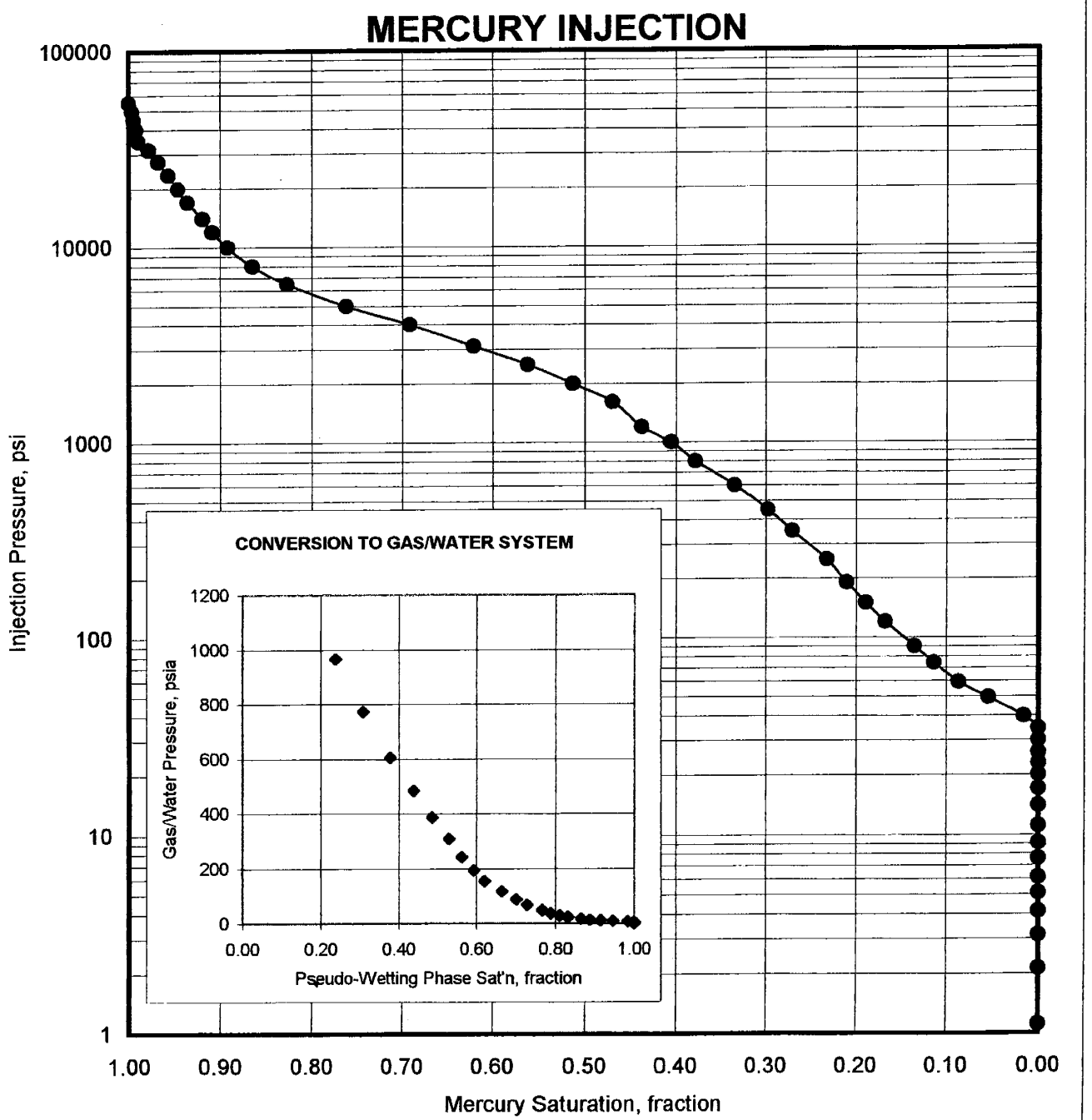
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**563**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.039	-	-
Permeability to Air, md:		0.088	-	-
Swanson Permeability, md:		0.125	-	-
Porosity, fraction:		0.055	-	-
maximum Sb/Pc, fraction:		0.008		
R50 (median pore throat radius):		0.058		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
2000	0.513	0.487	0.0541	0.974	386	129	162	805	1330
2500	0.562	0.438	0.0432	1.22	483	161	204	1010	1670
3100	0.622	0.378	0.0346	1.53	604	201	254	1260	2090
4000	0.692	0.308	0.0270	1.95	773	258	325	1610	2670
5000	0.762	0.238	0.0216	2.44	966	322	407	2010	3340
6500	0.827	0.173	0.0166	3.17	1250	418	528	2610	4330
8000	0.865	0.135	0.0135	3.90	1540	515	650	3210	5340
10000	0.892	0.108	0.0108	4.88	1930	644	813	4020	6670
12000	0.908	0.092	0.0090	5.85	2320	772	975	4840	8000
14000	0.919	0.081	0.0077	6.83	2700	902	1140	5630	9360
17000	0.935	0.065	0.0064	8.30	3290	1100	1380	6860	11300
19900	0.946	0.054	0.0054	9.75	3860	1290	1620	8050	13300
23400	0.957	0.043	0.0046	11.5	4530	1510	1910	9450	15700
27400	0.968	0.032	0.0039	13.4	5320	1770	2240	11100	18400
31500	0.978	0.022	0.0034	15.4	6100	2030	2570	12700	21100
34900	0.989	0.011	0.0031	17.1	6770	2260	2850	14100	23400
39900	0.992	0.008	0.0027	19.5	7730	2580	3250	16100	26700
44900	0.995	0.005	0.0024	22.0	8710	2900	3660	18200	30000
49900	0.997	0.003	0.0022	24.4	9670	3220	4070	20200	33400
55000	1.000	0.000	0.0020	26.9	10700	3550	4480	22300	36800

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

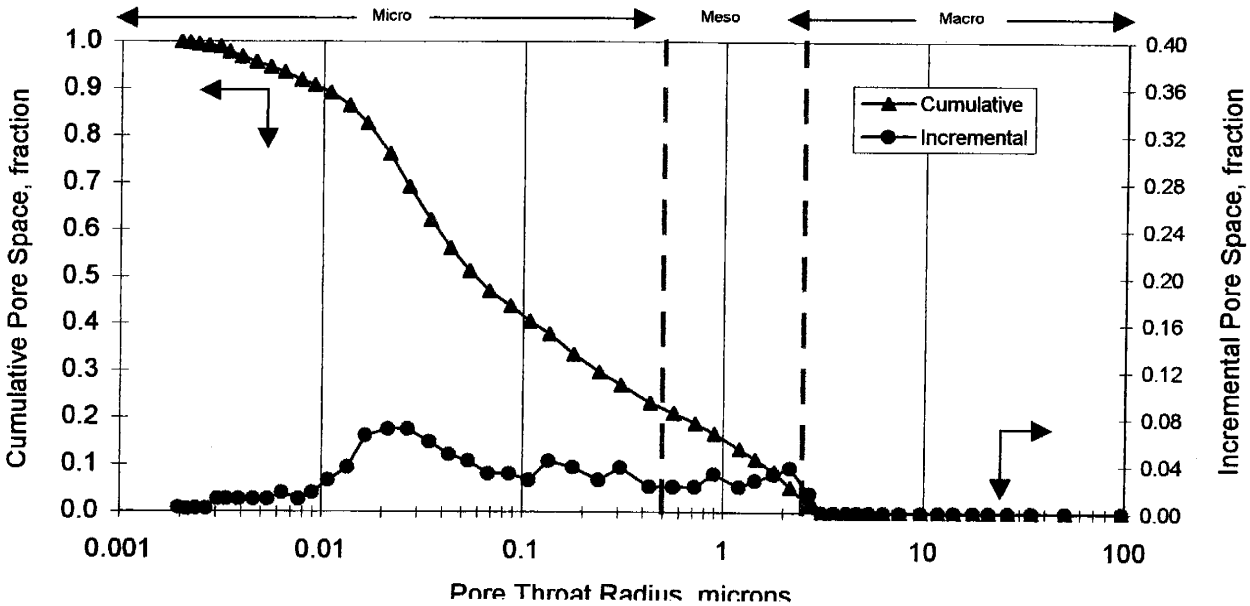
Sample:	**563**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.039	-	-
Permeability to Air, md:		0.088	-	-
Swanson Permeability, md:		0.125	-	-
Porosity, fraction:		0.055	-	-
maximum Sb/Pc, fraction:		0.008		
R50 (median pore throat radius):		0.058		



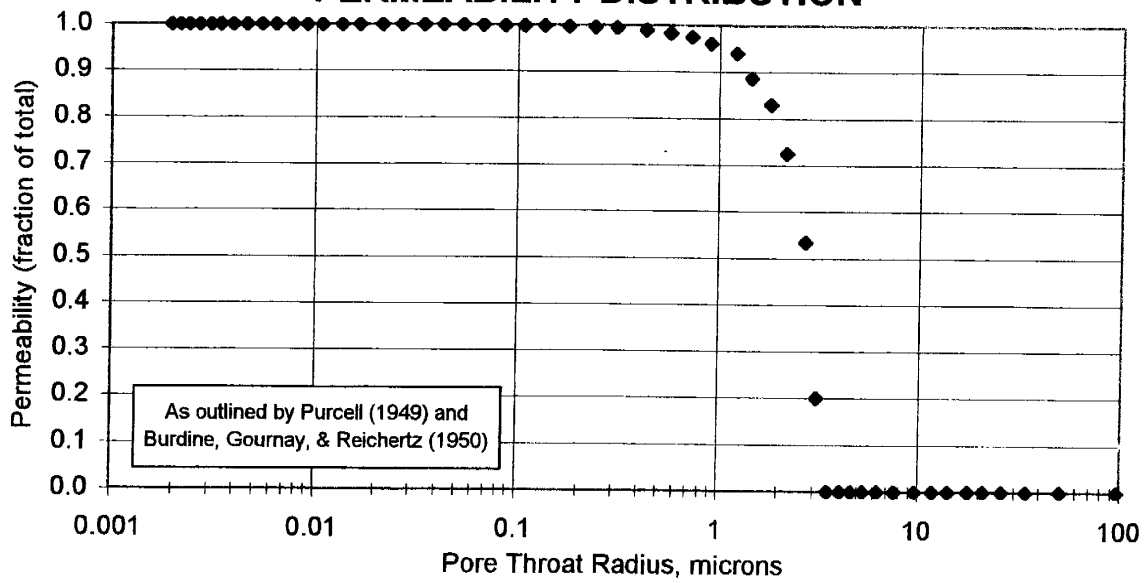
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**563**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.039	-	-
Permeability to Air, md:		0.088	-	-
Swanson Permeability, md:		0.125	-	-
Porosity, fraction:		0.055	-	-
maximum Sb/Pc, fraction:		0.008		
R50 (median pore throat radius):		0.058		

PORE THROAT RADIUS DISTRIBUTION

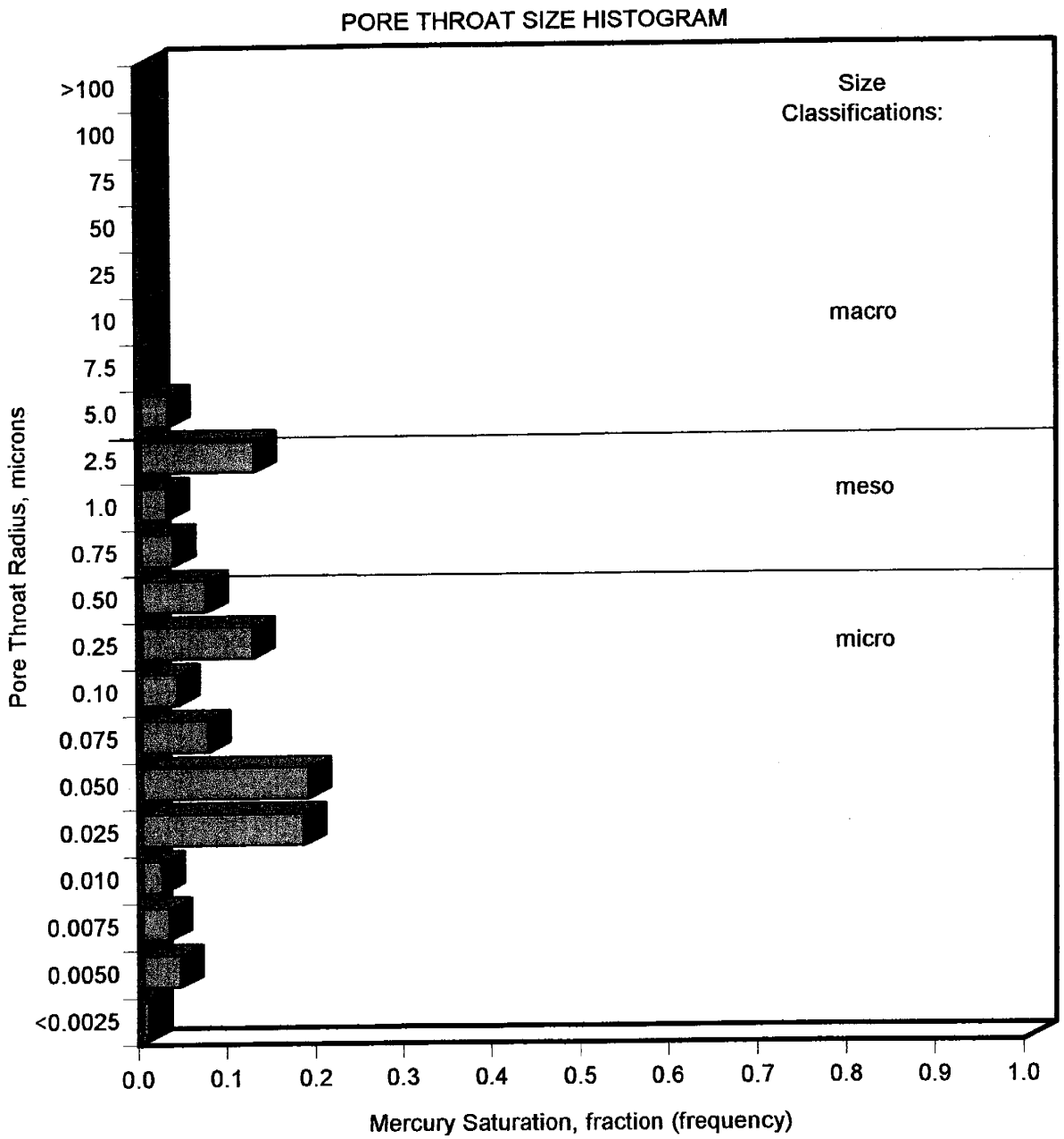


PERMEABILITY DISTRIBUTION



Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**563**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.039	-	-
Permeability to Air, md:		0.088	-	-
Swanson Permeability, md:		0.125	-	-
Porosity, fraction:		0.055	-	-
maximum Sb/Pc, fraction:		0.008		
R50 (median pore throat radius):		0.058		



Core Laboratories

MERCURY INJECTION DATA SUMMARY

Company: Conestoga Rovers & Assoc.
Project: GM-Bedford
Field: n/a
Formation: n/a
Location: n/a
File: HOU-021274

Sample:	**564**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.860	-	-
Permeability to Air, md:		1.22	-	-
Swanson Permeability, md:		1.01	-	-
Porosity, fraction:		0.218	-	-
maximum Sb/Pc, fraction:		0.029		
R50 (median pore throat radius):		0.260		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
1.11	0.000	1.000	97.1	0.00129	0.215	0.072	0.091	0.448	0.744
2.12	0.000	1.000	50.8	0.00246	0.411	0.137	0.173	0.857	1.42
3.10	0.000	1.000	34.8	0.00360	0.601	0.200	0.253	1.25	2.08
4.10	0.000	1.000	26.3	0.00476	0.795	0.265	0.334	1.66	2.74
5.11	0.000	1.000	21.1	0.00593	0.990	0.330	0.417	2.06	3.42
6.08	0.000	1.000	17.7	0.00706	1.18	0.393	0.496	2.46	4.07
7.57	0.000	1.000	14.2	0.00879	1.47	0.489	0.618	3.07	5.07
9.08	0.000	1.000	11.9	0.0105	1.76	0.587	0.741	3.67	6.08
11.1	0.000	1.000	9.75	0.0128	2.14	0.714	0.901	4.46	7.40
14.1	0.000	1.000	7.67	0.0163	2.72	0.908	1.15	5.67	9.44
17.0	0.000	1.000	6.32	0.0198	3.30	1.10	1.39	6.88	11.4
20.0	0.000	1.000	5.38	0.0232	3.88	1.29	1.63	8.09	13.4
23.0	0.000	1.000	4.68	0.0267	4.46	1.49	1.88	9.30	15.4
26.0	0.000	1.000	4.15	0.0302	5.04	1.68	2.12	10.5	17.4
30.4	0.000	1.000	3.54	0.0353	5.90	1.97	2.48	12.3	20.4
35.7	0.000	1.000	3.02	0.0414	6.91	2.30	2.91	14.4	23.9
40.1	0.000	1.000	2.69	0.0465	7.76	2.59	3.27	16.2	26.8
50.4	0.000	1.000	2.14	0.0585	9.77	3.26	4.11	20.4	33.7
60.3	0.000	1.000	1.79	0.0700	11.7	3.90	4.92	24.4	40.4
74.8	0.000	1.000	1.44	0.0868	14.5	4.83	6.10	30.2	50.1
90.0	0.003	0.997	1.20	0.104	17.4	5.79	7.31	36.3	60.0
120	0.043	0.957	0.899	0.139	23.2	7.74	9.78	48.4	80.3
150	0.115	0.885	0.719	0.174	29.0	9.67	12.2	60.5	100
190	0.219	0.781	0.569	0.220	36.7	12.2	15.4	76.5	126
250	0.333	0.667	0.432	0.290	48.3	16.1	20.4	101	167
350	0.450	0.550	0.309	0.405	67.7	22.6	28.5	141	234
450	0.522	0.478	0.240	0.521	87.0	29.0	36.6	181	300
600	0.597	0.403	0.179	0.697	116	38.8	49.0	242	402
800	0.663	0.337	0.135	0.927	155	51.6	65.1	323	534
1000	0.711	0.289	0.108	1.16	193	64.4	81.4	402	668
1200	0.756	0.244	0.0864	1.450	242	80.6	102	505	837
1600	0.799	0.201	0.0675	1.850	309	103	130	644	1070

MERCURY INJECTION DATA SUMMARY

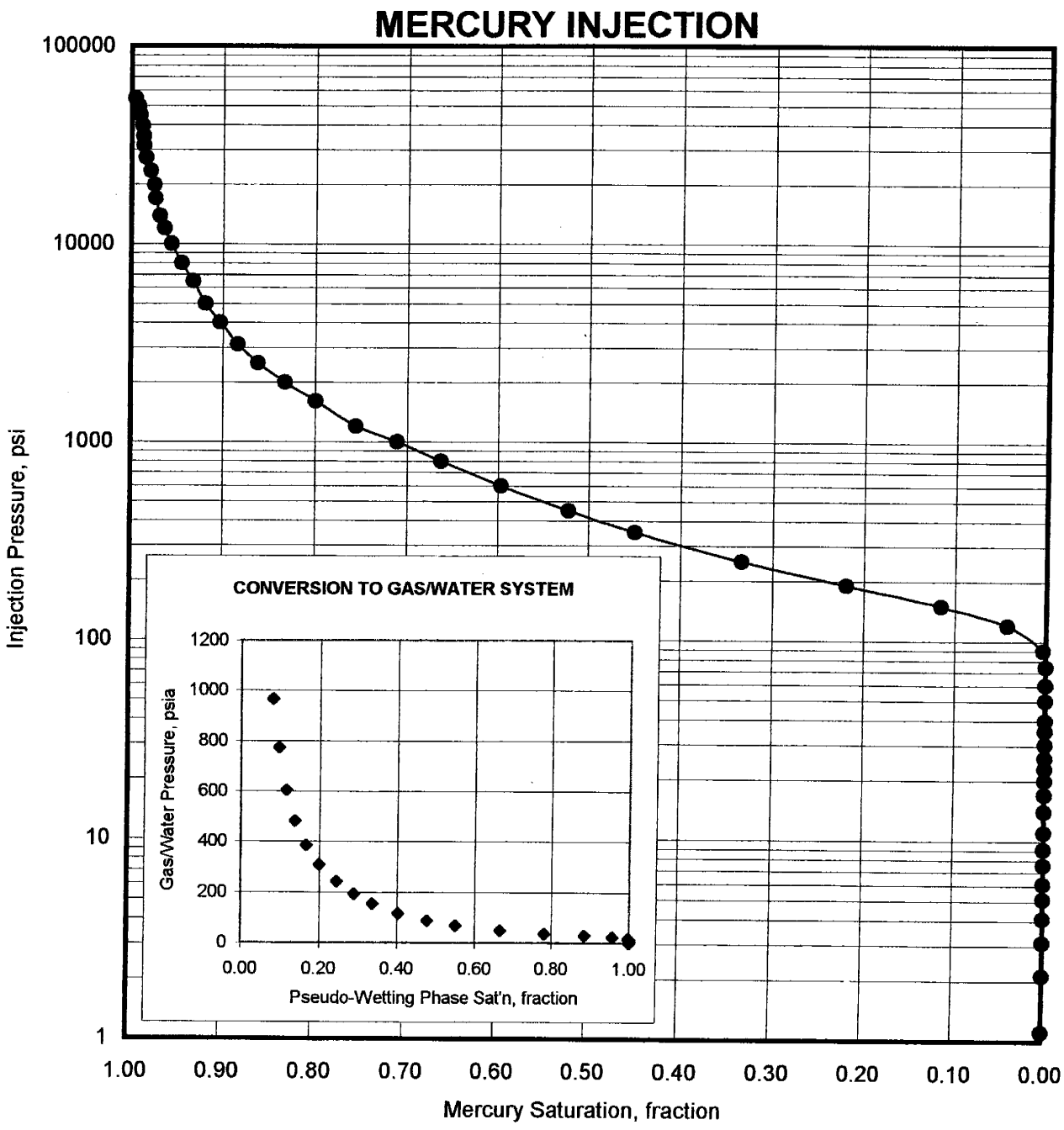
Company: Conestoga Rovers & Assoc.
Project: GM-Bedford
Field: n/a
Formation: n/a
Location: n/a
File: HOU-021274

Sample:	**564**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.860	-	-
Permeability to Air, md:		1.22	-	-
Swanson Permeability, md:		1.01	-	-
Porosity, fraction:		0.218	-	-
maximum Sb/Pc, fraction:		0.029		
R50 (median pore throat radius):		0.260		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
2000	0.833	0.167	0.0541	2.31	386	129	162	805	1330
2500	0.862	0.138	0.0433	2.89	482	161	203	1010	1670
3100	0.883	0.117	0.0346	3.62	604	201	254	1260	2090
4000	0.903	0.097	0.0270	4.63	773	258	325	1610	2670
5000	0.919	0.081	0.0216	5.79	966	322	407	2010	3340
6500	0.932	0.068	0.0167	7.51	1250	418	528	2610	4330
8000	0.945	0.055	0.0135	9.27	1550	516	651	3230	5340
10000	0.956	0.044	0.0108	11.6	1930	644	814	4020	6680
12000	0.963	0.037	0.0090	13.9	2320	773	976	4840	8010
13900	0.969	0.031	0.0077	16.2	2700	900	1140	5630	9360
17000	0.974	0.026	0.0063	19.7	3300	1100	1390	6880	11400
19900	0.975	0.025	0.0054	23.1	3860	1290	1620	8050	13300
23400	0.979	0.021	0.0046	27.2	4540	1510	1910	9470	15700
27400	0.984	0.016	0.0039	31.8	5310	1770	2240	11100	18400
31500	0.986	0.014	0.0034	36.6	6110	2040	2570	12700	21100
35000	0.987	0.013	0.0031	40.6	6780	2260	2850	14100	23400
39800	0.988	0.012	0.0027	46.2	7710	2570	3250	16100	26700
44900	0.990	0.010	0.0024	52.1	8710	2900	3660	18200	30000
49800	0.993	0.007	0.0022	57.8	9650	3220	4060	20100	33300
54700	0.996	0.004	0.0020	63.5	10600	3540	4470	22100	36700

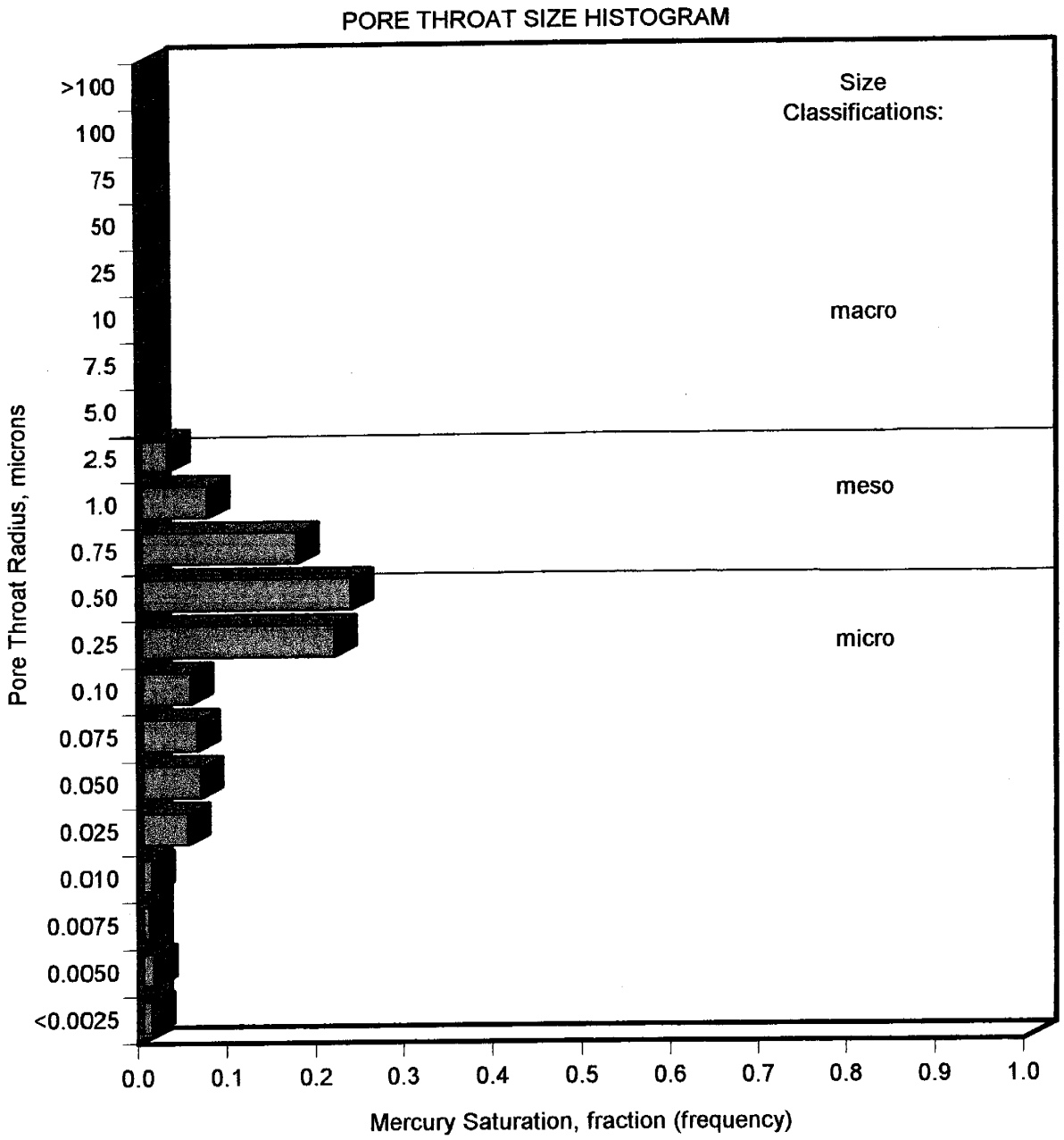
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**564**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.860	-	-
Permeability to Air, md:		1.22	-	-
Swanson Permeability, md:		1.01	-	-
Porosity, fraction:		0.218	-	-
maximum Sb/Pc, fraction:		0.029		
R50 (median pore throat radius):		0.260		



Company: Conestoga Rovers & Assoc.
Project: GM-Bedford
Field: n/a
Formation: n/a
Location: n/a
File: HOU-021274

Sample:	564		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.860	-	-
Permeability to Air, md:		1.22	-	-
Swanson Permeability, md:		1.01	-	-
Porosity, fraction:		0.218	-	-
maximum Sb/Pc, fraction:		0.029		
R50 (median pore throat radius):		0.260		



MERCURY INJECTION DATA SUMMARY

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**565**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.974	-	-
Permeability to Air, md:		1.37	-	-
Swanson Permeability, md:		0.801	-	-
Porosity, fraction:		0.213	-	-
maximum Sb/Pc, fraction:		0.025		
R50 (median pore throat radius):		0.240		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
1.11	0.000	1.000	97.1	0.00139	0.215	0.072	0.091	0.448	0.744
2.12	0.000	1.000	50.8	0.00265	0.411	0.137	0.173	0.857	1.42
3.10	0.000	1.000	34.8	0.00387	0.601	0.200	0.253	1.25	2.08
4.10	0.000	1.000	26.3	0.00512	0.795	0.265	0.334	1.66	2.74
5.11	0.000	1.000	21.1	0.00638	0.990	0.330	0.417	2.06	3.42
6.08	0.000	1.000	17.7	0.00759	1.18	0.393	0.496	2.46	4.07
7.57	0.000	1.000	14.2	0.00945	1.47	0.489	0.618	3.07	5.07
9.08	0.000	1.000	11.9	0.0113	1.76	0.587	0.741	3.67	6.08
11.1	0.000	1.000	9.75	0.0138	2.14	0.714	0.901	4.46	7.40
14.1	0.000	1.000	7.67	0.0175	2.72	0.908	1.15	5.67	9.44
17.0	0.000	1.000	6.32	0.0213	3.30	1.10	1.39	6.88	11.4
20.0	0.000	1.000	5.38	0.0250	3.88	1.29	1.63	8.09	13.4
23.0	0.000	1.000	4.68	0.0287	4.46	1.49	1.88	9.30	15.4
26.0	0.000	1.000	4.15	0.0324	5.04	1.68	2.12	10.5	17.4
30.4	0.000	1.000	3.54	0.0380	5.90	1.97	2.48	12.3	20.4
35.7	0.000	1.000	3.02	0.0445	6.91	2.30	2.91	14.4	23.9
40.1	0.000	1.000	2.69	0.0500	7.76	2.59	3.27	16.2	26.8
50.4	0.000	1.000	2.14	0.0630	9.77	3.26	4.11	20.4	33.7
60.3	0.000	1.000	1.79	0.0753	11.7	3.90	4.92	24.4	40.4
74.8	0.000	1.000	1.44	0.0934	14.5	4.83	6.10	30.2	50.1
90.0	0.000	1.000	1.20	0.112	17.4	5.79	7.32	36.3	60.1
120	0.000	1.000	0.898	0.150	23.2	7.75	9.79	48.4	80.4
150	0.037	0.963	0.718	0.187	29.1	9.69	12.2	60.7	100
190	0.150	0.850	0.569	0.237	36.7	12.2	15.5	76.5	127
250	0.280	0.720	0.432	0.312	48.4	16.1	20.4	101	167
350	0.416	0.584	0.308	0.436	67.7	22.6	28.5	141	234
450	0.505	0.495	0.240	0.561	87.1	29.0	36.6	182	300
600	0.595	0.405	0.179	0.750	116	38.8	49.0	242	402
800	0.670	0.330	0.135	0.997	155	51.6	65.1	323	534
1000	0.721	0.279	0.108	1.25	193	64.4	81.4	402	668
1200	0.768	0.232	0.0864	1.560	242	80.6	102	505	837
1600	0.813	0.187	0.0675	1.990	309	103	130	644	1070

MERCURY INJECTION DATA SUMMARY

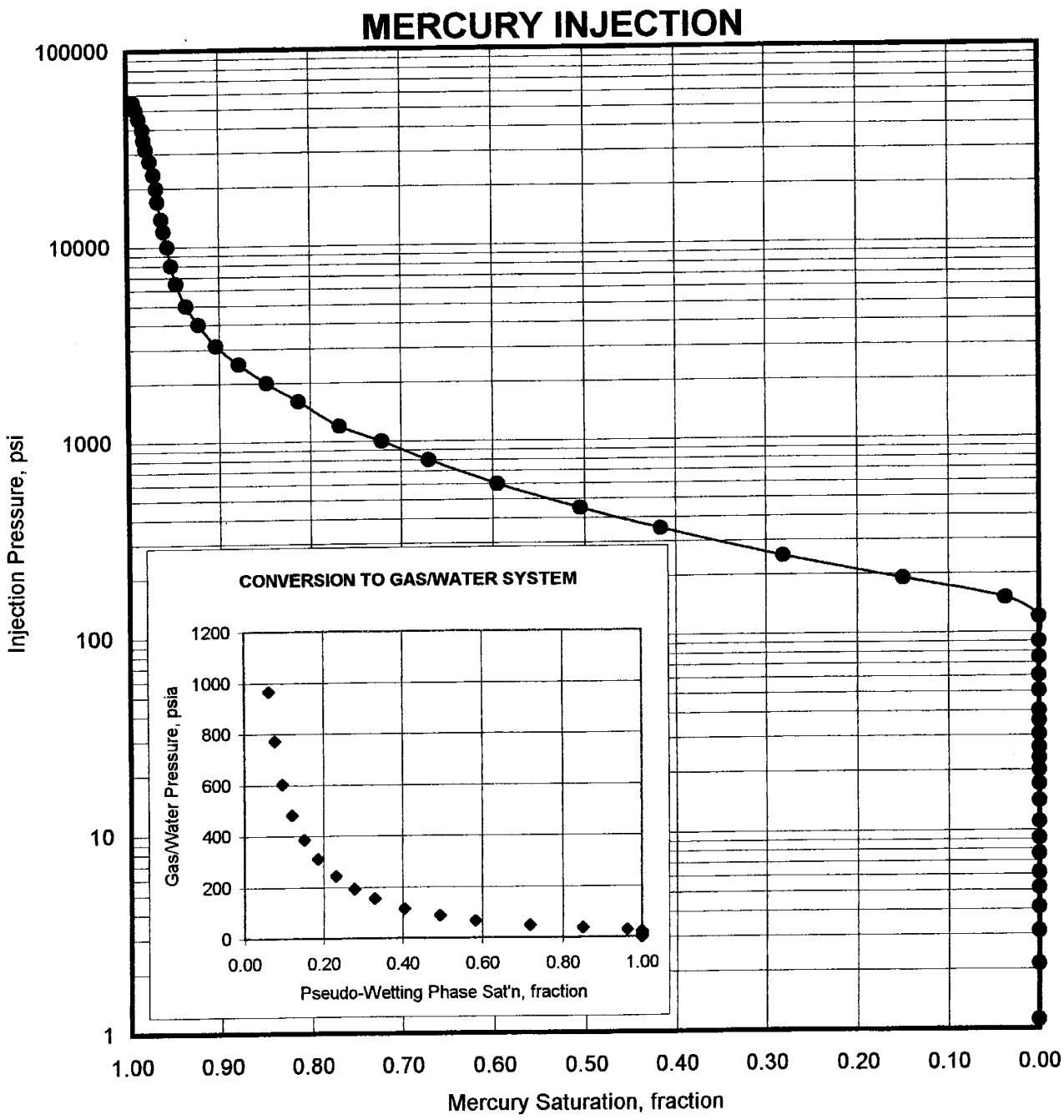
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**565**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.974	-	-
Permeability to Air, md:		1.37	-	-
Swanson Permeability, md:		0.801	-	-
Porosity, fraction:		0.213	-	-
maximum Sb/Pc, fraction:		0.025		
R50 (median pore throat radius):		0.240		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
2000	0.848	0.152	0.0541	2.49	386	129	162	805	1330
2500	0.879	0.121	0.0433	3.11	482	161	203	1010	1670
3100	0.904	0.096	0.0346	3.89	604	201	254	1260	2090
4000	0.923	0.077	0.0270	4.98	773	258	325	1610	2670
5000	0.936	0.064	0.0216	6.22	966	322	407	2010	3340
6500	0.947	0.053	0.0167	8.08	1250	418	528	2610	4330
8000	0.952	0.048	0.0135	9.97	1550	516	651	3230	5340
10000	0.956	0.044	0.0108	12.5	1930	644	814	4020	6680
12000	0.960	0.040	0.0090	14.9	2320	773	976	4840	8010
13900	0.962	0.038	0.0077	17.4	2700	900	1140	5630	9360
17000	0.966	0.034	0.0063	21.2	3300	1100	1390	6880	11400
19900	0.968	0.032	0.0054	24.9	3860	1290	1620	8050	13300
23400	0.971	0.029	0.0046	29.2	4540	1510	1910	9470	15700
27400	0.975	0.025	0.0039	34.2	5310	1770	2240	11100	18400
31500	0.979	0.021	0.0034	39.3	6110	2040	2570	12700	21100
35000	0.981	0.019	0.0031	43.7	6780	2260	2850	14100	23400
39800	0.982	0.018	0.0027	49.7	7710	2570	3250	16100	26700
44900	0.986	0.014	0.0024	56.1	8710	2900	3660	18200	30000
49800	0.989	0.011	0.0022	62.2	9650	3220	4060	20100	33300
54700	0.993	0.007	0.0020	68.3	10600	3540	4470	22100	36700

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**565**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.974	-	-
Permeability to Air, md:		1.37	-	-
Swanson Permeability, md:		0.801	-	-
Porosity, fraction:		0.213	-	-
maximum Sb/Pc, fraction:		0.025		
R50 (median pore throat radius):		0.240		

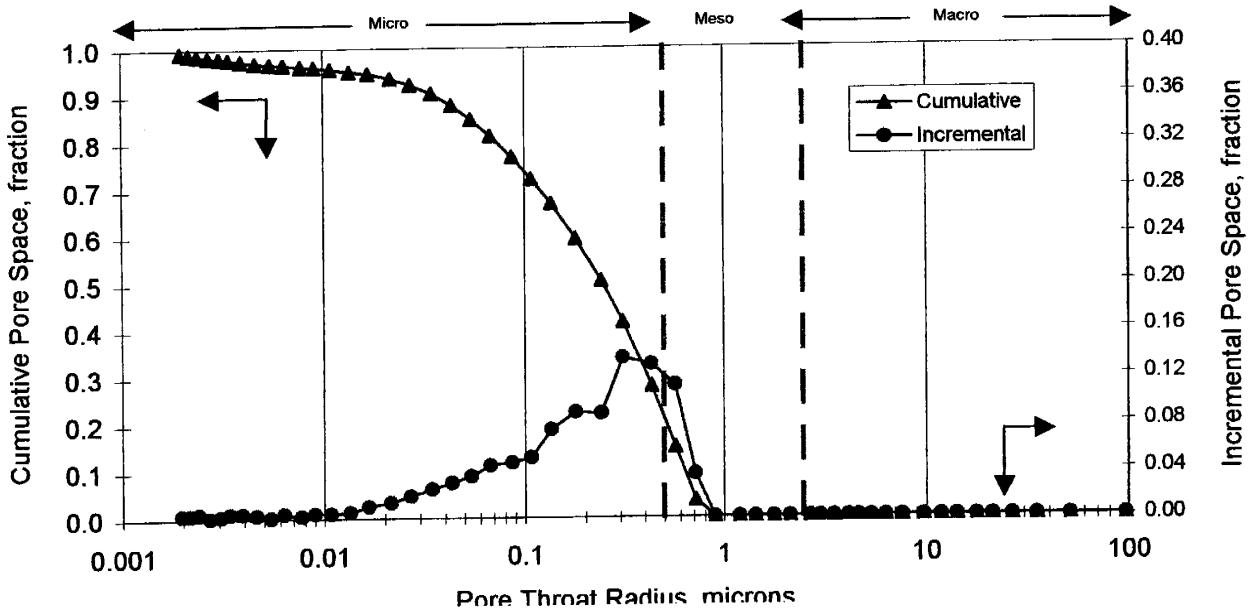


Core Laboratories

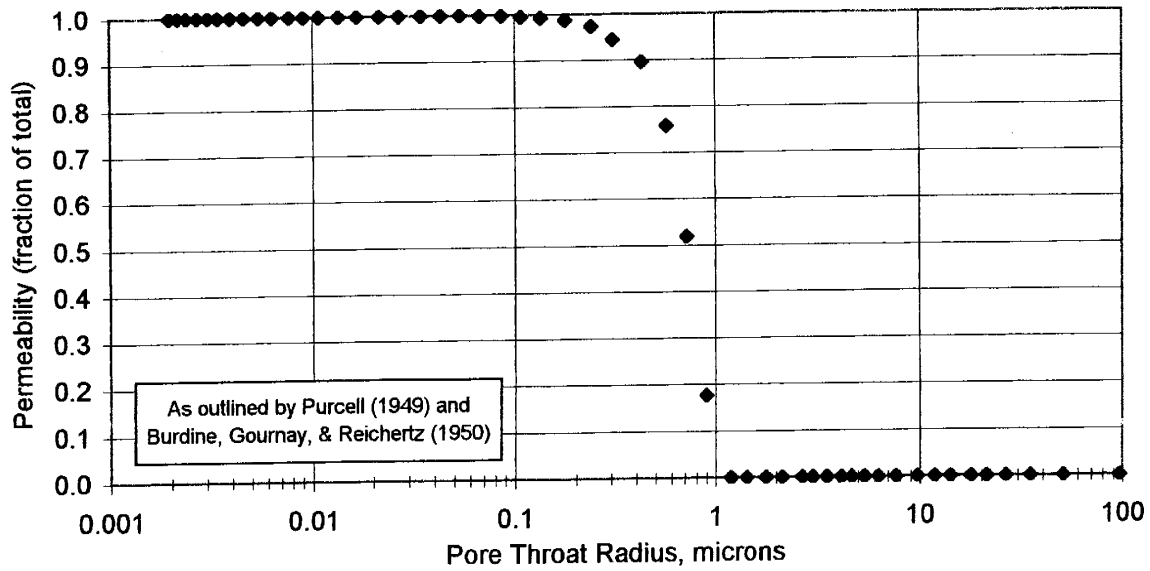
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**565**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.974	-	-
Permeability to Air, md:		1.37	-	-
Swanson Permeability, md:		0.801	-	-
Porosity, fraction:		0.213	-	-
maximum Sb/Pc, fraction:		0.025		
R50 (median pore throat radius):		0.240		

PORE THROAT RADIUS DISTRIBUTION

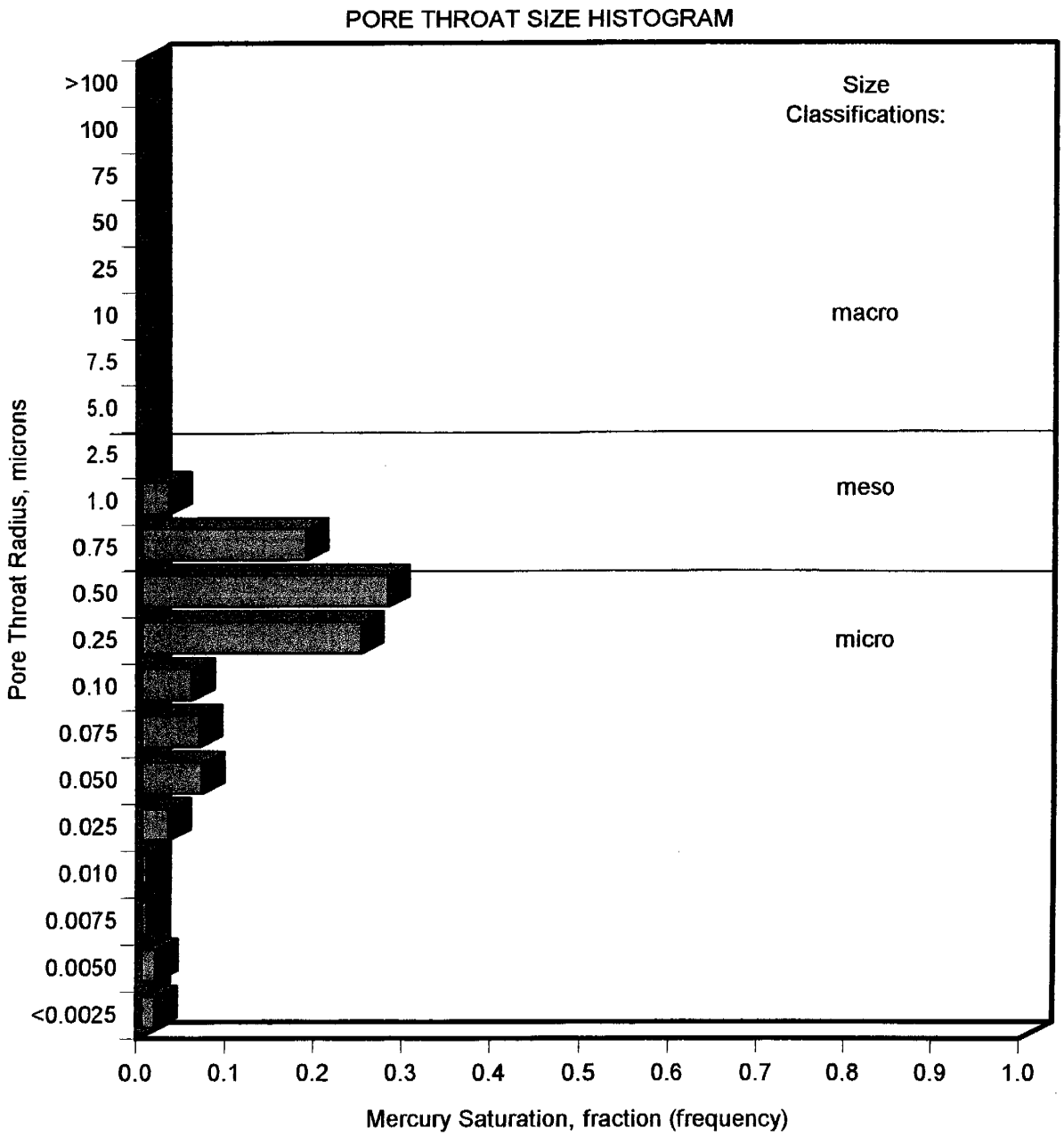


PERMEABILITY DISTRIBUTION



Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	565		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		0.974	-	-
Permeability to Air, md:		1.37	-	-
Swanson Permeability, md:		0.801	-	-
Porosity, fraction:		0.213	-	-
maximum Sb/Pc, fraction:		0.025		
R50 (median pore throat radius):		0.240		



MERCURY INJECTION DATA SUMMARY

Company: Conestoga Rovers & Assoc.
Project: GM-Bedford
Field: n/a
Formation: n/a
Location: n/a
File: HOU-021274

Sample:	566		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		1.90	-	-
Permeability to Air, md:		2.52	-	-
Swanson Permeability, md:		1.59	-	-
Porosity, fraction:		0.239	-	-
maximum Sb/Pc, fraction:		0.038		
R50 (median pore throat radius):		0.308		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
1.13	0.000	1.000	95.3	0.00186	0.219	0.073	0.092	0.457	0.757
2.05	0.000	1.000	52.6	0.00338	0.397	0.132	0.167	0.828	1.37
3.04	0.000	1.000	35.4	0.00501	0.589	0.196	0.248	1.23	2.04
4.03	0.000	1.000	26.7	0.00663	0.781	0.260	0.329	1.63	2.70
5.03	0.000	1.000	21.4	0.00828	0.975	0.325	0.410	2.03	3.37
6.03	0.000	1.000	17.9	0.00993	1.17	0.390	0.492	2.44	4.04
7.52	0.000	1.000	14.3	0.0124	1.46	0.486	0.614	3.04	5.04
9.01	0.000	1.000	12.0	0.0148	1.75	0.582	0.735	3.65	6.03
11.0	0.000	1.000	9.79	0.0181	2.13	0.711	0.898	4.44	7.37
14.0	0.000	1.000	7.70	0.0230	2.71	0.904	1.14	5.65	9.36
17.0	0.000	1.000	6.34	0.0280	3.29	1.10	1.39	6.86	11.4
20.0	0.000	1.000	5.39	0.0329	3.87	1.29	1.63	8.07	13.4
23.0	0.000	1.000	4.69	0.0378	4.45	1.48	1.87	9.28	15.4
26.0	0.000	1.000	4.15	0.0427	5.03	1.68	2.12	10.5	17.4
30.4	0.000	1.000	3.54	0.0501	5.89	1.96	2.48	12.3	20.4
35.1	0.000	1.000	3.07	0.0577	6.80	2.27	2.86	14.2	23.5
40.0	0.005	0.995	2.69	0.0658	7.75	2.58	3.26	16.2	26.8
50.6	0.015	0.985	2.13	0.0833	9.81	3.27	4.13	20.5	33.9
60.0	0.027	0.973	1.80	0.0988	11.6	3.88	4.90	24.2	40.2
75.2	0.057	0.943	1.43	0.124	14.6	4.86	6.14	30.4	50.4
90.0	0.093	0.907	1.20	0.148	17.4	5.81	7.34	36.3	60.3
120	0.161	0.839	0.900	0.197	23.2	7.73	9.76	48.4	80.1
150	0.229	0.771	0.719	0.247	29.0	9.68	12.2	60.5	100
190	0.302	0.698	0.567	0.313	36.8	12.3	15.5	76.7	127
250	0.389	0.611	0.433	0.410	48.2	16.1	20.3	101	167
350	0.495	0.505	0.308	0.575	67.7	22.6	28.5	141	234
450	0.570	0.430	0.240	0.739	86.9	29.0	36.6	181	300
600	0.651	0.349	0.180	0.985	116	38.6	48.8	242	401
800	0.722	0.278	0.135	1.31	155	51.5	65.1	323	534
1000	0.768	0.232	0.108	1.64	193	64.4	81.3	402	667
1300	0.809	0.191	0.0862	2.06	242	80.8	102	505	837
1600	0.847	0.153	0.0675	2.63	309	103	130	644	1070

MERCURY INJECTION DATA SUMMARY

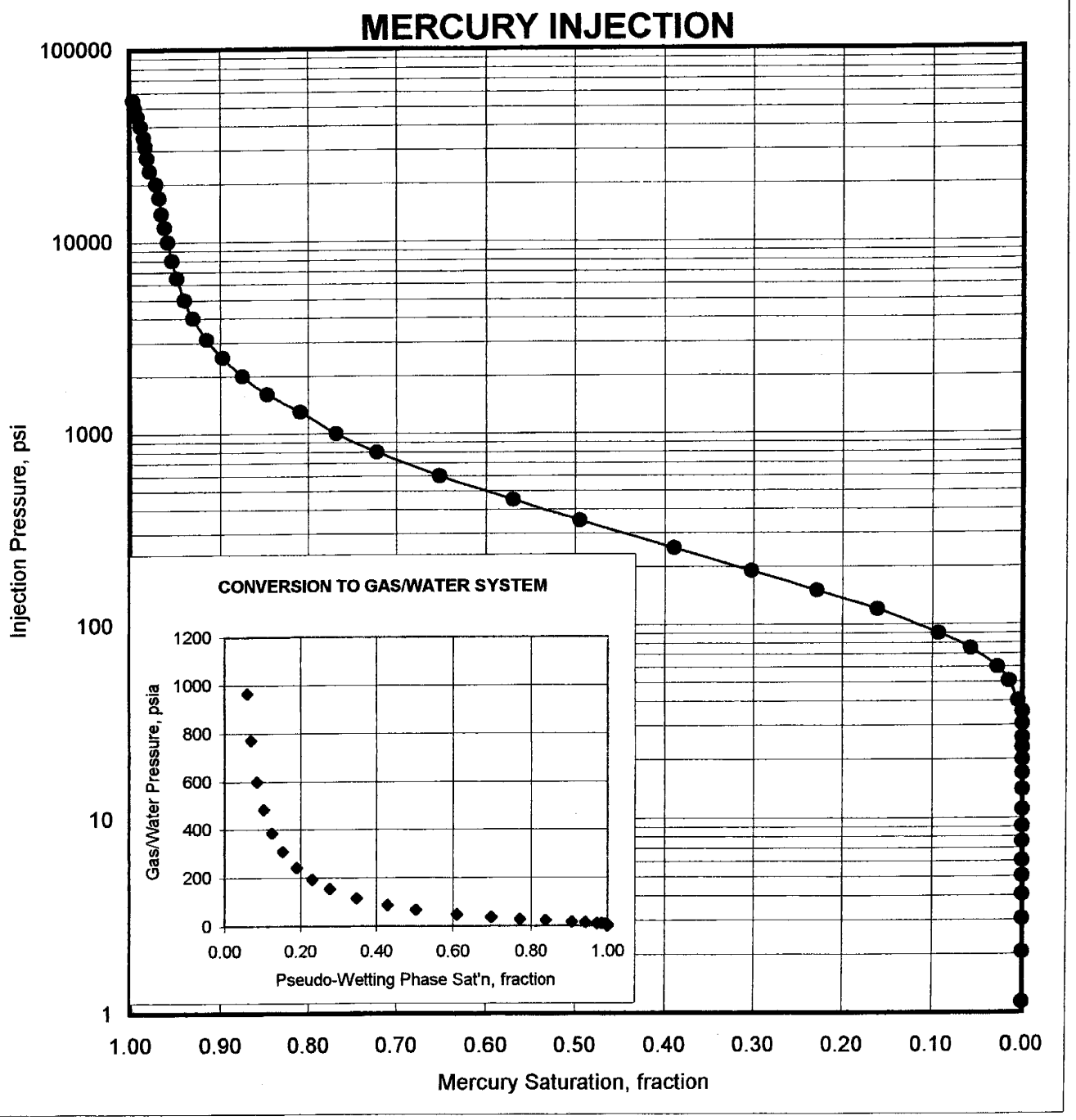
Company: Conestoga Rovers & Assoc.
Project: GM-Bedford
Field: n/a
Formation: n/a
Location: n/a
File: HOU-021274

Sample:	566		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		1.90	-	-
Permeability to Air, md:		2.52	-	-
Swanson Permeability, md:		1.59	-	-
Porosity, fraction:		0.239	-	-
maximum Sb/Pc, fraction:		0.038		
R50 (median pore throat radius):		0.308		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
2000	0.875	0.125	0.0541	3.28	386	129	163	805	1340
2500	0.897	0.103	0.0432	4.10	483	161	203	1010	1670
3100	0.915	0.085	0.0348	5.10	600	200	253	1250	2080
4000	0.930	0.070	0.0270	6.56	772	257	325	1610	2670
5000	0.940	0.060	0.0216	8.20	965	322	406	2010	3330
6500	0.948	0.052	0.0167	10.6	1250	418	528	2610	4330
8000	0.953	0.047	0.0135	13.1	1540	515	650	3210	5340
10000	0.957	0.043	0.0108	16.4	1930	644	813	4020	6670
11900	0.961	0.039	0.0090	19.7	2320	772	975	4840	8000
14000	0.965	0.035	0.0077	23.0	2700	901	1140	5630	9360
17000	0.967	0.033	0.0064	27.9	3290	1100	1380	6860	11300
20000	0.971	0.029	0.0054	32.9	3870	1290	1630	8070	13400
23400	0.978	0.022	0.0046	38.6	4540	1510	1910	9470	15700
27400	0.981	0.019	0.0039	45.1	5310	1770	2230	11100	18300
31400	0.982	0.018	0.0034	51.8	6090	2030	2570	12700	21100
34800	0.984	0.016	0.0031	57.4	6750	2250	2840	14100	23300
40000	0.988	0.012	0.0027	65.9	7750	2580	3260	16200	26800
45000	0.991	0.009	0.0024	74.1	8720	2910	3670	18200	30100
49800	0.994	0.006	0.0022	81.9	9640	3210	4060	20100	33300
54700	0.996	0.004	0.0020	90.1	10600	3540	4470	22100	36700

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**566**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		1.90	-	-
Permeability to Air, md:		2.52	-	-
Swanson Permeability, md:		1.59	-	-
Porosity, fraction:		0.239	-	-
maximum Sb/Pc, fraction:		0.038		
R50 (median pore throat radius):		0.308		

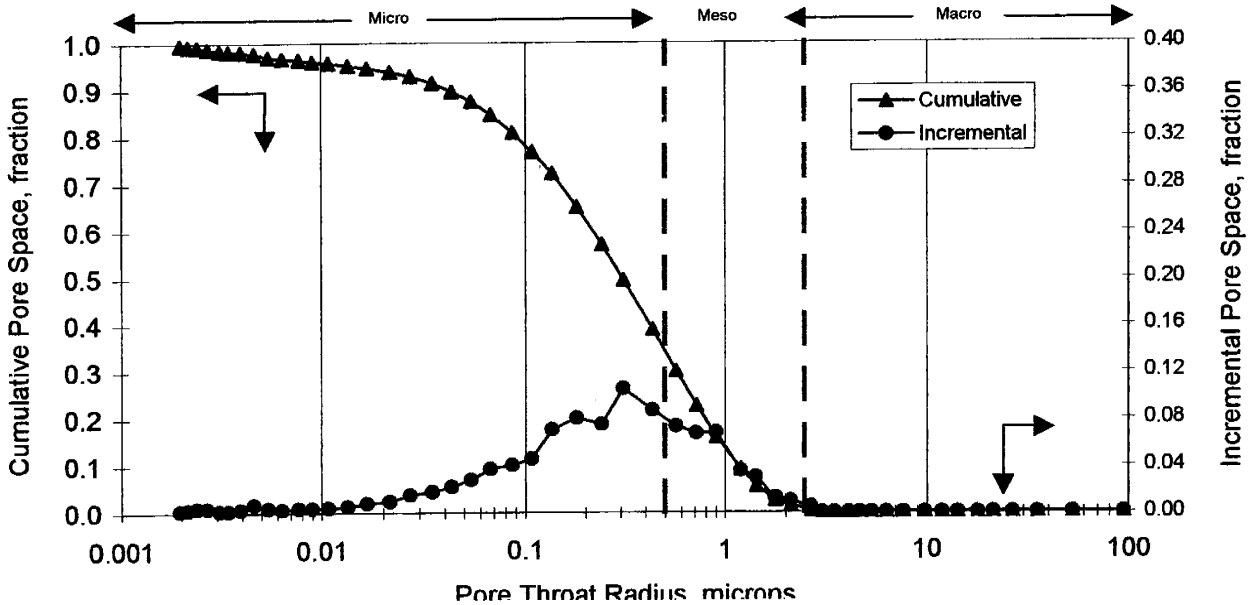


Core Laboratories

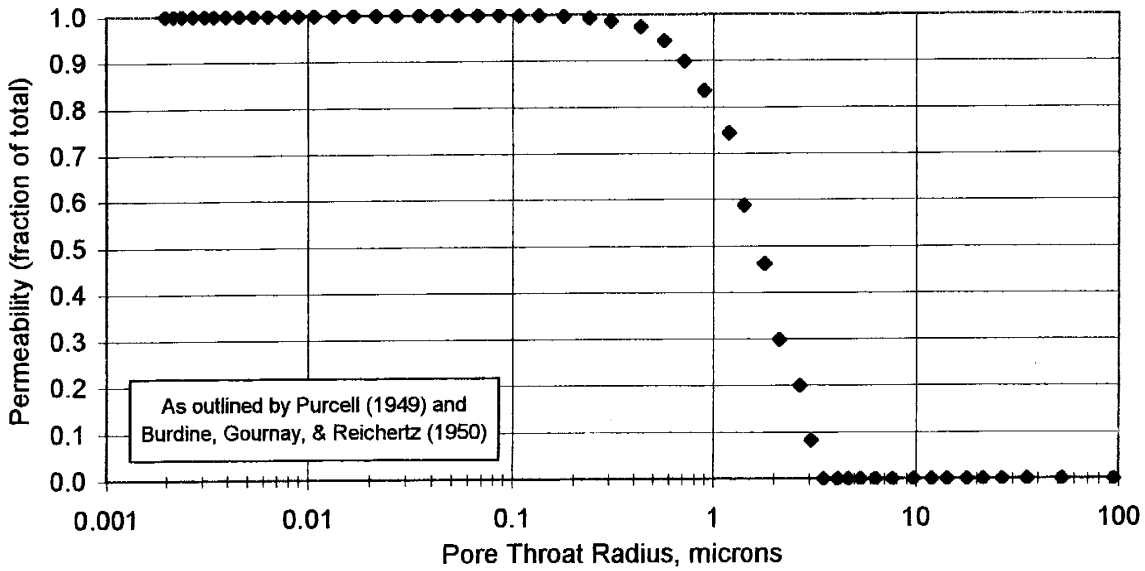
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**566**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		1.90	-	-
Permeability to Air, md:		2.52	-	-
Swanson Permeability, md:		1.59	-	-
Porosity, fraction:		0.239	-	-
maximum Sb/Pc, fraction:		0.038		
R50 (median pore throat radius):		0.308		

PORE THROAT RADIUS DISTRIBUTION

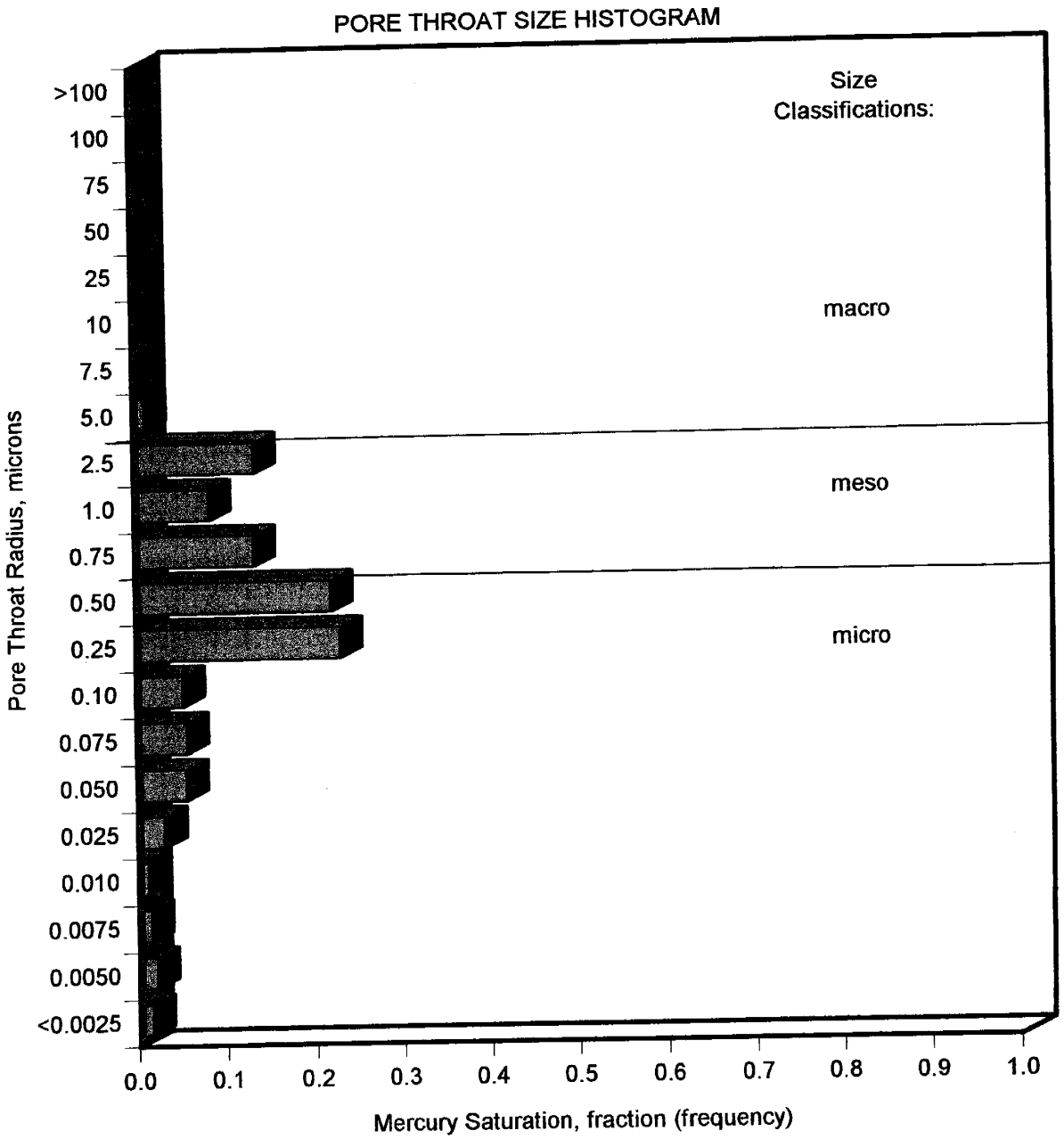


PERMEABILITY DISTRIBUTION



Company: Conestoga Rovers & Assoc.
Project: GM-Bedford
Field: n/a
Formation: n/a
Location: n/a
File: HOU-021274

Sample:	566		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		1.90	-	-
Permeability to Air, md:		2.52	-	-
Swanson Permeability, md:		1.59	-	-
Porosity, fraction:		0.239	-	-
maximum Sb/Pc, fraction:		0.038		
R50 (median pore throat radius):		0.308		



MERCURY INJECTION DATA SUMMARY

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**567**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		2.60	-	-
Permeability to Air, md:		3.36	-	-
Swanson Permeability, md:		3.63	-	-
Porosity, fraction:		0.238	-	-
maximum Sb/Pc, fraction:		0.062		
R50 (median pore throat radius):		0.500		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
1.07	0.000	1.000	101	0.00206	0.207	0.069	0.087	0.432	0.717
2.04	0.000	1.000	52.8	0.00394	0.395	0.132	0.166	0.824	1.36
3.03	0.000	1.000	35.6	0.00585	0.587	0.196	0.247	1.22	2.03
4.03	0.000	1.000	26.7	0.00778	0.781	0.260	0.329	1.63	2.70
5.03	0.000	1.000	21.4	0.00971	0.975	0.325	0.410	2.03	3.37
6.03	0.000	1.000	17.9	0.0116	1.17	0.390	0.492	2.44	4.04
7.52	0.000	1.000	14.3	0.0145	1.46	0.486	0.614	3.04	5.04
9.01	0.000	1.000	12.0	0.0174	1.75	0.582	0.735	3.65	6.03
11.0	0.000	1.000	9.79	0.0212	2.13	0.711	0.898	4.44	7.37
14.0	0.000	1.000	7.70	0.0270	2.71	0.904	1.14	5.65	9.36
17.0	0.000	1.000	6.34	0.0328	3.29	1.10	1.39	6.86	11.4
20.0	0.000	1.000	5.39	0.0386	3.87	1.29	1.63	8.07	13.4
23.0	0.000	1.000	4.69	0.0443	4.45	1.48	1.87	9.28	15.4
26.0	0.000	1.000	4.15	0.0501	5.03	1.68	2.12	10.5	17.4
30.7	0.000	1.000	3.51	0.0593	5.95	1.98	2.51	12.4	20.6
35.3	0.000	1.000	3.05	0.0681	6.84	2.28	2.88	14.3	23.6
40.1	0.000	1.000	2.68	0.0775	7.78	2.59	3.27	16.2	26.8
50.2	0.009	0.991	2.15	0.0968	9.72	3.24	4.09	20.3	33.6
60.3	0.036	0.964	1.79	0.116	11.7	3.89	4.92	24.4	40.4
74.9	0.089	0.911	1.44	0.145	14.5	4.84	6.11	30.2	50.2
90.0	0.166	0.834	1.20	0.173	17.4	5.80	7.33	36.3	60.2
120	0.305	0.695	0.901	0.231	23.2	7.73	9.76	48.4	80.1
150	0.390	0.610	0.719	0.289	29.0	9.68	12.2	60.5	100
190	0.463	0.537	0.568	0.366	36.8	12.3	15.5	76.7	127
250	0.539	0.461	0.432	0.481	48.3	16.1	20.3	101	167
350	0.627	0.373	0.309	0.673	67.5	22.5	28.4	141	233
450	0.685	0.315	0.240	0.866	86.9	29.0	36.6	181	300
600	0.745	0.255	0.180	1.15	116	38.6	48.7	242	400
800	0.794	0.206	0.135	1.54	155	51.6	65.1	323	534
1000	0.827	0.173	0.108	1.92	193	64.3	81.3	402	667
1200	0.857	0.143	0.0866	2.40	241	80.4	101	503	829
1600	0.884	0.116	0.0676	3.08	309	103	130	644	1070

MERCURY INJECTION DATA SUMMARY

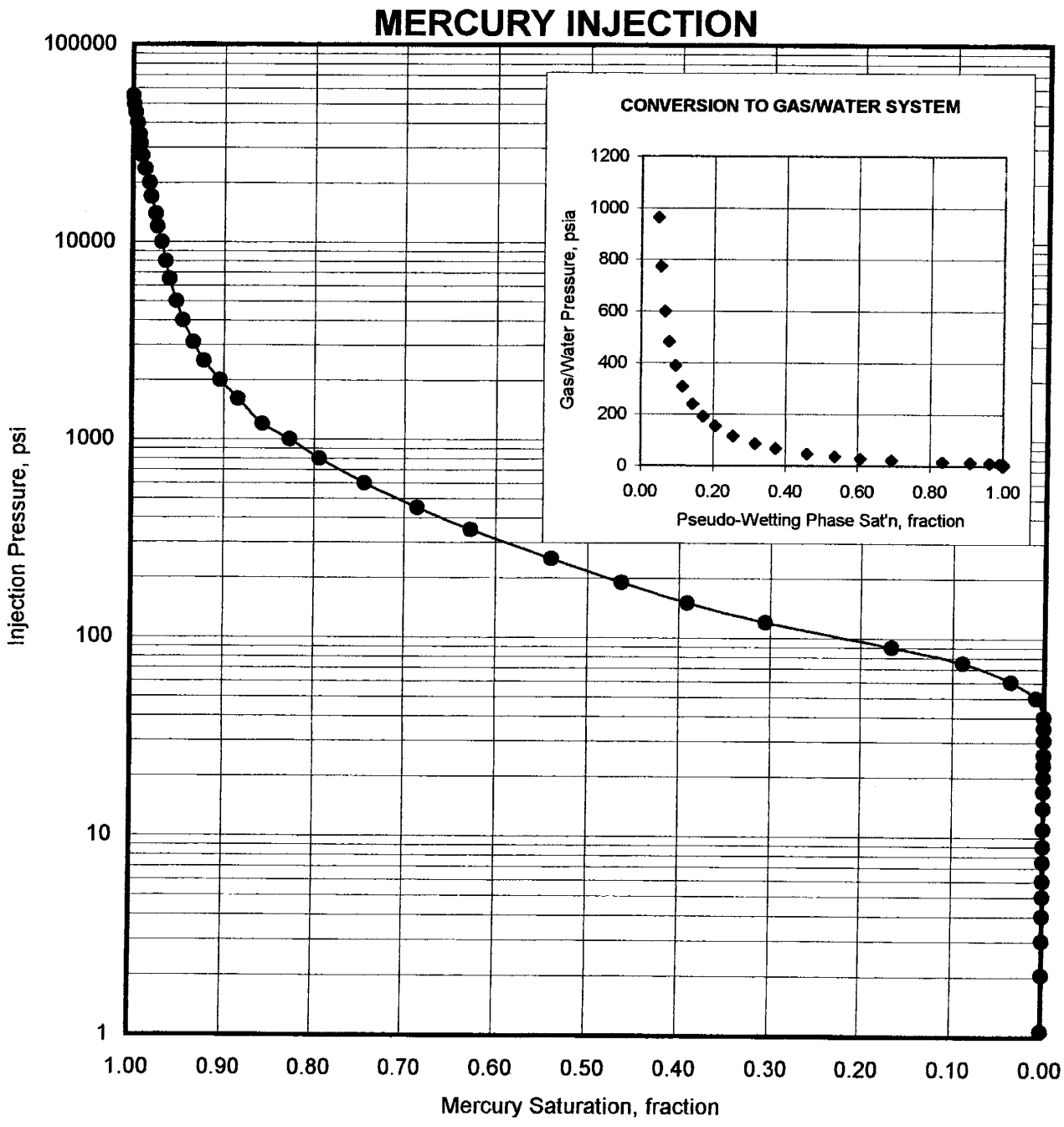
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**567**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		2.60	-	-
Permeability to Air, md:		3.36	-	-
Swanson Permeability, md:		3.63	-	-
Porosity, fraction:		0.238	-	-
maximum Sb/Pc, fraction:		0.062		
R50 (median pore throat radius):		0.500		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
2000	0.904	0.096	0.0538	3.87	388	129	163	809	1340
2500	0.921	0.079	0.0432	4.81	483	161	203	1010	1670
3100	0.933	0.067	0.0348	5.97	599	200	252	1250	2070
4000	0.945	0.055	0.0270	7.70	773	258	326	1610	2680
5000	0.952	0.048	0.0216	9.61	965	322	406	2010	3330
6500	0.959	0.041	0.0166	12.5	1260	418	528	2630	4330
8000	0.964	0.036	0.0135	15.4	1540	515	650	3210	5340
10000	0.968	0.032	0.0108	19.3	1930	644	814	4020	6680
12000	0.973	0.027	0.0090	23.1	2320	774	977	4840	8020
13900	0.975	0.025	0.0077	26.9	2700	900	1140	5630	9360
17000	0.980	0.020	0.0064	32.7	3290	1100	1380	6860	11300
20000	0.982	0.018	0.0054	38.5	3870	1290	1630	8070	13400
23500	0.986	0.014	0.0046	45.3	4550	1520	1910	9490	15700
27400	0.990	0.010	0.0039	52.8	5310	1770	2230	11100	18300
31500	0.992	0.008	0.0034	60.8	6100	2030	2570	12700	21100
35000	0.993	0.007	0.0031	67.5	6770	2260	2850	14100	23400
40100	0.995	0.005	0.0027	77.3	7760	2590	3270	16200	26800
45000	0.997	0.003	0.0024	86.8	8720	2910	3670	18200	30100
49900	0.999	0.001	0.0022	96.2	9660	3220	4070	20100	33400
55000	1.000	0.000	0.0020	106	10700	3550	4490	22300	36900

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**567**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		2.60	-	-
Permeability to Air, md:		3.36	-	-
Swanson Permeability, md:		3.63	-	-
Porosity, fraction:		0.238	-	-
maximum Sb/Pc, fraction:		0.062		
R50 (median pore throat radius):		0.500		

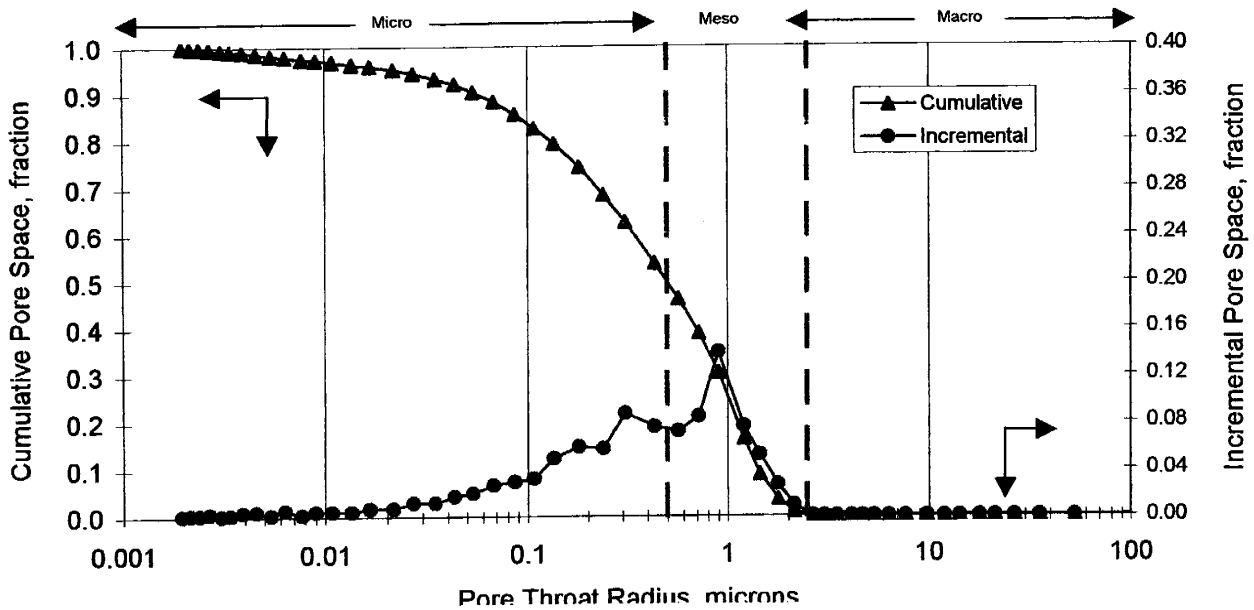


Core Laboratories

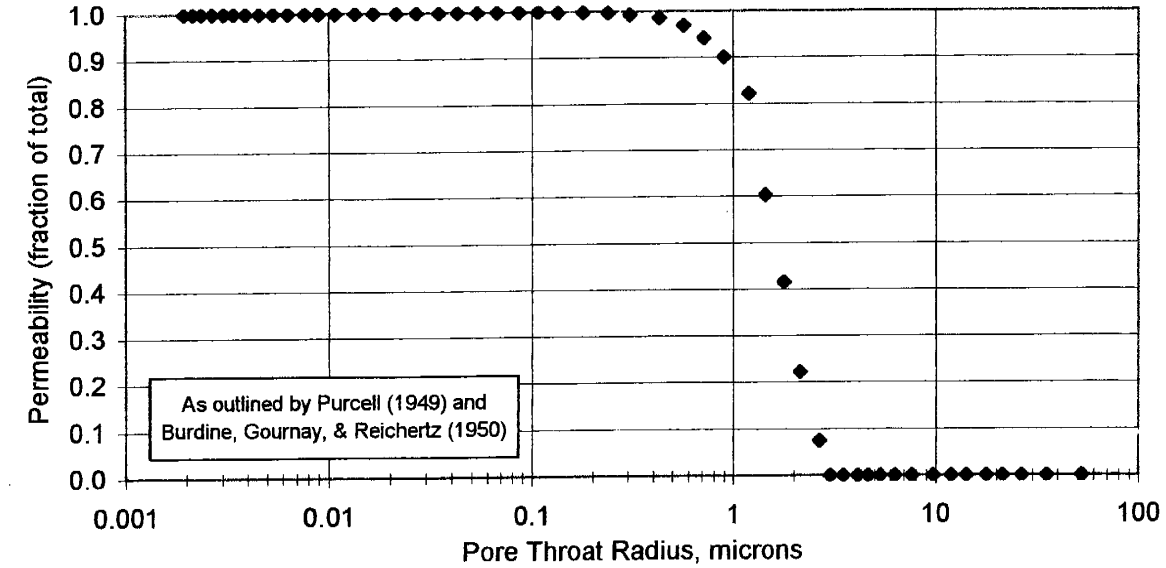
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**567**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		2.60	-	-
Permeability to Air, md:		3.36	-	-
Swanson Permeability, md:		3.63	-	-
Porosity, fraction:		0.238	-	-
maximum Sb/Pc, fraction:		0.062		
R50 (median pore throat radius):		0.500		

PORE THROAT RADIUS DISTRIBUTION



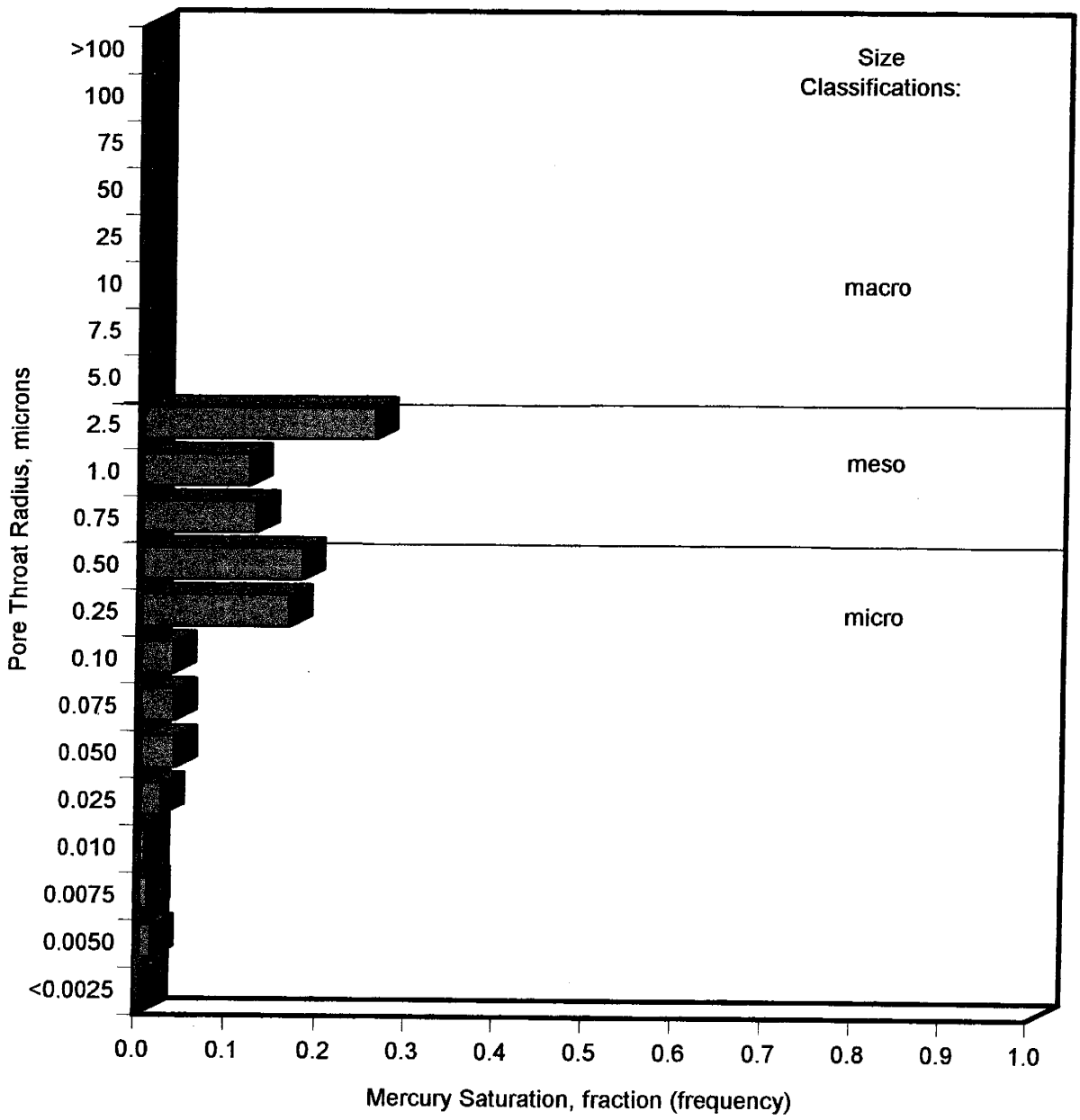
PERMEABILITY DISTRIBUTION



Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**567**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		2.60	-	-
Permeability to Air, md:		3.36	-	-
Swanson Permeability, md:		3.63	-	-
Porosity, fraction:		0.238	-	-
maximum Sb/Pc, fraction:		0.062		
R50 (median pore throat radius):		0.500		

PORE THROAT SIZE HISTOGRAM



MERCURY INJECTION DATA SUMMARY

Company: Conestoga Rovers & Assoc.
Project: GM-Bedford
Field: n/a
Formation: n/a
Location: n/a
File: HOU-021274

Sample:	568		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		4.28	-	-
Permeability to Air, md:		5.32	-	-
Swanson Permeability, md:		2.80	-	-
Porosity, fraction:		0.240	-	-
maximum Sb/Pc, fraction:		0.053		
R50 (median pore throat radius):		0.408		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
1.07	0.000	1.000	101	0.00264	0.207	0.069	0.087	0.432	0.717
2.04	0.000	1.000	52.8	0.00503	0.395	0.132	0.166	0.824	1.36
3.03	0.000	1.000	35.6	0.00747	0.587	0.196	0.247	1.22	2.03
4.03	0.000	1.000	26.7	0.00993	0.781	0.260	0.329	1.63	2.70
5.03	0.000	1.000	21.4	0.0124	0.975	0.325	0.410	2.03	3.37
6.03	0.000	1.000	17.9	0.0149	1.17	0.390	0.492	2.44	4.04
7.52	0.000	1.000	14.3	0.0185	1.46	0.486	0.614	3.04	5.04
9.01	0.000	1.000	12.0	0.0222	1.75	0.582	0.735	3.65	6.03
11.0	0.000	1.000	9.79	0.0271	2.13	0.711	0.898	4.44	7.37
14.0	0.000	1.000	7.70	0.0345	2.71	0.904	1.14	5.65	9.36
17.0	0.000	1.000	6.34	0.0419	3.29	1.10	1.39	6.86	11.4
20.0	0.000	1.000	5.39	0.0492	3.87	1.29	1.63	8.07	13.4
23.0	0.000	1.000	4.69	0.0566	4.45	1.48	1.87	9.28	15.4
26.0	0.000	1.000	4.15	0.0640	5.03	1.68	2.12	10.5	17.4
30.7	0.000	1.000	3.51	0.0757	5.95	1.98	2.51	12.4	20.6
35.3	0.000	1.000	3.05	0.0869	6.84	2.28	2.88	14.3	23.6
40.1	0.000	1.000	2.68	0.0989	7.78	2.59	3.27	16.2	26.8
50.2	0.009	0.991	2.15	0.124	9.72	3.24	4.09	20.3	33.6
60.3	0.038	0.962	1.79	0.149	11.7	3.89	4.92	24.4	40.4
74.9	0.097	0.903	1.44	0.185	14.5	4.84	6.11	30.2	50.2
90.0	0.156	0.844	1.20	0.221	17.4	5.80	7.33	36.3	60.2
120	0.258	0.742	0.899	0.295	23.2	7.74	9.78	48.4	80.3
150	0.332	0.668	0.718	0.370	29.1	9.69	12.2	60.7	100
190	0.403	0.597	0.567	0.468	36.8	12.3	15.5	76.7	127
250	0.483	0.517	0.432	0.615	48.4	16.1	20.4	101	167
350	0.581	0.419	0.309	0.860	67.6	22.5	28.5	141	234
450	0.650	0.350	0.240	1.11	87.0	29.0	36.6	181	300
600	0.721	0.279	0.180	1.47	116	38.6	48.7	242	400
800	0.782	0.218	0.135	1.97	155	51.6	65.1	323	534
1000	0.822	0.178	0.108	2.46	193	64.4	81.3	402	667
1200	0.854	0.146	0.0866	3.070	241	80.4	102	503	837
1600	0.886	0.114	0.0676	3.930	309	103	130	644	1070

MERCURY INJECTION DATA SUMMARY

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

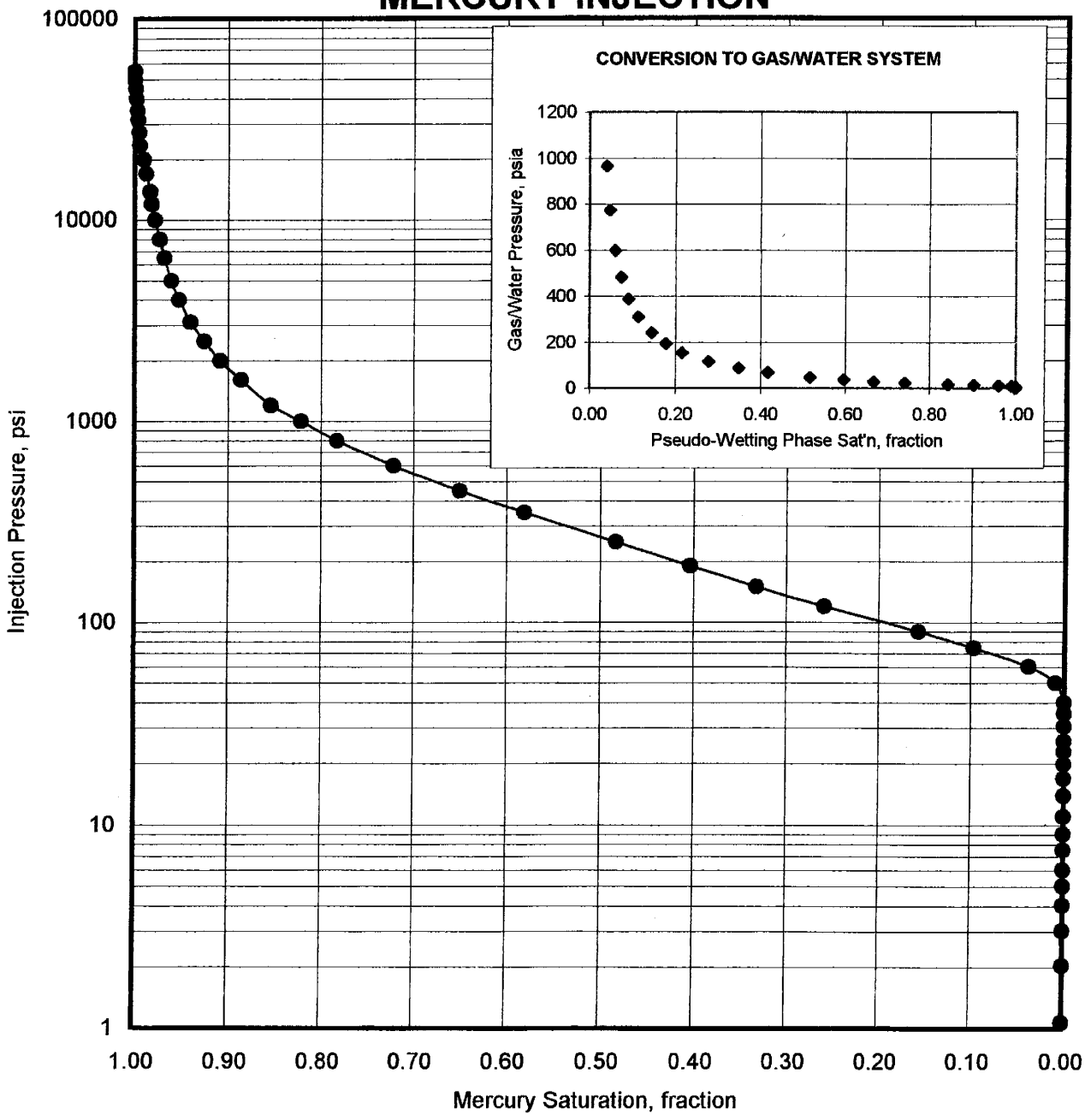
Sample:	**568**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		4.28	-	-
Permeability to Air, md:		5.32	-	-
Swanson Permeability, md:		2.80	-	-
Porosity, fraction:		0.240	-	-
maximum Sb/Pc, fraction:		0.053		
R50 (median pore throat radius):		0.408		

Injection Pressure, psia	Mercury Saturation, fraction	Pseudo-Wetting Saturation, fraction	Pore Radius, microns	J Function	Conversion to other Laboratory Fluid Systems, psia			Estimated Height Above Free Water, feet	
					G-W	G-O	O-W	G-W	O-W
2000	0.908	0.092	0.0538	4.94	388	129	163	809	1340
2500	0.925	0.075	0.0432	6.15	483	161	203	1010	1670
3100	0.940	0.060	0.0348	7.62	599	200	252	1250	2070
4000	0.952	0.048	0.0270	9.84	773	258	326	1610	2680
5000	0.960	0.040	0.0216	12.3	966	322	406	2010	3330
6500	0.969	0.031	0.0166	16.0	1260	418	528	2630	4330
8000	0.973	0.027	0.0135	19.6	1540	515	650	3210	5340
10000	0.978	0.022	0.0108	24.6	1930	644	814	4020	6680
12000	0.982	0.018	0.0090	29.5	2320	774	977	4840	8020
13900	0.984	0.016	0.0077	34.3	2700	900	1140	5630	9360
17000	0.987	0.013	0.0064	41.8	3290	1100	1380	6860	11300
20000	0.990	0.010	0.0054	49.2	3870	1290	1630	8070	13400
23500	0.995	0.005	0.0046	57.8	4550	1520	1910	9490	15700
27400	0.996	0.004	0.0039	67.5	5310	1770	2230	11100	18300
31500	0.996	0.004	0.0034	77.6	6100	2030	2570	12700	21100
35000	0.997	0.003	0.0031	86.2	6770	2260	2850	14100	23400
40100	0.998	0.002	0.0027	98.7	7760	2590	3270	16200	26800
45000	0.999	0.001	0.0024	111	8720	2910	3670	18200	30100
49900	1.000	0.000	0.0022	123	9660	3220	4070	20100	33400
55000	1.000	0.000	0.0020	136	10700	3550	4490	22300	36900

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	568		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		4.28	-	-
Permeability to Air, md:		5.32	-	-
Swanson Permeability, md:		2.80	-	-
Porosity, fraction:		0.240	-	-
maximum Sb/Pc, fraction:		0.053		
R50 (median pore throat radius):		0.408		

MERCURY INJECTION

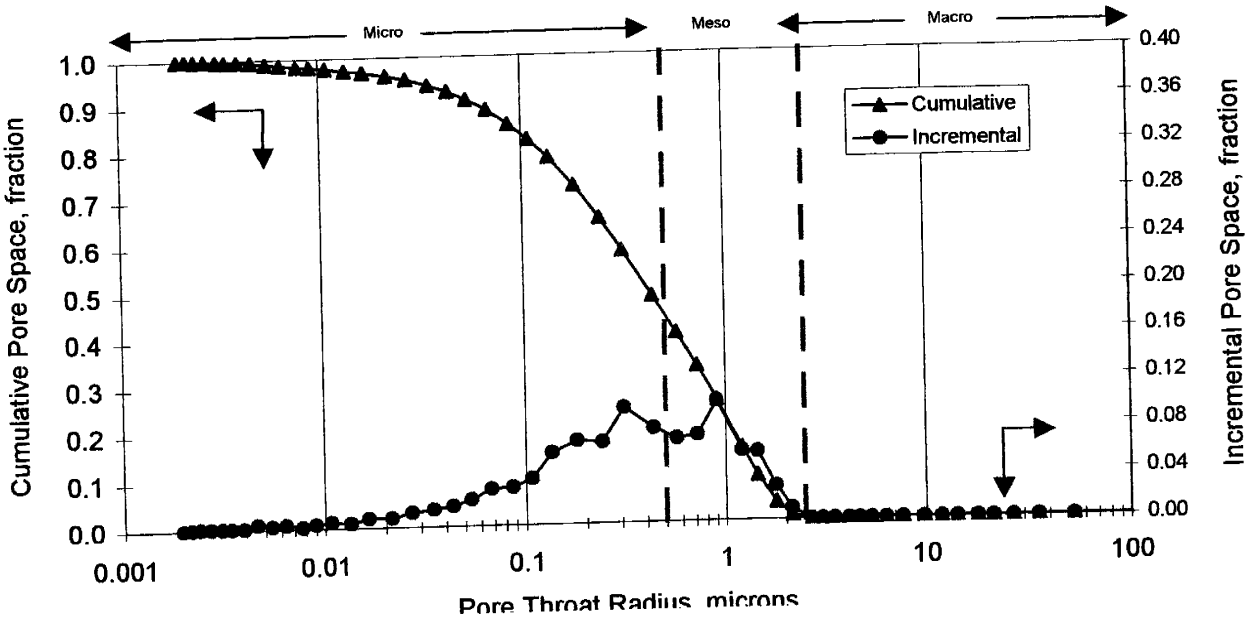


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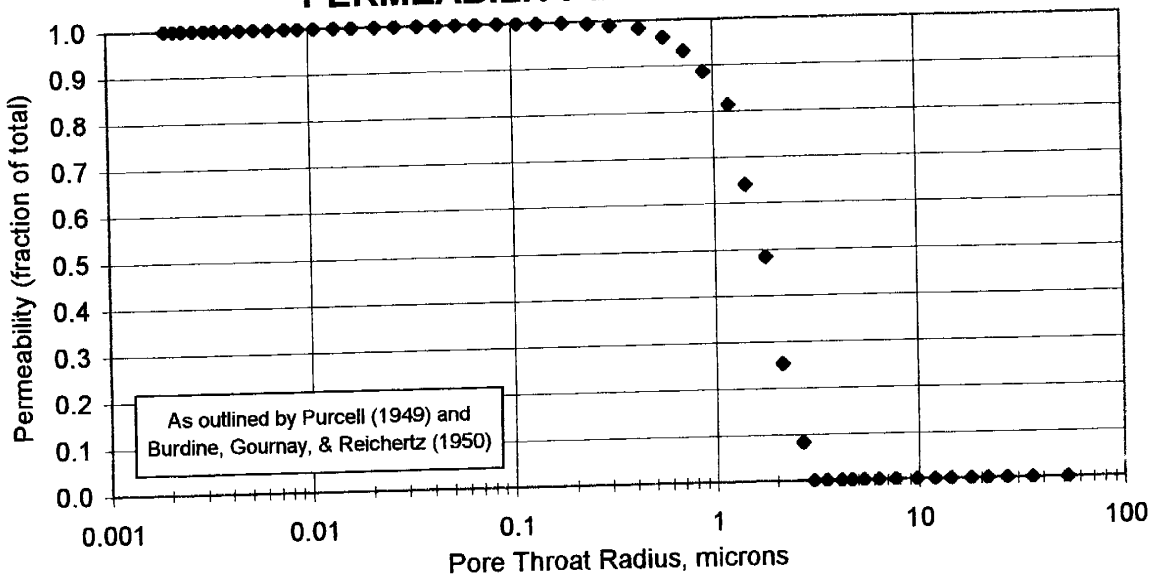
Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	568		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		4.28	-	-
Permeability to Air, md:		5.32	-	-
Swanson Permeability, md:		2.80	-	-
Porosity, fraction:		0.240	-	-
maximum Sb/Pc, fraction:		0.053		
R50 (median pore throat radius):		0.408		

PORE THROAT RADIUS DISTRIBUTION



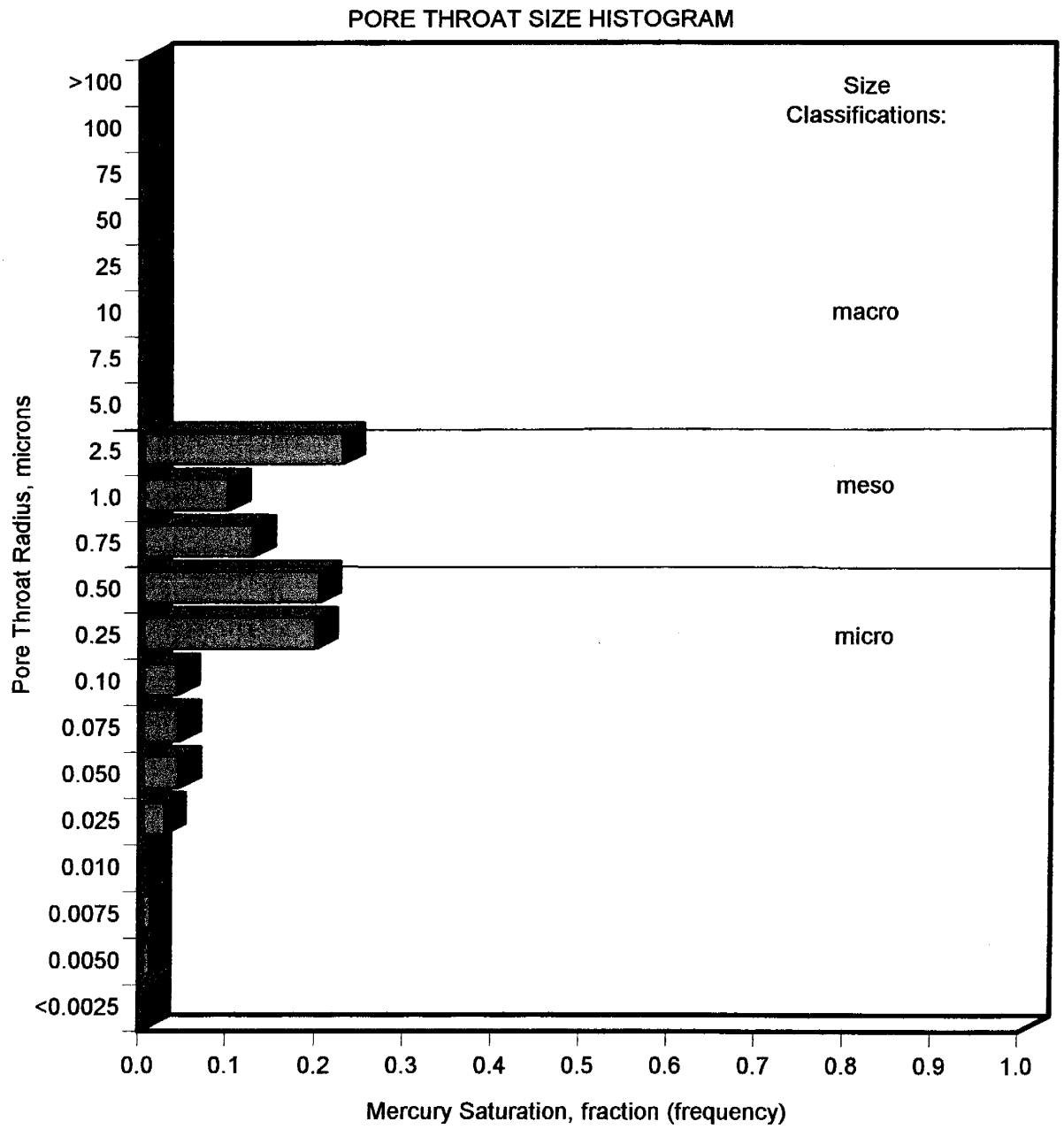
PERMEABILITY DISTRIBUTION



Core Laboratories

Company:	Conestoga Rovers & Assoc.
Project:	GM-Bedford
Field:	n/a
Formation:	n/a
Location:	n/a
File:	HOU-021274

Sample:	**568**		Host Plug	
Depth, feet:	n/a	ambient	na	na
Klinkenberg Permeability, md:		4.28	-	-
Permeability to Air, md:		5.32	-	-
Swanson Permeability, md:		2.80	-	-
Porosity, fraction:		0.240	-	-
maximum Sb/Pc, fraction:		0.053		
R50 (median pore throat radius):		0.408		



APPENDIX C

DOWNHOLE GEOPHYSICAL LOGGING REPORT (CD)

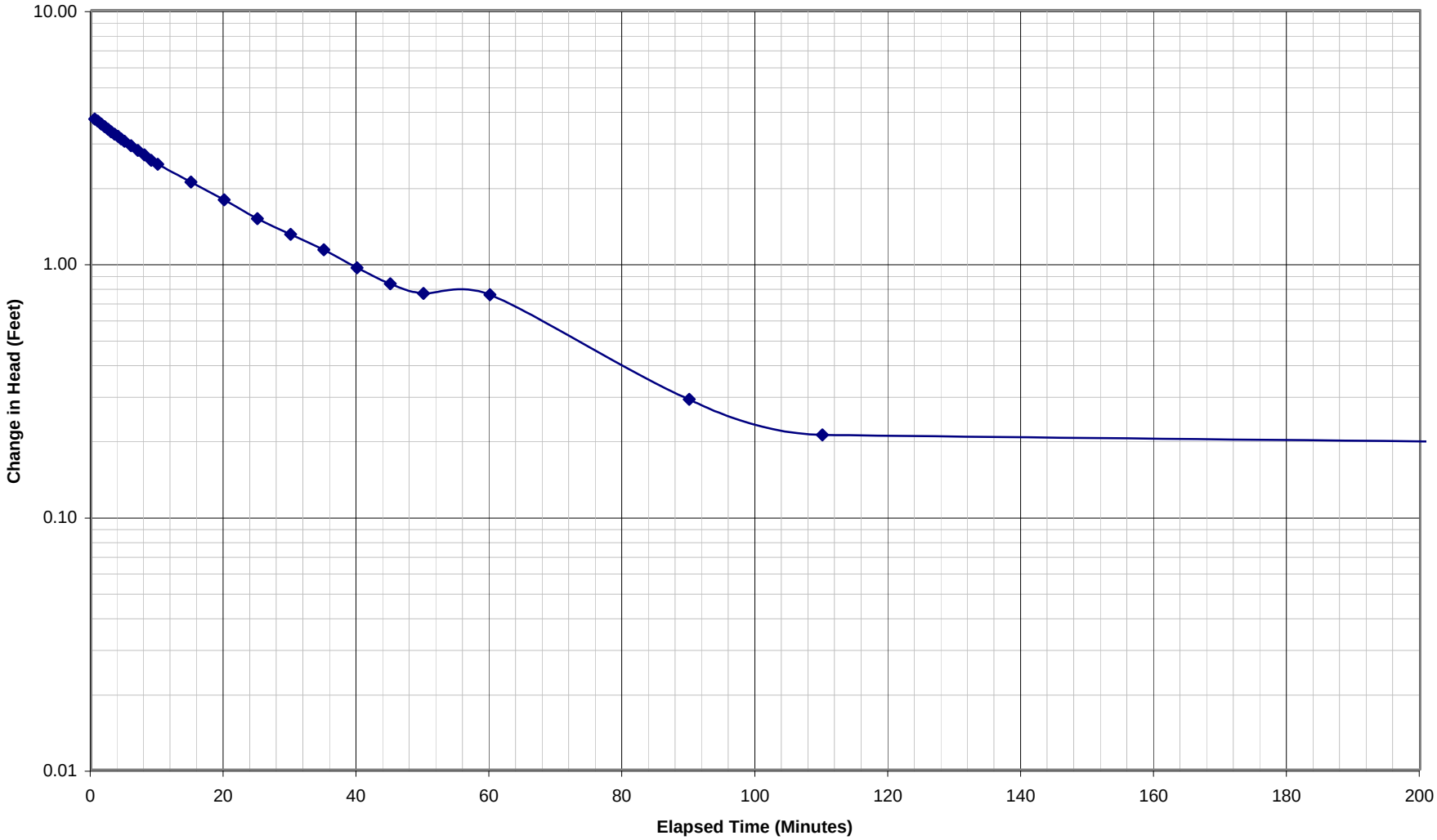
APPENDIX D

SLUG TEST DATA/GRAPHS

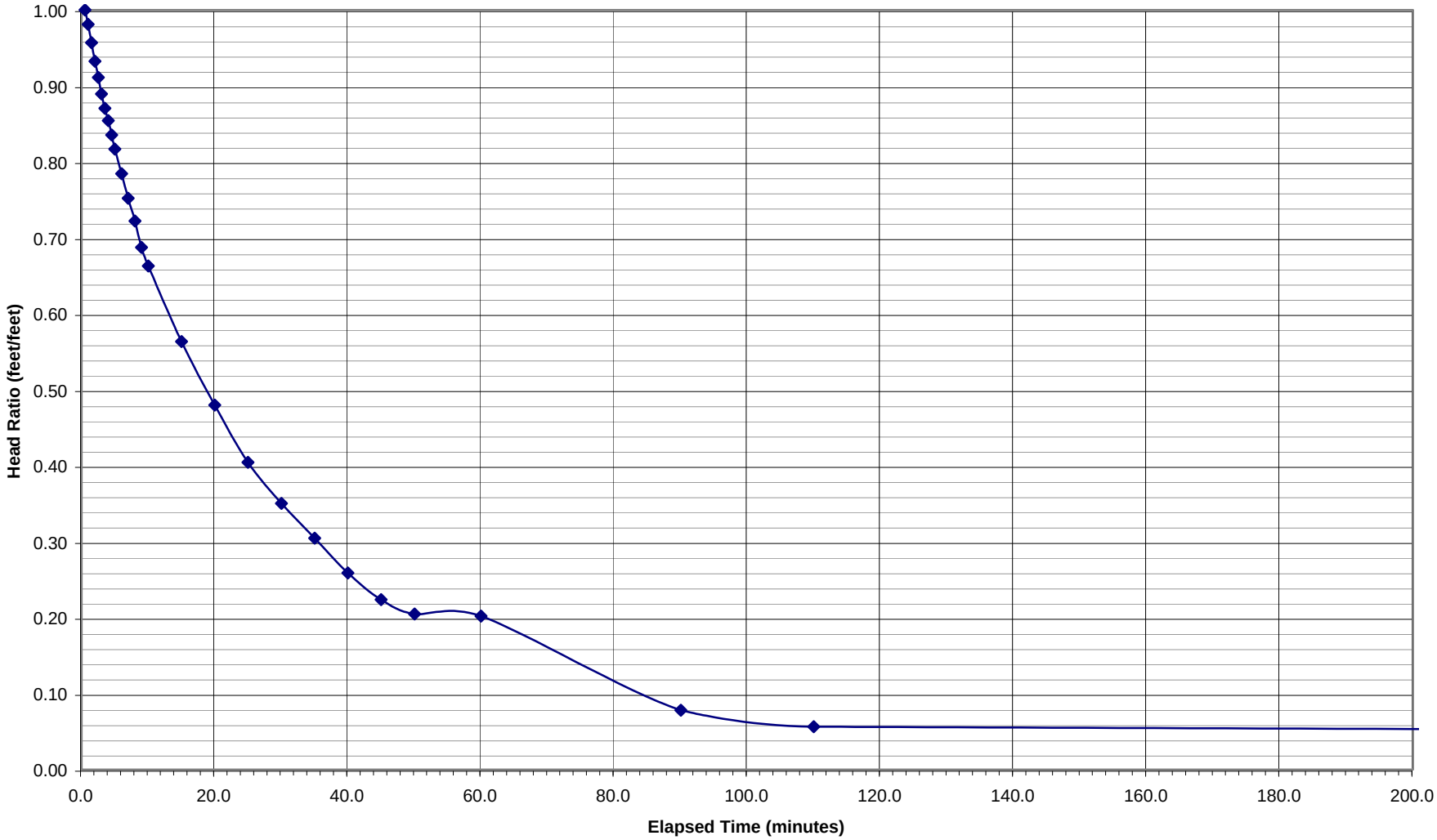
SLUG TEST DATA - MW-X033Y147S

Date	Time	Elapsed Time (Minutes)	Depth to Water (Feet)	Head Change (Feet)	Percent of Head Change (x 100)
12/16/2002	2:00:00 PM	0.0	32.82	0.00	0.00
12/16/2002	2:00:30 PM	0.5	36.53	3.71	1.00
12/16/2002	2:01:00 PM	1.0	36.46	3.64	0.98
12/16/2002	2:01:30 PM	1.5	36.37	3.55	0.96
12/16/2002	2:02:00 PM	2.0	36.28	3.46	0.93
12/16/2002	2:02:30 PM	2.5	36.20	3.38	0.91
12/16/2002	2:03:00 PM	3.0	36.12	3.30	0.89
12/16/2002	2:03:30 PM	3.5	36.05	3.23	0.87
12/16/2002	2:04:00 PM	4.0	35.99	3.17	0.85
12/16/2002	2:04:30 PM	4.5	35.92	3.10	0.84
12/16/2002	2:05:00 PM	5.0	35.85	3.03	0.82
12/16/2002	2:06:00 PM	6.0	35.73	2.91	0.78
12/16/2002	2:07:00 PM	7.0	35.61	2.79	0.75
12/16/2002	2:08:00 PM	8.0	35.50	2.68	0.72
12/16/2002	2:09:00 PM	9.0	35.37	2.55	0.69
12/16/2002	2:10:00 PM	10.0	35.28	2.46	0.66
12/16/2002	2:15:00 PM	15.0	34.91	2.09	0.56
12/16/2002	2:20:00 PM	20.0	34.60	1.78	0.48
12/16/2002	2:25:00 PM	25.0	34.32	1.50	0.40
12/16/2002	2:30:00 PM	30.0	34.12	1.30	0.35
12/16/2002	2:35:00 PM	35.0	33.95	1.13	0.30
12/16/2002	2:40:00 PM	40.0	33.78	0.96	0.26
12/16/2002	2:45:00 PM	45.0	33.65	0.83	0.22
12/16/2002	2:50:00 PM	50.0	33.58	0.76	0.20
12/16/2002	3:00:00 PM	60.0	33.57	0.75	0.20
12/16/2002	3:30:00 PM	90.0	33.11	0.29	0.08
12/16/2002	3:50:00 PM	110.0	33.03	0.21	0.06
12/17/2002	8:37:00 AM	1117.0	32.95	0.13	0.04

SLUG TEST DATA
MW-X033Y147S
Bouwer & Rice Method



SLUG TEST DATA
MW-X033Y147S
Hvorslev Method



HYDRAULIC CONDUCTIVITY CALCULATIONS

WELL: MW-X033Y147S

DATE: 12/16/2002

Input	UNITS	Symbol	Description
11	Feet	D	Length from water table to bottom of aquifer
11	Feet	H	Length from water table to bottom of screen
11	Feet	L	Length of screen, or open zone
0.16	Feet	r_c	Radius of casing
0.16	Feet	r_w	Radius of well
3.25	NA	C	Empirical value obtained from graph of L/r_w
2.09	Feet	Y_o	Initial Head obtained from semi-log graph of best-fit line
15	Minutes	T_o	Initial Time obtained from semi-log graph of best-fit line
0.96	Feet	Y_t	Final Head obtained from semi-log graph of best-fit line
40	Minutes	T_t	Final Time obtained from semi-log graph of best-fit line
25.0	Minutes	t	Total Time (calculated)

5.99E-05 cm/sec K HYDRAULIC CONDUCTIVITY (Bouwer & Rice Method)

Where:

$$K = r_c^2 * \left[\frac{1.1}{Ln(H/r_w)} + \frac{C}{L/r_w}\right]^{-1} * \frac{1}{t} * Ln(Y_o/Y_t)$$

From: Bouwer & Rice, 1976; and, Bouwer, 1988

Input	UNITS	Symbol	Description
11	Feet	L	Length of screen, or open zone
0.16	Feet	r_c	Radius of casing
0.16	Feet	r_w	Radius of well
28	Minutes	T_o	Time at which head ratio = 37% (from graph)

8.93E-05 cm/sec K HYDRAULIC CONDUCTIVITY (Hvorslev Method)

Where:

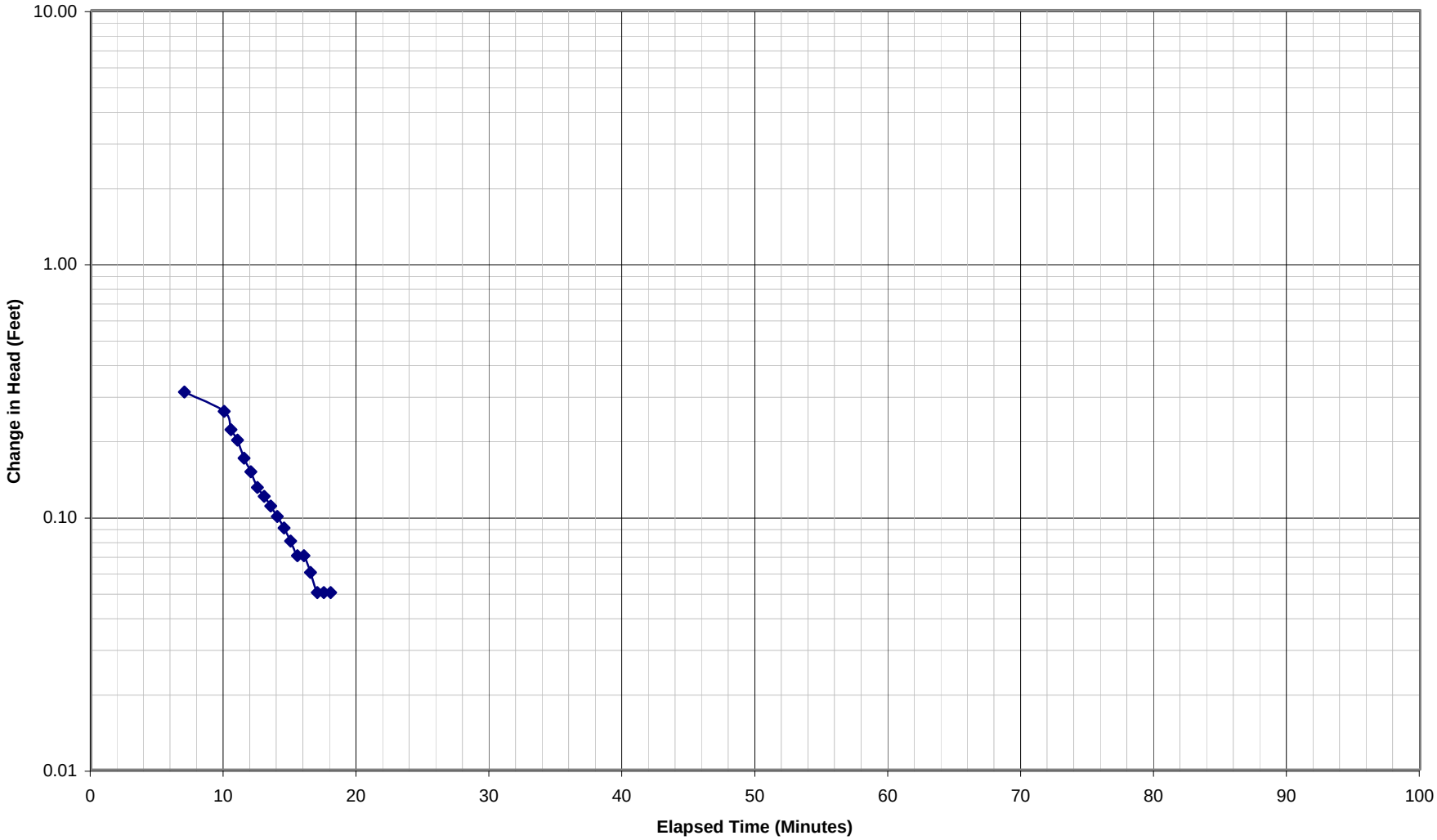
$$K = \frac{r_c^2 * Ln(L/r_w)}{2 * L * T_o}$$

From: Hvorslev, 1951

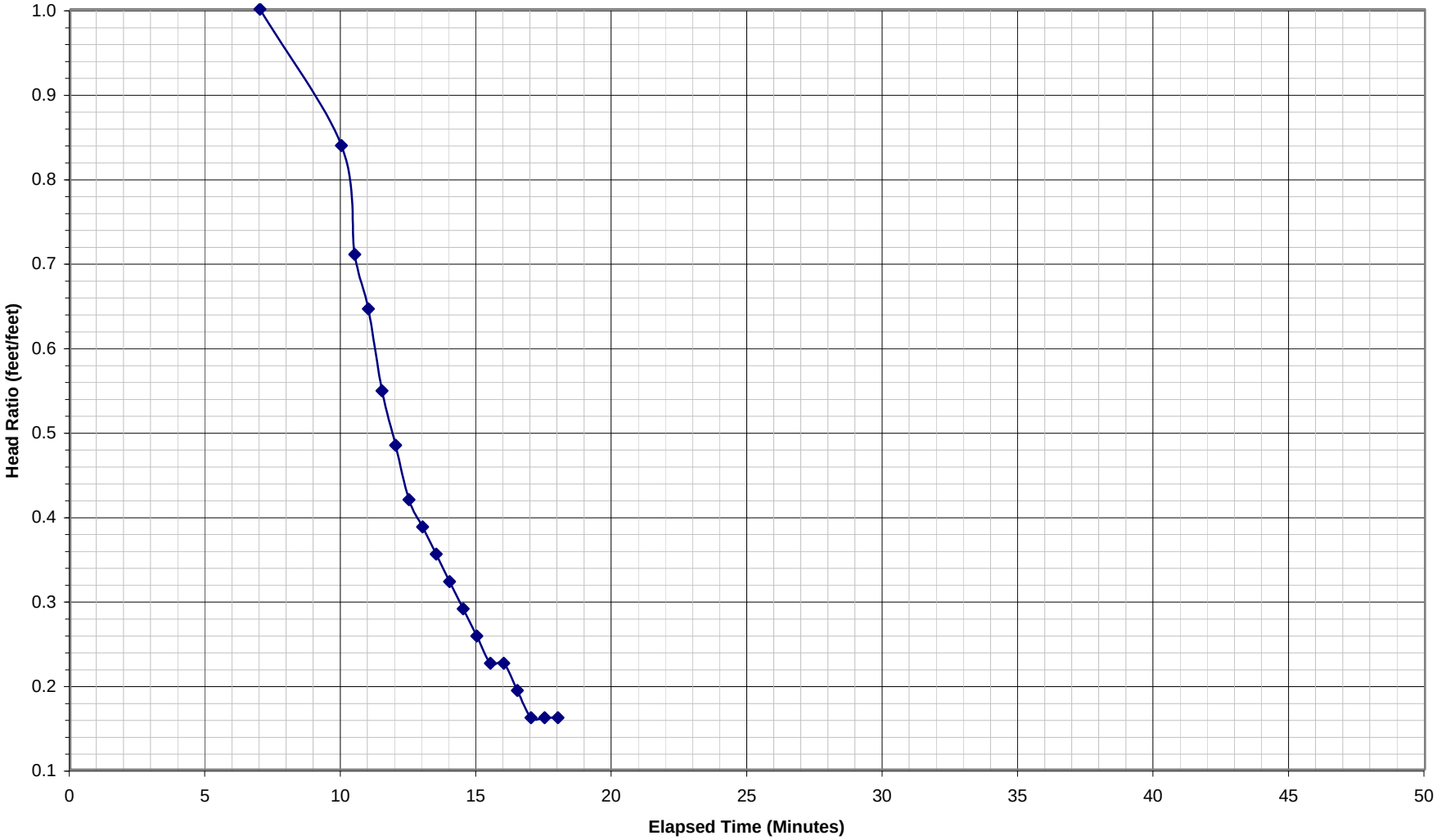
SLUG TEST DATA - MW-X085Y070S

Date	Time	Elapsed Time (Minutes)	Depth to Water (Feet)	Head Change (Feet)	Percent of Head Change (x 100)
10/3/2002	10:16:00	0.0	38.60	0.00	0.00
10/3/2002	10:23:00	7.0	38.91	0.31	1.00
10/3/2002	10:26:00	10.0	38.86	0.26	0.84
10/3/2002	10:26:30	10.5	38.82	0.22	0.71
10/3/2002	10:27:00	11.0	38.80	0.20	0.65
10/3/2002	10:27:30	11.5	38.77	0.17	0.55
10/3/2002	10:28:00	12.0	38.75	0.15	0.48
10/3/2002	10:28:30	12.5	38.73	0.13	0.42
10/3/2002	10:29:00	13.0	38.72	0.12	0.39
10/3/2002	10:29:30	13.5	38.71	0.11	0.35
10/3/2002	10:30:00	14.0	38.70	0.10	0.32
10/3/2002	10:30:30	14.5	38.69	0.09	0.29
10/3/2002	10:31:00	15.0	38.68	0.08	0.26
10/3/2002	10:31:30	15.5	38.67	0.07	0.23
10/3/2002	10:32:00	16.0	38.67	0.07	0.23
10/3/2002	10:32:30	16.5	38.66	0.06	0.19
10/3/2002	10:33:00	17.0	38.65	0.05	0.16
10/3/2002	10:33:30	17.5	38.65	0.05	0.16
10/3/2002	10:34:00	18.0	38.65	0.05	0.16

SLUG TEST DATA
MW-X085Y070S
Bouwer & Rice Method



SLUG TEST DATA
MW-X085Y070S
Hvorslev Method



WELL: **MW-X085Y070S**

DATE: **10/3/2002**

Input	UNITS	Symbol	Description
16	Feet	D	Length from water table to bottom of aquifer
16	Feet	H	Length from water table to bottom of screen
16	Feet	L	Length of screen, or open zone
0.16	Feet	r_c	Radius of casing
0.16	Feet	r_w	Radius of well
4.2	NA	C	Empirical value obtained from graph of L/r_w
0.3	Feet	Y_o	Initial Head obtained from semi-log graph of best-fit line
8	Minutes	T_o	Initial Time obtained from semi-log graph of best-fit line
0.07	Feet	Y_t	Final Head obtained from semi-log graph of best-fit line
16	Minutes	T_t	Final Time obtained from semi-log graph of best-fit line
8.0	Minutes	t	Total Time (calculated)

2.63E-04	cm/sec	K	HYDRAULIC CONDUCTIVITY (Bouwer & Rice Method)

Where:

$$K = r_c^2 * \left[\frac{1.1}{\ln(H/r_w)} + \frac{C}{L/r_w} \right]^{-1} * \frac{1}{t} * \ln(Y_o/Y_t)$$

From: Bouwer & Rice, 1976; and, Bouwer, 1988

Input	UNITS	Symbol	Description
16	Feet	L	Length of screen, or open zone
0.16	Feet	r_c	Radius of casing
0.16	Feet	r_w	Radius of well
13.3	Minutes	T_o	Time at which head ratio = 37% (from graph)

1.41E-04	cm/sec	K	HYDRAULIC CONDUCTIVITY (Hvorslev Method)

Where:

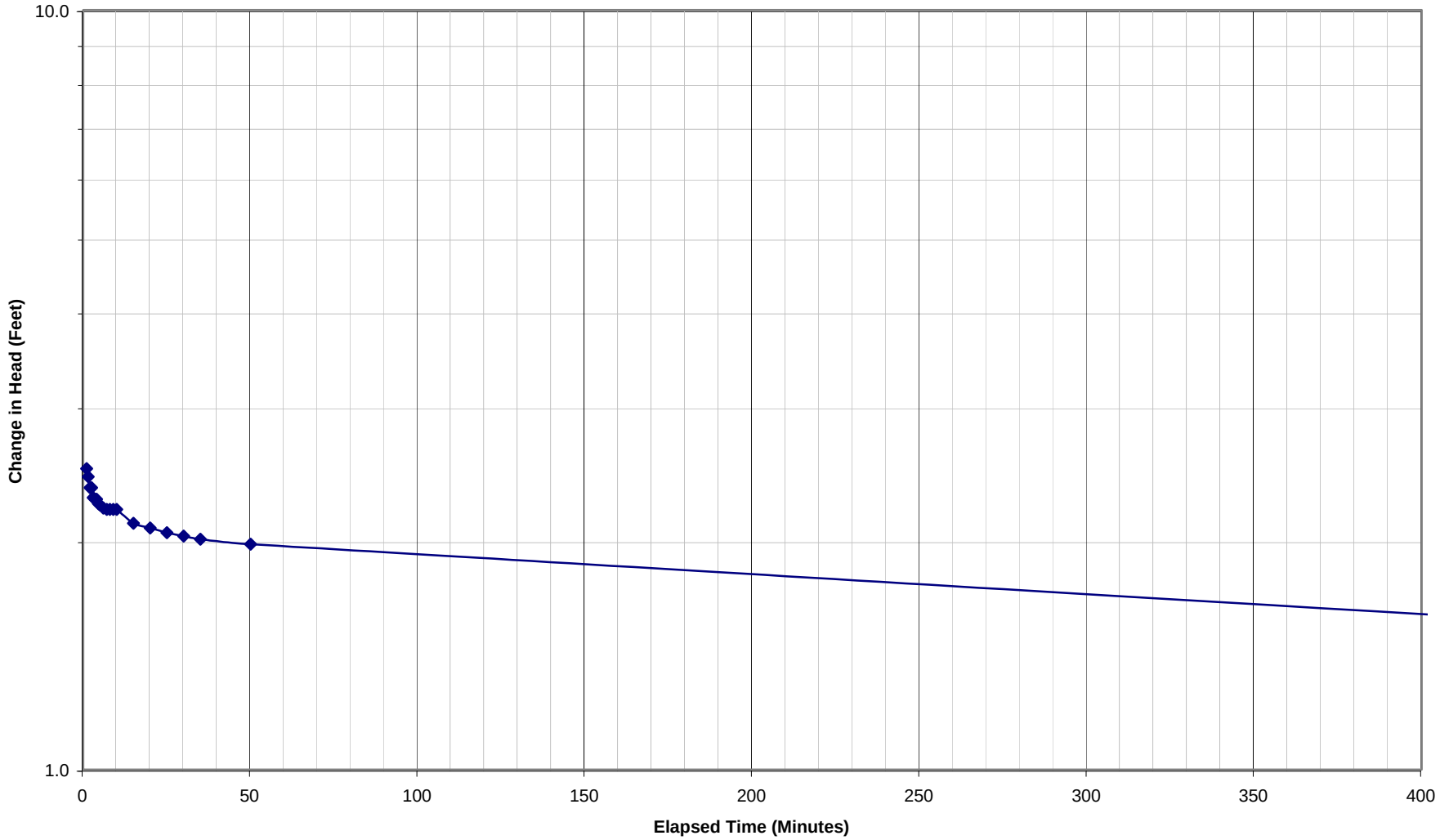
$$K = \frac{r_c^2 * \ln(L/r_w)}{2 * L * T_o}$$

From: Hvorslev, 1951

SLUG TEST DATA - TMW-X033Y147

Date	Time	Elapsed Time (Minutes)	Depth to Water (Feet)	Head Change (Feet)
12/16/2002	3:02:00 PM	0.0	31.52	0.00
12/16/2002	3:03:00 PM	1.0	34.01	2.49
12/16/2002	3:03:30 PM	1.5	33.95	2.43
12/16/2002	3:04:00 PM	2.0	33.87	2.35
12/16/2002	3:04:30 PM	2.5	33.87	2.35
12/16/2002	3:05:00 PM	3.0	33.80	2.28
12/16/2002	3:05:30 PM	3.5	33.79	2.27
12/16/2002	3:06:00 PM	4.0	33.79	2.27
12/16/2002	3:06:30 PM	4.5	33.76	2.24
12/16/2002	3:07:00 PM	5.0	33.75	2.23
12/16/2002	3:08:00 PM	6.0	33.73	2.21
12/16/2002	3:09:00 PM	7.0	33.72	2.20
12/16/2002	3:10:00 PM	8.0	33.72	2.20
12/16/2002	3:11:00 PM	9.0	33.72	2.20
12/16/2002	3:12:00 PM	10.0	33.72	2.20
12/16/2002	3:17:00 PM	15.0	33.63	2.11
12/16/2002	3:22:00 PM	20.0	33.60	2.08
12/16/2002	3:27:00 PM	25.0	33.57	2.05
12/16/2002	3:32:00 PM	30.0	33.55	2.03
12/16/2002	3:37:00 PM	35.0	33.53	2.01
12/16/2002	3:52:00 PM	50.0	33.50	1.98
12/17/2002	8:35:00 AM	1053.0	32.60	1.08

SLUG TEST DATA
TMW-X033Y147
Bouwer & Rice Method



WELL: **TMW-X033Y147**

DATE: **12/16/2002**

Input	UNITS	Symbol	Description
8.5	Feet	D	Length from water table to bottom of aquifer
5	Feet	H	Length from water table to bottom of screen
5	Feet	L	Length of screen, or open zone
0.08	Feet	r_c	Radius of casing
0.09	Feet	r_c'	Adjusted radius of casing for rising head through gravel pack (calculated)
0.26	Feet	r_w	Radius of well
2.1	NA	A	Empirical value obtained from graph of L/r_w
0.3	NA	B	Empirical value obtained from graph of L/r_w
0.35	NA	n	porosity of gravel pack
2.11	Feet	Y_o	Initial Head obtained from semi-log graph of best-fit line
15	Minutes	T_o	Initial Time obtained from semi-log graph of best-fit line
2.01	Feet	Y_t	Final Head obtained from semi-log graph of best-fit line
35	Minutes	T_t	Final Time obtained from semi-log graph of best-fit line
20	Minutes	t	Total Time (calculated)

1.69E-06	**cm/sec**	**K**	**HYDRAULIC CONDUCTIVITY (Bouwer & Rice Method)**

Where:

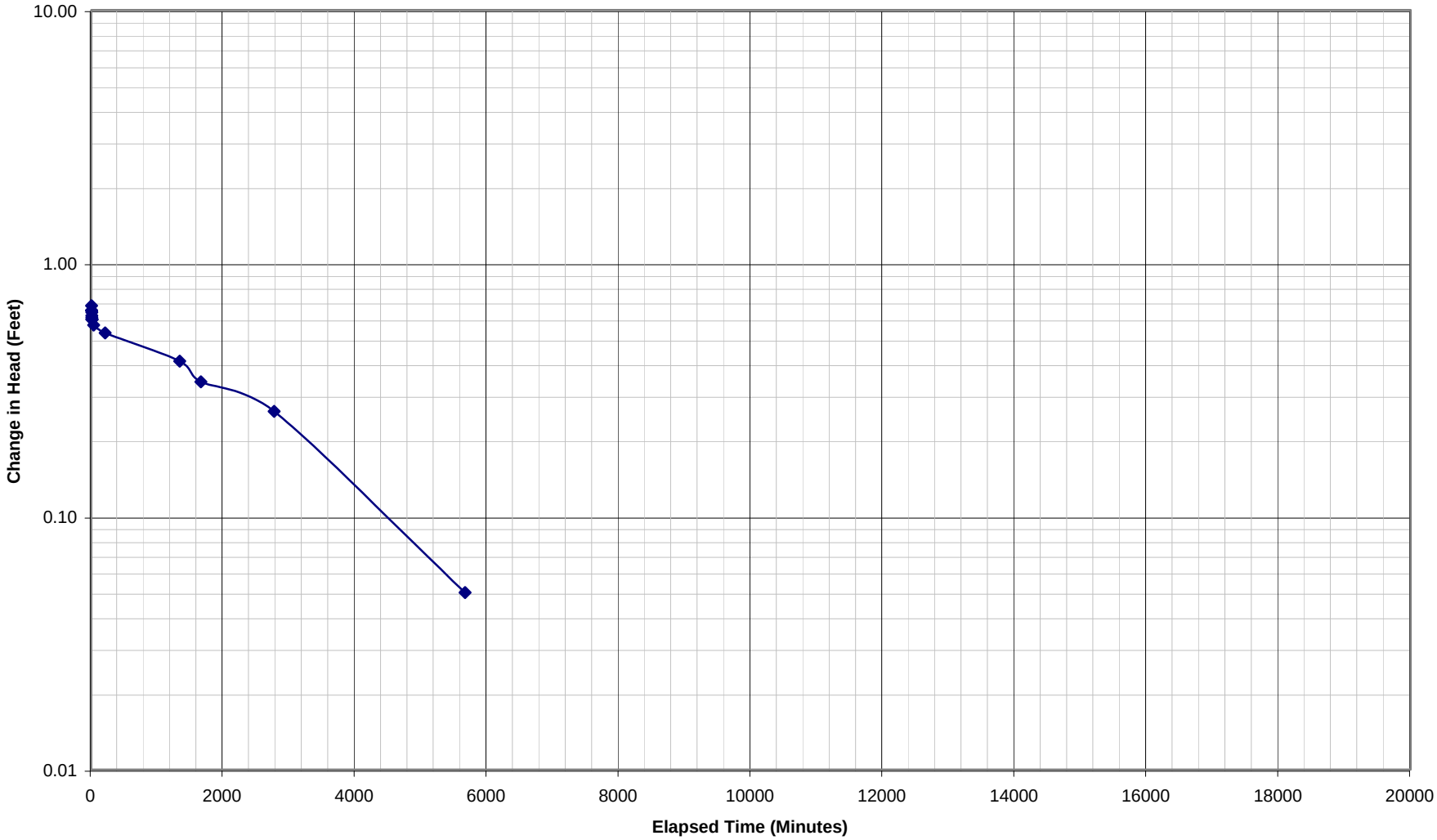
$$K = r_c'^{\,2} * \left[\frac{1.1}{\ln(H/r_w)} + \frac{A + B * [(D-H)/r_w]}{L/r_w} \right]^{-1} * \frac{1}{t} * \ln(Y_o/Y_t)$$

From: Bouwer & Rice, 1976; and, Bouwer, 1988

SLUG TEST DATA - TMW-X085Y070

Date	Time	Elapsed Time (Minutes)	Depth to Water (Feet)	Head Change (Feet)
10/3/2002	10:00:00	0.0	8.37	0.00
10/3/2002	10:04:30	4.5	9.05	0.68
10/3/2002	10:05:00	5.0	9.02	0.65
10/3/2002	10:05:30	5.5	9.02	0.65
10/3/2002	10:06:00	6.0	9.01	0.64
10/3/2002	10:07:00	7.0	8.99	0.62
10/3/2002	10:08:00	8.0	8.98	0.61
10/3/2002	10:09:00	9.0	8.97	0.60
10/3/2002	10:10:00	10.0	8.97	0.60
10/3/2002	10:11:00	11.0	8.97	0.60
10/3/2002	10:37:00	37.0	8.94	0.57
10/3/2002	13:32:00	212.0	8.90	0.53
10/4/2002	8:20:00	1340.0	8.78	0.41
10/4/2002	13:41:00	1661.0	8.71	0.34
10/5/2002	8:10:00	2770.0	8.63	0.26
10/7/2002	8:25:00	5665.0	8.42	0.05
10/9/2002	11:23:00	8723.0	8.17	-0.20

SLUG TEST DATA
TMW-X085Y070
Bouwer & Rice Method



WELL: **TMW-X085Y070**

DATE: **10/3/2002**

Input	UNITS	Symbol	Description
17.31	Feet	D	Length from water table to bottom of aquifer
8.31	Feet	H	Length from water table to bottom of screen
8.31	Feet	L	Length of screen, or open zone
0.08	Feet	r_c	Radius of casing
0.09	Feet	r_c'	Adjusted radius of casing for rising head through gravel pack (calculated)
0.26	Feet	r_w	Radius of well
2.5	NA	A	Empirical value obtained from graph of L/r_w
0.45	NA	B	Empirical value obtained from graph of L/r_w
0.35	NA	n	porosity of gravel pack
0.53	Feet	Y_o	Initial Head obtained from semi-log graph of best-fit line
212	Minutes	T_o	Initial Time obtained from semi-log graph of best-fit line
0.41	Feet	Y_t	Final Head obtained from semi-log graph of best-fit line
1340	Minutes	T_t	Final Time obtained from semi-log graph of best-fit line
1128	Minutes	t	Total Time (calculated)

1.03E-07	**cm/sec**	**K**	**HYDRAULIC CONDUCTIVITY (Bouwer & Rice Method)**

Where:

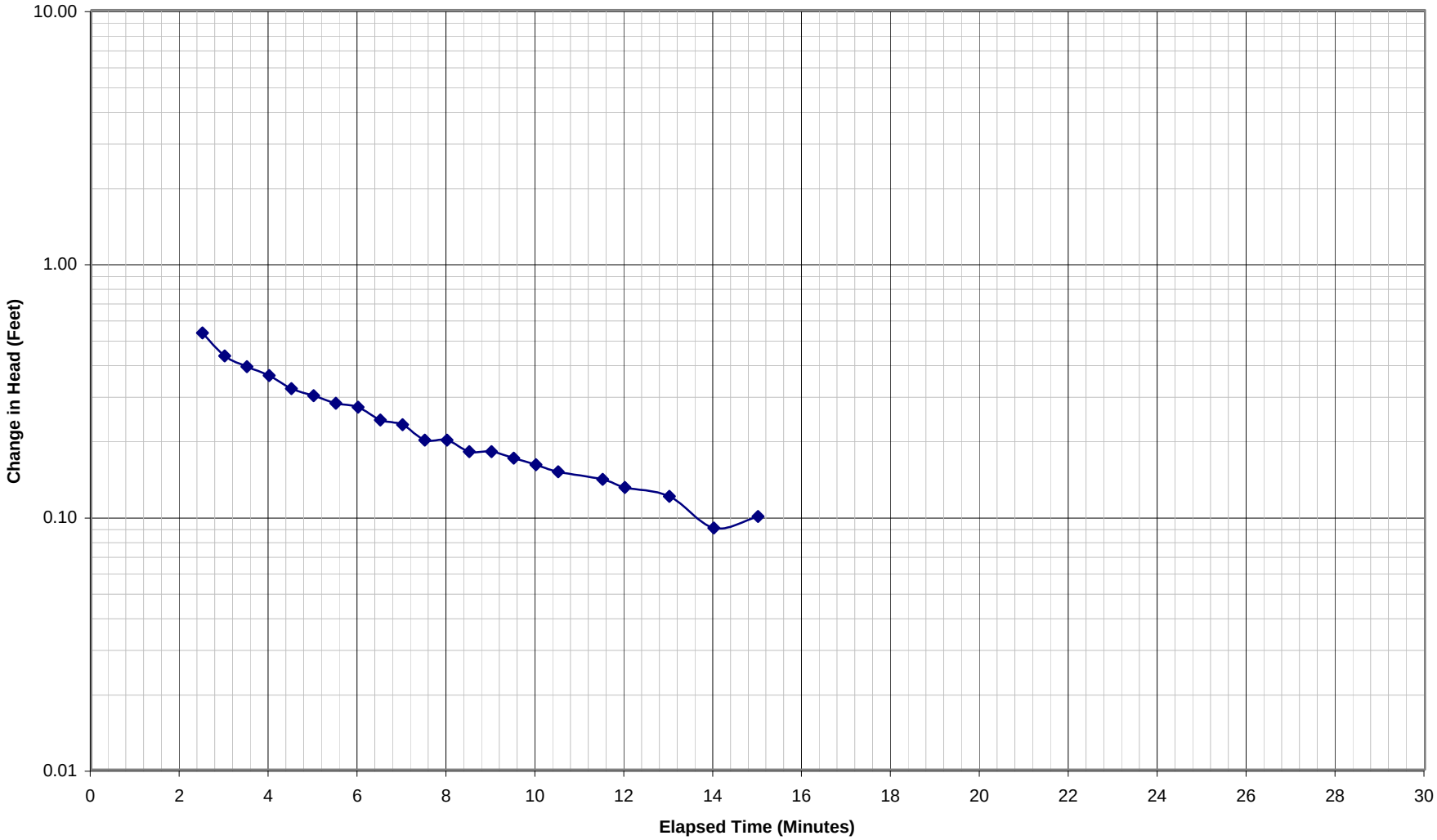
$$K = r_c'^{\,2} * \left[\frac{1.1}{\ln(H/r_w)} + \frac{A + B * [(D-H)/r_w]}{L/r_w} \right]^{-1} * \frac{1}{t} * \ln(Y_o/Y_t)$$

From: Bouwer & Rice, 1976; and, Bouwer, 1988

SLUG TEST DATA - TMW-X193Y251

Date	Time	Elapsed Time (Minutes)	Depth to Water (Feet)	Head Change (Feet)
10/3/2002	9:32:00	0.0	33.12	0.00
10/3/2002	9:34:30	2.5	33.65	0.53
10/3/2002	9:35:00	3.0	33.55	0.43
10/3/2002	9:35:30	3.5	33.51	0.39
10/3/2002	9:36:00	4.0	33.48	0.36
10/3/2002	9:36:30	4.5	33.44	0.32
10/3/2002	9:37:00	5.0	33.42	0.30
10/3/2002	9:37:30	5.5	33.40	0.28
10/3/2002	9:38:00	6.0	33.39	0.27
10/3/2002	9:38:30	6.5	33.36	0.24
10/3/2002	9:39:00	7.0	33.35	0.23
10/3/2002	9:39:30	7.5	33.32	0.20
10/3/2002	9:40:00	8.0	33.32	0.20
10/3/2002	9:40:30	8.5	33.30	0.18
10/3/2002	9:41:00	9.0	33.30	0.18
10/3/2002	9:41:30	9.5	33.29	0.17
10/3/2002	9:42:00	10.0	33.28	0.16
10/3/2002	9:42:30	10.5	33.27	0.15
10/3/2002	9:43:30	11.5	33.26	0.14
10/3/2002	9:44:00	12.0	33.25	0.13
10/3/2002	9:45:00	13.0	33.24	0.12
10/3/2002	9:46:00	14.0	33.21	0.09
10/3/2002	9:47:00	15.0	33.22	0.10
10/3/2002	10:47:00	75.0	33.12	0.00

SLUG TEST DATA
TMW-X193Y251
Bouwer & Rice Method



WELL: **TMW-X193Y251**

DATE: **10/3/2002**

Input	UNITS	Symbol	Description
4.04	Feet	D	Length from water table to bottom of aquifer
2.04	Feet	H	Length from water table to bottom of screen
2.04	Feet	L	Length of screen, or open zone
0.08	Feet	r_c	Radius of casing
0.09	Feet	r_c'	Adjusted radius of casing for rising head through gravel pack (calculated)
0.26	Feet	r_w	Radius of well
1.7	NA	A	Empirical value obtained from graph of L/r_w
0.25	NA	B	Empirical value obtained from graph of L/r_w
0.35	NA	n	porosity of gravel pack
0.39	Feet	Y_o	Initial Head obtained from semi-log graph of best-fit line
3.5	Minutes	T_o	Initial Time obtained from semi-log graph of best-fit line
0.18	Feet	Y_t	Final Head obtained from semi-log graph of best-fit line
8.5	Minutes	T_t	Final Time obtained from semi-log graph of best-fit line
5	Minutes	t	Total Time (calculated)

1.76E-04	**cm/sec**	**K**	**HYDRAULIC CONDUCTIVITY (Bouwer & Rice Method)**

Where:

$$K = r_c'^{\,2} * \left[\frac{1.1}{\ln(H/r_w)} + \frac{A + B * [(D-H)/r_w]}{L/r_w} \right]^{-1} * \frac{1}{t} * \ln(Y_o/Y_t)$$

From: Bouwer & Rice, 1976; and, Bouwer, 1988

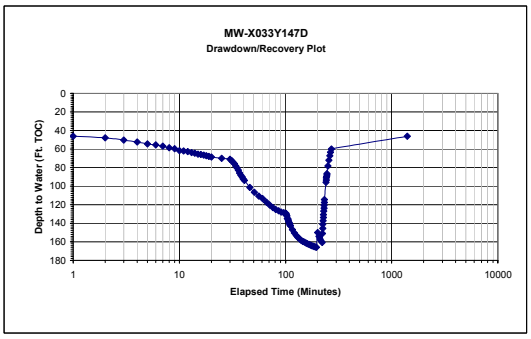
APPENDIX E

DRAWDOWN/RECOVERY DATA/GRAPHS

DRAWDOWN/RECOVERY DATA

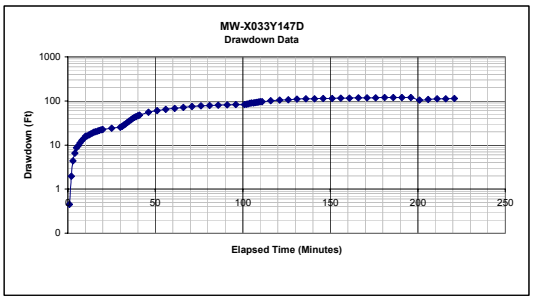
Test 1 **MW-X033Y147D**

	Time	Elapsed Time	DTW (Ft. TOC)	
23-Jul-02	8:55:00	0.0	45.85	Prior to test
	9:18:00	0.0	44.40	Pump in well
	9:19:00	0.0		Start pump
	9:20:00	1.0	46.30	
	9:21:00	2.0	47.80	
	9:22:00	3.0	50.20	
	9:23:00	4.0	52.35	Pump Rate = 1.5 gpm
	9:24:00	5.0	54.50	
	9:25:00	6.0	55.60	
	9:26:00	7.0	57.00	
	9:27:00	8.0	58.60	
	9:28:00	9.0	59.70	
	9:29:00	10.0	61.60	
	9:30:00	11.0	62.00	
	9:31:00	12.0	62.80	
	9:32:00	13.0	63.80	Check Pump Rate = 1.5 gpm
	9:33:00	14.0	64.55	
	9:34:00	15.0	65.40	
	9:35:00	16.0	66.00	
	9:36:00	17.0	66.70	
	9:37:00	18.0	67.35	
	9:38:00	19.0	68.00	
	9:39:00	20.0	68.45	
	9:44:00	25.0	70.00	
	9:49:00	30.0	71.20	
	9:50:00	31.0	72.40	Turn up pump
	9:51:00	32.0	74.10	
	9:52:00	33.0	75.80	
	9:53:00	34.0	78.20	
	9:54:00	35.0	80.40	
	9:55:00	36.0	82.90	Pump Rate = 3 gpm
	9:56:00	37.0	85.80	
	9:57:00	38.0	88.15	
	9:58:00	39.0	90.00	
	9:59:00	40.0	91.90	
	10:00:00	41.0	93.80	
	10:05:00	46.0	101.50	Check Pump Rate = 3 gpm
	10:10:00	51.0	106.50	
	10:15:00	56.0	110.70	
	10:20:00	61.0	113.50	Turn up pump
	10:25:00	66.0	117.10	Check Pump Rate = 3 gpm
	10:30:00	71.0	120.40	
	10:35:00	76.0	123.10	
	10:40:00	81.0	125.00	Check Pump Rate = 3 gpm
	10:45:00	86.0	126.60	
	10:50:00	91.0	127.90	
	10:55:00	96.0	128.70	
	11:00:00	101.0	129.40	
	11:01:00	102.0	130.30	Turn up pump
	11:02:00	103.0	132.00	Pump at max speed
	11:03:00	104.0	134.80	Max flow= 4gpm
	11:04:00	105.0	135.30	
	11:05:00	106.0	136.60	
	11:06:00	107.0	138.00	
	11:07:00	108.0	139.30	
	11:08:00	109.0	140.50	
	11:09:00	110.0	141.80	
	11:10:00	111.0	142.90	
	11:15:00	116.0	147.00	Check Pump Rate = 3.75 gpm
	11:20:00	121.0	150.50	
	11:25:00	126.0	153.00	
	11:30:00	131.0	155.20	Check Pump Rate = 3.75 gpm
	11:35:00	136.0	157.00	
	11:40:00	141.0	158.60	
	11:45:00	146.0	159.50	
	11:50:00	151.0	160.50	Check Pump Rate = 3.75 gpm
	11:55:00	156.0	161.50	
	12:00:00	161.0	162.20	
	12:05:00	166.0	162.90	
	12:10:00	171.0	163.60	
	12:15:00	176.0	164.20	Check Pump Rate = 3.75 gpm
	12:20:00	181.0	164.60	
	12:25:00	186.0	165.10	
	12:30:00	191.0	165.60	
	12:35:00	196.0	166.00	
	12:40:00	201.0	150.00	Generator ran out of gas - pump momentarily turned off
	12:45:00	206.0	154.10	
	12:50:00	211.0	156.90	
	12:55:00	216.0	158.70	
	13:00:00	221.0	160.55	
	13:01:00	222.0		Turn off pump because both water tanks full-water from tubing
	13:02:00	223.0	151.00	backwash into well-removed 550 gals of water-start of
	13:03:00	224.0	145.50	recovery with pump in
	13:04:00	225.0	141.00	
	13:05:00	226.0	137.20	
	13:06:00	227.0	133.80	
	13:07:00	228.0	130.80	
	13:08:00	229.0	127.00	
	13:09:00	230.0	123.80	
	13:10:00	231.0	120.60	
	13:11:00	232.0	117.60	
	13:12:00	233.0	114.60	Pull out pump-continue recovery
	13:20:00	241.0	96.00	without pump in
	13:21:00	242.0	93.30	
	13:22:00	243.0	91.20	
	13:23:00	244.0	89.70	
	13:24:00	245.0	88.00	
	13:25:00	246.0	86.50	
	13:30:00	251.0	78.40	
	13:35:00	256.0	72.10	
	13:40:00	261.0	67.10	
	13:45:00	266.0	63.60	
	13:50:00	271.0	60.00	
7/24/2002	8:45:00	1406.0	46.30	



DRAWDOWN/RECOVERY DATA

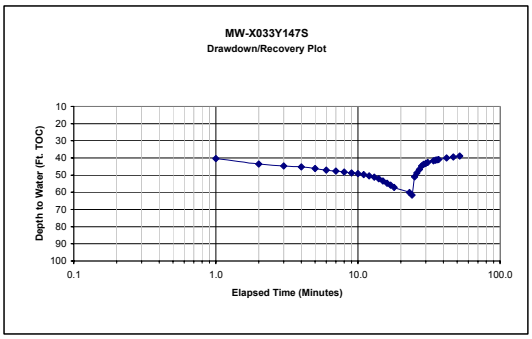
Elapsed Time	Drawdown (Ft)
1.0	0.45
2.0	1.95
3.0	4.35
4.0	6.50
5.0	8.65
6.0	9.75
7.0	11.15
8.0	12.75
9.0	13.85
10.0	15.75
11.0	16.15
12.0	16.95
13.0	17.95
14.0	18.70
15.0	19.55
16.0	20.15
17.0	20.85
18.0	21.50
19.0	22.15
20.0	22.60
25.0	24.15
30.0	25.35
31.0	26.55
32.0	28.25
33.0	29.95
34.0	32.35
35.0	34.55
36.0	37.05
37.0	39.95
38.0	42.30
39.0	44.15
40.0	46.05
41.0	47.95
46.0	55.65
51.0	60.65
56.0	64.85
61.0	67.65
66.0	71.25
71.0	74.55
76.0	77.25
81.0	79.15
86.0	80.75
91.0	82.05
96.0	82.85
101.0	83.55
102.0	84.45
103.0	86.15
104.0	88.95
105.0	89.45
106.0	90.75
107.0	92.15
108.0	93.45
109.0	94.65
110.0	95.95
111.0	97.05
116.0	101.15
121.0	104.65
126.0	107.15
131.0	109.35
136.0	111.15
141.0	112.75
146.0	113.65
151.0	114.65
156.0	115.65
161.0	116.35
166.0	117.05
171.0	117.75
176.0	118.35
181.0	118.75
186.0	119.25
191.0	119.75
196.0	120.15
201.0	104.15
206.0	108.25
211.0	111.05
216.0	112.85
221.0	114.70



DRAWDOWN/RECOVERY DATA

Test 2 **MW-X033Y147S**

	Time	Elapsed Time	DTW (Ft. TOC)	
25-Jul-02	9:00:00	0.0	36.25	Without pump in
	9:07:00	0.0	36.00	With pump in
	9:09:00	0.0		Start pump
	9:10:00	1.0	40.40	
	9:11:00	2.0	43.50	
	9:12:00	3.0	44.60	Flow = 2 gpm
	9:13:00	4.0	45.20	
	9:14:00	5.0	46.15	
	9:15:00	6.0	47.00	
	9:16:00	7.0	47.55	
	9:17:00	8.0	48.15	
	9:18:00	9.0	48.70	
	9:19:00	10.0	49.05	Turn up pump
	9:20:00	11.0	49.65	Flow = 2 gpm
	9:21:00	12.0	50.50	
	9:22:00	13.0	51.25	
	9:23:00	14.0	52.10	
	9:24:00	15.0	53.50	
	9:25:00	16.0	54.80	
	9:26:00	17.0	55.90	
	9:27:00	18.0	57.20	
	9:32:00	23.0	60.20	Turn up pump
	9:33:00	24.0	61.60	Flow = 2 gpm well dry-pump off-water from tubing backwash into well-removed 40 gals of water
	9:34:00	25.0	51.00	Start of recovery with pump in
	9:35:00	26.0	48.80	
	9:36:00	27.0	46.70	
	9:37:00	28.0	44.70	
	9:38:00	29.0	43.80	
	9:39:00	30.0	43.10	
	9:40:00	31.0	42.60	Remove pump from well
	9:43:00	34.0	41.60	Without pump in
	9:44:00	35.0	41.35	
	9:45:00	36.0	41.10	
	9:46:00	37.0	40.90	
	9:51:00	42.0	40.00	
	9:56:00	47.0	39.40	
	10:01:00	52.0	38.95	



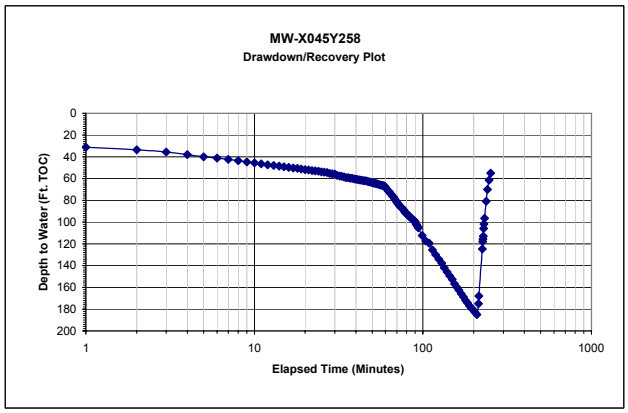
Elapsed Time	Drawdown (Ft)
1.0	4.15
2.0	7.25
3.0	8.35
4.0	8.95
5.0	9.90
6.0	10.75
7.0	11.30
8.0	11.90
9.0	12.45
10.0	12.80
11.0	13.40
12.0	14.25
13.0	15.00
14.0	15.85
15.0	17.25
16.0	18.55
17.0	19.65
18.0	20.95
23.0	23.95
24.0	25.35



DRAWDOWN/RECOVERY DATA

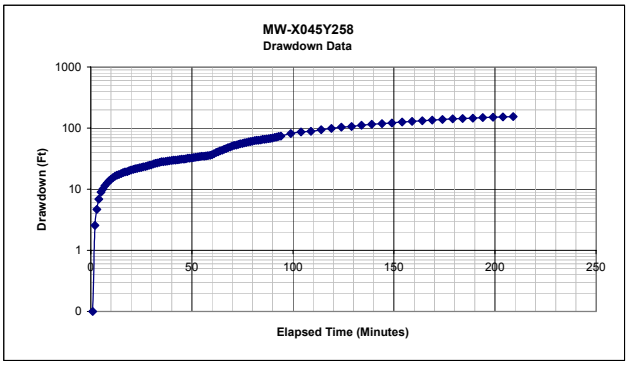
Test 1 **MW-X045Y258**

Date	Time	Elapsed Time	DTW (Ft. TOC)	Comments
18-Jul-02		0.0	31.00	Prior to test
	12:40:00	0.0	30.00	Pump in well
	12:48:00	0.0		Start pump
	12:49:00	1.0	31.10	
	12:50:00	2.0	33.55	
	12:51:00	3.0	35.70	
	12:52:00	4.0	37.90	Flow = 2 gpm
	12:53:00	5.0	40.00	
	12:54:00	6.0	41.10	
	12:55:00	7.0	42.35	
	12:56:00	8.0	43.60	
	12:57:00	9.0	44.60	
	12:58:00	10.0	45.55	
	12:59:00	11.0	46.50	
	13:00:00	12.0	47.40	Flow decrease
	13:01:00	13.0	47.90	Turn up pump
	13:02:00	14.0	48.50	
	13:03:00	15.0	49.10	
	13:04:00	16.0	49.70	
	13:05:00	17.0	50.15	Flow decrease
	13:06:00	18.0	50.45	Turn up pump
	13:07:00	19.0	51.15	
	13:08:00	20.0	51.70	
	13:09:00	21.0	52.15	Flow decrease
	13:10:00	22.0	52.65	Turn up pump
	13:11:00	23.0	53.00	
	13:12:00	24.0	53.30	Flow decrease
	13:13:00	25.0	53.75	Turn up pump
	13:14:00	26.0	54.25	
	13:15:00	27.0	54.40	
	13:16:00	28.0	55.15	Flow decrease
	13:17:00	29.0	55.70	Turn up pump
	13:18:00	30.0	56.00	
	13:19:00	31.0	57.00	
	13:20:00	32.0	57.60	
	13:21:00	33.0	57.95	
	13:22:00	34.0	58.50	
	13:23:00	35.0	59.15	
	13:24:00	36.0	59.25	
	13:25:00	37.0	59.60	
	13:26:00	38.0	59.85	
	13:27:00	39.0	60.15	
	13:28:00	40.0	60.50	Flow decrease
	13:29:00	41.0	60.80	Turn up pump
	13:30:00	42.0	61.05	
	13:31:00	43.0	61.35	
	13:32:00	44.0	61.65	
	13:33:00	45.0	61.95	
	13:34:00	46.0	62.20	Flow decrease
	13:35:00	47.0	62.60	Turn up pump
	13:36:00	48.0	63.05	
	13:37:00	49.0	63.30	
	13:38:00	50.0	63.70	
	13:39:00	51.0	64.00	
	13:40:00	52.0	64.30	Flow decrease
	13:41:00	53.0	64.75	Turn up pump
	13:42:00	54.0	65.00	
	13:43:00	55.0	65.45	
	13:44:00	56.0	65.75	
	13:45:00	57.0	66.10	
	13:46:00	58.0	66.40	
	13:47:00	59.0	66.70	
	13:48:00	60.0	67.90	Turn up pump
	13:49:00	61.0	69.30	
	13:50:00	62.0	71.20	
	13:51:00	63.0	72.00	Flow = 4 gpm
	13:52:00	64.0	73.50	
	13:53:00	65.0	74.60	
	13:54:00	66.0	76.20	
	13:55:00	67.0	77.20	Flow decrease
	13:56:00	68.0	78.70	Turn up pump
	13:57:00	69.0	80.00	
	13:58:00	70.0	81.65	
	13:59:00	71.0	82.85	
	14:00:00	72.0	84.00	
	14:01:00	73.0	85.20	
	14:02:00	74.0	86.10	
	14:03:00	75.0	87.10	
	14:04:00	76.0	88.30	
	14:05:00	77.0	89.10	
	14:06:00	78.0	90.90	Flow decrease
	14:07:00	79.0	91.40	Turn up pump
	14:08:00	80.0	92.10	
	14:09:00	81.0	93.15	
	14:10:00	82.0	93.90	
	14:11:00	83.0	94.60	
	14:12:00	84.0	95.40	



14:13:00	85.0	96.20	
14:14:00	86.0	96.95	
14:15:00	87.0	97.60	
14:16:00	88.0	98.20	
14:17:00	89.0	98.80	Flow decrease
14:18:00	90.0	99.80	Turn up pump
14:19:00	91.0	101.90	
14:20:00	92.0	102.60	
14:21:00	93.0	104.00	
14:22:00	94.0	105.20	
14:27:00	99.0	112.30	
14:32:00	104.0	117.25	Pump at max speed-will continue test at this speed
14:37:00	109.0	119.50	
14:42:00	114.0	125.50	
14:47:00	119.0	129.95	
14:52:00	124.0	134.10	
14:57:00	129.0	137.50	
15:02:00	134.0	142.00	Flow = 4 gpm
15:07:00	139.0	145.90	
15:12:00	144.0	149.30	
15:17:00	149.0	152.70	Flow = 4 gpm
15:22:00	154.0	156.65	
15:27:00	159.0	159.65	
15:32:00	164.0	162.60	Flow = 4 gpm
15:37:00	169.0	165.90	
15:42:00	174.0	168.70	
15:47:00	179.0	172.10	Flow = 3.5 gpm
15:52:00	184.0	174.45	
15:57:00	189.0	177.00	
16:02:00	194.0	179.10	Flow = 3 gpm
16:07:00	199.0	180.95	
16:12:00	204.0	182.90	
16:17:00	209.0	185.00	
16:20:00	212.0		Pump off - recovered 530 gals of water-water from tubing backwashed into tubing
16:22:00	214.0	175.00	Start of recovery
16:23:00	215.0	168.00	Pull pump from well
16:33:00	225.0	124.70	without pump in
16:34:00	226.0	118.00	
16:35:00	227.0	115.60	Can hear water coming into well
16:36:00	228.0	112.80	
16:37:00	229.0	106.00	
16:38:00	230.0	101.80	
16:40:00	232.0	96.50	
16:45:00	237.0	80.90	
16:50:00	242.0	70.10	
16:55:00	247.0	61.40	
17:00:00	252.0	55.10	

Elapsed Time	Drawdown (Ft)
1.0	0.10
2.0	2.55
3.0	4.70
4.0	6.90
5.0	9.00
6.0	10.10
7.0	11.35
8.0	12.60
9.0	13.60
10.0	14.55
11.0	15.50
12.0	16.40
13.0	16.90
14.0	17.50
15.0	18.10
16.0	18.70
17.0	19.15
18.0	19.45
19.0	20.15
20.0	20.70
21.0	21.15
22.0	21.65
23.0	22.00
24.0	22.30
25.0	22.75
26.0	23.25
27.0	23.40
28.0	24.15
29.0	24.70
30.0	25.00
31.0	26.00
32.0	26.60
33.0	26.95
34.0	27.50
35.0	28.15
36.0	28.25
37.0	28.60
38.0	28.85
39.0	29.15
40.0	29.50
41.0	29.80
42.0	30.05

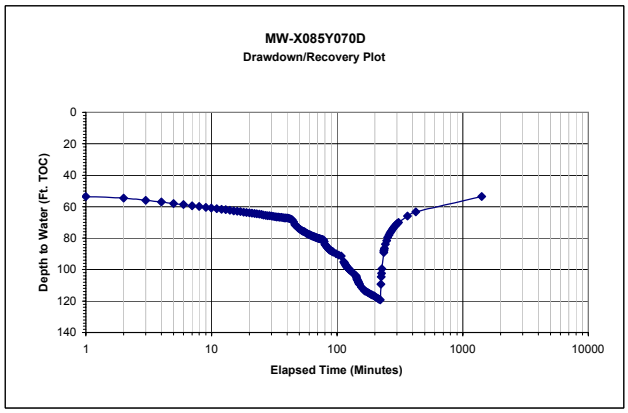


43.0	30.35
44.0	30.65
45.0	30.95
46.0	31.20
47.0	31.60
48.0	32.05
49.0	32.30
50.0	32.70
51.0	33.00
52.0	33.30
53.0	33.75
54.0	34.00
55.0	34.45
56.0	34.75
57.0	35.10
58.0	35.40
59.0	35.70
60.0	36.90
61.0	38.30
62.0	40.20
63.0	41.00
64.0	42.50
65.0	43.60
66.0	45.20
67.0	46.20
68.0	47.70
69.0	49.00
70.0	50.65
71.0	51.85
72.0	53.00
73.0	54.20
74.0	55.10
75.0	56.10
76.0	57.30
77.0	58.10
78.0	59.90
79.0	60.40
80.0	61.10
81.0	62.15
82.0	62.90
83.0	63.60
84.0	64.40
85.0	65.20
86.0	65.95
87.0	66.60
88.0	67.20
89.0	67.80
90.0	68.80
91.0	70.90
92.0	71.60
93.0	73.00
94.0	74.20
99.0	81.30
104.0	86.25
109.0	88.50
114.0	94.50
119.0	98.95
124.0	103.10
129.0	106.50
134.0	111.00
139.0	114.90
144.0	118.30
149.0	121.70
154.0	125.65
159.0	128.65
164.0	131.60
169.0	134.90
174.0	137.70
179.0	141.10
184.0	143.45
189.0	146.00
194.0	148.10
199.0	149.95
204.0	151.90
209.0	154.00

DRAWDOWN/RECOVERY DATA

Test 1 **MW-X085Y070D**

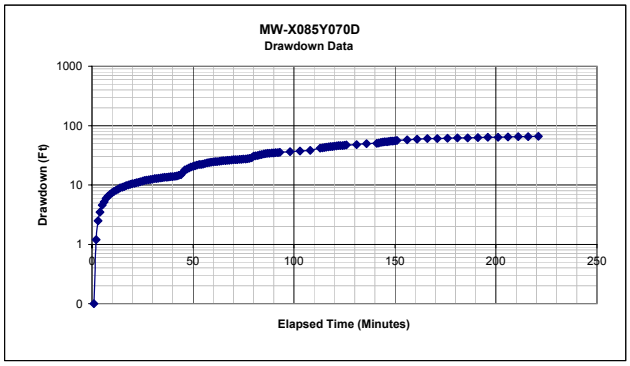
	Time	Elapsed Time	DTW (Ft. TOC)	
22-Jul-02	8:36:00	0.0	53.40	Prior to test
	9:00:00	0.0	52.85	Pump in well
	9:04:00	0.0		Start pump
	9:05:00	1.0	53.50	
	9:06:00	2.0	54.60	
	9:07:00	3.0	55.90	
	9:08:00	4.0	56.90	Flow = 1.5 gpm
	9:09:00	5.0	58.00	
	9:10:00	6.0	58.60	
	9:11:00	7.0	59.35	
	9:12:00	8.0	59.90	
	9:13:00	9.0	60.40	
	9:14:00	10.0	60.85	
	9:15:00	11.0	61.25	
	9:16:00	12.0	61.60	
	9:17:00	13.0	61.95	
	9:18:00	14.0	62.30	
	9:19:00	15.0	62.60	
	9:20:00	16.0	62.85	
	9:21:00	17.0	63.15	
	9:22:00	18.0	63.40	
	9:23:00	19.0	63.65	
	9:24:00	20.0	63.90	
	9:25:00	21.0	64.10	
	9:26:00	22.0	64.30	
	9:27:00	23.0	64.45	Flow decrease
	9:28:00	24.0	64.70	Turn up pump
	9:29:00	25.0	65.00	
	9:30:00	26.0	65.35	Flow = 1.5 gpm
	9:31:00	27.0	65.45	
	9:32:00	28.0	65.65	
	9:33:00	29.0	65.80	
	9:34:00	30.0	65.95	
	9:35:00	31.0	66.15	
	9:36:00	32.0	66.25	
	9:37:00	33.0	66.45	
	9:38:00	34.0	66.55	
	9:39:00	35.0	66.70	
	9:40:00	36.0	66.80	
	9:41:00	37.0	66.90	
	9:42:00	38.0	67.10	
	9:43:00	39.0	67.20	
	9:44:00	40.0	67.25	
	9:45:00	41.0	67.35	
	9:46:00	42.0	67.50	
	9:47:00	43.0	67.95	
	9:48:00	44.0	68.30	Increase flow rate
	9:49:00	45.0	69.60	Flow = 2.5 gpm
	9:50:00	46.0	71.40	
	9:51:00	47.0	72.00	
	9:52:00	48.0	72.60	
	9:53:00	49.0	73.40	
	9:54:00	50.0	74.00	
	9:55:00	51.0	74.55	
	9:56:00	52.0	75.00	
	9:57:00	53.0	75.50	
	9:58:00	54.0	75.65	
	9:59:00	55.0	75.90	
	10:00:00	56.0	76.30	
	10:01:00	57.0	77.00	Flow = 2.5 gpm
	10:02:00	58.0	77.20	
	10:03:00	59.0	77.45	
	10:04:00	60.0	77.75	
	10:05:00	61.0	78.00	
	10:06:00	62.0	78.25	
	10:07:00	63.0	78.45	
	10:08:00	64.0	78.70	
	10:09:00	65.0	78.95	
	10:10:00	66.0	79.10	
	10:11:00	67.0	79.35	
	10:12:00	68.0	79.55	
	10:13:00	69.0	79.70	
	10:14:00	70.0	79.90	
	10:15:00	71.0	80.10	Flow = 2.5 gpm
	10:16:00	72.0	80.20	
	10:17:00	73.0	80.40	
	10:18:00	74.0	80.55	
	10:19:00	75.0	80.70	
	10:20:00	76.0	80.85	
	10:21:00	77.0	81.00	
	10:22:00	78.0	81.25	
	10:23:00	79.0	82.25	Increase flow rate
	10:24:00	80.0	84.00	Flow = 3.5 pgm
	10:25:00	81.0	84.35	
	10:26:00	82.0	84.85	
	10:27:00	83.0	85.60	
	10:28:00	84.0	86.10	



	10:29:00	85.0	86.55	
	10:30:00	86.0	86.95	
	10:31:00	87.0	87.40	
	10:32:00	88.0	87.60	
	10:33:00	89.0	87.90	
	10:34:00	90.0	88.10	
	10:35:00	91.0	88.40	
	10:36:00	92.0	88.60	Flow = 3.5 gpm
	10:37:00	93.0	88.90	
	10:42:00	98.0	89.95	
	10:47:00	103.0	90.70	
	10:52:00	108.0	91.45	
	10:57:00	113.0	95.10	Turn up pump
	10:58:00	114.0	95.50	Flow = 4 gpm
	10:59:00	115.0	96.10	
	11:00:00	116.0	96.65	
	11:01:00	117.0	97.10	
	11:02:00	118.0	97.60	
	11:03:00	119.0	98.00	
	11:04:00	120.0	98.35	
	11:05:00	121.0	98.70	
	11:06:00	122.0	99.15	
	11:07:00	123.0	99.35	
	11:08:00	124.0	99.70	
	11:09:00	125.0	100.00	
	11:10:00	126.0	100.30	
	11:15:00	131.0	101.30	
	11:20:00	136.0	102.80	Flow = 4 gpm
	11:25:00	141.0	103.80	Turn up pump- pump at max speed
	11:26:00	142.0	104.35	
	11:27:00	143.0	105.20	
	11:28:00	144.0	106.00	
	11:29:00	145.0	106.50	Flow = 4.75
	11:30:00	146.0	107.10	
	11:31:00	147.0	107.60	
	11:32:00	148.0	108.00	
	11:33:00	149.0	108.50	
	11:34:00	150.0	109.10	
	11:35:00	151.0	109.35	
	11:40:00	156.0	111.15	
	11:45:00	161.0	112.25	
	11:50:00	166.0	113.60	Flow = 4.75 gpm
	11:55:00	171.0	114.00	
	12:00:00	176.0	114.55	
	12:05:00	181.0	115.15	
	12:10:00	186.0	115.70	Flow = 4.5 gpm
	12:15:00	191.0	116.25	
	12:20:00	196.0	116.70	
	12:25:00	201.0	117.20	Flow = 4.25 gpm
	12:30:00	206.0	117.75	
	12:35:00	211.0	118.30	
	12:40:00	216.0	118.80	
	12:45:00	221.0	119.25	
				Pump off because both water tanks completely full-water from tubing backwashed into well-550 gals of water
	12:47:00	223.0		recovered
	12:48:00	224.0	109.20	Start of recovery- with pump in
	12:49:00	225.0	104.60	
	12:50:00	226.0	102.40	
	12:51:00	227.0	99.60	
	12:59:00	235.0	89.10	Pull out pump- without pump in
	13:00:00	236.0	88.20	
	13:01:00	237.0	87.50	
	13:02:00	238.0	86.50	
	13:07:00	243.0	83.80	
	13:12:00	248.0	81.50	
	13:17:00	253.0	79.50	
	13:22:00	258.0	78.10	
	13:27:00	263.0	77.00	
	13:32:00	268.0	76.00	
	13:37:00	273.0	75.00	
	13:42:00	278.0	74.10	
	13:47:00	283.0	73.30	
	13:52:00	288.0	72.50	
	13:57:00	293.0	71.85	
	14:02:00	298.0	71.10	
	14:07:00	303.0	70.60	
	14:12:00	308.0	70.10	
	15:07:00	363.0	66.00	
	16:07:00	423.0	63.30	
7/23/2002	8:45:00	1421.0	53.55	

DRAWDOWN/RECOVERY DATA

Elapsed Time	Drawdown (Ft)
1.0	0.10
2.0	1.20
3.0	2.50
4.0	3.50
5.0	4.60
6.0	5.20
7.0	5.95
8.0	6.50
9.0	7.00
10.0	7.45
11.0	7.85
12.0	8.20
13.0	8.55
14.0	8.90
15.0	9.20
16.0	9.45
17.0	9.75
18.0	10.00
19.0	10.25
20.0	10.50
21.0	10.70
22.0	10.90
23.0	11.05
24.0	11.30
25.0	11.60
26.0	11.95
27.0	12.05
28.0	12.25
29.0	12.40
30.0	12.55
31.0	12.75
32.0	12.85
33.0	13.05
34.0	13.15
35.0	13.30
36.0	13.40
37.0	13.50
38.0	13.70
39.0	13.80
40.0	13.85
41.0	13.95
42.0	14.10
43.0	14.55
44.0	14.90
45.0	16.20
46.0	18.00
47.0	18.60
48.0	19.20
49.0	20.00
50.0	20.60
51.0	21.15
52.0	21.60
53.0	22.10
54.0	22.25
55.0	22.50
56.0	22.90
57.0	23.60
58.0	23.80
59.0	24.05
60.0	24.35
61.0	24.60
62.0	24.85
63.0	25.05
64.0	25.30
65.0	25.55
66.0	25.70
67.0	25.95
68.0	26.15
69.0	26.30
70.0	26.50
71.0	26.70
72.0	26.80
73.0	27.00
74.0	27.15
75.0	27.30
76.0	27.45
77.0	27.60
78.0	27.85
79.0	28.85
80.0	30.60
81.0	30.95
82.0	31.45
83.0	32.20
84.0	32.70

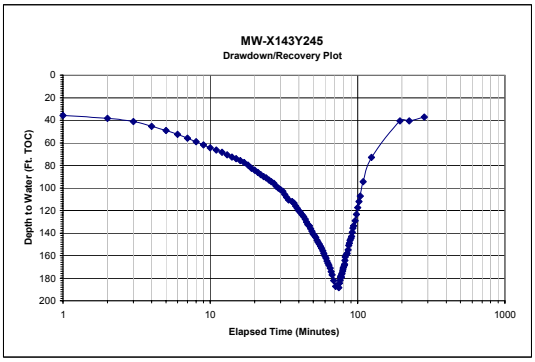


85.0	33.15
86.0	33.55
87.0	34.00
88.0	34.20
89.0	34.50
90.0	34.70
91.0	35.00
92.0	35.20
93.0	35.50
98.0	36.55
103.0	37.30
108.0	38.05
113.0	41.70
114.0	42.10
115.0	42.70
116.0	43.25
117.0	43.70
118.0	44.20
119.0	44.60
120.0	44.95
121.0	45.30
122.0	45.75
123.0	45.95
124.0	46.30
125.0	46.60
126.0	46.90
131.0	47.90
136.0	49.40
141.0	50.40
142.0	50.95
143.0	51.80
144.0	52.60
145.0	53.10
146.0	53.70
147.0	54.20
148.0	54.60
149.0	55.10
150.0	55.70
151.0	55.95
156.0	57.75
161.0	58.85
166.0	60.20
171.0	60.60
176.0	61.15
181.0	61.75
186.0	62.30
191.0	62.85
196.0	63.30
201.0	63.80
206.0	64.35
211.0	64.90
216.0	65.40
221.0	65.85

DRAWDOWN/RECOVERY DATA

Test 1 **MW-X143Y245**

	Time	Elapsed Time	DTW (Ft. TOC)	
4-Apr-02	10:16:00	0.0	26.35	
	10:17:00	1.0	35.75	
	10:18:00	2.0	38.21	
	10:19:00	3.0	41.21	
	10:20:00	4.0	45.38	
	10:21:00	5.0	49.18	
	10:22:00	6.0	52.40	
	10:23:00	7.0	55.75	
	10:24:00	8.0	58.87	
	10:25:00	9.0	61.72	
	10:26:00	10.0	64.28	
	10:27:00	11.0	66.45	
	10:28:00	12.0	68.39	
	10:29:00	13.0	70.72	
	10:30:00	14.0	72.66	
	10:31:00	15.0	74.11	
	10:32:00	16.0	75.66	
	10:33:00	17.0	77.44	
	10:34:00	18.0	79.72	
	10:35:00	19.0	82.42	
	10:36:00	20.0	84.15	
	10:37:00	21.0	86.36	
	10:38:00	22.0	88.18	
	10:39:00	23.0	89.88	
	10:40:00	24.0	90.95	
	10:41:00	25.0	93.00	
	10:42:00	26.0	94.37	
	10:43:00	27.0	95.88	
	10:44:00	28.0	98.52	
	10:45:00	29.0	100.00	
	10:46:00	30.0	101.67	
	10:47:00	31.0	103.02	
	10:48:00	32.0	105.81	
	10:49:00	33.0	108.25	
	10:50:00	34.0	110.76	
	10:52:00	36.0	111.92	
	10:53:00	37.0	113.46	
	10:54:00	38.0	116.02	
	10:55:00	39.0	118.12	
	10:56:00	40.0	120.22	
	10:57:00	41.0	121.75	
	10:58:00	42.0	123.61	
	10:59:00	43.0	125.53	
	11:00:00	44.0	127.65	
	11:01:00	45.0	130.15	
	11:02:00	46.0	132.60	
	11:03:00	47.0	133.74	
	11:04:00	48.0	136.28	
	11:05:00	49.0	138.39	
	11:06:00	50.0	140.98	
	11:07:00	51.0	142.21	
	11:08:00	52.0	143.97	
	11:09:00	53.0	146.40	
	11:10:00	54.0	148.00	
	11:11:00	55.0	149.66	
	11:12:00	56.0	151.85	
	11:13:00	57.0	153.58	
	11:14:00	58.0	155.62	
	11:15:00	59.0	157.92	
	11:16:00	60.0	160.69	
	11:17:00	61.0	162.30	
	11:18:00	62.0	164.81	
	11:19:00	63.0	166.83	
	11:20:00	64.0	168.41	
	11:21:00	65.0	170.95	
	11:22:00	66.0	174.21	
	11:23:00	67.0	177.01	
	11:25:00	69.0	182.10	
	11:27:00	71.0	187.24	
	11:30:30	74.5	188.30	
	11:31:30	75.5	184.30	
	11:32:00	76.0	181.71	
	11:32:30	76.5	179.21	
	11:33:00	77.0	178.17	
	11:33:30	77.5	178.91	
	11:34:00	78.0	176.41	
	11:34:30	78.5	175.51	
	11:35:00	79.0	173.51	
	11:35:30	79.5	171.93	
	11:36:00	80.0	170.47	
	11:37:00	81.0	168.87	
	11:37:30	81.5	167.71	
	11:38:00	82.0	164.31	
	11:38:30	82.5	161.26	
	11:39:30	83.5	159.20	
	11:41:00	85.0	157.90	
	11:42:00	86.0	154.86	
	11:43:00	87.0	150.89	
	11:44:00	88.0	148.81	
	11:45:00	89.0	146.46	
	11:46:00	90.0	144.78	
	11:47:00	91.0	142.92	
	11:48:00	92.0	139.21	
	11:49:00	93.0	135.66	
	11:50:00	94.0	133.62	
	11:52:00	96.0	129.04	
	11:54:00	98.0	123.36	
	11:56:00	100.0	117.47	
	11:58:00	102.0	112.08	
	12:00:00	104.0	107.21	water trickle noise ends
	12:05:00	109.0	94.37	
	12:20:00	124.0	72.90	
	13:30:00	194.0	40.45	removed pump
	14:00:00	224.0	40.52	
	15:00:00	284.0	37.04	

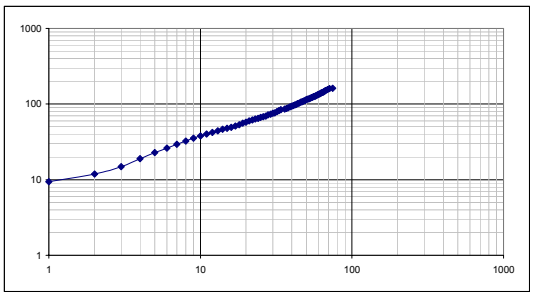


DRAWDOWN/RECOVERY DATA

Test 1 **MW-X143Y245**

Time	Elapsed Time	DTW (Ft. TOC)

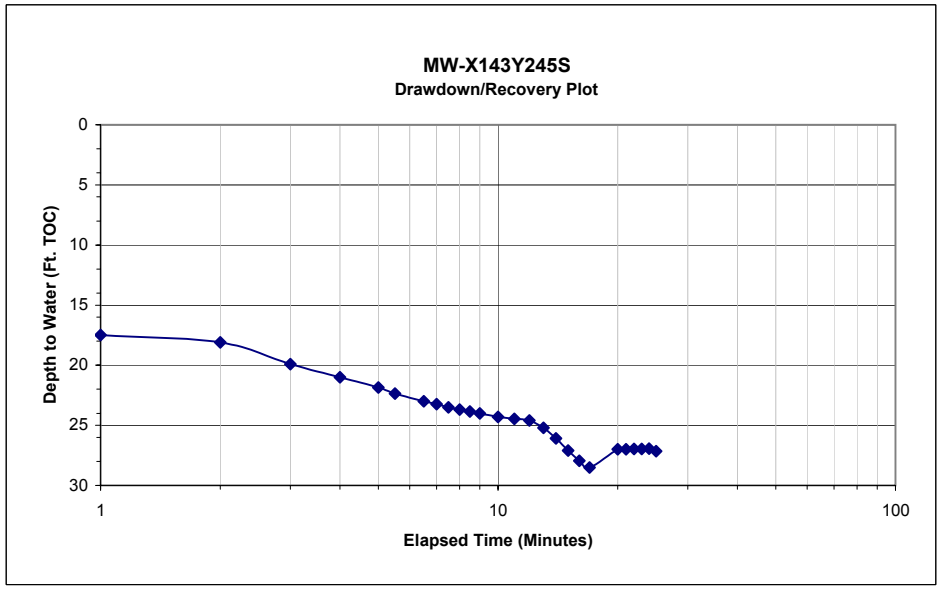
Elapsed Time (Minutes)	Drawdown (Feet)
1.0	9.40
2.0	11.86
3.0	14.86
4.0	19.03
5.0	22.83
6.0	26.05
7.0	29.40
8.0	32.52
9.0	35.37
10.0	37.93
11.0	40.10
12.0	42.04
13.0	44.37
14.0	46.31
15.0	47.76
16.0	49.31
17.0	51.09
18.0	53.37
19.0	56.07
20.0	57.80
21.0	60.01
22.0	61.83
23.0	63.53
24.0	64.60
25.0	66.65
26.0	68.02
27.0	69.53
28.0	72.17
29.0	73.65
30.0	75.32
31.0	76.67
32.0	79.46
33.0	81.90
34.0	84.41
36.0	85.57
37.0	87.11
38.0	89.67
39.0	91.77
40.0	93.87
41.0	95.40
42.0	97.26
43.0	99.18
44.0	101.30
45.0	103.80
46.0	106.25
47.0	107.39
48.0	109.93
49.0	112.04
50.0	114.63
51.0	115.86
52.0	117.62
53.0	120.05
54.0	121.65
55.0	123.31
56.0	125.50
57.0	127.23
58.0	129.27
59.0	131.57
60.0	134.34
61.0	135.95
62.0	138.46
63.0	140.48
64.0	142.06
65.0	144.60
66.0	147.86
67.0	150.66
69.0	155.75
71.0	160.89
74.5	161.95



DRAWDOWN/RECOVERY DATA

Test 1 **MW-X143Y245S**

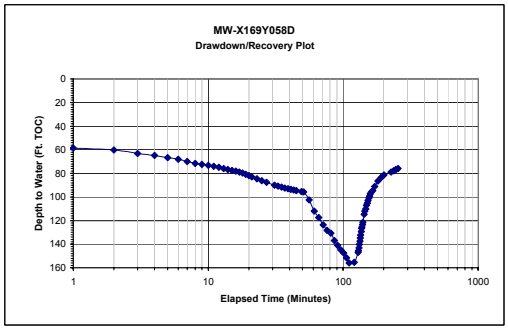
	Time	Elapsed Time	DTW (Ft. TOC)	
10-Jun-02	10:50:00	0.0	15.95	
	11:20:00	0.0	15.85	
	11:23:00	0.0	Start Pumping	
	11:24:00	1.0	17.50	
	11:25:00	2.0	18.10	
	11:26:00	3.0	19.90	
	11:27:00	4.0	21.00	
	11:28:00	5.0	21.85	
	11:28:30	5.5	22.35	
	11:29:30	6.5	23.00	
	11:30:00	7.0	23.25	
	11:30:30	7.5	23.50	
	11:31:00	8.0	23.70	flow = 0.75 gpm
	11:31:30	8.5	23.85	flow = 0.50 gpm
	11:32:00	9.0	24.00	
	11:33:00	10.0	24.30	
	11:34:00	11.0	24.45	flow decreased
	11:35:00	12.0	24.60	
	11:36:00	13.0	25.20	flow = 0.75 gpm
	11:37:00	14.0	26.10	
	11:38:00	15.0	27.10	
	11:39:00	16.0	27.95	
	11:40:00	17.0	28.50	11:42 = shut off pump, backwash filling borehole
	11:43:00	20.0	27.00	
	11:44:00	21.0	27.00	
	11:45:00	22.0	26.97	
	11:46:00	23.0	26.97	
	11:47:00	24.0	26.94	pump in
	11:48:00	25.0	27.15	remove pump
				10 gallons recovered



DRAWDOWN/RECOVERY DATA

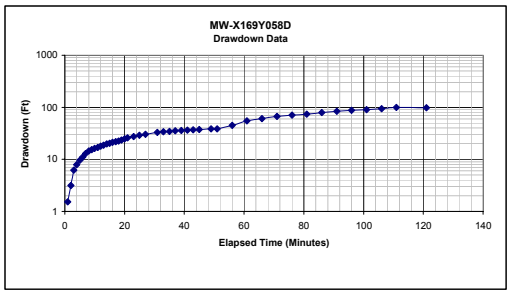
Test 1 **MW-X169Y058D**

	Time	Elapsed Time	DTW (Ft. TOC)	
29-Jul-02	10:15:00	0.0	57.05	Prior to test
	10:38:00	0.0	55.70	Pump in well
	10:39:00	0.0		Start pump
	10:40:00	1.0	58.57	Flow= 2gpm
	10:41:00	2.0	60.20	
	10:42:00	3.0	63.24	
	10:43:00	4.0	64.90	
	10:44:00	5.0	66.71	
	10:45:00	6.0	68.07	
	10:46:00	7.0	70.10	
	10:47:00	8.0	71.55	
	10:48:00	9.0	72.43	
	10:49:00	10.0	73.32	
	10:50:00	11.0	74.00	
	10:51:00	12.0	74.89	
	10:52:00	13.0	75.91	
	10:53:00	14.0	76.80	
	10:54:00	15.0	77.46	
	10:55:00	16.0	78.20	
	10:56:00	17.0	78.96	
	10:57:00	18.0	79.61	
	10:58:00	19.0	80.70	
	10:59:00	20.0	81.97	Flow= 2gpm
	11:00:00	21.0	82.95	
	11:02:00	23.0	84.59	
	11:04:00	25.0	86.15	
	11:06:00	27.0	87.51	
	11:08:00	29.0		
	11:10:00	31.0	89.92	
	11:12:00	33.0	90.78	
	11:14:00	35.0	91.62	
	11:16:00	37.0	92.37	
	11:18:00	39.0	92.92	
	11:20:00	41.0	93.58	
	11:22:00	43.0	94.08	
	11:24:00	45.0	94.68	
	11:26:00	47.0		
	11:28:00	49.0	95.55	
	11:30:00	51.0	95.70	
	11:35:00	56.0	102.40	Flow= 4gpm
	11:40:00	61.0	112.00	
	11:45:00	66.0	117.55	
	11:50:00	71.0	123.65	
	11:55:00	76.0	128.30	
	12:00:00	81.0	130.78	Flow= 4gpm
	12:05:00	86.0	136.91	
	12:10:00	91.0	140.90	
	12:15:00	96.0	144.75	
	12:20:00	101.0	147.60	
	12:25:00	106.0	151.61	
	12:30:00	111.0	155.91	Max flow= 4gpm
	12:40:00	121.0	155.50	Stop pumping-keep getting signal on water level tape
	12:45:00	126.0		265 gallons removed-start of recovery
	12:46:00	127.0		
	12:47:00	128.0		
	12:48:00	129.0	147.00	
	12:49:00	130.0	145.60	
	12:50:00	131.0	143.20	
	12:51:00	132.0	140.10	
	12:52:00	133.0	137.61	
	12:53:00	134.0	134.90	
	12:54:00	135.0	132.30	
	12:55:00	136.0	129.46	
	12:56:00	137.0	126.70	
	12:57:00	138.0	125.61	
	12:58:00	139.0	123.52	
	12:59:00	140.0	121.47	
	13:00:00	141.0		
	13:02:00	143.0	114.70	
	13:04:00	145.0	112.00	
	13:06:00	147.0	110.21	
	13:08:00	149.0	107.03	
	13:10:00	151.0	105.28	
	13:12:00	153.0	103.00	
	13:14:00	155.0	101.00	
	13:16:00	157.0	99.30	
	13:18:00	159.0	97.38	
	13:20:00	161.0	96.10	
	13:25:00	166.0	94.60	
	13:30:00	171.0	91.00	
	13:40:00	181.0	86.55	
	13:50:00	191.0	83.60	
	14:00:00	201.0	81.45	Pull pump from well
	14:25:00	226.0	79.00	Without pump
	14:35:00	236.0	77.75	
	14:45:00	246.0	76.75	
	14:55:00	256.0	75.80	



DRAWDOWN/RECOVERY DATA

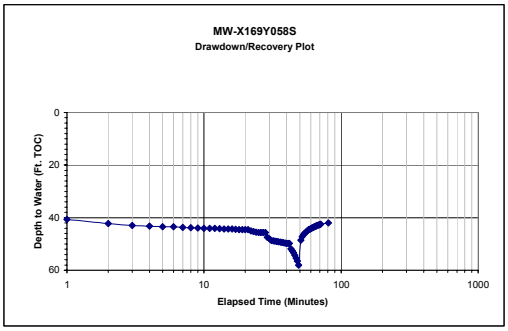
Elapsed Time	Drawdown (Ft)
1.0	1.52
2.0	3.15
3.0	6.19
4.0	7.85
5.0	9.66
6.0	11.02
7.0	13.05
8.0	14.50
9.0	15.38
10.0	16.27
11.0	16.95
12.0	17.84
13.0	18.86
14.0	19.75
15.0	20.41
16.0	21.15
17.0	21.91
18.0	22.56
19.0	23.65
20.0	24.92
21.0	25.90
23.0	27.54
25.0	29.10
27.0	30.46
31.0	32.87
33.0	33.73
35.0	34.57
37.0	35.32
39.0	35.87
41.0	36.53
43.0	37.03
45.0	37.63
49.0	38.50
51.0	38.65
56.0	45.35
61.0	54.95
66.0	60.50
71.0	66.60
76.0	71.25
81.0	73.73
86.0	79.86
91.0	83.85
96.0	87.70
101.0	90.55
106.0	94.56
111.0	98.86
121.0	98.45



DRAWDOWN/RECOVERY DATA

Test 2 **MW-X169Y058S**

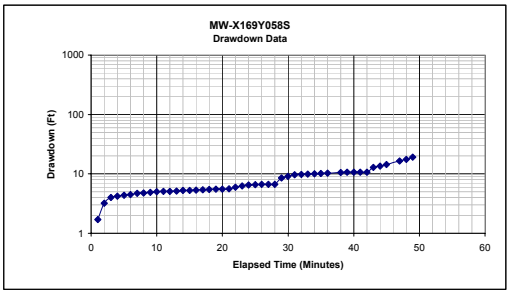
	Time	Elapsed Time	DTW (Ft. TOC)	
19-Jul-02	8:45:00	0.0	39.00	Without pump in
	8:50:00	0.0	38.60	With pump in
	8:51:00	0.0		Start pump
	8:52:00	1.0	40.70	
	8:53:00	2.0	42.20	Flow = 2gpm
	8:54:00	3.0	43.00	
	8:55:00	4.0	43.20	
	8:56:00	5.0	43.40	
	8:57:00	6.0	43.50	
	8:58:00	7.0	43.70	
	8:59:00	8.0	43.80	
	9:00:00	9.0	43.90	
	9:01:00	10.0	44.00	
	9:02:00	11.0	44.05	
	9:03:00	12.0	44.10	
	9:04:00	13.0	44.15	
	9:05:00	14.0	44.25	
	9:06:00	15.0	44.30	
	9:07:00	16.0	44.35	
	9:08:00	17.0	44.40	
	9:09:00	18.0	44.50	
	9:10:00	19.0	44.55	
	9:11:00	20.0	44.55	
	9:12:00	21.0	44.60	Flow decrease
	9:13:00	22.0	45.00	Turn up pump
	9:14:00	23.0	45.25	
	9:15:00	24.0	45.50	Check flow rate = 2 gpm
	9:16:00	25.0	45.60	
	9:17:00	26.0	45.65	
	9:18:00	27.0	45.65	No longer drawing down
	9:19:00	28.0	45.65	
	9:20:00	29.0	47.50	Turn up pump
	9:21:00	30.0	48.10	Flow = 4gpm
	9:22:00	31.0	48.70	
	9:23:00	32.0	48.80	
	9:24:00	33.0	48.90	
	9:25:00	34.0	49.05	
	9:26:00	35.0	49.15	
	9:27:00	36.0	49.30	
	9:28:00	37.0	49.45	
	9:29:00	38.0	49.55	
	9:30:00	39.0	49.70	
	9:31:00	40.0	49.75	
	9:32:00	41.0	49.75	No longer drawing down
	9:33:00	42.0	49.75	Turn up pump
	9:34:00	43.0	51.80	
	9:35:00	44.0	52.55	
	9:36:00	45.0	53.30	
	9:37:00	46.0	54.30	Flow = 5 gpm
	9:38:00	47.0	55.40	
	9:39:00	48.0	56.50	
	9:40:00	49.0	58.10	
	9:41:00	50.0		Well dry-pump off-water from tubing backwash into well-recovered 125 gallons of water
	9:42:00	51.0	48.50	Start of recovery
	9:43:00	52.0	47.20	
	9:44:00	53.0	46.55	
	9:45:00	54.0	46.00	
	9:46:00	55.0	45.70	
	9:47:00	56.0	45.25	
	9:48:00	57.0	44.90	
	9:49:00	58.0	44.60	
	9:50:00	59.0	44.40	
	9:51:00	60.0	44.15	
	9:52:00	61.0	43.90	
	9:53:00	62.0	43.80	
	9:54:00	63.0	43.60	
	9:55:00	64.0	43.45	
	9:56:00	65.0	43.30	
	9:57:00	66.0	43.10	
	9:58:00	67.0	43.00	
	9:59:00	68.0	42.80	
	10:00:00	69.0	42.70	
	10:01:00	70.0	42.60	
	10:02:00	71.0	42.50	Pull pump from well
	10:12:00	81.0	42.00	



Elapsed Time	Drawdown (Ft)
1.0	1.70
2.0	3.20
3.0	4.00
4.0	4.20
5.0	4.40
6.0	4.50
7.0	4.70
8.0	4.80
9.0	4.90
10.0	5.00

DRAWDOWN/RECOVERY DATA

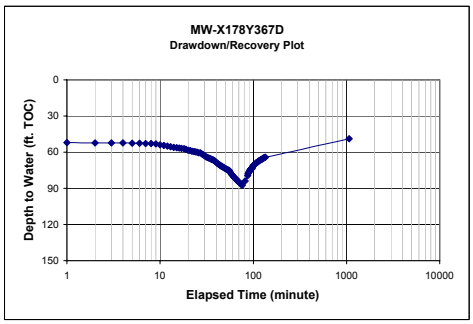
11.0	5.05
12.0	5.10
13.0	5.15
14.0	5.25
15.0	5.30
16.0	5.35
17.0	5.40
18.0	5.50
19.0	5.55
20.0	5.55
21.0	5.60
22.0	6.00
23.0	6.25
24.0	6.50
25.0	6.60
26.0	6.65
27.0	6.65
28.0	6.65
29.0	8.50
30.0	9.10
31.0	9.70
32.0	9.80
33.0	9.90
34.0	10.05
35.0	10.15
36.0	10.30
38.0	10.55
39.0	10.70
40.0	10.75
41.0	10.75
42.0	10.75
43.0	12.80
44.0	13.55
45.0	14.30
47.0	16.40
48.0	17.50
49.0	19.10



DRAWDOWN/RECOVERY DATA

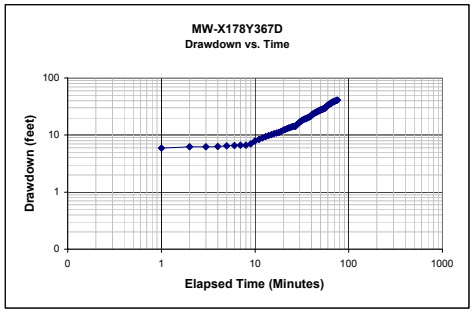
Test 1 **MW-X178Y367**

	Time	Elapsed Time	DTW (Ft. TOC)	
24-Jun-02	13:40:00	0.0	46.08	w/o pump in
	13:50:00	0.0	45.60	w/pump in
	14:02:00	0.0		Start Pump
	14:03:00	1.0	52.00	
	14:04:00	2.0	52.30	
	14:05:00	3.0	52.30	
	14:06:00	4.0	52.35	
	14:07:00	5.0	52.55	
	14:08:00	6.0	52.65	
	14:09:00	7.0	52.70	
	14:10:00	8.0	52.75	flow = 0.50 gpm
	14:11:00	9.0	53.05	increase flow rate
	14:12:00	10.0	53.90	
	14:13:00	11.0	54.45	
	14:14:00	12.0	55.00	
	14:15:00	13.0	55.50	
	14:16:00	14.0	55.90	flow = 1.20 gpm
	14:17:00	15.0	56.30	
	14:18:00	16.0	56.60	
	14:19:00	17.0	56.90	
	14:20:00	18.0	57.20	increase flow rate
	14:21:00	19.0	57.70	
	14:22:00	20.0	58.30	
	14:23:00	21.0	58.65	
	14:24:00	22.0	59.10	
	14:25:00	23.0	59.50	flow = 1.25 gpm
	14:26:00	24.0	59.80	
	14:27:00	25.0	60.10	
	14:28:00	26.0	60.40	
	14:29:00	27.0	60.40	increase flow rate
	14:30:00	28.0	61.20	
	14:31:00	29.0	62.15	
	14:32:00	30.0	62.95	
	14:33:00	31.0	63.60	flow = 2.5 gpm
	14:34:00	32.0	64.30	
	14:35:00	33.0	64.70	
	14:36:00	34.0	65.15	
	14:37:00	35.0	65.60	
	14:38:00	36.0	66.10	
	14:39:00	37.0	66.45	
	14:40:00	38.0	66.85	increase flow rate
	14:41:00	39.0	67.40	
	14:42:00	40.0	68.45	
	14:43:00	41.0	69.20	flow = 2.65 gpm
	14:44:00	42.0	69.75	
	14:45:00	43.0	70.30	
	14:46:00	44.0	70.85	
	14:47:00	45.0	71.30	
	14:48:00	46.0	71.75	
	14:49:00	47.0	72.25	
	14:50:00	48.0	72.65	
	14:51:00	49.0	73.10	
	14:52:00	50.0	73.50	
	14:53:00	51.0	73.85	
	14:54:00	52.0	74.25	
	14:55:00	53.0	74.55	
	14:56:00	54.0	74.90	
	14:57:00	55.0	75.25	increase flow rate
	14:58:00	56.0	75.90	
	14:59:00	57.0	77.00	
	15:00:00	58.0	78.20	flow = 3.0 gpm
	15:01:00	59.0	78.70	
	15:02:00	60.0	79.40	
	15:03:00	61.0	80.05	
	15:04:00	62.0	80.75	
	15:05:00	63.0	81.30	
	15:06:00	64.0	81.80	
	15:07:00	65.0	82.40	
	15:08:00	66.0	82.95	
	15:09:00	67.0	83.50	
	15:10:00	68.0	83.90	
	15:12:00	70.0	84.80	
	15:14:00	72.0	85.75	
	15:16:00	74.0	86.55	
	15:18:00	76.0	87.30	
	15:22:00	80.0		shut off pump
	15:24:00	82.0	83.80	start recovery w/pump in well
	15:29:00	87.0	79.30	pump pulled
	15:30:00	88.0	77.70	
	15:31:00	89.0	76.90	
	15:32:00	90.0	76.10	
	15:33:00	91.0	75.80	
	15:34:00	92.0	74.75	
	15:35:00	93.0	74.35	
	15:36:00	94.0	73.80	
	15:37:00	95.0	73.80	
	15:38:00	96.0	73.50	
	15:39:00	97.0	73.50	
	15:40:00	98.0	72.10	
	15:41:00	99.0	71.65	
	15:42:00	100.0	71.10	
	15:43:00	101.0	70.75	
	15:45:00	103.0	70.20	
	15:47:00	105.0	69.70	
	15:49:00	107.0	69.00	
	15:51:00	109.0	68.60	
	15:53:00	111.0	68.20	
	15:55:00	113.0	67.65	
	15:57:00	115.0	67.30	
	15:59:00	117.0	66.80	
	16:01:00	119.0	66.45	
	16:03:00	121.0	66.10	
	16:05:00	123.0	65.80	
	16:07:00	125.0	65.50	
	16:09:00	127.0	65.15	
	16:11:00	129.0	64.85	
	16:13:00	131.0	64.50	
	16:15:00	133.0	64.35	
	16:17:00	135.0	64.20	recovered 130 gallons
	6/25/02 @10:30	1067.0	48.91	



DRAWDOWN/RECOVERY DATA

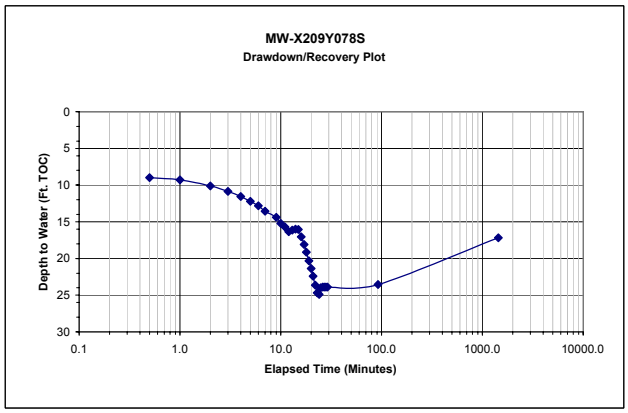
Elapsed Time (Minutes)	Drawdown (feet)
1.0	5.92
2.0	6.22
3.0	6.22
4.0	6.27
5.0	6.47
6.0	6.57
7.0	6.62
8.0	6.67
9.0	6.97
10.0	7.82
11.0	8.37
12.0	8.92
13.0	9.42
14.0	9.82
15.0	10.22
16.0	10.52
17.0	10.82
18.0	11.12
19.0	11.62
20.0	12.22
21.0	12.57
22.0	13.02
23.0	13.42
24.0	13.72
25.0	14.02
26.0	14.32
27.0	14.32
28.0	15.12
29.0	16.07
30.0	16.87
31.0	17.52
32.0	18.22
33.0	18.62
34.0	19.07
35.0	19.52
36.0	20.02
37.0	20.37
38.0	20.77
39.0	21.32
40.0	22.37
41.0	23.12
42.0	23.67
43.0	24.22
44.0	24.77
45.0	25.22
46.0	25.67
47.0	26.17
48.0	26.57
49.0	27.02
50.0	27.42
51.0	27.77
52.0	28.17
53.0	28.47
54.0	28.82
55.0	29.17
56.0	29.82
57.0	30.92
58.0	32.12
59.0	32.62
60.0	33.32
61.0	33.97
62.0	34.67
63.0	35.22
64.0	35.72
65.0	36.32
66.0	36.87
67.0	37.42
68.0	37.82
70.0	38.72
72.0	39.67
74.0	40.47
76.0	41.22



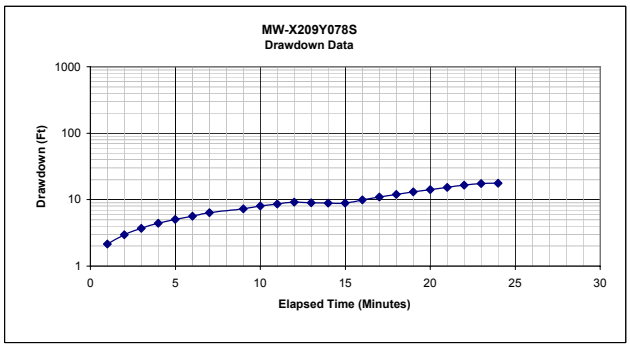
DRAWDOWN/RECOVERY DATA

Test 1 **MW-X209Y078S**

	Time	Elapsed Time	DTW (Ft. TOC)	
14-Aug-02	8:14:00	0.0	7.15	Prior to test
	8:16:00	0.0	8.50	Pump in well-Start pump
	8:16:30	0.5	9.00	Flow = 1 gpm
	8:17:00	1.0	9.30	
	8:18:00	2.0	10.10	
	8:19:00	3.0	10.85	
	8:20:00	4.0	11.55	
	8:21:00	5.0	12.20	
	8:22:00	6.0	12.82	
	8:23:00	7.0	13.55	
	8:24:00	8.0		
	8:25:00	9.0	14.40	
	8:26:00	10.0	15.20	
	8:27:00	11.0	15.70	
	8:28:00	12.0	16.35	
	8:29:00	13.0	16.15	
	8:30:00	14.0	16.00	
	8:31:00	15.0	16.05	
	8:32:00	16.0	17.05	
	8:33:00	17.0	18.11	
	8:34:00	18.0	19.15	
	8:35:00	19.0	20.30	
	8:36:00	20.0	21.35	
	8:37:00	21.0	22.40	
	8:38:00	22.0	23.65	
	8:39:00	23.0	24.70	
	8:40:00	24.0	24.90	Well dry-pump off-water from tubing backwash into well
	8:41:00	25.0	24.00	
	8:42:00	26.0	23.90	
	8:43:00	27.0	23.90	
	8:44:00	28.0	23.90	
	8:45:00	29.0	23.90	
	9:48:00	92.0	23.55	
8/15/2002	8:21:00	1445.0	17.17	



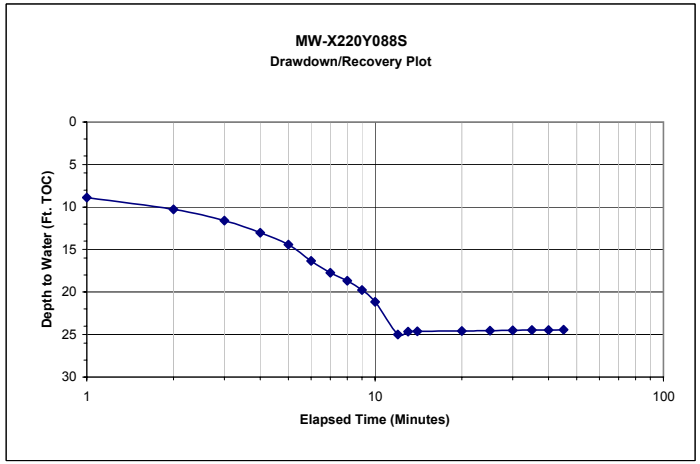
Elapsed Time	Drawdown (Ft)
1.0	2.15
2.0	2.95
3.0	3.70
4.0	4.40
5.0	5.05
6.0	5.67
7.0	6.40
9.0	7.25
10.0	8.05
11.0	8.55
12.0	9.20
13.0	9.00
14.0	8.85
15.0	8.90
16.0	9.90
17.0	10.96
18.0	12.00
19.0	13.15
20.0	14.20
21.0	15.25
22.0	16.50
23.0	17.55
24.0	17.75



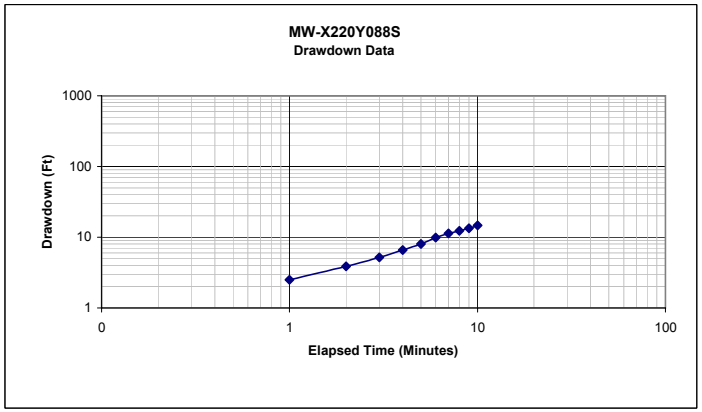
DRAWDOWN/RECOVERY DATA

Test 1 **MW-X220Y088S**

	Time	Elapsed Time	DTW (Ft. TOC)	
15-Aug-02	9:43:00	0.0	6.40	Prior to test
	9:45:00	0.0	7.70	Pump in well-Start pump
	9:46:00	1.0	8.90	Flow = 1 gpm
	9:47:00	2.0	10.27	
	9:48:00	3.0	11.60	
	9:49:00	4.0	13.02	
	9:50:00	5.0	14.40	
	9:51:00	6.0	16.32	
	9:52:00	7.0	17.73	
	9:53:00	8.0	18.66	
	9:54:00	9.0	19.77	
	9:55:00	10.0	21.15	
	9:56:00	11.0		well dry-pump off-water from tubing backwash into well
	9:57:00	12.0	25.00	
	9:58:00	13.0	24.65	
	9:59:00	14.0	24.60	
	10:05:00	20.0	24.59	
	10:10:00	25.0	24.54	
	10:15:00	30.0	24.50	
	10:20:00	35.0	24.48	
	10:25:00	40.0	24.46	
	10:30:00	45.0	24.44	



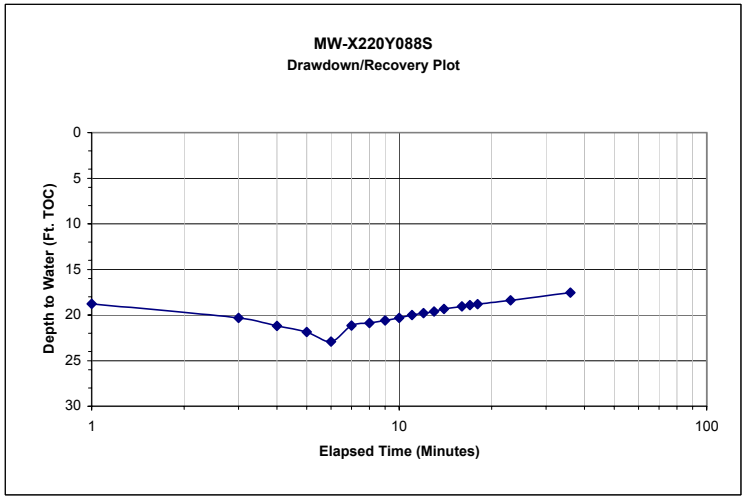
Elapsed Time	Drawdown (Ft)
0.0	1.30
1.0	2.50
2.0	3.87
3.0	5.20
4.0	6.62
5.0	8.00
6.0	9.92
7.0	11.33
8.0	12.26
9.0	13.37
10.0	14.75



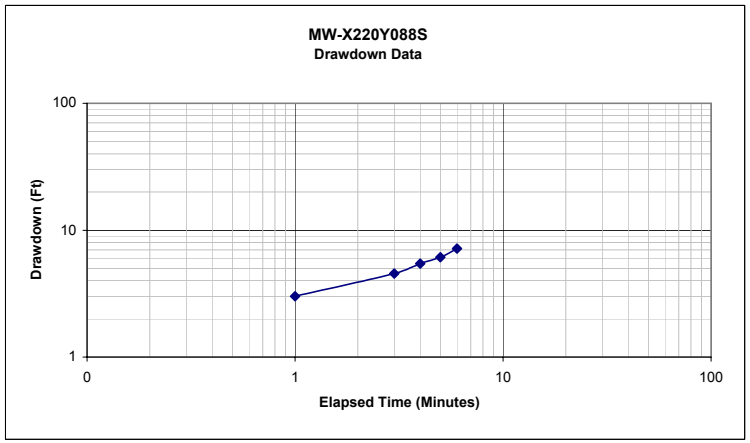
DRAWDOWN/RECOVERY DATA

Test 1 **MW-X233Y087S**

	Time	Elapsed Time	DTW (Ft. TOC)	
16-Aug-02	9:21:00	0.0	15.75	Prior to test
	9:22:00	0.0	17.70	Pump in well-Start pump
	9:23:00	1.0	18.76	Flow = 1 gpm
	9:24:00	2.0		
	9:25:00	3.0	20.30	
	9:26:00	4.0	21.20	
	9:27:00	5.0	21.87	
	9:28:00	6.0	22.90	
	9:29:00	7.0	21.17	well dry-pump off-water from tubing backwash into well
	9:30:00	8.0	20.87	Start of Recovery
	9:31:00	9.0	20.60	
	9:32:00	10.0	20.30	
	9:33:00	11.0	20.00	
	9:34:00	12.0	19.80	
	9:35:00	13.0	19.60	
	9:36:00	14.0	19.35	
	9:37:00	15.0		
	9:38:00	16.0	19.05	
	9:39:00	17.0	18.90	
	9:40:00	18.0	18.79	
	9:45:00	23.0	18.37	
	9:58:00	36.0	17.56	



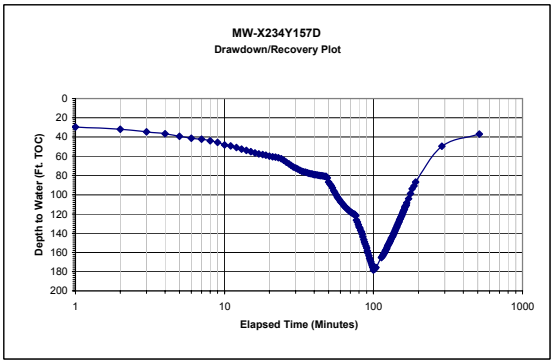
Elapsed Time	Drawdown (Ft)
0.0	1.95
1.0	3.01
2.0	
3.0	4.55
4.0	5.45
5.0	6.12
6.0	7.15



DRAWDOWN/RECOVERY DATA

Test 1 **MW-X234Y157D**

	Time	Elapsed Time	DTW (Ft. TOC)	
17-Jul-02	8:10:00	0.0	30.98	Prior to test
	8:28:00	0.0	29.30	Pump in well
	8:32:00	0.0		Start pump
	8:33:00	1.0	29.65	
	8:34:00	2.0	32.00	
	8:35:00	3.0	34.50	
	8:36:00	4.0	36.70	
	8:37:00	5.0	39.30	
	8:38:00	6.0	41.15	Flow = 2.5 gpm
	8:39:00	7.0	42.35	
	8:40:00	8.0	43.95	
	8:41:00	9.0	45.70	
	8:42:00	10.0	48.20	
	8:43:00	11.0	49.25	
	8:44:00	12.0	51.00	
	8:45:00	13.0	52.70	
	8:46:00	14.0	53.90	
	8:47:00	15.0	55.35	
	8:48:00	16.0	56.45	
	8:49:00	17.0	57.50	
	8:50:00	18.0	58.30	
	8:51:00	19.0	59.00	
	8:52:00	20.0	59.80	
	8:53:00	21.0	60.40	
	8:54:00	22.0	60.90	Flow decrease
	8:55:00	23.0	61.60	Turn up pump
	8:56:00	24.0	62.65	
	8:57:00	25.0	64.20	
	8:58:00	26.0	66.10	
	8:59:00	27.0	67.95	
	9:00:00	28.0	69.60	
	9:01:00	29.0	71.25	
	9:02:00	30.0	72.30	
	9:03:00	31.0	73.35	
	9:04:00	32.0	74.50	
	9:05:00	33.0	75.70	
	9:06:00	34.0	76.20	
	9:07:00	35.0	76.50	
	9:08:00	36.0	77.15	
	9:09:00	37.0	77.80	
	9:10:00	38.0	78.20	
	9:11:00	39.0	78.65	
	9:12:00	40.0	79.05	
	9:13:00	41.0	79.35	
	9:14:00	42.0	79.65	
	9:15:00	43.0	79.90	
	9:16:00	44.0	80.15	
	9:17:00	45.0	80.35	
	9:18:00	46.0	80.55	
	9:19:00	47.0	80.70	
	9:20:00	48.0	80.80	Flow decrease
	9:21:00	49.0	82.55	Turn up pump
	9:22:00	50.0	86.90	
	9:23:00	51.0	88.90	
	9:24:00	52.0	90.60	
	9:25:00	53.0	93.00	Flow = 2.5 gpm
	9:26:00	54.0	95.90	
	9:27:00	55.0	97.60	
	9:28:00	56.0	99.90	
	9:29:00	57.0	102.10	Flow = 2.5 gpm
	9:30:00	58.0	103.75	
	9:31:00	59.0	105.10	
	9:32:00	60.0	107.00	
	9:33:00	61.0	108.10	
	9:34:00	62.0	109.60	
	9:35:00	63.0	111.00	
	9:36:00	64.0	112.00	
	9:37:00	65.0	113.00	
	9:38:00	66.0	114.30	
	9:39:00	67.0	115.00	
	9:40:00	68.0	115.90	
	9:41:00	69.0	117.00	
	9:42:00	70.0	117.70	
	9:43:00	71.0	118.50	
	9:44:00	72.0	119.30	
	9:45:00	73.0	119.70	
	9:46:00	74.0	120.20	
	9:47:00	75.0	120.40	
	9:48:00	76.0	121.70	
	9:49:00	77.0	126.30	Turn up pump
	9:50:00	78.0	128.30	
	9:51:00	79.0	131.20	Flow = 3 gpm
	9:52:00	80.0	133.30	
	9:53:00	81.0	134.90	
	9:54:00	82.0	137.25	
	9:55:00	83.0	138.85	

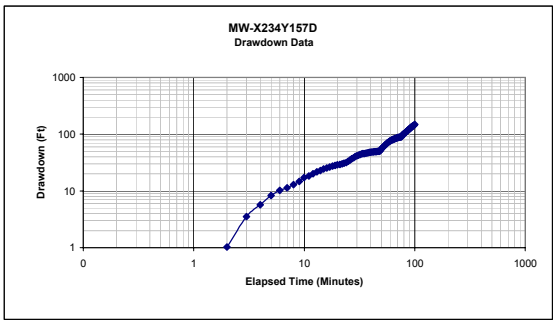


DRAWDOWN/RECOVERY DATA

9:56:00	84.0	141.10	
9:57:00	85.0	143.65	
9:58:00	86.0	146.70	Turn up pump
9:59:00	87.0	149.20	Flow = 3 gpm
10:00:00	88.0	151.15	
10:01:00	89.0	153.50	
10:02:00	90.0	155.25	
10:03:00	91.0	158.30	Turn up pump
10:04:00	92.0	160.75	Flow = 3 gpm
10:05:00	93.0	163.30	
10:06:00	94.0	165.90	
10:07:00	95.0	167.60	
10:08:00	96.0	169.60	
10:09:00	97.0	171.75	
10:10:00	98.0	173.80	
10:11:00	99.0	175.80	Turn up pump
10:12:00	100.0	178.50	Flow = 3 gpm
10:13:00	101.0		Pump off-well dry-water from tubing backwash into well-pumped 150 gals
10:14:00	102.0	177.50	Start of recovery- with pump in
10:15:00	103.0	176.00	
10:16:00	104.0	175.60	
10:25:00	113.0	165.50	Pull out pump- without pump in
10:26:00	114.0	164.40	
10:27:00	115.0	163.60	
10:28:00	116.0	162.75	
10:29:00	117.0	161.80	
10:30:00	118.0	160.60	
10:31:00	119.0	159.60	
10:32:00	120.0	158.40	
10:33:00	121.0	157.30	
10:34:00	122.0	156.35	
10:35:00	123.0	155.25	
10:36:00	124.0	153.80	
10:37:00	125.0	152.60	
10:38:00	126.0	151.90	
10:39:00	127.0	150.90	
10:40:00	128.0	149.70	
10:41:00	129.0	148.60	
10:42:00	130.0	147.60	
10:43:00	131.0	146.30	
10:44:00	132.0	145.10	
10:45:00	133.0	144.30	
10:46:00	134.0	143.40	
10:47:00	135.0	142.30	
10:48:00	136.0	141.10	
10:49:00	137.0	140.10	
10:50:00	138.0	139.10	
10:51:00	139.0	138.00	
10:52:00	140.0	136.90	
10:53:00	141.0	135.90	
10:54:00	142.0	134.40	
10:55:00	143.0	133.70	
10:56:00	144.0	132.30	
10:57:00	145.0	131.50	
10:58:00	146.0	130.40	
10:59:00	147.0	129.20	
11:00:00	148.0	128.30	
11:01:00	149.0	127.20	
11:02:00	150.0	125.80	
11:03:00	151.0	125.20	
11:04:00	152.0	124.20	
11:05:00	153.0	123.00	
11:06:00	154.0	122.00	
11:07:00	155.0	121.00	
11:08:00	156.0	120.00	
11:09:00	157.0	118.80	
11:10:00	158.0	117.80	
11:11:00	159.0	116.80	
11:12:00	160.0	116.00	
11:13:00	161.0	115.30	
11:14:00	162.0	113.60	
11:15:00	163.0	112.30	
11:16:00	164.0	112.00	
11:17:00	165.0	111.30	
11:18:00	166.0	110.75	
11:19:00	167.0	108.50	
11:24:00	172.0	104.25	
11:29:00	177.0	98.70	
11:34:00	182.0	93.90	
11:39:00	187.0	90.70	
11:44:00	192.0	86.80	
13:20:00	288.0	49.55	
17:05:00	513.0	37.10	

DRAWDOWN/RECOVERY DATA

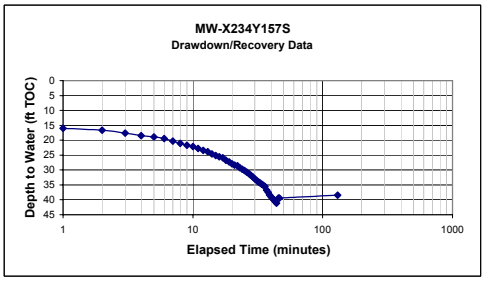
Elapsed Time	Drawdown (Ft)
1.0	-1.33
2.0	1.02
3.0	3.52
4.0	5.72
5.0	8.32
6.0	10.17
7.0	11.37
8.0	12.97
9.0	14.72
10.0	17.22
11.0	18.27
12.0	20.02
13.0	21.72
14.0	22.92
15.0	24.37
16.0	25.47
17.0	26.52
18.0	27.32
19.0	28.02
20.0	28.82
21.0	29.42
22.0	29.92
23.0	30.62
24.0	31.67
25.0	33.22
26.0	35.12
27.0	36.97
28.0	38.62
29.0	40.27
30.0	41.32
31.0	42.37
32.0	43.52
33.0	44.72
34.0	45.22
35.0	45.52
36.0	46.17
37.0	46.82
38.0	47.22
39.0	47.67
40.0	48.07
41.0	48.37
42.0	48.67
43.0	48.92
44.0	49.17
45.0	49.37
46.0	49.57
47.0	49.72
48.0	49.82
49.0	51.57
50.0	55.92
51.0	57.92
52.0	59.62
53.0	62.02
54.0	64.92
55.0	66.62
56.0	68.92
57.0	71.12
58.0	72.77
59.0	74.12
60.0	76.02
61.0	77.12
62.0	78.62
63.0	80.02
64.0	81.02
65.0	82.02
66.0	83.32
67.0	84.02
68.0	84.92
69.0	86.02
70.0	86.72
71.0	87.52
72.0	88.32
73.0	88.72
74.0	89.22
75.0	89.42
76.0	90.72
77.0	95.32
78.0	97.32
79.0	100.22
80.0	102.32
81.0	103.92
82.0	106.27
83.0	107.87
84.0	110.12
85.0	112.67
86.0	115.72
87.0	118.22
88.0	120.17
89.0	122.52
90.0	124.27
91.0	127.32
92.0	129.77
93.0	132.32
94.0	134.92
95.0	136.62
96.0	138.62
97.0	140.77
98.0	142.82
99.0	144.82
100.0	147.52



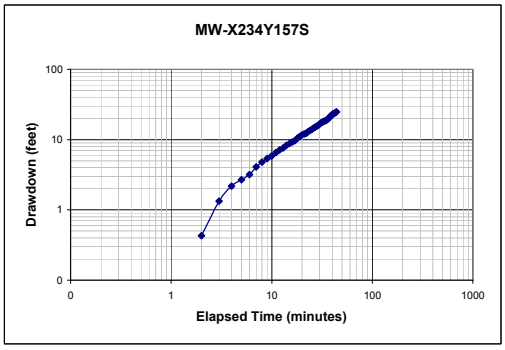
DRAWDOWN/RECOVERY DATA

Test 1 **MW-X234Y157S**

	Time	Elapsed Time	DTW (Ft. TOC)	
19-Jun-02	14:53:00	0.0	16.27	w/o pump in
	15:01:00	0.0	15.38	w/pump in
	15:02:00			start pump
	15:03:00	1.0	16.00	
	15:04:00	2.0	16.70	
	15:05:00	3.0	17.60	
	15:06:00	4.0	18.45	
	15:07:00	5.0	18.95	
	15:08:00	6.0	19.45	
	15:09:00	7.0	20.35	
	15:10:00	8.0	21.05	
	15:11:00	9.0	21.65	
	15:12:00	10.0	22.10	
	15:13:00	11.0	22.80	
	15:14:00	12.0	23.40	
	15:15:00	13.0	23.85	
	15:16:00	14.0	24.55	
	15:17:00	15.0	25.10	
	15:18:00	16.0	25.55	
	15:19:00	17.0	25.90	
	15:20:00	18.0	26.75	
	15:21:00	19.0	27.30	
	15:22:00	20.0	27.95	
	15:23:00	21.0	28.35	
	15:24:00	22.0	28.60	
	15:25:00	23.0	29.20	
	15:26:00	24.0	29.75	
	15:27:00	25.0	30.20	
	15:28:00	26.0	30.75	
	15:29:00	27.0	31.30	
	15:30:00	28.0	31.75	
	15:31:00	29.0	32.30	
	15:32:00	30.0	33.00	
	15:33:00	31.0	33.55	
	15:34:00	32.0	34.00	
	15:35:00	33.0	34.33	
	15:36:00	34.0	34.80	
	15:37:00	35.0	35.15	
	15:38:00	36.0	35.60	
	15:39:00	37.0	36.70	
	15:40:00	38.0	37.50	
	15:41:00	39.0	38.35	
	15:42:00	40.0	39.00	
	15:43:00	41.0	39.55	
	15:44:00	42.0	39.90	
	15:45:00	43.0	40.55	
	15:46:00	44.0	41.10	
	15:47:00	45.0		turn off pump - well filled with backwash
	15:47:30	45.5	39.45	
	15:48:30	46.5	39.40	
	17:12:00	130.0	38.40	



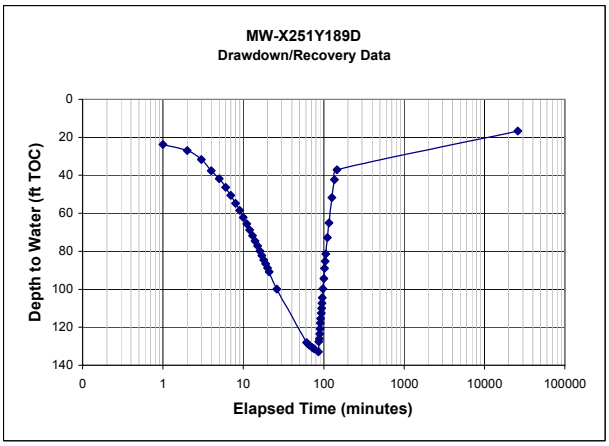
Elapsed Time (Minutes)	Drawdown (feet)
1.0	-0.27
2.0	0.43
3.0	1.33
4.0	2.18
5.0	2.68
6.0	3.18
7.0	4.08
8.0	4.78
9.0	5.38
10.0	5.83
11.0	6.53
12.0	7.13
13.0	7.58
14.0	8.28
15.0	8.83
16.0	9.28
17.0	9.63
18.0	10.48
19.0	11.03
20.0	11.68
21.0	12.08
22.0	12.33
23.0	12.93
24.0	13.48
25.0	13.93
26.0	14.48
27.0	15.03
28.0	15.48
29.0	16.03
30.0	16.73
31.0	17.28
32.0	17.73
33.0	18.06
34.0	18.53
35.0	18.88
36.0	19.33
37.0	20.43
38.0	21.23
39.0	22.08
40.0	22.73
41.0	23.28
42.0	23.63
43.0	24.28
44.0	24.83



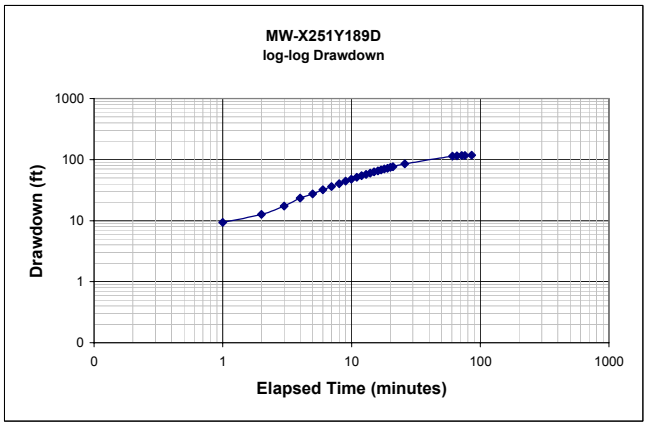
DRAWDOWN/RECOVERY DATA

Test 1 **MW-X251Y189D**

	Time	Elapsed Time	DTW (Ft. TOC)	
3-Apr-02	2:15:00	0.0	14.30	
	2:34:00	0.0	14.30	start pump
	2:35:00	1.0	23.70	flow = 3-4 gpm
	2:36:00	2.0	27.00	
	2:37:00	3.0	31.70	
	2:38:00	4.0	37.60	
	2:39:00	5.0	41.80	
	2:40:00	6.0	46.30	
	2:41:00	7.0	50.50	
	2:42:00	8.0	54.70	
	2:43:00	9.0	58.50	
	2:44:00	10.0	62.20	
	2:45:00	11.0	65.50	
	2:46:00	12.0	68.80	
	2:47:00	13.0	71.70	
	2:48:00	14.0	74.60	
	2:49:00	15.0	77.20	
	2:50:00	16.0	79.80	
	2:51:00	17.0	82.20	
	2:52:00	18.0	84.50	
	2:53:00	19.0	86.60	
	2:54:00	20.0	88.80	
	2:55:00	21.0	90.80	
	3:00:00	26.0	99.90	
	3:35:00	61.0	128.00	
	3:40:00	66.0	129.40	
	3:46:00	72.0	130.80	
	3:50:00	76.0	131.40	
	4:00:00	86.0	132.90	removed ~ 180 gallons - pump off
	4:01:00	87.0	127.60	Recovery
	4:02:00	88.0	126.00	
	4:03:00	89.0	123.50	
	4:04:00	90.0	120.80	
	4:05:00	91.0	117.80	
	4:06:00	92.0	115.40	
	4:07:00	93.0	112.60	
	4:08:00	94.0	110.00	
	4:09:00	95.0	107.40	
	4:10:00	96.0	104.40	
	4:12:00	98.0	99.80	
	4:14:00	100.0	94.40	
	4:16:00	102.0	89.00	
	4:18:00	104.0	85.20	
	4:20:00	106.0	81.30	removed pump
	4:25:00	111.0	72.70	
	4:30:00	116.0	65.00	
	4:40:00	126.0	51.80	
	4:50:00	136.0	42.30	
	5:00:00	146.0	37.10	
	4/4/02 @ 8:20	25940.0	16.60	



Elapsed Time (Minutes)	Drawdown (Feet)
1.0	9.40
2.0	12.70
3.0	17.40
4.0	23.30
5.0	27.50
6.0	32.00
7.0	36.20
8.0	40.40
9.0	44.20
10.0	47.90
11.0	51.20
12.0	54.50
13.0	57.40
14.0	60.30
15.0	62.90
16.0	65.50
17.0	67.90
18.0	70.20
19.0	72.30
20.0	74.50
21.0	76.50
26.0	85.60
61.0	113.70
66.0	115.10
72.0	116.50
76.0	117.10
86.0	118.60

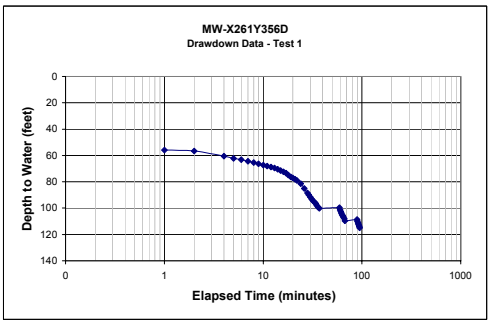


DRAWDOWN/RECOVERY DATA

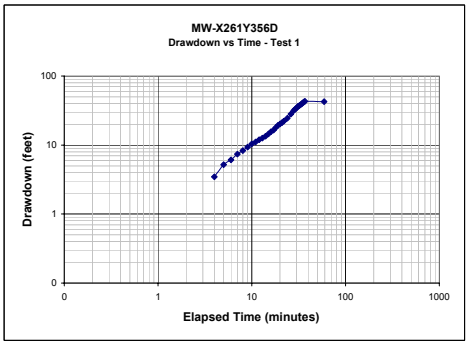
TEST 1 **MW-X261Y356D**

	Time	Elapsed Time	DTW (Ft. TOC)	
20-Jun-02	10:06:00	0.0	57.00	static w/o pump
	10:25:00	0.0	54.70	pump in
	10:26:00	0.0		start pump
	10:27:00	1.0	55.95	
	10:28:00	2.0	56.75	
	10:30:00	4.0	60.45	
	10:31:00	5.0	62.20	
	10:32:00	6.0	63.10	
	10:33:00	7.0	64.40	
	10:34:00	8.0	65.30	
	10:35:00	9.0	66.30	flow = 0.75 gpm
	10:36:00	10.0	67.35	
	10:37:00	11.0	68.10	
	10:38:00	12.0	68.90	
	10:39:00	13.0	69.55	increase flow?
	10:40:00	14.0	70.50	
	10:41:00	15.0	71.45	
	10:42:00	16.0	72.55	
	10:43:00	17.0	73.45	
	10:44:00	18.0	74.90	
	10:45:00	19.0	76.30	
	10:46:00	20.0	77.10	
	10:47:00	21.0	78.10	
	10:48:00	22.0	79.10	
	10:50:00	24.0	81.35	increase flow to 1.0 gpm
	10:52:00	26.0	85.10	
	10:54:00	28.0	88.50	
	10:55:00	29.0	89.95	
	10:56:00	30.0	91.55	
	10:57:00	31.0	93.20	
	10:58:00	32.0	94.20	
	10:59:00	33.0	95.40	
	11:00:00	34.0	96.45	increase flow to 1.0 gpm?
	11:01:00	35.0	97.90	
	11:02:00	36.0	99.10	
	11:03:00	37.0	100.20	
	11:04:00	38.0		pump overheated - shut off - backwash filled hole
	11:24:00	58.0		turned pump back on
	11:25:00	59.0	99.70	flow = 0.75 gpm
	11:26:00	60.0	101.25	
	11:27:00	61.0	102.50	
	11:28:00	62.0	103.90	
	11:29:00	63.0	105.00	
	11:30:00	64.0	105.80	
	11:31:00	65.0	106.75	
	11:32:00	66.0	108.00	
	11:33:00	67.0	109.50	
	11:34:00	68.0		pump overheated - shut off - backwash filled hole
	11:52:00	86.0		start pump
	11:55:00	89.0	108.60	
	11:56:00	90.0	109.85	
	11:57:00	91.0	111.05	
	11:58:00	92.0	112.15	
	11:59:00	93.0	113.10	
	12:00:00	94.0	114.10	
	12:01:00	95.0	115.00	
	12:02:00	96.0		pump stopped - test terminated

Elapsed Time	DTW (Ft. TOC)
1	55.95
2	56.75
4	60.45
5	62.2
6	63.1
7	64.4
8	65.3
9	66.3
10	67.35
11	68.1
12	68.9
13	69.55
14	70.5
15	71.45
16	72.55
17	73.45
18	74.9
19	76.3
20	77.1
21	78.1
22	79.1
24	81.35
26	85.1
28	88.5
29	89.95
30	91.55
31	93.2
32	94.2
33	95.4
34	96.45
35	97.9
36	99.1
37	100.2
59	99.7
60	101.25
61	102.5
62	103.9
63	105
64	105.8
65	106.75
66	108
67	109.5
89	108.6
90	109.85
91	111.05
92	112.15
93	113.1
94	114.1
95	115

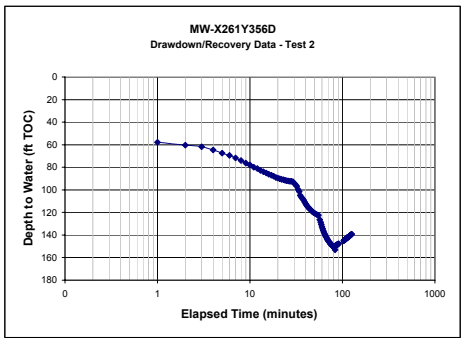


Elapsed Time (Minutes)	Drawdown (Feet)
1.0	-1.05
2.0	-0.25
4.0	3.45
5.0	5.20
6.0	6.10
7.0	7.40
8.0	8.30
9.0	9.30
10.0	10.35
11.0	11.10
12.0	11.90
13.0	12.55
14.0	13.50
15.0	14.45
16.0	15.55
17.0	16.45
18.0	17.90
19.0	19.30
20.0	20.10
21.0	21.10
22.0	22.10
24.0	24.35
26.0	28.10
28.0	31.50
29.0	32.95
30.0	34.55
31.0	36.20
32.0	37.20
33.0	38.40
34.0	39.45
35.0	40.90
36.0	42.10
37.0	43.20
59.0	42.70

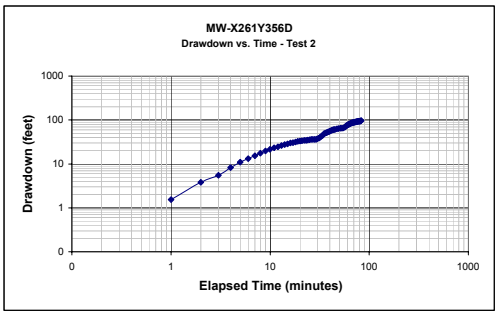


TEST 2 **MW-X261Y356D**

	Time	Elapsed Time	DTW (Ft. TOC)	
3-Jul-02	7:50:00	0.0	56.41	static w/o pump
	8:10:00	0.0	55.10	w/ pump in
	8:11:00	0.0	56.40	start pump
	8:12:00	1.0	57.95	
	8:13:00	2.0	60.25	
	8:14:00	3.0	61.90	
	8:15:00	4.0	64.60	
	8:16:00	5.0	67.45	
	8:17:00	6.0	69.50	
	8:18:00	7.0	71.80	
	8:19:00	8.0	74.00	
	8:20:00	9.0	76.20	
	8:21:00	10.0	77.90	
	8:22:00	11.0	79.80	flow = 1.0 gpm
	8:23:00	12.0	81.10	
	8:24:00	13.0	82.70	
	8:25:00	14.0	83.90	
	8:26:00	15.0	85.00	
	8:27:00	16.0	86.20	
	8:28:00	17.0	87.10	
	8:29:00	18.0	87.95	
	8:30:00	19.0	88.95	
	8:31:00	20.0	89.60	
	8:32:00	21.0	90.10	
	8:33:00	22.0	90.60	
	8:34:00	23.0	91.00	flow = 0.25 gpm
	8:35:00	24.0	91.50	
	8:36:00	25.0	91.80	
	8:37:00	26.0	92.20	
	8:38:00	27.0	92.35	
	8:39:00	28.0	92.50	
	8:40:00	29.0	92.70	
	8:41:00	30.0	94.00	increase flow
	8:42:00	31.0	95.20	
	8:43:00	32.0	96.70	
	8:44:00	33.0	99.40	
	8:45:00	34.0	101.40	flow = 2.25 gpm
	8:46:00	35.0	104.90	
	8:47:00	36.0	106.60	
	8:48:00	37.0	107.60	
	8:49:00	38.0	109.25	
	8:50:00	39.0	110.70	
	8:51:00	40.0	112.15	
	8:52:00	41.0	113.60	
	8:53:00	42.0	114.70	
	8:54:00	43.0	115.70	
	8:55:00	44.0	116.70	
	8:56:00	45.0	117.45	
	8:58:00	47.0	119.00	
	9:00:00	49.0	120.15	
	9:02:00	51.0	121.10	flow = 0.25 gpm
	9:04:00	53.0	121.85	
	9:06:00	55.0	122.45	increase flow
	9:08:00	57.0	126.35	
	9:09:00	58.0	128.70	flow = 1.5 gpm
	9:10:00	59.0	130.65	
	9:11:00	60.0	132.70	
	9:12:00	61.0	134.40	
	9:13:00	62.0	135.95	
	9:14:00	63.0	137.45	
	9:15:00	64.0	139.00	
	9:16:00	65.0	140.00	flow = 0.5 gpm
	9:17:00	66.0	141.15	
	9:18:00	67.0	142.10	
	9:19:00	68.0	143.10	
	9:20:00	69.0	144.10	
	9:21:00	70.0	144.85	
	9:22:00	71.0	145.80	
	9:23:00	72.0	146.40	
	9:24:00	73.0	146.95	flow decreasing
	9:25:00	74.0	147.70	
	9:26:00	75.0	148.20	
	9:27:00	76.0	148.75	
	9:28:00	77.0	149.20	
	9:29:00	78.0	149.65	
	9:30:00	79.0	150.00	
	9:31:00	80.0	150.30	
	9:32:00	81.0	150.65	
	9:33:00	82.0	151.25	increase flow
	9:34:00	83.0	153.10	hole dry - shut off pump - backwash filled hole
	9:35:00	84.0	149.35	start recovery
	9:36:00	85.0	149.15	
	9:37:00	86.0	148.85	
	9:38:00	87.0	148.65	
	9:39:00	88.0	148.40	
	9:40:00	89.0	148.15	
	9:41:00	90.0	147.90	
	9:42:00	91.0	147.65	pulled pump out
	9:54:00	103.0	145.15	
	9:55:00	104.0	144.70	
	9:56:00	105.0	144.50	
	9:57:00	106.0	144.20	
	9:58:00	107.0	143.90	
	9:59:00	108.0	143.70	
	10:00:00	109.0	143.40	
	10:01:00	110.0	143.10	
	10:02:00	111.0	142.90	
	10:03:00	112.0	142.60	
	10:04:00	113.0	142.30	
	10:05:00	114.0	142.10	
	10:06:00	115.0	142.00	
	10:07:00	116.0	141.70	
	10:08:00	117.0	141.40	
	10:09:00	118.0	141.00	
	10:10:00	119.0	140.80	
	10:11:00	120.0	140.60	
	10:12:00	121.0	140.40	
	10:13:00	122.0	140.10	
	10:14:00	123.0	139.90	
	10:15:00	124.0	139.70	
	10:16:00	125.0	139.40	
	10:17:00	126.0	139.10	



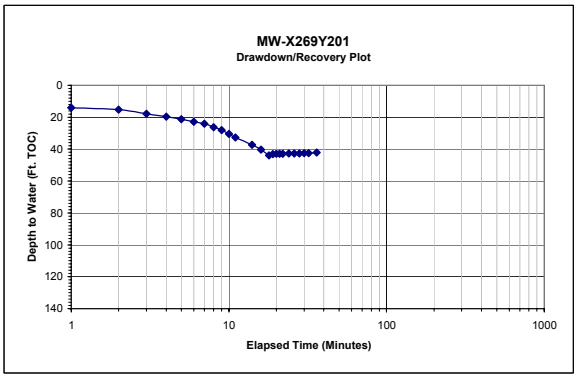
Elapsed Time (Minutes)	Drawdown (Feet)
1.0	1.5
2.0	3.8
3.0	5.5
4.0	8.2
5.0	11.0
6.0	13.1
7.0	15.4
8.0	17.6
9.0	19.8
10.0	21.5
11.0	23.4
12.0	24.7
13.0	26.3
14.0	27.5
15.0	28.6
16.0	29.8
17.0	30.7
18.0	31.5
19.0	32.5
20.0	33.2
21.0	33.7
22.0	34.2
23.0	34.6
24.0	35.1
25.0	35.4
26.0	35.8
27.0	35.9
28.0	36.1
29.0	36.3
30.0	37.6
31.0	38.8
32.0	40.3
33.0	43.0
34.0	45.0
35.0	48.5
36.0	50.2
37.0	51.2
38.0	52.8
39.0	54.3
40.0	55.7
41.0	57.2
42.0	58.3
43.0	59.3
44.0	60.3
45.0	61.0
47.0	62.6
49.0	63.7
51.0	64.7
53.0	65.4
55.0	66.0
57.0	69.9
58.0	72.3
59.0	74.2
60.0	76.3
61.0	78.0
62.0	79.5
63.0	81.0
64.0	82.6
65.0	83.6
66.0	84.7
67.0	85.7
68.0	86.7
69.0	87.7
70.0	88.4
71.0	89.4
72.0	90.0
73.0	90.5
74.0	91.3
75.0	91.8
76.0	92.3
77.0	92.8
78.0	93.2
79.0	93.6
80.0	93.9
81.0	94.2
82.0	94.8
83.0	96.7



DRAWDOWN/RECOVERY DATA

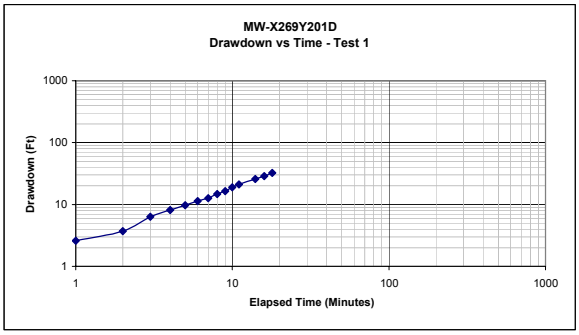
Test 1 **MW-X269Y201D**

	Time	Elapsed Time	DTW (Ft. TOC)
5-Apr-02	8:44:00	0.0	11.5
	8:45:00	1.0	14.1
	8:46:00	2.0	15.2
	8:47:00	3.0	17.8
	8:48:00	4.0	19.6
	8:49:00	5.0	21.2
	8:50:00	6.0	22.8
	8:51:00	7.0	24.1
	8:52:00	8.0	26.2
	8:53:00	9.0	28.0
	8:54:00	10.0	30.4
	8:55:00	11.0	32.7
	8:58:00	14.0	37.3
	9:00:00	16.0	40.3
	9:02:00	18.0	43.9
	9:03:00	19.0	43.1
	9:04:00	20.0	43.0
	9:05:00	21.0	43.0
	9:06:00	22.0	43.0
	9:08:00	24.0	42.8
	9:10:00	26.0	42.7
	9:12:00	28.0	42.65
	9:14:00	30.0	42.5
	9:16:00	32.0	42.45
	9:20:00	36.0	42.2



DRAWDOWN/RECOVERY DATA

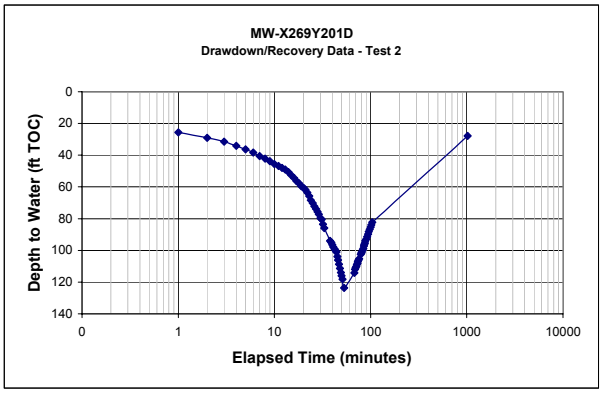
Elapsed Time	Drawdown (Ft)
1	2.6
2	3.7
3	6.3
4	8.1
5	9.7
6	11.3
7	12.6
8	14.7
9	16.5
10	18.9
11	21.2
14	25.8
16	28.8
18	32.4



DRAWDOWN/RECOVERY DATA

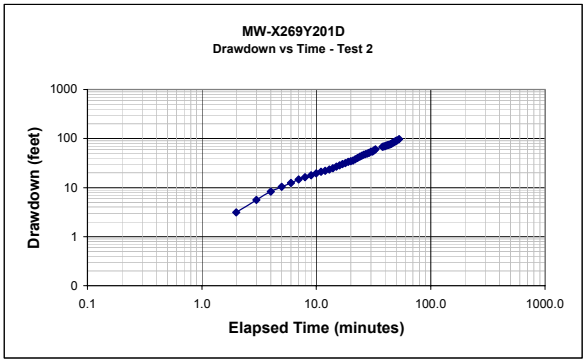
Test 2 **MW-X269Y201D**

	Time	Elapsed Time	DTW (Ft. TOC)	
25-Jun-02	13:25:00	0.0	25.90	static w/o pump in
	13:45:00	0.0	22.50	w/pump in
	13:46:00	0.0	23.40	start pump
	13:47:00	1.0	25.60	
	13:48:00	2.0	29.00	
	13:49:00	3.0	31.50	
	13:50:00	4.0	34.15	flow = 2.0 gpm
	13:51:00	5.0	36.25	
	13:52:00	6.0	38.40	
	13:53:00	7.0	40.50	
	13:54:00	8.0	42.25	
	13:55:00	9.0	43.85	
	13:56:00	10.0	45.50	
	13:57:00	11.0	46.80	
	13:58:00	12.0	48.00	
	13:59:00	13.0	49.10	
	14:00:00	14.0	50.65	increase flow
	14:01:00	15.0	52.60	
	14:02:00	16.0	54.40	
	14:03:00	17.0	56.20	
	14:04:00	18.0	57.70	
	14:05:00	19.0	59.60	
	14:06:00	20.0	60.45	flow = 1.25 gpm
	14:07:00	21.0	61.70	increase flow
	14:08:00	22.0	63.60	
	14:09:00	23.0	65.80	
	14:10:00	24.0	68.30	
	14:11:00	25.0	70.30	
	14:12:00	26.0	72.20	
	14:13:00	27.0	73.90	
	14:14:00	28.0	75.70	
	14:15:00	29.0	77.30	flow = 1.75 gpm
	14:16:00	30.0	79.75	
	14:17:00	31.0	80.50	increase flow
	14:18:00	32.0	83.45	
	14:19:00	33.0	85.90	
	14:24:00	38.0	94.00	
	14:25:00	39.0	94.95	
	14:26:00	40.0	96.40	
	14:27:00	41.0	97.85	
	14:28:00	42.0	99.00	flow = 1.25 gpm
	14:29:00	43.0	100.00	
	14:30:00	44.0	101.00	increase flow
	14:31:00	45.0	103.90	
	14:32:00	46.0	106.10	
	14:33:00	47.0	108.70	
	14:34:00	48.0	111.40	flow = 2.5 gpm
	14:35:00	49.0	113.90	
	14:36:00	50.0	116.00	
	14:37:00	51.0	118.30	
	14:39:00	53.0	123.70	
	14:41:00	55.0		shut pump off due to lightning - backwash into well - recovered 90 gallons
	14:54:00	68.0	114.10	
	14:55:00	69.0	111.90	
	14:56:00	70.0	111.00	
	14:57:00	71.0	110.10	
	14:58:00	72.0	109.02	
	14:59:00	73.0	108.10	
	15:00:00	74.0	107.00	
	15:01:00	75.0	106.10	
	15:02:00	76.0	105.30	
	15:05:00	79.0	102.50	
	15:06:00	80.0	101.75	
	15:07:00	81.0	101.00	
	15:09:00	83.0	99.90	
	15:10:00	84.0	98.90	
	15:11:00	85.0	97.20	
	15:12:00	86.0	96.30	
	15:13:00	87.0	95.40	
	15:14:00	88.0	94.10	
	15:16:00	90.0	93.00	
	15:18:00	92.0	91.40	
	15:20:00	94.0	89.80	
	15:22:00	96.0	88.25	
	15:24:00	98.0	86.70	
	15:26:00	100.0	85.30	
	15:28:00	102.0	83.90	
	15:30:00	104.0	82.40	
	6/26/02@8:25	1020.0	27.77	



DRAWDOWN/RECOVERY DATA

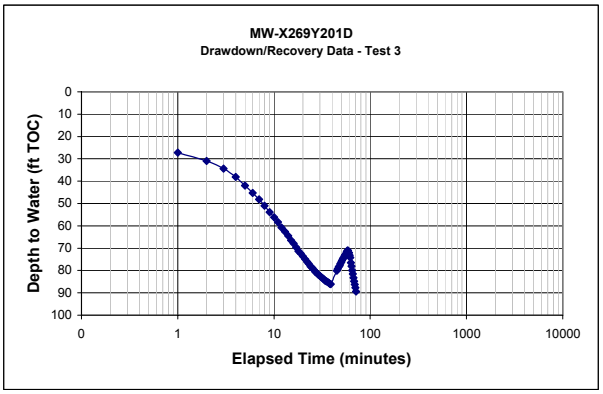
Elapsed Time (minutes)	Drawdown (feet)
1.0	-0.30
2.0	3.10
3.0	5.60
4.0	8.25
5.0	10.35
6.0	12.50
7.0	14.60
8.0	16.35
9.0	17.95
10.0	19.60
11.0	20.90
12.0	22.10
13.0	23.20
14.0	24.75
15.0	26.70
16.0	28.50
17.0	30.30
18.0	31.80
19.0	33.70
20.0	34.55
21.0	35.80
22.0	37.70
23.0	39.90
24.0	42.40
25.0	44.40
26.0	46.30
27.0	48.00
28.0	49.80
29.0	51.40
30.0	53.85
31.0	54.60
32.0	57.55
33.0	60.00
38.0	68.10
39.0	69.05
40.0	70.50
41.0	71.95
42.0	73.10
43.0	74.10
44.0	75.10
45.0	78.00
46.0	80.20
47.0	82.80
48.0	85.50
49.0	88.00
50.0	90.10
51.0	92.40
53.0	97.80



DRAWDOWN/RECOVERY DATA

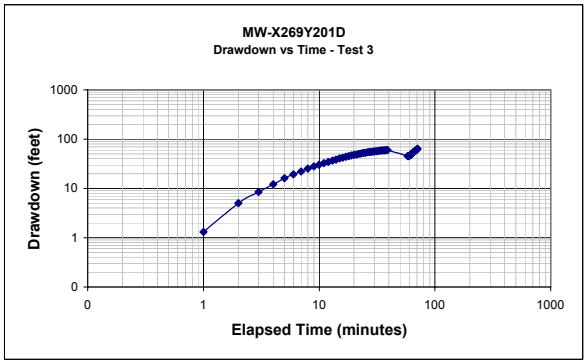
Test 3 **MW-X269Y201D**

	Time	Elapsed Time	DTW (Ft. TOC)	
26-Jun-02	8:25:00	0.0	27.77	static w/o pump in
	8:45:00	0.0	26.65	w/pump in
	8:51:00	0.0		start pump
	8:52:00	1.0	27.20	
	8:53:00	2.0	30.90	
	8:54:00	3.0	34.40	
	8:55:00	4.0	38.10	flow = 2.5 gpm
	8:56:00	5.0	41.95	
	8:57:00	6.0	45.25	
	8:58:00	7.0	48.10	
	8:59:00	8.0	51.00	
	9:00:00	9.0	53.80	
	9:01:00	10.0	56.10	
	9:02:00	11.0	58.35	
	9:03:00	12.0	60.75	
	9:04:00	13.0	62.60	
	9:05:00	14.0	64.50	
	9:06:00	15.0	66.45	
	9:07:00	16.0	67.95	
	9:08:00	17.0	69.60	
	9:09:00	18.0	71.30	
	9:10:00	19.0	72.35	
	9:11:00	20.0	73.65	
	9:12:00	21.0	74.90	
	9:13:00	22.0	76.10	
	9:14:00	23.0	77.00	
	9:15:00	24.0	78.25	
	9:16:00	25.0	78.85	
	9:17:00	26.0	79.70	
	9:18:00	27.0	80.60	
	9:19:00	28.0	81.20	
	9:20:00	29.0	81.90	
	9:21:00	30.0	82.40	
	9:22:00	31.0	82.95	
	9:23:00	32.0	83.50	
	9:24:00	33.0	84.00	
	9:25:00	34.0	84.50	
	9:26:00	35.0	84.85	
	9:27:00	36.0	85.15	
	9:28:00	37.0	85.50	
	9:29:00	38.0	85.90	
	9:30:00	39.0	86.10	
	9:31:00	40.0		Pump overheated-water from tubing empty into well
	9:36:00	45.0	80.10	
	9:37:00	46.0	79.20	Try pump again-will not turn on
	9:38:00	47.0	78.35	Recovery results
	9:39:00	48.0	77.80	
	9:40:00	49.0	77.00	
	9:41:00	50.0	76.20	
	9:42:00	51.0	75.55	
	9:43:00	52.0	74.85	
	9:44:00	53.0	74.20	
	9:45:00	54.0	73.55	
	9:46:00	55.0	72.95	
	9:47:00	56.0	72.30	
	9:48:00	57.0	71.70	
	9:49:00	58.0	71.10	Try pump again-pump on
	9:50:00	59.0	71.00	
	9:51:00	60.0	72.10	
	9:52:00	61.0	73.25	
	9:53:00	62.0	74.25	
	9:54:00	63.0	76.50	
	9:55:00	64.0	78.10	
	9:56:00	65.0	80.00	
	9:57:00	66.0	81.55	
	9:58:00	67.0	83.25	
	9:59:00	68.0	84.85	
	10:00:00	69.0	86.20	
	10:01:00	70.0	87.65	
	10:02:00	71.0	89.45	Pump overheated-recovered 75 gallons of water



DRAWDOWN/RECOVERY DATA

Elapsed Time (minutes)	Drawdown (feet)
1.0	1.30
2.0	5.00
3.0	8.50
4.0	12.20
5.0	16.05
6.0	19.35
7.0	22.20
8.0	25.10
9.0	27.90
10.0	30.20
11.0	32.45
12.0	34.85
13.0	36.70
14.0	38.60
15.0	40.55
16.0	42.05
17.0	43.70
18.0	45.40
19.0	46.45
20.0	47.75
21.0	49.00
22.0	50.20
23.0	51.10
24.0	52.35
25.0	52.95
26.0	53.80
27.0	54.70
28.0	55.30
29.0	56.00
30.0	56.50
31.0	57.05
32.0	57.60
33.0	58.10
34.0	58.60
35.0	58.95
36.0	59.25
37.0	59.60
38.0	60.00
39.0	60.20
58.0	45.20
59.0	45.10
60.0	46.20
61.0	47.35
62.0	48.35
63.0	50.60
64.0	52.20
65.0	54.10
66.0	55.65
67.0	57.35
68.0	58.95
69.0	60.30
70.0	61.75
71.0	63.55



APPENDIX F

STRADDLE-PACKER TESTING RESULTS

GENERAL MOTORS POWERTRAIN
BEDFORD - PLANT

SUMMARY OF PACKER TESTING DATA
MW-X033Y147D

Test Interval *(ft BGS)*		Average Hydraulic Conductivity *(cm/sec)*				
Top	Bottom	Pressure 1	Pressure 2	Pressure 3	AVG.	Comment
68	78	<6.83E-08	<6.56E-08	<6.08E-08	<6.5E-08	
80	90	<6.83E-08	<6.56E-08	<6.08E-08	<6.5E-08	
93	103	<6.83E-08	<6.56E-08	<6.08E-08	<6.5E-08	
120	130	<6.83E-08	<6.56E-08	<6.08E-08	<6.5E-08	
153	163	9.45E-06	9.35E-06	1.35E-05	1.1E-05	
170	180	1.64E-05	2.43E-05	2.55E-05	2.2E-05	
187	197	<6.83E-08	<6.31E-08	5.08E-08	6.2E-08	
204	214	<6.83E-08	<6.31E-08	<5.86E-08	<6.3E-08	
227	237	<6.83E-08	<6.31E-08	<5.86E-08	<6.3E-08	
243	248.8	<7.91E-08	<7.31E-08	NT	<7.6E-08	
60.5	248.8	3.68E-06	4.02E-06	5.44E-06	4.4E-06	

Notes:

1. NT = Not tested
2. Highest possible K used in average calculation with no water take

GENERAL MOTORS POWERTRAIN
BEDFORD - PLANT

SUMMARY OF PACKER TESTING DATA
MW-X045Y258D

Test Interval *(ft BGS)*		Average Hydraulic Conductivity *(cm/sec)*				
Top	Bottom	Pressure 1	Pressure 2	Pressure 3	AVG.	Comment
20	30	<1.03E-07	<9.66E-08	NT	<1.0E-07	
37	47	<1.03E-07	<9.66E-08	<9.13E-08	<9.7E-08	
55	65	<1.03E-07	<9.66E-08	<9.13E-08	<9.7E-08	
75	85	<1.03E-07	<9.13E-08	<7.91E-08	<9.1E-08	
85	95	<1.03E-07	<9.13E-08	<7.91E-08	<9.1E-08	
111	121	7.32E-05	8.55E-05	8.84E-05	8.2E-05	
130	140	<1.03E-07	<9.13E-08	<7.91E-08	<9.1E-08	
142	152	<1.03E-07	<9.13E-08	<7.91E-08	<9.1E-08	
157	167	<1.03E-07	<9.13E-08	<7.91E-08	<9.1E-08	
170	180	<1.03E-07	<9.13E-08	<7.91E-08	<9.1E-08	
190	203.5	<8.97E-08	<7.98E-08	<7.19E-08	<8.1E-08	
10	203.5	9.83E-06	NT	NT	9.8E-06	

Notes:

1. NT = Not tested
2. Highest possible K used in average calculation with no water take

SUMMARY OF PACKER TESTING DATA
MW-X085Y070D

Test Interval *(ft BGS)*		Average Hydraulic Conductivity *(cm/sec)*				
Top	Bottom	Pressure 1	Pressure 2	Pressure 3	AVG.	Comment
60	70	<6.12E-07	<5.90E-07	<5.70E-07	<5.9E-07	
70	80	<6.12E-07	<5.90E-07	<5.70E-07	<5.9E-07	
79	89	<6.12E-07	<5.70E-07	<5.33E-07	<5.7E-07	
88	98	<6.12E-07	<5.70E-07	<5.33E-07	<5.7E-07	
114	124	<6.12E-07	<5.70E-07	<5.33E-07	<5.7E-07	
148	158	6.12E-07	<5.70E-07	7.10E-07	6.30E-07	
170	180	1.36E-04	1.01E-04	1.13E-04	1.2E-04	
186	196	<6.12E-07	<5.70E-07	<5.33E-07	<5.7E-07	
196	206	<6.12E-07	<5.70E-07	<5.33E-07	<5.7E-07	
217	227	<6.12E-07	<5.70E-07	<5.33E-07	<5.7E-07	
230	240	<6.12E-07	<5.70E-07	<5.33E-07	<5.7E-07	
240	243.5	<6.43E-07	<5.99E-07	<5.27E-07	<5.9E-07	
60	243.5	1.85E-05	6.27E-06	6.50E-06	1.0E-05	

Notes:

1. NT = Not tested
2. Highest possible K used in average calculation with no water take

GENERAL MOTORS POWERTRAIN
BEDFORD - PLANT

SUMMARY OF PACKER TESTING DATA
MW-X143Y245S

Test Interval *(ft BGS)*		Average Hydraulic Conductivity *(cm/sec)*				
Top	Bottom	Pressure 1	Pressure 2	Pressure 3	AVG.	Comment
20	27.6	<1.60E-07	<1.47E-07	NT	<1.5E-07	

Notes:
1. NT = Not tested
2. Highest possible K used in average calculation with no water take

SUMMARY OF PACKER TESTING DATA
MW-X143Y245D

Test Interval *(ft BGS)*		Average Hydraulic Conductivity *(cm/sec)*				
Top	Bottom	Pressure 1	Pressure 2	Pressure 3	AVG.	Comment
75	85	<1.02E-07	<9.65E-08	<8.65E-08	<9.5E-08	
99	109	2.57E-06	4.82E-06	6.03E-06	4.5E-06	
122	132	<9.65E-08	<9.12E-08	<8.22E-08	<9.0E-08	
141	151	<9.65E-08	<8.65E-08	NT	<9.2E-08	
156	166	<9.65E-08	<8.65E-08	<7.83E-08	<8.7E-08	
169	179	<9.65E-08	<8.65E-08	2.50E-06	8.9E-07	
188	192	<9.65E-08	<8.65E-08	<8.02E-08	<8.8E-08	

Notes:
1. NT = Not tested
2. Highest possible K used in average calculation with no water take

GENERAL MOTORS POWERTRAIN
BEDFORD - PLANT

SUMMARY OF PACKER TESTING DATA
MW-X169Y058S

Test Interval *(ft BGS)*		Average Hydraulic Conductivity *(cm/sec)*				
Top	Bottom	Pressure 1	Pressure 2	Pressure 3	AVG.	Comment
30	40	<7.73E-07	<7.39E-07	NT	<7.6E-07	
35	45	2.54E-05	4.58E-05	NT	3.6E-05	
44	54	3.46E-04	NT	NT	3.5E-04	

Notes:
1. NT = Not tested
2. Highest possible K used in average calculation with no water take

GENERAL MOTORS POWERTRAIN
BEDFORD - PLANT

SUMMARY OF PACKER TESTING DATA
MW-X169Y058I

Test Interval *(ft BGS)*		Average Hydraulic Conductivity *(cm/sec)*				
Top	Bottom	Pressure 1	Pressure 2	Pressure 3	AVG.	Comment
56	66	<7.77E-07	<7.42E-07	<7.11E-07	<7.4E-07	
66	76	<7.42E-07	<6.81E-07	<6.30E-07	<6.8E-07	
80	90	<7.42E-07	<6.81E-07	<6.30E-07	<6.8E-07	
96	103.9	4.30E-06	8.02E-06	1.07E-05	7.7E-06	
64	103.9	5.88E-07	2.61E-06	3.95E-06	2.4E-06	

Notes:
1. NT = Not tested
2. Highest possible K used in average calculation with no water take

GENERAL MOTORS POWERTRAIN
BEDFORD - PLANT

SUMMARY OF PACKER TESTING DATA
MW-X169Y058D

Test Interval *(ft BGS)*		Average Hydraulic Conductivity *(cm/sec)*				
Top	Bottom	Pressure 1	Pressure 2	Pressure 3	AVG.	Comment
109	119	<5.60E-07	<5.24E-07	<4.93E-07	<5.3E-07	
126	136	5.60E-07	5.24E-07	<4.93E-07	<5.3E-07	
136	146	1.16E-05	1.75E-05	2.15E-05	1.7E-05	
148	158	<5.60E-07	<5.24E-07	<4.93E-07	<5.3E-07	
159	169	1.08E-05	1.37E-05	1.99E-05	1.5E-05	
171	181	1.44E-05	1.43E-05	2.30E-05	1.7E-05	
181	191	<5.60E-07	<5.24E-07	<4.93E-07	<5.3E-07	
192	202	<5.60E-07	<5.24E-07	<4.93E-07	<5.3E-07	
222	232	<5.60E-07	<5.24E-07	<4.93E-07	<5.3E-07	
240	244.1	5.00E-07	<5.24E-07	7.01E-07	5.8E-07	

Notes:
1. NT = Not tested
2. Highest possible K used in average calculation with no water take

GENERAL MOTORS POWERTRAIN
BEDFORD - PLANT

SUMMARY OF PACKER TESTING DATA
MW-X178Y367D

Test Interval *(ft BGS)*		Average Hydraulic Conductivity *(cm/sec)*				
Top	Bottom	Pressure 1	Pressure 2	Pressure 3	AVG.	Comment
17	27	<7.53E-08	<7.21E-08	NT	<7.4E-08	
27	37	<7.53E-08	<7.21E-08	<6.91E-08	<7.2E-08	
38	48	1.08E-05	1.95E-05	2.53E-05	1.9E-05	
53	63	<7.21E-08	2.38E-06	4.99E-06	2.5E-06	
64	74	<7.21E-08	<6.63E-08	<6.14E-08	<6.7E-08	
73	83	<7.21E-08	<6.63E-08	<6.14E-08	<6.7E-08	
82	92	<7.21E-08	<6.63E-08	<6.14E-08	<6.7E-08	
92	102	2.47E-04	1.77E-04	2.56E-04	2.3E-04	
102	112	<7.21E-08	<6.63E-08	9.41E-07	3.6E-07	
113	123	<7.21E-08	<6.63E-08	<6.14E-08	<6.7E-08	
124	134	<7.21E-08	<6.63E-08	<6.14E-08	<6.7E-08	
138	143.5	<7.21E-08	1.73E-07	2.79E-07	1.8E-07	
6	143.5	1.65E-05	NT	NT	1.6E-05	

Notes:

1. NT = Not tested
2. Highest possible K used in average calculation with no water take

GENERAL MOTORS POWERTRAIN
BEDFORD - PLANT

SUMMARY OF PACKER TESTING DATA
MW-X234Y157D

Test Interval *(ft BGS)*		Average Hydraulic Conductivity *(cm/sec)*				
Top	Bottom	Pressure 1	Pressure 2	Pressure 3	AVG.	Comment
64	74	<9.83E-07	<9.28E-07	<8.79E-07	<9.3E-07	
80	90	2.95E-06	3.40E-06	4.39E-06	3.6E-06	
94	104	5.57E-06	7.76E-06	9.80E-06	7.7E-06	
115	125	9.83E-07	1.32E-06	1.59E-06	1.3E-06	
130	140	9.83E-07	<8.79E-07	<7.95E-07	<8.9E-07	
142	152	<9.83E-07	8.79E-07	7.95E-07	<8.9E-07	
167	177	<9.83E-07	<8.79E-07	<7.95E-07	<8.9E-07	
176	182.3	<1.13E-06	<1.01E-06	<9.10E-07	<1.0E-06	

Notes:
1. NT = Not tested
2. Highest possible K used in average calculation with no water take

SUMMARY OF PACKER TESTING DATA
MW-X234Y157S

Test Interval *(ft BGS)*		Average Hydraulic Conductivity *(cm/sec)*				
Top	Bottom	Pressure 1	Pressure 2	Pressure 3	AVG.	Comment
19	29	<1.85E-06	1.66E-06	NT	1.8E-06	

Notes:
1. NT = Not tested
2. Highest possible K used in average calculation with no water take

GENERAL MOTORS POWERTRAIN
BEDFORD - PLANT

SUMMARY OF PACKER TESTING DATA
MW-X251Y189D

Test Interval *(ft BGS)*		Average Hydraulic Conductivity *(cm/sec)*				
Top	Bottom	Pressure 1	Pressure 2	Pressure 3	AVG.	Comment
18	28	<2.13E-07	<1.98E-07	NT	<2.1E-07	
44	54	<1.98E-07	<1.77E-07	<1.46E-07	<1.7E-07	
54	64	<1.77E-07	9.23E-07	7.15E-07	6.1E-07	
73	83	8.24E-06	1.58E-05	1.88E-05	1.4E-05	
82	92	2.06E-06	2.21E-06	3.10E-06	2.5E-06	
93	103	1.18E-06	4.13E-06	3.72E-06	3.0E-06	
104	114	5.21E-05	4.16E-05	4.28E-05	4.5E-05	
130	140	<1.77E-07	8.25E-07	<1.24E-07	3.8E-07	possible meter malfunction?
174	183	<1.77E-07	<1.46E-07	<1.24E-07	<1.5E-07	

Notes:

1. NT = Not tested
2. Highest possible K used in average calculation with no water take

GENERAL MOTORS POWERTRAIN
BEDFORD - PLANT

SUMMARY OF PACKER TESTING DATA
MW-X261Y356D

Test Interval *(ft BGS)*		Average Hydraulic Conductivity *(cm/sec)*				
Top	Bottom	Pressure 1	Pressure 2	Pressure 3	AVG.	Comment
22	32	<3.89E-07	4.96E-07	<3.75E-07	<4.2E-07	
35	45	2.52E-06	3.05E-06	3.38E-06	3.0E-06	4 of 6 results used for Pressure 2
59	69	5.04E-07	<3.62E-07	<3.47E-07	<4.0E-07	
70	80	7.55E-07	3.62E-07	3.47E-07	4.9E-07	
83	93	<3.78E-07	<3.62E-07	<3.47E-07	<3.6E-07	
96	106	1.52E-07	1.27E-06	1.96E-06	1.1E-06	
111	121	<3.78E-07	6.01E-07	<3.47E-07	<4.4E-07	
120	130	3.66E-06	6.87E-06	9.24E-06	6.6E-06	
135	145	3.78E-07	<3.62E-07	3.47E-07	<3.6E-07	
146	154.5	<4.01E-07	4.48E-07	<3.68E-07	<4.1E-07	
10	154.5	7.75E-07	NT	NT	7.8E-07	

Notes:

1. NT = Not tested
2. Highest possible K used in average calculation with no water take

GENERAL MOTORS POWERTRAIN
BEDFORD - PLANT

SUMMARY OF PACKER TESTING DATA
MW-X269Y201D

Test Interval *(ft BGS)*		Average Hydraulic Conductivity *(cm/sec)*				
Top	Bottom	Pressure 1	Pressure 2	Pressure 3	AVG.	Comment
21	31	<1.50E-07	<1.37E-07	NT	<1.4E-07	
27	37	<1.50E-07	<1.37E-07	<1.27E-07	<1.4E-07	
36	46	<1.50E-07	<1.37E-07	<1.27E-07	<1.4E-07	
42	52	<1.50E-07	<1.37E-07	<1.18E-07	<1.4E-07	
48	58	<1.50E-07	<1.37E-07	<1.18E-07	<1.4E-07	
60	70	<1.50E-07	<1.37E-07	<1.18E-07	<1.4E-07	
68	78	<1.37E-07	<1.18E-07	<1.10E-07	<1.2E-07	
76	86	<1.37E-07	<1.18E-07	<1.10E-07	<1.2E-07	
85	95	<1.37E-07	<1.18E-07	<1.03E-07	<1.2E-07	
92	102	7.78E-07	1.28E-06	2.46E-06	1.50E-06	
100	110	<1.37E-07	<1.27E-07	<1.10E-07	<1.2E-07	
108	118	<1.37E-07	<1.18E-07	<1.03E-07	<1.2E-07	
115	125	<1.37E-07	<1.18E-07	<1.03E-07	<1.2E-07	
124	134	<1.37E-07	<1.18E-07	<1.03E-07	<1.2E-07	
132	142	<1.37E-07	<1.27E-07	<1.10E-07	<1.3E-07	
157	167	<1.37E-07	<1.18E-07	<1.03E-07	<1.2E-07	
173	182.5	<1.40E-07	<1.20E-07	<1.05E-07	<1.2E-07	
11.6	182.5	<2.37E-08	<2.18E-07	NT	<1.3E-07	

Notes:

1. NT = Not tested
2. Highest possible K used in average calculation with no water take

APPENDIX G

SURFACE GEOPHYSICS REPORT

GEOPHYSICAL INVESTIGATION REPORT

GM POWERTRAIN BEDFORD FACILITY
BEDFORD, INDIANA

FEBRUARY 3, 2003
REF. NO. 13968 (48)
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TABLE 4.2 TEST PIT LOCATION RATIONALE SUMMARY – OFF-SITE LOCATIONS

1.0 INTRODUCTION

This Geophysical Investigation Report has been prepared on behalf of General Motors (GM) by Conestoga-Rovers & Associates (CRA), to present the results of geophysical surveys completed at the GM Powertrain Bedford Facility (Bedford Facility or Site) in Bedford, Indiana.

In March 2001, a Current Conditions Report (CCR) for the Site was completed by CRA, in which Areas of Interest (AOIs) or areas of potential environmental concern were identified. Some of the AOIs were former disposal areas of potentially hazardous materials associated with the historic operations of the aluminum foundry at the Site. These materials included foundry sand, waste aluminum dross, wastewater lagoon sludges, miscellaneous solid wastes, and possibly drummed wastes.

In order to delineate these former disposal areas, a Geophysical Investigation of on-Site AOIs was completed in January 2002. An additional phase of Geophysical Investigation was also completed at some suspected off-Site disposal areas in August 2002, at the request of the property owners. Survey coverage of AOIs (on-Site) and off-Site areas completed to date are presented on Figure 1.1.

1.1 GEOPHYSICAL REFERENCE GRID

Prior to the start of data collection, geophysical survey grids were established over on-Site AOIs and off-Site areas. A Ground Positioning System (GPS) was utilized to establish a number of control points on 100-foot centers over each survey area. Geophysical grids were completed by using the control points to establish detailed survey lines spaced 20 feet apart. Station spacings on these lines were measured off at 20-foot intervals using pin flags. Finally, the survey grids within each area were designated with a Cartesian coordinate system, to facilitate the use of the various data loggers.

2.0 GEOPHYSICAL SURVEY METHODS

The Geophysical Investigation consisted of EM31 metal detection (in-phase) and terrain conductivity surveys, an EM38 conductivity survey, and an EM61 survey.

The EM31 and EM38 are ground conductivity meters that generally consist of a rigid boom containing transmitter and receiver coils separated by a fixed distance. The coil separation for the EM31 is 14 feet, and 3 feet for the EM38. The depth of penetration attainable for these instruments is a function of the transmitter/receiver coil separation and the orientation of the dipoles emitting the primary field signal, either horizontal or vertical. With vertically oriented dipoles, the approximate depths of penetration for the EM31 and EM38 are 15 to 20 feet and 4 to 5 feet, respectively.

The EM31 and EM38 can be operated in both metal detection and terrain conductivity modes. The EM31 was utilized in metal detection mode, to identify the location of buried metal objects. EM31 and EM38 terrain conductivity surveys were conducted to determine limits of any disposal areas, based on a potential contrast in terrain conductivity between the conductive buried materials (i.e., foundry sand, waste aluminum dross, etc.) and the background response of native soil.

The EM61 is a buried metal detector which uses two 1.5 by 3-foot rectangular coils in a stacked configuration to transmit 150 EM pulses per second into the ground at each measuring point. During the off-time between transmitted pulses, receiver coils measure the decay of the transient electrical currents induced by the pulses. Electrical currents in moderately conductive earth materials (including moist clays, mineralized soils, etc.) dissipate rapidly, leaving only the more prolonged currents due to buried metal objects. The EM61 detects and measures the prolonged transient currents, yielding a result in milliVolts (mV) proportional to the metallic content of the buried object, and inversely proportional to its depth of burial. The effective depth of penetration of the EM61 is approximately 10 feet. EM61 surveys were conducted to locate buried metallic debris, metal objects (possibly including drums), or metallic materials in the near subsurface.

The EM38 survey was completed along each survey line by manually triggering a reading at 2-foot station intervals. Terrain conductivity readings were measured at each station, and were stored in an Omni data logger. The data were downloaded at the end of each day.

The EM31 survey was completed at 4-foot station intervals along each survey line. Metal detection (in-phase) and terrain conductivity readings were measured

simultaneously, and were stored in an Omni data logger. The data were downloaded at the end of each day.

The EM61 survey was completed along each survey line by manually triggering a reading at 2-foot station intervals. Channel 1 through Channel 4 of the current decay curve were measured simultaneously, and were stored in an Omni data logger. The data were downloaded at the end of each day. The coil platform was mounted on wheels, and the "wagon" assembly was towed or pushed along the survey line by the operator.

All surveys were conducted on 20-foot spaced lines. Since data for each instrument were downloaded at the end of each day the data could be constantly monitored, and the locations of anomalous responses could generally be noted. This allowed the opportunity for intermediate 10-foot spaced lines to be subsequently surveyed, over these anomalous areas.

Grid coverage for all geophysical methods was relatively complete, with the exception of heavily wooded areas and the inaccessible portions of AOI 4 within the existing stormwater lagoon perimeter fence. During the course of the various surveys, the locations of all surficial metal objects or debris which were encountered on survey lines were noted. This includes several metal structures which were located within the boundaries of the former fire training area.

3.0 EVALUATION OF GEOPHYSICAL SURVEY RESULTS

The evaluation of EM31 metal detection and terrain conductivity, EM38 terrain conductivity, and EM61 surveys for on-Site (AOI) and off-Site areas is presented as follows.

3.1 ON-SITE (AOI) INVESTIGATIVE AREAS

Geophysical surveys were completed at five on-Site AOIs in January 2002. As indicated by Figure 1.1, these AOIs are situated east of GM Drive, and partially encompass the existing stormwater lagoon. The Geophysical Investigation was expected to delineate conductivity and metal detection anomalies associated with former disposal areas, and thus provide targets for subsequent confirmatory test pitting activities.

3.1.1 AOI 4

AOI 4 is located in the northeast portion of the survey coverage, between the stormwater lagoon to the south and east, and the wooded ravine to the north. Historic air photos also indicated that a small quarry formerly existed in the northeast corner of AOI 4. The EM38 results (Figure 3.1) indicate that shallow subsurface is generally characterized by weak to moderate conductivity, with sporadic elevated zones also evident. However, the EM31 data (Figure 3.2) suggests that the deeper subsurface is less conductive and generally close to background values, with the exception of the slightly elevated response in the north central area of AOI 4 and in the vicinity of the former quarry.

The EM61 response (Figure 3.3) reveals that moderate to strong metal detection responses were observed along a linear trend in the western portion of AOI 4. Slightly elevated results were generally observed over the remainder of the former north disposal area. The EM31 metal detection results presented on Figure 3.4 also indicate that relatively few anomalies were detected at depth within the boundaries of AOI 4.

3.1.2 AOI 5

The survey coverage for AOI 5 (see Figure 1.1) represents the plateau and ravine area east of the salaried parking lot perimeter fence. Conductivity results for the EM38 survey (Figure 3.5) and EM31 survey (Figure 3.6) indicate that coincident high intensity anomalies were delineated in the southwest portion of Area 5. These anomalies are

located on the plateau and are open to the west, which suggests that the high conductivity responses continue beneath the adjacent parking lot. One strong EM61 metal detection anomaly was detected on the boundary between AOI 5 and AOI 6 (see Figure 3.7). The EM31 survey also detected buried metal at this location (Figure 3.8). A moderate feature was also delineated on the plateau, within the boundaries of the elevated conductivity responses. A shallow resistivity anomaly (based on EM38 response, Figure 3.9) was also detected in the eastern corner of AOI 5, adjacent to a disposal pit in AOI 6 (identified in air photos).

3.1.3 AOI 6

AOI 6 is comprised of the ravine east of AOI 5 and the former fire training area, and extends westward to the perimeter fence along GM Drive. Review of the EM38 conductivity survey results presented on Figure 3.5 reveals that the area surrounding the former fire training structures (identified as gray squares and rectangles) is characterized by elevated responses. Areas of high conductivity were also observed in two areas to the west, immediately south of the parking lot and AOI 5.

The EM31 conductivity plot (see Figure 3.6) reveals that the fire training area is generally characterized by weak to moderate response at depth, and that higher conductivities were only encountered over a small zone within the training structures. Thus, the conductivity anomaly delineated with the EM38 appears to be a near surface feature, and not appear to extend downward over a large area. Additional strong EM31 conductivity anomalies were detected in the northwest and southwest corners of the survey coverage. The EM31 conductivity response was also useful in determining the approximate location of the water line alignment between the storm water lagoon and water tower.

Numerous metal detection anomalies were delineated during the EM61 metal detection survey, as indicated on Figure 3.7. Several of these anomalies were attributed to sources observed on surface, including the metal fire training structures, iron bollards, fire hydrants, metal grates, and utility pole support wires. However, other anomalies were also delineated including the high amplitude picture between AOI 5 and AOI 6, and a moderate amplitude feature immediately to the south of this location. Elevated EM61 metal detection results were also observed in the southeast portion of the surveyed area, and near the western boundary of AOI 6. The metal detection results for the EM31 survey (Figure 3.8) indicate that a few buried objects were detected on the sideslopes and in the ravine, generally in close proximity or on the boundary with AOI 5. To the

south, the majority of the EM31 metal detection response can be attributed to the fire training structures, with the exception of a few relatively small, discrete responses.

The resistivity response based on the EM38 data indicates the presence of shallow anomalies in the north end of AOI 6, at a location coincident with a disposal pit observed on a historic air photo.

3.1.4 AOI 7

Geophysical surveys were also completed over the Former North Lagoon designated as AOI 7, to confirm the absence of disposal areas and buried metal objects following the completion of remedial activities in this area in the 1980s. The EM38 and EM31 results presented on Figure 3.1 and 3.2, respectively, reveal weakly anomalous responses which appear to curve along the northern and eastern boundaries of the former lagoon. These results may delineate a remnant clay berm associated with the former lagoons. Similarly, the strong conductivity response bisecting the former lagoon along a north-south axis may also represent clay fill beneath the subsurface.

The EM61 metal detection results (Figure 3.3) indicate that the former lagoon is generally characterized by background response. With the exception of a strong anomaly associated with a concrete manhole and a weak response coincident with the conductivity anomalies, background values were generally recorded with the EM31 metal detection survey.

3.1.5 AOI 15

AOI 15 is located in the northeast corner of the survey coverage, and has been identified as a former equipment storage area. Presently, it is used by a GM subcontractor to park semi-tractor trailers. With minor exceptions, the EM38 and EM31 conductivity surveys (Figures 3.1 and 3.2) yielded background results. A few discrete EM61 and EM31 metal detection anomalies were also delineated, as indicated on Figures 3.3 and 3.4.

3.2 OFF-SITE INVESTIGATIVE AREAS

Additional geophysical testing was completed at four off-Site locations in August 2002. Review of Figure 1.1 confirms that Areas 1, 2, and 3 are located adjacent to the Bedford Facility, just north of Breckenridge Road. The fourth location is situated some distance

away relative to the other areas, approximately 2 miles northwest. Geophysical surveys were completed over suspected fill and/or disposal areas on these properties at the request of the respective Owners. The Owners believe that the fill/disposal materials located in these areas originated from the Bedford Facility. Thus, EM31 and EM61 surveys were completed to delineate any potential anomalous responses associated with the fill/disposal areas, and if necessary, to determine proposed locations for subsequent test pitting activities.

3.2.1 AREA 1

Area 1 is an open field covering approximately 5 acres, which is located immediately to the northwest of the Bedford Facility. The EM61 metal detection results for Area 1 indicate that an area of predominately weak to moderate responses was delineated in the southwest portion of the surveyed area (Figure 3.10). Several discrete strong or higher intensity features were also detected in this vicinity. Approximately 300 feet to the north, a weak metal detection response was observed. The high intensity responses detected along the northeast boundary of the survey grid were attributed to two culverts which were found in this area.

Review of the EM31 metal detection results (Figure 3.11) indicates that the responses for this survey were similar to those observed for the EM61. A weak to moderate EM31 anomaly covered the southwest portion of the survey grid, with stronger responses also observed within its boundaries. A weak EM31 response was also observed further to the north, coincident with the EM61 response in this area. In the southeast portion of the survey grid, a relatively small, weak amplitude anomaly was also detected.

The EM31 conductivity results presented on Figure 3.12 indicate that the majority of the field was characterized by background values. Conductivity response increased in the southeast portion of the survey grid, where two anomalies were detected. Additional conductivity anomalies were detected in the southwest corner of the grid, and along the western survey boundary (at line 400 N).

3.2.2 AREA 2

Area 2 is situated due north of the Bedford Facility, and consists of an elongated plateau running north-south to northwest-southwest. Relatively steep sideslopes fall off of the plateau to the west, north, and east. The metal detection results for the EM61 and EM31 surveys presented on Figures 3.13 and 3.14, respectively, indicate that similar responses

were observed. Strong EM61 anomalies were delineated in the northern portion of the survey coverage in Area 2, both on top of the plateau and down the northeastern sideslope. Coincident EM31 metal detection response was also observed over this area, especially down the sideslope. Minor discrete anomalies for both surveys were delineated further south. A strong EM31 conductivity anomaly was also detected within the boundaries of Area 2 (see Figure 3.15). However, the elevated conductivity response was delineated south of the metal detection anomalies, and was generally confined to the top of the plateau. A suspected utility line was also detected, along the southern boundary of the survey coverage.

3.2.3 AREA 3

The survey grid for Area 2 was extended eastward to also cover Area 3. Figure 3.13 indicates that EM61 metal detection responses were delineated in the northwest corner of Area 3, (and were observed to extend further northward into adjacent property). Additional strong EM61 results were observed at the base of the northeast sideslope, and further to the southeast. The EM31 anomalies (Figure 3.14) appear similar to the EM61 results. Coincident strong EM31 metal detection features were delineated in the northwest corner of Area 3, and along the sideslope. Two smaller anomalies were also detected near the north central and northeast areas of the survey grid.

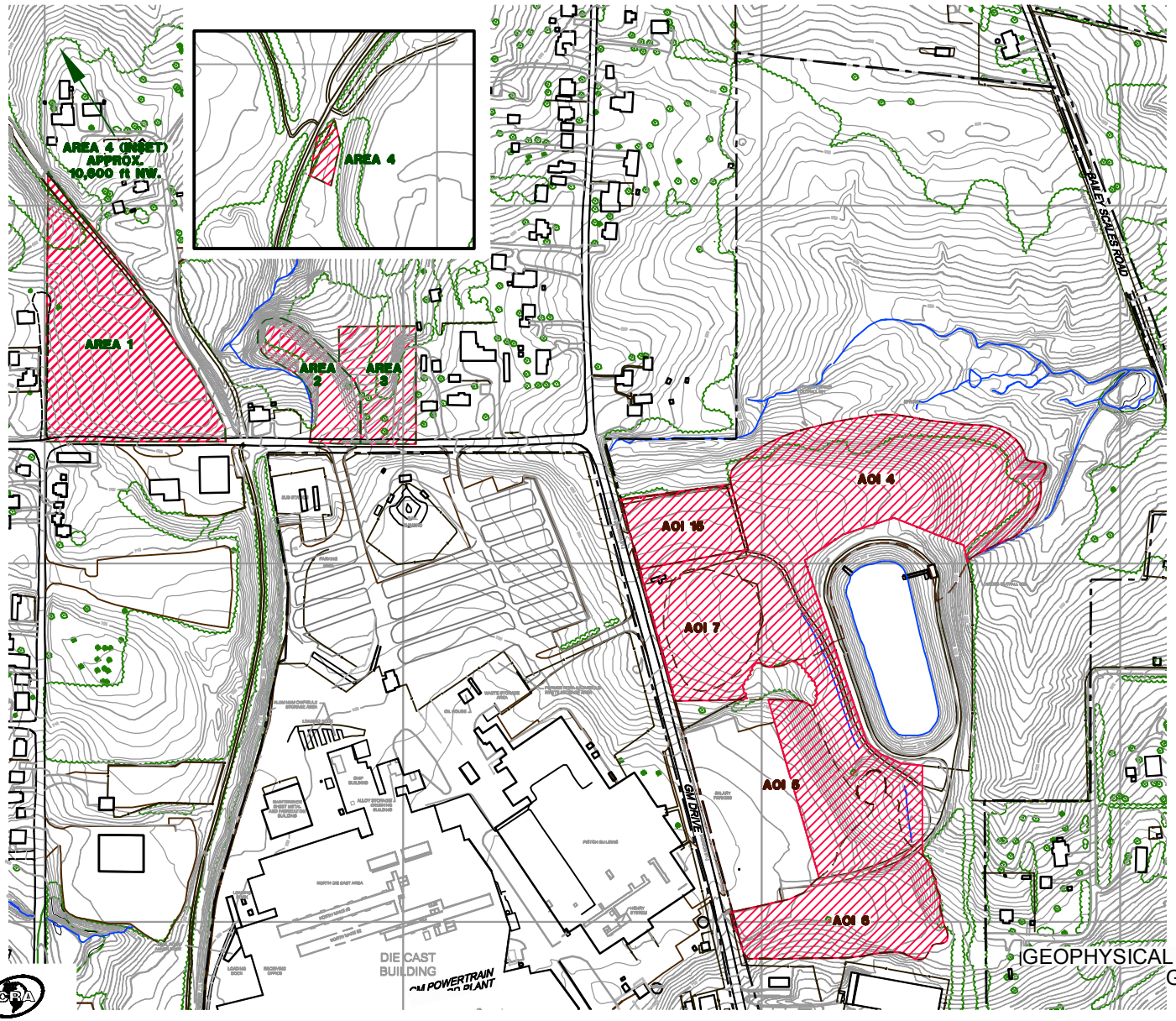
The EM31 conductivity results (Figure 3.15) indicate that with the exception of a small feature situated on the downslope (and a suspected utility line as indicated), no conductivity anomalies were detected within Area 3.

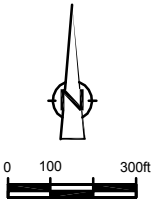
3.2.4 AREA 4

Area 4 is situated approximately 2 miles northwest of the Bedford Facility, and represents survey coverage within a larger parcel of land situated at this location. Results of the geophysical surveys completed at Area 4 are presented on Figures 3.16 to 3.18, inclusive. Without exception, these surveys delineated a linear anomalous response at the eastern boundary of the coverage. According to the owners, the linear anomalies may be coincident with a disposal trench situated on the property.

4.0 PROPOSED TEST PIT LOCATIONS

The anomalies delineated in on-Site AOIs and off-site areas as presented on Figures 3.1 to 3.18 have been compiled on Figures 4.1 to 4.5. The most prominent of these geophysical features have also been identified (with an "A" designation), based on the intensity of the response (moderate to high amplitude) and size or extent of the anomaly. In order to determine the nature of the buried objects or materials associated with the geophysical responses observed, proposed test pit locations for anomalies warranting further investigation have also been provided, and are labeled as indicated ("TP" designation). The rationale for these proposed test pitting activities in on-Site AOIs and off-Site areas has been summarized in Tables 4.1 and 4.2, respectively.





LEGEND

- EXISTING GROUND SURFACE ELEVATION CONTOURS (feet AMSL)
- EXISTING VEGETATION
- EXISTING BUILDINGS
- FENCE LINE
- RAILROAD TRACKS
- DIRT ROADS
- ROADS / PAVED AREAS
- APPROXIMATE SURFACE WATER LOCATION
- APPROXIMATE GM PROPERTY BOUNDARY
- AOI BOUNDARY
- AREA BOUNDARY
- APPROXIMATE LIMITS OF GEOPHYSICAL SURVEY COVERAGE

AOI SUMMARY (ON-SITE)

AOI ID	Description
AOI 4	Former North Disposal Area
AOI 5	Former East Sand Disposal Area (Plateau and Ravine)
AOI 6	Former Sludge Disposal and Fire Training Area
AOI 7	Former North Lagoon and Outfall 001
AOI 15	Former Equipment Storage Area

AREA SUMMARY (OFF-SITE)

AREA ID	Description
AREA 1	Off-Site Suspected Fill Area
AREA 2	Off-Site Suspected Fill Area
AREA 3	Off-Site Suspected Fill Area
AREA 4	Off-Site Suspected Fill Area

figure 1.1

GEOPHYSICAL SURVEY COVERAGE LOCATION MAP
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA001 APR 21/2005

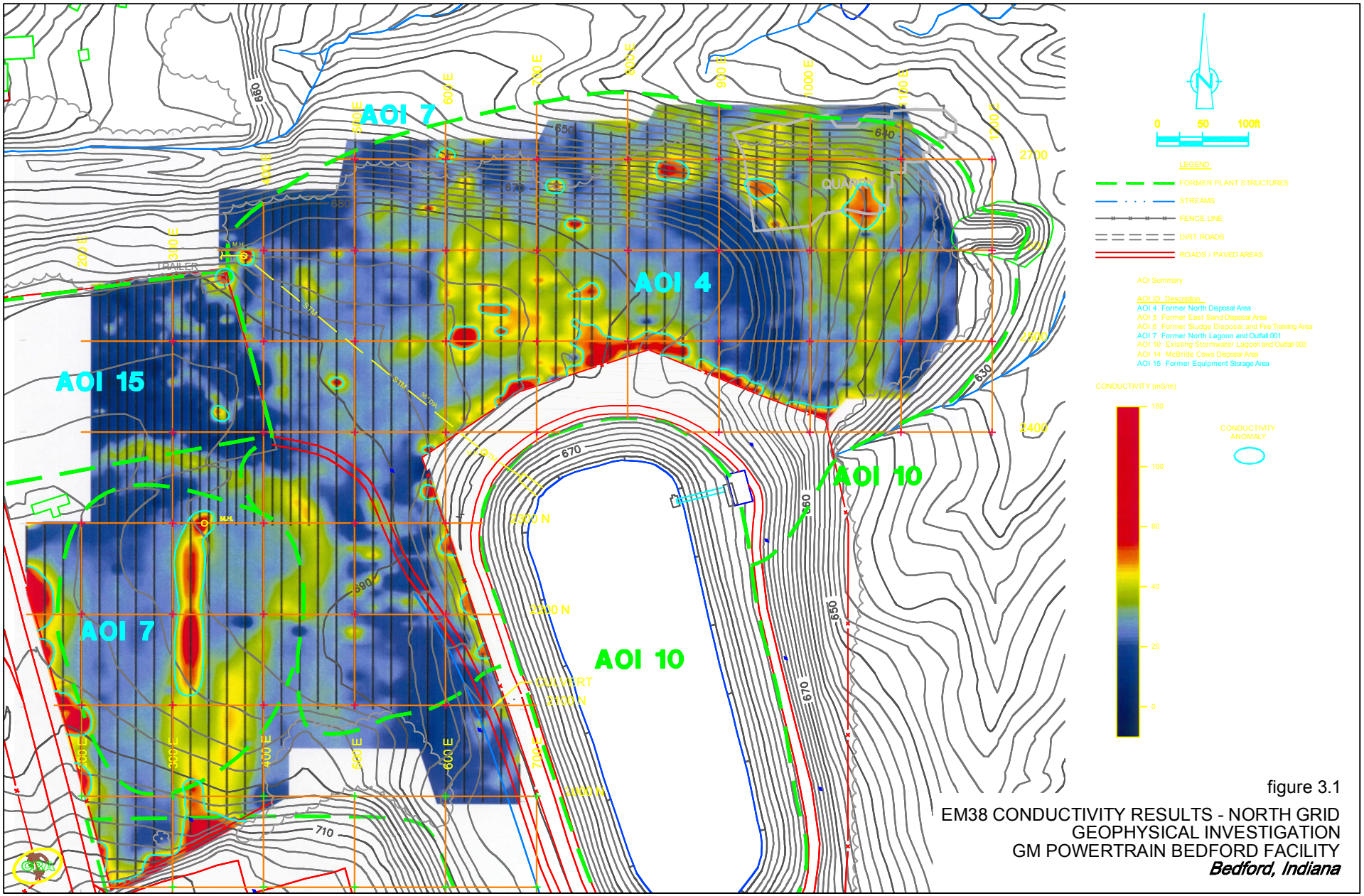


figure 3.1

EM38 CONDUCTIVITY RESULTS - NORTH GRID
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA002 JAN 31/2003

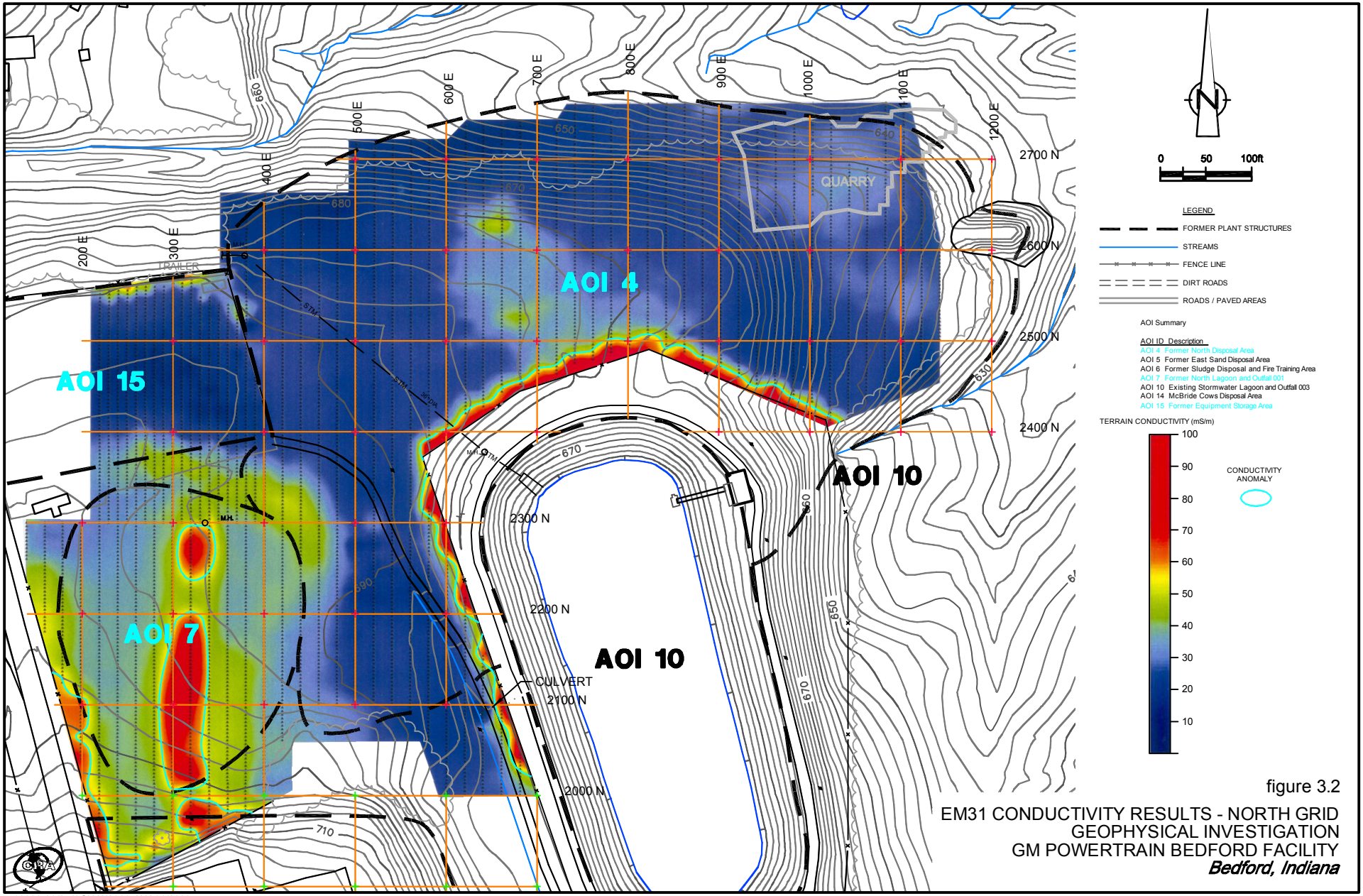


figure 3.2

EM31 CONDUCTIVITY RESULTS - NORTH GRID
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA003 JAN 31/2003

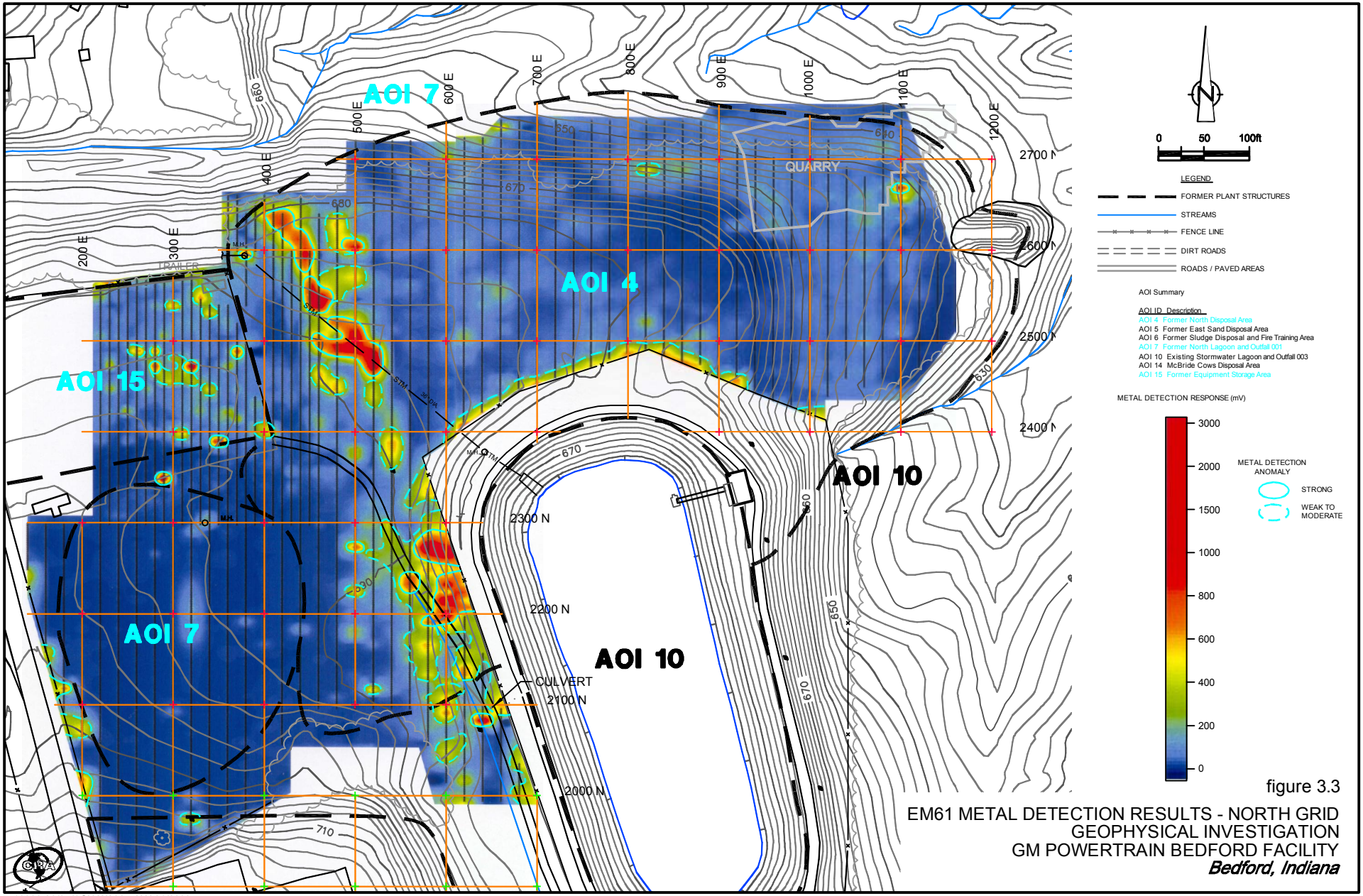


figure 3.3

EM61 METAL DETECTION RESULTS - NORTH GRID
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA004 JAN 31/2003

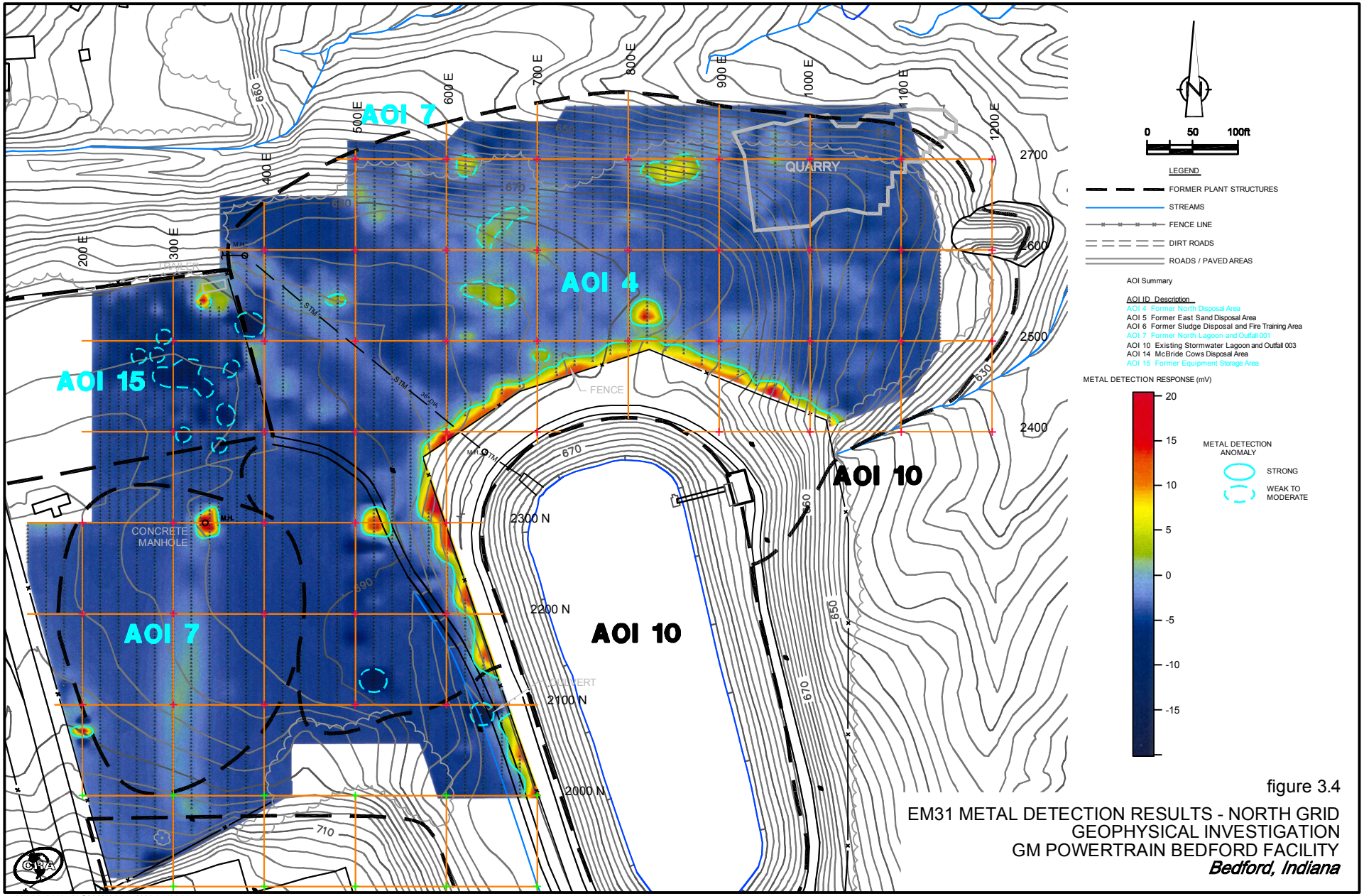


figure 3.4

EM31 METAL DETECTION RESULTS - NORTH GRID
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA005 JAN 31/2003

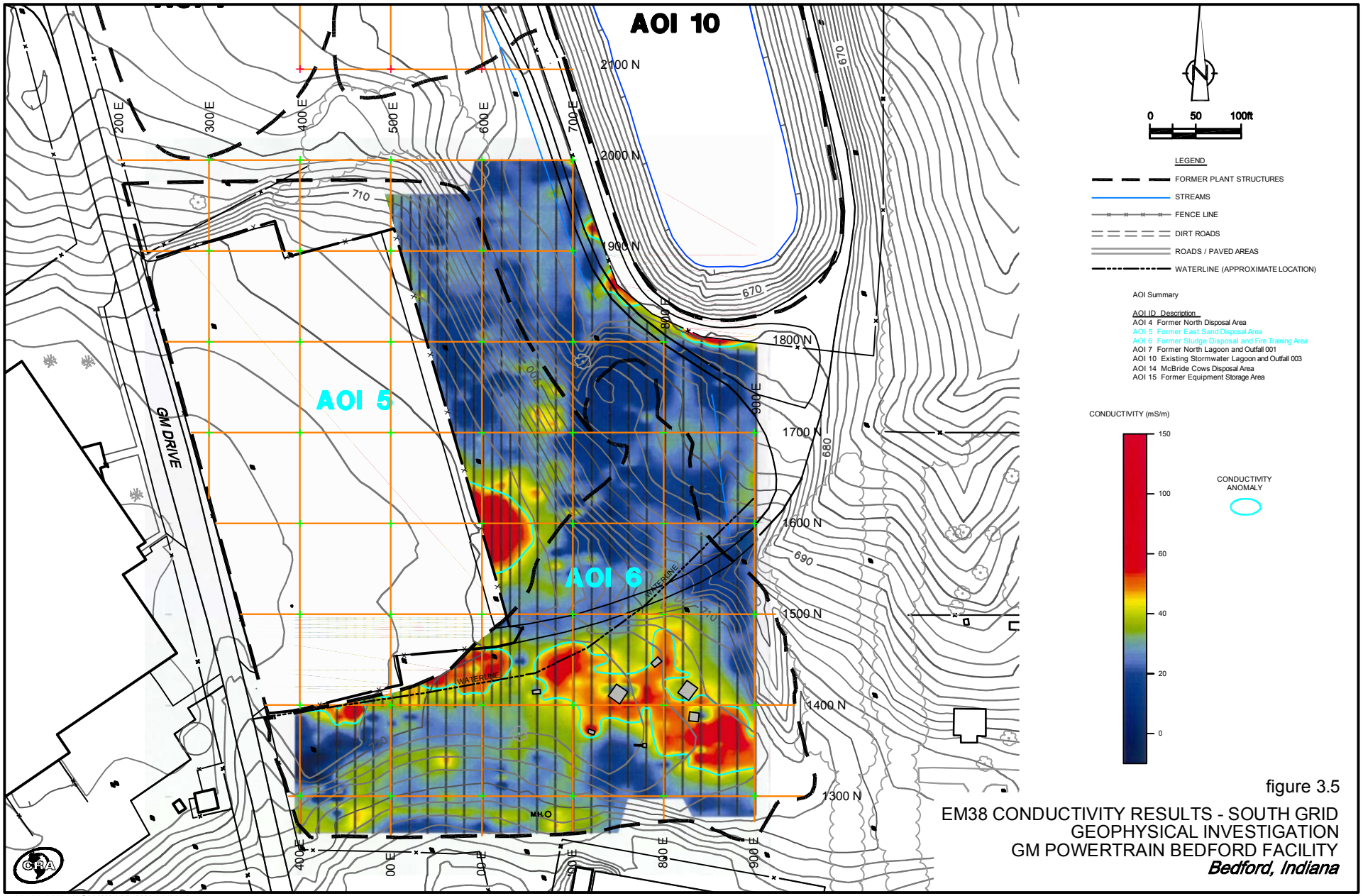


figure 3.5

EM38 CONDUCTIVITY RESULTS - SOUTH GRID
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA006 JAN 31/2003

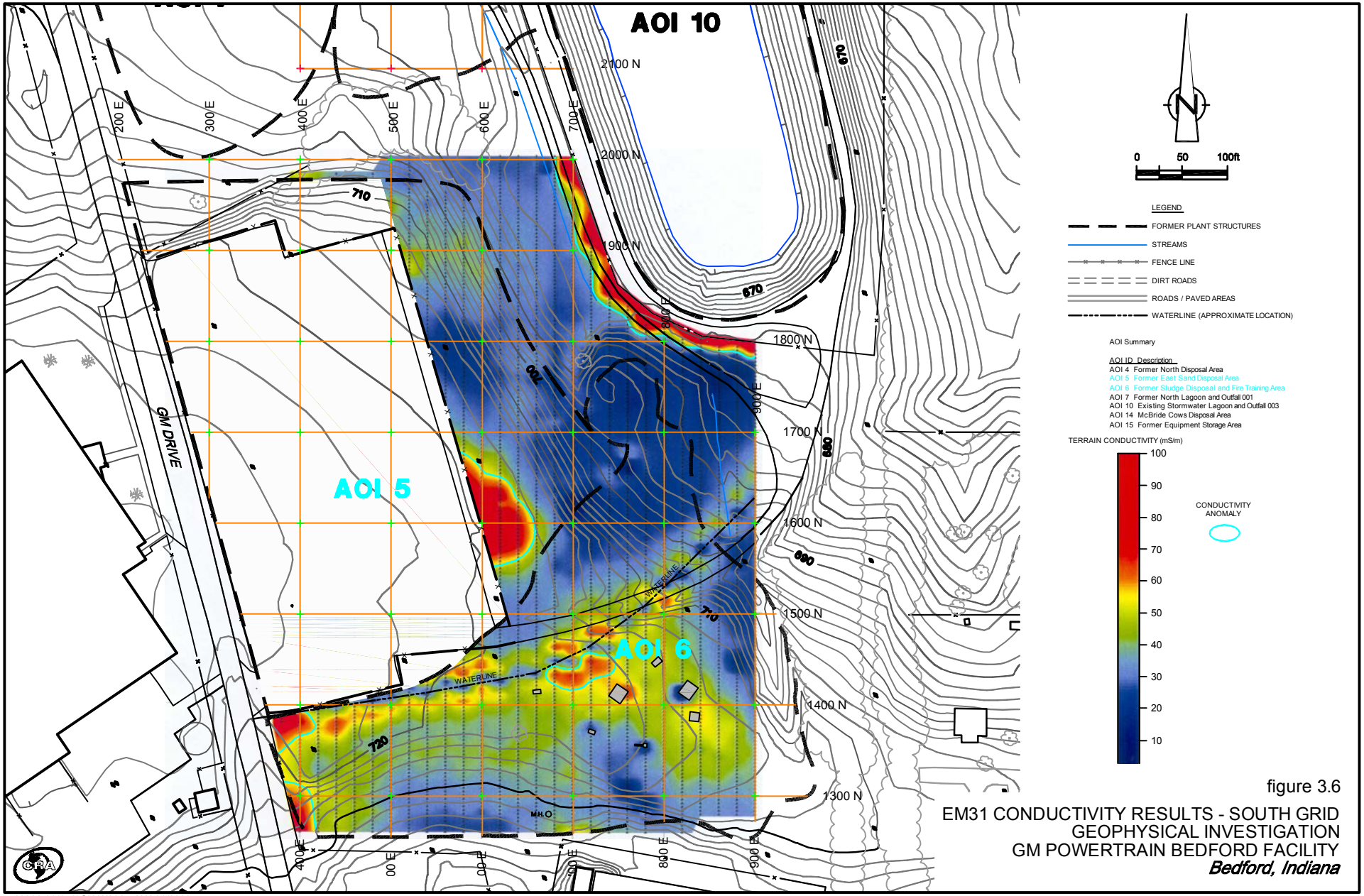


figure 3.6

EM31 CONDUCTIVITY RESULTS - SOUTH GRID
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA007 JAN 31/2003

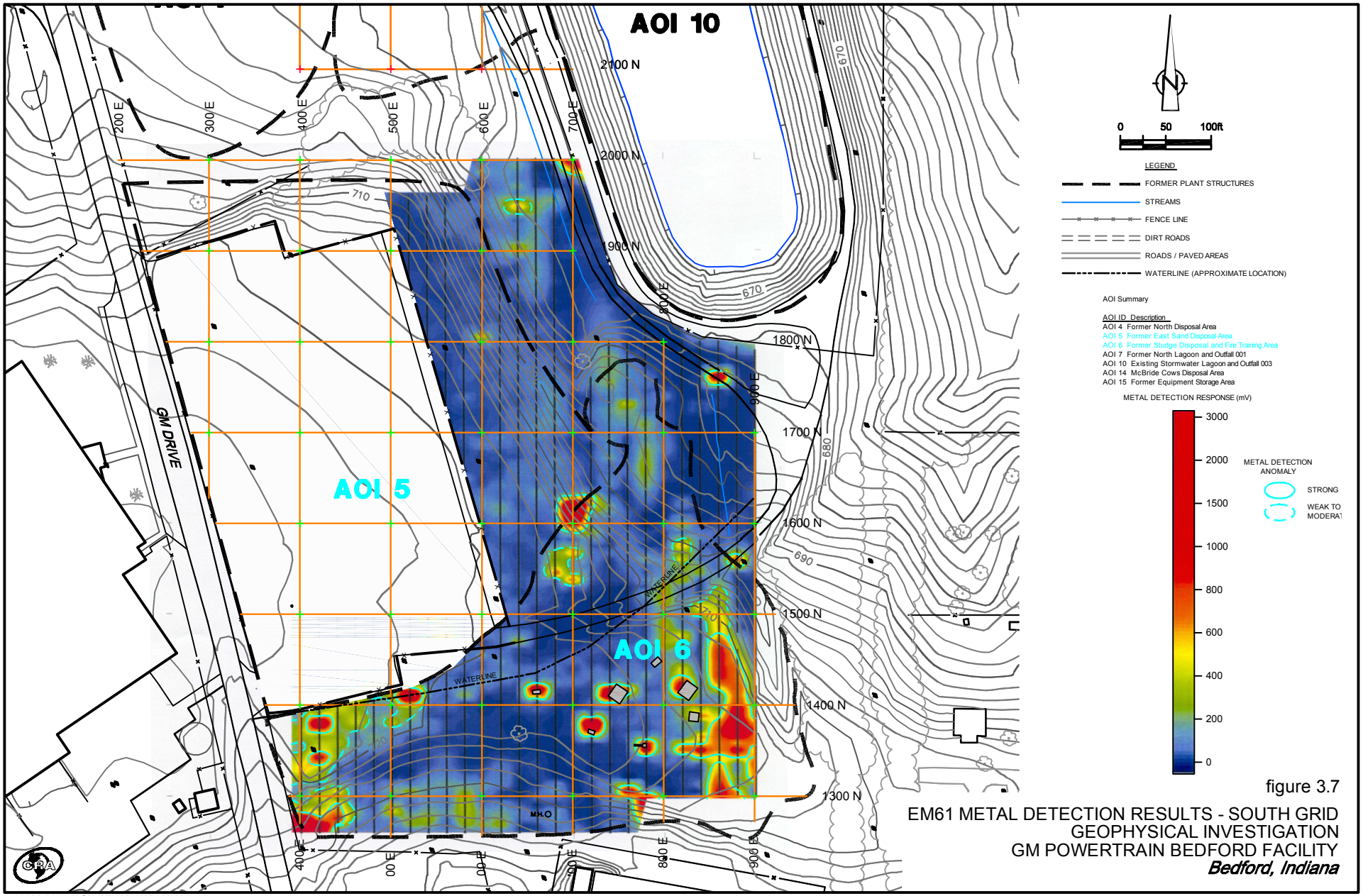


figure 3.7

EM61 METAL DETECTION RESULTS - SOUTH GRID
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA008 JAN 31/2003

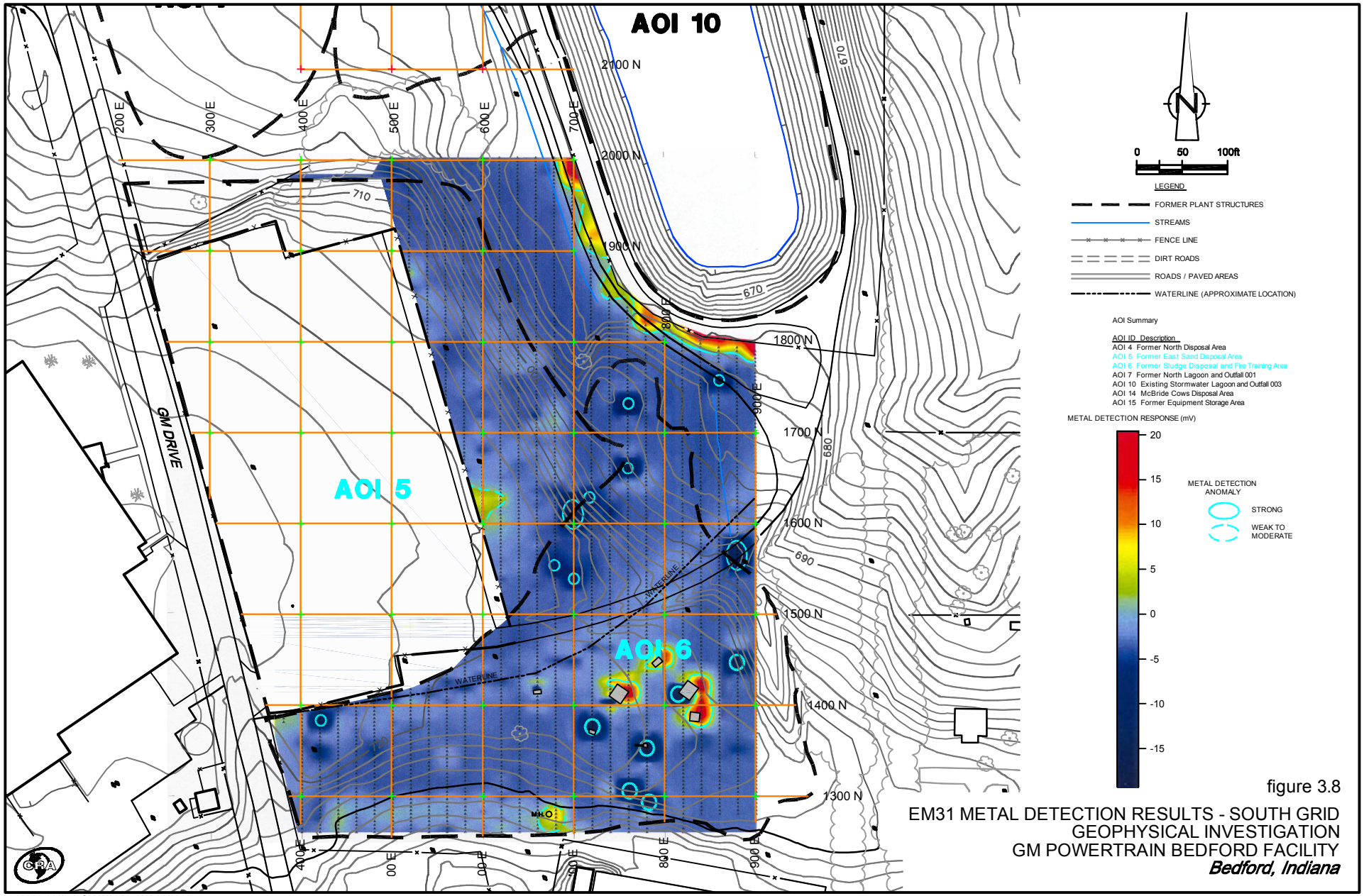


figure 3.8

EM31 METAL DETECTION RESULTS - SOUTH GRID
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA009 JAN 31/2003

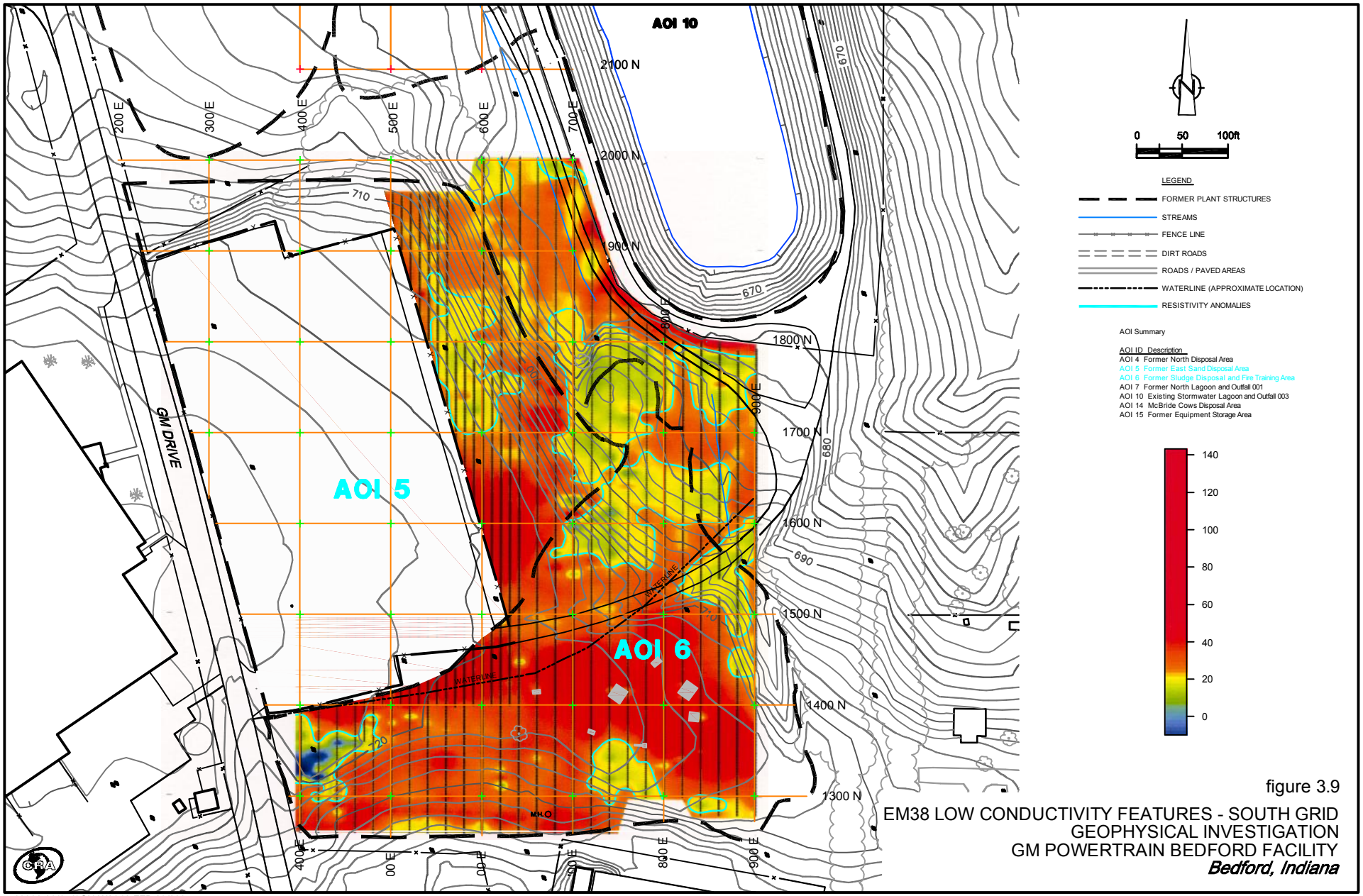


figure 3.9

EM38 LOW CONDUCTIVITY FEATURES - SOUTH GRID
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA010 FEB 23/2004

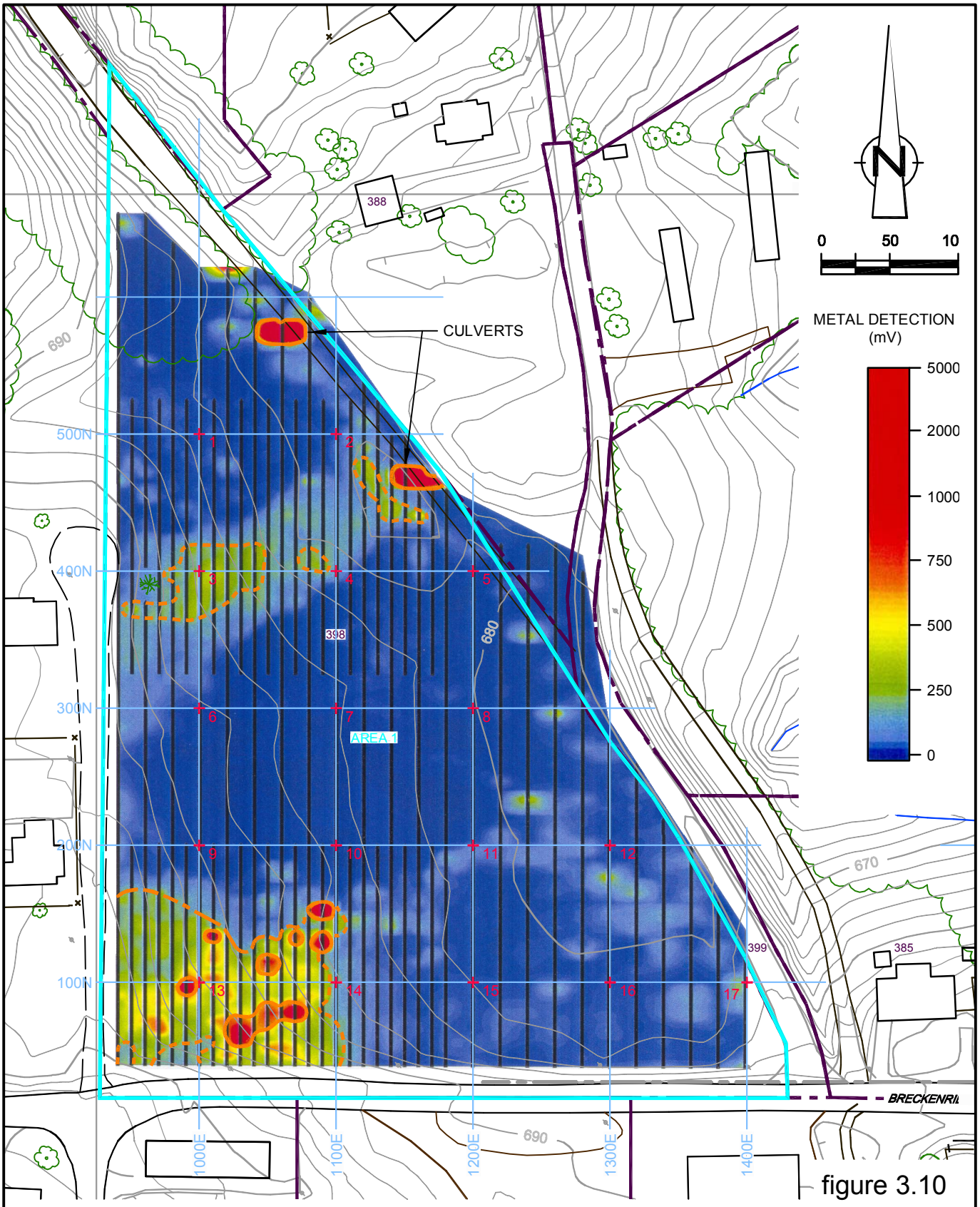


figure 3.10

METAL DETECTION ANOMALY

- STRONG

- WEAK TO MODERATE

EM61 METAL DETECTION RESULTS •AREA 1
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA011 JAN 31/2003

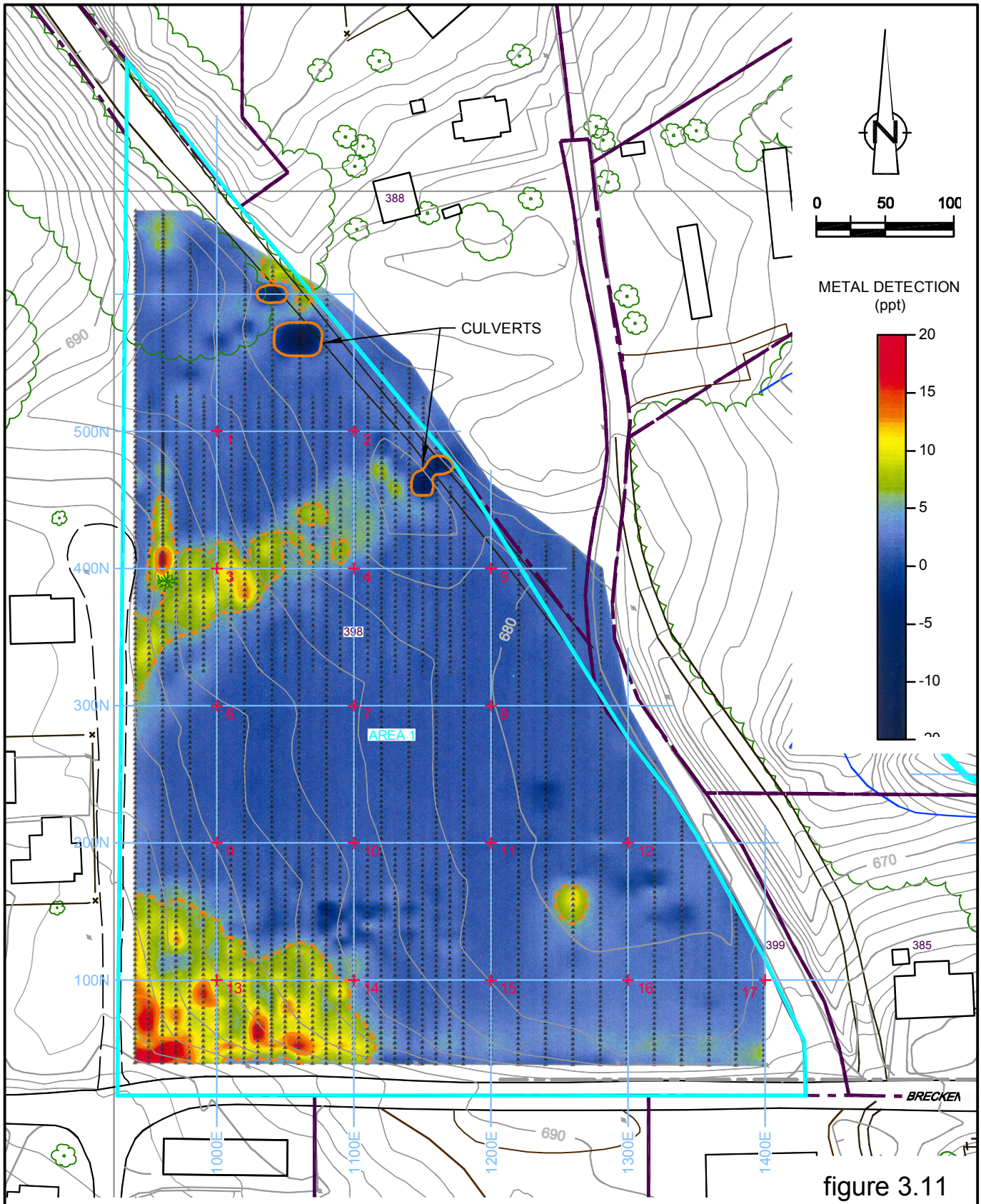


figure 3.11

METAL DETECTION ANOMALY

- STRONG

- WEAK TO MODERATE

EM31 METAL DETECTION RESULTS •AREA 1
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA012 JAN 31/2003

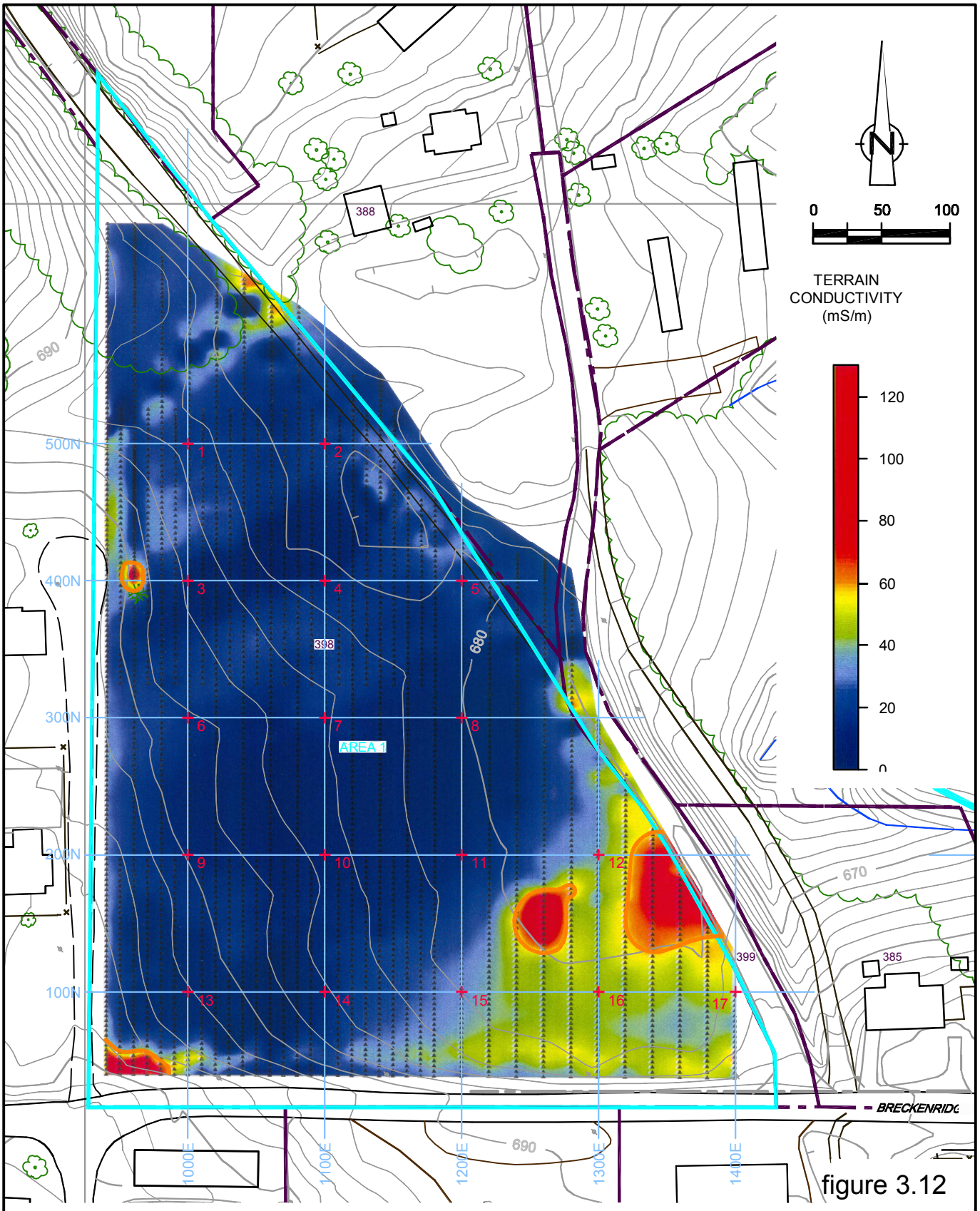


figure 3.12

CONDUCTIVITY ANOMALY

EM31 CONDUCTIVITY RESULTS •AREA 1
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA013 JAN 31/2003

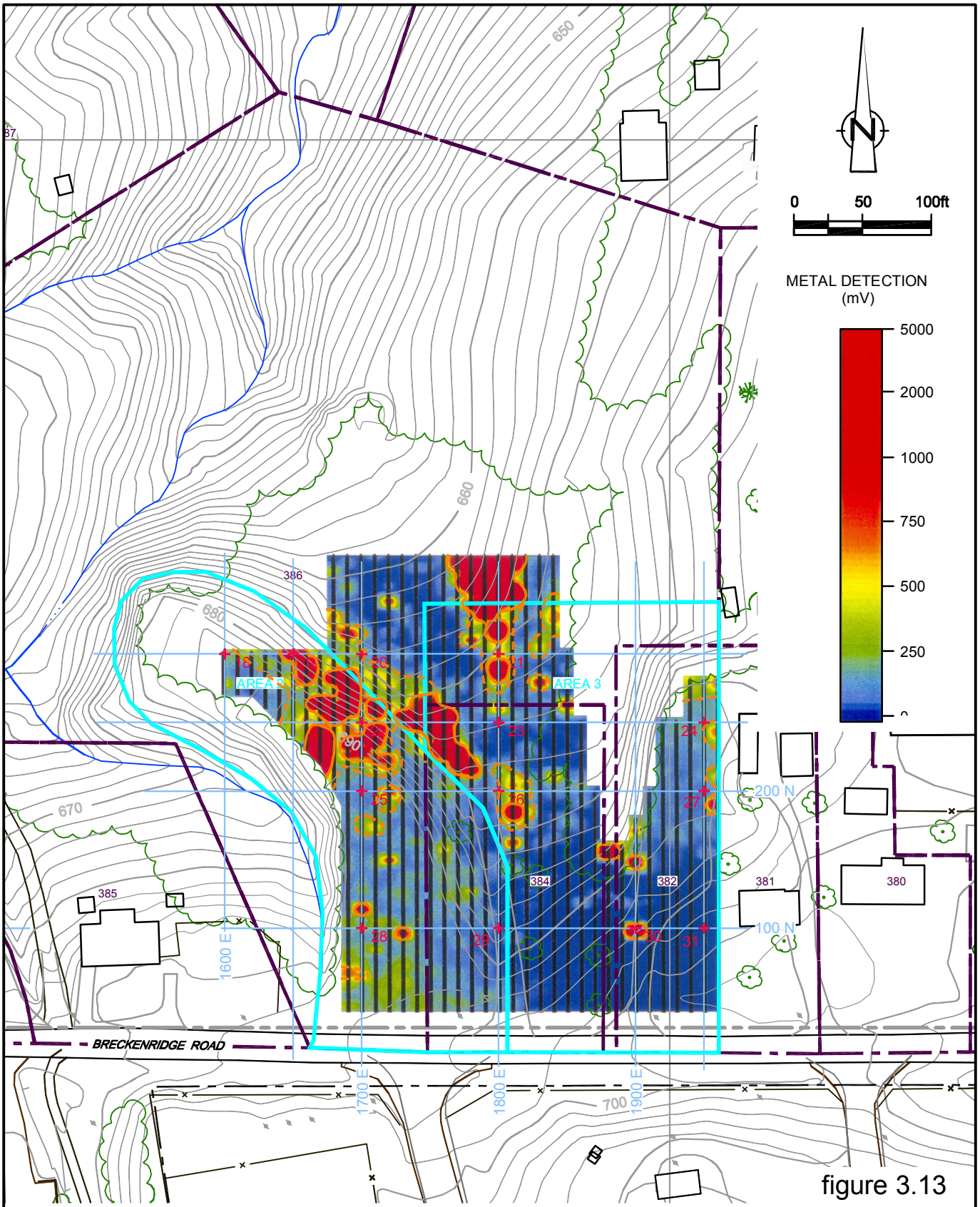


figure 3.13

METAL DETECTION ANOMALY

- STRONG

- WEAK TO MODERATE

EM61 METAL DETECTION RESULTS •AREA 2 & 3
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

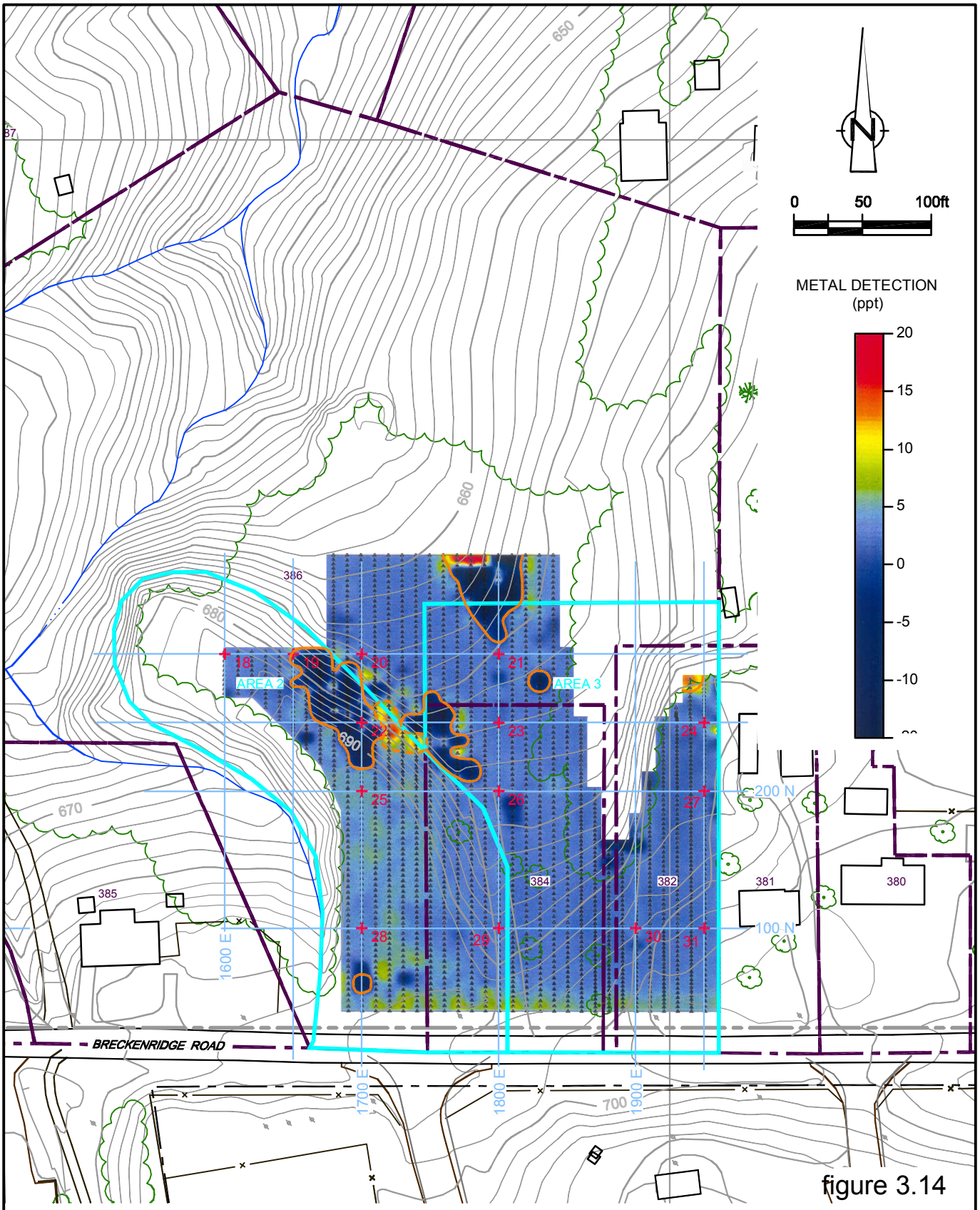


figure 3.14

METAL DETECTION ANOMALY
- STRONG
- WEAK TO MODERATE

EM31 METAL DETECTION RESULTS •AREAS 2 & 3
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA015 JAN 31/2003

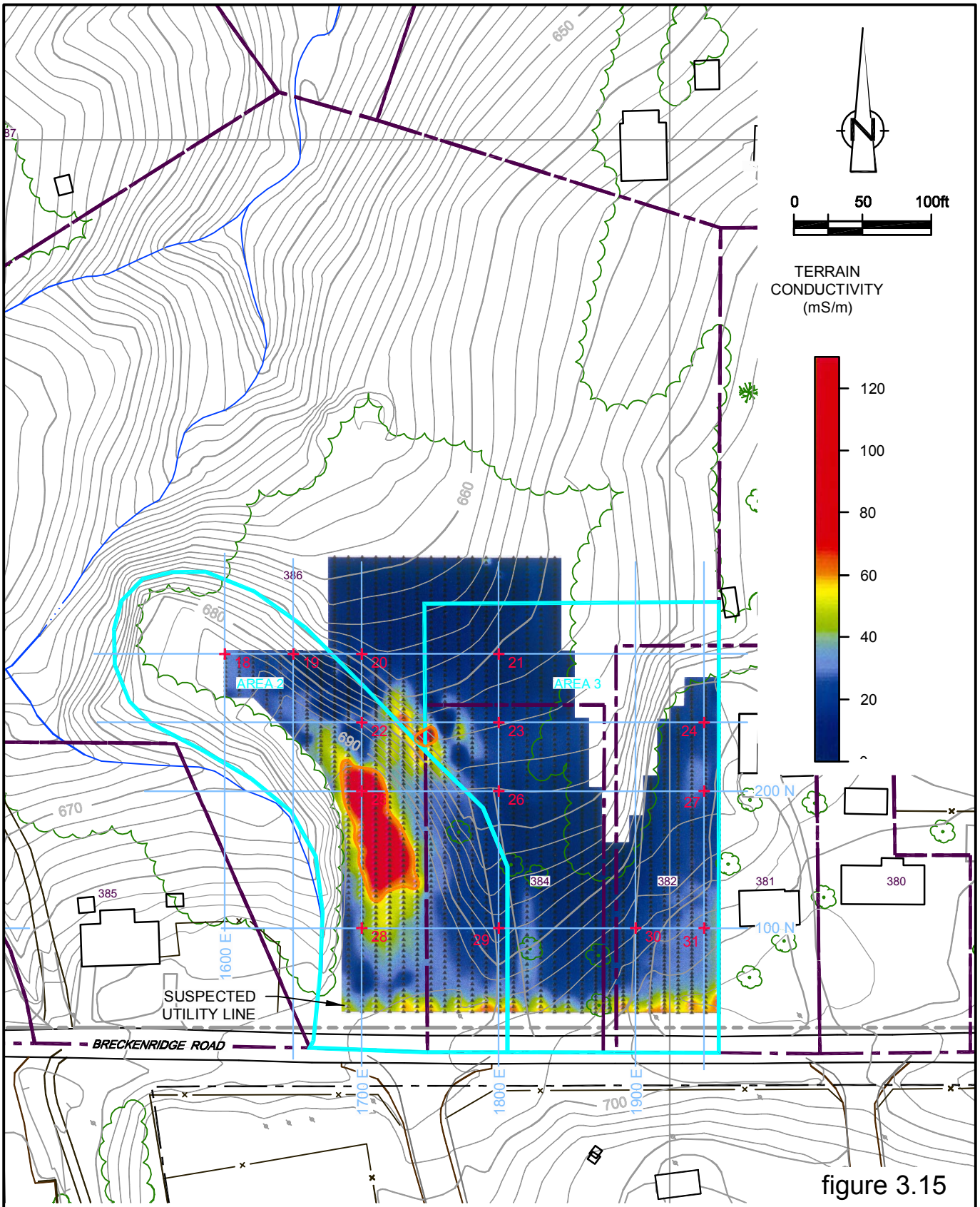


figure 3.15

EM31 CONDUCTIVITY RESULTS •AREA 2 & 3
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA016 JAN 31/2003

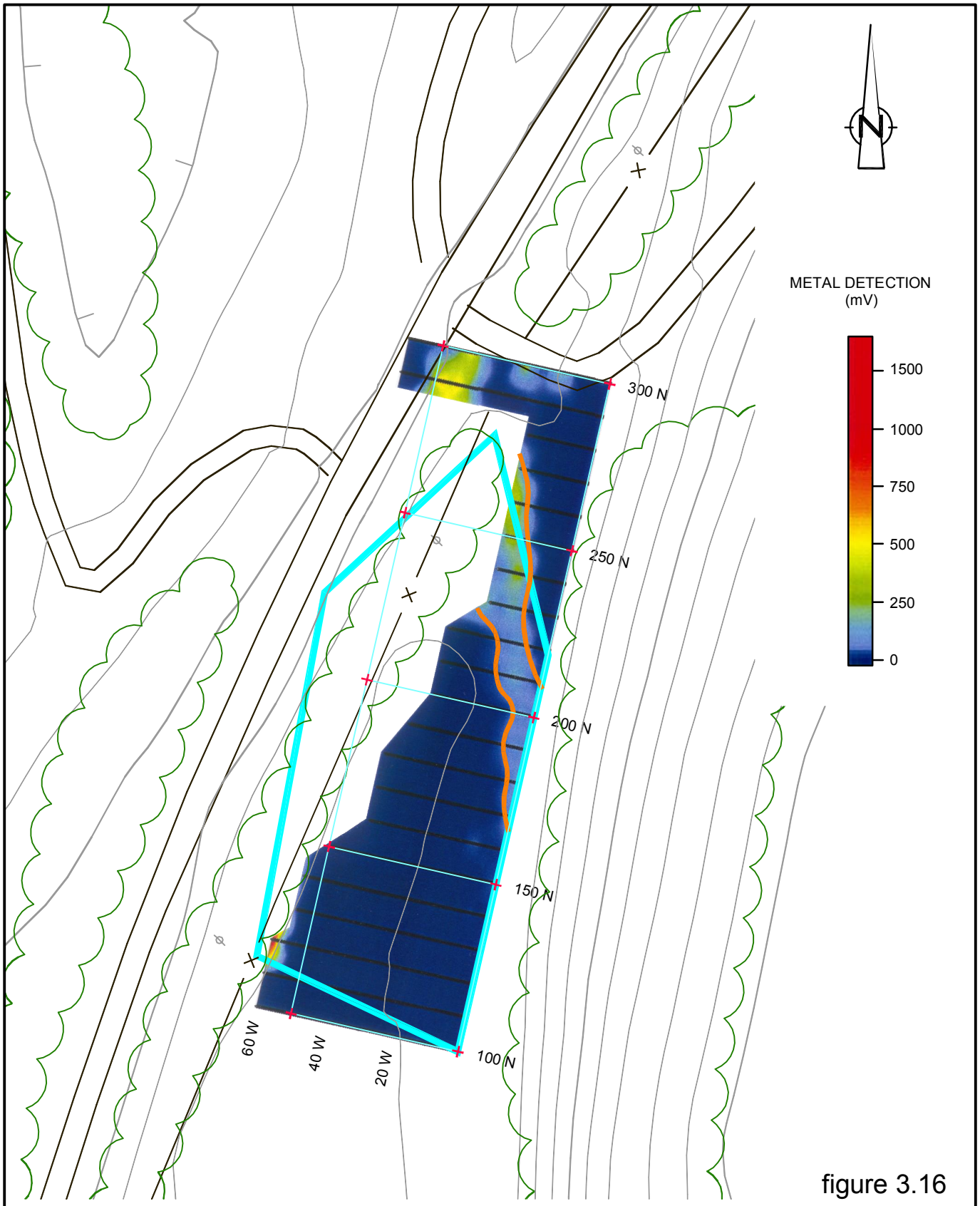


figure 3.16

EM61 METAL DETECTION RESULTS •AREA 4
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA017 JAN 31/2003

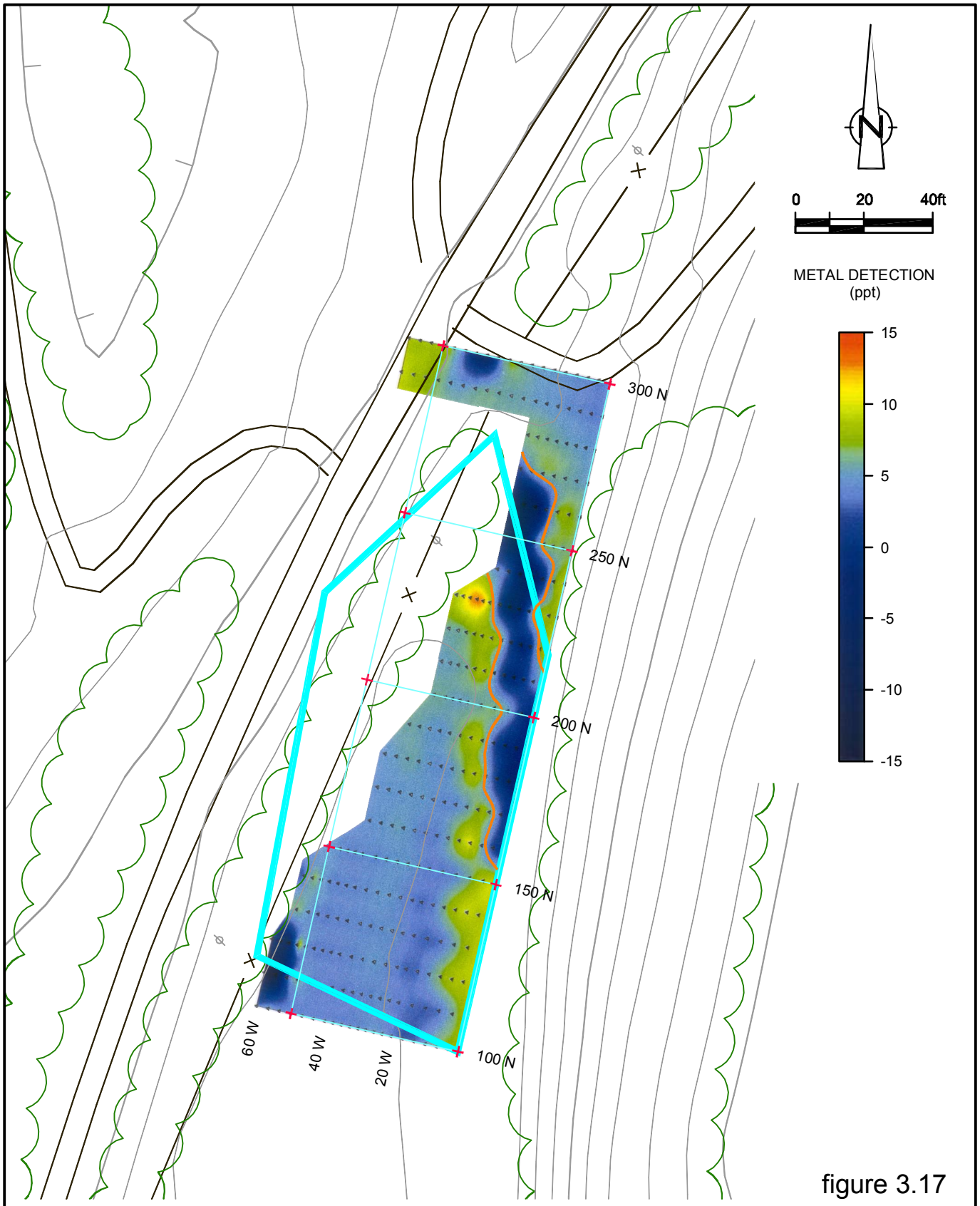


figure 3.17

METAL DETECTION ANOMALY

- STRONG

- WEAK TO MODERATE

EM31 METAL DETECTION RESULTS • AREA 4
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA018 JAN 31/2003

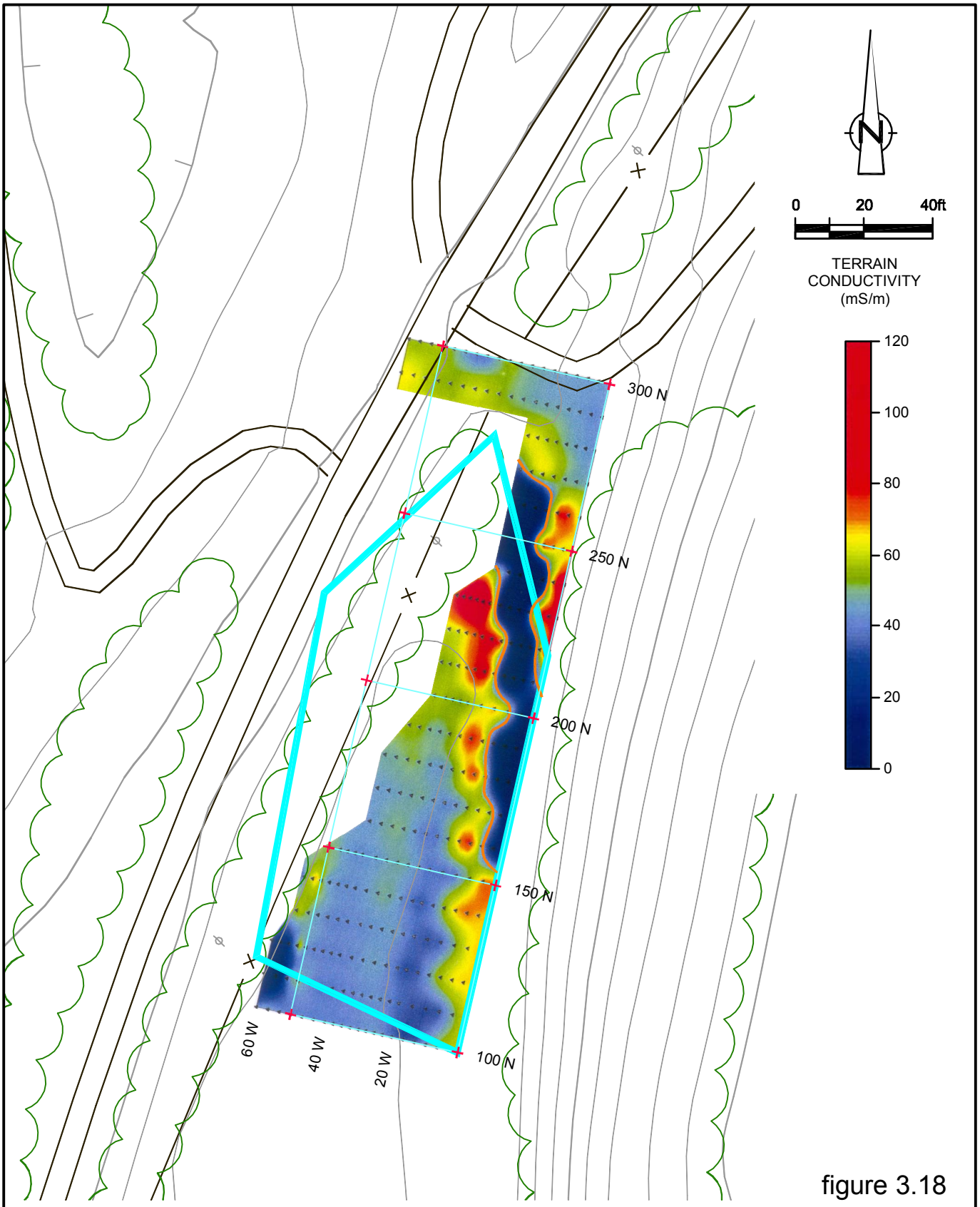


figure 3.18

EM31 CONDUCTIVITY RESULTS •AREA 4
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA019 JAN 31/2003

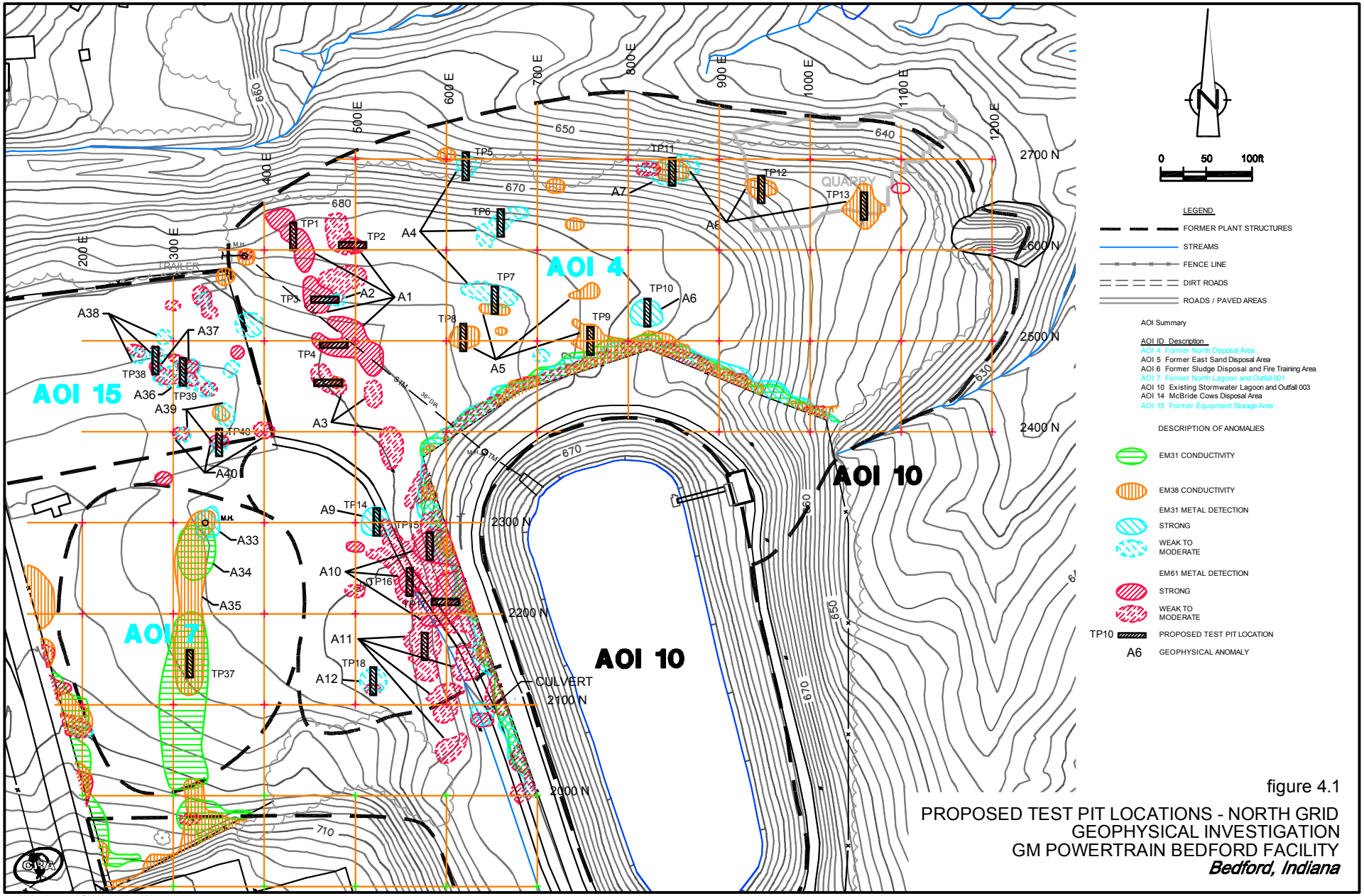


figure 4.1

PROPOSED TEST PIT LOCATIONS - NORTH GRID
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA020 JAN 31/2003

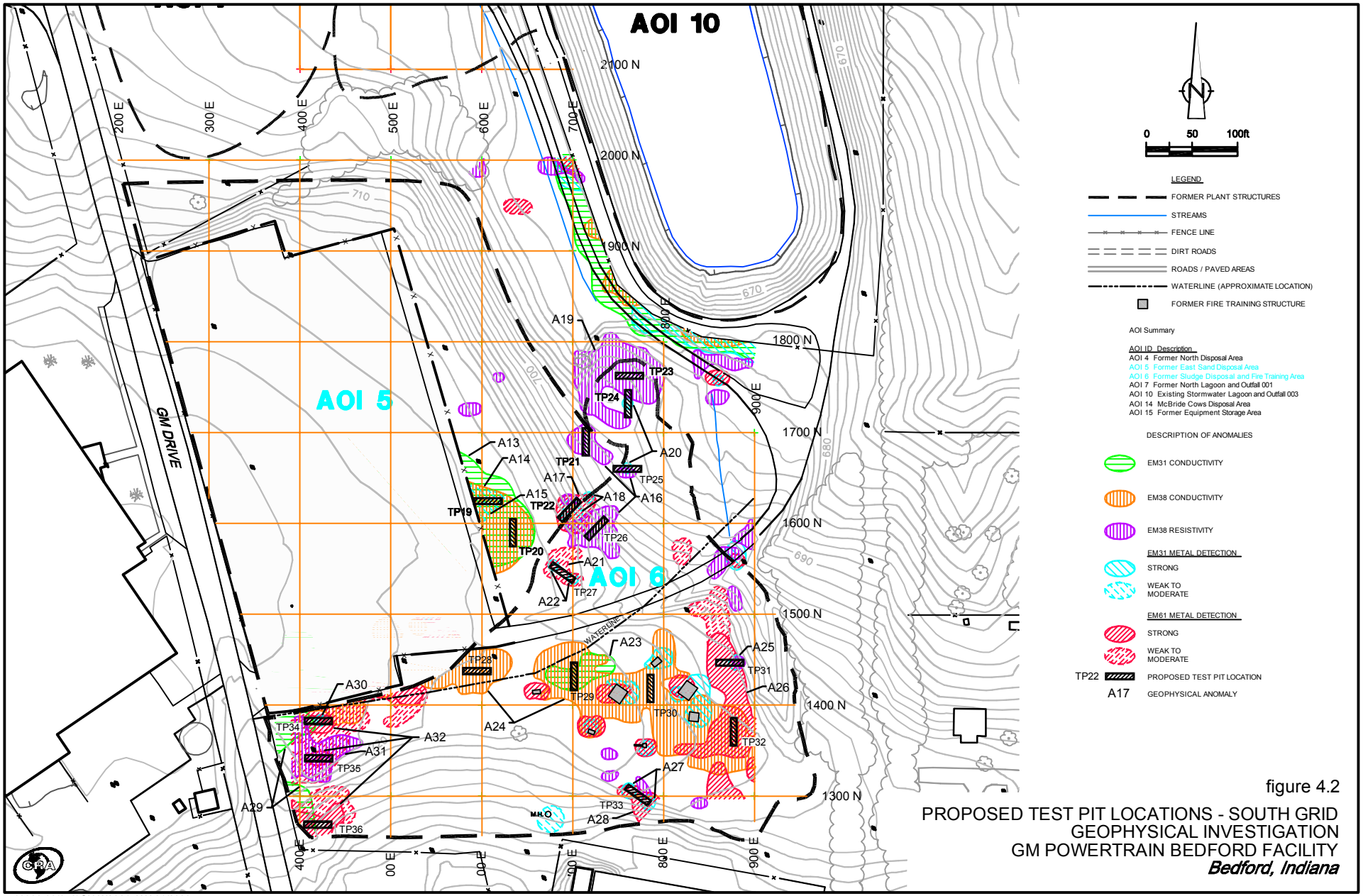
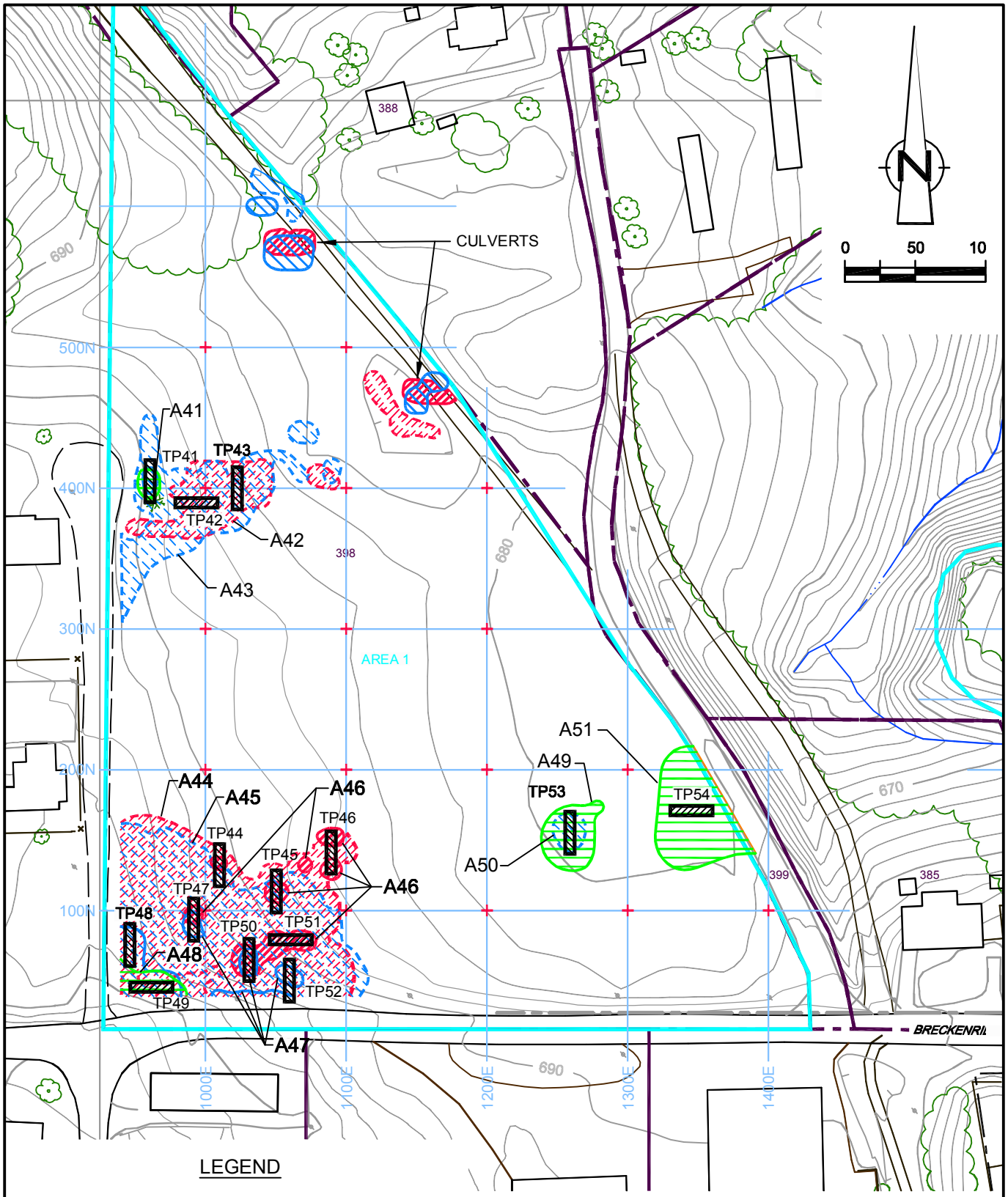


figure 4.2

PROPOSED TEST PIT LOCATIONS - SOUTH GRID
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA021 JAN 31/2003



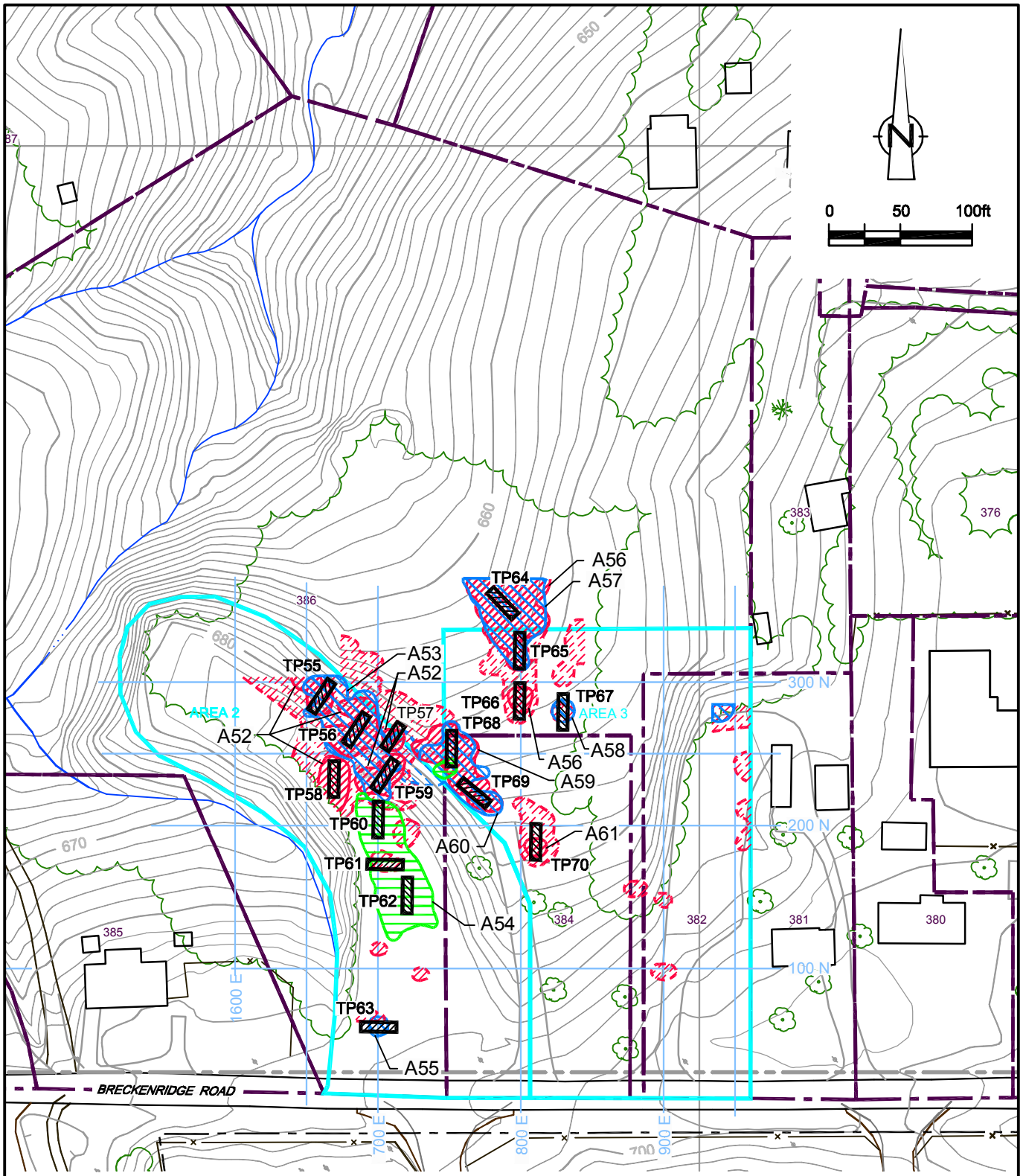
LEGEND

- EM31 METAL DETECTION
- EM61 METAL DETECTION
- EM31 CONDUCTIVITY
- TP45 PROPOSED TEST PIT LOCATION
- A46 GEOPHYSICAL ANOMALY

figure 4.3

PROPOSED TEST PIT LOCATIONS •AREA 1
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA022 JAN 31/2003



LEGEND

- EM31 METAL DETECTION
- EM61 METAL DETECTION
- EM31 CONDUCTIVITY
- TP55 PROPOSED TEST PIT LOCATION
- A52 GEOPHYSICAL ANOMALY

figure 4.4

PROPOSED TEST PIT LOCATIONS •AREA 2 & 3
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA023 JAN 31/2003

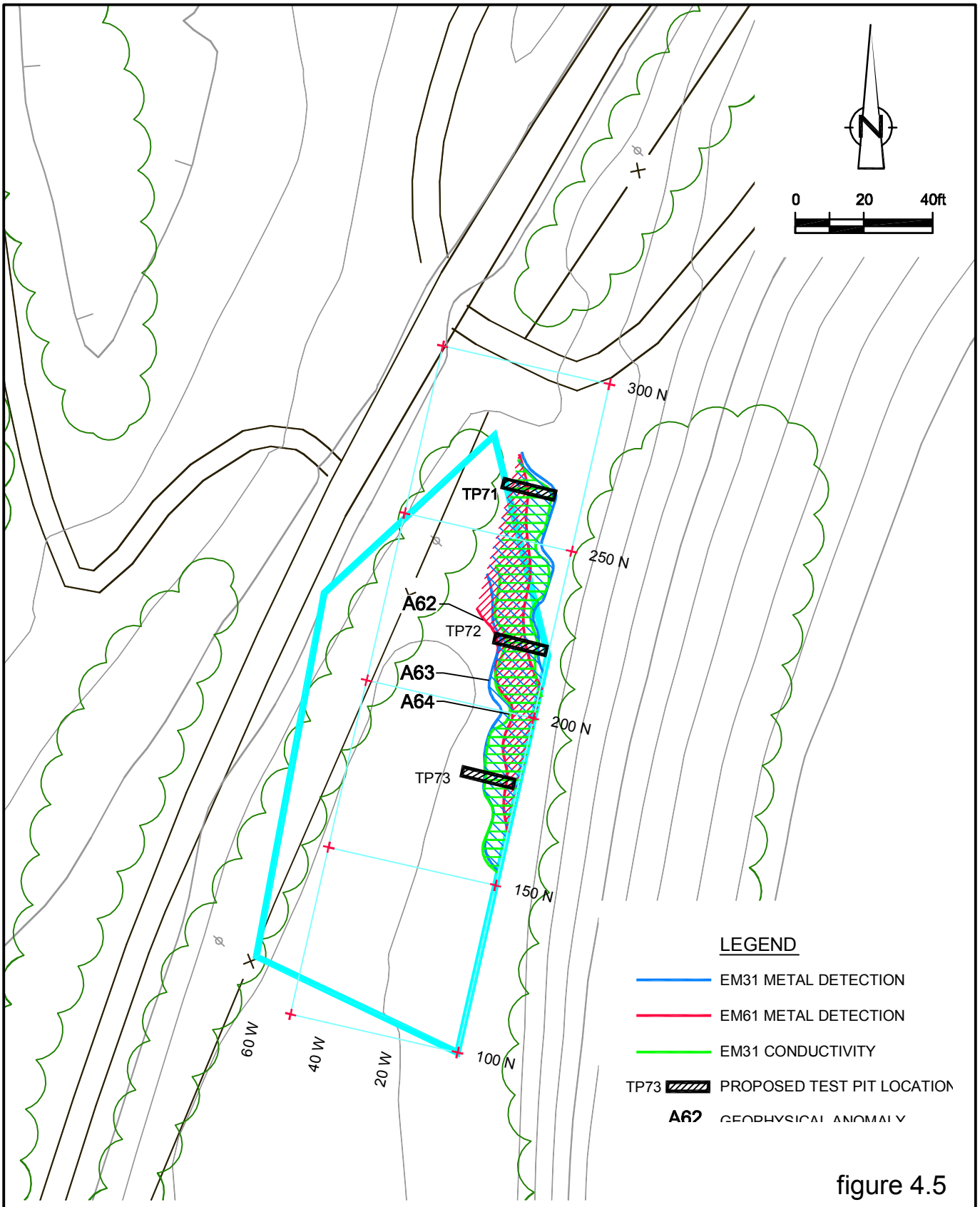


figure 4.5

PROPOSED TEST PIT LOCATIONS •AREA 4
GEOPHYSICAL INVESTIGATION
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana

13968-00(048)GN-WA024 JAN 31/2003

TABLE 4.1

RATIONALE FOR ON-SITE (AOI) TEST PIT LOCATIONS
GM POWERTRAIN BEDFORD FACILITY
BEDFORD, INDIANA

Test Pit Designation	*Test Pit Location*	*Amplitude of Response - Type of Survey*	*Rationale/ Purpose*	*Suspected Target*
AOI 4				
TP1	430 E, 2600 to 2630 N	Strong - EM61 (metal detection)	To verify Anomaly A1 (northwest)	Metallic debris/ Foundry Sand
TP2	480 to 510 E, 3605 N	Strong - EM61 (metal detection)	To verify Anomaly A1 (northeast)	Metallic debris/ Foundry Sand
TP3	450 to 480 E, 2545 N	Moderate - EM31 (metal detection), strong - EM61 (metal detection)	To verify Anomalies A1 (central) and A2	Buried metal object/ Foundry Sand
TP4	460 to 490 E, 2495 N	Strong - EM61 (metal detection)	To verify Anomaly A1 (south)	Metallic debris/ Foundry Sand
TP5	620 E, 2680 to 2710 N	Moderate - EM31 (metal detection)	To verify Anomaly A4 (north)	Buried metal object/ metallic debris
TP6	660 E, 2615 to 2645 N	Moderate - EM31 (metal detection)	To verify Anomaly A4 (central)	Buried metal object/ metallic debris
TP7	655 E, 2530 to 2560 N	Moderate - EM31 (metal detection), high - EM38 (conductivity)	To verify Anomalies A4 (south) and A5 (north)	Buried metal object/ metallic debris
TP8	620 E, 2490 to 2520 N	High - EM38 (conductivity)	To verify Anomaly A5 (west)	Conductive fill (shallow)
TP9	760 E, 2485 to 2515 N	High - EM38 (conductivity)	To verify Anomaly A5 (east)	Conductive fill (shallow)
TP10	820 E, 2515 to 2545 N	Strong - EM31 (metal detection)	To verify Anomalies A5 and A7	Buried metal object/ metallic debris
TP11	850 E, 2670 to 2700 N	Moderate - EM31 (metal detection), high - EM38 (conductivity)	To verify Anomalies A7 and A8 (west)	Buried metal object/ Foundry Sand
TP12	945 E, 2650 to 2680 N	High - EM38 (conductivity)	To verify Anomaly A8 (center)	Conductive fill (shallow)
TP13	1060 E, 2635 to 2665 N	High - EM38 (conductivity)	To verify Anomaly A8 (east)	Conductive fill (shallow)
TP14	525 E, 2385 to 2415 N	Strong - EM31 (metal detection)	To verify Anomaly A9	Buried metal object/ metallic debris
TP15	580 E, 2260 to 2290 N	Strong - EM61 (metal detection)	To verify Anomaly A10 (north)	Buried metal object/ metallic debris

TABLE 4.1

RATIONALE FOR ON-SITE (AOI) TEST PIT LOCATIONS
GM POWERTRAIN BEDFORD FACILITY
BEDFORD, INDIANA

Test Pit Designation	*Test Pit Location*	*Amplitude of Response - Type of Survey*	*Rationale/ Purpose*	*Suspected Target*
TP16	560 E, 2220 to 2250 N	Strong - EM61 (metal detection)	To verify Anomaly A10 (west)	Buried metal object/ metallic debris
TP17	585 to 615 E, 2212 N	Strong - EM61 (metal detection)	To verify Anomaly A10 (south)	Buried metal object/ metallic debris
TP18	520 E, 2110 to 2140 N	Moderate - EM31 (metal detection), moderate - EM61 (metal detection)	To verify Anomalies A11 and A12	Buried metal object/ metallic debris
AOI 5				
TP19	590 to 620 E, 1625 N	High - EM31 (conductivity), high - EM38 (conductivity), moderate - EM31 (metal detection)	To verify Anomalies A13, A14 and A15	Conductive fill/ Foundry Sand
TP20	635 E, 1575 to 1605 N	High - EM31 (conductivity), high - EM38 (conductivity)	To verify Anomalies A13 and A14	Conductive fill/ Foundry Sand
TP21	715 E, 1675 to 1705 N	High - EM38 (resistivity)	To verify Anomaly A16 (north)	Resistive fill/ Oily Sludge Residue
TP22	690 E, 1605 N, to 710 E, 1625 N	Strong - EM31 (metal detection), strong - EM61 (metal detection)	To verify Anomalies A17 and A18	Buried metal object/ metallic debris
AOI 6				
TP23	750 to 780 E, 1760 N	High - EM38 (resistivity)	To verify Anomaly A19	Resistive fill/ Oily Sludge Residue
TP24	760 E, 1715 to 1745 N	Strong - EM31 (metal detection)	To verify Anomaly A20	Buried metal object/ metallic debris
TP25	745 to 775 E, 1660 N	Strong - EM31 (metal detection), high - EM38 (resistivity)	To verify Anomalies A16 (east) and A20	Buried metal object/ Resistive fill
TP26	715 E, 1585 N, to 735 E, 1605 N	High - EM38 (resistivity)	To verify Anomaly A16 (south)	Resistive fill/ Oily Sludge Residue
TP27	600 E, 1555 N, to 700 E, 1535 N	Strong - EM31 (metal detection), moderate - EM61 (metal detection)	To verify Anomalies A21 and A22	Buried metal object/ metallic debris
TP28	580 to 610 E, 1440 N	High - EM38 (conductivity)	To verify Anomaly A24 (west)	Conductive fill (shallow)
TP29	700 E, 1415 to 1445 N	High - EM31 (conductivity), high - EM38 (conductivity)	To verify Anomalies A23 and A24 (east)	Conductive fill/ Foundry Sand

TABLE 4.1

RATIONALE FOR ON-SITE (AOI) TEST PIT LOCATIONS
GM POWERTRAIN BEDFORD FACILITY
BEDFORD, INDIANA

Test Pit Designation	*Test Pit Location*	*Amplitude of Response - Type of Survey*	*Rationale/ Purpose*	*Suspected Target*
TP30	785 E, 1405 to 1435 N	High - EM38 (conductivity)	To verify Anomaly A24 (east)	Conductive fill (shallow)
TP31	860 to 890 E, 1445 N	Strong - EM31 (metal detection), strong - EM61 (metal detection)	To verify Anomalies A25 and A26	Buried metal object/ Foundry sand
TP32	875 E, 1355 to 1385 N	Strong - EM31 (metal detection), high - EM38 (conductivity)	To verify Anomalies A24 (east) and A26	Metallic debris/fill Foundry Sand
TP33	760 E, 1310 N, to 780 E, 1290 N	Strong - EM31 (metal detection), strong - EM61 (metal detection)	To verify Anomalies A27 and A28	Buried metal object/ Foundry sand
TP34	405 to 435 E, 1385 N	Strong - EM31 (metal detection), strong - EM61 (metal detection)	To verify Anomalies A30 and A32 (north)	Buried metal object/ Foundry sand
TP35	405 to 435 E, 1340 N	Strong - EM61 (metal detection)	To verify Anomalies A31and A32 (central)	Metallic debris/ Foundry sand
TP36	405 to 435 E, 1270 N	Strong - EM61 (metal detection)	To verify Anomaly A32 (south)	Metallic debris/ Foundry sand
AOI 7				
TP37	320 E, 2130 to 2160 N	High - EM31 (conductivity), high - EM38 (conductivity)	To verify Anomalies A34 (south) and A35	Conductive fill/ Foundry Sand
AOI 15				
TP38	280 E, 2460 to 2490 N	Moderate - EM31 (metal detection), strong - EM61 (metal detection)	To verify Anomalies A37 and A38	Buried metal object/ metallic debris
TP39	315 E, 2450 to 2480 N	Moderate - EM31 (metal detection), strong - EM61 (metal detection)	To verify Anomalies A36 and A37	Buried metal object/ metallic debris
TP40	350 E, 2375 to 2405 N	Moderate - EM31 (metal detection), strong - EM61 (metal detection)	To verify Anomalies A39 and A40	Buried metal object/ metallic debris

TABLE 4.2

RATIONALE FOR OFF-SITE TEST PIT LOCATIONS
GM POWERTRAIN BEDFORD FACILITY
BEDFORD, INDIANA

Test Pit Designation	*Test Pit Location*	*Amplitude of Response - Type of Survey*	*Rationale/ Purpose*	*Suspected Target*
AREA 1				
TP41	1060 E, 390 to 420 N	Strong - EM31 (metal detection), high - EM31 (conductivity)	To verify Anomalies A41 and A43	Buried Metal Object
TP42	1080 to 1110 E, 390 N	Moderate - EM31 (metal detection), weak - EM61 (metal detection)	To verify Anomalies A42 and A43	Foundry Sand
TP43	1125 E, 385 to 415 N	Moderate - EM31 (metal detection), weak - EM61 (metal detection)	To verify Anomalies A42 and A43	Foundry Sand
TP44	1110 E, 115 to 145 N	Moderate - EM31 (metal detection), strong - EM61 (metal detection)	To verify Anomalies A45 and A46	Buried Metal Object/ Foundry Sand
TP45	1150 E, 100 to 130 N	Moderate - EM31 (metal detection), strong - EM61 (metal detection)	To verify Anomalies A45 and A46	Buried Metal Object/ Foundry Sand
TP46	1190 E, 125 to 155 N	Moderate to strong - EM61 (metal detection)	To verify Anomalies A44 and A46	Buried Metal Object/ Foundry Sand
TP47	1090 E, 80 to 110 N	Strong - EM31 (metal detection), strong - EM61 (metal detection)	To verify Anomalies A46 and A47	Buried Metal Object/ Foundry Sand
TP48	1045 E, 60 to 90 N	Strong - EM31 (metal detection)	To verify Anomalies A44 and A47	Buried Metal Object/ Foundry Sand
TP49	1045 to 1075 E, 45 N	Strong - EM31 (metal detection), high - EM31 (conductivity)	To verify Anomalies A47 and A48	Buried Metal Object/ Foundry Sand
TP50	1130 E, 50 to 80 N	Strong - EM31 (metal detection), strong - EM61 (metal detection)	To verify Anomalies A46 and A47	Buried Metal Object/ Foundry Sand
TP51	1145 to 1175 E, 80 N	Moderate - EM31 (metal detection), strong - EM61 (metal detection)	To verify Anomalies A45 and A46	Buried Metal Object/ Foundry Sand
TP52	1160 E, 35 to 65 N	Strong - EM31 (metal detection), moderate - EM61 (metal detection)	To verify Anomalies A44 and A47	Buried Metal Object/ Foundry Sand

TABLE 4.2

RATIONALE FOR OFF-SITE TEST PIT LOCATIONS
GM POWERTRAIN BEDFORD FACILITY
BEDFORD, INDIANA

Test Pit Designation	*Test Pit Location*	*Amplitude of Response - Type of Survey*	*Rationale/ Purpose*	*Suspected Target*
TP53	1260 E, 140 to 170 N	High - EM31 (conductivity)	To verify Anomalies A49 and A50	Conductive Fill/ Foundry Sand
TP54	1330 to 1360 E, 170 N	High - EM31 (conductivity)	To verify Anomaly A51	Conductive Fill
AREA 2				
TP55	1500 to 1525 E, 116 N	Strong - EM31 (metal detection), strong - EM61 (metal detection)	To verify Anomalies A52 and A53	Buried Metal Object/ Metallic Debris
TP56	1542 E, 105 to 130 N	Strong - EM31 (metal detection), strong - EM61 (metal detection)	To verify Anomalies A52 and A53	Buried Metal Object/ Metallic Debris
TP57	1595 E, 110 to 135 N	Strong - EM31 (metal detection), strong - EM61 (metal detection)	To verify Anomalies A52 and A53	Buried Metal Object/ Metallic Debris
TP58	1595 to 1620 E, 66 N	Strong - EM61 (metal detection)	To verify Anomaly A52	Buried Metal Object/ Metallic Debris
TP59	1643 E, 95 to 120 N	Strong - EM31 (metal detection), strong - EM61 (metal detection)	To verify Anomalies A52 and A53	Buried Metal Object/ Metallic Debris
TP60	1817 E, 145 to 180 N	High - EM31 (conductivity)	To verify Anomaly A54 (north)	Conductive Fill/ Foundry Sand
TP61	1851 E, 165 to 190 N	High - EM31 (conductivity), weak - EM61 (metal detection)	To verify Anomaly A54 (center)	Conductive Fill/ Foundry Sand
TP62	1878 E, 160 to 180 N	High - EM31 (conductivity)	To verify Anomaly A54 (south)	Conductive Fill/ Foundry Sand
TP63	2032 E, 205 to 235 N	Strong - EM31 (metal detection), weak - EM61 (metal detection)	To verify Anomaly A55	Buried Metal Object/ Metallic Debris

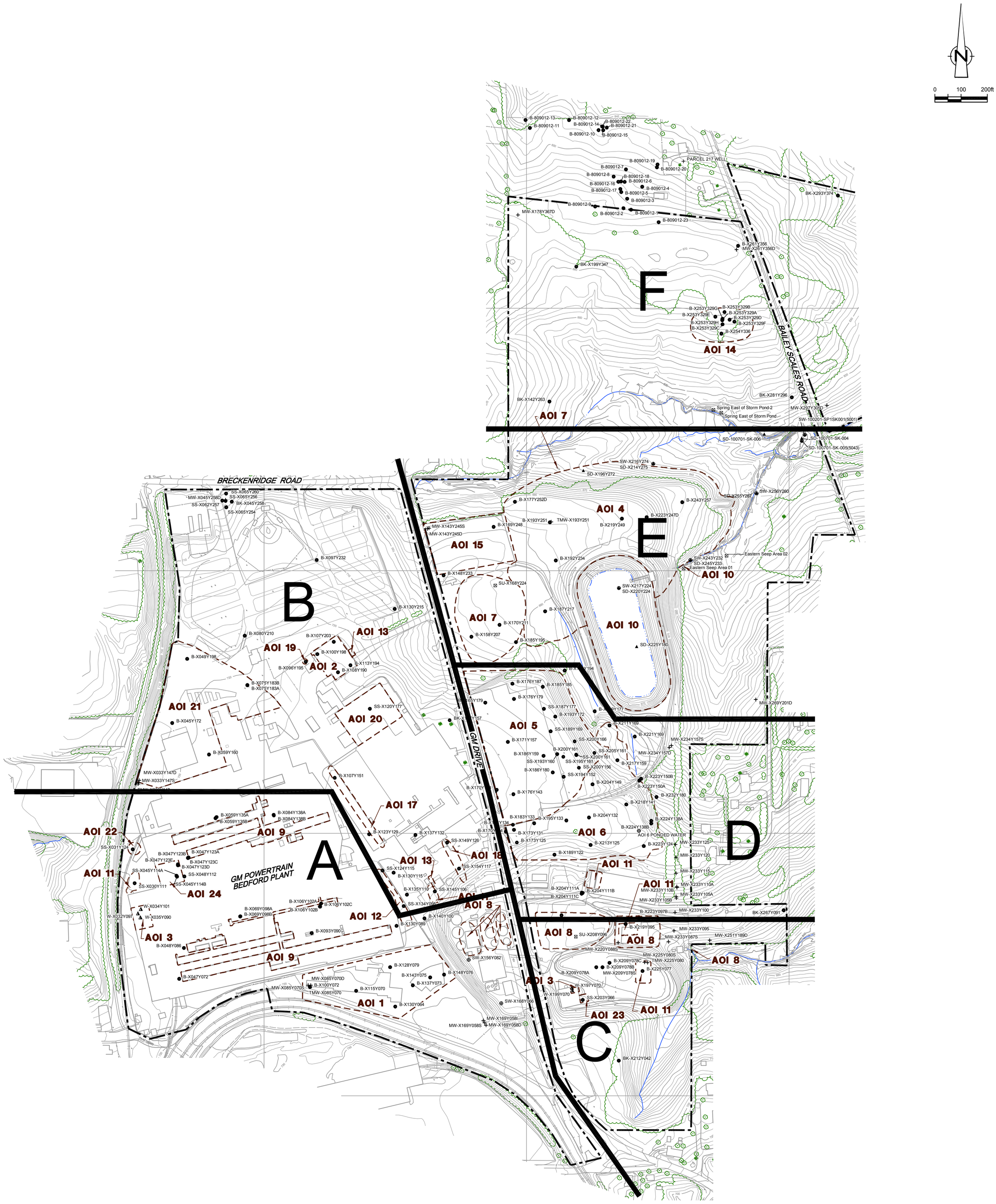
TABLE 4.2

RATIONALE FOR OFF-SITE TEST PIT LOCATIONS
GM POWERTRAIN BEDFORD FACILITY
BEDFORD, INDIANA

Test Pit Designation	*Test Pit Location*	*Amplitude of Response - Type of Survey*	*Rationale/ Purpose*	*Suspected Target*
AREA 3				
TP64	1725 E, 365 N to 1745 E, 345 N	Strong - EM31 (metal detection), strong - EM61 (metal detection)	To verify Anomalies A56 (north) and A57	Buried metal object/ metallic debris
TP65	1800 E, 310 to 335 N	Strong - EM31 (metal detection), strong - EM61 (metal detection)	To verify Anomalies A56 (north) and A57	Buried metal object/ metallic debris
TP66	1800 E, 275 to 300 N	Strong - EM61 (metal detection)	To verify Anomaly A56 (south)	Metallic debris/refuse
TP67	1830 E, 265 to 290 N	Strong - EM31 (metal detection), moderate - EM61 (metal detection)	To verify Anomaly A58	Buried metal object/ metallic debris
TP68	1750 E, 240 to 270 N	Strong - EM31 (metal detection), strong - EM61 (metal detection)	To verify Anomalies A59 and A60	Buried metal object/ metallic debris
TP69	1780 E, 230 N, to 1795 E, 210 N	Strong - EM31 (metal detection), strong - EM61 (metal detection)	To verify Anomalies A59 and A60	Buried metal object/ metallic debris
TP70	1810 E, 175 to 200 N	Strong - EM61 (metal detection)	To verify Anomaly A61	Metallic debris/refuse
AREA 4				
TP71	0 to 20 W, 270 N	Strong - EM31 (metal detection), weak EM61(metal detection), flanked by moderate EM31 (conductivity)	To verify Anomalies A62, A63 and A64	Buried metal object/ refuse
TP72	0 to 20 W, 220 N	Strong - EM31 (metal detection), weak EM61(metal detection), flanked by moderate EM31 (conductivity)	To verify Anomalies A62, A63 and A64	Buried metal object/ refuse
TP73	20 to 40 W, 180 N	Strong - EM31 (metal detection), weak EM61(metal detection), flanked by moderate EM31 (conductivity)	To verify Anomalies A62, A63 and A64	Buried metal object/ refuse

APPENDIX H

DATABOX DRAWINGS



LEGEND

- EXISTING GROUND SURFACE ELEVATION CONTOURS (feet AMSL)
- EXISTING VEGETATION
- EXISTING BUILDINGS
- FENCE LINE
- RAILROAD TRACKS
- DIRT ROADS
- ROADS / PAVED AREAS
- APPROXIMATE SURFACE WATER LOCATION
- APPROXIMATE GM PROPERTY BOUNDARY
- AOI BOUNDARY
- MW-X261Y356 — MONITORING WELL LOCATION
- SS-X045Y114 — RFI SURFACE SOIL SAMPLE LOCATION
- B-X115Y070 — RFI SOIL BORING SAMPLE LOCATION
- SD-X225Y180 — RFI SEDIMENT SAMPLE LOCATION
- SU-X208Y096 — RFI SPRING SAMPLE LOCATION
- SW-X168Y066 — RFI SURFACE WATER SAMPLE LOCATION
- W-X197Y070 — RFI WIPE SAMPLE LOCATION

AOI SUMMARY

AOI ID Description

AOI 1 Former Railroad Operations and Minerals Processing Facility
AOI 2 Waste Storage Area
AOI 3 PCB Storage Areas
AOI 4 Former North Disposal Area
AOI 5 Former East Sand Disposal Area
AOI 6 Former Sludge Disposal and Fire Training Area
AOI 7 Former North Lagoon and Outfall 001
AOI 8 Former South Lagoons and Outfall 002
AOI 9 Service Tunnels
AOI 10 Existing Stormwater Lagoon and Outfall 003
AOI 11 Aboveground Storage Tanks
AOI 12 Area Affected by the Reclaimed Hydraulic Fluid Release
AOI 13 Underground Storage Tanks
AOI 14 McBride Cows Disposal Area
AOI 15 Former Equipment Storage Area
AOI 17 Piston Building Oil Accumulations
AOI 18 Area Affected by the Henry System Discharge
AOI 19 Area Affected by Paint and Thinner Spill
AOI 20 Northern Portion of the Piston Building
AOI 21 Filled Ravine North of Die Cast Building
AOI 22 Tool Room Annex Dock Release
AOI 23 Area Affected by the 1996 Wastewater Treatment Filter Cake Release
AOI 24 Area Affected by the June 2000 Die Lube 5150 Release

NO	Revision	Date	Initial

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

GM POWERTRAIN BEDFORD PLANT
BEDFORD, INDIANA

RFI INVESTIGATION

ANALYTICAL RESULTS
SAMPLING LOCATIONS AND KEY MAP

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
BASE MAP COMPLETED BY AIR-LAND SURVEYS, FLINT, MI, APRIL 2001.

Project Manager:	Reviewed By:	Date:	
J.M.	M.K.	NOVEMBER 2003	
Scale: AS SHOWN	Project NO: 13968-00	Report NO: 045	Drawing NO: 1

13968-00(045)GN-WA039 APR 21/2005

SS-X045Y114A	1/31/2002 (3) 0-2(ft) mg/kg
Metals	
Aluminum	1300
Antimony	ND (6.3)
Arsenic	1
Chromium Total	6.7
Copper	2.7 J
Iron	2900
Lead	2.2
Manganese	97.4
Mercury	ND (0.1) U
Nickel	4.8
Thallium	0.67 J
Zinc	28.2 J
PCBs	
Total PCBs	ND (0.034) U
SVOAs	
Benzo(a)anthracene	ND (17)
Benzo(a)pyrene	ND (17)
Benzo(b)fluoranthene	ND (17)
bis(2-Ethylhexyl)phthalate	ND (17)
Dibenz(a,h)anthracene	ND (17)
Indeno(1,2,3-cd)pyrene	ND (17)

SS-X045Y114B	2/04/2002 10-12(ft) mg/kg
Metals	
Aluminum	14600
Antimony	ND (8.2) U
Arsenic	10.2
Chromium Total	51
Copper	12.5
Iron	49400
Lead	18
Manganese	57.4
Mercury	0.057 J
Nickel	8.7
Thallium	ND (1.4)
Zinc	27.3
PCBs	
Total PCBs	0.072 J
SVOAs	
Benzo(a)anthracene	ND (0.45)
Benzo(a)pyrene	ND (0.45)
Benzo(b)fluoranthene	ND (0.45)
bis(2-Ethylhexyl)phthalate	ND (0.45)
Dibenz(a,h)anthracene	ND (0.45)
Indeno(1,2,3-cd)pyrene	ND (0.45)
VOAs	
1,3-Dichlorobenzene	ND (0.007)
1,4-Dichlorobenzene	ND (0.007)
Chlorobenzene	ND (0.007)
Trichloroethene	ND (0.007)
Vinyl chloride	ND (0.007)

SS-X048Y112	1/31/2002 3-4(ft) mg/kg
Metals	
Aluminum	7570
Antimony	ND (7.3)
Arsenic	5.6
Chromium Total	11.3
Copper	8.4 J
Iron	15500
Lead	12.2
Manganese	451
Mercury	ND (0.12)
Nickel	8.4
Thallium	ND (1.2)
Zinc	40.7 J
PCBs	
Total PCBs	ND (0.04) U
SVOAs	
Benzo(a)anthracene	ND (0.4)
Benzo(a)pyrene	ND (0.4)
Benzo(b)fluoranthene	ND (0.4)
bis(2-Ethylhexyl)phthalate	ND (0.4)
Dibenz(a,h)anthracene	ND (0.4)
Indeno(1,2,3-cd)pyrene	ND (0.4)
VOAs	
1,3-Dichlorobenzene	ND (0.008)
1,4-Dichlorobenzene	ND (0.008)
Chlorobenzene	ND (0.008)
Trichloroethene	ND (0.008)
Vinyl chloride	ND (0.008)

B-X059Y135B	7/09/2002 2-4(ft) mg/kg	7/09/2002 6-8(ft) mg/kg	7/09/2002 34-36(ft) mg/kg	7/09/2002 40-42(ft) mg/kg
Metals				
Aluminum	11800	9100	4980	9450
Antimony	0.42 J	ND (7.1) UJ	ND (14.9) UJ	ND (8.1) UJ
Arsenic	3.4	6.7	5.2	4.9
Chromium Total	17.9	16.1	8.8	14.5
Copper	220	14.9	6.1 J	30.5
Iron	7160	18200	16900	17000
Lead	22.3	16.3	13.2	8
Manganese	105 J	67.3 J	172 J	297 J
Mercury	0.092 J	ND (0.12)	ND (0.12)	0.22
Nickel	14.6	6.5	45.1	23.3
Thallium	ND (1.1)	0.74 J	1.5 J	ND (1.4)
Zinc	56.6	23.5	91.4	49.4
PCBs				
Total PCBs	117 J {A}	0.204 J	0.061 J	0.069 J
SVOAs				
Benzo(a)anthracene	0.2 J	ND (0.39)	ND (0.41)	ND (0.45)
Benzo(a)pyrene	0.21 J	ND (0.39)	ND (0.41)	ND (0.45)
Benzo(b)fluoranthene	0.31 J	ND (0.39)	ND (0.41)	ND (0.45)
bis(2-Ethylhexyl)phthalate	ND (0.37)	ND (0.39)	ND (0.41)	ND (0.45)
Dibenz(a,h)anthracene	0.04 J	ND (0.39)	ND (0.41)	ND (0.45)
Indeno(1,2,3-cd)pyrene	0.13 J	ND (0.39)	ND (0.41)	ND (0.45)
VOAs				
1,3-Dichlorobenzene	ND (0.005)	ND (0.007)	ND (0.006)	ND (0.008)
1,4-Dichlorobenzene	ND (0.005)	ND (0.007)	ND (0.006)	ND (0.008)
Chlorobenzene	ND (0.005)	ND (0.007)	ND (0.006)	ND (0.008)
Trichloroethene	ND (0.005)	ND (0.007)	ND (0.006)	ND (0.008)
Vinyl chloride	ND (0.005)	ND (0.007)	ND (0.006)	ND (0.008)

B-X069Y098B	2/12/2002 3.5-5.5(ft) mg/kg	2/12/2002 6-8(ft) mg/kg	2/12/2002 20-22(ft) mg/kg	4/23/2002 (1) 36.5-36.6(ft) mg/kg	4/23/2002 (1) 44.5-44.6(ft) mg/kg
Metals					
Aluminum	12600 J	7280 J	9660 J	4690	2450
Antimony	R	R	0.79 J	ND (7.9)	ND (7.1)
Arsenic	8.4	5.2	7.8	29 {A}	7.9
Chromium Total	16.4 J	14 J	22 J	6.4	6.4
Copper	12.4	5.7	30	182	12.3
Iron	20900 J	21300 J	22700 J	29800	12400
Lead	10.9	7.4	36.6	111	10.6
Manganese	72.1 J	28.5 J	14800 J	95.7	135
Mercury	0.068 J	ND (0.12)	1.1 J	0.11 J	ND (0.12) U
Nickel	8.4 J	4.2 J	120 J	117	39.5
Thallium	ND (1.3)	ND (1.2)	5.2 J	3.4	0.99 J
Zinc	31.6 J	8.1 J	159 J	117	190
PCBs					
Total PCBs	ND (0.042) U	2.3 J	0.186 J	ND (0.044) U	0.041 J
SVOAs					
Benzo(a)anthracene	ND (0.42)	ND (0.4)	ND (0.45)	ND (0.44)	ND (0.39)
Benzo(a)pyrene	ND (0.42)	ND (0.4)	ND (0.45)	ND (0.44)	ND (0.39)
Benzo(b)fluoranthene	ND (0.42)	ND (0.4)	ND (0.45)	ND (0.44)	ND (0.39)
bis(2-Ethylhexyl)phthalate	ND (0.42)	ND (0.4)	ND (0.45)	ND (0.44)	ND (0.39)
Dibenz(a,h)anthracene	ND (0.42)	ND (0.4)	ND (0.45)	ND (0.44)	ND (0.39)
Indeno(1,2,3-cd)pyrene	ND (0.42)	ND (0.4)	ND (0.45)	ND (0.44)	ND (0.39)
VOAs					
1,3-Dichlorobenzene	ND (0.007)	ND (0.006)	ND (0.007)	-	-
1,4-Dichlorobenzene	ND (0.007)	0.004 J	ND (0.007)	-	-
Chlorobenzene	ND (0.007)	ND (0.006)	ND (0.007)	-	-
Trichloroethene	ND (0.007)	ND (0.006)	ND (0.007)	-	-
Vinyl chloride	ND (0.007)	ND (0.006)	ND (0.007)	-	-

B-X106Y102B	2/12/2002 2-4(ft) mg/kg	2/12/2002 6-8(ft) mg/kg	2/12/2002 20-22(ft) mg/kg
Metals			
Aluminum	7200 J	7690 J/8530 J	10500 J
Antimony	R	R/R	R
Arsenic	7.8	6.1/7.8	18.4
Chromium Total	15.6 J	18.4 J/33.6 J	37.1 J
Copper	10.6	5.1/6	20.2
Iron	25000 J	34900 J/39900 J	43500 J
Lead	14.2	10.6/11.8	15.8
Manganese	183 J	33.7 J/33.7 J	1530 J
Mercury	ND (0.12)	0.032 J/0.075 J	0.095 J
Nickel	6.5 J	3.8 J/5.2 J	82.2 J
Thallium	ND (1.2)	ND (1.2)/ND (1.2)	ND (7)
Zinc	22.7 J	9.7 J/15.2 J	141 J
PCBs			
Total PCBs	3690 J {A}	260 J {A}/96.9 J {A}	503 J {A}
SVOAs			
Benzo(a)anthracene	ND (0.4)	ND (0.41)/ND (0.41)	ND (0.46)
Benzo(a)pyrene	ND (0.4)	ND (0.41)/ND (0.41)	ND (0.46)
Benzo(b)fluoranthene	ND (0.4)	ND (0.41)/ND (0.41)	ND (0.46)
bis(2-Ethylhexyl)phthalate	0.27 J	0.79/0.38 J	1.5
Dibenz(a,h)anthracene	ND (0.4)	ND (0.41)/ND (0.41)	ND (0.46)
Indeno(1,2,3-cd)pyrene	ND (0.4)	ND (0.41)/ND (0.41)	ND (0.46)
VOAs			
1,3-Dichlorobenzene	ND (0.005)	0.021/0.014	0.23 J
1,4-Dichlorobenzene	0.002 J	0.092/0.061	0.67
Chlorobenzene	ND (0.005)	0.018/0.016	0.033 J
Trichloroethene	ND (0.005)	ND (0.006)/ND (0.008)	ND (0.38)
Vinyl chloride	ND (0.005)	ND (0.006)/ND (0.008)	ND (0.38)

B-X093Y090	5/07/2002 3-5(ft) mg/kg	5/07/2002 6-8(ft) mg/kg	5/07/2002 23-25(ft) mg/kg	5/07/2002 (1) 27-27.5(ft) mg/kg
Metals				
Aluminum	1330	2290	7480	1530
Antimony	ND (6.2)	ND (6.3)	ND (7.7)	ND (7.2)
Arsenic	0.79 J	1.2	6.2	1.3
Chromium Total	4.5	5.5	13.8	2.6
Copper	4.1	8.9	14.7	3.7
Iron	2630	3700	20200	5010
Lead	2.7	3.1	14.5	2
Manganese	101	117	869	92.6
Mercury	ND (0.1)	0.014 J	0.093 J	ND (0.12)
Nickel	5.1	5.9	32.4	7.2
Thallium	0.7 J	0.6 J	ND (1.3)	0.74 J
Zinc	33.5	28.5	79	18.8
PCBs				
Total PCBs	0.714 J	0.243 J	ND (0.043) U	ND (0.04) U
SVOAs				
Benzo(a)anthracene	ND (0.34)	ND (0.35)	ND (0.43)	ND (0.4)
Benzo(a)pyrene	ND (0.34)	ND (0.35)	ND (0.43)	ND (0.4)
Benzo(b)fluoranthene	ND (0.34)	ND (0.35)	ND (0.43)	ND (0.4)
bis(2-Ethylhexyl)phthalate	ND (0.34)	ND (0.35)	ND (0.43)	ND (0.4)
Dibenz(a,h)anthracene	ND (0.34)	ND (0.35)	ND (0.43)	ND (0.4)
Indeno(1,2,3-cd)pyrene	ND (0.34)	ND (0.35)	ND (0.43)	ND (0.4)
VOAs				
1,3-Dichlorobenzene	ND (0.007)	ND (0.006)	ND (0.007)	-
1,4-Dichlorobenzene	ND (0.007)	ND (0.006)	ND (0.007)	-
Chlorobenzene	ND (0.007)	ND (0.006)	ND (0.007)	-
Trichloroethene	ND (0.007)	ND (0.006)	ND (0.007)	-
Vinyl chloride	ND (0.007)	ND (0.006)	ND (0.007)	-

SS-X031Y124	1/18/2002 0-2(ft) mg/kg
Metals	
Aluminum	3590
Antimony	1410 {A}
Arsenic	24.6
Chromium Total	8.7
Copper	654
Iron	10400
Lead	10600 {A}
Manganese	158
Mercury	0.023 J
Nickel	9
Thallium	ND (1.1)
Zinc	83.7
PCBs	
Total PCBs	ND (0.037) U
SVOAs	
Benzo(a)anthracene	0.077 J
Benzo(a)pyrene	0.078 J
Benzo(b)fluoranthene	0.11 J
bis(2-Ethylhexyl)phthalate	ND (0.37)
Dibenz(a,h)anthracene	ND (0.37)
Indeno(1,2,3-cd)pyrene	ND (0.37)
VOAs	
1,3-Dichlorobenzene	ND (0.006) UJ
1,4-Dichlorobenzene	ND (0.006) UJ
Chlorobenzene	ND (0.006)
Trichloroethene	ND (0.006)
Vinyl chloride	ND (0.006)

B-X084Y138B	5/29/2002 6-8(ft) mg/kg
Metals	
Aluminum	1710
Antimony	ND (6.5)
Arsenic	1.5
Chromium Total	4.3
Copper	8.9
Iron	4410
Lead	6.9
Manganese	34.6
Mercury	ND (0.11) U
Nickel	6.7
Thallium	0.89 J
Zinc	19.4
PCBs	
Total PCBs	0.07 J
SVOAs	
Benzo(a)anthracene	ND (0.36)
Benzo(a)pyrene	ND (0.36)
Benzo(b)fluoranthene	ND (0.36)
bis(2-Ethylhexyl)phthalate	ND (0.36)
Dibenz(a,h)anthracene	ND (0.36)
Indeno(1,2,3-cd)pyrene	ND (0.36)
VOAs	
1,3-Dichlorobenzene	ND (0.006)
1,4-Dichlorobenzene	ND (0.006)
Chlorobenzene	ND (0.006)
Trichloroethene	ND (0.006)
Vinyl chloride	ND (0.006)

B-X106Y102C	4/29/2002 (1) 27.8-28(ft) mg/kg
Metals	
Aluminum	2860
Antimony	R
Arsenic	6.3 J
Chromium Total	3.9 J
Copper	8.2
Iron	14000
Lead	3.2
Manganese	138
Mercury	0.032 J
Nickel	12.7 J
Thallium	ND (1.1)
Zinc	21.2 J
PCBs	
Total PCBs	4.33 J
SVOAs	
Benzo(a)anthracene	ND (0.36)
Benzo(a)pyrene	ND (0.36)
Benzo(b)fluoranthene	ND (0.36)
bis(2-Ethylhexyl)phthalate	ND (0.36)
Dibenz(a,h)anthracene	ND (0.36)
Indeno(1,2,3-cd)pyrene	ND (0.36)

B-X130Y089	4/29/2002 0-2(ft) mg/kg	4/29/2002 6-8(ft) mg/kg	4/29/2002 24-25.5(ft) mg/kg	4/30/2002 (1) 31.33-31.83(ft) mg/kg
Metals				
Aluminum	1370	1570/1810	4520	4960
Antimony	R	R/R	1.6 J	1.2 J
Arsenic	0.56 J	0.67 J/0.78 J	8.3 J	22.5
Chromium Total	4.5 J	4.5 J/4.5 J	22.4 J	6.6
Copper	6.7	24/47.7	9.6	47.2 J
Iron	2550	2650/2180	44100	29300
Lead	2.8	2.8/3.3	17.8	66.4 J
Manganese	90.6	116/75.1	660	125
Mercury	ND (0.11)	ND (0.1)/0.013 J	0.018 J	0.07 J
Nickel	4.7 J	4.6 J/5.2 J	32.9 J	61.7 J
Thallium	ND (1.1)	ND (1)/ND (1)	ND (1.2)	1.1 J
Zinc	35.5 J	32.1 J/31.9 J	80.9 J	185 J
PCBs				
Total PCBs	0.051 J	0.109 J/0.081 J	ND (0.04) U	ND (0.041) U
SVOAs				
Benzo(a)anthracene	ND (0.35)	ND (0.34)/ND (0.35)	ND (0.4)	ND (0.41)
Benzo(a)pyrene	ND (0.35)	ND (0.34)/ND (0.35)	ND (0.4)	ND (0.41)
Benzo(b)fluoranthene	ND (0.35)	ND (0.34)/0.062 J	ND (0.4)	ND (0.41)
bis(2-Ethylhexyl)phthalate	ND (0.35)	ND (0.34)/ND (0.35)	ND (0.4)	ND (0.41)
Dibenz(a,h)anthracene	ND (0.35)	ND (0.34)/ND (0.35)	ND (0.4)	ND (0.41)
Indeno(1,2,3-cd)pyrene	ND (0.35)	ND (0.34)/ND (0.35)	ND (0.4)	ND (0.41)
VOAs				
1,3-Dichlorobenzene	ND (0.005)	ND (0.004)/ND (0.004)	ND (0.006)	ND (0.005) UJ
1,4-Dichlorobenzene	ND (0.005)	ND (0.004)/ND (0.004)	ND (0.006)	ND (0.005) UJ
Chlorobenzene	ND (0.005)	ND (0.004)/ND (0.004)	ND (0.006)	ND (0.005) UJ
Trichloroethene	ND (0.005)	ND (0.004)/ND (0.004)	ND (0.006)	ND (0.005)
Vinyl chloride	ND (0.005)	ND (0.004)/ND (0.004)	ND (0.006)	ND (0.005)

B-X140Y100	7/15/2002 0-2(ft) mg/kg	7/15/2002 6-8(ft) mg/kg	7/15/2002 13-15(ft) mg/kg
Metals			
Aluminum	1320	493	9760
Antimony	ND (6.6)	ND (6.5)	ND (7.6)
Arsenic	2.2	0.9 J	9.2
Chromium Total	4.8	5.2	48.6
Copper	11.3	2 J	9.4
Iron	5590	1680	37400
Lead	6.7	1.5	19.7
Manganese	67.2 J	50.1	63.8
Mercury	ND (0.11)	ND (0.11)	0.057 J
Nickel	6.6	2.3 J	6.8
Thallium	ND (1.1)	ND (1.1)	ND (1.3)
Zinc	105	18.3	19.9
PCBs			
Total PCBs	ND (0.037) U	ND (0.036) U	ND (0.042) U
SVOAs			
Benzo(a)anthracene	ND (0.37)	ND (0.36)	ND (0.42)
Benzo(a)pyrene	ND (0.37)	ND (0.36)	ND (0.42)
Benzo(b)fluoranthene	ND (0.37)	ND (0.36)	ND (0.42)
bis(2-Ethylhexyl)phthalate	0.044 J	ND (0.36)	ND (0.42)
Dibenz(a,h)anthracene	ND (0.37)	ND (0.36)	ND (0.42)
Indeno(1,2,3-cd)pyrene	ND (0.37)	ND (0.36)	ND (0.42)
VOAs			
1,3-Dichlorobenzene	ND (0.005)	ND (0.006)	ND (0.006)
1,4-Dichlorobenzene	ND (0.005)	ND (0.006)	ND (0.006)
Chlorobenzene	ND (0.005)	ND (0.006)	ND (0.006)
Trichloroethene	ND (0.005)	ND (0.006)	ND (0.006)
Vinyl chloride	ND (0.005)	ND (0.006)	ND (0.006)

B-X148Y076	3/08/2002 0-2(ft) mg/kg	3/08/2002 6-8(ft) mg/kg	3/08/2002 18-20(ft) mg/kg
Metals			
Aluminum	15300	2120	10500
Antimony	0.63 J	5.9 J	ND (77.7)
Arsenic	11.2	5.3	7.2 J
Chromium Total	35.9	4.6	27.6
Copper	207	315	16.1 J
Iron	27000	13600	22500
Lead	72.2	401	14.1
Manganese	493	140	1350
Mercury	0.058 J	0.097 J	0.52
Nickel	30.4	6.7	66.7
Thallium	ND (1.2)	0.85 J	4 J
Zinc	258	591	86.7
PCBs			
Total PCBs	ND (0.051) U	ND (0.035) U	ND (0.043) U
SVOAs			
Benzo(a)anthracene	ND (0.4)	0.059 J	ND (0.43)
Benzo(a)pyrene	ND (0.4)	0.068 J	ND (0.43)
Benzo(b)fluoranthene	0.11 J	0.088 J	ND (0.43)
bis(2-Ethylhexyl)phthalate	ND (0.4)	ND (0.35)	0.099 J
Dibenz(a,h)anthracene	ND (0.4)	ND (0.35)	ND (0.43)
Indeno(1,2,3-cd)pyrene	ND (0.4)	ND (0.35)	ND (0.43)
VOAs			
1,3-Dichlorobenzene	ND (0.007)	ND (0.009)	ND (0.007)
1,4-Dichlorobenzene	ND (0.007)	ND (0.009)	ND (0.007)
Chlorobenzene	ND (0.007)	ND (0.009)	ND (0.007)
Trichloroethene	ND (0.007)	ND (0.009)	ND (0.007)
Vinyl chloride	ND (0.007)	ND (0.009)	ND (0.007)

W-X034Y101	2/14/2002 - ug
PCBs	
Total PCBs	ND (4) U

(2)

W-X032Y097	2/14/2002 - ug
PCBs	
Total PCBs	ND (4) U

(2)

W-X035Y090	2/14/2002 - ug
PCBs	
Total PCBs	ND (4) U

(2)

B-X048Y086	2/06/2002 0-2(ft) mg/kg	2/06/2002 6-8(ft) mg/kg	2/06/2002 31-33(ft) mg/kg
Metals			
Aluminum	1880	2430	9550
Antimony	ND (6.2) UJ	ND (6.2) UJ	R
Arsenic	1.4	0.9 J	2.5
Chromium Total	4.9	4.3	15.2
Copper	4.5	6.1	7.8
Iron	4070	4690	17200
Lead	2.7	2.6	12.2
Manganese	106 J	156 J	353 J
Mercury	0.011 J	ND (0.1)	0.31
Nickel	5.2	10	30.6
Thallium	1	0.58 J	0.81 J
Zinc	28	33.4	44.9
PCBs			
Total PCBs	0.463 J	ND (0.034) U	ND (0.047) U
SVOAs			
Benzo(a)anthracene	0.33 J	ND (0.34)	ND (0.47)
Benzo(a)pyrene	0.31 J	ND (0.34)	ND (0.47)
Benzo(b)fluoranthene	0.45	ND (0.34)	ND (0.47)
bis(2-Ethylhexyl)phthalate	ND (0.34)	ND (0.34)	ND (0.47)
Dibenz(a,h)anthracene	ND (0.34)	ND (0.34)	ND (0.47)
Indeno(1,2,3-cd)pyrene	0.17 J	ND (0.34)	ND (0.47)
VOAs			
1,3-Dichlorobenzene	ND (0.008)	ND (0.008)	ND (0.008)
1,4-Dichlorobenzene	ND (0.008)	ND (0.008)	ND (0.008)
Chlorobenzene	ND (0.008)	ND (0.008)	ND (0.008)
Trichloroethene	ND (0.008)	ND (0.008)	ND (0.008)
Vinyl chloride	ND (0.008)	ND (0.008)	ND (0.008)

SS-X030Y111	1/21/2002 0-2(ft) mg/kg
Metals	
Aluminum	5570
Antimony	7
Arsenic	5.7
Chromium Total	11.6
Copper	20
Iron	13800
Lead	54.9
Manganese	180
Mercury	0.03 J
Nickel	7.3
Thallium	ND (1.2)
Zinc	55.5
PCBs	
Total PCBs	0.07 J
SVOAs	
Benzo(a)anthracene	0.089 J
Benzo(a)pyrene	0.11 J
Benzo(b)fluoranthene	0.16 J
bis(2-Ethylhexyl)phthalate	ND (0.39)
Dibenz(a,h)anthracene	ND (0.39)
Indeno(1,2,3-cd)pyrene	ND (0.39)
VOAs	
1,3-Dichlorobenzene	ND (0.005)
1,4-Dichlorobenzene	ND (0.005)
Chlorobenzene	ND (0.005)
Trichloroethene	ND (0.005)
Vinyl chloride	ND (0.005)

B-X047Y072	5/02/2002 0-2(ft) mg/kg	5/02/2002 6-8(ft) mg/kg	5/02/2002 35-36(ft) mg/kg	5/03/2002 (1) 39.5-40(ft) mg/kg
Metals				
Aluminum	1420	1700	12700	716
Antimony	ND (6.2)	ND (6.3)	ND (8)	ND (6.6)
Arsenic	0.85 J	0.61 J	4.8	0.76 J
Chromium Total	4.8	4.4	21.3	1.7
Copper	7.2	4.7	22.1	2 J
Iron	2490	5670	26300	2430
Lead	2.9	2.5	20	0.53
Manganese	75	125	142	71.2
Mercury	0.01 J	ND (0.1)	0.11 J	ND (0.11)
Nickel	5.4	6.9	28.8	1.5 J
Thallium	ND (1)	ND (1)	0.75 J	0.78 J
Zinc	25.5	30.6	110	11.6
PCBs				
Total PCBs	1.52 J	ND (0.035) U	ND (0.044) U	ND (0.036) U
SVOAs				
Benzo(a)anthracene	0.086 J	ND (0.35)	ND (0.44)	ND (0.36)
Benzo(a)pyrene	0.088 J	ND (0.35)	ND (0.44)	ND (0.36)
Benzo(b)fluoranthene	0.11 J	ND (0.35)	ND (0.44)	ND (0.36)
bis(2-Ethylhexyl)phthalate	ND (0.34)	ND (0.35)	ND (0.44)	ND (0.36)
Dibenz(a,h)anthracene	ND (0.34)	ND (0.35)	ND (0.44)	ND (0.36)
Indeno(1,2,3-cd)pyrene	ND (0.34)	ND (0.35)	ND (0.44)	ND (0.36)
VOAs				
1,3-Dichlorobenzene	ND (0.004)	ND (0.004)	ND (0.006)	-
1,4-Dichlorobenzene	ND (0.004)	ND (0.004)	ND (0.006)	-
Chlorobenzene	ND (0.004)	ND (0.004)	ND (0.006)	-
Trichloroethene	ND (0.004)	ND (0.004)	ND (0.006)	-
Vinyl chloride	ND (0.004)	ND (0.004)	ND (0.006)	-

B-X130Y064	3/07/2002 2-4(ft) mg/kg	3/07/2002 6-8(ft) mg/kg	3/07/2002 20-22(ft) mg/kg
Metals			
Aluminum	5140	9970	8690
Antimony	ND (7.3) UJ	ND (7.6) UJ	ND (37.3) UJ
Arsenic	10	9.2	8.1
Chromium Total	7.3 J	11.2 J	15.1 J
Copper	22.3	5.9	18.3
Iron	16900	17100	39400
Lead	16.1 J	15.4 J	34.2 J
Manganese	147	1550	450
Mercury	0.049 J	0.045 J	0.046 J
Nickel	14.5 J	8.4 J	102 J
Thallium	0.67 J	ND (1.3)	ND (6.2)
Zinc	49.9	22.2	87.8
PCBs			
Total PCBs	ND (0.04) U	ND (0.042) U	ND (0.041) U
SVOAs			
Benzo(a)anthracene	0.32 J	ND (0.42)	ND (0.41)
Benzo(a)pyrene	ND (0.4)	ND (0.42)	ND (0.41)
Benzo(b)fluoranthene	ND (0.4)	ND (0.42)	ND (0.41)
bis(2-Ethylhexyl)phthalate	ND (0.4)	ND (0.42)	ND (0.41)
Dibenz(a,h)anthracene	ND (0.4)	ND (0.42)	ND (0.41)
Indeno(1,2,3-cd)pyrene	ND (0.4)	ND (0.42)	ND (0.41)
VOAs			
1,3-Dichlorobenzene	ND (0.006)	ND (0.007)	ND (0.007)
1,4-Dichlorobenzene	ND (0.006)	ND (0.007)	ND (0.007)
Chlorobenzene	ND (0.006)	ND (0.007)	ND (0.007)
Trichloroethene	ND (0.006)	ND (0.007)	ND (0.007)
Vinyl chloride	ND (0.006)	ND (0.007)	ND (0.007)

MW-X169Y058S	2/06/2002 0-2(ft) mg/kg	2/06/2002 6-8(ft) mg/kg	2/06/2002 22-24(ft) mg/kg
Metals			
Aluminum	9680	11400	4820/9320
Antimony	ND (7.6) UJ	ND (8) UJ	ND (15.8) UJ/ND (38.9) UJ
Arsenic	8	9.2	7.4/16.9
Chromium Total	28.9	57.8	6.8/21.2
Copper	9.6	10.2	10/47.5
Iron	20000	41800	8710/21500
Lead	14.6	17	7.4/10.8
Manganese	193 J	72 J	178 J/275 J
Mercury	0.05 J	0.043 J	0.035 J/0.05 J
Nickel	7.7	11.5	50.9/151
Thallium	ND (1.3)	ND (1.3)	ND (2.6)/0.86 J
Zinc	26	34.2	35.7/141
PCBs			
Total PCBs	ND (0.042) U	ND (0.044) U	ND (0.043) U/ND (0.043) U
SVOAs			
Benzo(a)anthracene	ND (0.42)	ND (0.44)	ND (0.43)/ND (0.43)
Benzo(a)pyrene	ND (0.42)	ND (0.44)	ND (0.43)/ND (0.43)
Benzo(b)fluoranthene	ND (0.42)	ND (0.44)	ND (0.43)/ND (0.43)
bis(2-Ethylhexyl)phthalate	ND (0.42)	ND (0.44)	ND (0.43)/ND (0.43)
Dibenz(a,h)anthracene	ND (0.42)	ND (0.44)	ND (0.43)/ND (0.43)
Indeno(1,2,3-cd)pyrene	ND (0.42)	ND (0.44)	ND (0.43)/ND (0.43)
VOAs			
1,3-Dichlorobenzene	ND (0.006)	ND (0.007)	ND (0.009)/ND (0.006)
1,4-Dichlorobenzene	ND (0.006)	ND (0.007)	ND (0.009)/ND (0.006)
Chlorobenzene	ND (0.006)	ND (0.007)	ND (0.009)/ND (0.006)
Trichloroethene	ND (0.006)	ND (0.007)	ND (0.009)/ND (0.006)
Vinyl chloride	ND (0.006)	ND (0.007)	ND (0.009)/ND (0.006)

MW-X085Y070S	2/04/2002 0-2(ft) mg/kg	2/04/2002 8-10(ft) mg/kg	2/04/2002 22-23(ft) mg/kg
Metals			
Aluminum	4380/4920	9890	8090
Antimony	8.5/7.5	ND (7.2)	ND (15.4) U
Arsenic	21.1/22	3.7	12.7
Chromium Total	11.6/16.4	12.6	12.5
Copper	120/217	3.3	11.3
Iron	43900/39100	15400	34100
Lead	327/334	8.6	22.5
Manganese	294/249	7.3	175
Mercury	0.21/0.074 J	0.031 J	0.019 J
Nickel	28/39.7	4.4 J	45.5
Thallium	ND (1.2)/0.71 J	ND (1.2)	1.8 J
Zinc	246/332	9.6	91.7
PCBs			
Total PCBs	0.057 J/0.333 J	ND (0.04) U	0.642 J
SVOAs			
Benzo(a)anthracene	0.19 J/0.12 J	ND (0.4)	ND (0.42)
Benzo(a)pyrene	0.2 J/0.12 J	ND (0.4)	ND (0.42)
Benzo(b)fluoranthene	0.38 J/0.25 J	ND (0.4)	ND (0.42)
bis(2-Ethylhexyl)phthalate	ND (0.41)/ND (0.4)	ND (0.4)	ND (0.42)
Dibenz(a,h)anthracene	ND (0.41)/ND (0.4)	ND (0.4)	ND (0.42)
Indeno(1,2,3-cd)pyrene	0.11 J/ND (0.4)	ND (0.4)	ND (0.42)
VOAs			
1,3-Dichlorobenzene	ND (0.007) UJ/R	ND (0.005)	ND (0.006)
1,4-Dichlorobenzene	ND (0.007) UJ/R	ND (0.005)	ND (0.006)
Chlorobenzene	ND (0.007)/ND (0.006) UJ	ND (0.005)	ND (0.006)
Trichloroethene	ND (0.007)/ND (0.006)	ND (0.005)	ND (0.006)
Vinyl chloride	ND (0.007)/ND (0.006)	ND (0.005)	ND (0.006)

B-X100Y072	3/05/2002 0-2(ft) mg/kg	3/05/2002 6-8(ft) mg/kg	3/05/2002 24-26(ft) mg/kg
Metals			
Aluminum	9680/20600	11000	2990
Antimony	ND (6.6) UJ/ND (6.7) UJ	ND (7.8) UJ	ND (7.3) UJ
Arsenic	3.4/3

B-X100Y198	23/01/2002 0-2(ft) mg/kg	23/01/2002 6-8(ft) mg/kg	23/01/2002 33-35(ft) mg/kg
Metals			
Aluminum	2010	13200	9890/5950
Antimony	ND (7.3) UJ	ND (7.7) UJ	ND (7.7) UJ/ND (7.7) UJ
Arsenic	1.6	12	3/5.5
Chromium Total	4	16.6	15.8/11
Copper	27.5	17.5	19.1/20.3
Iron	2780	25800	19600/25300
Lead	5.3	15.3	14.5/13.5
Manganese	22.6 J	153 J	438 J/501 J
Mercury	ND (0.12) U	ND (0.13) U	ND (0.13) U/0.23
Nickel	7.9	11.4	36.1/45.7
Thallium	ND (1.2)	ND (1.3)	ND (1.3) U/ND (1.3) U
Zinc	17.4 J	41.2 J	135 J/229 J
PCBs			
Total PCBs	ND (0.04) U	ND (0.042) U	ND (0.042) U/ND (0.042) U
SVOAs			
Benzo(a)anthracene	ND (0.4)	ND (0.42)	ND (0.42)/ND (0.42)
Benzo(a)pyrene	ND (0.4)	ND (0.42)	ND (0.42)/ND (0.42)
Benzo(b)fluoranthene	ND (0.4)	ND (0.42)	ND (0.42)/ND (0.42)
bis(2-Ethylhexyl)phthalate	ND (0.4)	ND (0.42)	ND (0.42)/ND (0.42)
Dibenz(a,h)anthracene	ND (0.4)	ND (0.42)	ND (0.42)/ND (0.42)
Indeno(1,2,3-cd)pyrene	ND (0.4)	ND (0.42)	ND (0.42)/ND (0.42)
VOAs			
1,3-Dichlorobenzene	ND (0.008)	ND (0.006)	ND (0.006)/ND (0.006)
1,4-Dichlorobenzene	ND (0.008)	ND (0.006)	ND (0.006)/ND (0.006)
Chlorobenzene	ND (0.008)	ND (0.006)	ND (0.006)/ND (0.006)
Trichloroethene	ND (0.008)	ND (0.006)	ND (0.006)/ND (0.006)
Vinyl chloride	ND (0.008)	ND (0.006)	ND (0.006)/ND (0.006)

MW-X045Y258D	30/01/2002 0-2(ft) mg/kg
Metals	
Aluminum	19900/19400
Antimony	0.77 J/0.85 J
Arsenic	6.2/9.1
Chromium Total	34.3 J/27.1 J
Copper	490/363
Iron	17400/28800
Lead	46.6 J/37.2 J
Manganese	243 J/181 J
Mercury	0.16/0.14
Nickel	46.8 J/30.9 J
Thallium	ND (1.2) U/ND (1.2)
Zinc	111 J/94.5 J
PCBs	
Total PCBs	58.5 J (A)/4.18 J
SVOAs	
Benzo(a)anthracene	ND (0.39)/ND (0.39)
Benzo(a)pyrene	ND (0.39)/ND (0.39)
Benzo(b)fluoranthene	ND (0.39)/ND (0.39)
bis(2-Ethylhexyl)phthalate	0.072 J/0.067 J
Dibenz(a,h)anthracene	ND (0.39)/ND (0.39)
Indeno(1,2,3-cd)pyrene	ND (0.39)/ND (0.39)
VOAs	
1,3-Dichlorobenzene	ND (0.006)/ND (0.005)
1,4-Dichlorobenzene	ND (0.006)/ND (0.005)
Chlorobenzene	ND (0.006)/ND (0.005)
Trichloroethene	ND (0.006)/ND (0.005)
Vinyl chloride	ND (0.006)/ND (0.005)

B-X107Y203	23/01/2002 0-2(ft) mg/kg	23/01/2002 6-8(ft) mg/kg	23/01/2002 31-32(ft) mg/kg
Metals			
Aluminum	461	7590	7860
Antimony	ND (6.4) UJ	ND (7.5) UJ	ND (7.6) UJ
Arsenic	0.76 J	4.2	6.2
Chromium Total	24.2	14.9	11.7
Copper	18.8	22.1	13.2
Iron	1880	12500	19400
Lead	7.9	11.7	13.5
Manganese	9.1 J	163 J	256 J
Mercury	0.3	ND (0.13) U	ND (0.13) U
Nickel	83.5	14.2	37.2
Thallium	ND (1.1)	ND (1.3) U	ND (1.3) U
Zinc	6.8 J	37.5 J	85.6 J
PCBs			
Total PCBs	2.85 J	ND (0.041) U	ND (0.042) U
SVOAs			
Benzo(a)anthracene	ND (0.35)	ND (0.41)	ND (0.42)
Benzo(a)pyrene	ND (0.35)	ND (0.41)	ND (0.42)
Benzo(b)fluoranthene	ND (0.35)	ND (0.41)	ND (0.42)
bis(2-Ethylhexyl)phthalate	ND (0.35)	ND (0.41)	ND (0.42)
Dibenz(a,h)anthracene	ND (0.35)	ND (0.41)	ND (0.42)
Indeno(1,2,3-cd)pyrene	ND (0.35)	ND (0.41)	ND (0.42)
VOAs			
1,3-Dichlorobenzene	ND (0.006)	ND (0.005)	ND (0.006)
1,4-Dichlorobenzene	ND (0.006)	ND (0.005)	ND (0.006)
Chlorobenzene	ND (0.006)	ND (0.005)	ND (0.006)
Trichloroethene	ND (0.006)	ND (0.005)	ND (0.006)
Vinyl chloride	ND (0.006)	ND (0.005)	ND (0.006)

B-X097Y232	14/02/2002 0-2(ft) mg/kg	14/02/2002 6-8(ft) mg/kg	14/02/2002 18-20(ft) mg/kg
Metals			
Aluminum	13500	13400	4540
Antimony	0.64 J	ND (7.6)	ND (7.5)
Arsenic	10.6	9	4.4
Chromium Total	17.8	23.8	5.8
Copper	15.1	18.5	8.4
Iron	30900	32700	19300
Lead	13.4	20.9	8.9
Manganese	248	63	135
Mercury	0.063 J	0.018 J	0.026 J
Nickel	11.9	22.1	17.9
Thallium	ND (1.2)	ND (1.3)	ND (1.2)
Zinc	42.7	43.9	20
PCBs			
Total PCBs	ND (0.04) U	ND (0.042) U	ND (0.041) U
SVOAs			
Benzo(a)anthracene	ND (0.4)	ND (0.42)	ND (0.41) UJ
Benzo(a)pyrene	ND (0.4)	ND (0.42)	ND (0.41) UJ
Benzo(b)fluoranthene	ND (0.4)	ND (0.42)	ND (0.41) UJ
bis(2-Ethylhexyl)phthalate	ND (0.4)	ND (0.42)	ND (0.41) UJ
Dibenz(a,h)anthracene	ND (0.4)	ND (0.42)	ND (0.41) UJ
Indeno(1,2,3-cd)pyrene	ND (0.4)	ND (0.42)	ND (0.41) UJ
VOAs			
1,3-Dichlorobenzene	ND (0.007)	ND (0.006)	ND (0.007)
1,4-Dichlorobenzene	ND (0.007)	ND (0.006)	ND (0.007)
Chlorobenzene	ND (0.007)	ND (0.006)	ND (0.007)
Trichloroethene	ND (0.007)	ND (0.006)	ND (0.007)
Vinyl chloride	ND (0.007)	ND (0.006)	ND (0.007)

B-X108Y190	24/01/2002 0-2(ft) mg/kg	24/01/2002 6-8(ft) mg/kg	24/01/2002 31-32(ft) mg/kg
Metals			
Aluminum	13100	33100	6630
Antimony	ND (7.1) UJ	ND (7.7) UJ	ND (15.3) UJ
Arsenic	1.8	1.9	10.6
Chromium Total	11.8 J	30.4 J	13.1 J
Copper	442 J	559 J	13.1 J
Iron	3970	5910	23800
Lead	21.5	25.9	13.2
Manganese	80.6 J	117 J	283 J
Mercury	0.038 J	0.038 J	0.066 J
Nickel	38.8	60.3	38.9
Thallium	ND (1.2)	ND (1.3)	ND (2.6)
Zinc	88.7	60.3	106
PCBs			
Total PCBs	ND (0.039) U	ND (0.042) U	ND (0.042) U
SVOAs			
Benzo(a)anthracene	ND (0.39)	ND (0.42)	ND (0.42)
Benzo(a)pyrene	ND (0.39)	ND (0.42)	ND (0.42)
Benzo(b)fluoranthene	ND (0.39)	ND (0.42)	ND (0.42)
bis(2-Ethylhexyl)phthalate	ND (0.39)	ND (0.42)	ND (0.42)
Dibenz(a,h)anthracene	ND (0.39)	ND (0.42)	ND (0.42)
Indeno(1,2,3-cd)pyrene	ND (0.39)	ND (0.42)	ND (0.42)
VOAs			
1,3-Dichlorobenzene	ND (0.006)	ND (0.006)	ND (0.007)
1,4-Dichlorobenzene	ND (0.006)	ND (0.006)	ND (0.007)
Chlorobenzene	ND (0.006)	ND (0.006)	ND (0.007)
Trichloroethene	ND (0.006)	ND (0.006)	ND (0.007)
Vinyl chloride	ND (0.006)	ND (0.006)	ND (0.007)

B-X113Y194	24/01/2002 0-2(ft) mg/kg	24/01/2002 6-8(ft) mg/kg	24/01/2002 32-34(ft) mg/kg
Metals			
Aluminum	83400	1970	3790
Antimony	4.5 J	ND (7.2) UJ	ND (38.7) UJ
Arsenic	2.1	2.7	9.3
Chromium Total	39.1 J	15 J	8 J
Copper	6360 J	14.6 J	11.9 J
Iron	2990	6650	25000
Lead	49.7	79.4	12.2
Manganese	384 J	218 J	271 J
Mercury	ND (0.12)	0.027 J	0.054 J
Nickel	91	5.7	50.8
Thallium	0.77 J	ND (1.2)	ND (6.4)
Zinc	339	43.3	165
PCBs			
Total PCBs	ND (0.039) U	ND (0.04) U	ND (0.043) U
SVOAs			
Benzo(a)anthracene	ND (0.39)	ND (0.4)	ND (0.43)
Benzo(a)pyrene	ND (0.39)	ND (0.4)	ND (0.43)
Benzo(b)fluoranthene	ND (0.39)	ND (0.4)	ND (0.43)
bis(2-Ethylhexyl)phthalate	ND (0.39)	ND (0.4)	ND (0.43)
Dibenz(a,h)anthracene	ND (0.39)	ND (0.4)	ND (0.43)
Indeno(1,2,3-cd)pyrene	ND (0.39)	ND (0.4)	ND (0.43)
VOAs			
1,3-Dichlorobenzene	ND (0.01)	ND (0.006)	ND (0.006)
1,4-Dichlorobenzene	ND (0.01)	ND (0.006)	ND (0.006)
Chlorobenzene	ND (0.01)	ND (0.006)	ND (0.006)
Trichloroethene	ND (0.01)	ND (0.006)	0.001 J
Vinyl chloride	ND (0.01)	ND (0.006)	ND (0.006)

SS-X120Y177	31/01/2002 3-4(ft) mg/kg
Metals	
Aluminum	1550
Antimony	ND (6.4)
Arsenic	2.7
Chromium Total	3.8
Copper	6.8 J
Iron	7800
Lead	2.7
Manganese	377
Mercury	ND (0.11)
Nickel	8.8
Thallium	ND (1.1)
Zinc	34.6 J
PCBs	
Total PCBs	ND (0.035) U
SVOAs	
Benzo(a)anthracene	ND (0.35)
Benzo(a)pyrene	ND (0.35)
Benzo(b)fluoranthene	ND (0.35)
bis(2-Ethylhexyl)phthalate	ND (0.35)
Dibenz(a,h)anthracene	ND (0.35)
Indeno(1,2,3-cd)pyrene	ND (0.35)
VOAs	
1,3-Dichlorobenzene	ND (0.006)
1,4-Dichlorobenzene	ND (0.006)
Chlorobenzene	ND (0.006)
Trichloroethene	ND (0.006)
Vinyl chloride	ND (0.006)

B-X080Y210	14/02/2002 0-2(ft) mg/kg	14/02/2002 6-8(ft) mg/kg	14/02/2002 32-34(ft) mg/kg
Metals			
Aluminum	5140	8420	4360
Antimony	ND (7)	ND (7.5)	ND (8.7)
Arsenic	1.9	4.9	2.2
Chromium Total	12.4	10.5	5.1
Copper	96.3	8.3	6.9
Iron	5590	12200	19500
Lead	10.2	19.6	4.2
Manganese	48	169	440
Mercury	0.027 J	0.046 J	0.028 J
Nickel	26.2	8.5	11.6
Thallium	ND (1.2)	ND (1.2)	0.77 J
Zinc	65.5	35.9	38.7
PCBs			
Total PCBs	ND (0.038) U	ND (0.041) U	ND (0.048) U
SVOAs			
Benzo(a)anthracene	ND (0.38)	ND (0.41)	ND (0.48)
Benzo(a)pyrene	ND (0.38)	ND (0.41)	ND (0.48)
Benzo(b)fluoranthene	ND (0.38)	ND (0.41)	ND (0.48)
bis(2-Ethylhexyl)phthalate	ND (0.38)	ND (0.41)	ND (0.48)
Dibenz(a,h)anthracene	ND (0.38)	ND (0.41)	ND (0.48)
Indeno(1,2,3-cd)pyrene	ND (0.38)	ND (0.41)	ND (0.48)
VOAs			
1,3-Dichlorobenzene	ND (0.007)	ND (0.006)	ND (0.009)
1,4-Dichlorobenzene	ND (0.007)	ND (0.006)	ND (0.009)
Chlorobenzene	ND (0.007)	ND (0.006)	ND (0.009)
Trichloroethene	ND (0.007)	ND (0.006)	ND (0.009)
Vinyl chloride	ND (0.007)	ND (0.006)	ND (0.009)

SS-X065Y256	27/08/2002 (2) 0-1.17(ft) mg/kg
PCBs	
Total PCBs	0.33 J

SS-X062Y257	27/08/2002 (2) 0-2(ft) mg/kg
PCBs	
Total PCBs	1.94 J/1.57 J

SS-X065Y260	27/08/2002 (2) 0-2(ft) mg/kg
PCBs	
Total PCBs	3.84 J

B-X130Y215	13/02/2002 0-2(ft) mg/kg	13/02/2002 6-8(ft) mg/kg	13/02/2002 33-35(ft) mg/kg
Metals			
Aluminum	14700	11500	2060
Antimony	ND (7.6) UJ	ND (7.6) UJ	ND (7.6) UJ
Arsenic	8.3	7.4	2.7
Chromium Total	15.5	23.8	4.5
Copper	12.2	11.5	4.4
Iron	20000	28000	7440
Lead	17.9	12.9	5.6
Manganese	405	27.7	164
Mercury	0.077 J	ND (0.13)	0.095 J
Nickel	12	9.6	7.6
Thallium	0.72 J	ND (1.3)	1.4
Zinc	41.9	31.8	25.5
PCBs			
Total PCBs	ND (0.042) U	ND (0.042) U	ND (0.042) U
SVOAs			
Benzo(a)anthracene	ND (0.42)	ND (0.42)	ND (0.42)
Benzo(a)pyrene	ND (0.42)	ND (0.42)	ND (0.42)
Benzo(b)fluoranthene	ND (0.42)	ND (0.42)	ND (0.42)
bis(2-Ethylhexyl)phthalate	ND (0.42)	ND (0.42)	ND (0.42)
Dibenz(a,h)anthracene	ND (0.42)	ND (0.42)	ND (0.42)
Indeno(1,2,3-cd)pyrene	ND (0.42)	ND (0.42)	ND (0.42)
VOAs			
1,3-Dichlorobenzene	ND (0.006)	ND (0.007)	ND (0.006)
1,4-Dichlorobenzene	0.003 J	ND (0.007)	ND (0.006)
Chlorobenzene	ND (0.006)	ND (0.007)	ND (0.006)
Trichloroethene	ND (0.006)	ND (0.007)	ND (0.006)
Vinyl chloride	ND (0.006)	ND (0.007)	ND (0.006)

BK-X157Y157	06/06/2002 0-2(ft) mg/kg	06/06/2002 6-8(ft) mg/kg
Metals		
Aluminum	13100	10800
Antimony	ND (7.5) U	ND (7.7) U
Arsenic	7.6	5.7
Chromium Total	43.6	27.2
Copper	11.5	19.5
Iron	32600	30400
Lead	21.1	16
Manganese	42.4	141
Mercury	ND (0.12)	ND (0.13)
Nickel	11.6	19.4
Thallium	ND (1.2)	ND (1.3)
Zinc	55.2	81.9
PCBs		
Total PCBs	ND (0.041) U	ND (0.043) U
SVOAs		
Benzo(a)anthracene	ND (0.41)	ND (0.43)
Benzo(a)pyrene	ND (0.41)	ND (0.43)
Benzo(b)fluoranthene	ND (0.41)	ND (0.43)
bis(2-Ethylhexyl)phthalate	ND (0.41)	ND (0.43)
Dibenz(a,h)anthracene	ND (0.41)	ND (0.43)
Indeno(1,2,3-cd)pyrene	ND (0.41)	ND (0.43)
VOAs		
1,3-Dichlorobenzene	ND (0.008)	ND (0.008)
1,4-Dichlorobenzene	ND (0.008) U	ND (0.008) U
Chlorobenzene	ND (0.008)	ND (0.008)
Trichloroethene	ND (0.008)	ND (0.008)
Vinyl chloride	ND (0.008)	ND (0.008)

SS-X065Y254	27/08/2002 (2) 0-0.67(ft) mg/kg
PCBs	
Total PCBs	0.547 J

BK-X045Y258	06/06/2002 (2) 0-2(ft) mg/kg
PCBs	
Total PCBs	2.26 J

B-X049Y198	29/01/2002 0-2(ft) mg/kg	29/01/2002 6-8(ft) mg/kg	29/01/2002 10.5-11.5(ft) mg/kg	29/01/2002 36-38(ft) mg/kg
Metals				
Aluminum	1270	2060	11100	5400/4290
Antimony	ND (7.2)	ND (7)	ND (7.6)	ND (8.6)/ND (7.4)
Arsenic	1.4	1.6	6.9	29 (A)/6.1
Chromium Total	8.2	7.8	12.8	8.1/8.6
Copper	15.2	30.7	9.4	9.8/40
Iron	2590	3050	17300	24300/12000
Lead	3.2	3.9	13.4	8.9/6.5
Manganese	53.7	72.8	520	837/239
Mercury	ND (0.12)	0.046 J	0.019 J	ND (0.14)/ND (0.12)
Nickel	18.7	45.5	10.1	78.8/25.7
Thallium	ND (1.2)	ND (1.2)	ND (1.3)	0.98 J/ND (1.2)
Zinc	24.2	27.2	33.2	26.8/22.4
PCBs				
Total PCBs	ND (0.039) U	ND (0.039) U	ND (0.042) U	ND (0.047) U/ND (0.041) U
SVOAs				
Benzo(a)anthracene	ND (0.39)	ND (0.39)	ND (0.42)	ND (0.47)/0.097 J
Benzo(a)pyrene	ND (0.39)	ND (0.39)	ND (0.42)	ND (0.47)/ND (0.41)
Benzo(b)fluoranthene	ND (0.39)	ND (0.39)	ND (0.42)	ND (0.47)/ND (0.41)
bis(2-Ethylhexyl)phthalate	ND (0.39)	ND (0.39)	ND (0.42)	ND (0.47)/ND (0.41)
Dibenz(a,h)anthracene	ND (0.39)	ND (0.39)	ND (0.42)	ND (0.47)/ND (0.41)
Indeno(1,2,3-cd)pyrene	ND (0.39)	ND (0.39)	ND (0.42)	ND (0.47)/ND (0.41)
VOAs				
1,3-Dichlorobenzene	ND (0.007)	ND (0.007)	ND (0.007)	ND (0.008)/ND (0.006)
1,4-Dichlorobenzene	ND (0.007)	ND (0.007)	ND (0.007)	ND (0.008)/ND (0.006)
Chlorobenzene	ND (0.007)	ND (0.007)	ND (0.007)	ND (0.008)/ND (0.006)
Trichloroethene	ND (0.007)	ND (0.007)	ND (0.007)	ND (0.008)/ND (0.006)
Vinyl chloride	ND (0.007)	ND (0.007)	ND (0.007)	ND (0.008)/ND (0.006)

B-X096Y195	25/01/2002 0-2(ft) mg/kg	25/01/2002 6-8(ft) mg/kg	25/01/2002 30-32(ft) mg/kg (1)
PCBs			
Total PCBs	ND (0.042) U	ND (0.041) U	ND (0.042) U
VOAs			
1,3-Dichlorobenzene	ND (0.006)	ND (0.006)	ND (0.006)
1,4-Dichlorobenzene	ND (0.006)	ND (0.006)	ND (0.006)
Chlorobenzene	ND (0.006)	ND (0.006)	ND (0.006)
Trichloroethene	ND (0.006)	ND (0.006)	ND (0.006)
Vinyl chloride	ND (0.006)	ND (0.006)	ND (0.006)

B-X045Y172	31/01/2002 0-2(ft) mg/kg	31/01/2002 6-8(ft) mg/kg	31/01/2002 18-20(ft) mg/kg
Metals			
Aluminum	4270	2050	4410
Antimony	ND (6.7)	ND (6.7)	0.76 J
Arsenic	2	2.3	1.6
Chromium Total	7.9	11	10.3
Copper	98.6 J	36 J	88.8 J
Iron	3180	4570	3130
Lead	7.7	5.6	10.3
Manganese	40.7	55	42.6
Mercury	0.13	ND (0.11) U	ND (0.12) U
Nickel	17.9	21.1	19.5
Thallium	ND (1.1)	ND (1.1)	1 J
Zinc	83 J	42.2 J	183 J
PCBs			
Total PCBs	ND (0.037) U	ND (0.037) U	ND (0.04) U
SVOAs			
Benzo(a)anthracene	ND (0.37)	ND (0.37)	ND (0.4)
Benzo(a)pyrene	ND (0.37)	ND (0.37)	ND (0.4)
Benzo(b)fluoranthene	ND (0.37)	ND (0.37)	ND (0.4)
bis(2-Ethylhexyl)phthalate	ND (0.37)	ND (0.37)	ND (0.4)
Dibenz(a,h)anthracene	ND (0.37)	ND (0.37)	ND (0.4)
Indeno(1,2,3-cd)pyrene	ND (0.37)	ND (0.37)	ND (0.4)
VOAs			
1,3-Dichlorobenzene	ND (0.006)	ND (0.007) UJ	ND (0.006)
1,4-Dichlorobenzene	ND (0.006)	ND (0.007) UJ	ND (0.006)
Chlorobenzene	ND (0.006)	ND (0.007)	ND (0.006)
Trichloroethene	ND (0.006)	ND (0.007)	ND (0.006)
Vinyl chloride	ND (0.006)	ND (0.007)	ND (0.006)

SS-X149Y126	28/01/2002 0-2(ft) mg/kg
Metals	
Aluminum	16300
Antimony	1.2 J
Arsenic	11.3
Chromium Total	61.9
Copper	14.2
Iron	53200
Lead	24.4
Manganese	43.3
Mercury	ND (0.13)
Nickel	11.7
Thallium	ND (1.3)
Zinc	43.2
PCBs	
Total PCBs	ND (0.044) U
SVOAs	
Benzo(a)anthracene	ND (0.44)
Benzo(a)pyrene	ND (0.44)
Benzo(b)fluoranthene	ND (0.44)
bis(2-Ethylhexyl)phthalate	ND (0.44)
Dibenz(a,h)anthracene	ND (0.44)
Indeno(1,2,3-cd)pyrene	ND (0.44)
VOAs	
1,3-Dichlorobenzene	ND (0.008)
1,4-Dichlorobenzene	ND (0.008)
Chlorobenzene	ND (0.008)
Trichloroethene	ND (0.008)
Vinyl chloride	ND (0.008)

B-X137Y132	15/02/2002 2-4(ft) mg/kg	15/02/2002 6-8(ft) mg/kg	15/02/2002 22-24(ft) mg/kg
Metals			
Aluminum	10800	11100	8070
Antimony	0.75 J	ND (8.2)	ND (7.2)
Arsenic	8	2.6	5.3
Chromium Total	35	18	19.5
Copper	12	8.6	25.9
Iron	37200	12400	22800
Lead	15.4	9.8	24.5
Manganese	59.8	24.1	735
Mercury	0.033 J	0.072 J	0.06 J
Nickel	9.3	7	40.7
Thallium	ND (1.4)	ND (1.4)	0.71 J
Zinc	30.2	23.2	97.1
PCBs			
Total PCBs	ND (0.046) U	ND (0.045) U	ND (0.04) U
SVOAs			
Benzo(a)anthracene	ND (0.46)	ND (0.45)	ND (0.4)
Benzo(a)pyrene	ND (0.46)	ND (0.45)	ND (0.4)
Benzo(b)fluoranthene	ND (0.46)	ND (0.45)	ND (0.4)
bis(2-Ethylhexyl)phthalate	ND (0.46)	ND (0.45)	ND (0.4)
Dibenz(a,h)anthracene	ND (0.46)	ND (0.45)	ND (0.4)
Indeno(1,2,3-cd)pyrene	ND (0.46)	ND (0.45)	ND (0.4)
VOAs			
1,3-Dichlorobenzene	ND (0.007)	ND (0.008)	ND (0.007)
1,4-Dichlorobenzene	ND (0.007)	ND (0.008)	ND (0.007)
Chlorobenzene	ND (0.007)	ND (0.008)	ND (0.007)
Trichloroethene	ND (0.007)	ND (0.008)	ND (0.007)
Vinyl chloride	ND (0.007)	0.006 J	ND (0.007)

MW-X033Y147S	12/02/2002 1-3(ft) mg/kg	12/02/2002 7-9(ft) mg/kg	12/02/2002 17-19(ft) mg/kg	12/02/2002 33-35(ft) mg/kg
Metals				
Aluminum	11900 J/14500 J	3370 J	2350 J	8550 J
Antimony	0.78 J/R	R	R	R
Arsenic	1.6/1.8	3.4	2.5	7.4
Chromium Total	7.5 J/10.9 J	18 J	11.9 J	11.5 J
Copper	225/396	37.9	39.9	15.4
Iron	3170 J/4740 J	12500 J	4090 J	21600 J
Lead	28/34.9	15	16.6	19.3
Manganese	53.2 J/69.2 J	112 J	65.7 J	111 J
Mercury	0.061 J/0.053 J	0.065 J	0.24 J	0.088 J
Nickel	22.6 J/18.4 J	17.3 J	21.9 J	29.2 J
Thallium	ND (1.2)/ND (1.2)	ND (1.3)	ND (1.2)	ND (2.8)
Zinc	54.6 J/49.7 J	43.5 J	37.4 J	57.2 J
PCBs				
Total PCBs	0.058 J/ND (0.04) U	0.073 J	ND (0.04) U	0.152 J
SVOAs				
Benzo(a)anthracene	ND (0.4)/ND (0.4)	ND (0.43)	ND (0.4)	ND (0.47)
Benzo(a)pyrene	ND (0.4)/ND (0.4)	ND (0.43)	ND (0.4)	ND (0.47)
Benzo(b)fluoranthene	ND (0.4)/ND (0.4)	ND (0.43)	ND (0.4)	ND (0.47)
bis(2-Ethylhexyl)phthalate	ND (0.4)/ND (0.4)	ND (0.43)	ND (0.4)	ND (0.47)
Dibenz(a,h)anthracene	ND (0.4)/ND (0.4)	ND (0.43)	ND (0.4)	ND (0.47)
Indeno(1,2,3-cd)pyrene	ND (0.4)/ND (0.4)	ND (0.43)	ND (0.4)	ND (0.47)
VOAs				
1,3-Dichlorobenzene	ND (0.005)/ND (0.006)	ND (0.005)	ND (0.005)	ND (0.006)
1,4-Dichlorobenzene	ND (0.005)/ND (0.006)	ND (0.005)	ND (0.005)	ND (0.006)
Chlorobenzene	ND (0.005)/ND (0.006)	ND (0.005)	ND (0.005)	ND (0.006)
Trichloroethene	ND (0.005)/ND (0.006)	ND (0.005)	ND (0.005)	ND (0.006)
Vinyl chloride	ND (0.005)/ND (0.006)	ND (0.005)	ND (0.005)	ND (0.006)

B-X107Y151	15/01/2002 0-2(ft) mg/kg	15/01/2002 6-8(ft) mg/kg	15/01/2002 31.5-33.5(ft) mg/kg
Metals			
Aluminum	1320	8960	3750
Antimony	ND (7.1)	0.59 J	ND (16)
Arsenic	1.8	10.4	9.1
Chromium Total	6.1	69.2	5.6
Copper	3.3	7	26.9
Iron	4010	26800	14300
Lead	8.2	16.1	14.4
Manganese	1180	188	713
Mercury	0.06 J	0.021 J	0.047 J
Nickel	1.8 J	3.9 J	41.2
Thallium	ND (1.2)	ND (1.2)	2.3 J
Zinc	14.1	12.5	44.3
PCBs			
Total PCBs	0.334 J	ND (0.039) U	ND (0.044) U
SVOAs			
Benzo(a)anthracene	ND (0.39)	ND (0.39)	ND (0.44)
Benzo(a)pyrene	ND (0.39)	ND (0.39)	ND (0.44)
Benzo(b)fluoranthene	ND (0.39)	ND (0.39)	ND (0.44)
bis(2-Ethylhexyl)phthalate	ND (0.39)	ND (0.39)	ND (0.44)
Dibenz(a,h)anthracene	ND (0.39)	ND (0.39)	ND (0.44)
Indeno(1,2,3-cd)pyrene	ND (0.39)	ND (0.39)	ND (0.44)
VOAs			
1,3-Dichlorobenzene	ND (0.005)	0.002 J	0.016 J
1,4-Dichlorobenzene	ND (0.005)	0.004 J	0.027 J
Chlorobenzene	ND (0.005)	ND (0.005)	ND (0.33)
Trichloroethene	0.001 J	0.017	ND (0.33)
Vinyl chloride	ND (0.005)	ND (0.005)	ND (0.33)

SS-X124Y115	18/01/2002 0-2(ft) mg/kg
Metals	
Aluminum	8670
Antimony	ND (7.2)
Arsenic	5.5
Chromium Total	22.9
Copper	7.3
Iron	20700
Lead	11.4
Manganese	118
Mercury	0.029 J
Nickel	5.5
Thallium	ND (1.2)
Zinc	15.2
PCBs	
Total PCBs	ND (0.039) U
SVOAs	
Benzo(a)anthracene	ND (0.39)
Benzo(a)pyrene	ND (0.39)
Benzo(b)fluoranthene	ND (0.39)
bis(2-Ethylhexyl)phthalate	ND (0.39)
Dibenz(a,h)anthracene	ND (0.39)
Indeno(1,2,3-cd)pyrene	ND (0.39)
VOAs	
1,3-Dichlorobenzene	ND (0.005)
1,4-Dichlorobenzene	ND (0.005)
Chlorobenzene	ND (0.005)
Trichloroethene	ND (0.005)
Vinyl chloride	ND (0.005)

SS-X154Y117	28/01/2002 0-2(ft) mg/kg
Metals	
Aluminum	9700
Antimony	1.1 J
Arsenic	8.3
Chromium Total	117
Copper	224
Iron	32900
Lead	67.1
Manganese	266
Mercury	0.15
Nickel	312
Thallium	ND (1.1)
Zinc	315
PCBs	
Total PCBs	19.2 J (A)
SVOAs	
Benzo(a)anthracene	0.21 J
Benzo(a)pyrene	0.2 J
Benzo(b)fluoranthene	0.32 J
bis(2-Ethylhexyl)phthalate	0.12 J
Dibenz(a,h)anthracene	ND (0.36)
Indeno(1,2,3-cd)pyrene	0.12 J
VOAs	
1,3-Dichlorobenzene	ND (0.006)
1,4-Dichlorobenzene	ND (0.006)
Chlorobenzene	ND (0.006)
Trichloroethene	ND (0.006)
Vinyl chloride	ND (0.006)

SS-X145Y106	28/01/2002 0-2(ft) mg/kg
Metals	
Aluminum	5490
Antimony	ND (6.7)
Arsenic	3.1
Chromium Total	12.6
Copper	70.4
Iron	9220
Lead	18.4
Manganese	96.8
Mercury	ND (0.11)
Nickel	16.4
Thallium	ND (1.1)
Zinc	76.1
PCBs	
Total PCBs	4.83 J
SVOAs	
Benzo(a)anthracene	0.097 J
Benzo(a)pyrene	ND (0.

B-X193Y098	1/07/2002 0-2(ft) mg/kg	1/07/2002 6-8(ft) mg/kg	1/07/2002 12-13(ft) mg/kg	1/07/2002 13-14(ft) mg/kg
Metals				
Aluminum	12000	14200	9510	9210
Antimony	ND (7.5) UJ	ND (8.6) UJ	ND (7.7) UJ	ND (7.6) UJ
Arsenic	7.6	7.9	6.9	8.2
Chromium Total	17.5	18	12	18.1
Copper	13.1	14.9	20	16.8
Iron	23800	25000	26800	32400
Lead	13.4	14	17.3	19.6
Manganese	742	985	197	219
Mercury	ND (0.12) U	ND (0.14) U	ND (0.13) U	ND (0.13) U
Nickel	14.9	23.4	25.8	34.5
Thallium	ND (1.2)	1.2 J	0.66 J	1.5
Zinc	32.7	43.6	41.6	38
PCBs				
Total PCBs	ND (0.041) U	ND (0.047) U	856 J {A}	1690 J {A}
SVOAs				
Benzo(a)anthracene	ND (0.41)	ND (0.47)	ND (0.43)	ND (0.42)
Benzo(a)pyrene	ND (0.41)	ND (0.47)	ND (0.43)	ND (0.42)
Benzo(b)fluoranthene	ND (0.41)	ND (0.47)	ND (0.43)	ND (0.42)
bis(2-Ethylhexyl)phthalate	ND (0.41)	ND (0.47)	4.3	4.5 J
Dibenz(a,h)anthracene	ND (0.41)	ND (0.47)	ND (0.43)	ND (0.42)
Indeno(1,2,3-cd)pyrene	ND (0.41)	ND (0.47)	ND (0.43)	ND (0.42)
VOAs				
1,3-Dichlorobenzene	ND (0.006)	ND (0.007)	6.5	0.014
1,4-Dichlorobenzene	ND (0.006)	ND (0.007)	34	0.023
Chlorobenzene	ND (0.006)	ND (0.007)	9	0.13
Trichloroethene	ND (0.006)	ND (0.007)	ND (1.2)	ND (0.006)
Vinyl chloride	ND (0.006)	ND (0.007)	ND (1.2)	ND (0.006)

B-X209Y078B	7/16/2002 2-4(ft) mg/kg	7/16/2002 6-8(ft) mg/kg	7/16/2002 10-12(ft) mg/kg	7/16/2002 10.5-12.5(ft) mg/kg
Metals				
Aluminum	13100	1220	12000/12200	17700
Antimony	ND (7.5) UJ	ND (6.5) UJ	ND (7.5) UJ/ND (16) UJ	ND (8.1) UJ
Arsenic	9.1	0.61 J	4.8/9.5	14.2
Chromium Total	34.7	3.8	14/21.9	25.2
Copper	13.7	1.6 J	11.6/14.3	22.7
Iron	33900	2460	24400/28600	37900
Lead	19.2	1.5	27.8/14.4	17.8
Manganese	116 J	108 J	497 J/471 J	84.5 J
Mercury	0.08 J	ND (0.11)	ND (0.13)/0.058 J	0.13
Nickel	13.7	4.4	32.3/55	26.3
Thallium	ND (1.2)	ND (1.1)	ND (1.3)/ND (2.7)	ND (1.3)
Zinc	40.6	27.4	41.2/61.2	66.3
PCBs				
Total PCBs	0.079 J	ND (0.036) U	ND (0.041) U/ND (0.044) U	ND (0.044) U
SVOAs				
Benzo(a)anthracene	ND (0.41)	ND (0.36)	ND (0.41)/ND (0.44)	ND (0.44)
Benzo(a)pyrene	ND (0.41)	ND (0.36)	ND (0.41)/ND (0.44)	ND (0.44)
Benzo(b)fluoranthene	ND (0.41)	ND (0.36)	ND (0.41)/ND (0.44)	ND (0.44)
bis(2-Ethylhexyl)phthalate	ND (0.41)	ND (0.36)	ND (0.41)/ND (0.44)	ND (0.44)
Dibenz(a,h)anthracene	ND (0.41)	ND (0.36)	ND (0.41)/ND (0.44)	ND (0.44)
Indeno(1,2,3-cd)pyrene	ND (0.41)	ND (0.36)	ND (0.41)/ND (0.44)	ND (0.44)
VOAs				
1,3-Dichlorobenzene	ND (0.005)	ND (0.004)	ND (0.005)/ND (0.006)	ND (0.007)
1,4-Dichlorobenzene	ND (0.005)	ND (0.004)	ND (0.005)/ND (0.006)	ND (0.007)
Chlorobenzene	ND (0.005)	ND (0.004)	ND (0.005)/ND (0.006)	ND (0.007)
Trichloroethene	ND (0.005)	ND (0.004)	ND (0.005)/ND (0.006)	ND (0.007)
Vinyl chloride	ND (0.005)	ND (0.004)	ND (0.005)/ND (0.006)	ND (0.007)

B-X209Y078C	7/16/2002 2-4(ft) mg/kg	7/16/2002 6-8(ft) mg/kg	7/16/2002 10-12(ft) mg/kg	7/16/2002 10.5-12.5(ft) mg/kg
Metals				
Aluminum	15100	1290	12400	15100
Antimony	ND (7.7) UJ	ND (6.3) UJ	ND (7.4) UJ	ND (7.4) UJ
Arsenic	10.1	1 J	6.6	8.1
Chromium Total	39.7	4.1	18.5	23.4
Copper	14.1	3.5	13.6	15.9
Iron	34900	3110	21000	23900
Lead	17	2	15.2	16.2
Manganese	141 J	161 J	266 J	292 J
Mercury	0.051 J	ND (0.11)	0.048 J	0.065 J
Nickel	13.7	5.5	12.7	18.5
Thallium	ND (1.3)	ND (1.1)	ND (1.2)	ND (1.2)
Zinc	40.2	27.5	33.8	44.1
PCBs				
Total PCBs	ND (0.042) U	ND (0.035) U	1.41 J	3.21 J
SVOAs				
Benzo(a)anthracene	ND (0.42)	ND (0.35)	ND (0.41)	ND (0.4)
Benzo(a)pyrene	ND (0.42)	ND (0.35)	ND (0.41)	ND (0.4)
Benzo(b)fluoranthene	ND (0.42)	ND (0.35)	ND (0.41)	ND (0.4)
bis(2-Ethylhexyl)phthalate	ND (0.42)	ND (0.35)	ND (0.41)	ND (0.4)
Dibenz(a,h)anthracene	ND (0.42)	ND (0.35)	ND (0.41)	ND (0.4)
Indeno(1,2,3-cd)pyrene	ND (0.42)	ND (0.35)	ND (0.41)	ND (0.4)
VOAs				
1,3-Dichlorobenzene	ND (0.006)	ND (0.004)	ND (0.006)	ND (0.005)
1,4-Dichlorobenzene	ND (0.006)	ND (0.004)	ND (0.006)	ND (0.005)
Chlorobenzene	ND (0.006)	ND (0.004)	ND (0.006)	ND (0.005)
Trichloroethene	ND (0.006)	ND (0.004)	ND (0.006)	ND (0.005)
Vinyl chloride	ND (0.006)	ND (0.004)	ND (0.006)	ND (0.005)

B-X219Y095	1/08/2002 0-2(ft) mg/kg	1/08/2002 6-8(ft) mg/kg	1/08/2002 8-9(ft) mg/kg	1/08/2002 13-14(ft) mg/kg
Metals				
Aluminum	11000/11900	15400	10100	1760
Antimony	ND (7.4) UJ/ND (7.5) UJ	10.8 J	11.2 J	ND (6.6) UJ
Arsenic	7.7/8.4	13.9	44.2 {A}	2.1
Chromium Total	15.6 J/15.6 J	114 J	1080 J	8.9 J
Copper	24.4/13.5	485	1960	13.6
Iron	17700/20200	87000	336000	5640
Lead	16.6/15	191	173	3.4
Manganese	717/1390	1580	2810	147
Mercury	0.17/0.051 J	0.31	0.29	0.014 J
Nickel	24.2/13.7	495	1830	19
Thallium	1.3/0.7 J	ND (2.6)	ND (11.8)	ND (1.1)
Zinc	39.2/39.5	126	445	33.4
PCBs				
Total PCBs	0.753 J/1.08 J	3.42 J	699 J {A}	152 J {A}
SVOAs				
Benzo(a)anthracene	ND (0.41)/ND (0.41)	ND (0.42)	ND (1.6)	ND (0.36)
Benzo(a)pyrene	ND (0.41)/ND (0.41)	ND (0.42)	ND (1.6) UJ	ND (0.36)
Benzo(b)fluoranthene	ND (0.41)/ND (0.41)	ND (0.42)	ND (1.6) UJ	ND (0.36)
bis(2-Ethylhexyl)phthalate	ND (0.41)/ND (0.41)	ND (0.42)	5.1	0.62
Dibenz(a,h)anthracene	ND (0.41)/ND (0.41)	ND (0.42)	ND (1.6) UJ	ND (0.36)
Indeno(1,2,3-cd)pyrene	ND (0.41)/ND (0.41)	ND (0.42)	ND (1.6) UJ	ND (0.36)
VOAs				
1,3-Dichlorobenzene	ND (0.006)/ND (0.006)	ND (0.006)	0.003 J	0.89
1,4-Dichlorobenzene	ND (0.006)/ND (0.006)	ND (0.006)	0.004 J	1.7
Chlorobenzene	ND (0.006)/ND (0.006)	ND (0.006)	0.011	2.2
Trichloroethene	ND (0.006)/ND (0.006)	ND (0.006)	ND (0.006)	ND (0.22)
Vinyl chloride	ND (0.006)/ND (0.006)	ND (0.006)	ND (0.006)	ND (0.22)

B-X223Y097B	1/8/2002 5-6(ft) mg/kg
Metals	
Aluminum	9680
Antimony	ND (8.4) UJ
Arsenic	27.8 {A}
Chromium Total	14.3 J
Copper	34.1
Iron	27300
Lead	51.8
Manganese	681
Mercury	0.041 J
Nickel	29.8
Thallium	1.4
Zinc	69.1
PCBs	
Total PCBs	2.77 J
SVOAs	
Benzo(a)anthracene	ND (0.46)
Benzo(a)pyrene	ND (0.46)
Benzo(b)fluoranthene	ND (0.46)
bis(2-Ethylhexyl)phthalate	ND (0.46)
Dibenz(a,h)anthracene	ND (0.46)
Indeno(1,2,3-cd)pyrene	ND (0.46)
VOAs	
1,3-Dichlorobenzene	ND (0.008)
1,4-Dichlorobenzene	ND (0.008)
Chlorobenzene	ND (0.008)
Trichloroethene	ND (0.008)
Vinyl chloride	ND (0.008)

B-X209Y078A	7/16/2002 2-4(ft) mg/kg	7/16/2002 6-8(ft) mg/kg	7/16/2002 10-12(ft) mg/kg	7/16/2002 11.5-13.5(ft) mg/kg
Metals				
Aluminum	15400	1210	15500	16900
Antimony	ND (7.6) UJ	ND (6.5) UJ	ND (7.2) UJ	ND (8.6) UJ
Arsenic	9.5	1.4	7.2	8
Chromium Total	28.7	3.3	16.5	17.1
Copper	15.6	4.3	13.8	15.7
Iron	32600	3040	19600	21600
Lead	16	1.8	13.6	13.3
Manganese	129 J	234 J	184 J	1100 J
Mercury	0.038 J	ND (0.11)	0.039 J	0.08 J
Nickel	15.1	5.1	13.8	32
Thallium	ND (1.3)	ND (1.1)	ND (1.2)	0.89 J
Zinc	45.3	21.9	43.5	62.6
PCBs				
Total PCBs	0.083 J	ND (0.036) U	1.06 J	0.992 J
SVOAs				
Benzo(a)anthracene	ND (0.42)	ND (0.36)	ND (0.4)	ND (0.47)
Benzo(a)pyrene	ND (0.42)	ND (0.36)	ND (0.4)	ND (0.47)
Benzo(b)fluoranthene	0.082 J	ND (0.36)	ND (0.4)	ND (0.47)
bis(2-Ethylhexyl)phthalate	ND (0.42)	ND (0.36)	ND (0.4)	ND (0.47)
Dibenz(a,h)anthracene	ND (0.42)	ND (0.36)	ND (0.4)	ND (0.47)
Indeno(1,2,3-cd)pyrene	ND (0.42)	ND (0.36)	ND (0.4)	ND (0.47)
VOAs				
1,3-Dichlorobenzene	ND (0.005)	ND (0.005)	ND (0.006)	ND (0.007)
1,4-Dichlorobenzene	ND (0.005)	ND (0.005)	ND (0.006)	ND (0.007)
Chlorobenzene	ND (0.005)	ND (0.005)	ND (0.006)	ND (0.007)
Trichloroethene	ND (0.005)	ND (0.005)	ND (0.006)	ND (0.007)
Vinyl chloride	ND (0.005)	ND (0.005)	ND (0.006)	ND (0.007)

W-X197Y070	1/25/2002 - ug	(1)
PCBs		
Total PCBs	ND (4) U	

W-X199Y070	1/25/2002 - ug	(1)
PCBs		
Total PCBs	ND (4) U	

SS-X203Y066	1/09/2002 2-4(ft) mg/kg
Metals	
Aluminum	11000
Antimony	ND (7.4) UJ
Arsenic	9.9
Chromium Total	18.4 J
Copper	14.5 J
Iron	22800 J
Lead	21.4 J
Manganese	492 J
Mercury	0.067 J
Nickel	22.1 J
Thallium	ND (1.2) U
Zinc	53.6 J
PCBs	
Total PCBs	3.8 J
SVOAs	
Benzo(a)anthracene	ND (0.41)
Benzo(a)pyrene	ND (0.41)
Benzo(b)fluoranthene	ND (0.41)
bis(2-Ethylhexyl)phthalate	ND (0.41)
Dibenz(a,h)anthracene	ND (0.41)
Indeno(1,2,3-cd)pyrene	ND (0.41)
VOAs	
1,3-Dichlorobenzene	ND (0.005)
1,4-Dichlorobenzene	ND (0.005)
Chlorobenzene	ND (0.005)
Trichloroethene	ND (0.005)
Vinyl chloride	ND (0.005)

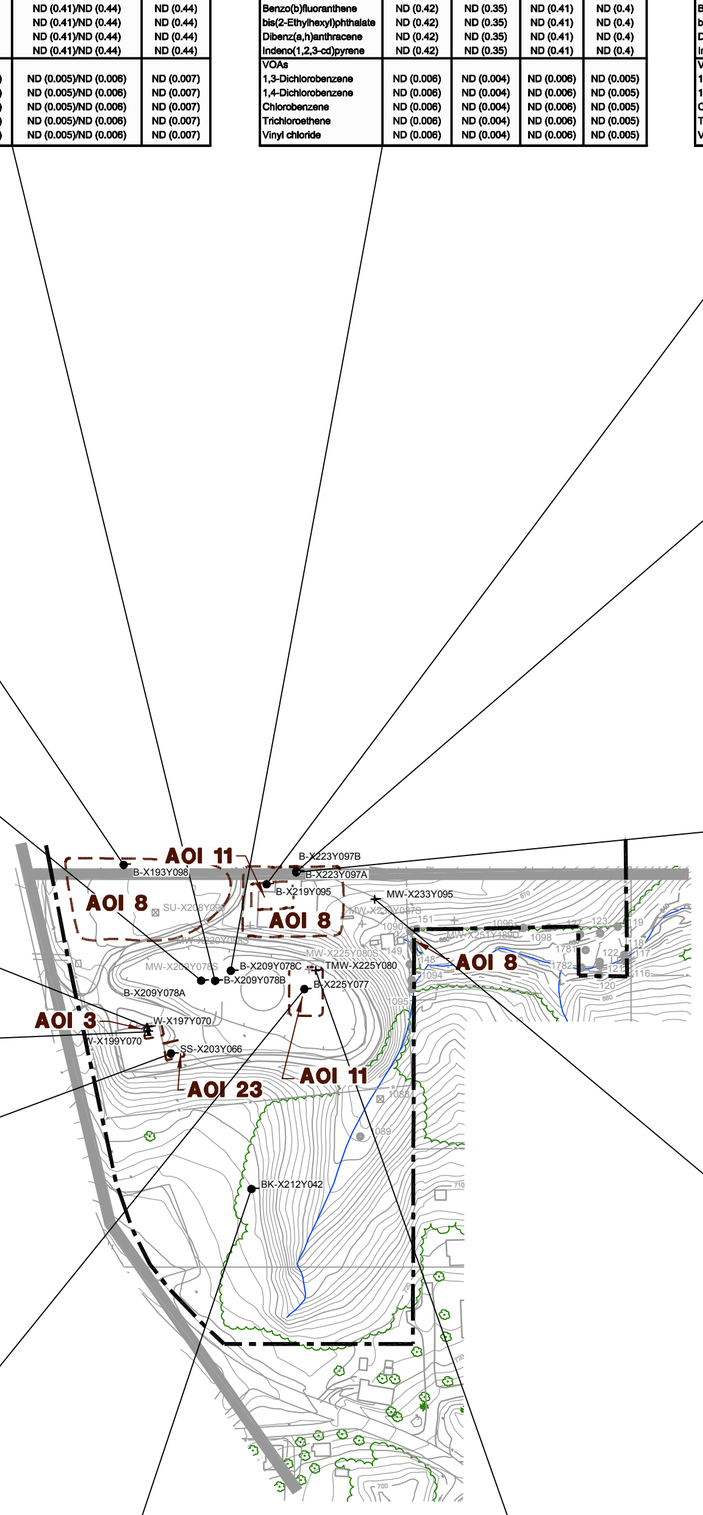
B-X223Y097A	1/8/2002 0-2(ft) mg/kg	1/8/2002 6-8(ft) mg/kg
Metals		
Aluminum	5790	20700
Antimony	ND (7.4) UJ	ND (9.1) UJ
Arsenic	4.7	11.1
Chromium Total	10.2 J	24.4 J
Copper	11.6	19.9
Iron	11100	27300
Lead	34.9	20.3
Manganese	540	118
Mercury	0.075 J	0.079 J
Nickel	9	35.8
Thallium	0.76 J	0.77 J
Zinc	282	76.7
PCBs		
Total PCBs	0.34 J	188 J {A}
SVOAs		
Benzo(a)anthracene	ND (0.41)	ND (0.5)
Benzo(a)pyrene	ND (0.41)	ND (0.5)
Benzo(b)fluoranthene	ND (0.41)	ND (0.5)
bis(2-Ethylhexyl)phthalate	ND (0.41)	0.51
Dibenz(a,h)anthracene	ND (0.41)	ND (0.5)
Indeno(1,2,3-cd)pyrene	ND (0.41)	ND (0.5)
VOAs		
1,3-Dichlorobenzene	ND (0.006)	0.007 J
1,4-Dichlorobenzene	ND (0.006)	0.019
Chlorobenzene	ND (0.006)	ND (0.008)
Trichloroethene	ND (0.006)	ND (0.008)
Vinyl chloride	ND (0.006)	ND (0.008)

MW-X233Y095	4/24/2003 2.6-4(ft) mg/kg
Metals	
Aluminum	9050
Antimony	ND (7.3)
Arsenic	4
Chromium Total	11.4
Copper	6.6
Iron	10700
Lead	7.2
Manganese	118
Mercury	0.069 J
Nickel	11.3
Thallium	ND (1.2)
Zinc	36.6
PCBs	
Total PCBs	0.065 J
SVOAs	
Benzo(a)anthracene	ND (0.4)
Benzo(a)pyrene	ND (0.4)
Benzo(b)fluoranthene	ND (0.4)
bis(2-Ethylhexyl)phthalate	0.047 J
Dibenz(a,h)anthracene	ND (0.4)
Indeno(1,2,3-cd)pyrene	ND (0.4)
VOAs	
1,3-Dichlorobenzene	ND (0.005)
1,4-Dichlorobenzene	ND (0.005)
Chlorobenzene	ND (0.005)
Trichloroethene	ND (0.005)
Vinyl chloride	ND (0.005)

B-X225Y077	1/04/2002 0-2(ft) mg/kg	1/04/2002 6-8(ft) mg/kg	1/04/2002 13-15(ft) mg/kg
Metals			
Aluminum	10700	1170	11700
Antimony	ND (7.8)	ND (6.3)	ND (7.7)
Arsenic	7.1	0.78 J	9.9
Chromium Total	25	4.2	15.6
Copper	10.1	2.9	16.3
Iron	23400	2890	25400
Lead	12.4	1.4	15
Manganese	364	136	242
Mercury	ND (0.13) U	ND (0.1) U	0.07 J
Nickel	9.5	5.2	27.9
Thallium	ND (1.3)	ND (1)	ND (1.3)
Zinc	33.3	27.9	46.6
PCBs			
Total PCBs	0.322 J	ND (0.034) U	ND (0.042) U
SVOAs			
Benzo(a)anthracene	ND (0.43)	ND (0.34)	ND (0.42)
Benzo(a)pyrene	ND (0.43)	ND (0.34)	ND (0.42)
Benzo(b)fluoranthene	ND (0.43)	ND (0.34)	ND (0.42)
bis(2-Ethylhexyl)phthalate	ND (0.43)	ND (0.34)	ND (0.42)
Dibenz(a,h)anthracene	ND (0.43)	ND (0.34)	ND (0.42)
Indeno(1,2,3-cd)pyrene	ND (0.43)	ND (0.34)	ND (0.42)
VOAs			
1,3-Dichlorobenzene	ND (0.007)	ND (0.006)	ND (0.006)
1,4-Dichlorobenzene	ND (0.007)	ND (0.006)	ND (0.006)
Chlorobenzene	ND (0.007)	ND (0.006)	ND (0.006)
Trichloroethene	ND (0.007)	ND (0.006)	ND (0.006)
Vinyl chloride	ND (0.007)	ND (0.006)	ND (0.006)

BK-X212Y042	1/23/2002 0-2(ft) mg/kg
Metals	
Aluminum	10700
Antimony	ND (7.6) UJ
Arsenic	5.9
Chromium Total	14.7
Copper	12.3
Iron	17000
Lead	13.2
Manganese	271 J
Mercury	ND (0.13) U
Nickel	10.6
Thallium	ND (1.3)
Zinc	30.2 J
PCBs	
Total PCBs	ND (0.042) U
SVOAs	
Benzo(a)anthracene	ND (0.42)
Benzo(a)pyrene	ND (0.42)
Benzo(b)fluoranthene	ND (0.42)
bis(2-Ethylhexyl)phthalate	ND (0.42)
Dibenz(a,h)anthracene	ND (0.42)
Indeno(1,2,3-cd)pyrene	ND (0.42)
VOAs	
1,3-Dichlorobenzene	ND (0.006)
1,4-Dichlorobenzene	ND (0.006)
Chlorobenzene	ND (0.006)
Trichloroethene	ND (0.006)
Vinyl chloride	ND (0.006)

TMW-X225Y080	8/08/2002 0-2(ft) mg/kg	8/08/2002 6-8(ft) mg/kg	8/08/2002 12-14(ft) mg/kg
Metals			
Aluminum	9480	9230	1670
Antimony	1.6 J	0.7 J	1.3 J
Arsenic	5.9	6.5	1.4
Chromium Total	22.3	19.2	4.2
Copper	8.8	9.2	5.5
Iron	19000	18200	4570
Lead	14.7	11.3	3.2
Manganese	126	111	155
Mercury	0.086 J	0.028 J	0.023 J
Nickel	7.9	7.6	8.2
Thallium	ND (1.2)	0.93 J	ND (1.1)
Zinc	27.3	28.2	26.2
PCBs			
Total PCBs	0.968 J	0.966 J	1.18 J
SVOAs			
Benzo(a)anthracene	0.045 J	ND (0.42)	ND (0.36)
Benzo(a)pyrene	0.083 J	ND (0.42)	ND (0.36)
Benzo(b)fluoranthene	0.085 J	ND (0.42)	ND (0.36)
bis(2-Ethylhexyl)phthalate	ND (0.41)	ND (0.42)	ND (0.36)
Dibenz(a,h)anthracene	ND (0.41)	ND (0.42)	ND (0.36)
Indeno(1,2,3-cd)pyrene	ND (0.41)	ND (0.42)	ND (0.36)
VOAs			
1,3-Dichlorobenzene	ND (0.005)	ND (0.007)	ND (0.005)
1,4-Dichlorobenzene	ND (0.005)	ND (0.007)	ND (0.005)
Chlorobenzene	ND (0.005)	ND (0.007)	ND (0.005)
Trichloroethene	ND (0.005)	ND (0.007)	ND (0.005)
Vinyl chloride	ND (0.005)	ND (0.007)	ND (0.005)



LEGEND

- EXISTING GROUND SURFACE ELEVATION CONTOURS (feet AMSL)
- EXISTING VEGETATION
- EXISTING BUILDINGS
- FENCE LINE
- RAILROAD TRACKS
- DIRT ROADS
- ROADS / PAVED AREAS
- APPROXIMATE SURFACE WATER LOCATION
- APPROXIMATE GM PROPERTY BOUNDARY
- AOI BOUNDARY
- MW-X261Y356 — MONITORING WELL LOCATION
- SS-X045Y114 — RFI SURFACE SOIL SAMPLE LOCATION
- B-X115Y070 — RFI SOIL BORING SAMPLE LOCATION
- 1095 — STREAM SOIL SAMPLE LOCATION
- SU-X208Y096 — RFI SPRING SAMPLE LOCATION
- W-X197Y070 — RFI WIPE SAMPLE LOCATION
- NO SAMPLE COLLECTED AT SCREENED LOCATION DUE TO REFUSAL. LOCATION WAS MOVED AND A SAMPLE WAS COLLECTED AT THE NEW LOCATION.
- NO SOIL SAMPLE COLLECTED AT SCREENED LOCATION DUE TO REFUSAL OR NOT ENOUGH SAMPLE AVAILABLE.

B-X195Y161 | 6/3/2002 | 0 - 2 | mg/kg | PCBs (total) | 0.11105 J

- SAMPLE LOCATION IDENTIFIER
- DATE SAMPLE TAKEN
- SAMPLE DEPTH IN FEET BELOW GROUND SURFACE
- CONCENTRATION
- CHEMICAL NAME

NOTES:

(1) WIPE SAMPLE ANALYZED FOR PCBs ONLY.

(2) FOR ALL METALS, SITE-SPECIFIC BACKGROUND CONCENTRATIONS ARE SUBTRACTED FROM THE MEASURED CONCENTRATIONS (AS SHOWN) PRIOR TO COMPARING TO THE SCREENING CRITERIA FOR THE PURPOSE OF IDENTIFYING EXCEEDANCE.

{A}	RATIO OF SITE-RELATED CONCENTRATIONS AND INDUSTRIAL SCREENING CRITERIA GREATER THAN 1.0.
ND ( )	NOT DETECTED ABOVE THE LABORATORY REPORTING LIMIT REPORTED IN PARENTHESIS
0.021/0.014	PARENT SAMPLE/DUPLICATE SAMPLE
J	THE ASSOCIATED VALUE IS AN ESTIMATED QUANTITY
R	THE SAMPLE RESULTS ARE REJECTED DUE TO DEFICIENCIES IN THE ABILITY TO ANALYZE THE SAMPLE AND MEET QUALITY CONTROL CRITERIA. THE PRESENCE OR ABSENCE OF THE ANALYTE CANNOT BE VERIFIED.
U	THE ANALYTE WAS ANALYZED FOR, BUT WAS QUALIFIED NOT DETECTED ABOVE THE SAMPLE REPORT LIMIT
UJ	THE SAMPLE REPORT LIMIT VALUE IS AN ESTIMATE AND MAY BE INACCURATE OR IMPRECISE

AOI SUMMARY

AOI ID Description
AOI 3 PCB Storage Areas
AOI 8 Former South Lagoons and Outfall 002
AOI 11 Aboveground Storage Tanks
AOI 23 Area Affected by the 1996 Wastewater Treatment Filter Cake Release

PRELIMINARY REMEDIATION GOALS (PRG)

CHEMICAL NAME	SOIL INDUSTRIAL PRG mg/Kg	BACKGROUND SOIL mg/Kg
Metals (2)		
Aluminum	920000	14200
Antimony	410	1.01
Arsenic	16	10.0
Chromium Total	2500	29.8
Copper	41000	22.5
Iron	310000	25000
Lead	750	19.3
Manganese	19000	689
Mercury	13.6	0.04
Nickel	20000	16.0
Thallium	68	1.20
Zinc	310000	46.8
PCBs		
Total PCBs	7.4	-
SVOAs		
Benzo(a)anthracene	21	-
Benzo(a)pyrene	2.1	-
Benzo(b)fluoranthene	21	-
bis(2-Ethylhexyl)phthalate	1200	-
Dibenz(a,h)anthracene	2.1	-
Indeno(1,2,3-cd)pyrene	21	-
VOAs		
1,3-Dichlorobenzene	63	-
1,4-Dichlorobenzene	79	-
Chlorobenzene	530	-
Trichloroethene	1.2	-
Vinyl chloride	7.5	-

Nº	Revision	Date	Initial

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

GM POWERTRAIN BEDFORD PLANT
BEDFORD, INDIANA

RFI INVESTIGATION

ANALYTICAL RESULTS
SOIL SAMPLING LOCATIONS, C

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
BASE MAP COMPLETED BY AIR-LAND SURVEYS, FLINT, MI, APRIL 2001.

Project Manager:	Reviewed By:	Date:	
J.M.	M.K.	NOVEMBER 2003	
Scale: AS SHOWN	Project Nº: 13968-00	Report Nº: 045	Drawing Nº: 4

13968-00(045)GN-WA042 APR 21/2005

B-X165Y179	1/09/2002 0-2(ft) mg/kg	1/09/2002 6-8(ft) mg/kg	1/09/2002 16-18(ft) mg/kg
Metals			
Aluminum	14800	12500	3410
Antimony	ND (7.6) UJ	ND (6) UJ	ND (8) UJ
Arsenic	8.5	7.4	9.8
Chromium Total	23 J	37.8 J	6.9 J
Copper	16.2 J	16 J	8.8 J
Iron	24200 J	39700 J	17000 J
Lead	13.4 J	15.5 J	8.5 J
Manganese	181 J	27.1 J	308 J
Mercury	0.17 J	0.03 J	0.013 J
Nickel	12.9 J	12.9 J	20.6 J
Thallium	ND (1.3)	ND (1.3)	ND (1.3) U
Zinc	45.6 J	42.6 J	22.3 J
PCBs			
Total PCBs	0.081 J	ND (0.044) U	0.08 J
SVOAs			
Benzo(a)anthrocene	ND (0.42)	ND (0.44)	ND (0.44)
Benzo(a)pyrene	ND (0.42)	ND (0.44)	ND (0.44)
Benzo(b)fluoranthene	ND (0.42)	ND (0.44)	ND (0.44)
bis(2-Ethylhexyl)phthalate	ND (0.42)	ND (0.44)	ND (0.44)
Dibenz(a,h)anthracene	ND (0.42)	ND (0.44)	ND (0.44)
Indeno(1,2,3-cd)pyrene	ND (0.42)	ND (0.44)	ND (0.44)
VOAs			
1,3-Dichlorobenzene	ND (0.006)	ND (0.006)	ND (0.006)
1,4-Dichlorobenzene	ND (0.006)	ND (0.006)	ND (0.006)
Chlorobenzene	ND (0.006)	ND (0.006)	ND (0.006)
Trichloroethene	ND (0.006)	ND (0.006)	ND (0.006)
Vinyl chloride	ND (0.006)	ND (0.006)	ND (0.006)

B-X176Y179	2/22/2002 3.5-5(ft) mg/kg	2/22/2002 6-8(ft) mg/kg	2/22/2002 24-26(ft) mg/kg
Metals			
Aluminum	2330	6190	14600
Antimony	ND (7)	0.91 J	ND (18.9)
Arsenic	2.3	1.5	9.7
Chromium Total	8.3	92.1	27.1
Copper	34.2	228	18.1
Iron	6500	4650	31100
Lead	79.6	125	25.8
Manganese	154	135	320
Mercury	0.1 J	0.065 J	0.087 J
Nickel	360	16	38.6
Thallium	ND (1.2)	ND (1.2)	ND (2.6)
Zinc	85.9	132	92
PCBs			
Total PCBs	1.42 J	1.59 J	ND (0.044) U
SVOAs			
Benzo(a)anthracene	ND (0.39)	ND (0.39)	ND (0.44)
Benzo(a)pyrene	ND (0.39)	ND (0.39)	ND (0.44)
Benzo(b)fluoranthene	ND (0.39)	ND (0.39)	ND (0.44)
bis(2-Ethylhexyl)phthalate	ND (0.39) U	ND (0.39) U	ND (0.44) U
Dibenz(a,h)anthracene	ND (0.39)	ND (0.39)	ND (0.44)
Indeno(1,2,3-cd)pyrene	ND (0.39)	ND (0.39)	ND (0.44)
VOAs			
1,3-Dichlorobenzene	ND (0.006) UJ	ND (0.007) UJ	ND (0.007)
1,4-Dichlorobenzene	ND (0.006) UJ	ND (0.007) UJ	ND (0.007)
Chlorobenzene	ND (0.006)	ND (0.007)	ND (0.007)
Trichloroethene	ND (0.006)	ND (0.007)	ND (0.007)
Vinyl chloride	ND (0.006)	ND (0.007)	ND (0.007)

B-X185Y185	1/10/2002 0-2(ft) mg/kg	1/10/2002 6-8(ft) mg/kg	1/10/2002 14-15(ft) mg/kg	1/10/2002 33.5-35.5(ft) mg/kg
Metals				
Aluminum	11800	6770	8660	9980
Antimony	ND (6)	ND (7)	ND (7.2)	ND (7.5)
Arsenic	9.4	5	6.5	4.2
Chromium Total	22.9	14.4	18.7	12.4
Copper	23.5	12.7	13.8	10.1
Iron	20700	15000	19300	17900
Lead	20.1	15.5	13.7	15.4
Manganese	1640 J	202 J	219 J	273 J
Mercury	0.075 J	0.019 J	0.035 J	0.024 J
Nickel	16.3	6.7	8.8	22.9
Thallium	ND (1.3)	ND (1.2)	ND (1.2)	0.81 J
Zinc	46 J	32.4 J	27.5 J	42.3 J
PCBs				
Total PCBs	0.744 J	2.87 J	12.4 J (A)	ND (0.041) U
SVOAs				
Benzo(a)anthracene	ND (0.44)	ND (0.38)	ND (0.4)	ND (0.41)
Benzo(a)pyrene	ND (0.44)	ND (0.38)	ND (0.4)	ND (0.41)
Benzo(b)fluoranthene	ND (0.44)	ND (0.38)	ND (0.4)	ND (0.41)
bis(2-Ethylhexyl)phthalate	ND (0.44)	ND (0.38)	ND (0.4)	ND (0.41)
Dibenz(a,h)anthracene	ND (0.44)	ND (0.38)	ND (0.4)	ND (0.41)
Indeno(1,2,3-cd)pyrene	ND (0.44)	ND (0.38)	ND (0.4)	ND (0.41)
VOAs				
1,3-Dichlorobenzene	ND (0.007)	ND (0.005)	ND (0.005)	ND (0.006)
1,4-Dichlorobenzene	ND (0.007)	ND (0.005)	ND (0.005)	ND (0.006)
Chlorobenzene	ND (0.007)	ND (0.005)	ND (0.005)	ND (0.006)
Trichloroethene	ND (0.007)	ND (0.005)	ND (0.005)	ND (0.006)
Vinyl chloride	ND (0.007)	ND (0.005)	ND (0.005)	ND (0.006)

B-X193Y172	3/18/2002 0-2(ft) mg/kg	3/18/2002 6-8(ft) mg/kg	3/18/2002 25-27(ft) mg/kg	3/18/2002 31-33(ft) mg/kg
Metals				
Aluminum	13000	4680	15800	6580
Antimony	ND (8) UJ	ND (6.8) UJ	ND (7.5) UJ	ND (8.7) UJ
Arsenic	5.7	0.58 J	7.2	5.3
Chromium Total	15.2	14.1	14.2	10
Copper	98.6	189	13.7	18.1
Iron	12800	2520	18800	15000
Lead	25.4	41.7	13.2	21
Manganese	909	47	242	247
Mercury	0.11 J	ND (0.11) U	ND (0.12) U	0.16
Nickel	18.1	8.2	11.7	29.1
Thallium	ND (1.3)	ND (1.1)	ND (1.2)	ND (1.4)
Zinc	85.7	60.7	42	83.2
PCBs				
Total PCBs	0.194 J	2.78 J	0.143 J	ND (0.048) U
SVOAs				
Benzo(a)anthracene	ND (0.44)	0.064 J	ND (0.41)	ND (0.48)
Benzo(a)pyrene	ND (0.44)	ND (0.37) J	ND (0.41)	ND (0.48)
Benzo(b)fluoranthene	ND (0.44)	ND (0.37)	ND (0.41)	ND (0.48)
bis(2-Ethylhexyl)phthalate	ND (0.44)	0.2 J	ND (0.41)	ND (0.48)
Dibenz(a,h)anthracene	ND (0.44)	ND (0.37)	ND (0.41)	ND (0.48)
Indeno(1,2,3-cd)pyrene	ND (0.44)	ND (0.37)	ND (0.41)	ND (0.48)
VOAs				
1,3-Dichlorobenzene	ND (0.007)	ND (0.007)	ND (0.007)	ND (0.007)
1,4-Dichlorobenzene	ND (0.007)	0.001 J	ND (0.007)	ND (0.007)
Chlorobenzene	ND (0.007)	ND (0.007)	ND (0.007)	ND (0.007)
Trichloroethene	ND (0.007)	ND (0.007)	ND (0.007)	ND (0.007)
Vinyl chloride	ND (0.007)	ND (0.007)	ND (0.007)	ND (0.007)

B-X193Y194	2/21/2002 0-2(ft) mg/kg	2/21/2002 5-7(ft) mg/kg
Metals		
Aluminum	11600	6540
Antimony	ND (7.7)	ND (8.2)
Arsenic	6.3	7.5
Chromium Total	11.7	13.4
Copper	11.4	6.4
Iron	15700	12900
Lead	13.3	12.7
Manganese	1010	75
Mercury	0.039 J	0.095 J
Nickel	10.3	2.2 J
Thallium	ND (1.3)	ND (1.4)
Zinc	33.6	8.8
PCBs		
Total PCBs	0.057 J	ND (0.045) U
SVOAs		
Benzo(a)anthracene	ND (0.43)	ND (0.45)
Benzo(a)pyrene	ND (0.43)	ND (0.45)
Benzo(b)fluoranthene	ND (0.43)	ND (0.45)
bis(2-Ethylhexyl)phthalate	ND (0.43)	ND (0.45)
Dibenz(a,h)anthracene	ND (0.43)	ND (0.45)
Indeno(1,2,3-cd)pyrene	ND (0.43)	ND (0.45)
VOAs		
1,3-Dichlorobenzene	ND (0.007)	ND (0.006)
1,4-Dichlorobenzene	ND (0.007)	ND (0.006)
Chlorobenzene	ND (0.007)	ND (0.006)
Trichloroethene	ND (0.007)	ND (0.006)
Vinyl chloride	ND (0.007)	ND (0.006)

B-X200Y181	1/10/2002 0-2(ft) mg/kg	1/10/2002 6-8(ft) mg/kg	1/10/2002 9-11(ft) mg/kg
Metals			
Aluminum	8150/9560	2700	17700
Antimony	ND (7.1)/ND (7.1)	ND (6.4)	ND (7.2) U
Arsenic	5.5/6	0.47 J	5.5
Chromium Total	18.4/21.3	35.7	25.3
Copper	22.6/17.4	65.9	406
Iron	22600/24300	3490	17000
Lead	14/12.8	5.3	68.2
Manganese	159 J/120 J	44.3 J	465 J
Mercury	0.046 J/0.021 J	0.026 J	0.79
Nickel	22/22.2	19.2	48.4
Thallium	ND (1.2)/ND (1.2)	ND (1.1)	ND (1.2)
Zinc	55.5 J/54.1 J	27.5 J	133 J
PCBs			
Total PCBs	12.4 J (A)/1110 J (A)	0.985 J	330 J (A)
SVOAs			
Benzo(a)anthracene	ND (0.39)/ND (0.39)	ND (0.35)	0.79 J
Benzo(a)pyrene	ND (0.39)/ND (0.39)	ND (0.35)	0.74 J
Benzo(b)fluoranthene	0.071 J/ND (0.39)	ND (0.35)	0.78 J
bis(2-Ethylhexyl)phthalate	ND (0.39)/ND (0.39)	ND (0.35)	2 J
Dibenz(a,h)anthracene	ND (0.39)/ND (0.39)	ND (0.35)	ND (2.6)
Indeno(1,2,3-cd)pyrene	ND (0.39)/ND (0.39)	ND (0.35)	ND (2.6)
VOAs			
1,3-Dichlorobenzene	ND (0.005)/ND (0.005)	ND (0.006)	0.87
1,4-Dichlorobenzene	ND (0.005)/ND (0.005)	ND (0.006)	0.87
Chlorobenzene	ND (0.005)/ND (0.005)	ND (0.006)	0.04 J
Trichloroethene	ND (0.005)/ND (0.005)	ND (0.006)	ND (0.27)
Vinyl chloride	ND (0.005)/ND (0.005)	ND (0.006)	ND (0.27)

B-X211Y169	1/14/2002 0-2(ft) mg/kg	1/14/2002 6-8(ft) mg/kg	1/14/2002 10-11(ft) mg/kg	1/14/2002 12-12.5(ft) mg/kg
Metals				
Aluminum	6430	7910	13300	13400
Antimony	ND (6.6)	ND (6.9)	ND (9.8)	ND (8.2)
Arsenic	4.7	4.1	5.2	15.5
Chromium Total	11.9	11	26.5	33
Copper	27.3	28.4	107	26.6
Iron	11900	10800	10900	28100
Lead	14.6	14.1	39.8	37.3
Manganese	275	273	180	349
Mercury	0.026 J	0.033 J	0.12 J	0.022 J
Nickel	27.7	16.4	19	27.2
Thallium	ND (1.1) U	ND (1.2) U	ND (1.6)	ND (1.4)
Zinc	43.4	47.4	643	94.7
PCBs				
Total PCBs	21.1 J (A)	67.3 J (A)	1310 J (A)	446 J (A)
SVOAs				
Benzo(a)anthracene	ND (0.36)	ND (0.36)	ND (54)	ND (9)
Benzo(a)pyrene	ND (0.36)	ND (0.38)	ND (54)	ND (9)
Benzo(b)fluoranthene	ND (0.36)	ND (0.38)	ND (54)	ND (9)
bis(2-Ethylhexyl)phthalate	ND (0.36)	ND (0.36)	ND (54) U	ND (9) U
Dibenz(a,h)anthracene	ND (0.36)	ND (0.36)	ND (54)	ND (9)
Indeno(1,2,3-cd)pyrene	ND (0.36)	ND (0.38)	ND (54)	ND (9)
VOAs				
1,3-Dichlorobenzene	ND (0.006)	ND (0.006)	0.22 J	0.045 J
1,4-Dichlorobenzene	ND (0.006)	ND (0.006)	0.45 J	0.1 J
Chlorobenzene	ND (0.006)	ND (0.006)	ND (0.82) UJ	ND (0.39)
Trichloroethene	ND (0.006)	ND (0.006)	ND (0.82) UJ	ND (0.39)
Vinyl chloride	ND (0.006)	ND (0.006)	ND (0.82) UJ	ND (0.39)

B-X221Y169	2/27/2002 0-2(ft) mg/kg	2/27/2002 4-5(ft) mg/kg
Metals		
Aluminum	8740	15800
Antimony	ND (7.9) UJ	ND (7.9) UJ
Arsenic	7.1	12.8
Chromium Total	11.1	24.1
Copper	15.3	17.1
Iron	29100	33000
Lead	11.8	19.2
Manganese	180 J	349 J
Mercury	0.057 J	0.09 J
Nickel	32.6	37.4
Thallium	ND (1.3)	ND (1.3)
Zinc	44.8 J	106 J
PCBs		
Total PCBs	0.085 J	ND (0.044) U
SVOAs		
Benzo(a)anthracene	ND (0.44)	ND (0.44)
Benzo(a)pyrene	ND (0.44)	ND (0.44)
Benzo(b)fluoranthene	ND (0.44)	ND (0.44)
bis(2-Ethylhexyl)phthalate	ND (0.44)	ND (0.44)
Dibenz(a,h)anthracene	ND (0.44)	ND (0.44)
Indeno(1,2,3-cd)pyrene	ND (0.44)	ND (0.44)
VOAs		
1,3-Dichlorobenzene	ND (0.007)	ND (0.008)
1,4-Dichlorobenzene	ND (0.007)	ND (0.008)
Chlorobenzene	ND (0.007)	ND (0.008)
Trichloroethene	ND (0.007)	ND (0.008)
Vinyl chloride	ND (0.007)	ND (0.008)

B-X166Y159	3/20/2002 1-3(ft) mg/kg	3/20/2002 6-8(ft) mg/kg	3/20/2002 18-20(ft) mg/kg	3/20/2002 21-23(ft) mg/kg
Metals				
Aluminum	8510/10000	6280	10700	8980
Antimony	0.71 J/0.59 J	2.8 J	0.78 J	0.88 J
Arsenic	6.1/7	3.8	9.9	8.6
Chromium Total	18.7/25.4	12.1	30.1	18.7
Copper	27.5/44.8	78.8	77.3	24.4
Iron	20400 J/19000 J	11400 J	20400 J	23100 J
Lead	24.9/36.7	80.8	80	28.8
Manganese	230/179	885	212	762
Mercury	0.081 J/0.014 J	0.28	0.072 J	0.068 J
Nickel	17.8/28.1	12.8	39.4	15.9
Thallium	0.82 J/ND (1.2)	ND (1.2)	0.84 J	0.72 J
Zinc	70.5/72.8	105	154	55.1
PCBs				
Total PCBs	22.5 J (A)/29.5 J (A)	109 J (A)	3480 J (A)	2500 J (A)
SVOAs				
Benzo(a)anthracene	ND (0.4)/ND (0.39)	ND (0.4)	ND (21)	ND (0.45)
Benzo(a)pyrene	ND (0.4)/ND (0.39)	ND (0.4)	ND (21)	ND (0.45)
Benzo(b)fluoranthene	ND (0.4)/ND (0.39)	ND (0.4)	ND (21)	ND (0.45)
bis(2-Ethylhexyl)phthalate	ND (0.4)/ND (0.39)	ND (0.4)	9.9 J	1.7
Dibenz(a,h)anthracene	ND (0.4)/ND (0.39)	ND (0.4)	ND (21)	ND (0.45)
Indeno(1,2,3-cd)pyrene	ND (0.4)/ND (0.39)	ND (0.4)	ND (21)	ND (0.45)
VOAs				
1,3-Dichlorobenzene	ND (0.006)/ND (0.006)	ND (0.008)	20	0.59
1,4-Dichlorobenzene	ND (0.006)/0.001 J	ND (0.008)	54	2.1
Chlorobenzene	ND (0.006)/ND (0.006)	ND (0.008)	2 J	0.18 J
Trichloroethene	ND (0.006)/ND (0.006)	ND (0.008)	ND (2.2)	ND (0.37)
Vinyl chloride	ND (0.006)/ND (0.006)	ND (0.008)	ND (2.2)	ND (0.37)

B-X209Y177	3/14/2002 0-2(ft) mg/kg	3/14/2002 2-4(ft) mg/kg
Metals		
Aluminum	16400	10900
Antimony	ND (7.7)	ND (7.9)
Arsenic	9.2	9.6
Chromium Total	25.2	16.9
Copper	16.2	20.9
Iron	24100	21300
Lead	13.2	20.1
Manganese	402	521
Mercury	ND (0.13) U	ND (0.13) U
Nickel	18.3	22.5
Thallium	ND (1.3)	ND (1.3)
Zinc	56.4	52.5
PCBs		
Total PCBs	0.109 J	39.5 J (A)
SVOAs		
Benzo(a)anthracene	ND (0.43)	0.078 J
Benzo(a)pyrene	ND (0.43)	ND (0.44)
Benzo(b)fluoranthene	ND (0.43)	0.098 J
bis(2-Ethylhexyl)phthalate	ND (0.43)	ND (0.44)
Dibenz(a,h)anthracene	ND (0.43)	ND (0.44)
Indeno(1,2,3-cd)pyrene	ND (0.43)	ND (0.44)
VOAs		
1,3-Dichlorobenzene	ND (0.006)	ND (0.007)
1,4-Dichlorobenzene	ND (0.006)	ND (0.007)
Chlorobenzene	ND (0.006)	ND (0.007)
Trichloroethene	ND (0.006)	ND (0.007)
Vinyl chloride	ND (0.006)	ND (0.007)

B-X217Y159	2/27/2002 0-2(ft) mg/kg	2/27/2002 6-7(ft) mg/kg
Metals		
Aluminum	12200	15800
Antimony	ND (7.3) UJ	ND (9) UJ
Arsenic	9.4	13.8
Chromium Total	33.5	27.2
Copper	12.3	24.8
Iron	23900	34300
Lead	17.2	17.6
Manganese	338 J	344 J
Mercury	0.045 J	0.12 J
Nickel	11.1	44.2
Thallium	ND (1.2)	ND (1.3)
Zinc	42.4 J	141 J
PCBs		
Total PCBs	ND (0.04) U	ND (0.044) U
SVOAs		
Benzo(a)anthracene	ND (0.4)	ND (0.44)
Benzo(a)pyrene	ND (0.4)	ND (0.44)
Benzo(b)fluoranthene	ND (0.4)	ND (0.44)
bis(2-Ethylhexyl)phthalate	ND (0.4)	ND (0.44)
Dibenz(a,h)anthracene	ND (0.4)	ND (0.44)
Indeno(1,2,3-cd)pyrene	ND (0.4)	ND (0.44)
VOAs		
1,3-Dichlorobenzene	ND (0.008)	ND (0.008)
1,4-Dichlorobenzene	ND (0.008)	ND (0.008)
Chlorobenzene	ND (0.008)	ND (0.008)
Trichloroethene	ND (0.008)	ND (0.008)
Vinyl chloride	ND (0.008)	ND (0.008)

B-X171Y157	3/22/2002 0-2(ft) mg/kg	3/22/2002 6-8(ft) mg/kg	3/22/2002 18-20(ft) mg/kg
Metals			
Aluminum	14400	4650	6400/8200
Antimony	0.79 J	R	R/R
Arsenic	8.2	3.1	5.6/5.1
Chromium Total	44.9 J	15.8 J	11.1 J/32.7 J
Copper	11.3	4.9	20.3/22.4
Iron	31100	13900	16900/25200
Lead	14	8.7	44.8/29.2
Manganese	65.1	46.3	562/403
Mercury	0.12 J	ND (0.12)	0.041 J/0.038 J
Nickel	9.5	6	37.2/42
Thallium	ND (1.3)	ND (1.2)	0.98 J/1.1 J
Zinc	31.8	19.7	113/151
PCBs			
Total PCBs	ND (0.043) U	0.172 J	ND (0.04) U/ND (0.041) U
SVOAs			
Benzo(a)anthracene	ND (0.43)	ND (0.41)	ND (0.4)/ND (0.41)
Benzo(a)pyrene	ND (0.43)	ND (0.41)	ND (0.4)/ND (0.41)
Benzo(b)fluoranthene	ND (0.43)	ND (0.41)	ND (0.4)/ND (0.41)
bis(2-Ethylhexyl)phthalate	ND (0.43)	ND (0.41)	ND (0.4)/ND (0.41)
Dibenz(a,h)anthracene	ND (0.43)	ND (0.41)	ND (0.4)/ND (0.41)
Indeno(1,2,3-cd)pyrene	ND (0.43)	ND (0.41)	ND (0.4)/ND (0.41)
VOAs			
1,3-Dichlorobenzene	ND (0.007)	ND (0.006)	ND (0.007)/ND (0.007)
1,4-Dichlorobenzene	ND (0.007)	ND (0.006)	ND (0.007)/ND (0.007)
Chlorobenzene	ND (0.007)	ND (0.006)	ND (0.007)/ND (0.007)
Trichloroethene	ND (0.007)	ND (0.006)	ND (0.007)/ND (0.007)
Vinyl chloride	ND (0.007)	ND (0.006)	ND (0.007)/ND (0.007)

B-X186Y180	3/21/2002 0-2(ft) mg/kg	3/21/2002 6-8(ft) mg/kg	3/21/2002 20-22(ft) mg/kg
Metals			
Aluminum	4040	5630	11100
Antimony	ND (6.9)	ND (7.7)	ND (15)
Arsenic	3.1	4.2	7.5
Chromium Total	11.6	29	13.5
Copper	25.9	69.2	25.4
Iron	7710	11900	22700
Lead	35.5	81.2	17.1
Manganese	224	107	210
Mercury	0.15	0.36	ND (0.12)
Nickel	8.7	64.2	40.8
Thallium	0.66 J	ND (1.3)	0.79 J
Zinc	106	134	47.3
PCBs			
Total PCBs	2500 J (A)	9680 J (A)	0.071 J
SVOAs			
Benzo(a)anthracene	ND (3.8)	ND (4.3)	ND (0.41)
Benzo(a)pyrene	ND (3.8)	ND (4.3)	ND (0.41)
Benzo(b)fluoranthene	ND (3.8)	ND (4.3)	ND (0.41)
bis(2-Ethylhexyl)phthalate	ND (3.8)	ND (4.3)	ND (0.41)
Dibenz(a,h)anthracene	ND (3.8)	ND (4.3)	ND (0.41)
Indeno(1,2,3-cd)pyrene	ND (3.8)	ND (4.3)	ND (0.41)
VOAs			
1,3-Dichlorobenzene	0.007 J	0.079 J	ND (0.007)
1,4-Dichlorobenzene	0.003 J	0.051 J	ND (0.007)
Chlorobenzene	0.001 J	ND (0.34)	ND (0.007)
Trichloroethene	ND (0.005)	ND (0.34)	ND (0.007)
Vinyl chloride	ND (0.005)	ND (0.34)	ND (0.007)

B-X170Y143	3/21/2002 0-2(ft) mg/kg	3/21/2002 6-8(ft) mg/kg	3/21/2002 19.5-21.5(ft) mg/kg
Metals			
Aluminum	1570	1200	10900
Antimony	ND (5.8)	ND (7)	ND (29.6)
Arsenic	1.5	1.1 J	12.9
Chromium Total	7.7	4.5	26.6
Copper	16.7	12.9	18.1
Iron	3330	2550	19800
Lead	58.5	30.1	16.3
Manganese	39.9	30.3	215
Mercury	0.03 J	0.023 J	0.086 J
Nickel	11.5	7.2	103
Thallium	0.57 J	ND (1.2)	3.3 J
Zinc	40.3	38.3	110
PCBs			
Total PCBs	1.09 J	0.826 J	0.137 J
SVOAs			
Benzo(a)anthracene	ND (0.36)	ND (0.39)	ND (0.44)
Benzo(a)pyrene	ND (0.36)	ND (0.39)	ND (0.44)
Benzo(b)fluoranthene	ND (0.36)	ND (0.39)	ND (0.44)
bis(2-Ethylhexyl)phthalate	ND (0.36)	ND (0.39)	ND (0.44)
Dibenz(a,h)anthracene	ND (0.36)	ND (0.39)	ND (0.44)
Indeno(1,2,3-cd)pyrene	ND (0.36)	ND (0.39)	ND (0.44)
VOAs			
1,3-Dichlorobenzene	ND (0.006) UJ	ND (0.006)	ND (0.008)
1,4-Dichlorobenzene	ND (0.006) UJ	ND (0.006)	ND (0.008)
Chlorobenzene	ND (0.006)	ND (0.006)	ND (0.008)
Trichloroethene	ND (0.006)	ND (0.006)	ND (0.008)
Vinyl chloride	ND (0.006)	ND (0.006)	ND (0.008)

B-X176Y143	1/09/2002 0-2(ft) mg/kg	1/09/2002 6-8(ft) mg/kg	1/09/2002 21-23(ft) mg/kg
Metals			
Aluminum	2170	5240	12000/7170
Antimony	ND (6.8) UJ	2.5 J	ND (7.6) UJ/ND (7.3) UJ
Arsenic	1.3	3.9	5.4/5.9
Chromium Total	8.3 J	12.9 J	28.3 J/15.8 J
Copper	18.2 J	107 J	6.1 J/11.9 J
Iron	3030 J	10600 J	12100 J/19100 J
Lead	5.8 J	71 J	15.4 J/15.8 J
Manganese	70 J	117 J	88.2 J/82 J
Mercury	0.048 J	0.11 J	0.064 J/0.062 J
Nickel	9.1 J	19.3 J	6.6 J/17.8 J
Thallium	ND (1.1) U	ND (1.2) U	ND (1.3)/ND (1.2) U
Zinc	37.9 J	88 J	17.8 J/25.9 J
PCBs			
Total PCBs	15.2 J (A)	257 J (A)	ND (0.042) U/0.055 J
SVOAs			
Benzo(a)anthracene	ND (0.37)	ND (3.9)	ND (0.42)/ND (0.4)
Benzo(a)pyrene	ND (0.37)	ND (3.9)	ND (0.42)/ND (0.4)
Benzo(b)fluoranthene	0.066 J	ND (3.9)	ND (0.42)/ND (0.4)
bis(2-Ethylhexyl)phthalate	ND (0.37)	ND (3.9)	ND (0.42)/ND (0.4)
Dibenz(a,h)anthracene	ND (0.37)	ND (3.9)	ND (0.42)/ND (0.4)
Indeno(1,2,3-cd)pyrene	ND (0.37)	ND (3.9)	ND (0.42)/ND (0.4)
VOAs			
1,3-Dichlorobenzene	ND (0.005)	ND (0.005)	ND (0.007)/ND (0.006)
1,4-Dichlorobenzene	ND (0.005)	ND (0.005)	ND (0.007)/ND (0.006)
Chlorobenzene	ND (0.005)	ND (0.005)	ND (0.007)/ND (0.006)
Trichloroethene	ND (0.005)	ND (0.005)	ND (0.007)/ND (0.006)
Vinyl chloride	ND (0.006)	ND (0.005)	ND (0.007)/ND (0.006)

B-X173Y131	3/14/2002 0-2(ft) mg/kg	3/14/2002 6-8(ft) mg/kg	3/14/2002 18-20(ft) mg/kg
Metals			
Aluminum	8600	13500	8050
Antimony	ND (6.8) U	ND (7.4) U	ND (15.6)
Arsenic	8.7	10.2	11
Chromium Total	12.1	35.2	21.2
Copper	16.4	8.8	21.2
Iron	18100	39800	39300
Lead	22.5	12.1	36.4
Manganese	170	16.3	180
Mercury	ND (0.11) U	ND (0.12)	ND (0.13) U
Nickel	8.7	4.1 J	60.3
Thallium	ND (1.1)	0.96 J	1.2 J
Zinc	36.7	11.2	135
PCBs			
Total PCBs	1570 J (A)	0.074 J	0.091 J
SVOAs			
Benzo(a)anthracene	ND (0.38)	ND (0.41)	ND (0.43)
Benzo(a)pyrene	ND (0.38)	ND (0.41)	ND (0.43)
Benzo(b)fluoranthene	ND (0.38)	ND (0.41)	ND (0.43)
bis(2-Ethylhexyl)phthalate	ND (0.38)	ND (0.41)	ND (0.43)
Dibenz(a,h)anthracene	ND (0.38)	ND (0.41)	ND (0.43)
Indeno(1,2,3-cd)pyrene	ND (0.38)	ND (0.41)	ND (0.43)
VOAs			
1,3-Dichlorobenzene	ND (0.008)	ND (0.007)	ND (0.008)
1,4-Dichlorobenzene	ND (0.008)	ND (0.007)	ND (0.008)
Chlorobenzene	ND (0.008)	ND (0.007)	ND (0.008)
Trichloroethene	ND (0.008)	ND (0.007)	ND (0.008)
Vinyl chloride	ND (0.008)	ND (0.007)	ND (0.008)

B-X183Y133	1/11/2002 0-2(ft) mg/kg	1/11/2002 3.5-4.5(ft) mg/kg	1/11/2002 6-8(ft) mg/kg	1/11/2002 18-19(ft) mg/kg
Metals				
Aluminum	12400	2800	10400/18300	8470
Antimony	R	R	R/R	R
Arsenic	7.9	3.8	7/8.9	7
Chromium Total	20.6	15.9	12.8/21.1	12.7
Copper	42.6	38.8	10.5/19.5	11.9
Iron	19900	7600	14900/23900	21600
Lead	20.4	35.5	20.9/10.6	27.7
Manganese	182	61.8	138/287	246
Mercury	0.12	0.076 J	0.1 J/0.18	0.052 J
Nickel	24.8	24.8	9.7/11.2	42.2
Thallium	ND (1.2)	ND (1.3)	0.84 J/ND (1.3)	ND (1.3)
Zinc	61.8	88.5	38.5/46.3	94.8
PCBs				
Total PCBs	ND (39) U	804 J (A)	ND (0.042) U/0.31 J	0.07 J
SVOAs				
Benzo(a)anthracene	ND (0.39)	ND (21)	ND (0.42)/ND (0.42)	ND (0.43)
Benzo(a)pyrene	ND (0.39)	ND (21)	ND (0.42)/ND (0.42)	ND (0.43)
Benzo(b)fluoranthene	ND (0.39)	ND (21)	ND (0.42)/ND (0.42)	ND (0.43)
bis(2-Ethylhexyl)phthalate	ND (0.39)	ND (21)	ND (0.42)/ND (0.42)	ND (0.43)
Dibenz(a,h)anthracene	ND (0.39)	ND (21)	ND (0.42)/ND (0.42)	ND (0.43)
Indeno(1,2,3-cd)pyrene	ND (0.39)	ND (21)	ND (0.42)/ND (0.42)	ND (0.43)
VOAs				
1,3-Dichlorobenzene	ND (0.006)	0.05 J	ND (0.007)/ND (0.006)	ND (0.007)
1,4-Dichlorobenzene	ND (0.006)	0.049 J	ND (0.007)/ND (0.006)	ND (0.007)
Chlorobenzene	ND (0.006)	ND (0.42)	ND (0.007)/ND (0.006)	ND (0.007)

B-X169Y248	2/21/2002 0-2(ft) mg/kg	2/21/2002 6-8(ft) mg/kg	2/21/2002 22-24(ft) mg/kg
Metals			
Aluminum	1380/2660	21400	17100
Antimony	ND (6.4)/ND (6.3)	1.6 J	ND (7.3)
Arsenic	0.71 J/1.2	3.2	11.8
Chromium Total	9.8/12.7	109	31.2
Copper	41.3/61.6	541	17.6
Iron	5760/7740	11200	33900
Lead	9.1/12.8	160	17.8
Manganese	124/154	236	335
Mercury	0.38/0.45	5	0.12
Nickel	22.2/22.4	1130	26.7
Thallium	ND (1.1)/ND (1.1)	ND (1.1) U	ND (1.2) U
Zinc	32.7/48.1	160	42.1
PCBs			
Total PCBs	6.54 J/6.24 J	9.82 J {A}	0.102 J
SVOAs			
Benzo(a)anthracene	ND (0.35)/ND (0.35)	ND (0.37)	ND (0.4)
Benzo(a)pyrene	ND (0.35)/ND (0.35)	ND (0.37)	ND (0.4)
Benzo(b)fluoranthene	ND (0.35)/ND (0.35)	ND (0.37)	ND (0.4)
bis(2-Ethylhexyl)phthalate	ND (0.35)/ND (0.35)	ND (0.37)	ND (0.4)
Dibenz(a,h)anthracene	ND (0.35)/ND (0.35)	ND (0.37)	ND (0.4)
Indeno(1,2,3-cd)pyrene	ND (0.35)/ND (0.35)	ND (0.37)	ND (0.4)
VOAs			
1,3-Dichlorobenzene	ND (0.005)/ND (0.005)	ND (0.3)	ND (0.006)
1,4-Dichlorobenzene	ND (0.005)/ND (0.005)	0.023 J	ND (0.006)
Chlorobenzene	ND (0.005)/ND (0.005)	ND (0.3)	ND (0.006)
Trichloroethene	ND (0.005)/ND (0.005)	0.28 J	ND (0.006)
Vinyl chloride	ND (0.005)/ND (0.005)	0.32	0.007

B-X177Y252D	2/20/2003 0-2(ft) mg/kg	2/20/2003 6-8(ft) mg/kg	2/20/2003 18-20(ft) mg/kg	2/20/2003 24-25(ft) mg/kg
Metals				
Aluminum	13200	3910/5220	3720	19200
Antimony	R	R/R	R	R
Arsenic	8.1	1.3/1.1	1.3	22.8
Chromium Total	22.6	74.6/78.2	15.2	33.1
Copper	15.3	72.5/141	42.8	17.4
Iron	26900	4770/4440	8290	36000
Lead	20.1 J	27.9 J/36 J	19.6 J	15.5 J
Manganese	323	47.5/42.4	51.4	254
Mercury	0.025 J	20.2 {A}/39.7 {A}	6.9	ND (0.13)
Nickel	15.1	174/167	36.2	19.3
Thallium	ND (1.3)	ND (1.1)/0.69 J	ND (1.1)	ND (1.3)
Zinc	43.6	39.1/51.9	29.2	76.1
PCBs				
Total PCBs	ND (0.043) U	11.3 J {A}/5.26 J	4.42 J	0.22 J
SVOAs				
Benzo(a)anthracene	ND (0.43)	0.35 J/0.058 J	ND (0.37)	ND (0.42)
Benzo(a)pyrene	ND (0.43)	0.39/0.071 J	ND (0.37)	ND (0.42)
Benzo(b)fluoranthene	ND (0.43)	0.51/0.08 J	ND (0.37)	ND (0.42)
bis(2-Ethylhexyl)phthalate	0.15 J	0.1 J/0.077 J	0.097 J	0.02 J
Dibenz(a,h)anthracene	ND (0.43)	0.057 J/ND (0.36) UJ	ND (0.37)	ND (0.42)
Indeno(1,2,3-cd)pyrene	ND (0.43)	0.18 J/0.039 J	ND (0.37)	ND (0.42)
VOAs				
1,3-Dichlorobenzene	ND (0.006)	ND (0.006)/ND (0.007)	ND (0.007)	ND (0.006)
1,4-Dichlorobenzene	ND (0.006)	ND (0.006)/ND (0.007)	ND (0.007)	ND (0.006)
Chlorobenzene	ND (0.006)	ND (0.006)/ND (0.007)	ND (0.007)	ND (0.006)
Trichloroethene	ND (0.006)	ND (0.006)/0.002 J	0.001 J	ND (0.006)
Vinyl chloride	ND (0.006)	ND (0.006)/ND (0.007)	ND (0.007)	ND (0.006)

B-X193Y251	3/04/2002 0-2(ft) mg/kg	3/04/2002 6-8(ft) mg/kg	3/04/2002 26-28(ft) mg/kg
Metals			
Aluminum	13500/16800	2020	4650
Antimony	R/R	R	R
Arsenic	10.5/10.3	0.87 J	1.1
Chromium Total	31/22.9	441	97.1
Copper	23.2 J/30.7 J	38.6 J	98.2 J
Iron	33700/29000	12000	6060
Lead	16.5/15.2	47.5	18.4
Manganese	358/573	140	56.5
Mercury	0.038 J/0.071 J	23.9 J {A}	1.7 J
Nickel	25.6/35.8	984	184
Thallium	0.8 J/0.78 J	2.6	0.69 J
Zinc	62.7/77.3	47.4	44.8
PCBs			
Total PCBs	0.06 J/ND (0.043) U	85.9 J {A}	299 J {A}
SVOAs			
Benzo(a)anthracene	ND (0.42)/ND (0.43)	ND (0.35)	ND (1.5)
Benzo(a)pyrene	ND (0.42)/ND (0.43)	ND (0.35)	ND (1.5)
Benzo(b)fluoranthene	ND (0.42)/ND (0.43)	ND (0.35)	ND (1.5)
bis(2-Ethylhexyl)phthalate	ND (0.42)/ND (0.43)	0.57	ND (1.5)
Dibenz(a,h)anthracene	ND (0.42)/ND (0.43)	ND (0.35)	ND (1.5)
Indeno(1,2,3-cd)pyrene	ND (0.42)/ND (0.43)	ND (0.35)	ND (1.5)
VOAs			
1,3-Dichlorobenzene	ND (0.006)/ND (0.006)	ND (0.006)	ND (0.34)
1,4-Dichlorobenzene	ND (0.006)/ND (0.006)	ND (0.006)	ND (0.34) U
Chlorobenzene	ND (0.006)/ND (0.006)	0.001 J	3.5
Trichloroethene	ND (0.006)/ND (0.006)	ND (0.006)	0.026 J
Vinyl chloride	ND (0.006)/ND (0.006)	ND (0.006)	ND (0.34)

B-X219Y249	2/25/2002 0-2(ft) mg/kg	2/26/2002 6-8(ft) mg/kg	2/26/2002 22-23(ft) mg/kg
Metals			
Aluminum	11800/11400	7190	8990
Antimony	ND (7.2) UJ/ND (7.5) UJ	ND (6.8) UJ	ND (7.1) UJ
Arsenic	7.2/7.7	1.8	5
Chromium Total	16.7/22.8	97.4	22
Copper	16.5/14.3	115	83.7
Iron	20300/24700	12100	11300
Lead	12.4/11.4	66.6 J	32.2 J
Manganese	357/215	125 J	757 J
Mercury	0.035 J/0.032 J	8.2	0.87
Nickel	11.9/14.2	267	33.5
Thallium	0.81 J/ND (1.2)	ND (1.1) U	ND (1.2)
Zinc	35.6/36.4	63.3	71.7
PCBs			
Total PCBs	ND (0.039) U/ND (0.041) U	24.1 J {A}	3.82 J
SVOAs			
Benzo(a)anthracene	ND (0.39)/ND (0.41)	0.32 J	0.079 J
Benzo(a)pyrene	ND (0.39)/ND (0.41)	0.36 J	0.074 J
Benzo(b)fluoranthene	ND (0.39)/ND (0.41)	0.41	0.088 J
bis(2-Ethylhexyl)phthalate	0.12 J/ND (0.41)	ND (0.37)	0.064 J
Dibenz(a,h)anthracene	ND (0.39)/ND (0.41)	0.069 J	ND (0.39)
Indeno(1,2,3-cd)pyrene	ND (0.39)/ND (0.41)	0.21 J	ND (0.39)
VOAs			
1,3-Dichlorobenzene	ND (0.005)/ND (0.005)	ND (0.006)	ND (0.006)
1,4-Dichlorobenzene	ND (0.005)/ND (0.005)	ND (0.006)	ND (0.006)
Chlorobenzene	ND (0.005)/ND (0.005)	ND (0.006)	ND (0.006)
Trichloroethene	ND (0.005)/ND (0.005)	ND (0.006)	ND (0.006)
Vinyl chloride	ND (0.005)/ND (0.005)	ND (0.006)	ND (0.006)

B-X243Y257	3/05/2002 0-2(ft) mg/kg	3/05/2002 6-8(ft) mg/kg	3/05/2002 14-16(ft) mg/kg
Metals			
Aluminum	15100	11100	16900
Antimony	ND (7.9) UJ	ND (6.9) UJ	ND (7.5) UJ
Arsenic	10.7	2	20.2
Chromium Total	32.3	176	26
Copper	16.1	400	15.7
Iron	34100	9190	33500
Lead	15.9	63.2	20
Manganese	211	159	590
Mercury	0.13	33.7 {A}	0.089 J
Nickel	12.9	476	17.5
Thallium	ND (1.3)	0.59 J	ND (1.2)
Zinc	37.8	122	68.6
PCBs			
Total PCBs	0.115 J	186 J {A}	0.066 J
SVOAs			
Benzo(a)anthracene	ND (0.43)	0.12 J	ND (0.41)
Benzo(a)pyrene	ND (0.43)	0.12 J	ND (0.41)
Benzo(b)fluoranthene	ND (0.43)	0.15 J	ND (0.41)
bis(2-Ethylhexyl)phthalate	ND (0.43)	0.2 J	ND (0.41)
Dibenz(a,h)anthracene	ND (0.43)	ND (0.38)	ND (0.41)
Indeno(1,2,3-cd)pyrene	ND (0.43)	ND (0.38)	ND (0.41)
VOAs			
1,3-Dichlorobenzene	ND (0.006)	ND (0.007)	ND (0.008)
1,4-Dichlorobenzene	ND (0.006)	0.001 J	ND (0.008)
Chlorobenzene	ND (0.006)	ND (0.007)	ND (0.008)
Trichloroethene	ND (0.006)	ND (0.007)	ND (0.008)
Vinyl chloride	ND (0.006)	ND (0.007)	ND (0.008)

MW-X143Y245D	1/07/2002 0-2(ft) mg/kg	1/07/2002 6-8(ft) mg/kg
Metals		
Aluminum	6440/7420	16800
Antimony	ND (6.8) UJ/ND (7.1) UJ	1.4 J
Arsenic	1.8/1.8	17.5
Chromium Total	33/27.4	29.1
Copper	161/194	17.7
Iron	5590/6730	36900
Lead	17.1/23.6	25.7
Manganese	79.3/129	379
Mercury	1/2.2	0.2
Nickel	47.5/43	94.9
Thallium	1.2/ND (1.2)	4.4 J
Zinc	61.4/131	83.8
PCBs		
Total PCBs	40.5 J {A}/34.7 J {A}	0.143 J
SVOAs		
Benzo(a)anthracene	ND (0.37)/0.37 J	ND (0.46)
Benzo(a)pyrene	ND (0.37)/0.36 J	ND (0.46)
Benzo(b)fluoranthene	0.071 J/0.41 J	ND (0.46)
bis(2-Ethylhexyl)phthalate	ND (0.37)/0.069 J	ND (0.46)
Dibenz(a,h)anthracene	ND (0.37)/0.062 J	ND (0.46)
Indeno(1,2,3-cd)pyrene	ND (0.37)/0.21 J	ND (0.46)
VOAs		
1,3-Dichlorobenzene	ND (0.005)/ND (0.005)	ND (0.005)
1,4-Dichlorobenzene	ND (0.005)/ND (0.005)	ND (0.005)
Chlorobenzene	ND (0.005)/ND (0.005)	ND (0.005)
Trichloroethene	ND (0.005)/ND (0.005)	ND (0.005)
Vinyl chloride	ND (0.005)/ND (0.005)	ND (0.005)

B-X223Y247D	1/22/2003 0-2(ft) mg/kg	1/22/2003 8-10(ft) mg/kg	1/22/2003 22-24(ft) mg/kg	1/23/2003 34-35(ft) mg/kg
Metals				
Aluminum	11300	4940	14900	16300
Antimony	ND (7.4)	ND (6.9)	0.63 J	0.33 J
Arsenic	8.1	6.8	3.2	15.3
Chromium Total	19.2	10.8	226	32
Copper	12.5	30.2	485	23.9
Iron	22200	13500	13400	31900
Lead	14.5	10	72.6	15
Manganese	544	293	225	231
Mercury	0.038 J	0.036 J	4.8	0.13 J
Nickel	13.8	16.1	456	49.4
Thallium	ND (1.2)	1.1 J	2.1	0.96 J
Zinc	43.3	54.5	232	102
PCBs				
Total PCBs	ND (0.041) U	4.57 J	1340 J {A}	16.6 J {A}
SVOAs				
Benzo(a)anthracene	ND (0.41)	ND (0.38)	ND (8.5)	ND (0.45)
Benzo(a)pyrene	ND (0.41)	ND (0.38)	0.94 J	ND (0.45)
Benzo(b)fluoranthene	ND (0.41)	ND (0.38)	1.4 J	ND (0.45)
bis(2-Ethylhexyl)phthalate	ND (0.41)	0.052 J	18	0.053 J
Dibenz(a,h)anthracene	ND (0.41)	ND (0.38)	ND (8.5)	ND (0.45)
Indeno(1,2,3-cd)pyrene	ND (0.41)	ND (0.38)	ND (8.5)	ND (0.45)
VOAs				
1,3-Dichlorobenzene	ND (0.007)	ND (0.005)	0.007 J	0.002 J
1,4-Dichlorobenzene	ND (0.007)	ND (0.005)	0.001 J	0.006 J
Chlorobenzene	ND (0.007)	ND (0.005)	ND (0.009)	0.001 J
Trichloroethene	ND (0.007)	ND (0.005)	ND (0.009)	ND (0.007)
Vinyl chloride	ND (0.007)	ND (0.005)	ND (0.009)	ND (0.007)

B-X148Y233	2/22/2002 0-2(ft) mg/kg	2/22/2002 6-8(ft) mg/kg	2/22/2002 12-14(ft) mg/kg
Metals			
Aluminum	1720/2530	2280	2800
Antimony	ND (6.5)/ND (6.8)	ND (7.8)	ND (8.4)
Arsenic	1.1/0.36 J	2.1	7.4
Chromium Total	15.9/25.7	3.1	8.4
Copper	42.1/54.4	5.7	7.3
Iron	1710/1040	6510	11700
Lead	21/ND (0.34) U	ND (0.39) U	ND (0.42) U
Manganese	51.8/55.3	1120	373
Mercury	0.33 J/0.31 J	0.02 J	0.11 J
Nickel	38.2/37.3	10.5	19.3
Thallium	ND (1.1)/ND (1.1)	ND (1.3)	ND (1.4)
Zinc	16.3/17.6	10.3	25
PCBs			
Total PCBs	4.01 J/56.8 J {A}	0.059 J	ND (0.046) U
SVOAs			
Benzo(a)anthracene	0.061 J/0.35 J	ND (0.43)	ND (0.46)
Benzo(a)pyrene	0.074 J/0.4 J	ND (0.43)	ND (0.46)
Benzo(b)fluoranthene	0.099 J/0.59 J	ND (0.43)	ND (0.46)
bis(2-Ethylhexyl)phthalate	ND (0.36) U/ND (0.37) U	ND (0.43) U	ND (0.46) U
Dibenz(a,h)anthracene	ND (0.36)/0.071 J	ND (0.43)	ND (0.46)
Indeno(1,2,3-cd)pyrene	ND (0.36)/0.27 J	ND (0.43)	ND (0.46)
VOAs			
1,3-Dichlorobenzene	ND (0.008)/ND (0.005)	ND (0.007)	ND (0.008)
1,4-Dichlorobenzene	ND (0.008)/ND (0.005)	ND (0.007)	ND (0.008)
Chlorobenzene	ND (0.008)/ND (0.005)	ND (0.007)	ND (0.008)
Trichloroethene	ND (0.008)/ND (0.005)	ND (0.007)	ND (0.008)
Vinyl chloride	ND (0.008)/ND (0.005)	ND (0.007)	ND (0.008)

MW-X269Y201D	1/22/2002 0-2(ft) mg/kg	1/22/2002 7-9(ft) mg/kg
Metals		
Aluminum	13100/11600	14100
Antimony	ND (7.3)/ND (7.7)	ND (7.8)
Arsenic	9.9/8.3	18
Chromium Total	18.6/17.4	28.3
Copper	19.2/16.2	23.6
Iron	22100/20100	34600
Lead	37.3/22.1	20.1
Manganese	484/276	553
Mercury	0.25/0.24	0.094 J
Nickel	15.8/12.3	65
Thallium	ND (1.2)/ND (1.3)	ND (1.3)
Zinc	135/75.2	108
PCBs		
Total PCBs	ND (0.04) U/0.07 J	0.068 J
SVOAs		
Benzo(a)anthracene	ND (0.4)/ND (0.42)	ND (0.43)
Benzo(a)pyrene	ND (0.4)/ND (0.42)	ND (0.43)
Benzo(b)fluoranthene	ND (0.4)/ND (0.42)	ND (0.43)
bis(2-Ethylhexyl)phthalate	ND (0.4)/ND (0.42)	ND (0.43)
Dibenz(a,h)anthracene	ND (0.4)/ND (0.42)	ND (0.43)
Indeno(1,2,3-cd)pyrene	ND (0.4)/ND (0.42)	ND (0.43)
VOAs		
1,3-Dichlorobenzene	ND (0.006)/ND (0.006)	ND (0.007)
1,4-Dichlorobenzene	ND (0.006)/ND (0.006)	ND (0.007)
Chlorobenzene	ND (0.006)/ND (0.006)	ND (0.007)
Trichloroethene	ND (0.006)/ND (0.006)	ND (0.007)
Vinyl chloride	ND (0.006)/ND (0.006)	ND (0.007)

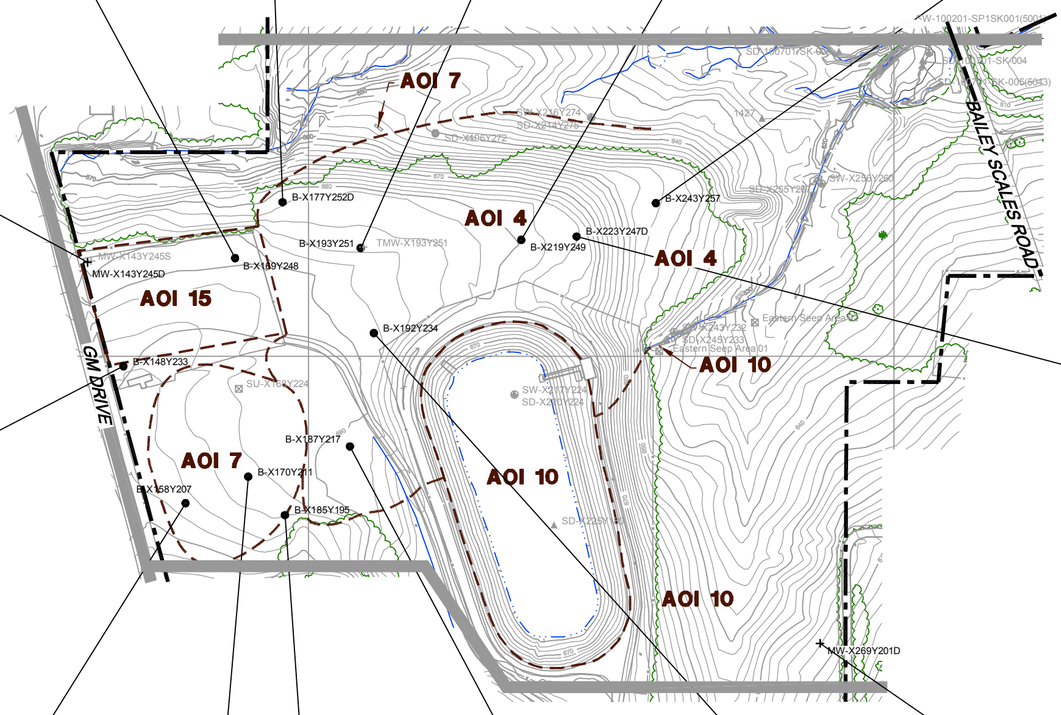
B-X158Y207	3/06/2002 0-2(ft) mg/kg	3/06/2002 6-8(ft) mg/kg	3/06/2002 22-24(ft) mg/kg
Metals			
Aluminum	11100	11800	12600
Antimony	ND (7.5) UJ	ND (7.7) UJ	ND (7.5) UJ
Arsenic	8.4	7.6	10.2
Chromium Total	36.2 J	17.3 J	34.7 J
Copper	14.9 J	15.4 J	15.8 J
Iron	25300 J	19200 J	27900 J
Lead	20.1 J	20 J	27.5 J
Manganese	178 J	120 J	328 J
Mercury	ND (0.12) U	0.095 J	ND (0.12) U
Nickel	20.3 J	22.8 J	30.7 J
Thallium	ND (1.2)	ND (1.3)	ND (1.2)
Zinc	41.2 J	41.3 J	51.2 J
PCBs			
Total PCBs	0.138 J	ND (0.043) U	ND (0.041) U
SVOAs			
Benzo(a)anthracene	ND (0.41)	ND (0.43)	ND (0.41)
Benzo(a)pyrene	ND (0.41)	ND (0.43)	ND (0.41)
Benzo(b)fluoranthene	ND (0.41)	ND (0.43)	ND (0.41)
bis(2-Ethylhexyl)phthalate	ND (0.41)	ND (0.43)	ND (0.41)
Dibenz(a,h)anthracene	ND (0.41)	ND (0.43)	ND (0.41)
Indeno(1,2,3-cd)pyrene	ND (0.41)	ND (0.43)	ND (0.41)
VOAs			
1,3-Dichlorobenzene	ND (0.007)	ND (0.007)	ND (0.006)
1,4-Dichlorobenzene	ND (0.007)	ND (0.007)	ND (0.006)
Chlorobenzene	ND (0.007)	ND (0.007)	ND (0.006)
Trichloroethene	ND (0.007)	ND (0.007)	ND (0.006)
Vinyl chloride	ND (0.007)	ND (0.007)	ND (0.006)

B-X170Y211	3/06/2002 0-2(ft) mg/kg	3/06/2002 6-8(ft) mg/kg	3/06/2002 26-28(ft) mg/kg
Metals			
Aluminum	11400	13400	12700
Antimony	ND (7.2) UJ	ND (7.7) UJ	ND (7.6) UJ
Arsenic	9.9	7.9	7.5
Chromium Total	23.3 J	19.7 J	18.4 J
Copper	13 J	13.2 J	17 J
Iron	27400 J	21700 J	24700 J
Lead	16.7 J	14.8 J	15.2 J
Manganese	202 J	148 J	425 J
Mercury	ND (0.12) U	ND (0.13) U	0.084 J
Nickel	16.5 J	14.3 J	38.9 J
Thallium	ND (1.2)	ND (1.3)	ND (1.3)
Zinc	42.7 J	35.7 J	42.9 J
PCBs			
Total PCBs	ND (0.039) U	ND (0.043) U	ND (0.042) U
SVOAs			
Benzo(a)anthracene	ND (0.39)	ND (0.43)	ND (0.42)
Benzo(a)pyrene	ND (0.39)	ND (0.43)	ND (0.42)
Benzo(b)fluoranthene	ND (0.39)	ND (0.43)	ND (0.42)
bis(2-Ethylhexyl)phthalate	ND (0.39)	ND (0.43)	ND (0.42)
Dibenz(a,h)anthracene	ND (0.39)	ND (0.43)	ND (0.42)
Indeno(1,2,3-cd)pyrene	ND (0.39)	ND (0.43)	ND (0.42)
VOAs			
1,3-Dichlorobenzene	ND (0.005)	ND (0.008)	ND (0.008)
1,4-Dichlorobenzene	ND (0.005)	ND (0.008)	0.001 J
Chlorobenzene	ND (0.005)	ND (0.008)	ND (0.008)
Trichloroethene	ND (0.005)	ND (0.008)	ND (0.008)
Vinyl chloride	ND (0.005)	ND (0.008)	ND (0.008)

B-X185Y195	3/15/2002 0-2(ft) mg/kg	3/15/2002 6-8(ft) mg/kg	3/15/2002 11-12.5(ft) mg/kg
Metals			
Aluminum	13000 J	9050 J	19800 J
Antimony	ND (7.7) UJ	ND (38) UJ	ND (17.5) UJ
Arsenic	10.2	9	15.7
Chromium Total	22.5 J	9.8 J	32.9 J
Copper	13.7 J	9.1 J	24 J
Iron	27100 J	28600 J	34400 J
Lead	18.1 J	14.9 J	41.2 J
Manganese	204 J	250 J	387 J
Mercury	ND (0.13) U	ND (0.13) U	ND (0.16) U
Nickel	12.1 J	47.7 J	48.1 J
Thallium	ND (1.3) U	ND (6.3)	ND (2.9) U
Zinc	36.1 J	47.1 J	62.6 J
PCBs			
Total PCBs	ND (0.042) U	ND (0.042) U	ND (0.048) U
SVOAs			
Benzo(a)anthracene	ND (0.42)	ND (0.42)	ND (0.48)
Benzo(a)pyrene	ND (0.42)	ND (0.42)	ND (0.48)
Benzo(b)fluoranthene	ND (0.42)	ND (0.42)	ND (0.48)
bis(2-Ethylhexyl)phthalate	ND (0.42)	0.2 J	ND (0.48)
Dibenz(a,h)anthracene	ND (0.42)	ND (0.42)	ND (0.48)
Indeno(1,2,3-cd)pyrene	ND (0.42)	ND (0.42)	ND (0.48)
VOAs			
1,3-Dichlorobenzene	ND (0.006)	ND (0.008)	ND (0.007)
1,4-Dichlorobenzene	ND (0.006)	ND (0.008)	ND (0.007)
Chlorobenzene	ND (0.006)	ND (0.008)	ND (0.007)
Trichloroethene	ND (0.006)	ND (0.008)	ND (0.007)
Vinyl chloride	ND (0.006)	ND (0.008)	ND (0.007)

B-X187Y217	3/06/2002 0-2(ft) mg/kg	3/06/2002 6-8(ft) mg/kg
Metals		
Aluminum	13200	15200
Antimony	ND (7.5) UJ	ND (7.8) UJ
Arsenic	10.2	12.8
Chromium Total	23.6 J	21.2 J
Copper	15.1 J	21.2 J
Iron	26000 J	30400 J
Lead	17.8 J	29.5 J
Manganese	145 J	402 J
Mercury	0.2	0.14
Nickel	13.2 J	51.7 J
Thallium	0.64 J	1.1 J
Zinc	45.5 J	72.9 J
PCBs		
Total PCBs	0.243 J	0.077 J
SVOAs		
Benzo(a)anthracene	ND (0.41)	ND (0.43)
Benzo(a)pyrene	ND (0.41)	ND (0.43)
Benzo(b)fluoranthene	ND (0.41)	ND (0.43)
bis(2-Ethylhexyl)phthalate	ND (0.41)	ND (0.43)
Dibenz(a,h)anthracene	ND (0.41)	ND (0.43)
Indeno(1,2,3-cd)pyrene	ND (0.41)	ND (0.43)
VOAs		
1,3-Dichlorobenzene	ND (0.006)	ND (0.009)
1,4-Dichlorobenzene	ND (0.006)	0.001 J
Chlorobenzene	ND (0.006)	ND (0.009)
Trichloroethene	ND (0.006)	ND (0.009)
Vinyl chloride	ND (0.006)	ND (0.009)

B-X192Y234	3/05/2002 0-2(ft) mg/kg	3/05/2002 6-8(ft) mg/kg	3/05/2002 20-22(ft) mg/kg
Metals			
Aluminum	12200	4710	22500
Antimony	ND (7.9) UJ	ND (6.7) UJ	ND (6.9) UJ
Arsenic	8.3	2.5	3.9
Chromium Total	31	19.7	15.3
Copper	23.3	52.7	256
Iron	28700	6660	9540
Lead	19.6	19	26.4
Manganese	190	138	330
Mercury	0.47	0.15	0.089 J
Nickel	31	24.3	82.4
Thallium	ND (1.3)	ND (1.1)	ND (1.2)
Zinc	66	57.3	32.9
PCBs			
Total PCBs	0.084 J	1.91 J	0.228 J
SVOAs			
Benzo(a)anthracene	ND (0.44)	ND (0.37)	ND (0.38)
Benzo(a)pyrene	ND (0.44)	ND (0.37)	ND (0.38)
Benzo(b)fluoranthene	ND (0.44)	0.074 J	ND (0.38)
bis(2-Ethylhexyl)phthalate	ND (0.44)	ND (0.37)	ND (0.38)
Dibenz(a,h)anthracene	ND (0.44)	ND (0.37)	ND (0.38)
Indeno(1,2,3-cd)pyrene	ND (0.44)	ND (0.37)	ND (0.38)
VOAs			
1,3-Dichlorobenzene	ND (0.007)	ND (0.008)	ND (0.006)
1,4-Dichlorobenzene	ND (0.007)	ND (0.008)	ND (0.006)
Chlorobenzene	ND (0.007)	ND (0.008)	ND (0.006)
Trichloroethene	ND (0.007)	ND (0.008)	ND (0.006)
Vinyl chloride	ND (0.007)	ND (0.008)	ND (0.006)


AOI 7
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AOI 10
AOI 10
AOI 10
BAILEY SCALES ROAD
GM DRIVE
B-X177Y252D
B-X193Y251
TMW-X193Y251
B-X148Y233
B-X158Y207
B-X187Y217
B-X170Y211
B-X185Y195
B-X192Y234
B-X219Y249
B-X223Y247D
B-X243Y257
MW-X143Y245S
MW-X143Y245D
MW-X269Y201D
MW-100201-SP1SK001(5003)
SD-X225Y180
SD-X215Y274
SD-X214Y273
SD-X185Y272
SD-X255Y281
SW-X256Y280
SW-X217Y224
SD-X216Y224
SU-X169Y224
SW-X243Y233
SD-X244Y233
Eastern Seep Area 01
Eastern Seep Area
SD-X226Y243
SD-X227Y243
SD-X228Y243
SD-X229Y243
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B-809012-13	9/03/2002 0-2(ft) mg/kg	9/03/2002 4-4.75(ft) mg/kg
Metals		
Aluminum	9550 J	9740 J
Antimony	ND (6.6)	ND (6.5)
Arsenic	7.7	8.2
Chromium Total	13 J	14.6 J
Copper	17.9	25.1
Iron	15200 J	16200 J
Lead	21.9 J	20.5 J
Manganese	1440 J	1540 J
Mercury	0.055 J	0.061 J
Nickel	14.2	15.3
Thallium	ND (1.1)	ND (1.1)
Zinc	55.3 J	55.4 J
PCBs		
Total PCBs	0.059 J	0.054 J
SVOAs		
Benzo(a)anthracene	ND (0.37)	ND (0.36)
Benzo(a)pyrene	ND (0.37)	ND (0.36)
Benzo(b)fluoranthene	ND (0.37)	ND (0.36)
bis(2-Ethylhexyl)phthalate	ND (0.37)	ND (0.36)
Dibenz(a,h)anthracene	ND (0.37)	ND (0.36)
Indeno(1,2,3-cd)pyrene	ND (0.37)	ND (0.36)
VOAs		
1,3-Dichlorobenzene	ND (0.012)	ND (0.008)
1,4-Dichlorobenzene	ND (0.012)	ND (0.008)
Chlorobenzene	ND (0.012)	ND (0.008)
Trichloroethene	ND (0.012)	ND (0.008)
Vinyl chloride	ND (0.012)	ND (0.008)

B-809012-12	4/10/2002 0-2(ft) mg/kg	4/10/2002 6-8(ft) mg/kg	4/10/2002 26-28(ft) mg/kg
Metals			
Aluminum	11500	21800	16500
Antimony	ND (7.6)	1.4 J	0.87 J
Arsenic	8	17.3 {B}	20.2 {B}
Chromium Total	15.5	47.4	45.5
Copper	10.5	17.4	18.8
Iron	18400	40900	37800
Lead	14.6	17.9	17.6
Manganese	1040	127	551
Mercury	0.033 J	0.1 J	0.1 J
Nickel	13.5	23.6	36
Thallium	ND (1.3)	1.1 J	ND (1.3)
Zinc	45.2	57.4	77.9
PCBs			
Total PCBs	0.07 J	ND (0.042) U	ND (0.044) U
SVOAs			
Benzo(a)anthracene	ND (0.42)	ND (0.42)	ND (0.44)
Benzo(a)pyrene	ND (0.42)	ND (0.42)	ND (0.44)
Benzo(b)fluoranthene	ND (0.42)	ND (0.42)	ND (0.44)
bis(2-Ethylhexyl)phthalate	ND (0.42)	ND (0.42)	ND (0.44)
Dibenz(a,h)anthracene	ND (0.42)	ND (0.42)	ND (0.44)
Indeno(1,2,3-cd)pyrene	ND (0.42)	ND (0.42)	ND (0.44)
VOAs			
1,3-Dichlorobenzene	ND (0.006)	ND (0.007)	ND (0.01)
1,4-Dichlorobenzene	ND (0.006)	ND (0.007)	ND (0.01)
Chlorobenzene	ND (0.006)	ND (0.007)	ND (0.01)
Trichloroethene	ND (0.006)	ND (0.007)	ND (0.01)
Vinyl chloride	ND (0.006)	ND (0.007)	ND (0.01)

B-809012-10	4/10/2002 0-2(ft) mg/kg	4/10/2002 6-8(ft) mg/kg	4/10/2002 25.5-27.5(ft) mg/kg
Metals			
Aluminum	95700 {B}	9520	15000
Antimony	ND (8.6)	ND (7.6)	ND (7.5)
Arsenic	5.9	7.7	19.1 {B}
Chromium Total	85.3	16.8	32.3
Copper	20400 {B}	9.5	25.9
Iron	10400	17500	30800
Lead	102	16.6	18.9
Manganese	736	783	1180
Mercury	ND (0.14)	0.022 J	0.048 J
Nickel	46.3	10.4	20.5
Thallium	4.7 J	ND (1.3)	0.87 J
Zinc	7580	46.4	65.7
PCBs			
Total PCBs	ND (0.047) U	ND (0.042) U	ND (0.041) U
SVOAs			
Benzo(a)anthracene	ND (0.47)	ND (0.42)	ND (0.41)
Benzo(a)pyrene	ND (0.47)	ND (0.42)	ND (0.41)
Benzo(b)fluoranthene	ND (0.47)	ND (0.42)	ND (0.41)
bis(2-Ethylhexyl)phthalate	ND (0.47)	ND (0.42)	ND (0.41)
Dibenz(a,h)anthracene	ND (0.47)	ND (0.42)	ND (0.41)
Indeno(1,2,3-cd)pyrene	ND (0.47)	ND (0.42)	ND (0.41)
VOAs			
1,3-Dichlorobenzene	ND (0.009)	ND (0.009)	ND (0.009)
1,4-Dichlorobenzene	ND (0.009)	ND (0.009)	ND (0.009)
Chlorobenzene	ND (0.009)	ND (0.009)	ND (0.009)
Trichloroethene	ND (0.009)	ND (0.009)	ND (0.009)
Vinyl chloride	ND (0.009)	ND (0.009)	ND (0.009)

B-809012-22	9/05/2002 0-2(ft) mg/kg
Metals	
Aluminum	22200
Antimony	ND (6.9) UJ
Arsenic	10.9
Chromium Total	24.1 J
Copper	21.8 J
Iron	23200
Lead	27.9
Manganese	1250
Mercury	0.2
Nickel	20.7
Thallium	0.76 J
Zinc	63.3 J
PCBs	
Total PCBs	ND (0.038) U
SVOAs	
Benzo(a)anthracene	ND (0.38)
Benzo(a)pyrene	ND (0.38)
Benzo(b)fluoranthene	ND (0.38)
bis(2-Ethylhexyl)phthalate	ND (0.38)
Dibenz(a,h)anthracene	ND (0.38)
Indeno(1,2,3-cd)pyrene	ND (0.38)
VOAs	
1,3-Dichlorobenzene	ND (0.005)
1,4-Dichlorobenzene	ND (0.005)
Chlorobenzene	ND (0.005)
Trichloroethene	ND (0.005)
Vinyl chloride	ND (0.005)

B-809012-15	9/04/2002 0-2(ft) mg/kg	9/04/2002 6-8(ft) mg/kg	9/04/2002 26-27.75(ft) mg/kg
Metals			
Aluminum	9950	9850	23600
Antimony	ND (6.7) UJ	ND (7.3) UJ	ND (47.6) UJ
Arsenic	7.4	11.9	36.6 {B}
Chromium Total	11.8 J	19.6 J	51 J
Copper	19.3	8.5	22.7
Iron	15300	19700	41600
Lead	15.5	15	17.6
Manganese	1100	551	856
Mercury	0.062 J	0.031 J	0.088 J
Nickel	13	11.6	52.3
Thallium	ND (1.1)	ND (1.2)	ND (7.9)
Zinc	46.3 J	49.8 J	159 J
PCBs			
Total PCBs	ND (0.037) U	ND (0.04) U	ND (0.052) U
SVOAs			
Benzo(a)anthracene	ND (0.37)	ND (0.4)	ND (0.52)
Benzo(a)pyrene	ND (0.37)	ND (0.4)	ND (0.52)
Benzo(b)fluoranthene	ND (0.37)	ND (0.4)	ND (0.52)
bis(2-Ethylhexyl)phthalate	ND (0.37)	ND (0.4)	ND (0.52)
Dibenz(a,h)anthracene	ND (0.37)	ND (0.4)	ND (0.52)
Indeno(1,2,3-cd)pyrene	ND (0.37)	ND (0.4)	ND (0.52)
VOAs			
1,3-Dichlorobenzene	ND (0.005)	ND (0.006)	ND (0.01)
1,4-Dichlorobenzene	ND (0.005)	ND (0.006)	ND (0.01)
Chlorobenzene	ND (0.005)	ND (0.006)	ND (0.01)
Trichloroethene	ND (0.005)	ND (0.006)	ND (0.01)
Vinyl chloride	ND (0.005)	ND (0.006)	ND (0.01)

B-809012-7	4/09/2002 0-2(ft) mg/kg	4/09/2002 2-4(ft) mg/kg
Metals		
Aluminum	18000	19100
Antimony	1.1 J	0.88 J
Arsenic	14	13.6
Chromium Total	31.2 J	29 J
Copper	15.5	16.9
Iron	29900	30100
Lead	16.6	19
Manganese	376	486
Mercury	0.067 J	0.08 J
Nickel	15.7	16.2
Thallium	ND (1.3)	ND (1.4)
Zinc	53.5	57.6
PCBs		
Total PCBs	ND (0.042) U	ND (0.047) U
SVOAs		
Benzo(a)anthracene	ND (0.42)	ND (0.47)
Benzo(a)pyrene	ND (0.42)	ND (0.47)
Benzo(b)fluoranthene	ND (0.42)	ND (0.47)
bis(2-Ethylhexyl)phthalate	ND (0.42)	ND (0.47)
Dibenz(a,h)anthracene	ND (0.42)	ND (0.47)
Indeno(1,2,3-cd)pyrene	ND (0.42)	ND (0.47)
VOAs		
1,3-Dichlorobenzene	ND (0.008)	ND (0.01)
1,4-Dichlorobenzene	ND (0.008)	ND (0.01)
Chlorobenzene	ND (0.008)	ND (0.01)
Trichloroethene	ND (0.008)	ND (0.01)
Vinyl chloride	ND (0.008)	ND (0.01)

B-809012-11	4/10/2002 0-2.5(ft) mg/kg
Metals	
Aluminum	11500/9610
Antimony	ND (7.8)/ND (7.8)
Arsenic	8.1/7.8
Chromium Total	20.8/19
Copper	171/122
Iron	18500/17100
Lead	58/47.4
Manganese	1180/1160
Mercury	0.12 J/0.23
Nickel	41.6/34.8
Thallium	1 J/ND (1.3)
Zinc	168/157
PCBs	
Total PCBs	ND (0.043) U/0.087 J
SVOAs	
Benzo(a)anthracene	ND (0.43)/ND (0.43)
Benzo(a)pyrene	ND (0.43)/ND (0.43)
Benzo(b)fluoranthene	ND (0.43)/ND (0.43)
bis(2-Ethylhexyl)phthalate	ND (0.43)/ND (0.43)
Dibenz(a,h)anthracene	ND (0.43)/ND (0.43)
Indeno(1,2,3-cd)pyrene	ND (0.43)/ND (0.43)
VOAs	
1,3-Dichlorobenzene	ND (0.008)/ND (0.007)
1,4-Dichlorobenzene	ND (0.008)/ND (0.007)
Chlorobenzene	ND (0.008)/ND (0.007)
Trichloroethene	ND (0.008)/ND (0.007)
Vinyl chloride	ND (0.008)/ND (0.007)

B-809012-8	4/09/2002 0-2(ft) mg/kg	4/09/2002 6-8(ft) mg/kg	4/09/2002 14-16(ft) mg/kg
Metals			
Aluminum	16800	16900	20800
Antimony	ND (7.7) UJ	1.3 J	1.3 J
Arsenic	9.4	17.6 {B}	33.3 {B}
Chromium Total	15.4 J	39.7 J	54.8 J
Copper	13.9	14.2	19
Iron	23500	37400	42900
Lead	14.2	25.7	18.3
Manganese	444	397	434
Mercury	0.048 J	0.15	0.12 J
Nickel	14.4	28.1	32
Thallium	0.69 J	0.79 J	0.7 J
Zinc	54.7	71.6	94.5
PCBs			
Total PCBs	ND (0.042) U	0.062 J	ND (0.045) U
SVOAs			
Benzo(a)anthracene	ND (0.42)	ND (0.44)	ND (0.45)
Benzo(a)pyrene	ND (0.42)	ND (0.44)	ND (0.45)
Benzo(b)fluoranthene	ND (0.42)	ND (0.44)	ND (0.45)
bis(2-Ethylhexyl)phthalate	ND (0.42)	ND (0.44)	ND (0.45)
Dibenz(a,h)anthracene	ND (0.42)	ND (0.44)	ND (0.45)
Indeno(1,2,3-cd)pyrene	ND (0.42)	ND (0.44)	ND (0.45)
VOAs			
1,3-Dichlorobenzene	ND (0.01)	ND (0.009)	ND (0.007)
1,4-Dichlorobenzene	ND (0.01)	ND (0.009)	ND (0.007)
Chlorobenzene	ND (0.01)	ND (0.009)	ND (0.007)
Trichloroethene	ND (0.01)	ND (0.009)	ND (0.007)
Vinyl chloride	ND (0.01)	ND (0.009)	ND (0.007)

B-809012-18	9/05/2002 0-2(ft) mg/kg	9/05/2002 5-6(ft) mg/kg
Metals		
Aluminum	16400	20600
Antimony	ND (6.8) UJ	ND (7.6) UJ
Arsenic	11.4	21.7 {B}
Chromium Total	22 J	43.1 J
Copper	100 J	15.6 J
Iron	25500	39400
Lead	29.2	22
Manganese	318	867
Mercury	0.071 J	0.096 J
Nickel	15.7	34.5
Thallium	ND (1.1)	ND (1.3)
Zinc	65.7 J	79 J
PCBs		
Total PCBs	0.257 J	ND (0.042) U
SVOAs		
Benzo(a)anthracene	ND (0.37)	ND (0.42)
Benzo(a)pyrene	ND (0.37)	ND (0.42)
Benzo(b)fluoranthene	ND (0.37)	ND (0.42)
bis(2-Ethylhexyl)phthalate	ND (0.37)	ND (0.42)
Dibenz(a,h)anthracene	ND (0.37)	ND (0.42)
Indeno(1,2,3-cd)pyrene	ND (0.37)	ND (0.42)
VOAs		
1,3-Dichlorobenzene	ND (0.005)	ND (0.006)
1,4-Dichlorobenzene	ND (0.005)	ND (0.006)
Chlorobenzene	ND (0.005)	ND (0.006)
Trichloroethene	ND (0.005)	ND (0.006)
Vinyl chloride	ND (0.005)	ND (0.006)

B-809012-6	4/09/2002 0-2(ft) mg/kg	4/09/2002 6-8(ft) mg/kg	4/09/2002 10-12(ft) mg/kg
Metals			
Aluminum	18200	15400	18400
Antimony	ND (7.6) UJ	ND (7.7) UJ	1.2 J
Arsenic	10.8	11	26.3 {B}
Chromium Total	18.7 J	31.2 J	58.3 J
Copper	19	11.5	24.4
Iron	25900	29500	40300
Lead	15.5	15.7	19.9
Manganese	488	491	633
Mercury	0.094 J	0.044 J	0.2
Nickel	16.8	22.3	40.4
Thallium	ND (1.3)	ND (1.3)	0.92 J
Zinc	60.3	57.9	134
PCBs			
Total PCBs	0.069 J	ND (0.043) U	0.064 J
SVOAs			
Benzo(a)anthracene	ND (0.42)	ND (0.43)	ND (0.46)
Benzo(a)pyrene	ND (0.42)	ND (0.43)	ND (0.46)
Benzo(b)fluoranthene	ND (0.42)	ND (0.43)	ND (0.46)
bis(2-Ethylhexyl)phthalate	ND (0.42)	ND (0.43)	ND (0.46)
Dibenz(a,h)anthracene	ND (0.42)	ND (0.43)	ND (0.46)
Indeno(1,2,3-cd)pyrene	ND (0.42)	ND (0.43)	ND (0.46)
VOAs			
1,3-Dichlorobenzene	ND (0.007)	ND (0.007)	ND (0.008)
1,4-Dichlorobenzene	ND (0.007)	ND (0.007)	ND (0.008)
Chlorobenzene	ND (0.007)	ND (0.007)	ND (0.008)
Trichloroethene	ND (0.007)	ND (0.007)	ND (0.008)
Vinyl chloride	ND (0.007)	ND (0.007)	ND (0.008)

B-809012-20	9/05/2002 0-2(ft) mg/kg
Metals	
Aluminum	15400/14900
Antimony	ND (7.3) UJ/ND (6.7) UJ
Arsenic	15.8 {B}/10.8
Chromium Total	28.6 J/20.2 J
Copper	31.4 J/17.1 J
Iron	26100/22700
Lead	42.2/16.5
Manganese	735/884
Mercury	0.078 J/0.049 J
Nickel	26.3/14.6
Thallium	ND (1.2)/0.94 J
Zinc	91.5 J/56.9 J
PCBs	
Total PCBs	ND (0.04) U/ND (0.037) U
SVOAs	
Benzo(a)anthracene	ND (0.4)/ND (0.37)
Benzo(a)pyrene	ND (0.4)/ND (0.37)
Benzo(b)fluoranthene	ND (0.4)/ND (0.37)
bis(2-Ethylhexyl)phthalate	ND (0.4)/ND (0.37)
Dibenz(a,h)anthracene	ND (0.4)/ND (0.37)
Indeno(1,2,3-cd)pyrene	ND (0.4)/ND (0.37)
VOAs	
1,3-Dichlorobenzene	ND (0.008)/ND (0.007)
1,4-Dichlorobenzene	ND (0.008)/ND (0.007)
Chlorobenzene	ND (0.008)/ND (0.007)
Trichloroethene	ND (0.008)/ND (0.007)
Vinyl chloride	ND (0.008)/ND (0.007)

BK-X293Y374	6/06/2002 0-2(ft) mg/kg	6/06/2002 4.5-6.5(ft) mg/kg
Metals		
Aluminum	11200	20800
Antimony	ND (7.1) U	ND (8.1) U
Arsenic	9.9	18.6
Chromium Total	21.6	38.8
Copper	10.9	14
Iron	19400	34700
Lead	16.2	19.1
Manganese	918	1100
Mercury	0.033 J	0.045 J
Nickel	12	25.6
Thallium	ND (1.2) U	ND (1.3) U
Zinc	41.5	71
PCBs		
Total PCBs	ND (0.039) U	ND (0.044) U
SVOAs		
Benzo(a)anthracene	ND (0.39)	ND (0.44)
Benzo(a)pyrene	ND (0.39)	ND (0.44)
Benzo(b)fluoranthene	ND (0.39)	ND (0.44)
bis(2-Ethylhexyl)phthalate	ND (0.39)	ND (0.44)
Dibenz(a,h)anthracene	ND (0.39)	ND (0.44)
Indeno(1,2,3-cd)pyrene	ND (0.39)	ND (0.44)
VOAs		
1,3-Dichlorobenzene	ND (0.007)	ND (0.008)
1,4-Dichlorobenzene	ND (0.007) U	ND (0.008) U
Chlorobenzene	ND (0.007)	ND (0.008)
Trichloroethene	ND (0.007)	ND (0.008)
Vinyl chloride	ND (0.007)	ND (0.008)

MW-X178Y367D	1/09/2002 0-2(ft) mg/kg
Metals	
Aluminum	14400/14100
Antimony	ND (7.7) UJ/ND (7.7) UJ
Arsenic	9.1/9.9
Chromium Total	17.1 J/18.5 J
Copper	23.3 J/13.5 J
Iron	21000 J/21400 J
Lead	15 J/16.8 J
Manganese	505 J/433 J
Mercury	0.053 J/0.045 J
Nickel	11.6 J/10.1 J
Thallium	ND (1.3)/ND (1.3)
Zinc	42.8 J/36.3 J
PCBs	
Total PCBs	ND (0.042) U/ND (0.042) U
SVOAs	
Benzo(a)anthracene	ND (0.42)/ND (0.42)
Benzo(a)pyrene	ND (0.42)/ND (0.42)
Benzo(b)fluoranthene	ND (0.42)/ND (0.42)
bis(2-Ethylhexyl)phthalate	ND (0.42)/ND (0.42)
Dibenz(a,h)anthracene	ND (0.42)/ND (0.42)
Indeno(1,2,3-cd)pyrene	ND (0.42)/ND (0.42)
VOAs	
1,3-Dichlorobenzene	ND (0.006)/ND (0.006)
1,4-Dichlorobenzene	ND (0.006)/ND (0.006)
Chlorobenzene	ND (0.006)/ND (0.006)
Trichloroethene	ND (0.006)/ND (0.006)
Vinyl chloride	ND (0.006)/ND (0.006)

B-809012-16	9/04/2002 0-2(ft) mg/kg	9/04/2002 6-8(ft) mg/kg
Metals		
Aluminum	11100	14900/8140
Antimony	1.1 J	ND (7.3) UJ/ND (7.4) UJ
Arsenic	7.4	21.1 {B}/10.3
Chromium Total	16.9 J	35.7 J/17.4 J
Copper	1080	11.3/5.5
Iron	15600	32300/16000
Lead	101	17/9.3
Manganese	1130	174/150
Mercury	0.3	0.03 J/0.036 J
Nickel	22.8	12.9/6.5
Thallium	1 J	0.87 J/ND (1.2)
Zinc	226 J	52.4 J/27.1 J
PCBs		
Total PCBs	0.136 J	ND (0.04) U/ND (0.041) U
SVOAs		
Benzo(a)anthracene	ND (0.37)	ND (0.4)/ND (0.41)
Benzo(a)pyrene	ND (0.37)	ND (0.4)/ND (0.41)
Benzo(b)fluoranthene	ND (0.37)	ND (0.4)/ND (0.41)
bis(2-Ethylhexyl)phthalate	ND (0.37)	ND (0.4)/ND (0.41)
Dibenz(a,h)anthracene	ND (0.37)	ND (0.4)/ND (0.41)
Indeno(1,2,3-cd)pyrene	ND (0.37)	ND (0.4)/ND (0.41)
VOAs		
1,3-Dichlorobenzene	ND (0.005)	ND (0.006)/ND (0.008)
1,4-Dichlorobenzene	ND (0.005)	ND (0.006)/ND (0.008)
Chlorobenzene	ND (0.005)	ND (0.006)/ND (0.008)
Trichloroethene	ND (0.005)	ND (0.006)/ND (0.008)
Vinyl chloride	ND (0.005)	ND (0.006)/ND (0.008)

B-X253Y329H	1/22/2002 10-11(ft) mg/kg
PCBs	
Total PCBs	0.14 J

B-809012-4	4/08/2002 0-2(ft) mg/kg	4/08/2002 6-8(ft) mg/kg	4/08/2002 10-12(ft) mg/kg
Metals			
Aluminum	14300	22800	17800
Antimony	ND (7.6) UJ	ND (7.9) UJ	ND (8.3) UJ
Arsenic	9.7	29.6 {B}	26.6 {B}
Chromium Total	14.8	54.4	50.7
Copper	16.9	16.9	18.7
Iron	22500	48100	38600
Lead	16.5	22.4	19.5
Manganese	733	473	596
Mercury	0.025 J	0.088 J	0.09 J
Nickel	14	20.5	31.4
Thallium	ND (1.3)	ND (1.3)	ND (1.4)
Zinc	54.2	89.6	105
PCBs			
Total PCBs	ND (0.042) U	ND (0.043) U	ND (0.046) U
SVOAs			
Benzo(a)anthracene	ND (0.42)	ND (0.43)	ND (0.46)
Benzo(a)pyrene	ND (0.42)	ND (0.43)	ND (0.46)
Benzo(b)fluoranthene	ND (0.42)	ND (0.43)	ND (0.46)
bis(2-Ethylhexyl)phthalate	ND (0.42)	ND (0.43)	ND (0.46)
Dibenz(a,h)anthracene	ND (0.42)	ND (0.43)	ND (0.46)
Indeno(1,2,3-cd)pyrene	ND (0.42)	ND (0.43)	ND (0.46)
VOAs			
1,3-Dichlorobenzene	ND (0.007)	ND (0.008)	ND (0.008)
1,4-Dichlorobenzene	ND (0.007)	ND (0.008)	ND (0.008)
Chlorobenzene	ND (0.007)	ND (0.008)	ND (0.008)
Trichloroethene	ND (0.007)	ND (0.008)	ND (0.008)
Vinyl chloride	ND (0.007)	ND (0.008)	ND (0.008)

B-X254Y336	1/22/2002 3-3.5(ft) mg/kg
PCBs	
Total PCBs	ND (0.044) U

B-809012-9	4/10/2002 0-2(ft) mg/kg	4/10/2002 2-3.5(ft) mg/kg
Metals		
Aluminum	10700/10100	19100
Antimony	ND (7.6)/ND (7.6)	ND (8.6)
Arsenic	9.4/10.7	24.2 {B}
Chromium Total	17.1/16.8	34.2
Copper	50.8/14.9	14.4
Iron	17500/18600	35400
Lead	28.6/19	19
Manganese	782/980	1280
Mercury	0.061 J/0.024 J	0.057 J
Nickel	20.7/12.8	26.8
Thallium	ND (1.3)/ND (1.3)	ND (1.4)
Zinc	58.8/43.1	77.3
PCBs		
Total PCBs	ND (0.042) U/ND (0.042) U	ND (0.047) U
SVOAs		
Benzo(a)anthracene	ND (0.42)/ND (0.42)	ND (0.47)
Benzo(a)pyrene	ND (0.42)/ND (0.42)	ND (0.47)
Benzo(b)fluoranthene	ND (0.42)/ND (0.42)	ND (0.47)
bis(2-Ethylhexyl)phthalate	ND (0.42)/ND (0.42)	ND (0.47)
Dibenz(a,h)anthracene	ND (0.42)/ND (0.42)	ND (0.47)
Indeno(1,2,3-cd)pyrene	ND (0.42)/ND (0.42)	ND (0.47)
VOAs		
1,3-Dichlorobenzene	ND (0.006)/ND (0.007)	ND (0.011)
1,4-Dichlorobenzene	ND (0.006)/ND (0.007)	ND (0.011)
Chlorobenzene	ND (0.006)/ND (0.007)	ND (0.011)
Trichloroethene	ND (0.006)/ND (0.007)	ND (0.011)
Vinyl chloride	ND (0.006)/ND (0.007)	ND (0.011)

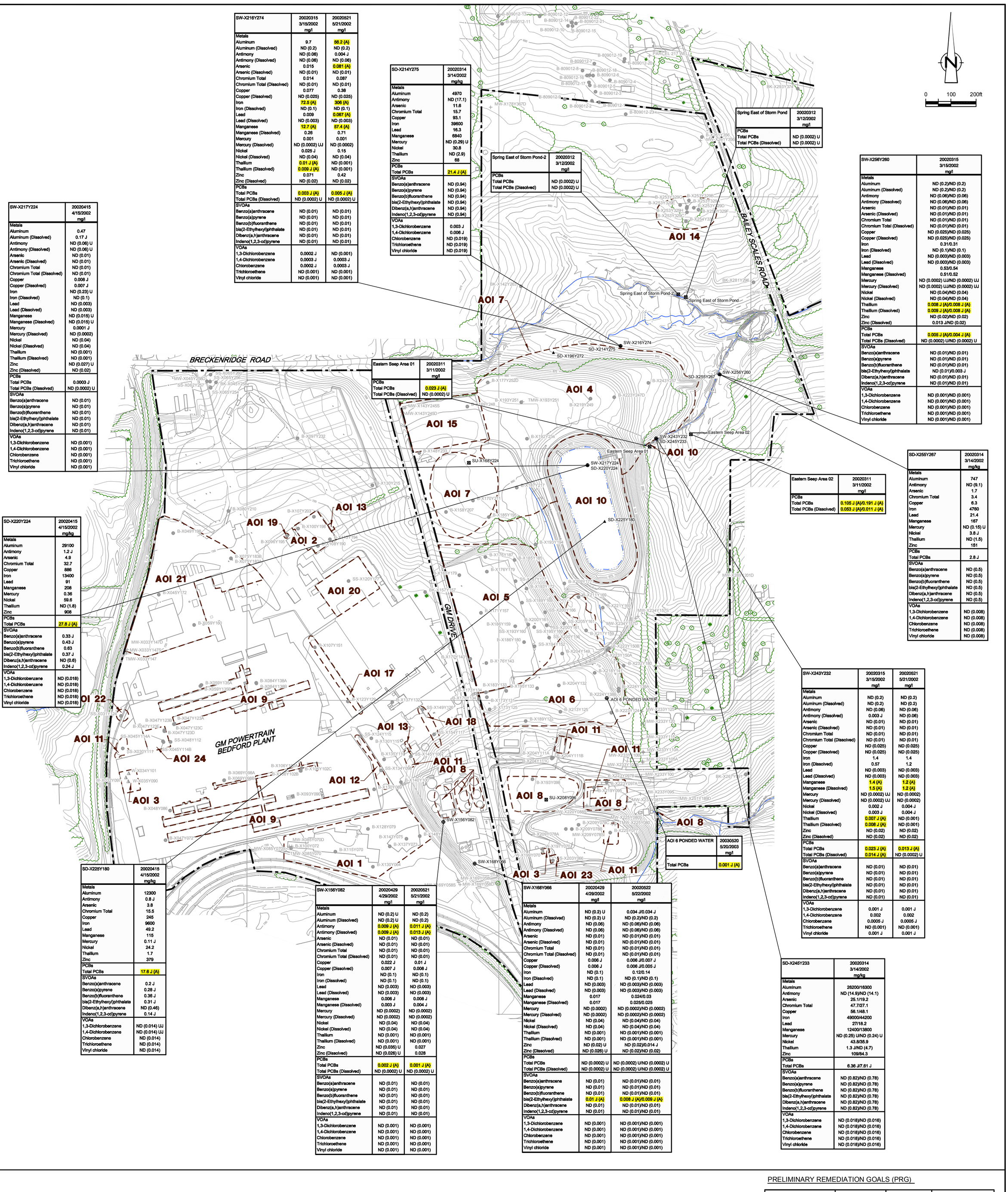
MW-X261Y356D	1/21/2002 0-2(ft) mg/kg
Metals	
Aluminum	12600/18700
Antimony	ND (7.8)/1.7 J
Arsenic	9.1/11.9
Chromium Total	17.2/21.6
Copper	23.4/18.3
Iron	20000/27800
Lead	19.4/18.7
Manganese	599/422
Mercury	0.045 J/0.046 J
Nickel	14/15.5
Thallium	ND (1.3)/ND (1.3)
Zinc	43.7/55.3
PCBs	
Total PCBs	ND (0.043) U/ND (0.042) U
SVOAs	
Benzo(a)anthracene	ND (0.43)/ND (0.42)
Benzo(a)pyrene	ND (0.43)/ND (0.42)
Benzo(b)fluoranthene	ND (0.43)/ND (0.42)
bis(2-Ethylhexyl)phthalate	ND (0.43)/ND (0.42)
Dibenz(a,h)anthracene	ND (0.43)/ND (0.42)
Indeno(1,2,3-cd)pyrene	ND (0.43)/ND (0.42)
VOAs	
1,3-Dichlorobenzene	ND (0.005)/ND (0.005)
1,4-Dichlorobenzene	ND (0.005)/ND (0.005)
Chlorobenzene	ND (0.005)/ND (0.005)
Trichloroethene	ND (0.005)/ND (0.005)
Vinyl chloride	ND (0.005)/ND (0.005)

B-X261Y356	1/11/2002 0-2(ft) mg/kg	1/11/2002 6-8(ft) mg/kg	1/11/2002 16-18(ft) mg/kg
Metals			
Aluminum	11300/12100	15500	26100
Antimony	R/R	R	R
Arsenic	7.9/7.9	13.6	15.5
Chromium Total	13.8/16.1	32.1	47.3
Copper	23.1/43.6	15.4	17.2
Iron	16800/16800	32400	32900
Lead	18.9/24.2	19.1	13.7
Manganese	623/739	278	98.6
Mercury	0.05 J/0.051 J	0.09 J	0.22
Nickel	12.8/21.4	17.6	27.6
Thallium	ND (1.3)/ND (1.3)	ND (1.2)	1 J
Zinc	39.9/48	48.3	69.7
PCBs			
Total PCBs	ND (0.042) U/ND (0.044) U	0.473 J	ND (0.05) U
SVOAs			
Benzo(a)anthracene	ND (0.42)/ND (0.44)	ND (0.4)	ND (0.5)
Benzo(a)pyrene	ND (0.42)/ND (0.44)	ND (0.4)	ND (0.5)
Benzo(b)fluoranthene	ND (0.42)/ND (0.44)	ND (0.4)	ND (0.5)
bis(2-Ethylhexyl)phthalate	ND (0.42)/ND (0.44)	ND (0.4)	ND (0.5)
Dibenz(a,h)anthracene	ND (0.42)/ND (0.44)	ND (0.4)	ND (0.5)
Indeno(1,2,3-cd)pyrene	ND (0.42)/ND (0.44)	ND (0.4)	ND (0.5)
VOAs			
1,3-Dichlorobenzene	ND (0.005)/ND (0.005)	ND (0.005)	ND (0.007)
1,4-Dichlorobenzene	ND (0.005)/ND (0.005)	ND (0.005)	ND (0.007)
Chlorobenzene	ND (0.005)/ND (0.005)	ND (0.005)	ND (0.007)
Trichloroethene	ND (0.005)/ND (0.005)	ND (0.005)	ND (0.007)
Vinyl chloride	ND (0.005)/ND (0.005)	ND (0.005)	ND (0.007)

B-809012-17	9/05/2002 0-2(ft) mg/kg
Metals	
Aluminum	16400
Antimony	ND (6.9) UJ
Arsenic	11.1
Chromium Total	21.8 J
Copper	93.1 J
Iron	24800
Lead	19.3
Manganese	645
Mercury	1.3
Nickel	20.3
Thallium	ND (1.1)
Zinc	61.3 J
PCBs	
Total PCBs	0.391 J
SVOAs	
Benzo(a)anthracene	ND (0.38)
Benzo(a)pyrene	ND (0.38)
Benzo(b)fluoranthene	ND (0.38)
bis(2-Ethylhexyl)phthalate	ND (0.38)
Dibenz(a,h)anthracene	ND (0.38)
Indeno(1,2,3-cd)pyrene	ND (0.38)
VOAs	
1,3-Dichlorobenzene	ND (0.006)
1,4-Dichlorobenzene	ND (0.006)
Chlorobenzene	ND (0.006)
Trichloroethene	ND (0.006)
Vinyl chloride	ND (0.006)

BK-X199Y347	6/06/2002 0-2(ft) mg/kg	6/06/2002 2-4(ft) mg/kg
Metals		
Aluminum	17700	13700
Antimony	ND (7.7) U	ND (7.8) U
Arsenic	11.5	15.2
Chromium Total	19.8	33.8
Copper	14.8	9.6
Iron	24500	25000
Lead	13.3	13.6
Manganese	246	167
Mercury	0.047 J	0.07 J
Nickel	13	10.2
Thallium	ND (1.3) U	ND (1.3) U
Zinc	45.7	38
PCBs		
Total PCBs	ND (0.042) U	ND (0.043) U
SVOAs		
Benzo(a)anthracene	ND (0.42)	ND (0.43)
Benzo(a)pyrene	ND (0.42)	ND (0.43)
Benzo(b)fluoranthene	ND (0.42)	ND (0.43)
bis(2-Ethylhexyl)phthalate	ND (0.42)	ND (0.43)
Dibenz(a,h)anthracene	ND (0.42)	ND (0.43)
Indeno(1,2,3-cd)pyrene	ND (0.42)	ND (0.43)
VOAs		
1,3-Dichlorobenzene	ND (0.008)	ND (0.008)
1,4-Dichlorobenzene	ND (0.008) U	ND (0.008) U
Chlorobenzene	ND (0.008)	ND (0.008)
Trichloroethene	ND (0.008)	ND (0.008)
Vinyl chloride	ND (0.008)	ND (0.008)

B-809012-5	4/09/2002 0-2(ft) mg/kg	4/09/2002 4-6(ft) mg/kg
Metals		
Aluminum	20800	16400
Antimony	1.5 J	1.2 J
Arsenic	18.3 {B}	21.6 {B}
Chromium Total	37 J	42.5 J
Copper	25.2	13.5
Iron	34200	36500
Lead	18.9	19
Manganese	288	489
Mercury	0.22	0.14
Nickel	16.6	26.1
Thallium	1.1 J	1.1 J
Zinc	77.3	84.3
PCBs		
Total PCBs	0.067 J	ND (0.045) U
SVOAs		
Benzo(a)anthracene	ND (0.41)	ND (0.45)
Benzo(a)pyrene	ND (0.41)	ND (0.45)
Benzo(b)fluoranthene	ND (0.41)	ND (0.45)
bis(2-Ethylhexyl)phthalate	ND (0.41)	ND (0.45)
Dibenz(a,h)anthracene	ND (0.41)	ND (0.45)
Indeno(1,2,3-cd)pyrene	ND (0.41)	ND (0.45)
VOAs		
1,3-Dichlorobenzene	ND (0.007)	ND (



SW-X216Y274	20020315 3/15/2002 mg/l	20020521 5/21/2002 mg/l
Metals		
Aluminum	9.7	56.2 (A)
Aluminum (Dissolved)	ND (0.2)	ND (0.2)
Antimony	ND (0.06)	0.004 J
Antimony (Dissolved)	ND (0.06)	ND (0.06)
Arsenic	0.015	0.081 (A)
Arsenic (Dissolved)	ND (0.01)	ND (0.01)
Chromium Total	0.014	0.087
Chromium Total (Dissolved)	ND (0.01)	ND (0.01)
Copper	0.077	0.38
Copper (Dissolved)	ND (0.025)	ND (0.025)
Iron	72.5 (A)	306 (A)
Iron (Dissolved)	ND (0.1)	ND (0.1)
Lead	0.009	0.067 (A)
Lead (Dissolved)	ND (0.003)	ND (0.003)
Manganese	12.7 (A)	57.4 (A)
Manganese (Dissolved)	0.26	0.71
Mercury	0.001	0.001
Mercury (Dissolved)	ND (0.0002) UJ	ND (0.0002)
Nickel	0.025 J	0.15
Nickel (Dissolved)	ND (0.04)	ND (0.04)
Thallium	0.01 J (A)	ND (0.001)
Thallium (Dissolved)	0.009 J (A)	ND (0.001)
Zinc	0.071	0.42
Zinc (Dissolved)	ND (0.02)	ND (0.02)
PCBs		
Total PCBs	0.003 J (A)	0.005 J (A)
Total PCBs (Dissolved)	ND (0.0002) U	ND (0.0002) U
SVOAs		
Benzo(a)anthracene	ND (0.01)	ND (0.01)
Benzo(a)pyrene	ND (0.01)	ND (0.01)
Benzo(b)fluoranthene	ND (0.01)	ND (0.01)
bis(2-Ethylhexyl)phthalate	ND (0.01)	ND (0.01)
Dibenz(a,h)anthracene	ND (0.01)	ND (0.01)
Indeno(1,2,3-cd)pyrene	ND (0.01)	ND (0.01)
VOAs		
1,3-Dichlorobenzene	0.0002 J	ND (0.001)
1,4-Dichlorobenzene	0.0003 J	0.0003 J
Chlorobenzene	0.0002 J	0.0003 J
Trichloroethene	ND (0.001)	ND (0.001)
Vinyl chloride	ND (0.001)	ND (0.001)

SD-X214Y275	20020314 3/14/2002 mg/kg
Metals	
Aluminum	4970
Antimony	ND (17.1)
Arsenic	11.6
Chromium Total	15.7
Copper	93.1
Iron	39600
Lead	16.3
Manganese	6840
Mercury	ND (0.29) U
Nickel	30.8
Thallium	ND (2.9)
Zinc	68
PCBs	
Total PCBs	21.4 J (A)
SVOAs	
Benzo(a)anthracene	ND (0.94)
Benzo(a)pyrene	ND (0.94)
Benzo(b)fluoranthene	ND (0.94)
bis(2-Ethylhexyl)phthalate	ND (0.94)
Dibenz(a,h)anthracene	ND (0.94)
Indeno(1,2,3-cd)pyrene	ND (0.94)
VOAs	
1,3-Dichlorobenzene	0.003 J
1,4-Dichlorobenzene	0.006 J
Chlorobenzene	ND (0.019)
Trichloroethene	ND (0.019)
Vinyl chloride	ND (0.019)

Spring East of Storm Pond-2	20020312 3/12/2002 mg/l
PCBs	
Total PCBs	ND (0.0002) U
Total PCBs (Dissolved)	ND (0.0002) U

Spring East of Storm Pond	20020312 3/12/2002 mg/l
PCBs	
Total PCBs	ND (0.0002) U
Total PCBs (Dissolved)	ND (0.0002) U

SW-X256Y260	20020315 3/15/2002 mg/l
Metals	
Aluminum	ND (0.2)/ND (0.2)
Aluminum (Dissolved)	ND (0.2)/ND (0.2)
Antimony	ND (0.06)/ND (0.06)
Antimony (Dissolved)	ND (0.06)/ND (0.06)
Arsenic	ND (0.01)/ND (0.01)
Arsenic (Dissolved)	ND (0.01)/ND (0.01)
Chromium Total	ND (0.01)/ND (0.01)
Chromium Total (Dissolved)	ND (0.01)/ND (0.01)
Copper	ND (0.025)/ND (0.025)
Copper (Dissolved)	ND (0.025)/ND (0.025)
Iron	0.31/0.31
Iron (Dissolved)	ND (0.1)/ND (0.1)
Lead	ND (0.003)/ND (0.003)
Lead (Dissolved)	ND (0.003)/ND (0.003)
Manganese	0.53/0.54
Manganese (Dissolved)	0.51/0.52
Mercury	ND (0.0002) UJ/ND (0.0002) UJ
Mercury (Dissolved)	ND (0.0002) UJ/ND (0.0002) UJ
Nickel	ND (0.04)/ND (0.04)
Nickel (Dissolved)	ND (0.04)/ND (0.04)
Thallium	0.008 J (A)/0.008 J (A)
Thallium (Dissolved)	0.009 J (A)/0.008 J (A)
Zinc	ND (0.02)/ND (0.02)
Zinc (Dissolved)	0.013 J/ND (0.02)
PCBs	
Total PCBs	0.005 J (A)/0.004 J (A)
Total PCBs (Dissolved)	ND (0.0002) U/ND (0.0002) U
SVOAs	
Benzo(a)anthracene	ND (0.01)/ND (0.01)
Benzo(a)pyrene	ND (0.01)/ND (0.01)
Benzo(b)fluoranthene	ND (0.01)/ND (0.01)
bis(2-Ethylhexyl)phthalate	ND (0.01)/0.003 J
Dibenz(a,h)anthracene	ND (0.01)/ND (0.01)
Indeno(1,2,3-cd)pyrene	ND (0.01)/ND (0.01)
VOAs	
1,3-Dichlorobenzene	ND (0.001)/ND (0.001)
1,4-Dichlorobenzene	ND (0.001)/ND (0.001)
Chlorobenzene	ND (0.001)/ND (0.001)
Trichloroethene	ND (0.001)/ND (0.001)
Vinyl chloride	ND (0.001)/ND (0.001)

SW-X217Y224	20020415 4/15/2002 mg/l
Metals	
Aluminum	0.47
Aluminum (Dissolved)	0.17 J
Antimony	ND (0.06) U
Antimony (Dissolved)	ND (0.06) U
Arsenic	ND (0.01)
Arsenic (Dissolved)	ND (0.01)
Chromium Total	ND (0.01)
Chromium Total (Dissolved)	ND (0.01)
Copper	0.008 J
Copper (Dissolved)	0.007 J
Iron	ND (0.23) U
Iron (Dissolved)	ND (0.1)
Lead	ND (0.003)
Lead (Dissolved)	ND (0.003)
Manganese	ND (0.015) U
Manganese (Dissolved)	ND (0.015) U
Mercury	0.0001 J
Mercury (Dissolved)	ND (0.0002)
Nickel	ND (0.04)
Nickel (Dissolved)	ND (0.04)
Thallium	ND (0.001)
Thallium (Dissolved)	ND (0.001)
Zinc	ND (0.027) U
Zinc (Dissolved)	ND (0.02)
PCBs	
Total PCBs	0.0003 J
Total PCBs (Dissolved)	ND (0.0002) U
SVOAs	
Benzo(a)anthracene	ND (0.01)
Benzo(a)pyrene	ND (0.01)
Benzo(b)fluoranthene	ND (0.01)
bis(2-Ethylhexyl)phthalate	ND (0.01)
Dibenz(a,h)anthracene	ND (0.01)
Indeno(1,2,3-cd)pyrene	ND (0.01)
VOAs	
1,3-Dichlorobenzene	ND (0.001)
1,4-Dichlorobenzene	ND (0.001)
Chlorobenzene	ND (0.001)
Trichloroethene	ND (0.001)
Vinyl chloride	ND (0.001)

Eastern Seep Area 01	20020311 3/11/2002 mg/l
PCBs	
Total PCBs	0.023 J (A)
Total PCBs (Dissolved)	ND (0.0002) U

SD-X255Y267	20020314 3/14/2002 mg/kg
Metals	
Aluminum	747
Antimony	ND (9.1)
Arsenic	1.7
Chromium Total	3.4
Copper	6.3
Iron	4760
Lead	21.4
Manganese	167
Mercury	ND (0.15) U
Nickel	3.8 J
Thallium	ND (1.5)
Zinc	151
PCBs	
Total PCBs	2.8 J
SVOAs	
Benzo(a)anthracene	ND (0.5)
Benzo(a)pyrene	ND (0.5)
Benzo(b)fluoranthene	ND (0.5)
bis(2-Ethylhexyl)phthalate	ND (0.5)
Dibenz(a,h)anthracene	ND (0.5)
Indeno(1,2,3-cd)pyrene	ND (0.5)
VOAs	
1,3-Dichlorobenzene	ND (0.008)
1,4-Dichlorobenzene	ND (0.008)
Chlorobenzene	ND (0.008)
Trichloroethene	ND (0.008)
Vinyl chloride	ND (0.008)

Eastern Seep Area 02	20020311 3/11/2002 mg/l
PCBs	
Total PCBs	0.105 J (A)/0.191 J (A)
Total PCBs (Dissolved)	0.053 J (A)/0.011 J (A)

SD-X220Y224	20020415 4/15/2002 mg/kg
Metals	
Aluminum	29100
Antimony	1.2 J
Arsenic	4.9
Chromium Total	32.7
Copper	886
Iron	13400
Lead	91
Manganese	208
Mercury	0.36
Nickel	59.6
Thallium	ND (1.8)
Zinc	908
PCBs	
Total PCBs	27.8 J (A)
SVOAs	
Benzo(a)anthracene	0.33 J
Benzo(a)pyrene	0.43 J
Benzo(b)fluoranthene	0.63
bis(2-Ethylhexyl)phthalate	0.37 J
Dibenz(a,h)anthracene	ND (0.6)
Indeno(1,2,3-cd)pyrene	0.24 J
VOAs	
1,3-Dichlorobenzene	ND (0.018)
1,4-Dichlorobenzene	ND (0.018)
Chlorobenzene	ND (0.018)
Trichloroethene	ND (0.018)
Vinyl chloride	ND (0.018)

SW-X243Y232	20020315 3/15/2002 mg/l	20020521 5/21/2002 mg/l
Metals		
Aluminum	ND (0.2)	ND (0.2)
Aluminum (Dissolved)	ND (0.2)	ND (0.2)
Antimony	ND (0.06)	ND (0.06)
Antimony (Dissolved)	0.003 J	ND (0.06)
Arsenic	ND (0.01)	ND (0.01)
Arsenic (Dissolved)	ND (0.01)	ND (0.01)
Chromium Total	ND (0.01)	ND (0.01)
Chromium Total (Dissolved)	ND (0.01)	ND (0.01)
Copper	ND (0.025)	ND (0.025)
Copper (Dissolved)	ND (0.025)	ND (0.025)
Iron	1.4	1.4
Iron (Dissolved)	0.57	1.2
Lead	ND (0.003)	ND (0.003)
Lead (Dissolved)	ND (0.003)	ND (0.003)
Manganese	1.4 (A)	1.2 (A)
Manganese (Dissolved)	1.5 (A)	1.2 (A)
Mercury	ND (0.0002) UJ	ND (0.0002)
Mercury (Dissolved)	ND (0.0002) UJ	ND (0.0002)
Nickel	0.002 J	0.004 J
Nickel (Dissolved)	0.003 J	0.004 J
Thallium	0.007 J (A)	ND (0.001)
Thallium (Dissolved)	0.008 J (A)	ND (0.001)
Zinc	ND (0.02)	ND (0.02)
Zinc (Dissolved)	ND (0.02)	ND (0.02)
PCBs		
Total PCBs	0.023 J (A)	0.013 J (A)
Total PCBs (Dissolved)	0.014 J (A)	ND (0.0002) U
SVOAs		
Benzo(a)anthracene	ND (0.01)	ND (0.01)
Benzo(a)pyrene	ND (0.01)	ND (0.01)
Benzo(b)fluoranthene	ND (0.01)	ND (0.01)
bis(2-Ethylhexyl)phthalate	ND (0.01)	ND (0.01)
Dibenz(a,h)anthracene	ND (0.01)	ND (0.01)
Indeno(1,2,3-cd)pyrene	ND (0.01)	ND (0.01)
VOAs		
1,3-Dichlorobenzene	0.001 J	0.001 J
1,4-Dichlorobenzene	0.002	0.002
Chlorobenzene	0.0005 J	0.0005 J
Trichloroethene	ND (0.001)	ND (0.001)
Vinyl chloride	0.001 J	0.001 J

AOI 6 PONDED WATER	20030520 5/20/2003 mg/l
-	
Total PCBs	0.001 J (A)

SD-X225Y180	20020415 4/15/2002 mg/kg
Metals	
Aluminum	12300
Antimony	0.8 J
Arsenic	3.8
Chromium Total	15.5
Copper	245
Iron	9600
Lead	49.2
Manganese	115
Mercury	0.11 J
Nickel	24.2
Thallium	1.7
Zinc	379
PCBs	
Total PCBs	17.6 J (A)
SVOAs	
Benzo(a)anthracene	0.2 J
Benzo(a)pyrene	0.28 J
Benzo(b)fluoranthene	0.36 J
bis(2-Ethylhexyl)phthalate	0.31 J
Dibenz(a,h)anthracene	ND (0.46)
Indeno(1,2,3-cd)pyrene	0.14 J
VOAs	
1,3-Dichlorobenzene	ND (0.014) UJ
1,4-Dichlorobenzene	ND (0.014) UJ
Chlorobenzene	ND (0.014)
Trichloroethene	ND (0.014)
Vinyl chloride	ND (0.014)

SW-X156Y082	20020429 4/29/2002 mg/l	20020521 5/21/2002 mg/l
Metals		
Aluminum	ND (0.2) U	ND (0.2)
Aluminum (Dissolved)	ND (0.2) U	ND (0.2)
Antimony	0.009 J (A)	0.011 J (A)
Antimony (Dissolved)	0.009 J (A)	0.013 J (A)
Arsenic	ND (0.01)	ND (0.01)
Arsenic (Dissolved)	ND (0.01)	ND (0.01)
Chromium Total	ND (0.01)	ND (0.01)
Chromium Total (Dissolved)	ND (0.01)	ND (0.01)
Copper	0.022 J	0.01 J
Copper (Dissolved)	0.007 J	0.008 J
Iron	ND (0.1)	ND (0.1)
Iron (Dissolved)	ND (0.1)	ND (0.1)
Lead	ND (0.003)	ND (0.003)
Lead (Dissolved)	ND (0.003)	ND (0.003)
Manganese	0.006 J	0.008 J
Manganese (Dissolved)	0.003 J	0.004 J
Mercury	ND (0.0002)	ND (0.0002)
Mercury (Dissolved)	ND (0.0002)	ND (0.0002)
Nickel	ND (0.04)	ND (0.04)
Nickel (Dissolved)	ND (0.04)	ND (0.04)
Thallium	ND (0.001)	ND (0.001)
Thallium (Dissolved)	ND (0.001)	ND (0.001)
Zinc	ND (0.035) U	0.027
Zinc (Dissolved)	ND (0.026) U	0.028
PCBs		
Total PCBs	0.002 J (A)	0.001 J (A)
Total PCBs (Dissolved)	ND (0.0002) U	ND (0.0002) U
SVOAs		
Benzo(a)anthracene	ND (0.01)	ND (0.01)
Benzo(a)pyrene	ND (0.01)	ND (0.01)
Benzo(b)fluoranthene	ND (0.01)	ND (0.01)
bis(2-Ethylhexyl)phthalate	ND (0.01)	ND (0.01)
Dibenz(a,h)anthracene	ND (0.01)	ND (0.01)
Indeno(1,2,3-cd)pyrene	ND (0.01)	ND (0.01)
VOAs		
1,3-Dichlorobenzene	ND (0.001)	ND (0.001)
1,4-Dichlorobenzene	ND (0.001)	ND (0.001)
Chlorobenzene	ND (0.001)	ND (0.001)
Trichloroethene	ND (0.001)	ND (0.001)
Vinyl chloride	ND (0.001)	ND (0.001)

SW-X168Y066	20020429 4/29/2002 mg/l	20020522 5/22/2002 mg/l
Metals		
Aluminum	ND (0.2) U	0.034 J/0.034 J
Aluminum (Dissolved)	ND (0.2) U	ND (0.2)/ND (0.2)
Antimony	ND (0.06)	ND (0.06)/ND (0.06)
Antimony (Dissolved)	ND (0.06)	ND (0.06)/ND (0.06)
Arsenic	ND (0.01)	ND (0.01)/ND (0.01)
Arsenic (Dissolved)	ND (0.01)	ND (0.01)/ND (0.01)
Chromium Total	ND (0.01)	ND (0.01)/ND (0.01)
Chromium Total (Dissolved)	ND (0.01)	ND (0.01)/ND (0.01)
Copper	0.006 J	0.006 J/0.007 J
Copper (Dissolved)	0.006 J	0.006 J/0.005 J
Iron	ND (0.1)	0.12/0.14
Iron (Dissolved)	ND (0.1)	ND (0.1)/ND (0.1)
Lead	ND (0.003)	ND (0.003)/ND (0.003)
Lead (Dissolved)	ND (0.003)	ND (0.003)/ND (0.003)
Manganese	0.017	0.024/0.03
Manganese (Dissolved)	0.017	0.025/0.025
Mercury	ND (0.0002)	ND (0.0002)/ND (0.0002)
Mercury (Dissolved)	ND (0.0002)	ND (0.0002)/ND (0.0002)
Nickel	ND (0.04)	ND (0.04)/ND (0.04)
Nickel (Dissolved)	ND (0.04)	ND (0.04)/ND (0.04)
Thallium	ND (0.001)	ND (0.001)/ND (0.001)
Thallium (Dissolved)	ND (0.001)	ND (0.001)/ND (0.001)
Zinc	ND (0.02) U	ND (0.02)/0.014 J
Zinc (Dissolved)	ND (0.026) U	ND (0.02)/ND (0.02)
PCBs		
Total PCBs	ND (0.0002) U	ND (0.0002) U/ND (0.0002) U
Total PCBs (Dissolved)	ND (0.0002) U	ND (0.0002) U/ND (0.0002) U
SVOAs		
Benzo(a)anthracene	ND (0.01)	ND (0.01)/ND (0.01)
Benzo(a)pyrene	ND (0.01)	ND (0.01)/ND (0.01)
Benzo(b)fluoranthene	ND (0.01)	ND (0.01)/ND (0.01)
bis(2-Ethylhexyl)phthalate	0.01 J (A)	0.008 J (A)/0.009 J (A)
Dibenz(a,h)anthracene	ND (0.01)	ND (0.01)/ND (0.01)
Indeno(1,2,3-cd)pyrene	ND (0.01)	ND (0.01)/ND (0.01)
VOAs		
1,3-Dichlorobenzene	ND (0.001)	ND (0.001)/ND (0.001)
1,4-Dichlorobenzene	ND (0.001)	ND (0.001)/ND (0.001)
Chlorobenzene	ND (0.001)	ND (0.001)/ND (0.001)
Trichloroethene	ND (0.001)	ND (0.001)/ND (0.001)
Vinyl chloride	ND (0.001)	ND (0.001)/ND (0.001)

SD-X245Y233	20020314 3/14/2002 mg/kg
Metals	
Aluminum	26200/16300
Antimony	ND (14.9)/ND (14.1)
Arsenic	25.1/19.2
Chromium Total	47.7/27.1
Copper	56.1/48.1
Iron	49000/44200
Lead	27/18.2
Manganese	12400/13800
Mercury	ND (0.25) U/ND (0.24) U
Nickel	43.8/35.9
Thallium	1.3 J/ND (4.7)
Zinc	109/84.3
PCBs	
Total PCBs	6.36 J/7.81 J
SVOAs	
Benzo(a)anthracene	ND (0.82)/ND (0.78)
Benzo(a)pyrene	ND (0.82)/ND (0.78)
Benzo(b)fluoranthene	ND (0.82)/ND (0.78)
bis(2-Ethylhexyl)phthalate	ND (0.82)/ND (0.78)
Dibenz(a,h)anthracene	ND (0.82)/ND (0.78)
Indeno(1,2,3-cd)pyrene	ND (0.82)/ND (0.78)
VOAs	
1,3-Dichlorobenzene	ND (0.018)/ND (0.016)
1,4-Dichlorobenzene	ND (0.018)/ND (0.016)
Chlorobenzene	ND (0.018)/ND (0.016)
Trichloroethene	ND (0.018)/ND (0.016)
Vinyl chloride	ND (0.018)/ND (0.016)

LEGEND

- EXISTING GROUND SURFACE ELEVATION CONTOURS (feet AMSL)
- EXISTING VEGETATION
- EXISTING BUILDINGS
- FENCE LINE
- RAILROAD TRACKS
- DIRT ROADS
- ROADS / PAVED AREAS
- APPROXIMATE SURFACE WATER LOCATION
- APPROXIMATE GM PROPERTY BOUNDARY
- AOI BOUNDARY
- MW-X261Y356 — MONITORING WELL LOCATION
- SS-X045Y114 — RFI SURFACE SOIL SAMPLE LOCATION
- B-X115Y070 — RFI SOIL BORING SAMPLE LOCATION
- 1095 — STREAM SOIL SAMPLE LOCATION
- 1088 — STREAM SPRING SAMPLE LOCATION
- W-X197Y070 — RFI WIPE SAMPLE LOCATION
- SD-X225Y180 — RFI SEDIMENT SAMPLE LOCATION
- SU-X208Y096 — RFI SPRING SAMPLE LOCATION
- SW-X168Y066 — RFI SURFACE WATER SAMPLE LOCATION
- 5001 — STREAM SURFACE WATER SAMPLE LOCATION

SS-X065Y260	8/27/2002
	0 - 2 mg/kg
PCBs (total)	3.8355 J

SAMPLE LOCATION IDENTIFIER; DATE SAMPLE TAKEN; SAMPLE DEPTH IN FEET BELOW GROUND SURFACE; CONCENTRATION; CHEMICAL NAME

- (A) — RATIO OF SITE-RELATED CONCENTRATIONS AND INDUSTRIAL SCREENING CRITERIA GREATER THAN 1.0.
- ND ( ) — NOT DETECTED ABOVE THE LABORATORY REPORTING LIMIT REPORTED IN PARENTHESIS
- 0.021/0.014 — PARENT SAMPLE/DUPLICATE SAMPLE
- J — THE ASSOCIATED VALUE IS AN ESTIMATED QUANTITY
- R — THE SAMPLE RESULTS ARE REJECTED DUE TO DEFICIENCIES IN THE ABILITY TO ANALYZE THE SAMPLE AND MEET QUALITY CONTROL CRITERIA. THE PRESENCE OR ABSENCE OF THE ANALYTE CANNOT BE VERIFIED.
- U — THE ANALYTE WAS ANALYZED FOR, BUT WAS QUALIFIED NOT DETECTED ABOVE THE SAMPLE REPORT LIMIT
- UJ — THE SAMPLE REPORT LIMIT VALUE IS AN ESTIMATE AND MAY BE INACCURATE OR IMPRECISE

NOTES:

(1) FOR ALL METALS, SITE-SPECIFIC BACKGROUND CONCENTRATIONS ARE SUBTRACTED FROM THE MEASURED CONCENTRATIONS IN SEDIMENT (AS SHOWN) PRIOR TO COMPARING TO THE SCREENING CRITERIA FOR THE PURPOSE OF IDENTIFYING EXCEEDANCE.

AOI SUMMARY

AOI ID Description

- AOI 1 Former Railroad Operations and Minerals Processing Facility
- AOI 2 Waste Storage Area
- AOI 3 PCB Storage Areas
- AOI 4 Former North Disposal Area
- AOI 5 Former East Sand Disposal Area
- AOI 6 Former Sludge Disposal and Fire Training Area
- AOI 7 Former North Lagoon and Outfall 001
- AOI 8 Former South Lagoons and Outfall 002
- AOI 9 Service Tunnels
- AOI 10 Existing Stormwater Lagoon and Outfall 003
- AOI 11 Aboveground Storage Tanks
- AOI 12 Area Affected by the Reclaimed Hydraulic Fluid Release
- AOI 13 Underground Storage Tanks
- AOI 14 McBride Cows Disposal Area
- AOI 15 Former Equipment Storage Area
- AOI 17 Piston Building Oil Accumulations
- AOI 18 Area Affected by the Henry System Discharge
- AOI 19 Area Affected by Paint and Thinner Spill
- AOI 20 Northern Portion of the Piston Building
- AOI 21 Filled Ravine North of Die Cast Building
- AOI 22 Tool Room Annex Dock Release
- AOI 23 Area Affected by the 1996 Wastewater Treatment Filter Cake Release
- AOI 24 Area Affected by the June 2000 Die Lube 5150 Release

PRELIMINARY REMEDIATION GOALS (PRG)

CHEMICAL NAME	SOIL INDUSTRIAL PRG mg/Kg	BACKGROUND SOIL mg/Kg	WATER INDUSTRIAL PRG mg/L
Metals (1)			
Aluminum	920000	14200	37
Antimony	410	1.01	0.006
Arsenic	16	10.0	0.050
Chromium Total	2500	29.8	0.10
Copper	41000	22.5	1.3
Iron	310000	25000	11
Lead	750	19.3	0.015
Manganese	19000	689	0.88
Mercury	13.6	0.04	0.002
Nickel	20000	16.0	0.73
Thallium	68	1.20	0.002
Zinc	310000	46.8	11
PCBs			
Total PCBs	7.4	-	0.0005
SVOAs			
Benzo(a)anthracene	21	-	0.00092
Benzo(a)pyrene	2.1	-	0.00020
Benzo(b)fluoranthene	21	-	0.00092
bis(2-Ethylhexyl)phthalate	1200	-	0.006
Dibenz(a,h)anthracene	2.1	-	0.00009
Indeno(1,2,3-cd)pyrene	21	-	0.00092
VOAs			
1,3-Dichlorobenzene	63	-	0.033
1,4-Dichlorobenzene	79	-	0.075
Chlorobenzene	530	-	
Trichloroethene	1.2	-	0.005
Vinyl chloride	7.5	-	0.002

Nº	Revision	Date	Initial

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

GM POWERTRAIN BEDFORD PLANT
BEDFORD, INDIANA

RFI INVESTIGATION

ANALYTICAL RESULTS SURFACE WATER AND SEDIMENT SAMPLING LOCATIONS

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:

BASE MAP COMPLETED BY AIR-LAND SURVEYS, FLINT, MI, APRIL 2001.

Project Manager:	Reviewed By:	Date:	
J.M.	M.K.	NOVEMBER 2003	
Scale: AS SHOWN	Project Nº: 13968-00	Report Nº: 045	Drawing Nº: 8

13968-00(045)GN-WA046 APR 21/2005

APPENDIX I

GEOTECHNICAL EVALUATION FOR FORMER NORTH DISPOSAL AREA (AOI 4)

CONESTOGA-ROVERS & ASSOCIATES

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MEMORANDUM

TO: Cheryl Hiatt

REF. NO.: 13968/rcc/92

FROM: Bruce Polan

DATE: August 8, 2003

C.C.: Ed Peterson
Glenn Turchan
Bill Steinmann
Jim McGuigan
Jeroen Winterink
Jeff Daniel

RE: Geotechnical Evaluation for Former North Disposal Area (AOI 4)
GM Powertrain Bedford Facility, Bedford, Indiana

1.0 INTRODUCTION

This memo provides a summary of a geotechnical evaluation performed for the Former North Disposal Area (AOI 4) at the General Motors Powertrain facility in Bedford, Indiana, herein referred to as the Site. The purpose of the geotechnical evaluation was to obtain additional information on the subsurface conditions within AOI 4, and to use that information to evaluate slope stability issues related to the stability of the existing slopes, and potential placement of additional fill materials on top of this area. Secondly, this evaluation will aid in the evaluation of the slopes for use in determining an interim or final remedy, regardless of the potential placement of additional fill materials. The location of AOI 4 is shown on Figure 1.1.

2.0 CURRENT CONDITIONS AT AOI 4

During implementation of the RCRA Facility Investigation Work plan (RFI Work Plan) (CRA, October 29, 2001), ten soil borings were completed through AOI 4, including the installation of two bedrock monitoring wells (shallow and multi-level) and one overburden monitoring well (see Figure 2.1 for locations).

Soil borings (B-X148Y233, B-X169Y248, B-X187Y217, B-X192Y234, B-X193Y251, B-X219Y249, and B-X243Y257) and one monitoring well nest (MW-X143Y245S and MW-X143Y245D) were advanced within the Former North Disposal Area. Two of these soil borings and the monitoring well nest are also included in AOI 15. One overburden well (TMW-X193Y251) was also installed due to the presence of groundwater within the overburden materials. In addition to the soil borings, two surface water samples and one sediment sample were collected from a spring located at the base of the landfill at its northern extent. Soil boring logs are included as Attachment A.

The subsurface conditions encountered within this AOI included approximately 2 to 31 feet of fill materials (gray to black fine-grained, poorly graded sand, with inclusion of gravel, bricks, metal, wood, and plastic).

REGISTERED COMPANY FOR ISO 9001 ENGINEERING DESIGN

The waste was not fully penetrated at the termination depth of 34 feet at the TMW-X193Y251 location. This fill material is overlain with 3 to 6 feet of clay and topsoil, and is underlain in places by a relatively thin layer of native clay. The native clay directly overlies the limestone bedrock (St. Louis Formation and Salem Formation) in some locations. At other locations, it appears that the fill materials directly overlie the limestone bedrock. Water saturation was encountered at one location at a low point in the bedrock surface where the native clay was absent. A two-inch PVC well screen and riser were installed at this location.

The subsurface stratigraphy encountered in the boreholes is consistent with the regional geology as reported in the RCRA Facility Investigation Work Plan. Standard Penetration testing (SPT) was conducted at the TMW-X193Y251 location. SPT 'N' values varied from 12 to 47 blows per foot, indicating a moderate but variable degree of compaction may have been used during waste placement.

3.0 GEOTECHNICAL ASSESSMENT AND ADDITIONAL DATA COLLECTION

3.1 VISUAL SLOPE STABILITY ASSESSMENT

A visual assessment was carried out by the Geotechnical Engineer during a walkover conducted on November 20, 2002. The ground surface on AOI 4 is somewhat soft based on the appearance of ruts that were formed by the drill rigs during the previous borehole work. The top surface of the landfill is grassed, and slopes to the east. The south end of AOI 4 abuts an existing stormwater treatment pond. The western end of AOI 4 abuts a gravel surfaced transport trailer yard, and a former lagoon that has been backfilled is located to the south of the trailer yard. The northern and eastern slopes of the disposal area slope downward to forested land. The slopes of the disposal area are treed and vegetated, with some trees up to 1 ft in diameter. The slopes appear visually stable, with no signs of instability noted, other than some shallow erosion due to sparse vegetation between trees. Two seepage zones were observed at the base of the north slope, however, no significant flow was observed, and water ponding was minimal.

The ground surface elevation of AOI 4 is about 690 feet above mean sea level (amsl) at the west end, sloping down to the east to about 630 feet amsl. Based on the topographic contours shown on Figure 2.1, the north and east slopes of AOI 4 slope downward at about 3 horizontal to 1 vertical (3H:1V) or flatter.

3.2 CONE PENETRATION TESTS

Cone penetration tests (CPTs) were performed at eleven locations (CPT-1 to CPT-11) by Conetech Inc. under the direction of the CRA Geotechnical Engineer on March 11, 2003. The locations of the CPTs are shown on Figure 2.1. The CPT plots are included in Attachment B. Several of the CPT soundings were repeated (donated by the suffix 'A'), where refusal to CPT advancement (assumed to be the top of the bedrock) was encountered at a depth that was inconsistent with the borehole information.

In general, the CPT data correlates well with the subsurface information obtained through the previously installed augered boreholes. Based on the CPT data, the geology in the vicinity of the slope consists of a cap of clay or clayey silt, that is about 3 to 6 feet thick. This clay cap is underlain by sandy silt/silty sand fill (foundry sand). The foundry sand fill is underlain by a thin native clay layer (up to 5 feet thick at the CPT

locations). Refusal of the CPT probe to advancement occurred at depths of between 6.5 feet and 33.5 feet. In most cases, this refusal depth is representative of the top of the bedrock surface, however, refusal sometimes occurred at shallow depths, likely on larger inclusions in the fill deposit.

Two angled boreholes were drilled in March 2003 (B-X177Y252D and B-X223Y247D) at AOI 4. The logs for the angled boreholes are included in Attachment A. Two samples of the sand fill, and underlying native clay were submitted to Schleede Hampton Associates Inc for grain size distribution testing, and the results of the analyses are included in Attachment C.

One groundwater dissipation tests was also performed at CPT-8 (close to the location of monitoring well TMW-X193Y251) to determine the approximate static groundwater table depth. The groundwater dissipation plot is included in Attachment B. Based on the dissipation test, the groundwater level in CPT-8 was at 27 feet below ground surface, corresponding to elevation 658.6 feet amsl, which is consistent with groundwater level measurements in the monitoring well.

4.0 SLOPE STABILITY MODELING

CRA performed an assessment of the existing slope stability using the data summarized above. The slope stability modelling was performed using Slope /W (Version 5.13) limit equilibrium software, using the Bishop Method of slices. This modelling software calculates the factor of safety (FS) for each hypothetical or selected failure surface through the slope. This analysis method is also used to assess potential for movement of deep or shallow masses of soil over a specific failure surface, which is often curved or circular. Shallow (near surface) failure tend to occur mostly in a cohesionless soils (i.e., sands) or competent cohesive soils (i.e., clay soil with a high internal strength). Failures of slopes composed of less competent cohesive soils (i.e., clay soils with a low internal shear strength), tend to be deep rotational failures involving much larger massess of soil.

For a selected surface, the FS is defined as the ratio of the moments of the available soil strength resting movement, divided by the gravitational forces tending to a cause movement. A FS of 1.0 represents a "limiting equilibrium" condition where the slope is at a point of pending failure since the soil resistance is equal of the forces tending to cause the movement. An FS greater than 1.0 is required to ensure stability of the slope. The typical FS used for engineering design of permanent slopes ranges from about 1.25 to 1.5, depending on the severity of a slope failure and the assumed conditions (groundwater level, seismic loads, tension cracks, etc.).

A cross section through the slope is shown on Figure 4.1. As stated in Section 2.0, the existing slope is at about 3H:1V, and appears to be stable in its current configuration, based on the visual assessment discussed in Section 3.1.

Input parameters for the model include the slope geometry and soil and groundwater stratigraphy, as shown on Figure 4.1. Based on the available information, the following conservative values (i.e., values which likely underestimate the actual FS) were assumed for unit weight, friction angle, and undrained shear strength for the soil units:

Soil Unit	Unit Weight (pcf)	Undrained Soil Strength Parameters: Friction Angle, ϕ (degrees)	Undrained Soil Strength Parameters: Undrained Shear Strength, cu (psf)
Existing Clay Cap	115	0	1,000
Foundry Sand	120	30	0
Native Clay	115	0	2,000
Bedrock*	150	---	---

*Note: Strength values assumed much larger than all other soils since failure will not occur through bedrock unless fractures are present.

These soil parameters were selected based on the previous geotechnical data and CPT testing, as well as past experience with similar soils and engineering judgement.

The results of the slope stability analysis for the existing slope are presented on Figure 4.1. For this case, the groundwater table is assumed to be just above the native clay layer, at about elevation 659 ft, and daylighting out at the base of the slope. The FS for the potential failure surface cutting through the existing slope is about 2.8, indicating that the current configuration is stable. It should be noted that FS decreases for shallower slip surfaces, indicating that shallow sloughing type failures could occur on the slope if the slope was not adequately stabilized by the existing vegetative growth and established trees. The stabilizing effect of the vegetation is generally not modeled, but is assessed visually. The slope stability analysis also does not consider seismic effects, however, the FS under static conditions is sufficiently large enough to consider that normal seismic impacts would not have a significant effect on the stability analysis results.

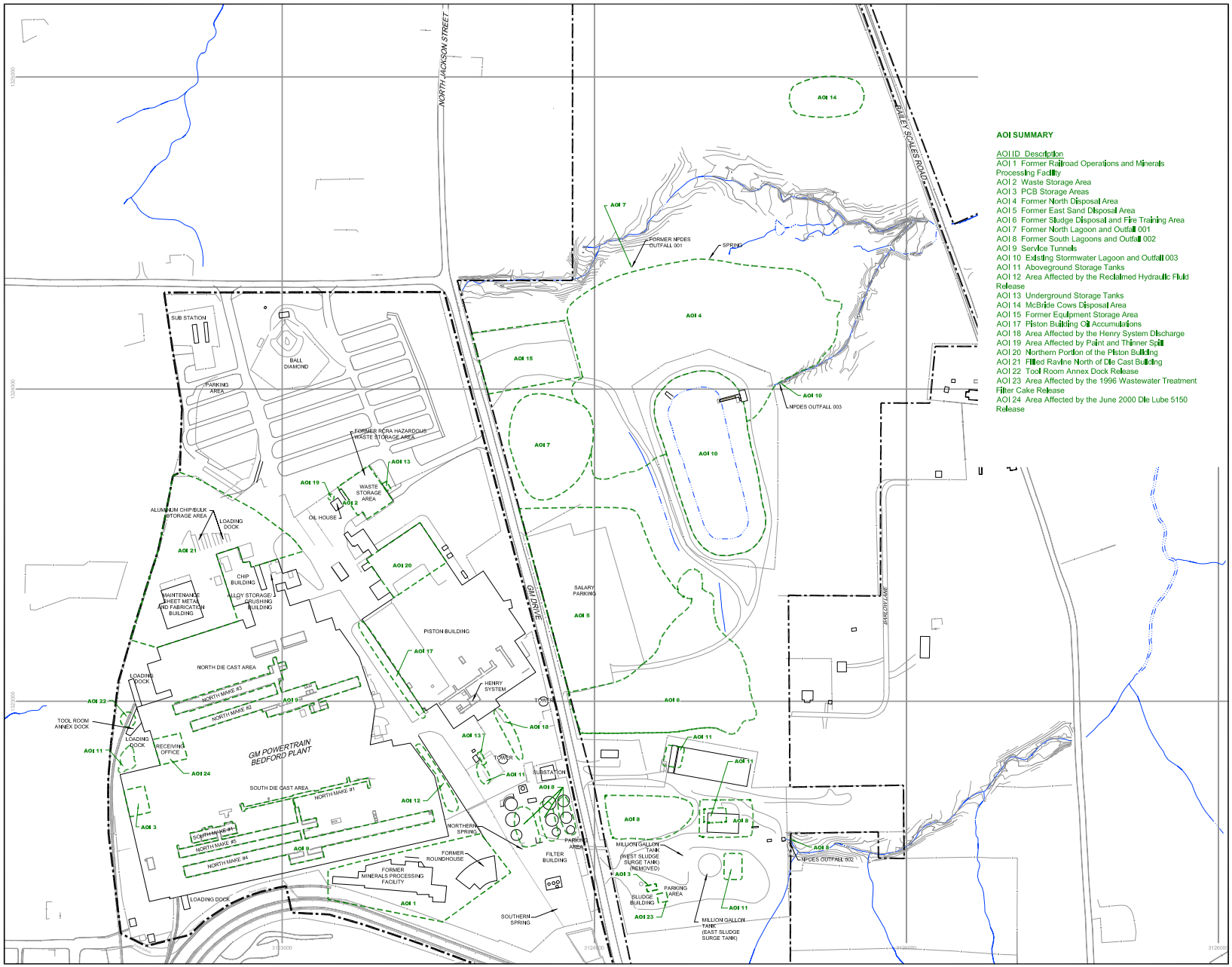
As part of the Removal Action scope of work, AOI 4 may be utilized as a temporary staging area for excavated sediments. CRA has prepared engineering drawings for the staging area (CRA Report 41, Drawing C-13, dated March 5, 2003). The staging area would involve construction of a fill pile up to 12 feet high located on the flat portion of AOI 4. The proposed configuration of the slope is shown in Figure 4.2. The new fill pile will also have side slopes of 3H:1V, and will be protected from erosion by an engineered cover.

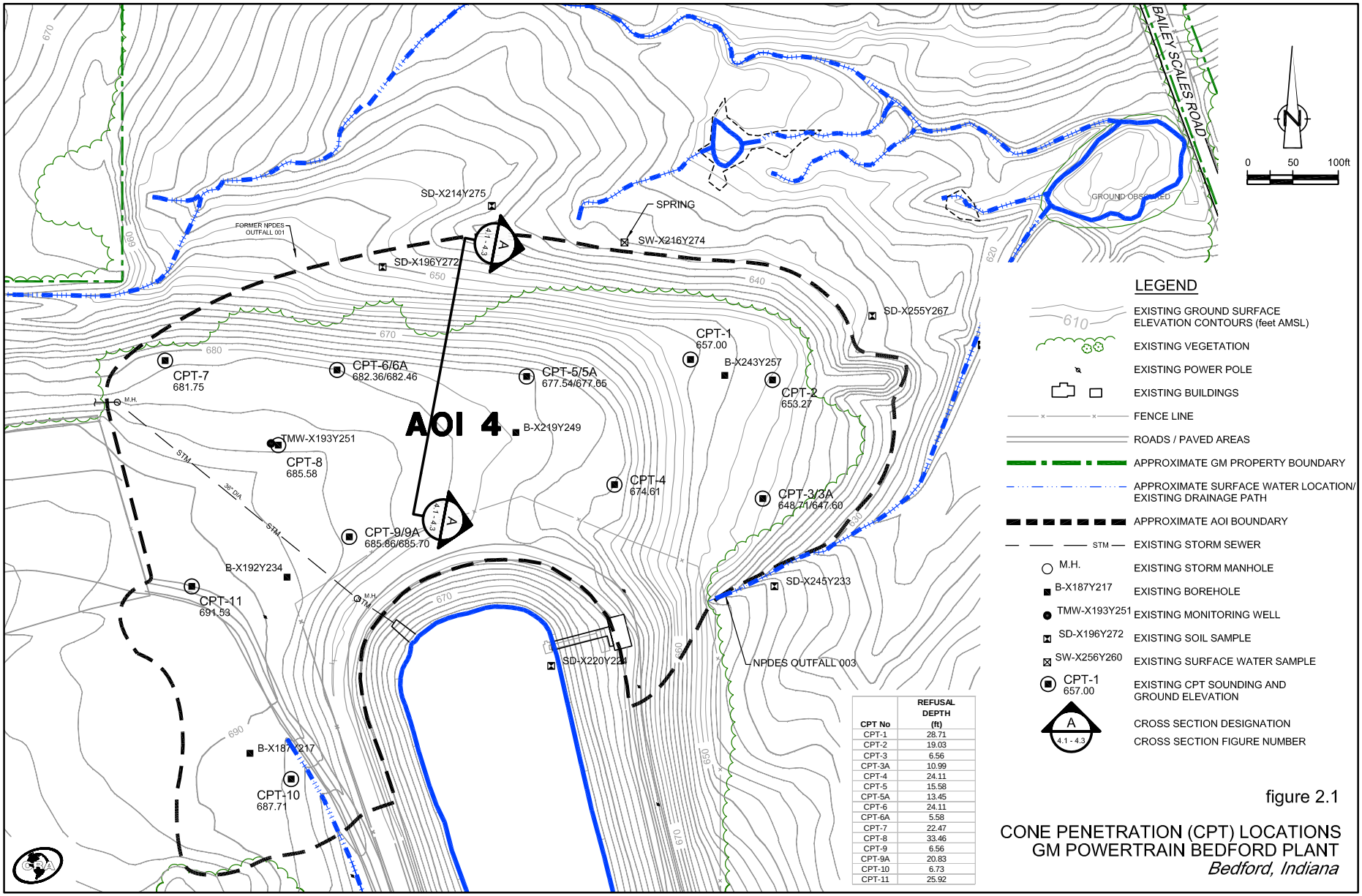
A slope stability analysis was carried out to determine the stability of the existing slope after construction of the new fill pile. In this analysis, it has been assumed that the sediments to be placed in the staging area will be sufficiently dewatered and stabilized, if required, to be placed in a safe manner. The geotechnical characteristics of the sediment are currently undefined, so a stability analysis was performed to back-calculate minimum strength properties of the sediments required to maintain stable conditions. Using a minimum FS of 1.5, potential slip surfaces for frictional material (i.e., no cohesion), and cohesive material , were evaluated separately (see Figures 4.2 and 4.3). Based on the stability results, a minimum friction angle of 26 degrees, or a minimum cohesion of 165 lbs per square foot (psf) would be required for the sediment to be constructed at a 3H:1V slope. The sediments used to construct the fill pile may have to be stabilized using a suitable strengthening additive to achieve these strengths (a minimum compressive strength of 5 psi is recommended if stabilizing is required). Figures 4.2 and 4.3 also show deeper potential slip surfaces

cutting through the existing slope. The FS for the deeper slip surface is greater than 1.5, indicating that the placement of the fill pile will not significantly impact the stability of the existing slope.

5.0 CONCLUSIONS

Based on the geotechnical data collected and the slope stability analysis performed, the existing slopes at AOI 4 are currently stable, with a FS of about 2.8 for the 3H:1V side slopes. The construction of a temporary staging area on top of the existing foundry sand fill will not have a significant impact on the stability of the existing slopes. The geotechnical characteristics of the sediment that will be placed above the foundry sand in the temporary staging area should be assessed prior to construction of the staging area to determine if stabilization of the sediments will be required. At a minimum, the sediments should be dewatered sufficiently to ensure that they can be placed in a controlled fashion, in thin lifts and moderately compacted.


NORTH JACKSON STREET
BAILEY SCALES ROAD
GM DRIVE
BENJOY LANE
AOI 14
AOI 7
FORMER NPDES OUTFALL 001
SPRING
AOI 4
AOI 15
AOI 10
NPDES OUTFALL 003
SUB STATION
BALL DIAMOND
PARKING AREA
FORMER RCRA HAZARDOUS WASTE STORAGE AREA
AOI 13
AOI 19
AOI 12
WASTE STORAGE AREA
OIL HOUSE 3
ALUMINUM CHIP/BULK STORAGE AREA
LOADING DOCK
AOI 21
AOI 20
CHIP BUILDING
ALLOY STORAGE/ CRUSHING BUILDING
MAINTENANCE SHEET METAL AND FABRICATION BUILDING
SALARY PARKING
AOI 5
PISTON BUILDING
AOI 17
NORTH DIE CAST AREA
HENRY SYSTEM
TOWER
AOI 6
AOI 22
LOADING DOCK
NORTH MAKE #3
NORTH MAKE #2
AOI 18
TOOL ROOM ANNEX DOCK
AOI 11
LOADING DOCK
RECEIVING OFFICE
AOI 24
GM POWERTRAIN BEDFORD PLANT
SOUTH DIE CAST AREA
NORTH MAKE #1
AOI 3
SOUTH MAKE #1
NORTH MAKE #5
NORTH MAKE #4
AOI 9
AOI 12
NORTHERN SPRING
SUBSTATION
AOI 8
PARKING AREA
FILTER BUILDING
FORMER ROUNDHOUSE
FORMER MINERALS PROCESSING FACILITY
LOADING DOCK
AOI 1
SOUTHERN SPRING
MILLION GALLON TANK (WEST SLUDGE SURGE TANK) (REMOVED)
AOI 3
SLUDGE BUILDING
AOI 23
PARKING AREA
MILLION GALLON TANK (EAST SLUDGE SURGE TANK)
NPDES OUTFALL 002
AOI 16
AOI 11
AOI 8
AOI 11
AOI 8
AOI 11
AOI 8



CPT No	REFUSAL DEPTH (ft)
CPT-1	28.71
CPT-2	19.03
CPT-3	6.56
CPT-3A	10.99
CPT-4	24.11
CPT-5	15.58
CPT-5A	13.45
CPT-6	24.11
CPT-6A	5.58
CPT-7	22.47
CPT-8	33.46
CPT-9	6.56
CPT-9A	20.83
CPT-10	6.73
CPT-11	25.92

figure 2.1

CONE PENETRATION (CPT) LOCATIONS
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

13968-00(MEMO092)GN-WA001 APR 07/2005

File Name: 13968 Existing.slz
Analysis Method: Bishop

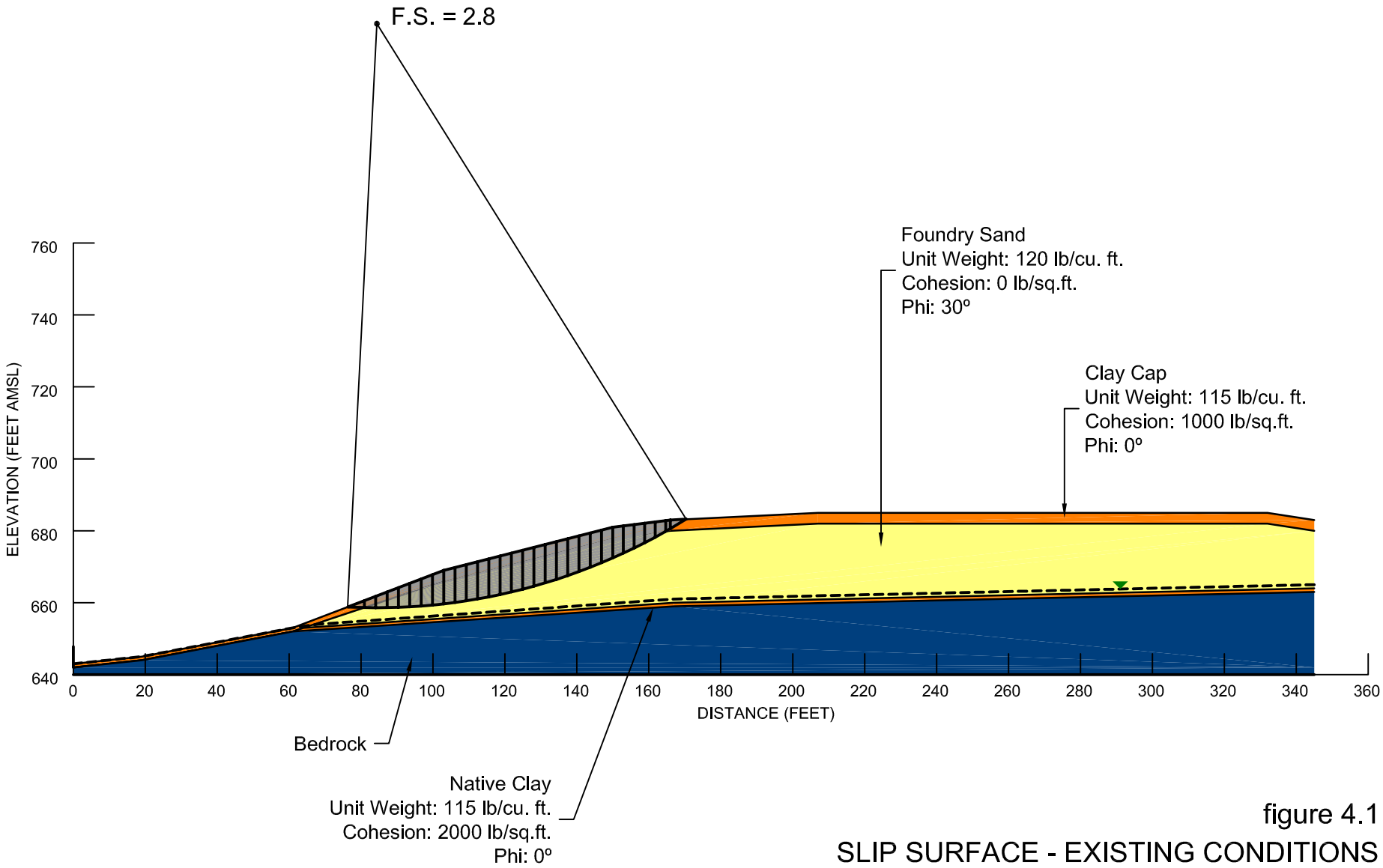


figure 4.1

SLIP SURFACE - EXISTING CONDITIONS
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

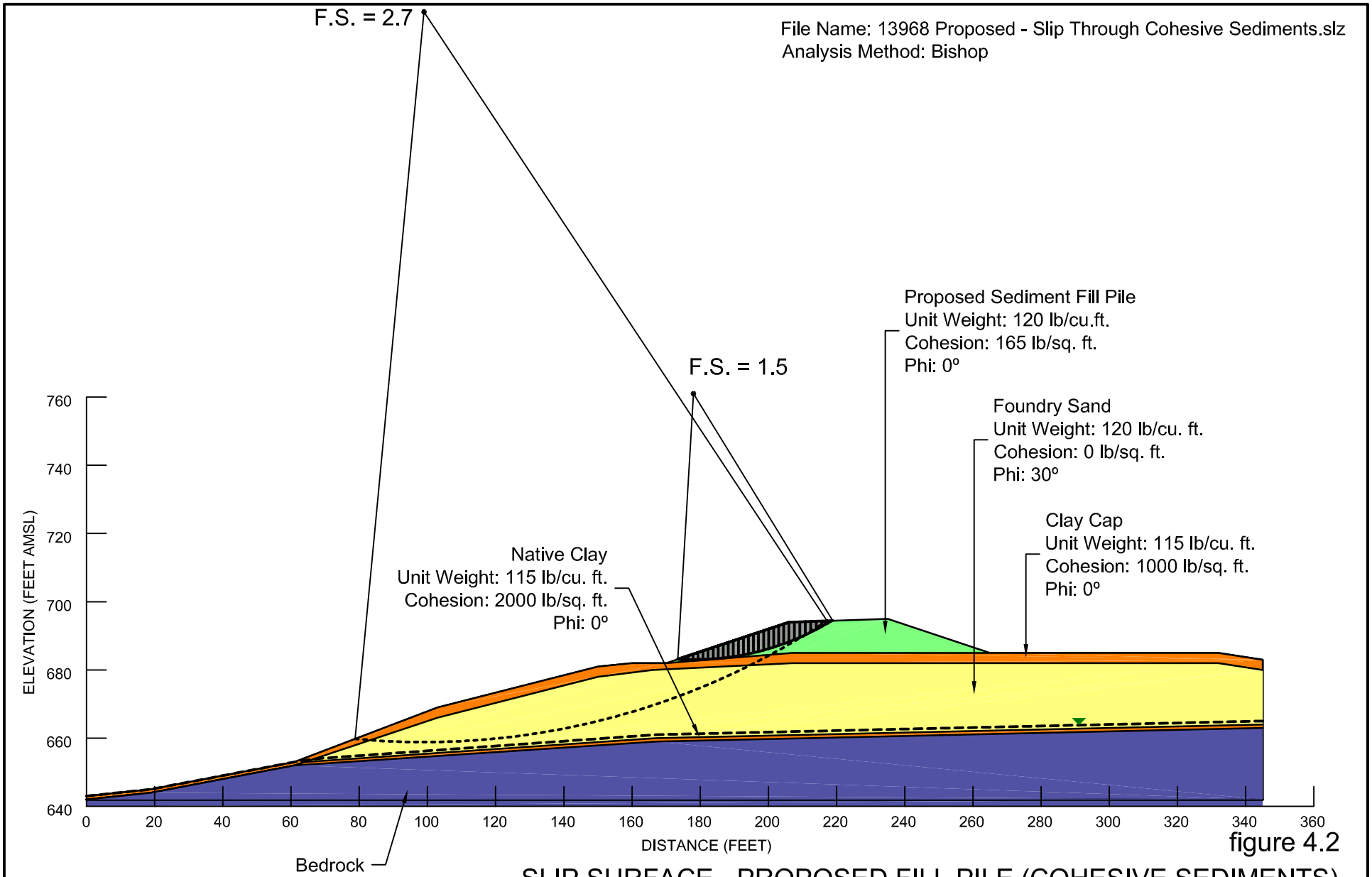


figure 4.2

SLIP SURFACE - PROPOSED FILL PILE (COHESIVE SEDIMENTS)
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

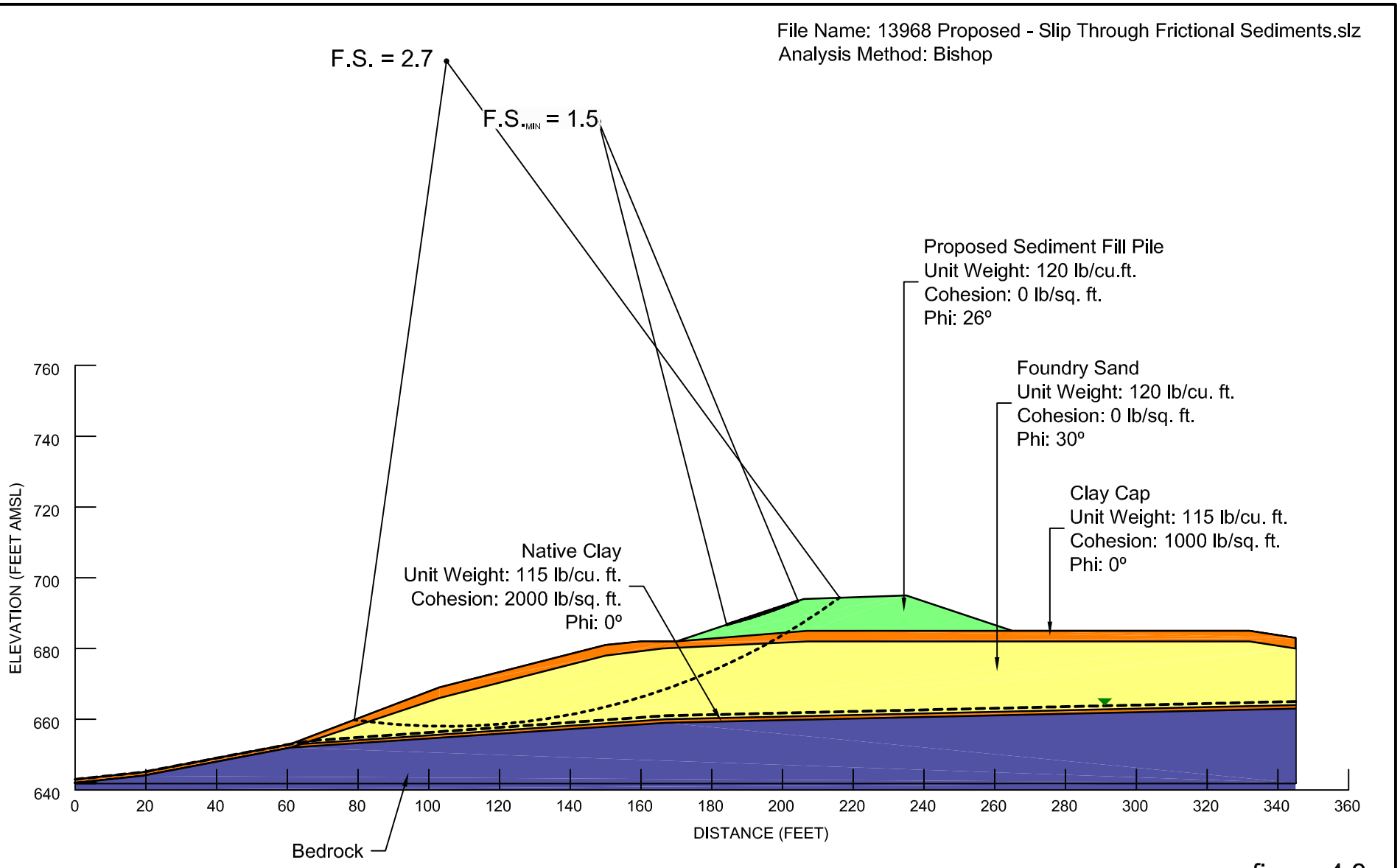


figure 4.3

SLIP SURFACE - PROPOSED FILL PILE (FRICTIONAL SEDIMENTS)
GM POWERTRAIN BEDFORD PLANT
Bedford, Indiana

ATTACHMENT A

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X148Y233
DATE COMPLETED: February 22, 2002
DRILLING METHOD: 4 1/4-INCH HSA
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	695.6						
0	SW-GW SAND AND GRAVEL (FILL), rock fragments, compact, medium to coarse grained, well graded			1		2.0	25	0
2	CL-CLAY, little silt, very stiff, low to medium plasticity, 10YR 4/8 (red), iron staining, moist	693.6		2		2.0	22	0
4				3		2.0	23	0
6	- 2.5YR 4/8 (red) at 6.0ft BGS			4		2.0	24	0
8			BENTONITE GROUT	5		2.0	28	0
10				6		2.0	22	0
12	ML-SILT, trace clay, compact, 2.5YR 6/2 (pale red), very moist to wet	684.0						
	CL-CLAY, little silt, firm, medium plasticity, 5YR 5/8 (yellowish red), moist	683.1		7		2.0	10	0
14	BEDROCK, refusal	681.1		8		1.0	>50	0
	END OF BOREHOLE @ 15.0ft BGS	680.6						
16								
18								
20								
22								
24	DRAFT							
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 13966.GPJ CRA_CORP.GDT 8/5/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X169Y248
DATE COMPLETED: February 21, 2002
DRILLING METHOD: 4 1/4-INCH HSA
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	690.9
0	GW-GW SAND AND GRAVEL (FILL), little silt, dense, fine to coarse grained, well graded, grey, moist, rock fragments	689.4
2	CL-CLAY (FILL), little silt, trace gravel, very stiff, low to medium plasticity, 5YR 4/6 (yellowish red), moist	
4	wood fragments	686.9
	SP-SAND (FILL), little gravel, trace silt, compact, fine grained, poorly graded, grey/black, moist, (foundry sand)	686.4
6	- black/light grey, reddish brown/yellow and light blue, faint odor, loose at 6.0ft BGS	
8		
10		
12		
14		
16		
18		
20	CL-CLAY, little silt, rootlets, firm, low to medium plasticity, brown with some black staining, very moist	670.9
22	- yellowish red at 22.0ft BGS	
24	BEDROCK	666.4
	END OF BOREHOLE @ 25.0ft BGS	665.9
26		
28		
30		
32		
34		

BOREHOLE: BENTONITE GROUT

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1		2.0	44	0
2		2.0	19	0
3		2.0	22	0
4		2.0	32	0
5		2.0	6	0
6		2.0	6	0
7		2.0	4	0.9
8		2.0	4	1.3
9		2.0	10	0
10		2.0	8	0
11		2.0	8	0
12		2.0	11	0
13		1.0	>50	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (○)

OVERBURDEN LOG 13968.GPJ CRA_CORP.GDT 8/5/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X187Y217
DATE COMPLETED: March 6, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	689.1						
0	TOPSOIL	688.5						
	CL-CLAY, trace silt, stiff, low plasticity, strong brown, (7.5YR 5/8)			1	P/S	2.0		0
2				2	P/S	2.0		<1
4			BENTONITE CHIPS	3	P/S	2.0		<1
6				4	P/S	2.0		0
8	- refusal, weathered rock at 8.0ft BGS END OF BOREHOLE @ 8.0ft BGS	681.1						
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

DRAFT

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X192Y234
DATE COMPLETED: March 5, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	688.6						
0	TOPSOIL	688.4						
	CL-CLAY (FILL), trace silt, stiff, low plasticity, 5YR 5/8 (yellowish red), moist			1	P/S	2.0		0
2				2	P/S	2.0		0
4	SP-SAND (FILL), trace gravel, loose, fine grained, poorly graded, 5Y 3/2 (dark olive gray), moist	684.1		3	P/S	2.0		<1
6				4	P/S	2.0		<1
8	- no gravel at 9.0ft BGS			5	P/S	2.0		1.5
10	- GLEY2 7/5PB (light bluish gray) at 10.0ft BGS		BENTONITE CHIPS	6	P/S	2.0		1.2
12	- 10YR 7/2 (pale brown) at 12.0ft BGS			7	P/S	2.0		1.4
14				8	P/S	2.0		<1
16	- 5Y 3/2 (dark olive gray) at 17.0ft BGS			9	P/S	2.0		<1
18				10	P/S	2.0		<1
20	CL-CLAY, trace silt, low plasticity, 7.5YR 5/8 (strong brown), moist	668.6		11	P/S	2.0		<1
22	- rock fragments, refusal at 22.0ft BGS	666.6						
	END OF BOREHOLE @ 22.0ft BGS							
24								
26								
28								
30								
32								
34								

DRAFT

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 13966.GPJ CRA_CORP.GDT 8/5/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X193Y251
DATE COMPLETED: March 4, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	685.4						
0	TOPSOIL	685.2						
	CL-CLAY (FILL), trace silt, stiff, yellowish brown (10YR 5/6), moist			1	P/S	2.0		0
2								
4	SP-SAND (FILL), trace gravel, loose, fine grained, poorly graded, olive brown (2.5Y 4/4), moist	682.4		2	P/S	2.0		0
	- trace gravel at 5.0ft BGS			3	P/S	2.0		<1
6	- black (GLEY1 2.5/N) at 6.0ft BGS			4	P/S	2.0		<1
8				5	P/S	2.0		<1
10				6	P/S	2.0		<1
12				7	P/S	2.0		<1
14				8	P/S	2.0		<1
16	DRAFT		BENTONITE CHIPS	9	P/S	2.0		<1
18				10	P/S	2.0		<1
20				11	P/S	2.0		<1
22				12	P/S	2.0		<1
24				13	P/S	2.0		0
26				14	P/S	2.0		0
28	- becomes wet, heaving sands at 28.0ft BGS			15	P/S	2.0		0
30				16	P/S	2.0		0
32				17	P/S	1.0		0
34	- dark greenish gray (GLEY1 4/5GY) at 33.5ft BGS	651.4						
	- Refusal at 34.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 13968GPJ CRA_CORP.GDT 8/5/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X193Y251
DATE COMPLETED: March 4, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVA-	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
36	END OF BOREHOLE @ 34.0ft BGS							
38								
40								
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

DRAFT

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: TMW-X193Y251
DATE COMPLETED: April 2, 2002
DRILLING METHOD: 4 1/4-INCH HSA
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER GROUND SURFACE	689.7 685.5					
	SAME STRATIGRAPHY AS B-X193Y251		BENTONITE CHIPS				
			SAND PACK WELL SCREEN				
	END OF BOREHOLE @ 31.0ft BGS	654.5					

DRAFT

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 13968.GPJ CRA_CCRP.GDT 8/5/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X219Y249
DATE COMPLETED: February 26, 2002
DRILLING METHOD: 4 1/4-inch HSA
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	GROUND SURFACE	679.6						
0	TOPSOIL	679.4						
	CL-CLAY (FILL), little to some silt, little gravel, stiff, low plasticity, brown, moist			1		2.0	9	0
2		676.6		2		2.0	22	0
	GW-GRAVEL (FILL), some sand, compact, medium to coarse grained, well graded, gray, moist	675.6						
4	CL-CLAY (FILL), some silt, stiff, medium plasticity, brown, moist	673.6		3		2.0	14	0
	SP-SAND (FILL), some silt, trace gravel, compact, fine grained, poorly graded, black, wet, bits of wood and plastic			4		2.0	32	0
6	- trace to little clay, dense, moist at 8.0ft BGS			5		2.0	25	0
8				6		2.0	44	0
10	- bricks, rock fragments at 11.0ft BGS		CEMENT / BENTONITE GROUT	7		2.0	47	0
12				8		2.0	42	0
14	- rock fragments, bits of metal at 15.0ft BGS			9		2.0	27	0
16				10		2.0	13	0
18	- compact at 18.0ft BGS			11		2.0	12	0
20								
22	CL-CLAY (NATIVE), rock fragments, some silt, very stiff, low plasticity, brown, moist	657.6		12		2.0	>50	0
	BEDROCK, refusal	656.1						
24	END OF BOREHOLE @ 24.0ft BGS	655.6						
26								
28								
30								
32								
34								

DRAFT

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 1396E.GPJ CRA_CORP.GDT 8/5/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X243Y257
DATE COMPLETED: March 5, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	GROUND SURFACE	654.7						
0	TOPSOIL	654.5						
	CL-CLAY (FILL), trace silt, soft, low plasticity, 7.5YR 4/6 (strong brown), moist			1	P/S	2.0		0
2	- 2.5Y 4/4 (olive brown) at 3.0ft BGS			2	P/S	2.0		0
4				3	P/S	2.0		<1
6	SP-SAND (FILL), loose, fine grained, poorly graded, GLEY2 2.5/5PB (bluish black), moist	648.7		4	P/S	2.0		<1
8	CL-CLAY, some sand, soft, low plasticity, 2.5Y 3/2 (very dark grayish brown)	647.2	BENTONITE CHIPS	5	P/S	2.0		<1
10	- trace sand at 9.5ft BGS - no sand at 10.5ft BGS			6	P/S	2.0		<1
12	- 7.5YR 4/6 (strong brown) at 11.5ft BGS			7	P/S	2.0		0
14				8	P/S	2.0		0
16	Fractured rock and rock fragments	638.7		9	P/S	1.0		0
	- Refusal at 17.0ft BGS	637.7						
18	END OF BOREHOLE @ 17.0ft BGS							
20								
22								
24								
26								
28								
30								
32								
34								

DRAFT

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 13986.GPJ CRA_CORP.GDT 8/5/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X177Y252D
DATE COMPLETED: March 3, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
	TOPSOIL	0.3
	CL-CLAY (FILL), trace silt, soft, yellowish red (5 YR 4/6), moist	2.0
	SP-SAND (FILL), fine grained, poorly graded, loose, dark reddish brown (5 YR 4/4), moist	
	- reddish brown (5 YR 4/4) at 5.0ft BGS	
	SC-SANDY CLAY (FILL), soft, brown (7.5 YR 4/4), moist	10.0
	Gravel layer (FILL)	11.0
	SP-SAND (FILL), fine grained, poorly graded, loose, very dark brown (7.5 YR 2.5/2), moist, yellow & orange layers	12.2
	- black (7.5 YR 2.5/1), no odor and colors present at 18.5ft BGS	
	CL-CLAY, trace silt and sand, soft, low plasticity, dark grayish brown (2.5 Y 3/2), moist, black stains, odor	20.0
	- no black stains present at 21.0ft BGS	
	- no silt and sand, dark yellowish brown (10 YR 3/6), stiff at 21.5ft BGS	
	- very stiff, rock chips at 23.0ft BGS	
	- bedrock at 24.5ft BGS	
	END OF OVERBURDEN HOLE @ 25.0ft BGS	

ANGLE BORING: CEMENT / BENTONITE GROUT; 4" DIA STEEL CASING

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	P/S	1.5		0.4
2	P/S	0.9		0.2
3	P/S	0.5		0.2
4	P/S	1.5		0.2
5	P/S	0.9		0.3
6	P/S	0.9		0.5
7	P/S	1.5		0.2
8	P/S	1.7		0.8
9	P/S	1.7		2.4
10	P/S	1.8		4.0
11	P/S	2.0		0.4
12	P/S	1.7		0.2
13	P/S	1.0		0.5

DRAFT

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (○) GRAIN SIZE ANALYSIS (□)

OVERBURDEN LOG 13968.GPJ CRA_CORP.3DT 8/11/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X177Y252D
DATE COMPLETED: March 3, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE BORING	RUN NUMBER	CORE RECOVERY %	RQD %
	- bedrock at 24.5ft BGS					
	LIMESTONE (ST. LOUIS FORMATION)	25.0				
26		26.5				
	SHALE, soft, green / blue	27.0				
	- 2-inch void at 27.1ft BGS	27.6				
28	LIMESTONE (ST. LOUIS FORMATION), coarse grained, fossils, beige micritic limestone			1	100	100
30	LIMESTONE (SALEM FORMATION), fine to medium grained, granular, very thick bedding, fossils, styloites, grey - 6-inch tan section at 30.0ft BGS - grey at 30.6ft BGS - styloite at 31.0ft BGS - tan at 31.6ft BGS - grey at 32.5ft BGS					
32						
34	- styloite at 32.7ft BGS - tan, fracture at 33.2ft BGS			2	100	100
36	- grey at 34.1ft BGS - styloite, white / grey at 35.4ft BGS - fracture at 36.6ft BGS					
38	- fracture at 37.2ft BGS - styloite at 37.7ft BGS - fracture at 38.0ft BGS					
	- styloite at 38.7ft BGS			3	100	100
40	- open styloite at 39.8ft BGS - 1-inch fracture at 39.9ft BGS		← 4" DIA. HQ COREHOLE			
42	- open styloite at 40.0ft BGS - styloite at 41.9ft BGS - fracture at 42.5ft BGS					
44						
46	- fracture at 45.2ft BGS - fracture at 45.6ft BGS - styloite at 46.5ft BGS			4	100	100
48						
50	half inch fracture at 50.2ft BGS		← CEMENT / BENTONITE GROUT			
52						
54	- open styloite at 53.2ft BGS - open styloite at 53.6ft BGS			5	100	100
56	DRAFT					
58	- open styloite at 57.4ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

BEDROCK LOG 13968.GPJ CFA_CORP.GDT 8/11/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X177Y252D
DATE COMPLETED: March 3, 2003
DRILLING METHOD: 4 1/4-INCH HSA & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE BORING	RUN NUMBER	CORE RECOVERY %	RQD %
60						
	- styloite at 61.6ft BGS		4" DIA. HQ COREHOLE	6	100	100
62	END OF BOREHOLE @ 61.9ft BGS	61.9				
64	Boring drilled on an 30 degree angle from vertical (all depths not in relation to vertical)					
66	Overburden pilot boring advanced utilizing 4-1/4 inch hollow stem augers and samples collected by Split spoon					
68	Ground surface elevation of 681.72 ft. AMSL					
70						
72						
74						
76						
78						
80	DRAFT					
82						
84						
86						
88						
90						
92						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

BEDROCK LOG 13968.GPJ CFA_CORP.GDT 8/11/03

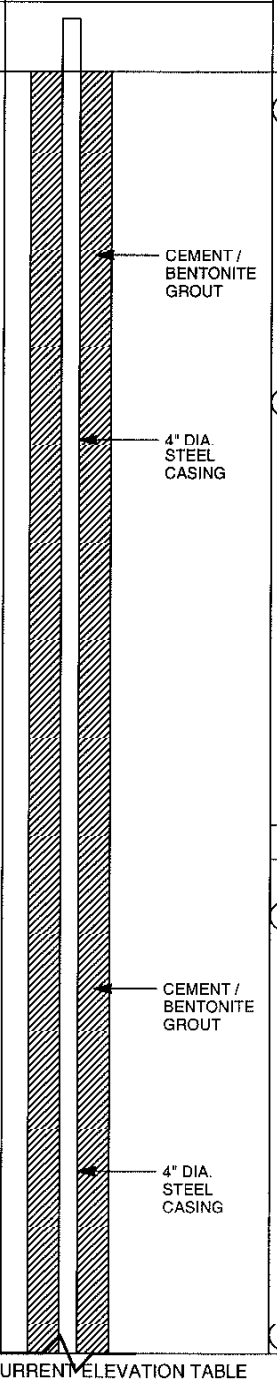
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X223Y247D
DATE COMPLETED: February 4, 2003
DRILLING METHOD: 7 7/8-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN / M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
	TOPSOIL, with roots	0.3
	CL-CLAY (FILL), trace silt, stiff, low plasticity, strong brown (7.5 YR 5/8), moist	1.8
2	SP-SAND (FILL), fine grained, poorly graded, loose, dark reddish brown (5 YR 3/2), moist	
4		
6	- rock fragments at 6.0ft BGS	
8		8.0
	CL-CLAY (FILL), trace sand and gravel, medium plasticity, soft, dark yellowish brown (10 YR 9/7), moist	
10		
12	- no gravel at 12.5ft BGS	
14		
16		
	- 2-inch section of gravel fragments at 17.0ft BGS	
18	- trace sand at 18.0ft BGS	
20		
	SC-CLAYEY SAND (FILL), non-plastic, soft, black (5 YR 2.5/2), moist	21.0
22	SP-SAND (FILL), fine grained, poorly graded, compact, black (5 YR 2.5/2), moist	22.0
24		
26		
	SC-CLAYEY SAND (FILL), same as above	26.5
28		
	CL-CLAY (FILL), trace sand and silt, low plasticity, dark reddish brown (5 YR 3/2), moist	29.5
30		
	SC-CLAYEY SAND (FILL). same as above	31.0
32		
34		34.5

DRAFT



SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
1		1.0		0.1
2		1.2		0.2
3		0.5		0.6
4		1.0		0.5
5		0.5		NA
6		0.6		0.2
7		0.5		1.0
8		1.3		0.5
9		0.6		1.1
10		1.0		0.8
11		1.5		0.5
12		1.0		3.3
13		1.7		2.4
14		1.7		1.9
15		2.0		2.0
16		2.0		1.7
17		1.5		1.0
18		1.0		1.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

OVERBURDEN LOG 13968.GPJ CRA_CORP.3DT 8/11/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X223Y247D
DATE COMPLETED: February 4, 2003
DRILLING METHOD: 7 7/8-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN / M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
	CL-CLAY, trace silt, low plasticity, soft, strong brown (7.5 YR 5/2), moist	34.5				
36	LIMESTONE (SALEM FORMATION), innerbeded tan/gray top 1.1 feet, fine to coarse grained, massive, granular, very thick bedding	35.0				
38	- fracture at 37.1ft BGS - styloite at 37.7ft BGS - fracture, tan, mud filling at 37.8ft BGS			1	100	100
40	- coarse grained, gray at 38.6ft BGS - tan, styloite at 39.7ft BGS		4" DIA. HQ COREHOLE			
42	- styloite at 41.1ft BGS - gray at 41.4ft BGS - tan at 41.6ft BGS - gray at 42.4ft BGS					
44	- styloite at 44.4ft BGS			2	100	100
46	- styloite at 46.3ft BGS - styloite at 46.7ft BGS					
48	- open styloite at 47.4ft BGS - fracture at 48.9ft BGS					
50	- styloite at 50.8ft BGS - styloite at 51.1ft BGS					
52	tan, fossils (bryozoan) at 51.4ft BGS					
54				3	100	100
56						
58	- gray at 59.3ft BGS					
60			4" DIA. HQ COREHOLE			
62	DRAFT					
64				4	100	100
66						
68	- styloite at 68.0ft BGS - half-inch calcite filled vug at 68.2ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

BEDROCK LOG 13968.GPJ CRA_CORP.GDT 8/11/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X223Y247D
DATE COMPLETED: February 4, 2003
DRILLING METHOD: 7 7/8-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN / M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
70						
72	- styloite at 71.6ft BGS					
74						
76				5	100	100
78	- styloite at 77.3ft BGS - fracture at 78.6ft BGS					
80	- fracture at 79.7ft BGS					
82						
84	- styloite at 83.3ft BGS - styloite at 84.1ft BGS			6	100	100
86	- fracture at 85.6ft BGS					
88	- fracture at 87.2ft BGS					
90	- styloite at 89.1ft BGS		4" DIA. HQ COREHOLE			
92	- styloite at 90.6ft BGS - fracture at 91.4ft BGS - styloite at 92.5ft BGS					
94	- open styloite at 93.1ft BGS - styloite at 93.3ft BGS LIMESTONE (UPPER HARRODSBURG FORMATION), coarse, gray, fossile well cemented bioclastic (bryozoan & brachipods) calcarenite and calcirudite limestone	93.4		7	100	100
96	- fracture at 94.6ft BGS - styloite at 95.8ft BGS					
98	- styloite at 96.6ft BGS - fracture at 97.1ft BGS - fracture at 98.8ft BGS					
100	- styloite at 99.1ft BGS - fracture at 99.4ft BGS - styloite at 100.3ft BGS					
102	- styloite at 100.8ft BGS - styloite at 103.3ft BGS					

DRAFT

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X223Y247D
DATE COMPLETED: February 4, 2003
DRILLING METHOD: 7 7/8-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN / M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
	- fracture, shale parting at 103.4ft BGS - fracture at 104.1ft BGS			8	100	100
106	- styloite at 106.8ft BGS					
108	- fracture, shale parting at 108.0ft BGS - styloite at 108.2ft BGS - fracture at 108.8ft BGS					
110	- fracture, shale parting at 109.2ft BGS LIMESTONE (LOWER HARRODSBURG FORMATION), fine grained, white, abundance of fine fossils, trace calcite	109.4				
112	- half-inch vug at 110.7ft BGS					
	- styloite at 113.4ft BGS					
114	- styloite at 114.3ft BGS - styloite at 114.8ft BGS			9	100	100
116	- styloite at 115.5ft BGS					
118	- fracture at 118.1ft BGS - fracture at 118.5ft BGS - fracture, shale parting at 119.3ft BGS					
120	- light gray, styloite at 120.0ft BGS		4" DIA. HQ COREHOLE			
	- styloite at 121.2ft BGS					
122	- styloite at 121.8ft BGS					
	- open styloite at 123.2ft BGS					
124	- 1.5 foot section of abundance of fossils at 124.3ft BGS			10	100	
126	- fracture at 125.4ft BGS - fracture at 126.1ft BGS - open styloite at 126.5ft BGS					
128	1.8 foot of porous vuggy calcite filled section containing fossils at 127.0ft BGS					
	- open styloite at 129.0ft BGS					
130	- open styloite at 130.0ft BGS		CEMENT / BENTONITE GROUT			
132	DRAFT open styloite at 132.8ft BGS					
134	- styloite at 134.5ft BGS			11	100	100
136	- open styloite at 135.7ft BGS - open styloite at 136.1ft BGS					
138	- styloite at 137.6ft BGS - open styloite at 138.0ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X223Y247D
DATE COMPLETED: February 4, 2003
DRILLING METHOD: 7 7/8-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN / M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
140						
142	- fracture at 142.0ft BGS					
144				12	100	100
146						
148	- fracture, blue shale parting at 148.2ft BGS					
150	- 7-inches of fractures with blue shale partings at 149.3ft BGS - styloite at 150.7ft BGS - fracture, shale parting at 150.8ft BGS					
152	- open styloite at 151.6ft BGS - styloite at 152.2ft BGS					
154	- open styloite at 153.3ft BGS - styloite at 154.3ft BGS					
	- styloite at 155.2ft BGS		← 4" DIA. HQ COREHOLE	13	100	100
156	- fracture, shale parting at 156.4ft BGS					
158	- fracture, shale parting at 157.7ft BGS					
160	- fracture, shale parting at 159.1ft BGS - styloite at 159.4ft BGS - styloite at 160.0ft BGS - 2-foot section of interbedded shale at 160.9ft BGS					
162						
164	- open fracture, shale parting at 164.5ft BGS			14	100	100
166	- open fracture, shale parting at 165.6ft BGS - fracture at 165.9ft BGS					
168	- fracture at 167.2ft BGS - styloite at 168.0ft BGS					
170	DRAFT					
172	- shale seam at 171.5ft BGS					
	- 1.5-inch calcite filled vug at 173.2ft BGS	173.0				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

BEDROCK LOG 3968.GPJ CRA_CORP.GDT 8/11/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: B-X223Y247D
DATE COMPLETED: February 4, 2003
DRILLING METHOD: 7 7/8-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN / M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	ANGLE BOREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
176	LIMESTONE (RAMP CREEK), 1.4 foot section of interbedded shale with vugs, very fine grained, contains small amounts of shale, even bedded - shale seam at 174.7ft BGS - 9-inch of interbedded shale at 177.0ft BGS			15	100	100
178						
180	- large fracture at 179.9ft BGS - high shale content at 180.0ft BGS - half-inch vug at 181.1ft BGS					
182						
184	- 1-inch vug at 184.8ft BGS			16	100	100
186						
188	- 2-inch geode at 187.5ft BGS					
190	- 1.7 feet of interbedded shale at 190.0ft BGS - fracture, shale seam at 191.0ft BGS		4" DIA. HQ COREHOLE			
192						
194				17	100	100
196						
198						
	SHALE (EDWARDSVILLE FORMATION), light blue	198.6				
200	END OF BOREHOLE @ 200.0ft BGS	200.0				
202	Boring drilled on an 30 degree angle from vertical (all depths not in relation to vertical)					
204	Overburden pilot boring advanced utilizing 4-1/4 inch hollow stem augers and samples collected by STP method					
206	Ground surface elevation of 676.24 ft. AMSL					
208	DRAFT					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

BEDROCK LOG 13968.GPJ CRA_CORP.GDT 8/11/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X143Y245D
DATE COMPLETED: April 2, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	694.1 690.2						
0	SW-GW - SAND and GRAVEL (Fill), little silt, dense fine to medium grained, well graded, brown, moist, glass.			1		1.7	35	0.0
2	SP - SAND (Fill), compact, fine grained, poorly graded, dark brown/dark grey, moist.	688.2		2		1.5	13	0.0
4	CL - CLAY with silt, very stiff, low plasticity, moist, 5YR4/6 yellowish red.	685.7	10" DIA. STEEL CASING TO 9' 4" DIA. STEEL CASING CEMENT / BENTONITE GROUT	3		1.3	19	0.0
6								
8	END OF OVERBURDEN HOLE @ 8.0ft BGS			4		2.0	15	0.0
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

DRAFT

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

OVERBURDEN LOG 13968.GPJ CRA_CORP.GDT 8/5/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X143Y245D
DATE COMPLETED: April 2, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
8	LIMESTONE (ST. LOUIS FORMATION), fine grained (micritic), interbedded with calcareous shale lenses, thinly bedded, light blue/grey.	682.2	CEMENT / BENTONITE GROUT			
10	- porous at 10.5ft BGS - vugs at 11.2ft BGS					
12	- 1" clay seam, water loss at 11.3ft BGS		10" DIA. HOLE	1	80	80
14	- 4" vug with clay filling at 15.1ft BGS		CEMENT / BENTONITE GROUT			
16	- 3" large horizontal fracture with little clay filling at 16.3ft BGS					
18	- medium horizontal fracture at 17.2ft BGS - medium horizontal fracture at 18.3ft BGS			2	98	93
20	- medium horizontal fracture at 21.0ft BGS		4" DIA. STEEL CASING			
22	- styloite at 23.2ft BGS					
24	- 1/2" horizontal fracture at 24.4ft BGS		4" DIA. HQ COREHOLE			
26	LIMESTONE (SALEM FORMATION), 1/2" horizontal fracture, grannular, thick bedding (medium to coarse grained (comprised mostly of micro fossils and fossil fragments)), oolitic in texture, calcarenite	664.8				
28	- thin horizontal fracture at 28.0ft BGS - 3.5" section of open vugs at 28.6ft BGS			3	100	100
30	- 2" horizontal fracture at 30.9ft BGS					
32	- styloite at 32.6ft BGS					
34	- styloite at 33.8ft BGS					
36	DRAFT					
38	- 1/2" thick open horizontal styloite at 38.9ft BGS			4	100	100
40	- styloite at 40.5ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS ☐

BEDROCK LOG 13968.GP, CRA_CORP.GDT 8/5/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X143Y245D
DATE COMPLETED: April 2, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
42	- styloite at 41.4ft BGS					
44						
46	- open styloite at 45.2ft BGS					
48				5	100	100
50	- styloite at 50.7ft BGS					
52						
54						
56			← 4" DIA. HQ COREHOLE			
58	- styloite at 58.8ft BGS			6	100	100
60						
62	- styloite at 62.8ft BGS - 26' no fractures, have fossils at 63.5ft BGS					
64						
66	- styloite, horizontal at 65.1ft BGS					
68	- styloite, horizontal at 67.2ft BGS			7	100	100
70						
72	- styloite, horizontal at 70.8ft BGS					
74						

DRAFT

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS ☐

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X143Y245D
DATE COMPLETED: April 2, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
78	- styloite, horizontal at 78.5ft BGS			8	100	100
80						
82						
84	- styloite, horizontal at 84.1ft BGS					
86						
88				9	100	100
90	- 1/2" thick open at 89.5ft BGS					
92	- open at 91.9ft BGS		4" DIA. HQ COREHOLE			
94	- styloite at 94.6ft BGS					
96	- thin horizontal fracture at 96.2ft BGS		DOW PACKER			
98	DRAFT			10	100	100
100	LIMESTONE (UPPER HARRODSBURG FORMATION), styloite, coarse grained, well cemented, bioclastic calcarenite with shale, interbedded with argillaceous limestone lenses, light grey	591.2				
102	- styloite at 101.1ft BGS - 2' highly fossilized (crinoid, brachiopods, abundant fan bryozoan), vuggy at 102.2ft BGS					
104	- styloite at 104.5ft BGS					
106	- styloite at 106.0ft BGS		SAMPLE ZONE 2			
108	- thin horizontal fracture at 108.7ft BGS			11	100	100
110	- thin horizontal fracture at 110.4ft BGS		DOW PACKER			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS □

BEDROCK LOG 13968.GPJ CRA_CORP.3DT 8/5/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X143Y245D
DATE COMPLETED: April 2, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
112	- shale, thin horizontal fracture at 110.7ft BGS - styloite at 112.7ft BGS					
114	- 3" of highly fractured rock, horizontal at 113.7ft BGS					
116						
118	- styloite at 117.0ft BGS - shale parting, black at 117.1ft BGS - shale parting, black at 118.0ft BGS - shale parting, black at 118.6ft BGS			12	100	100
120	- shale parting, black at 118.9ft BGS - shale parting, black at 119.2ft BGS - 1/2" shale parting at 121.1ft BGS					
122	- styloite at 122.2ft BGS					
124						
126	- near horizontal fracture at 125.1ft BGS DRAFT		4" DIA. HQ COREHOLE			
128	- horizontal fracture at 128.7ft BGS			13	100	100
130	- horizontal fracture at 131.0ft BGS					
132	- horizontal fracture at 132.2ft BGS					
134	- styloite at 134.1ft BGS					
136	- styloite at 135.4ft BGS - styloite at 135.7ft BGS - styloite at 136.5ft BGS - styloite at 137.5ft BGS					
138	- styloite at 138.0ft BGS - styloite at 138.5ft BGS - styloite at 138.9ft BGS		NON-MONITORING ZONE	14	100	100
140	- styloite at 139.6ft BGS - styloite at 141.0ft BGS - open styloite at 141.5ft BGS					
142	- styloite at 142.7ft BGS - open styloite at 143.0ft BGS					
144	LIMESTONE (LOWER HARRODSBURG FORMATION), styloite, horizontal, medium to coarse grained, mostly argillaceous with shale	546.2				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS ☐

BEDROCK LOG 13968.GP_ CRA_CORP.GDT 8/5/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X143Y245D
DATE COMPLETED: April 2, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
148	lenses, calcareous, abundant geodes and siliceous towards the bottom, light to dark grey - shale parting at 145.0ft BGS - thin horizontal fracture at 145.7ft BGS - open styloite at 147.2ft BGS - open styloite at 147.8ft BGS - 2" geode with quartz crystal fillings at 149.4ft BGS - styloite at 150.0ft BGS - open styloite at 152.0ft BGS			15	100	100
150						
152						
154	- open styloite at 154.8ft BGS					
156						
158	- styloite at 157.5ft BGS - open styloite at 158.4ft BGS			16	100	100
160	- open styloite at 159.8ft BGS - 2' highly fractured, horizontal at 160.7ft BGS		4" DIA. HQ COREHOLE			
162						
164	- 2' interbedded shale beds at 163.6ft BGS					
166	LIMESTONE (RAMP CREEK FORMATION), very fine grained, contains small amounts of shale, 1" geode	524.2	DOW PACKER			
168	- 10' numerous geodes with calcite fillings at 167.7ft BGS			17	100	100
170						
172	- 2" geodes, calcite fillings at 171.8ft BGS - 2" geodes, calcite fillings at 172.5ft BGS					
174	- 2" geodes, calcite fillings at 173.6ft BGS					
176	- open fracture at 175.5ft BGS - 1" geode, quartz filled at 176.7ft BGS					
178	- 3" interbedded shale at 177.0ft BGS			18	100	100
180						

DRAFT

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (○) GRAIN SIZE ANALYSIS (□)

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X143Y245D
DATE COMPLETED: April 2, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
182						
184			4" DIA. HQ COREHOLE			
186						
188	SHALE (EDWARDSVILLE FORMATION), calcareous, light blue/grey, soft.	503.3	SAMPLE ZONE 1	19	100	100
190						
192						
194	END OF BOREHOLE @ 193.5ft BGS	496.7				
196	Overburden pilot boring advanced utilizing 4-1/4 inch hollow stem augers and samples collected by STP method					
198						
200						
202						
204						
206						
208						
210						
212						
214						

DRAFT

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( ) GRAIN SIZE ANALYSIS [ ]

BEDROCK LOG 13968.GPJ CRA_CORP.GDT 8/5/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X143Y245S
DATE COMPLETED: June 11, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBEF	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER GROUND SURFACE	692.9 690.4					
0	SW/GW SAND AND GRAVEL (FILL), little silt, dense, fine to medium grained, well graded, brown, moist, glass						
2	SP-SAND (FILL), compact, fine grained, poorly graded, dark brown/dark gray, moist	688.4					
4			CEMENT / BENTONITE GROUT				
6	CL-CLAY, little silt, very stiff, low plasticity, 5YR 4/6, (yellowish red), moist	685.9	4" DIA. STEEL CASING				
8	END OF OVERBURDEN HOLE @ 8.5ft BGS		10" DIA. STEEL CASING				
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

DRAFT

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: GM BEDFORD RFI
PROJECT NUMBER: 013968
CLIENT: GENERAL MOTORS CORPORATION
LOCATION: BEDFORD, INDIANA
DRILLING CONTRACTOR: RDNP

HOLE DESIGNATION: MW-X143Y245S
DATE COMPLETED: June 11, 2002
DRILLING METHOD: 10-INCH TRI-CONE & HQ CORE
FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	RUN NUMBER	CORE RECOVERY %	RQD %
8			4" DIA. STEEL CASING			
10	LIMESTONE (ST. LOUIS FORMATION), fine grained (micritic), calcite, thin bedded, gray, interbedded with calcareous shale lenses	681.9	10" DIA. STEEL CASING 4" DIA. STEEL CASING			
12	- horizontal fracture at 11.4ft BGS - 8-inch of porous rock at 11.5ft BGS - horizontal fracture at 12.2ft BGS					
14	- horizontal fracture at 13.4ft BGS - 4-inch near vertical fracture at 13.6ft BGS - horizontal fracture at 14.3ft BGS		4" DIA. HQ COREHOLE	1	100	95
16	- horizontal fracture at 16.1ft BGS - horizontal fracture at 16.3ft BGS					
18	- horizontal fracture at 16.5ft BGS - horizontal fracture at 17.1ft BGS - styloite at 17.4ft BGS					
20	- open styloite at 18.4ft BGS					
22	- horizontal fracture at 20.8ft BGS - horizontal fracture at 21.4ft BGS - horizontal fracture at 21.7ft BGS					
24	- horizontal fracture at 22.8ft BGS - horizontal fracture at 23.2ft BGS - styloite at 23.3ft BGS - open styloite at 24.5ft BGS		BENTONITE CHIPS	2	100	100
26	- horizontal fracture at 24.7ft BGS LIMESTONE (SALEM FORMATION), grannular, thick bedding , medium to coarse grained (comprised mostly of micro fossils and fossil fragments), massive, calcite, oolitic in texture, light gray	664.9				
28	- horizontal fracture at 27.3ft BGS END OF BOREHOLE @ 27.6ft BGS	662.6				
30						
32						
34						
36						
38						
40						

DRAFT

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

ATTACHMENT B

Table 1 - Summary of CPT Soundings

ConeTec, Inc.
Job No. 03-717
Location GM Bedford AOI4
Client Conestoga-Rovers & Associates
Date 3/11/2003

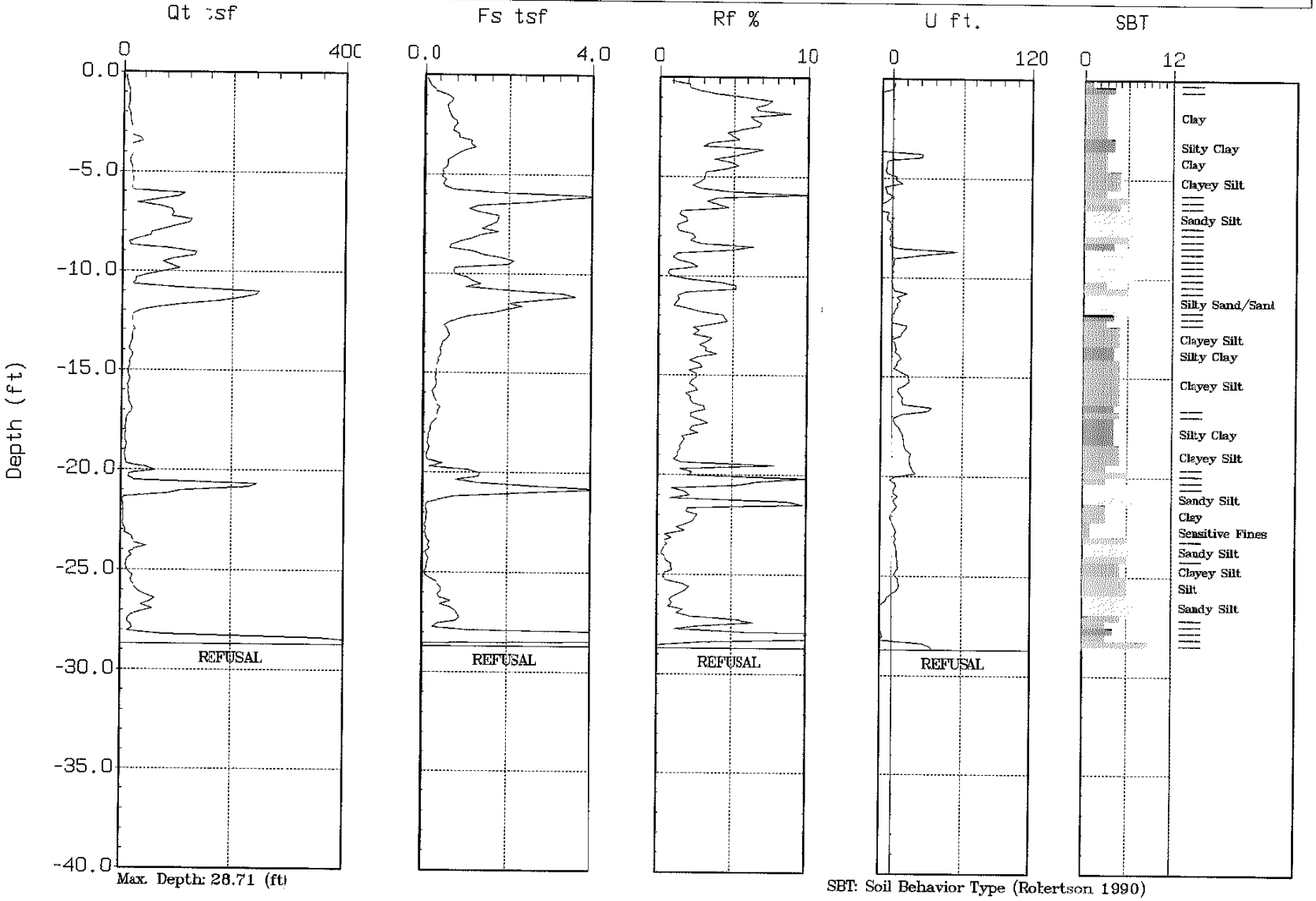
Date	CPT No.	File Name	Total Depth (ft)	Notes
3/11/03	CPT-01	717cp001.cor	28.71	Refusal
	CPT-02	717cp002.cor	19.03	Refusal
	CPT-03	717cp003.cor	6.56	Refusal
	CPT-3A	717cp03a.cor	10.99	Refusal
	CPT-04	717cp004.cor	24.11	Refusal
	CPT-05	717cp005.cor	15.58	Refusal
	CPT-5A	717cp05a.cor	13.45	Refusal
	CPT-06	717cp006.cor	24.11	Refusal
	CPT-6A	717cp06a.cor	5.58	Refusal
	CPT-07	717cp007.cor	22.47	Refusal
	CPT-08	717cp008.cor	33.46	Refusal
	CPT-09	717cp009.cor	6.56	Refusal
	CPT-9A	717cp09a.cor	20.83	Refusal
	CPT-10	717cp010.cor	6.73	Refusal
	CPT-11	717cp011.cor	25.92	Refusal

CONETEC

CRA

Site: CPT-01
Location: GM Bedford AOI4

Cone: 20 TON AD106
Date: 03:11:03 10:33



Max. Depth: 28.71 (ft)

Depth Inc.: 0.164 (ft)

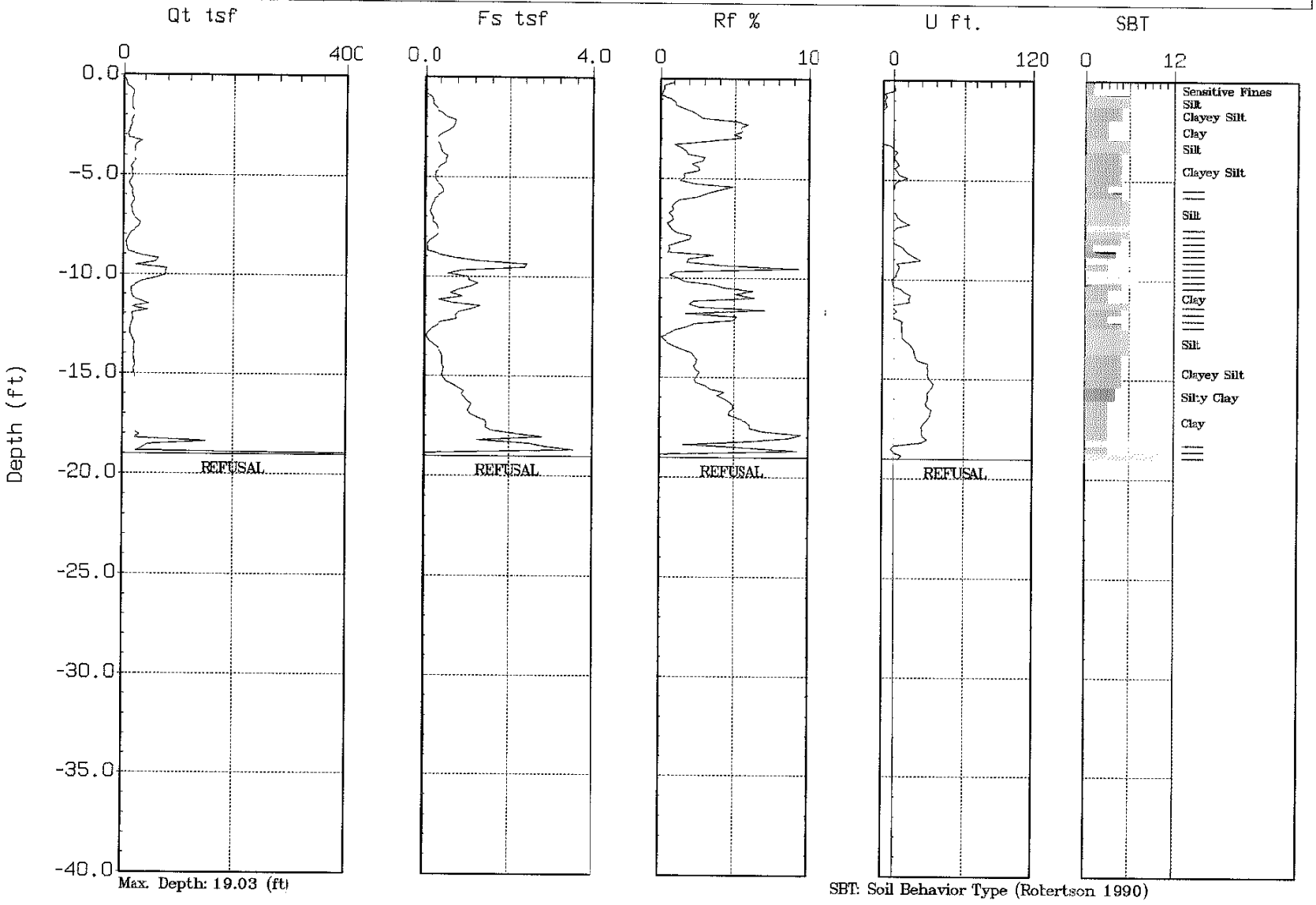
SBT: Soil Behavior Type (Robertson 1990)

CONETEC

CRA

Site: CPT-02
Location: GM Bedford AOI4

Cone: 20 TON AD106
Date: 03:11:03 11:07



Max. Depth: 19.03 (ft)

Depth Inc.: 0.164 (ft)

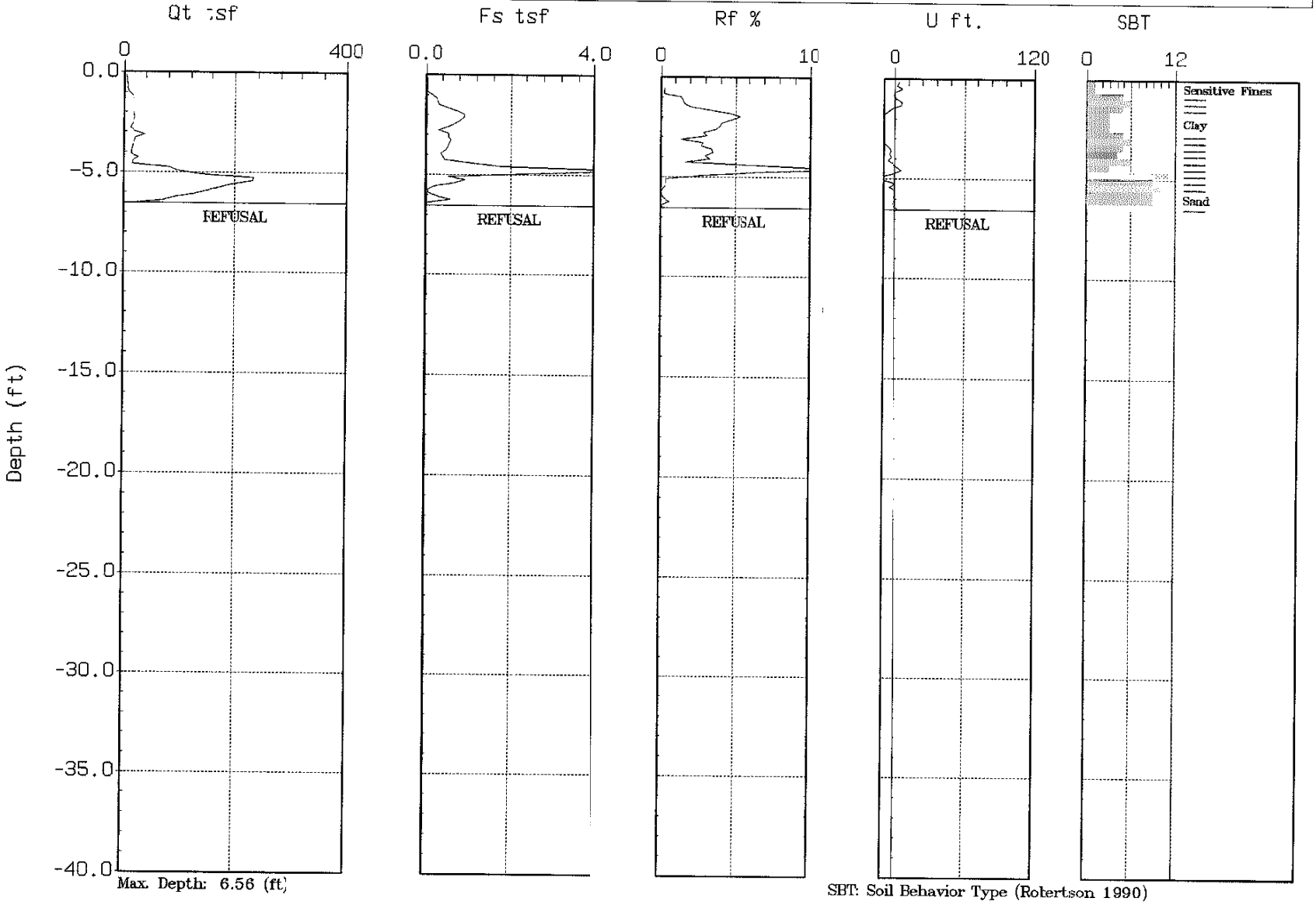
SBT: Soil Behavior Type (Robertson 1990)

CONETEC

CRA

Site: CPT-03
Location: GM Bedford AOI4

Cone: 20 TON A D106
Date: 03:11:03 11:42



Max. Depth: 6.56 (ft)

Depth Inc.: 0.164 (ft)

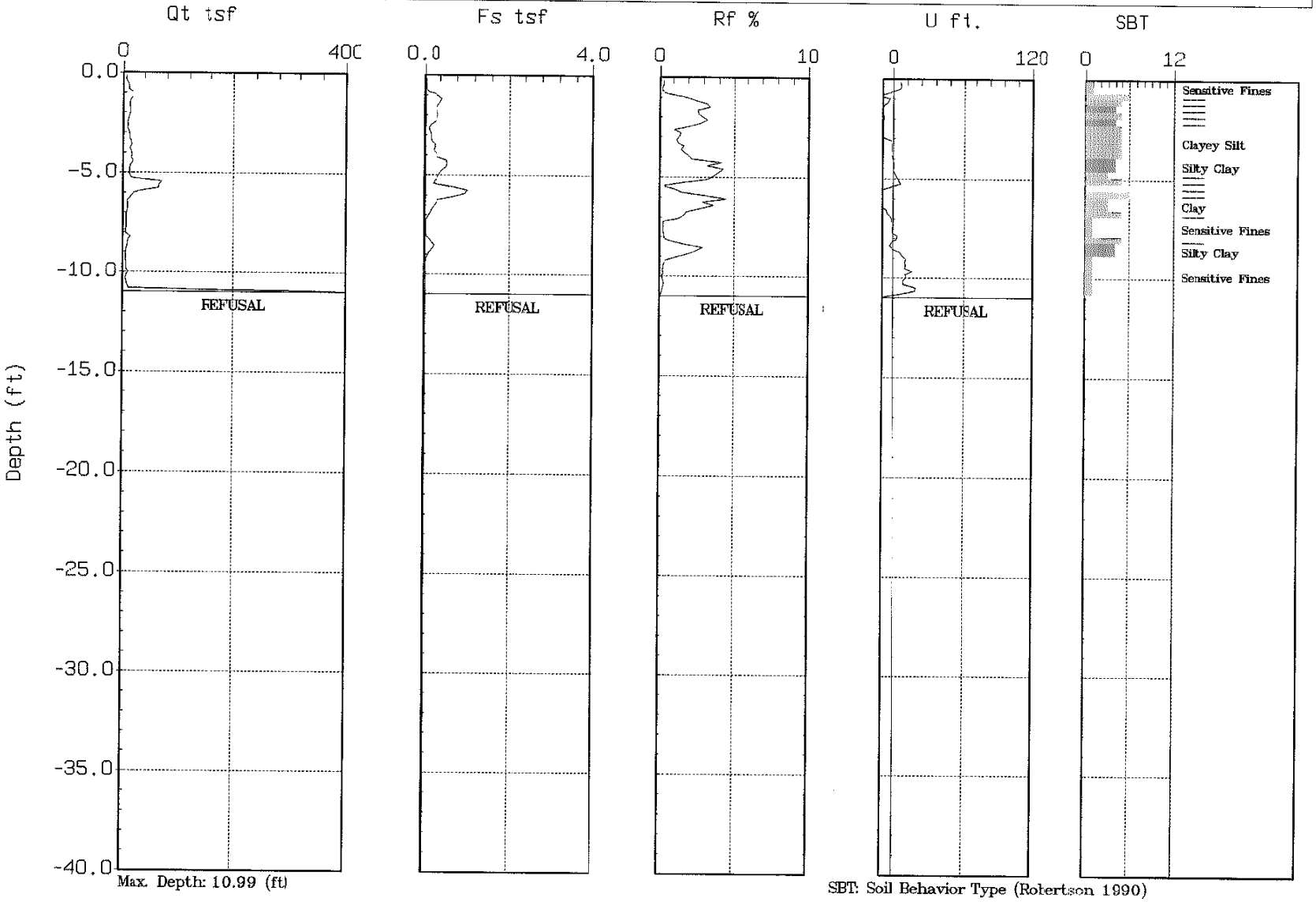
SBT: Soil Behavior Type (Robertson 1990)

CONETEC

CRA

Site: CPT-3A
Location: GM Bedford AOI4

Cone: 20 TON AD106
Date: 03:11:03 12:01



Max. Depth: 10.99 (ft)

Depth Inc.: 0.164 (ft)

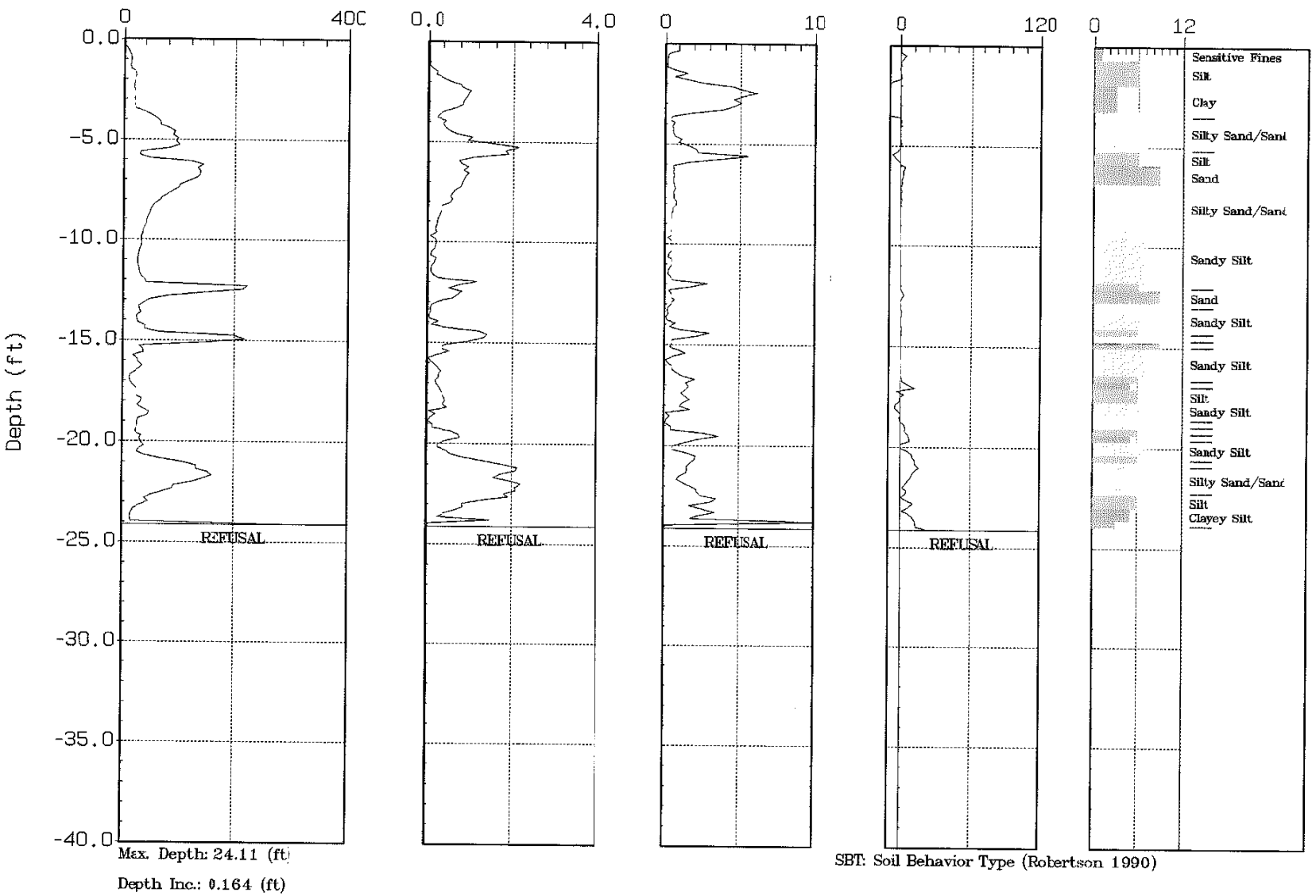
SBT: Soil Behavior Type (Robertson 1990)

CONETEC

CRA

Site: CPT-04
Location: GM Bedford AOI4

Cone: 20 TON AD106
Date: 03:11:03 12:30



Max. Depth: 24.11 (ft)

Depth Inc.: 0.164 (ft)

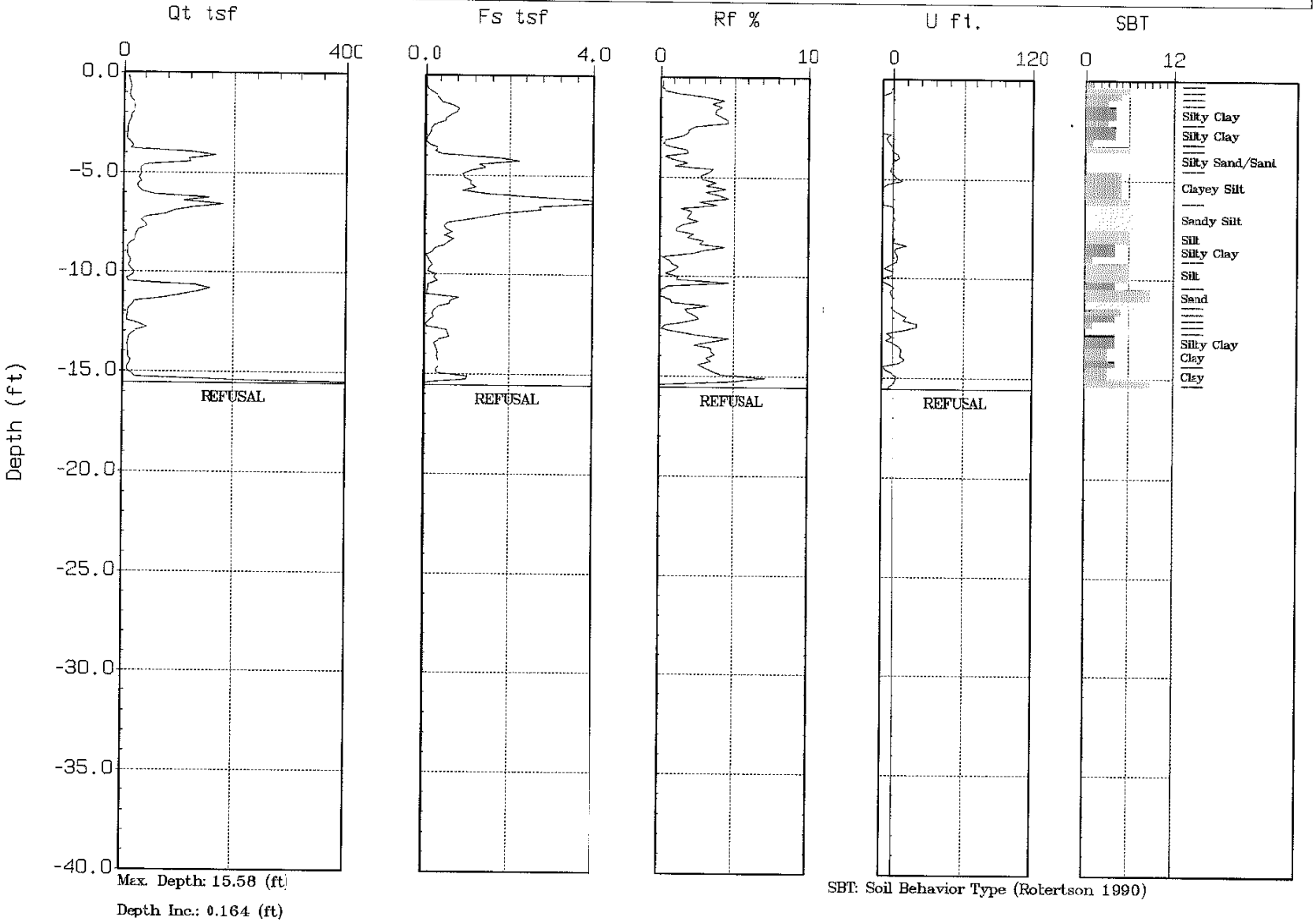
SBT: Soil Behavior Type (Robertson 1990)

CONETEC

CRA

Site: CPT-05
Location: GM Bedford AOI4

Cone: 20 TON AD106
Date: 03:11:03 13:06



Max. Depth: 15.58 (ft)

Depth Inc.: 0.164 (ft)

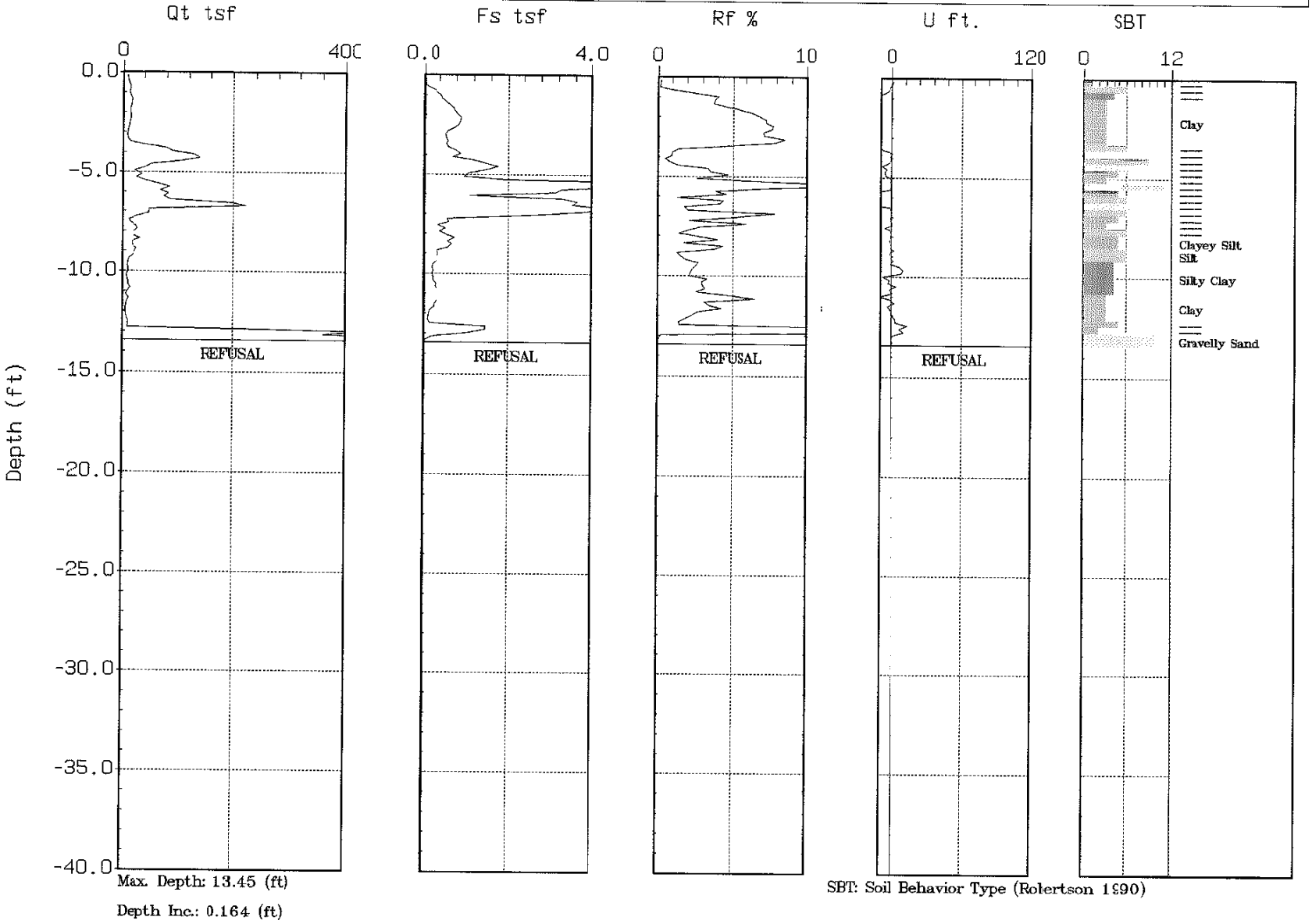
SBT: Soil Behavior Type (Robertson 1990)

CONETEC

CRA

Site: CPT-5A
Location: GM Bedford A014

Cone: 20 TON AD106
Date: 03:11:03 1325



Max. Depth: 13.45 (ft)

Depth Inc.: 0.164 (ft)

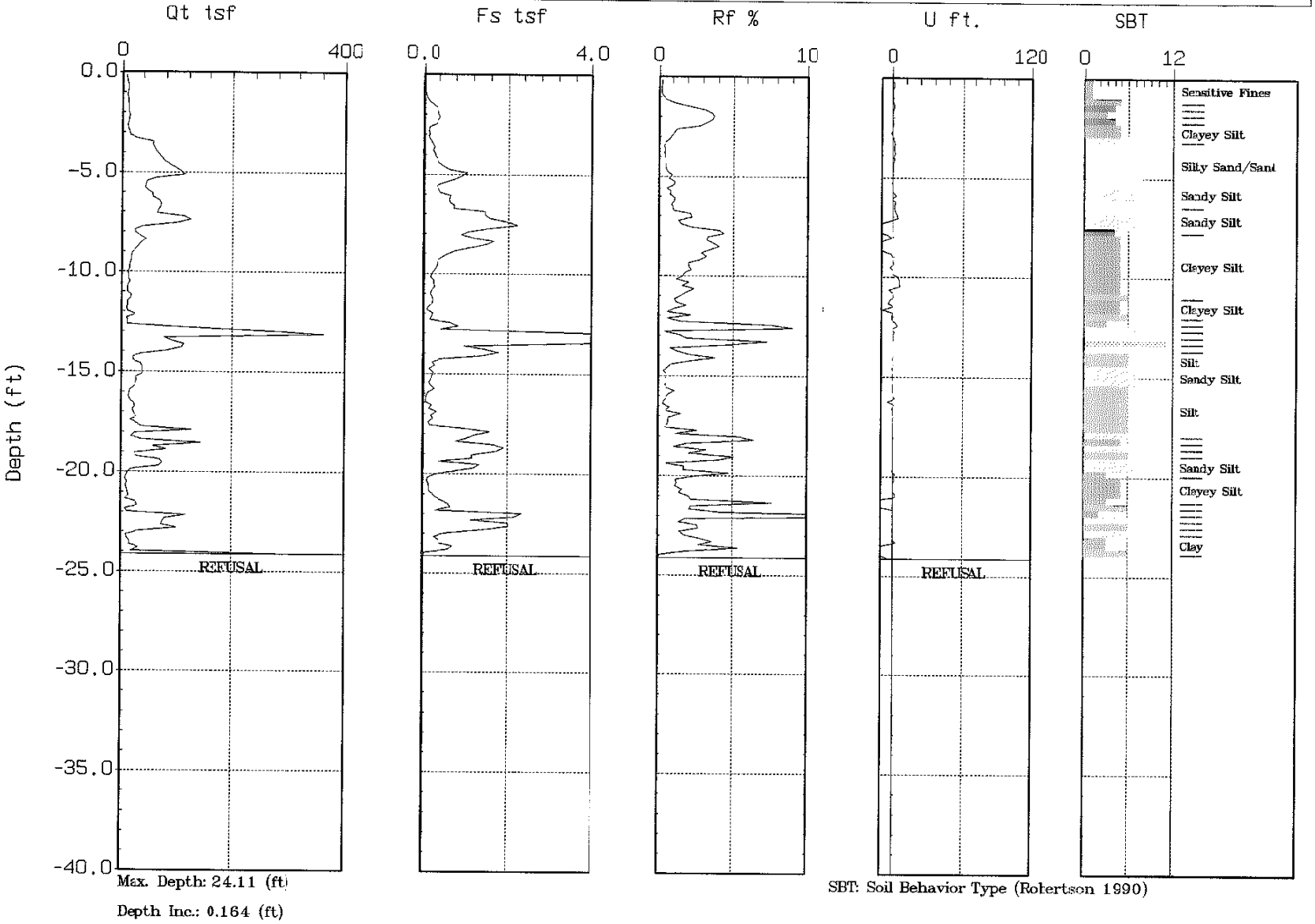
SBT: Soil Behavior Type (Robertson 1990)

CONETEC

CRA

Site: CPT-06
Location: GM Bedford AOI4

Cone: 20 TON AD106
Date: 03:11:03 13:48



Max. Depth: 24.11 (ft)

Depth Inc.: 0.164 (ft)

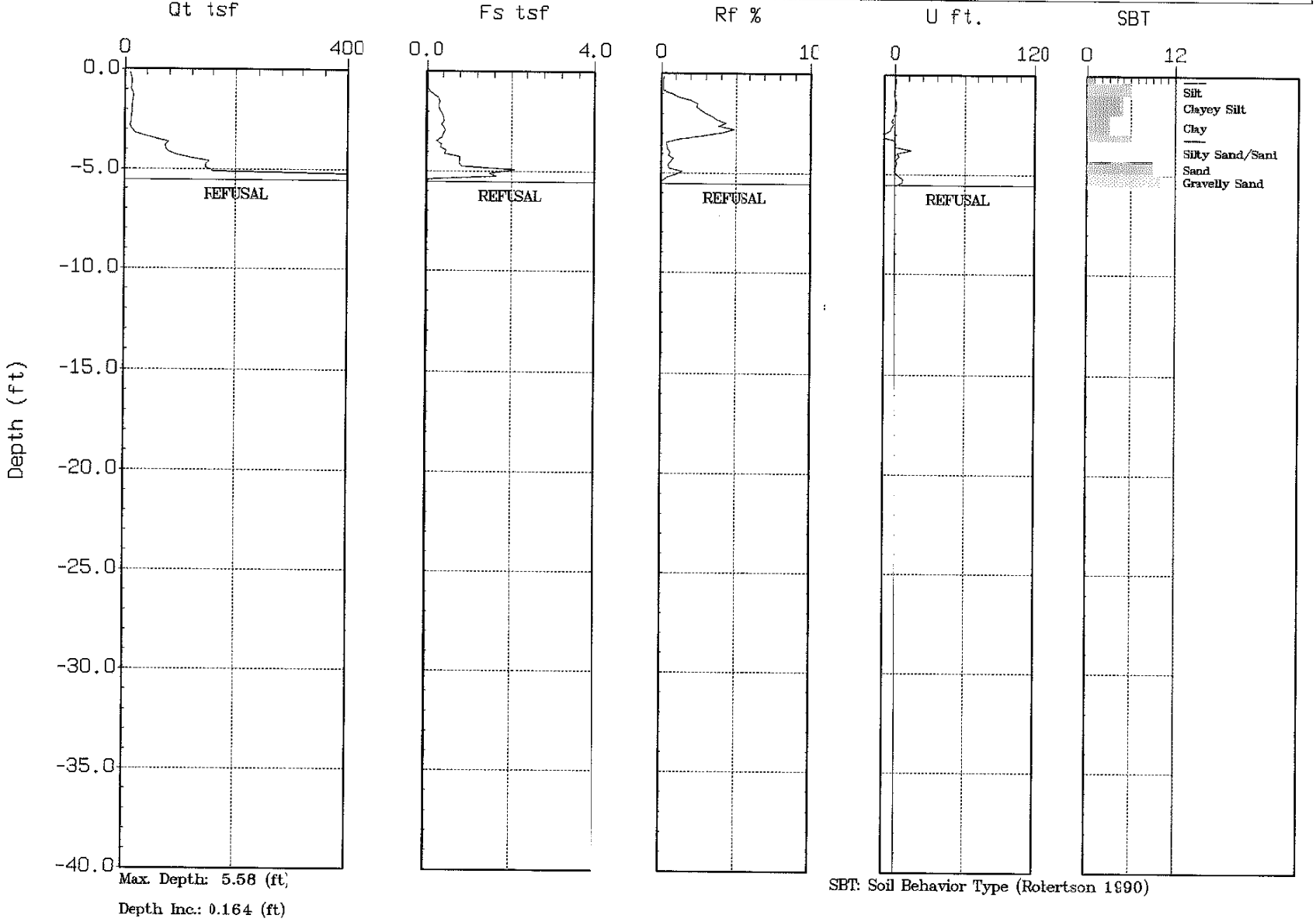
SBT: Soil Behavior Type (Robertson 1990)

CONETEC

CRA

Site: CPT-6A
Location: GM Bedford AOI4

Cone: 20 TDN AD106
Date: 03:11:03 14:20



Max. Depth: 5.58 (ft)
Depth Inc.: 0.164 (ft)

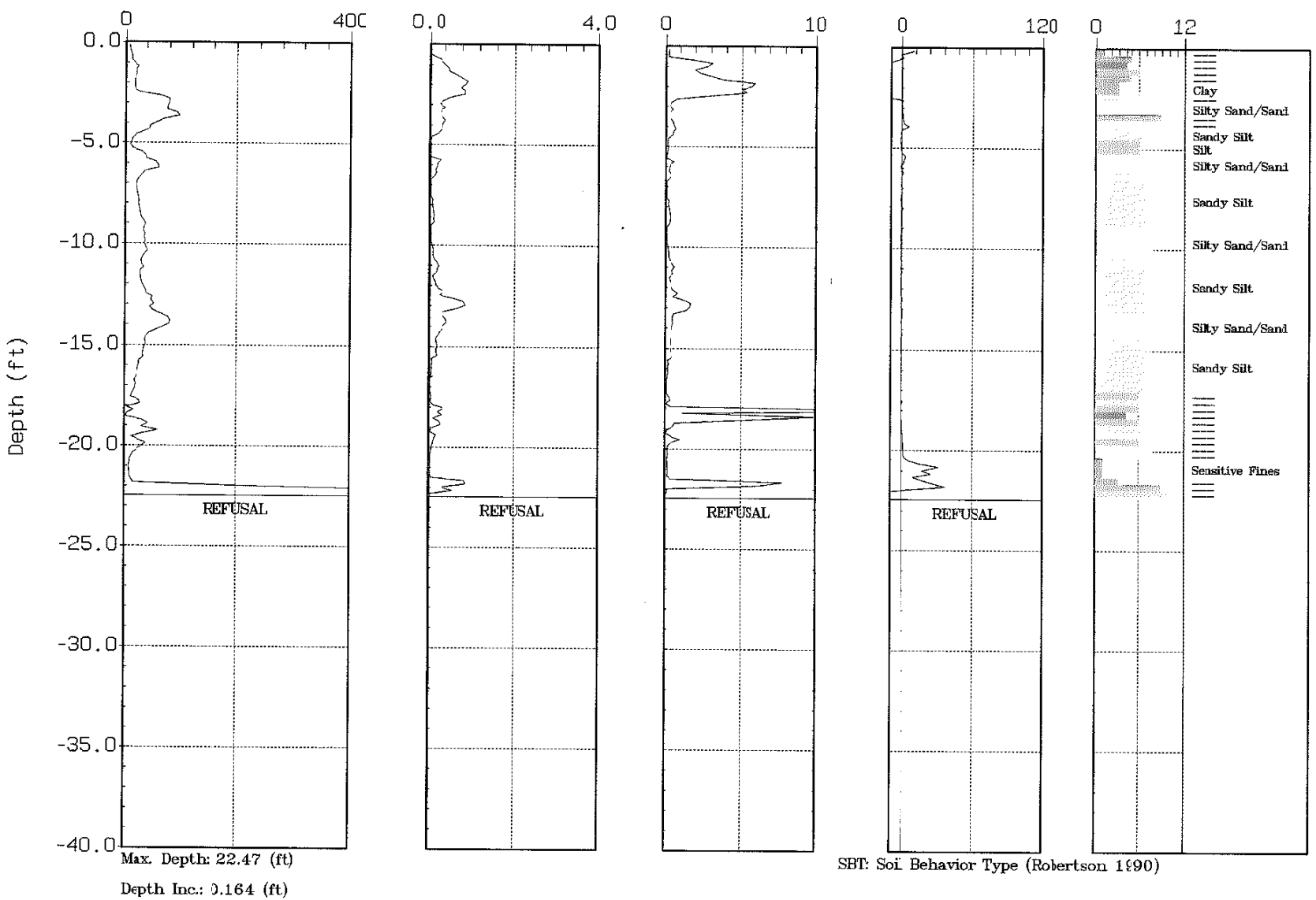
SBT: Soil Behavior Type (Robertson 1990)

CONETEC

CRA

Site: CPT-07
Location: GM Bedford AOI4

Cone: 20 TON AD106
Date: 03:11:03 14:41



Max. Depth: 22.47 (ft)

Depth Inc.: 0.164 (ft)

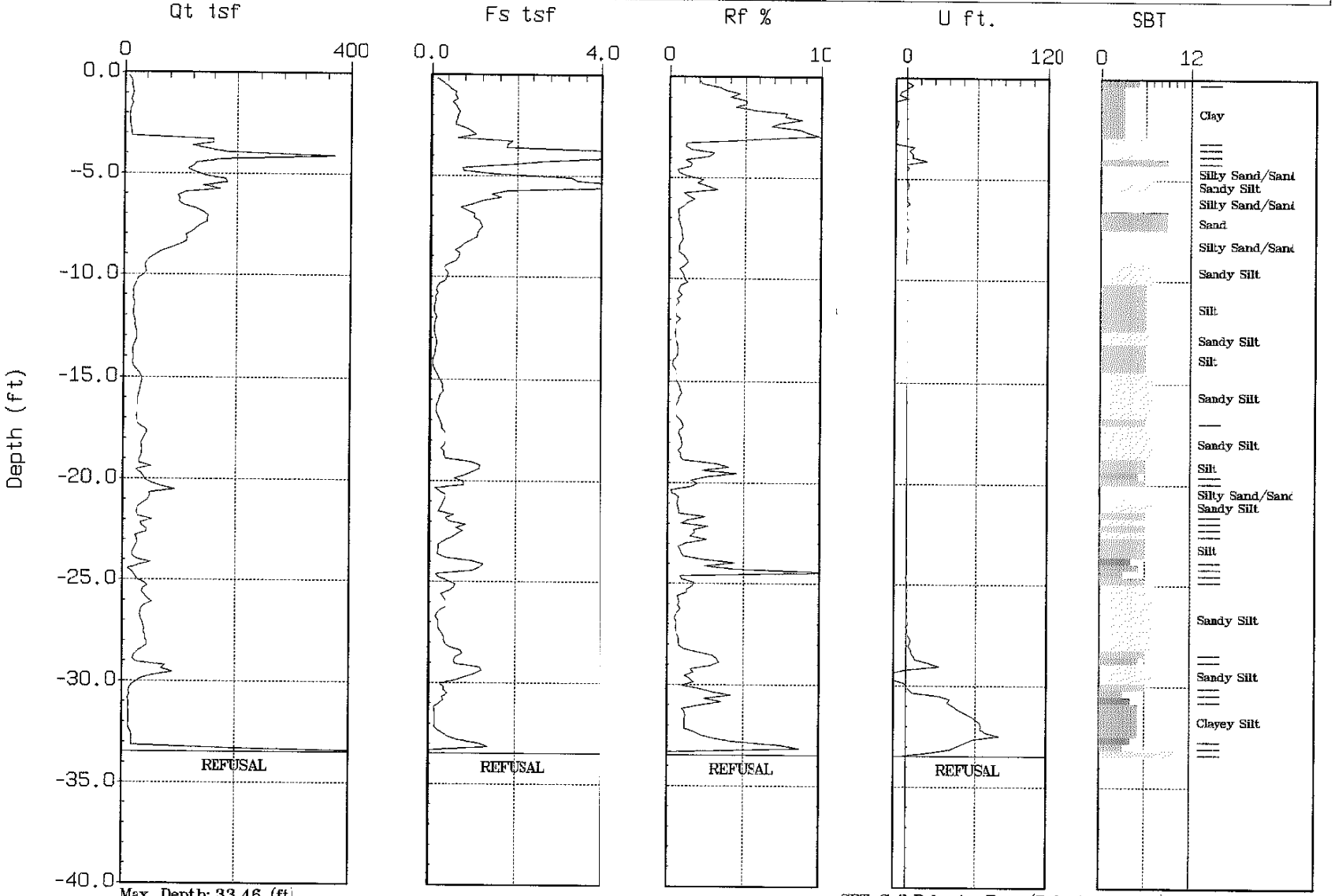
SBT: Soil Behavior Type (Robertson 1990)

CONETEC

CRA

Site: CPT-08
Location: GM Bedford A014

Cone: 20 TON AD106
Date: 03:11:03 15:27



Max. Depth: 33.46 (ft)

Depth Inc.: 0.164 (ft)

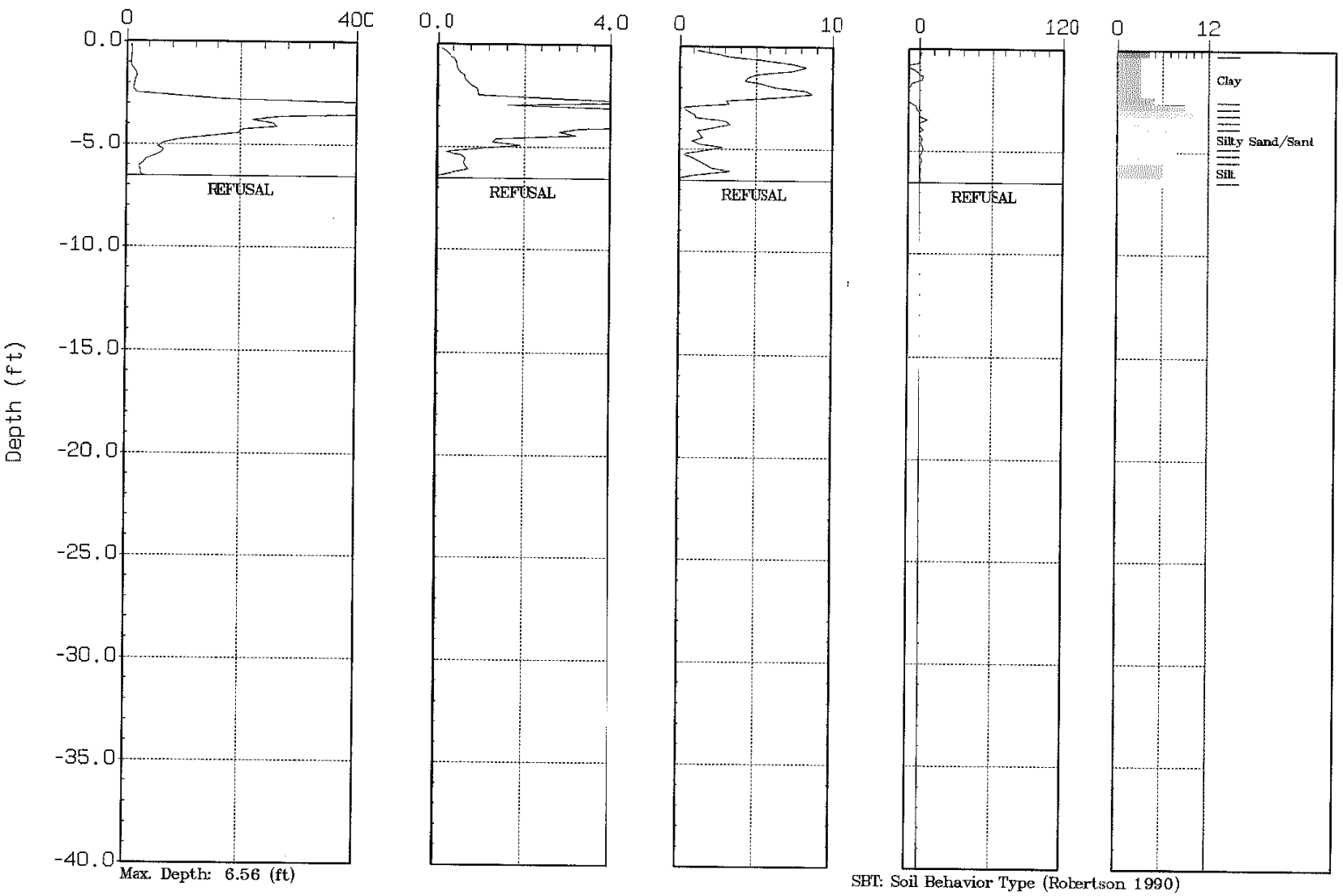
SBT: Soil Behavior Type (Robertson 1990)

CONETEC

CRA

Site: CPT-09
Location: GM Bedford AOI4

Cone: 20 TON AD106
Date: 03:11:03 16:29



Max. Depth: 6.56 (ft)

Depth Inc.: 0.164 (ft)

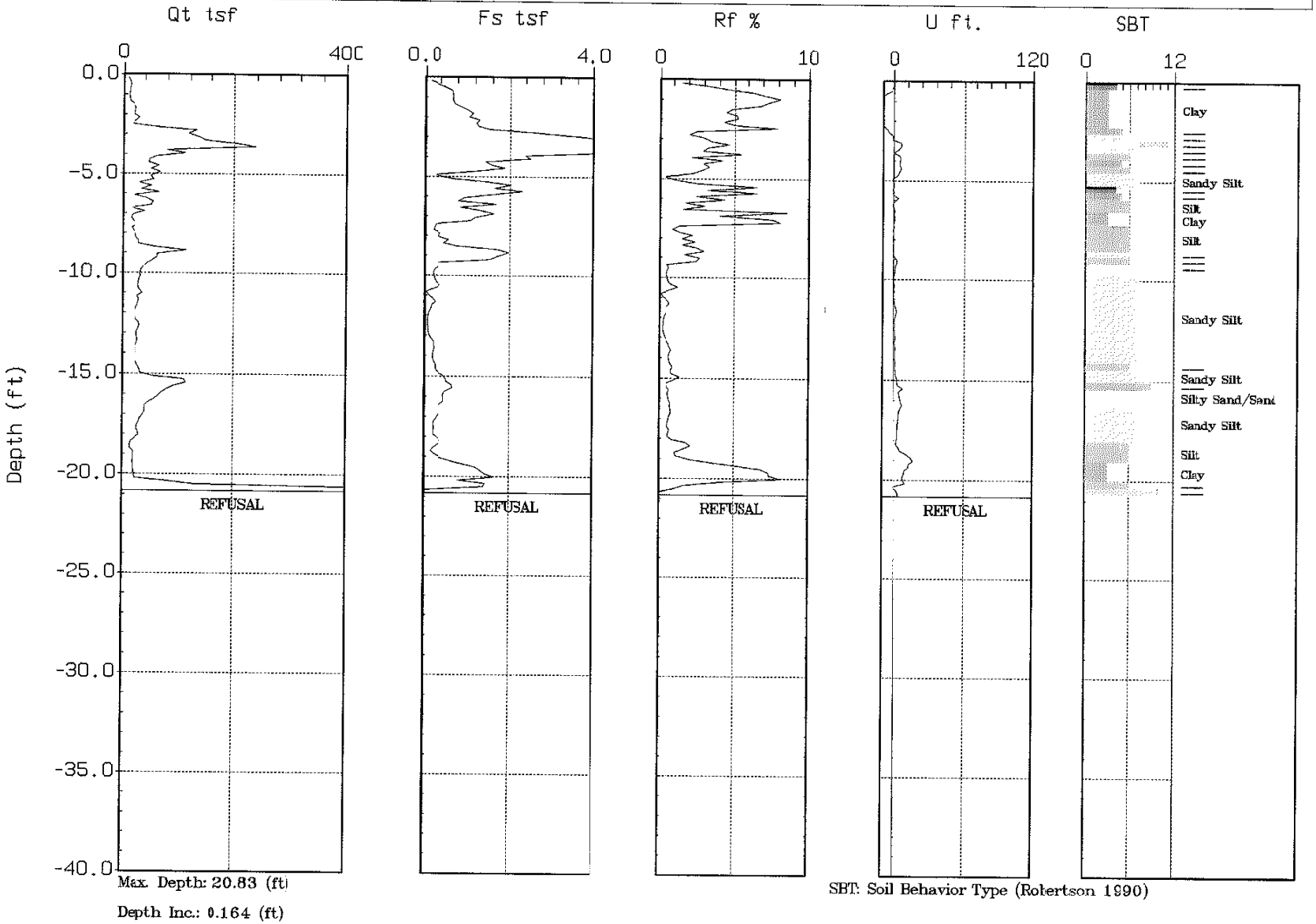
SBT: Soil Behavior Type (Robertson 1990)

CONETEC

CRA

Site: CPT-9A
Location: GM Bedford AOI4

Cone: 20 TON AD106
Date: 03:11:03 16:44



Max. Depth: 20.83 (ft)

Depth Inc.: 0.164 (ft)

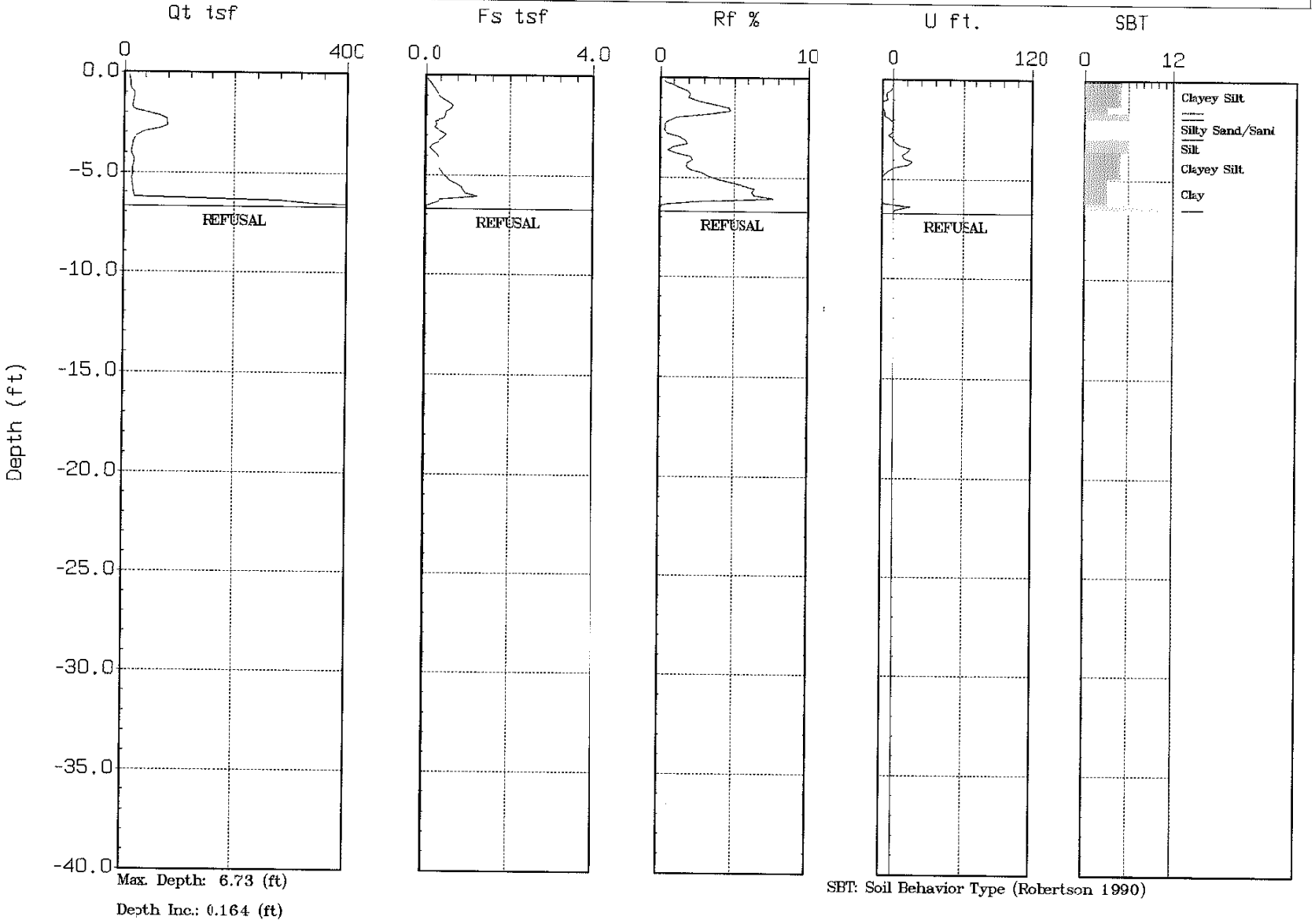
SBT: Soil Behavior Type (Robertson 1990)

CONETEC

CRA

Site: CPT-10
Location: GM Bedford AOI4

Cone: 20 TDN AD106
Date: 03:11:03 17:13



Max. Depth: 6.73 (ft)

Depth Inc.: 0.164 (ft)

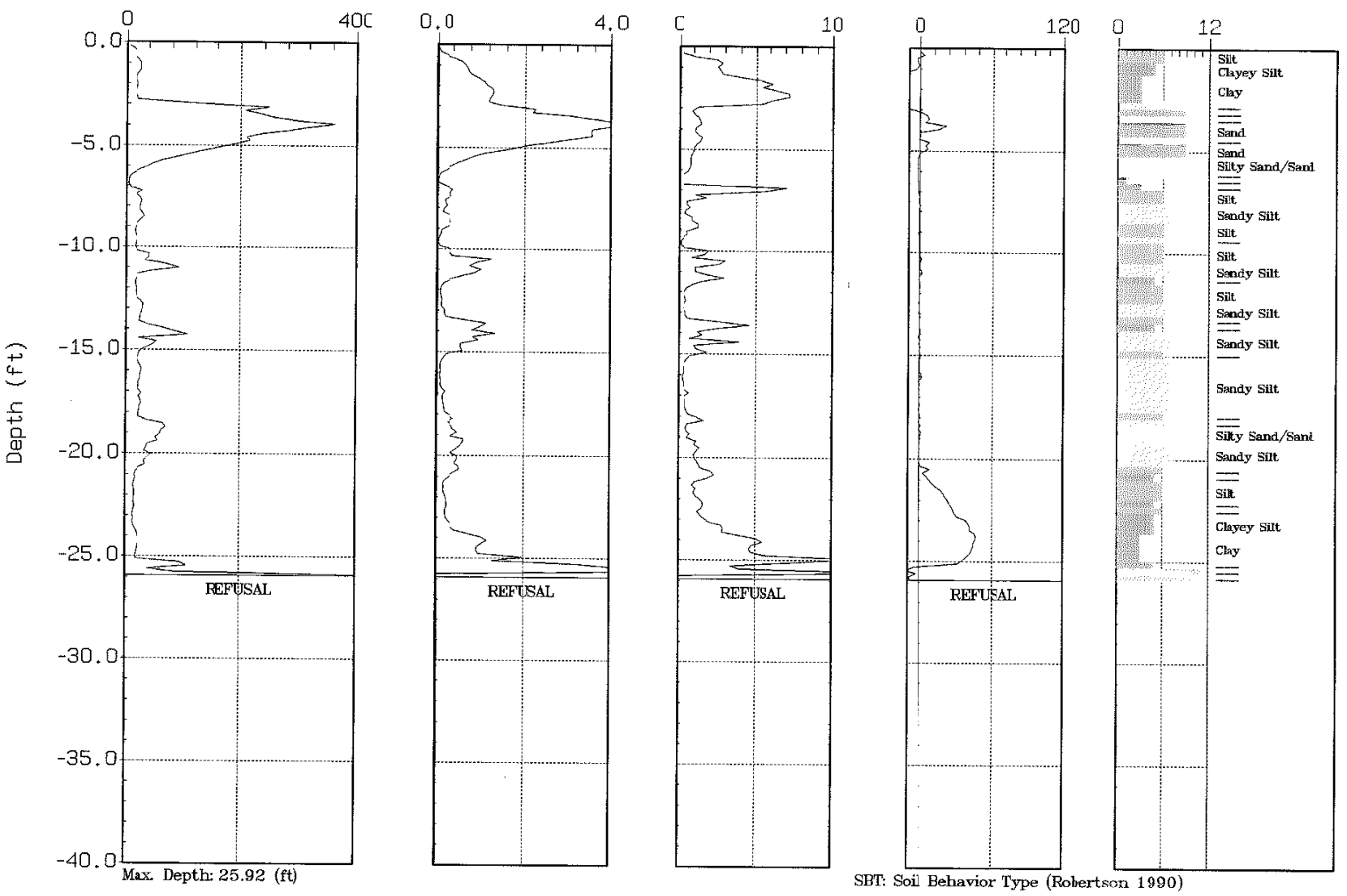
SBT: Soil Behavior Type (Robertson 1990)

CONETEC

CRA

Site: CPT-11
Location: GM Bedford AOI4

Cone: 20 TON AD106
Date: 03:11:03 17:38



Max. Depth: 25.92 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

ATTACHMENT C

SCHLEEDE HAMPTON ASSOCIATES INC
CONSULTING ENGINEERS

13968
BP.

April 5, 2003

CRA Construction Trailer
GM Drive and 4th Street
Bedford, IN 47421

Attn: Mr. Jeff Nichols

Re: Transmittal of Geotechnical Test Results
GM – Bedford, Indiana

We are transmitting the results of Geotechnical QC tests on soil and/or aggregate samples tested for use on the referenced project. A summary of the results is given below, with the supporting test data and report sheets appended.

Project Soil I.D.:	S-031203-MG-245 S-031203-MG-246 S-031203-MG-247
Test Results Appended:	Gradation Data Sheet, Test Method ASTM D 422, D 4318 Grain Size Curves
Findings:	Test Results transmitted herein. If you have any questions, please contact the undersigned at your convenience.

Respectfully submitted,
Schleede-Hampton Associates, Inc.

William West

William J. West, P.E.
Project Engineer

Attachments

2254 COLE STREET
BIRMINGHAM, MICHIGAN 48009
248-540-3044 • FAX: 248-540-3282

031203-MG-245 hydro

JOB NAME:	Laboratory Testing - GMPT Bedford
PROJECT NO.	62225
SAMPLE ID	S-031203-MG-245
DATE SAMPLED:	3/12/03

ASTM D-422 / D1140

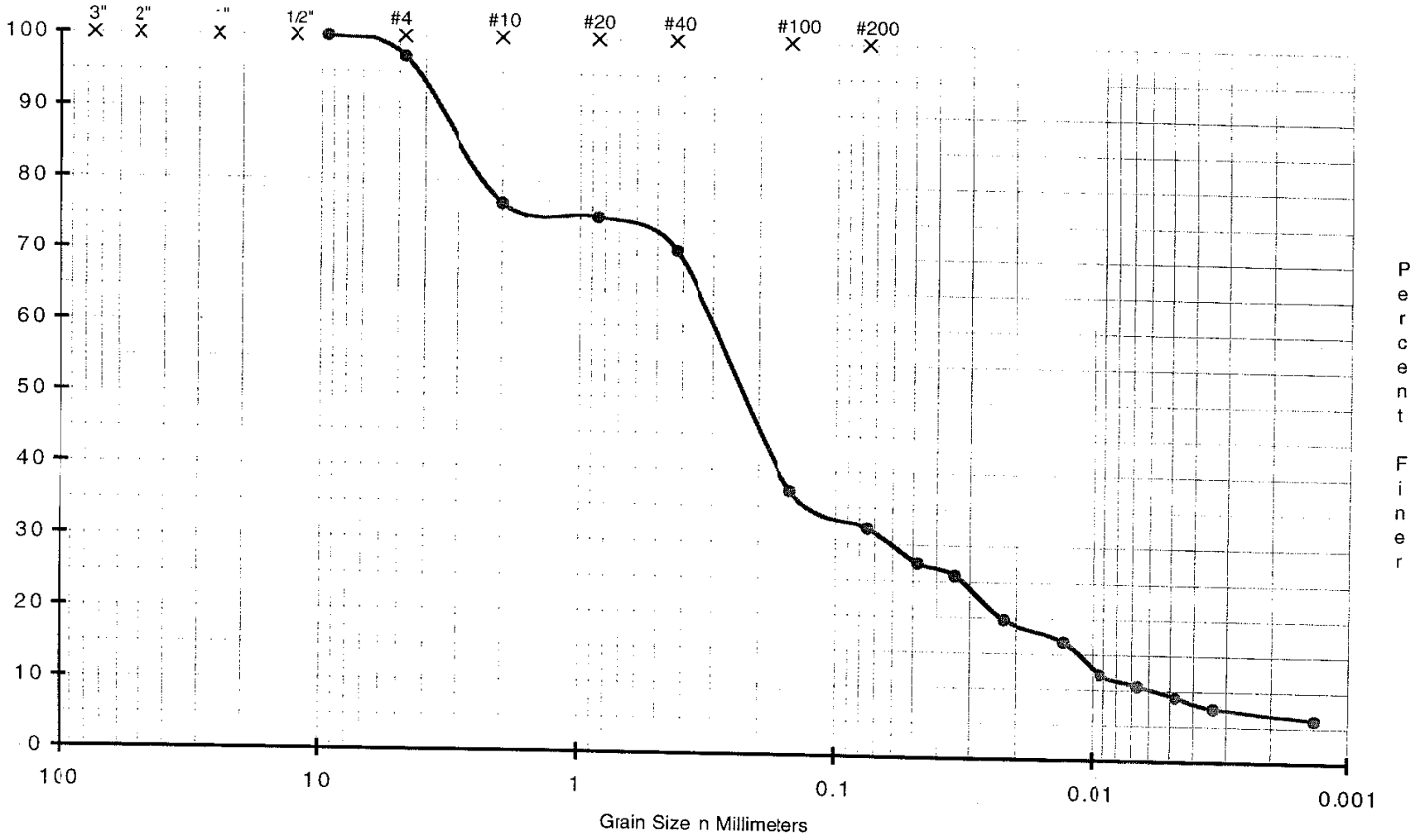
					TOTAL	DIAMETER
	TOTAL SAMPLE WT.=	148.5 (gms.)				
+10 SIEVE PORTION	SIEVE SIZE	CUM WT. RET	PART % RET	PART % PASS	**PASSING**	**(mm)**
	1	0.0	0.0%	100.0%	**100.0%**	**25.000**
	3/4 IN	0.0	0.0%	100.0%	**100.0%**	**19.000**
	1/2 IN	0.0	0.0%	100.0%	**100.0%**	**12.500**
	3/8 IN	0.0	0.0%	100.0%	**100.0%**	**9.500**
	#4	4.2	2.8%	97.2%	**97.2%**	**4.750**
	#10	34.3	23.1%	76.9%	**76.9%**	**2.000**
	WT. OF SAMPLE AT START OF HYDRO=	50.0 (gms.)				
-#10 SIEVE PORTION	#20	1.13	2.3%	97.7%	**75.2%**	**0.850**
	#40	4.05	8.1%	91.9%	**70.7%**	**0.420**
	#100	25.82	51.6%	48.4%	**37.2%**	**0.150**
	#200	29.09	58.2%	41.8%	**32.2%**	**0.075**
HYDROMETER	TEMPERATURE(°C)=	18.0				
PORTION	TEMP BATH BULB READ=	7.0				
	SPECIFIC GRAVITY Gs=	2.70 (assumed)				
	ELAPSED TIME (MIN)	UNCORR	CORRECTED	% PASS		
	1	25.0	18.0	35.6%	**27.4%**	**0.0481**
	2	24.0	17.0	33.7%	**25.9%**	**0.0343**
	5	20.0	13.0	25.7%	**19.8%**	**0.0222**
	15	18.0	11.0	21.8%	**16.7%**	**0.0130**
	30	15.0	8.0	15.8%	**12.2%**	**0.0093**
	60	14.0	7.0	13.9%	**10.7%**	**0.0067**
	120	13.0	6.0	11.9%	**9.1%**	**0.0047**
	240	12.0	5.0	9.9%	**7.6%**	**0.0034**
	1450	11.0	4.0	7.9%	**6.1%**	**0.0014**

soil classification: **SAND, Trace Gravel, Some Silt, SM**

GRAVEL=	**3 %**
SAND=	**65 %**
SILT=	**25 %**
CLAY=	**7 %**

REPORT OF GRAIN SIZE ANALYSIS **SCHLEEDE-HAMPTON ASSOCIATES,INC.**

U.S. Standard Sieve Size



SAND, Trace Gravel, Some Silt, SM

S-031203-MG-245

031203-MG-246 hydro

JOB NAME:	Laboratory Testing - GMPT Bedford
PROJECT NO.	62225
SAMPLE ID	S-031203-MG-246
DATE SAMPLED:	3/12/03

ASTM D-422 / D1140

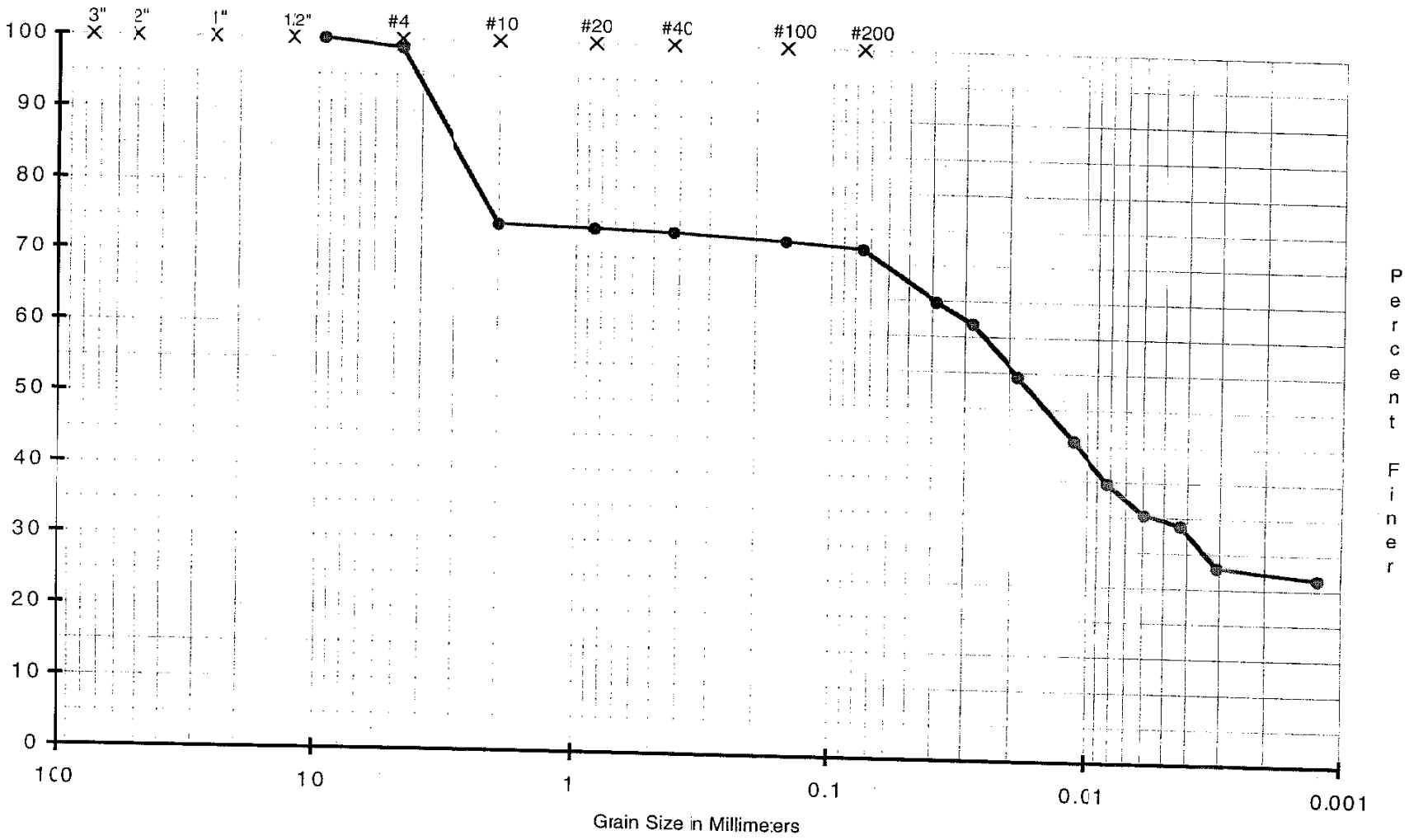
					TOTAL PASSING	DIAMETER (mm)
	TOTAL SAMPLE WT.=	152.4 (gms.)				
+10 SIEVE PORTION	SIEVE SIZE	CUM WT. RET	PART % RET	PART % PASS		
	1	0.0	0.0%	100.0%	**100.0%**	**25.000**
	3/4 IN	0.0	0.0%	100.0%	**100.0%**	**19.000**
	1/2 IN	0.0	0.0%	100.0%	**100.0%**	**12.500**
	3/8 IN	0.0	0.0%	100.0%	**100.0%**	**9.500**
	#4	1.9	1.2%	98.8%	**98.8%**	**4.750**
	#10	39.1	25.7%	74.3%	**74.3%**	**2.000**
	WT. OF SAMPLE AT START OF HYDRO=	50.0 (gms.)				
-#10 SIEVE PORTION	#20	0.23	0.5%	99.5%	**74.0%**	**0.850**
	#40	0.45	0.9%	99.1%	**73.7%**	**0.420**
	#100	1.08	2.2%	97.8%	**72.7%**	**0.150**
	#200	1.60	3.2%	96.8%	**72.0%**	**0.075**
HYDROMETER	TEMPERATURE(°C)=	18.0				
PORTION	TEMP BATH BULB READ=	7.0				
	SPECIFIC GRAVITY Gs=	2.70 (assumed)				
	ELAPSED TIME (MIN)	UNCORR	CORRECTED	% PASS		
	1	51.0	44.0	87.1%	**64.8%**	**0.0387**
	2	49.0	42.0	83.2%	**61.8%**	**0.0281**
	5	44.0	37.0	73.3%	**54.5%**	**0.0186**
	15	38.0	31.0	61.4%	**45.6%**	**0.0113**
	30	34.0	27.0	53.5%	**39.7%**	**0.0082**
	60	31.0	24.0	47.5%	**35.3%**	**0.0060**
	120	30.0	23.0	45.5%	**33.9%**	**0.0042**
	240	26.0	19.0	37.6%	**28.0%**	**0.0031**
	1450	25.0	18.0	35.6%	**26.5%**	**0.0013**

soil classification: **Silty CLAY, Some Sand, Trace Gravel, CL**

GRAVEL=	**1 %**
SAND=	**27 %**
SILT=	**45 %**
CLAY=	**27 %**

REPORT OF GRAIN SIZE ANALYSIS **SCHLEEDE-HAMPTON ASSOCIATES,INC.**

U.S. Standard Sieve Size



Silty CLAY, Some Sand, Trace Gravel, CL

S-031203-MG-246

031203-MG-247 hydro

JOB NAME:	Laboratory Testing - GMPT Bedford
PROJECT NO.	62225
SAMPLE ID	S-031203-MG-247
DATE SAMPLED:	3/12/03

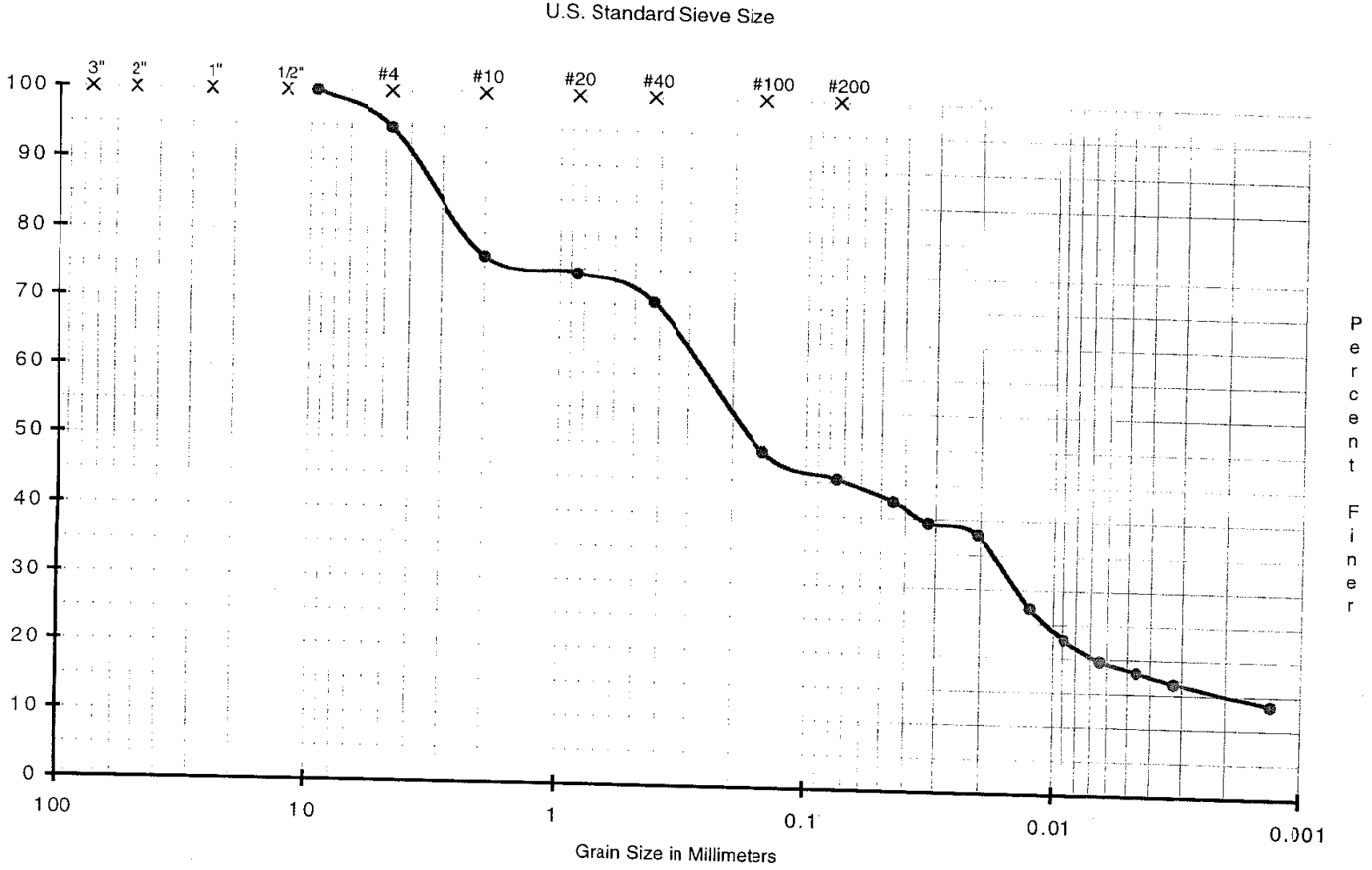
ASTM D-422 / D1140

					TOTAL	DIAMETER
	TOTAL SAMPLE WT.=	183.1 (gms.)				
+10 SIEVE PORTION	SIEVE SIZE	CUM WT. RET	PART % RET	PART % PASS	**PASSING**	**(mm)**
	1	0.0	0.0%	100.0%	**100.0%**	**25.000**
	3/4 IN	0.0	0.0%	100.0%	**100.0%**	**19.000**
	1/2 IN	0.0	0.0%	100.0%	**100.0%**	**12.500**
	3/8 IN	0.0	0.0%	100.0%	**100.0%**	**9.500**
	#4	9.5	5.2%	94.8%	**94.8%**	**4.750**
	#10	42.9	23.4%	76.6%	**76.6%**	**2.000**
	WT. OF SAMPLE AT START OF HYDRO=	50.0 (gms.)				
-#10 SIEVE PORTION	#20	1.46	2.9%	97.1%	**74.3%**	**0.850**
	#40	3.95	7.9%	92.1%	**70.5%**	**0.420**
	#100	17.95	35.9%	64.1%	**49.1%**	**0.150**
	#200	20.29	40.6%	59.4%	**45.5%**	**0.075**
HYDROMETER	TEMPERATURE(°C)=	18.0				
PORTION	TEMP BATH BULB READ=	7.0				
	SPECIFIC GRAVITY Gs=	2.70 (assumed)				
	ELAPSED TIME (MIN)	UNCORR	CORRECTED	% PASS		
	1	35.0	28.0	55.4%	**42.5%**	**0.0449**
	2	33.0	26.0	51.5%	**39.4%**	**0.0322**
	5	32.0	25.0	49.5%	**37.9%**	**0.0205**
	15	25.0	18.0	35.6%	**27.3%**	**0.0124**
	30	22.0	15.0	29.7%	**22.7%**	**0.0090**
	60	20.0	13.0	25.7%	**19.7%**	**0.0064**
	120	19.0	12.0	23.8%	**18.2%**	**0.0046**
	240	18.0	11.0	21.8%	**16.7%**	**0.0032**
	1450	16.0	9.0	17.8%	**13.6%**	**0.0013**

soil classification: **Clayey SAND, Trace Gravel, SC**

GRAVEL=	**5 %**
SAND=	**49 %**
SILT=	**31 %**
CLAY=	**15 %**

REPORT OF GRAIN SIZE ANALYSIS **SCHLEEDE-HAMPTON ASSOCIATES,INC.**



Clayey SAND, Trace Gravel, SC

S-031203-MG-247